Forest Carbon Partnership Facility (FCPF)

Carbon Fund

Emission Reductions Program Document (ER-PD)

Zambézia Integrated Landscape Management Program (ZILMP)

Republic of Mozambique

Date of submission: July 15th, 2017

Advanced Draft ER-PD

WORLD BAND DISCLAIMER

The World Bank does not guarantee the accuracy of the data included in the Emissions Reductions Program Document (ER-PD) submitted by REDD+ Country Participant and accepts no responsibility for any consequences of their use. The boundaries, colors, denominations, and other information shown on any map in ER-PD does not imply on the part of the World Bank any legal judgment on the legal status of the territory or the endorsement or acceptance of such boundaries.

# TABLE OF CONTENT

TABLE OF CONTENT ..................................................................................................................... 2

LIST OF TABLES .............................................................................................................................. 10

LISTS OF FIGURES AND MAPS ..................................................................................................... 13

LIST OF BOXES .............................................................................................................................. 15

ACRONYMS..................................................................................................................................... 16

EXECUTIVE SUMMARY .................................................................................................................. 19

1. ENTITIES RESPONSIBLE FOR THE MANAGEMENT AND IMPLEMENTATION OF THE PROPOSED ER PROGRAM ........................................................................................................ 22

1.1 ER Program Entity that is expected to sign the Emission Reduction Payment Agreement (ERPA) with the FCPF Carbon Fund ........................................................................................................ 22

1.2 Organization(s) responsible for managing the proposed ER Program ........................................... 23

1.3 Partner agencies and organizations involved in the ER Program .................................................. 24

2. STRATEGIC CONTEXT AND RATIONALE FOR THE ER PROGRAM ...................................... 27

2.1 Current status of the Readiness Package and summary of additional achievements of readiness activities in the country ........................................................................................................ 27

2.2 Ambition and strategic rationale for the ER Program ..................................................................... 29

Ambition and strategic rationale ........................................................................................................ 29

Consistency with the National REDD+ Strategy .............................................................................. 31

Consistency with national policies and development strategies ......................................................... 32

2.3 Political commitment .................................................................................................................. 33

Inter-relation between the political commitment to REDD+ and to the ER Program ......................... 33

Highest level of political commitment to the ER Program .................................................................. 36

Cross sectorial commitment ................................................................................................................. 39

3. ER PROGRAM LOCATION .......................................................................................................... 41

3.1 Accounting Area for the ER Program .......................................................................................... 41

3.2 Environmental and social conditions in the Accounting Area of the ER Program ....................... 43

Environmental conditions in the Accounting Area of the ER Program .............................................. 43

Existing vegetation type .................................................................................................................. 43

Climatic conditions ......................................................................................................................... 46

Soil characteristics .......................................................................................................................... 47

Rare and endangered species and habitat .......................................................................................... 47

Social conditions in the Accounting Area of the ER Program ........................................................... 49
4. DESCRIPTION OF ACTIONS AND INTERVENTIONS TO BE IMPLEMENTED UNDER THE PROPOSED ER PROGRAM

4.1 Analysis of drivers and underlying causes of deforestation and forest degradation and existing activities that can lead to conservation or enhancement of forest carbon stocks

Direct drivers of deforestation and forest degradation in the ER Program area

- Small-scale agriculture
- Charcoal production
- Forestry
- Other potential drivers

Indirect drivers of deforestation and forest degradation

Existing policies that can lead to conservation or the enhancement of carbon stocks

National programs
Internationally funded programs

4.2 Assessment of the major barriers to REDD+

Political, institutional and financial barriers to REDD+

- Legal framework, law implementation and institutional challenges
- Financial barriers
- Lack of relevant data and information sharing
- Poor accuracy of data on forest
- Poor information sharing with agents of deforestation
- Weakness in land zoning and tenure rights
- Barriers linked to the agents of deforestation

4.3 Description and justification of the planned actions and interventions under the ER Program that will lead to emission reductions and/or removals

ER Program comprehensive approach: integrated landscape management program

Overview of the prioritization of the ER Program activities

Planned actions and interventions

4.4 Assessment of land and resource tenure in the Accounting Area

Legal framework of land tenure in Mozambique and relevance for the ER Program

Range of land and resources tenure rights in the ER Program area

The extent and location of rights acquired by occupation or by formal request in the ER Program Accounting Area

Legal status of rights and potential ambiguities or gaps

Disputes related to contested claims or rights and resolution mechanisms
4.5 Analysis of law, statutes and other regulatory frameworks

Relevant local, regional and national laws, statutes and regulatory frameworks

International conventions and agreements

Identification of potential gaps

4.6 Expected lifetime of the proposed ER Program

5. STAKEHOLDER CONSULTATION AND PARTICIPATION

5.1 Description of stakeholder consultation process

Consultation process in the design of the ER Program

Platforms to enhance the full, effective and ongoing stakeholders’ participation

Dissemination of information and consultation on ER Program and REDD+

5.2 Summary of the comments received and how these views have been taken into account in the design and implementation of the ER Program

6. OPERATIONAL AND FINANCING PLANNING

6.1 Institutional and implementation arrangements

Recent evolution on REDD+ institutional and implementation arrangements

Oversight of ER Program implementation and link with national REDD+ framework

Development and operation of the Reference Level and Forest Monitoring System and institutional arrangement related to MRV

6.2 ER Program budget

7. CARBON POOLS, SOURCES AND SINKS

7.1 Description of sources and sinks selected

7.2 Description of carbon pools and greenhouse gases selected

8. REFERENCE LEVEL

8.1 Reference Period

8.2 Forest definition used in the construction of the Reference Level

8.3 Average annual historical emissions over the Reference Period

Activity used for calculating the average annual historical emissions over the Reference Period

Description of method used for producing emission factors

Calculation of the average annual historical emissions over the Reference Period
8.4 Upward or downward adjustments to the average annual historical emissions over the Reference Period ................................................................. 180

8.5 Estimated Reference Level .............................................................................. 180

As deforestation is the only source of emissions accounted for in the ER Program and as no adjustment is demanded, the REL correspond to the mean annual emissions as presented in Table 48, which corresponds to the multiplication of the mean deforestation rate in ha/yr and emissions factors per forest stratum considered. ........................................................................................................ 180

ER Program Reference Level .................................................................................. 181

8.6 Relation between the Reference Level, the development of a FREL/FRL for the UNFCCC and the country’s existing or emerging greenhouse gas inventory ....................................................................... 181

9. APPROACH FOR MEASUREMENT, MONITORING AND REPORTING ............................ 182

9.1 Measurement, monitoring and reporting approach for estimating emissions occurring under the ER Program within the Accounting Area ....................................... 182

Monitoring of activity data ......................................................................................... 182

Human resources and materials .............................................................................. 185
List of monitored parameters: .................................................................................. 185

Monitoring of emission factors .................................................................................. 187

Monitoring of DOM .................................................................................................. 190
Monitoring of SOC .................................................................................................. 190
Human resources and material ............................................................................... 191
List of monitored parameters: .................................................................................. 191

Community participation in monitoring ..................................................................... 193

PMRV at national level (From R-Package) ............................................................... 193
PMRV at jurisdictional level ..................................................................................... 194

9.2 Organizational structure for measurement, monitoring and reporting ............ 194

9.3 Relation and consistency with the National Forest Monitoring System ............ 196

10. DISPLACEMENT .......................................................................................... 197

10.1 Identification of risk of displacement .......................................................... 197

10.2 ER Program design features to prevent and minimize potential displacement ....... 202

11. REVERSAL .................................................................................................. 202

11.1 Identification of risk of reversals and ER Program ........................................ 205

11.2 ER Program Design features to prevent and mitigate Reversals .................... 215

11.3 Reversal management mechanism ................................................................. 215

Choice of reversal management mechanism ......................................................... 215

Number of ERs to be deposited in the ER Program CF Buffer ................................. 215

11.4 Monitoring and reporting of major emissions that could lead to Reversals of ERs217
12. UNCERTAINTIES OF THE CALCULATION OF EMISSION REDUCTIONS ........................................ 218

12.1 Identification and assessment of sources of uncertainty ........................................ 218

   Sources of uncertainties of activity data ........................................................................ 218
   Identification of sources of uncertainties ........................................................................ 218
   Assessment and contribution of sources of uncertainties .............................................. 219
   Steps to minimize uncertainties ..................................................................................... 220

   Sources of uncertainties of emission factors ................................................................. 220
   Identification of sources of uncertainties ........................................................................ 220
   Steps to minimize uncertainties ..................................................................................... 221
   Assessment and contribution of sources of uncertainties .............................................. 222

12.2 Quantification of uncertainty in Reference Level setting ........................................ 222

   Calculation of uncertainties of activity data .................................................................. 223
   Calculation of uncertainties of emission factors ............................................................ 226
   Calculation of uncertainties related to REL ....................................................................... 227
   Calculation of uncertainties related to Emission Reductions ........................................... 227

13. CALCULATION OF EMISSION REDUCTIONS ...................................................................... 229

13.1 Ex-ante estimation of the Emission Reductions ...................................................... 229

14. SAFEGUARDS ................................................................................................................... 230

14.1 Description of how the ER Program meets the World Bank social and environmental safeguards and promotes and supports the safeguards included in UNFCCC guidance related to REDD+ .............................................................................................................. 230

   National framework for environmental and social management .................................. 230

   Safeguard plans that have been developed for the ER Program ...................................... 232

   Compliance with the WB safeguards and promotion of the safeguards included in UNFCCC guidance related to REDD+ .............................................................................................................. 233

   Social and environmental issues and risk mitigation measures ...................................... 234

   Implementation of safeguard plans in the course of the ER Program ............................. 238

   Principles and rules for the implementation of safeguard policies .................................. 238

   Arrangements for the implementation and monitoring of safeguard plans ................. 239

14.2 Description of arrangements to provide information on safeguards during ER Program implementation .............................................................. 241

   The Safeguard Information System (SIS) ...................................................................... 241

   Functioning and principles ............................................................................................. 241

   Methodology .................................................................................................................... 241

   List of SIS indicators ........................................................................................................ 242

14.3 Description of Feedback and Grievance Redress Mechanism (FGRM) in place and possible actions to improve it ................................................................. 245
Assessment of existing FGRM (including customary FGRM) .......................................................245

FGMR for REDD+ and ER Program based on updated existing mechanisms .............................. 245
Planned actions to improve FGRM for ER Program .....................................................................245
Preventive measures to avoid conflicts ........................................................................................245

Justification and potential complaints ..........................................................................................246
Preventive measures in the ER Program ......................................................................................246
Main features of the ER program FGRM .....................................................................................246

Institutional arrangement for the FGRM...................................................................................... 246
Complaints management steps ................................................................................................... 248
FGRM procedures for the ER Program ........................................................................................250

Step 1: Gather suggestions and complaints ................................................................................ 250
Step 2: Registration and Categorization of suggestions and complaints ..................................... 251
Step 3: Confirmation ................................................................................................................... 251
Step 4: Verification, investigation, action of complaints ............................................................ 252
Step 5: Implementation of agreed actions .................................................................................. 252
Step 6: Monitoring and Evaluation ..............................................................................................252

Communication on the FGRM ....................................................................................................253

15. BENEFIT-SHARING ARRANGEMENTS ...................................................................... 253

15.1 Description of benefit-sharing arrangements ................................................................. 254

Type and scale of potential benefits associated to the ER Program ...........................................254
Non carbon benefits .................................................................................................................... 254
Carbon benefits .......................................................................................................................... 254

Categories of potential beneficiaries ........................................................................................ 254
Public bodies and service providers ............................................................................................ 255
Local population and forest dependent communities ................................................................. 256

Means of assessing share of benefits per beneficiaries and recipients ........................................259
Performance based payments ..................................................................................................... 259
Non-conditional payments: the issue of the 20% mechanism .....................................................260

15.2 Summary of the process of designing the benefit-sharing arrangements ...................... 261

The on-going process of BSP design ......................................................................................... 261

Description of achievement and next steps for the design of the BSP ..................................... 261
Examples of proposals and options for BS arrangements ........................................................... 262
Timeline for the design process of the BSP .............................................................................. 264

Persons and entities who have been participating in the process: consultations and inputs of relevant stakeholders ........................................................................................................... 265

Links with the Readiness process and pre-existing benefit-sharing arrangements ....................266

15.3 Description of the legal context of the benefit-sharing arrangements ...................... 266

Land Law instruments and key principles for the BSP ............................................................... 267
List of legal text that may be relevant for the BSP of the ER Program ....................................... 268
16. NON CARBON BENEFITS ........................................................................................................ 269

16.1 Outline of potential non-carbon benefits and identification of priority non-carbon benefits .......................................................................................................................... 269

Outline of potential non-carbon benefits ............................................................................... 269

Direct non carbon benefits improving rural population’s livelihood ...................................... 270
Strengthening of forest management and governance ............................................................. 271
Long term environmental benefits ......................................................................................... 272

Identification of priority non-carbon benefits ....................................................................... 273

Improvement of local livelihood through securing long-term access to forest resources and environmental benefits .............................................................. 274
Forest Governance and Management .................................................................................. 275

16.2 Approach for providing information on priority non-carbon benefits ......................... 275

Information on generation and enhancement of non-carbon benefits .................................. 275
Preferred methods for collecting and providing information ................................................ 275

17. TITLE TO EMISSION REDUCTIONS ......................................................................................... 280

17.1 Authorization of the ER Program ...................................................................................... 280

17.2 Transfer of Titles to ERs ..................................................................................................... 281

Assessment of ER Program’s entity’s ability to transfer Titles to ERs to Carbon Fund .......... 281

Establishment of the ability of the State to transfer titles to ERs ........................................... 281
Existence of possible other rights and constraints on the ability of the State to transfer titles to ERs .............................................................................................................. 283
The role of the Ministry of Economy and Finance ................................................................. 284
Conclusion: measures to establish State ability to transfer Title to ERs in possibly contested areas ................................................................................................................... 284

18. DATA MANAGEMENT AND REGISTRY SYSTEMS ............................................................. 287

18.1 Participation under other GHG initiatives ....................................................................... 287

Registration of part of the ER Program under other level standards (VCS) ......................... 287

REDD+ Pilot project to mitigate deforestation and forest degradation in the GNR and its surrounding (2014 - 2017) - FFEM project ................................................................. 287
Improved cook stoves for rural families in Gile Reserve Zambezia (2016 - 2020) - CarbonSink project ..................................................................................................................... 288

Transfer of ER to other GHG mitigation initiatives outside of the ER Program area ............ 289

18.2 Data management and Registry systems to avoid multiple claims to ERs ............... 290

Program and project data management system ................................................................. 291
ER transaction registry .......................................................................................................... 292

REFERENCES ....................................................................................................................... 295

ANNEXES .............................................................................................................................. 304
Annex 1: Lists of mammals and reptiles in the GNR and its buffer zone.......................... 304
Annex 2: Prioritization of interventions according to the National REDD+ Strategy – Action Plan .......................................................................................................................................................................................... 308
Annex 3: analysis of the emissions due to illegal logging in the ZILMP area .................... 310
   Context of logging in the ZILMP area.............................................................................310
   Significance of Illegality in the logging sector ................................................................313
   Estimations of emissions due to forest degradation by legal and illegal logging .........314
Annex 4: MoU between the Installer Commission of the Zambezia MSLF and the Forum of ONGs, private sector and academies ................................................................. 318
Annex 5: Terms of Reference of the Zambézia MSLF ..................................................... 325
Contextualização .............................................................................................................325
Abordagem ......................................................................................................................325
Objectivos .......................................................................................................................326
Estruturacao da Plataforma ............................................................................................326
   Designação da Estrutura ..............................................................................................326
Mandato ..........................................................................................................................326
Funcionamento dos Órgãos ..........................................................................................327
   Sessão Plenária ...........................................................................................................327
   Grupo de Coordenação ...............................................................................................327
   Grupos Temáticos .......................................................................................................328
Eleição dos Órgãos .........................................................................................................328
   Sessão Plenária ...........................................................................................................329
   Grupo de Coordenação ...............................................................................................329
   Presidência, Vice-presidência e secretário da Plataforma .............................................329
   Grupos Temáticos .......................................................................................................329
Actividades Gerais da Plataforma ..................................................................................329
Representação e Tomada de Decisões .........................................................................330
Dissolução da Plataforma ...............................................................................................330
Outros Aspectos Relevantes ..........................................................................................330
Annex 6: Thematic groups of the Zambezia MSLF .........................................................331
Governor of the Province of Zambézia ...........................................................................331
Direcção Provincial da Terra, Ambiente e Desenvolvimento Rural .................................331
Annex 7 - Terms of Reference for the creation of the National Steering Committee (NSC) for MozFip ................................................................. 333
Annex 8: Geographic prioritization of forest plantation and agro-forestry areas for MozFIP .......................................................... 337
Annex 9 - Characteristics of the Web portal for MRV REDD+ in Mozambique ............... 341
Annex 10 - Grievance form example for the FGRM ....................................................... 342
Annex 11 - Detailed executive summary ........................................................................ 344
  The Zambézia Integrated Landscapes Management Program ........................................... 344
  Main drivers of deforestation in the ER Program area ................................................. 348
  Interventions of the proposed ER Program and complementary initiatives ................. 349
  Ambition and potential of the ER Program ................................................................. 351
  Risks associated to the ER Program and safeguards ................................................. 352
  Specific arrangements for the ER Program success ................................................... 353
LIST OF TABLES

Table 1: Level of achievement of Readiness package elements ................................................................. 28
Table 2: Evolution of forest area in the ER Program area between 2005 and 2014 per district ................. 30
Table 3: Evolution of annual rate of deforestation in the ER Program area between 2005 and 2013 per districts .................................................................................................................................................. 31
Table 4: Chronological summary of political commitment to REDD+ .............................................................. 34
Table 5: MITADER’s main responsibilities and relevance for REDD+ ............................................................... 37
Table 6: MASA’s responsibilities under REDD+ ............................................................................................... 40
Table 7: Surface of the ZILMP area (Mercier et al, 2016) ................................................................................ 43
Table 8: Carbon stocks in the natural Miombo forest (pre-deforestation) ...................................................... 45
Table 9: Near threatened and vulnerable species in the ER Program area (GNR) ........................................... 48
Table 10: Population growth in program area ................................................................................................ 49
Table 11: Main ethnic groups in the ER Program area .................................................................................... 50
Table 12: Economically Active People (EAP) by sector and province (2008/09) .............................................. 51
Table 13: Characterization of charcoal consumption in urban centers in the districts of Gilé, Pebane, Ilé, Alto Molocué, Mulelava, Mocubela and Maganja da Costa ........................................................................... 57
Table 14: Characterization of the charcoal production in the supply basins of urban centers in the districts of Gilé, Pebane, Ilé, Alto Molocué, Mulelava, Mocubela and Maganja da Costa ........................................ 57
Table 15: Concession or simple license status and deforestation rate in the districts of Gilé, Pebane, Ilé, Alto Molocué, Mulelava, Mocubela and Maganja da Costa ........................................................................... 58
Table 16: Population density and deforestation per inhabitant for each district of the ER Program area (2005(2007) – 2014) – mangrove excluded............................................................................................. 63
Table 17: Summary of strategic objectives (SOs) and planned interventions (ERIs) of the ER Program ........ 74
Table 18: ERIs related to development, coordination and monitoring ............................................................ 81
Table 19: ERIs related to land planning .......................................................................................................... 83
Table 20: ERIs related to law enforcement and governance in the forest sector ............................................ 86
Table 21: ERIs related to sustainable production, livelihood and income generation ..................................... 90
Table 22: number of delimited local communities in the ER Program area ................................................... 105
Table 23: Community delimitations up to 2014 ............................................................................................ 106
Table 24: Community delimitations funded by ITC since 2006 ..................................................................... 106
Table 25: Summary of the main national regulatory acts relevant for the ER Program .................................. 109
Table 26: Summary of the main international agreements relevant for the ER Program ............................ 113
Table 27: Meetings of the Zambézia Provincial Forum for REDD+ (and of the Zambézia Multi-Stakeholders Landscape Forum which succeeded to it) ................................................................. 120
Table 28: Main information sharing tools for stakeholders’ consultation and participation .......................... 122
Table 29: Summary of comments received during stakeholders’ consultations ............................................ 123
Table 30: National management of the ER Program led by the MITADER ..................................................... 137
Table 31: Local implementation of the ER Program ...................................................................................... 142
Table 32: Elements of the MRV system ........................................................................................................ 143
Table 33: Selection of REDD+ activities ......................................................................................................... 150
Table 34: Selection of carbon pools .............................................................................................................. 153
Table 35: Selection of greenhouse gases ...................................................................................................... 154
Table 36: Classification used for the LULC map production at national level (From R-Package – Annex 6) ... 156
Table 37: Technical specification of the treatment of Sentinel-2 and Landsat 8 images to produce the LULC map (From R-Package, Annex 8) .......................................................................................................... 166
Table 38: Annual deforestation areas extracted from national activity data on the ER Program accounting area for the period 2005 - 2015 ............................................................................................................ 168
Table 39: Results of the point sampling analysis extracted from national activity data on the ER Program accounting area for the period 2001-2016 ............................................................................................................ 169
Table 40: Activity data information – Semi-deciduous forest annual cover change ...................................... 170
Table 41: Activity Data information – Evergreen forest annual cover change ............................................. 170
Table 42: Emissions factors information – pre-deforestation strata; Carbon stocks in Semi-deciduous strata (Miombo forests) ................................................................................................................................. 174
Table 43: Emissions factors information – pre-deforestation strata - carbon stocks of evergreen stratum (montane forests) ................................................................................................................................ 175
Table 44: Emissions factors information – post-deforestation strata - Carbon stocks in Semi-deciduous stratum (Miombo forests) .................................................................................................................... 176
Table 45: Emissions factors information – post-deforestation strata – Carbon stocks for evergreen stratum (Montane forests) ................................................................................................................................ 177
Table 46: Emission factor for AGB in all forest strata .................................................................................... 178
Table 47: Emission factor for BGB in all forest strata .................................................................................... 179
Table 48: Annual emissions due to deforestation in the ER Program area .................................................... 180
Table 49: Processing steps to produce LULCC maps and generate AD during the MRV (From R-Package - Annex 8) .............................................................................................................................................. 184
Table 50: Permanent plots ........................................................................................................................... 189
Table 51: MRV institutional arrangements and roles (from Gonzalo, 2016 – R-Package) .............................. 196
Table 52: Identification of risks of displacement of emissions ..................................................................... 198
Table 53: Mitigation of the risks of displacement and prioritization of sources of displacement ............... 202
Table 54: Description, assessment and mitigation of Risk A ......................................................................... 205
Table 55: Description, assessment and mitigation of Risk B ......................................................................... 208
Table 56: Description, assessment and mitigation of Risk C ......................................................................... 210
Table 57: Description, assessment and mitigation of Risk D ......................................................................... 213
Table 58: Selection of reversal management mechanism ................................................................. 215
Table 59: Risk assessment tool to assess the number of ERs to be deposited in the ER Program CF Buffer 216
Table 60: Number of cluster per main stratum based on the variation coefficient for the NFI (From R-Package) .............................................................................................................. 222
Table 61: summary of uncertainty estimated for emission factors of different forest strata ................. 224
Table 62: summary of uncertainty estimated for emission factors of different forest strata ................. 226
Table 63: summary of uncertainty estimated for REL ........................................................................... 227
Table 64: Ex-ante estimation of the ERs expected from the ER Program .............................................. 229
Table 65: List of the safeguard plans that have been developed ........................................................... 232
Table 66: Compliance with UNFCCC guidance related to REDD+ (Cancun, 2010) ................................. 234
Table 67: World Bank safeguard policies triggered by ER Program ...................................................... 234
Table 68: Safeguard principles and requirements for ER Program implementation (ESMF) ................... 238
Table 69: indicators of food safeguards implementation (National REDD+ Strategy) ............................ 239
Table 70: List of SIS indicators ............................................................................................................. 242
Table 71: Proposal of classification of beneficiaries ............................................................................ 255
Table 72: Timeline for the design process for the Benefit Sharing Plan .............................................. 264
Table 73: Main legal basis for the Benefit Sharing Plan ......................................................................... 268
Table 74: Outline of all potential non carbon-benefits associated with the ER Program ....................... 270
Table 75: Priority non-carbon benefits associated with the ER Program ............................................. 273
Table 76: Non-carbon benefits and associated ER Program interventions ........................................... 277
Table 77: Carbon projects within the ER Program area registered in the Markit Registry ...................... 287
Table 78: Carbon project with the ER Program area registered in the VCS project database ................ 287
Table 79: Carbon projects in Mozambique in the Markit Registry (FNDS, 2017f) .................................... 289
Table 80: Carbon projects in Mozambique registered in the VCS project database .............................. 290
Table 81: advantages and disadvantages of the various ER Transaction Registry options .................... 294
Table 82: Consolidation of main mammals identified in the GNR and its buffer zone and their relative abundance, classified by Order .................................................................................. 304
Table 83: Main reptiles identified in the GNR and its buffer zone ........................................................ 306
Table 84: Proportion of forests in the program area that was under concession or simple license status in 2011 and in 2015 and corresponding deforestation rate during the recent period 2010-2013 .............. 312
Table 85: Data and hypothesis for the calculation of emissions and removals from degradation due to selective logging in the program area .................................................................... 315
Table 86: Results of the estimation of emissions from selective logging (legal and illegal) over 10 years in the program area .............................................................................................................. 316
Table 87: Summary of ER Program planned interventions (ERIs) ......................................................... 349
LISTS OF FIGURES AND MAPS

Figure 1: Location of Zambézia province and of the ER Program area ............................................................ 42
Figure 2: Location of the ER Program Accounting Area, including the GNR.......................................................... 43
Figure 3: Main vegetation types in Mozambique ............................................................................................ 44
Figure 4: Forest strata in Mozambique ........................................................................................................... 46
Figure 5: Miombo forest (1) in the GNR and its surrounding and Dambo (2) in the GNR ................................. 46
Figure 6: Part of deforestation and forest degradation in Northern Mozambique ........................................... 53
Figure 7: Breakdown of surfaces by crop in 2014 in the districts of Alto Molocué, Gilé, Ilé, Maganja da Costa, Mocubela, Mulelava and Pebane ........................................................................................................... 55
Figure 8: Breakdown of surfaces by crop in 2014 in the districts of Alto Molocué, Gilé, Ilé, Maganja da Costa, Mocubela, Mulelava and Pebane ........................................................................................................... 55
Figure 9: Main tendency of population density in the ER Program area .......................................................... 64
Figure 10: Map of other REDD+ project in the ER Program area with forest cover change ........................... 68
Figure 11: Cross-cutting interventions and topics to be covered in the ER Program ......................................... 72
Figure 12: Example of CLUP .......................................................................................................................... 102
Figure 13: Implementation of the Actions Plan of Mozambique REDD+ Strategy .............................................. 115
Figure 14: Mains objectives of the consultation process .................................................................................... 117
Figure 15: Organogram of the FNDS ............................................................................................................. 131
Figure 16: Structure of the PMR ................................................................................................................... 132
Figure 17: Coordination of the FNDS with MITADER’s and other ministries’ relevant directorates for REDD+ ........................................................................................................................................ 133
Figure 18: Implementation scheme for the ZILMP ER Program ........................................................................ 136
Figure 19: Provincial Management of the ER Program .................................................................................... 141
Figure 20: Relation of carbon stocks in forest inventory plots and distance to deforestation patches (left) and forest edge (right) ........................................................................................................................................ 151
Figure 21: Areas burnt every year on forests remaining forests or on savannas from MODIS burnt area product (in ha) ........................................................................................................................................ 154
Figure 22: LULC changes detection using Collect Earth Tool. (www.openforis.org). High resolution imagery from Google Earth (From R-Package – Annex 5) ................................................................................... 160
Figure 23: LULC changes detection using Collect Earth Tool. (www.openforis.org). Forms designed with Collect Tool (From R-Package – Annex 5) ........................................................................................................... 160
Figure 24: Earth Engine code accessible through Collect Earth Tool. (www.openforis.org). Scripts of NDVI series (From R-Package – Annex 5) ........................................................................................................... 161
Figure 25: Sentinel-2 images used and gap filling with Landsat images for the LULC map (From R-Package, Annex 1) ........................................................................................................................................ 164
Figure 26: Treatment flow for the production of the mosaic of Sentinel-2 images free of clouds (From R-Package, Annex 1) ........................................................................................................................................ 165
Figure 27: Example of temporal and spatial selection and analysis for the FREL of the Zambezia ER-PD (From R-Package – Annex 5) ........................................................................................................................... 166

Figure 29: Map of inventories on Miombo pre- and post-deforestation strata......................................................... 173

Figure 30: Steps of the chain generating LULC maps (top) and the analysis of changes for production of AD (bottom) (From R-Package - Annex 8) .................................................................................................. 183

Figure 31: NFI plan in Mozambique ..................................................................................................................... 187

Figure 32: Shape of plots for the NFI in Mozambique .......................................................................................... 188

Figure 33: Diameter measurement of lying trees on the central axe of inventory plots ........................................ 190

Figure 34: collection design for the litter and soil sample in inventory plots ................................................. 190

Figure 35: Institutional arrangements at national level for the MRV (From R-Package – Annex 7) .................... 195

Figure 36: Reminder of the main drivers and agents of deforestation and forest degradation in the ER Program area ................................................................................................................. 198

Figure 37: Illustration of Monte Carlo method (From IPCC, 2006) ................................................................ 228

Figure 38: ESIA process in Mozambique ......................................................................................................... 231

Figure 39: Grievance and conflict resolution channels .................................................................................. 248

Figure 40: Level of resolution in the FGRM .................................................................................................... 250

Figure 41: Description of main beneficiaries of the ER Program ....................................................................... 257

Figure 42: Example of community delimitation .............................................................................................. 258

Figure 43: proposal for assessing share of benefits according to beneficiaries ............................................. 263

Figure 44: Example of benefits sharing scheme with fixed percentage of benefits allocated to communities at the beginning of the process ............................................................................. 263

Figure 45: Example of benefits sharing scheme with fixed percentage of benefits allocated to communities at the end of the process ......................................................................................... 264

Figure 46: Data management system architecture for REDD+ in Mozambique ............................................. 290

Figure 47: Map of operational forest concessions and simple licenses in the ZILMP area in 2015 (Source: SPFFB Zambézia, retreatment by Etc Terra) ................................................................. 311

Figure 48: Exports of wood from Cabo Delgado province of Mozambique by destination during the year 2010 in m$^3$ (From (Ekamn, Wenbin, and Langa E. 2013)) .................................................. 313

Figure 49: Value of timber exports from Mozambique (Moz) to China (CH) and to the world as reported by the respective countries (Source: UN COMTRADE as presented in (German and Wertz-Kanounnikoff 2012)) .................................................................................. 313

Figure 50: Localization of the ER Program in Mozambique ................................................................................. 346

Figure 51: Forest cover in Zambézia from Global Forest Watch data .................................................................. 347

LIST OF BOXES
FCPF Carbon Fund – Mozambique ZILMP

Aboveground biomass
National Agency for Conservation Areas
Assisted Natural Regeneration
National Agency for Environmental Quality Control
Belowground biomass
Conservation Area
Community Based-Natural Resource Managements
Clean Development Mechanism
Centre for Sustainable Development for Natural Resources
Centre for Sustainable Development in Coastal Zones
National Centre of Cartography and Detection
Carbon Fund
Justice Center for Legal and Judicial Training
Natural Resource Management Committees
Inter-ministerial Commission of Bioenergy
Climate Invetsment Fund
Inter-ministerial Group for Climate Change
Community Land Use Plan
Participatory Management Committees
National Council For Sustainable Development
Constitution of the Republic of Mozambique
Climate Smart Agriculture
Technical Review Committee
Dedicated Grant Mechanism
National Department of Forests
National Directorate of Geography and Cadaster
National Direction of Lands
Direção Nacional de Veterinária
Department of Natural Resources Inventory
National Direction for the Environment
National Directorate for Agriculture and Silviculture
National Direction for Rural Development
National Direction of Energy
National Directorate for Agricultural Extension
National Direction for Territorial Organization and Resettlement
National Directorate for Rural Development Promotion
Provincial Direction of Land, Environment and Rural Development
Legal rights to use and benefit from land and forests
Right to use and benefit from the land
Rural Development Strategy
Environmental Impact Assessment
Emission Reductions
Emission Reductions Program Document
Emissions Reductions Project Idea Note
ER Program Interventions
Emission Reductions Program
Emission Reduction Purchase Agreement
Environmental and Social Impact Assessments
Environmental and Social Framework
Environmental and Social Management Plans
Food and Agriculture Organization of the United Nations
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCPF</td>
<td>Forest Carbon Partnership Facility</td>
</tr>
<tr>
<td>FDA</td>
<td>Agricultural Development Fund</td>
</tr>
<tr>
<td>FFEM</td>
<td>French Fund for Global Environment</td>
</tr>
<tr>
<td>FGRM</td>
<td>Feedback and Grievance Redress Mechanism</td>
</tr>
<tr>
<td>FIP</td>
<td>Forest Investment Program</td>
</tr>
<tr>
<td>FNDS</td>
<td>National Fund for Sustainable Development</td>
</tr>
<tr>
<td>FREL</td>
<td>Forest Reference Emissions Level</td>
</tr>
<tr>
<td>FRIP</td>
<td>Forest Resource Information Platform</td>
</tr>
<tr>
<td>FRL</td>
<td>Forest Reference Level</td>
</tr>
<tr>
<td>FUNAE</td>
<td>Energy Fund</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GEB</td>
<td>Global Environmental Benefits</td>
</tr>
<tr>
<td>GEF</td>
<td>Global Environment Facility</td>
</tr>
<tr>
<td>GHG</td>
<td>Green House Gas</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographical Information System</td>
</tr>
<tr>
<td>GNR</td>
<td>Gilé National Reserve</td>
</tr>
<tr>
<td>GoM</td>
<td>Government of Mozambique</td>
</tr>
<tr>
<td>IDA</td>
<td>International Development Association</td>
</tr>
<tr>
<td>IGF</td>
<td>Foundation for Wildlife Management</td>
</tr>
<tr>
<td>IIAM</td>
<td>Agricultural Research Institute of Mozambique</td>
</tr>
<tr>
<td>INCAJU</td>
<td>Institution for Cashew Promotion</td>
</tr>
<tr>
<td>INDC</td>
<td>Intended Nationally Determined Contribution</td>
</tr>
<tr>
<td>INE</td>
<td>National Institute for Statistics</td>
</tr>
<tr>
<td>INFATEC</td>
<td>Management of Lands and Mapping Training Institute</td>
</tr>
<tr>
<td>IPM</td>
<td>Integrated Pest Management</td>
</tr>
<tr>
<td>IUCN</td>
<td>International Union for Conservation of Nature</td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
</tr>
<tr>
<td>LCU</td>
<td>Landscape Coordination Unit</td>
</tr>
<tr>
<td>LMU</td>
<td>Landscape Management Unit</td>
</tr>
<tr>
<td>LOI</td>
<td>Letter of Intent</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>MASA</td>
<td>Ministry of Agriculture and Food Security</td>
</tr>
<tr>
<td>MEF</td>
<td>Ministry of Economy and Finance</td>
</tr>
<tr>
<td>MF</td>
<td>Methodological Framework</td>
</tr>
<tr>
<td>MIREME</td>
<td>Ministry of Mineral Resources and Energy</td>
</tr>
<tr>
<td>MITADER</td>
<td>Ministry of Land, Environment and Rural Development</td>
</tr>
<tr>
<td>MoU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>MOZBIO</td>
<td>Conservation Area for Biodiversity and Development Project</td>
</tr>
<tr>
<td>MozDGM</td>
<td>Mozambique Dedicated Grant Mechanism for Local Communities</td>
</tr>
<tr>
<td>MOZFIP</td>
<td>Mozambique Forest Investment Project</td>
</tr>
<tr>
<td>MRV</td>
<td>Measurement, Reporting and Verification</td>
</tr>
<tr>
<td>MSLF</td>
<td>Multi Stakeholders Landscape Forum</td>
</tr>
<tr>
<td>MSME</td>
<td>Micro, Small, and Medium Enterprise</td>
</tr>
<tr>
<td>NAMA</td>
<td>National Appropriate Mitigation Actions</td>
</tr>
<tr>
<td>NAPA</td>
<td>National Action Program for Climate Change Adaptation in Agriculture</td>
</tr>
<tr>
<td>NEA</td>
<td>National Executing Agency</td>
</tr>
<tr>
<td>NFI</td>
<td>National Forest Inventory</td>
</tr>
<tr>
<td>NFMS</td>
<td>National Forest Monitoring System</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Governmental Organization</td>
</tr>
<tr>
<td>NPL</td>
<td>New Land Policy</td>
</tr>
<tr>
<td>NSC</td>
<td>National Steering Committee</td>
</tr>
<tr>
<td>NTPF</td>
<td>Non Timber Forest Products</td>
</tr>
<tr>
<td>OIIL</td>
<td>Local Initiative Investment Budget</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

A more detailed summary is available in Annex 11 - Detailed executive summary
Mozambique is one of the few sub-Saharan countries to possess a significant portion of natural forest, which represents 51% of its territory - 40.6 million hectares (ha). Miombo forest is the most extensive forest type, covering two thirds of the country. However, deforestation and forest degradation have been increasing in the last few years (with an annual deforestation rate of 0.23% between 2000 and 2012), leading the Government of Mozambique (GoM) to considerably intensify its commitment to promote a landscape-based approach to forest and natural resources management. A turning point in this process was the recent creation of its Ministry of Environment, Land and Rural Development (MITADER), of which the main functions are to manage and implement policies in the fields of land management, forests and wildlife, environment, conservation areas and rural development. Its creation shows the efforts that the GoM has been carrying out to integrate complex issues and promote synergy between those core challenges for REDD+ in Mozambique. The MITADER, through its National Fund for Sustainable Development (FNDS), will also be the entity in charge of supervising and coordinating the implementation of the proposed Emissions Reductions (ER) Program: the Zambézia Integrated Landscape Management Program (ZILMP).

Designed at jurisdictional scale, the ZILMP is located in Zambézia province, of which it covers 9 districts: Alto Molocue, Gile, Gurue, Ile, Maganja da Costa, Mocuba, Mocubela, Mulevala and Pebane. According to extraction from national data, between 2005 and 2015 (ER Program reference period), total deforestation in the ER Program accounting area represented 350,610 ha – corresponding to 35,061 ha/yr. The Reference Emission Level for the ER Program area is 10,220,558 tCO₂e/yr.

In this area, the main form of land-use is small-scale sedentary and shifting cultivation, with “slash-and-burn” agriculture being widely practiced in Miombo areas. Smallholders’ move towards extensification rather than intensification actually is the very basis of the deforestation mechanism we observe in the ER Program area; it is almost exclusively driven by maize and cassava production, constrained by labor availability during peak season. In the ER Program area, small-scale agriculture is interlinked with charcoal production, which is a typical by-product of agriculture: charcoal is actually produced through practices that are already accounted for in the deforestation process linked to small-scale agriculture and is not expected to have any additional impact, relatively to agriculture, on forest cover. However, given the high population growth, it is still an important driver of forest degradation to address. Another cause of forest degradation in the ER Program area is linked to the forestry sector, mainly driven by (i) illegal logging, focused on specific and precious timber; and (ii) non sustainable exploitation practices in concessions and simple licenses areas (disrespect of management plans). Because it is essentially linked to the international demand and failure of local law enforcement, this driver is difficult to mitigate, although national policies (including the adoption of a ban on exports of unprocessed timber) are being developed.

In order to address those drivers, the ER Program will be based on an integrated landscape management approach that recognizes the link between agricultural development, natural resources management and governance, both in terms of institutional management and practical implementation. This approach is fully aligned with the National REDD+ Strategy, approved in November 2016. At this stage, it should be noted that the ER Program will only account for ERs resulting from reduced deforestation, and not degradation - considered as not significant enough (less than 10%). Because small-scale agriculture really is the driver that represents an increasingly significant share of deforestation in the ER Program area, it will concentrate most of the ER Program interventions. Other measures will focus on sustainable production, livelihood and income generation through the strengthening of key
values chains of cash crops that are not responsible for deforestation, on regularizing land tenure and on community awareness so as to secure stakeholders' commitment on the long run. Improvement of land use planning and protection of conservation areas are also key. All the planned interventions of the ER Program are, for now, supported by various initiatives already in place in the ER Program area, such as the "Sustenta" project, the Mozbio project and MozFip, which will significantly contribute to financing the ER Program - no financial gap has been identified until, at least, 2022.

All in all, the ambition of the ER Program is to reduce deforestation in the accounting area by 15% below the reference level in the first 4 years (2018-2021) and by 20% in the following 4 years (2022-2025). This represents a total of 10,016,147 tCO$_2$eq of ER to be achieved by 2025, of which 8,724,732 tCO$_2$e will be provided to the FCPF, according to the terms of the LOI that was signed in December 2015 between the GoM and the World Bank. This ambition is highly consistent with national policies and development priorities in Mozambique and the ER Program actually holds a significant place in the national strategy of reducing carbon emissions, including for the objectives set in its Intended Nationally Determined Contribution (INDC) and in the National REDD+ Strategy.

In order to enhance the positive impacts and reduce any risk of negative impacts of REDD+ projects’ implementation activities, various safeguard documents were prepared: a Strategic Environmental and Social Assessment (SESA), an Environmental and Social Management Framework (ESMF) and a Process Framework (PF). Safeguards implementation will be monitored throughout the project lifetime, including through a Safeguards Information System (SIS), a Participatory Monitoring, Reporting and Verification (PMRV) system and an efficient Feedback and Grievance Redress Mechanism (FGRM). In any case, because most of the ER Program measures are primarily based on incentives and on the valorization of non-carbon benefits rather than coercive, the ER Program is not expected to generate any displacement of emissions (with the exception of potential market leakage at international scale, on which the ER Program has no grip). However, although it provides for the implementation of specific reversal risks mitigation measures, 26% of the ERs generated by the ER Program will be deposited in a buffer managed by the Carbon Fund, as an insurance.

The Measurement, Monitoring and Reporting (MRV) system of the ER Program will be managed by a specific MRV Unit, located within the FNDS, through a national Participative MRV (PMRV) scheme, partly based on community participation, and with support of MRV specialists within the Landscape Coordination Unit (LCU) at provincial scale. For each monitoring session, data for the ER Program will be extracted from results of the national monitoring. The MRV scheme will be used to assess performance, on which part of the benefit-sharing process will be based. Admittedly, specific arrangements will be created for the distribution of the monetary and non-monetary benefits generated by the ER Program. Although they are still being discussed, the benefit-sharing arrangement will be concluded before the ER-PD final draft in the form of a dedicated Benefit Sharing Plan for the ER Program.
1. ENTITIES RESPONSIBLE FOR THE MANAGEMENT AND IMPLEMENTATION OF THE PROPOSED ER PROGRAM

1.1 ER Program Entity that is expected to sign the Emission Reduction Payment Agreement (ERPA) with the FCPF Carbon Fund

<table>
<thead>
<tr>
<th>Name of entity</th>
<th>Ministry of Economy and Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type and description of organization</strong></td>
<td>The Mozambican Ministry of Economy and Finance is responsible for managing and coordinating national financial planning process. It aims to ensure the integrated and balanced economic and social development of the country, through consolidating an integrated system of planning and implementing a sustainable and decentralized development strategy. In the ER Program context, the Ministry of Economy and Finance will be in charge of signing the ER-PA.</td>
</tr>
<tr>
<td><strong>Main contact person</strong></td>
<td><em>To be completed.</em></td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td><em>To be completed.</em></td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td>Praça da Marinha Popular – C.P. 272 - Maputo</td>
</tr>
<tr>
<td><strong>Telephone</strong></td>
<td><em>To be completed.</em></td>
</tr>
<tr>
<td><strong>Email</strong></td>
<td><em>To be completed.</em></td>
</tr>
<tr>
<td><strong>Website</strong></td>
<td><a href="http://www.mpd.gov.mz">www.mpd.gov.mz</a></td>
</tr>
</tbody>
</table>
### 1.2 Organization(s) responsible for managing the proposed ER Program

<table>
<thead>
<tr>
<th>Name of organization</th>
<th>National Fund for Sustainable Development (FNDS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type and description of organization</strong></td>
<td>The FNDS was created by governmental decree in February 2016 (Decree n°6/2016). It is an independent body with administrative and financial autonomy, under the sectorial tutelage of the Ministry of Land, Environment and Rural Development (MITADER – which signed the Letter of Intent (LOI) with the Carbon Fund in December 2015) and the financial tutelage of the Ministry of Economy and Finance. It aims to promote and manage the financing of programs and projects contributing to a sustainable and inclusive development in Mozambique, with special attention to rural development. One of its core responsibilities is to channel domestic and international funding to the relevant beneficiaries, including, in the context of the ER Program, the ER Payments. The FNDS will supervise the good implementation of the ER Program and its overall coordination at central level.</td>
</tr>
<tr>
<td><strong>Organizational or contractual relation between the organization and the ER Program Entity identified in 1.1 above</strong></td>
<td>The FNDS is placed under the financial tutelage of the Ministry of Economy and Finance. This tutelage includes the approval, by the Ministry of Economy and Finance, of <em>inter alia</em>: its budgets; the investment and financial plans; the financial management and annual financial reports and its investments and contracting of loans.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main contact person</th>
<th>Mr. Momade Nemane</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
<td>Director of Resources Mobilization</td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td>Rua Joe Slovo, n°21 - Maputo</td>
</tr>
<tr>
<td><strong>Telephone</strong></td>
<td>(+258) 84 312 4210</td>
</tr>
<tr>
<td><strong>Email</strong></td>
<td><a href="mailto:momade.nemane@fnds.gov.mz">momade.nemane@fnds.gov.mz</a></td>
</tr>
</tbody>
</table>
1.3 **Partner agencies and organizations involved in the ER Program**

<table>
<thead>
<tr>
<th>Name of partner</th>
<th>Contact name, telephone and email</th>
<th>Core capacity and role in the ER Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ministry of Land, Environment and Rural Development (MITADER)</td>
<td>To be completed after consultation with ERP team.</td>
<td>Sectorial tutelage of the FNDS; national steering of REDD+ activities and programs.</td>
</tr>
<tr>
<td>Ministry of Economy and Finance (MEF)</td>
<td>Adriano Maleiaine</td>
<td>Financial tutelage of the FNDS; support and coordination of financial strategy; future signature of ER-PA agreement.</td>
</tr>
<tr>
<td>Ministry of Agriculture and Food Security (MASA)</td>
<td>Mahomed Valá (+258) 82 85 64 190</td>
<td>Coordination and support to conservation agriculture and cash crops related activities.</td>
</tr>
<tr>
<td>National Fund for Sustainable Development (FNDS)</td>
<td>Momade Nemane <a href="mailto:momadenemane@gmail.com">momadenemane@gmail.com</a> (+258) 84 312 4210</td>
<td>General management of the ER program and its financing; management of the ER Payments.</td>
</tr>
<tr>
<td>National Administration of Conservation Areas (ANAC)</td>
<td>Afonso Madope (+258) 82 32 22 270 <a href="mailto:afonso.madope@gmail.com">afonso.madope@gmail.com</a></td>
<td>Support and coordination of activities of the Mozbio program.</td>
</tr>
<tr>
<td><strong>Zambezia Provincial Government</strong></td>
<td>Abdul Noormamad Razak</td>
<td>Governor of the Province. Coordination of ER Program activities at provincial level.</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Landscape Management Unit (LMU)** | Thomas Bastique  
tbastique@gmail.com  
(+258) 82 82 26 000  
(+258) 84 49 63 140 | Coordination within the national directions of MITADER and inter-ministerial coordination; everyday steering of ER Program implantation. |
| **Private sector** |  |  |
| **Confederation of Economic Associations of Mozambique (CTA)** | Assane Chaual  
chaualparia@yahoo.com.br  
(+258) 82 57 30 890 | Support to development of sustainable businesses and value chains. |
| **Zambezia Timber Associations (AMOMA, AMAZA, APAMAZ)** | Several associations | Support on the organization and engagement of individual forest concessionaires. |
| **Zambézia Timber Association** | Rui Silva  
(+258) 86 04 60 277 | Promotion and engagement of local loggers with sustainable forest management. |
| **Development partners** |  |  |
| **Etc Terra** | Corentin Mercier  
c.mercier@etcterra.org  
(+258) 84 87 11 327 | Redaction of ZILMP Background study and ER-PD; Support to MRV and technical assistance for conservation agriculture activities and cash crops. |
<table>
<thead>
<tr>
<th>Organization</th>
<th>Contact Person</th>
<th>Email</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Institute for Environment and Development (IIED)</td>
<td>Isilda Nhantumbo</td>
<td><a href="mailto:isilda.nhantumbo@iied.org">isilda.nhantumbo@iied.org</a></td>
<td>Support/implement activities related to community forest management.</td>
</tr>
<tr>
<td>Food and Agriculture Organization of the United Nations (FAO)</td>
<td>Carla Cuambe</td>
<td><a href="mailto:carla.cuambe@fao.org">carla.cuambe@fao.org</a></td>
<td>Implement a pilot project on payment for environmental services.</td>
</tr>
<tr>
<td>Adventist Development and Relief Agency (ADRA)</td>
<td>Farai Muchiguel</td>
<td><a href="mailto:fmuchiguel@adramozambique.org">fmuchiguel@adramozambique.org</a></td>
<td>Technical assistance for conservation agriculture and sustainable livelihoods.</td>
</tr>
<tr>
<td>Rural Association of Mutual Help (ORAM)</td>
<td>Alberto A. Chirindza</td>
<td>(+258) 82 49 12 951</td>
<td>Technical assistance for conservation agriculture and sustainable livelihoods.</td>
</tr>
<tr>
<td>Community Lands Initiative (ITC)</td>
<td>Hilário Patricio</td>
<td>(+258) 24 21 77 62, (+258) 84 24 15 538, <a href="mailto:hpatricio@itc-f.org">hpatricio@itc-f.org</a></td>
<td>Support to participatory and community strengthening, land planning and land zoning.</td>
</tr>
<tr>
<td>Network of Environment and Community Sustainable Development Organizations in Zambézia Province (RADEZA)</td>
<td>Daniel Maula</td>
<td><a href="mailto:radezamoz@yahoo.com.br">radezamoz@yahoo.com.br</a>, (+258) 82 43 21 280</td>
<td>Technical assistance to community development and natural resources management.</td>
</tr>
<tr>
<td>World vision</td>
<td>Mauricio Munikele</td>
<td>(+258) 24 21 20 75</td>
<td>Technical assistance to community development and natural resources management.</td>
</tr>
<tr>
<td>International Foundation for Wildlife Management (IGF)</td>
<td>Alessandro Fusari</td>
<td><a href="mailto:alessandrofusari@yahoo.it">alessandrofusari@yahoo.it</a></td>
<td>Sustainable Forest and Wildlife Management in the Gilé National Reserve (GNR).</td>
</tr>
<tr>
<td>Pedagogic University (GADEC)</td>
<td>Manuel José de Morais</td>
<td>(+258) 24 21 62 98</td>
<td>Education, research and capacity building for Environmental Management and community Development.</td>
</tr>
</tbody>
</table>
2. STRATEGIC CONTEXT AND RATIONALE FOR THE ER PROGRAM

2.1 Current status of the Readiness Package and summary of additional achievements of readiness activities in the country

The FCPF financially and technically supported the GoM on the REDD+ Readiness process through a first grant of USD 3.8 million in 2013-2017 and an additional USD 5 million grant in 2016-2018 to finalize the Readiness process. In 2015, the Government of Mozambique (GoM) successfully presented to the Carbon Fund of the Forest Carbon Partnership Facility (FCPF CF) the Early Idea and the Emission Reductions Program Idea Note (ER-PIN) of the Zambézia Integrated Landscape Management Program (ZILMP). The ER-PIN was accepted in the Carbon Fund’s pipeline in October 2015. A Letter of Intent (LOI) was signed during the Paris Conference of Parties (COP 21) in December 2015 between the Ministry of Land, Environment and Rural Development (MITADER) of the GoM and the Carbon Fund (CF) on the potential purchase of Emission Reductions (ER) from the ER Program. According to this LOI, the World Bank (WB) could purchase up to 8.7 million of ER from this program – “Maximum Contract Volume”. The final draft of the national REDD+ Strategy and the Definition of Forest were recently approved by the GoM’s Council of Ministers in November 2016. In January 2017, the GoM submitted its Readiness Package, which was approved by the Participants Committees Meeting (PC23) in March 2017.

During Readiness phase, relevant national and provincial level studies have been conducted in order to best design the ER Program – see Table 1. They include:

- The analysis of the drivers of deforestation and the strategic options to address those drivers (Winrock International and CEAGRE, 2015);
- The analysis of the legal and institutional framework for REDD+ in Mozambique (Beta and Nemus, 2015);
- The establishment of the National Forest Definition (Falcão and Noa, 2016);
- The completion of the National REDD+ Strategy and Action Plan (MITADER, 2016a);

---

1 See FCPF website for Readiness Package and TAP assessment.
- The preparation of the Safeguard Instruments for REDD+, especially the Strategic Environmental and Social Assessment (SESA),\(^2\) the Environmental and Social Management Framework (ESMF) for REDD+ initiatives and the Process Framework (PF) - updated to cover national REDD+ initiatives (see section 14 on safeguards);
- The background study for the preparation of the ER Program (Mercier et al., 2016), which includes an thorough analysis of the drivers of deforestation;
- The definition of the Forest Reference Level and Forest Reference Emissions Level (FRL / FREL), including a national Reference Emissions Level (REL) with national level forest inventory;
- The designing of the Monitoring System for Forest - including national measurement, reporting, and verification system (MRV).

### Table 1: Level of achievement of Readiness package elements

<table>
<thead>
<tr>
<th>Readiness package documents</th>
<th>Level of achievement</th>
<th>Date of approval (expected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of the drivers of deforestation and the strategic options to address those drivers</td>
<td>Completed</td>
<td>2015</td>
</tr>
<tr>
<td>Analysis of the legal and institutional framework for REDD+ in Mozambique</td>
<td>Completed</td>
<td>2015</td>
</tr>
<tr>
<td>Background study for the preparation of the Zambézia Integrated Landscapes Management Program</td>
<td>Completed</td>
<td>August 2016</td>
</tr>
<tr>
<td>Establishment of the national forest definition</td>
<td>Completed</td>
<td>November 2016</td>
</tr>
<tr>
<td>National REDD+ Strategy</td>
<td>Completed</td>
<td>November 2016</td>
</tr>
<tr>
<td>Environmental and Social Management Framework (ESMF) for REDD+ initiatives, MozFip and MozDGM</td>
<td>Completed</td>
<td>January 2017</td>
</tr>
<tr>
<td>Process Framework (PF) for Mozbio, updated to cover National REDD+ initiatives, MozFip and MozDGM</td>
<td>Completed</td>
<td>January 2017</td>
</tr>
<tr>
<td>R Package</td>
<td>Completed</td>
<td>March 2017</td>
</tr>
<tr>
<td>Forest Reference Level and Forest Reference Emissions Level</td>
<td>Completed</td>
<td>June 2017</td>
</tr>
<tr>
<td>National Reference Emission Level</td>
<td>Completed</td>
<td>June 2017</td>
</tr>
<tr>
<td>Strategic Environmental and Social Assessment - SESA (safeguard instrument)</td>
<td>Pending RSA approval</td>
<td>-</td>
</tr>
<tr>
<td>National Forest Inventory</td>
<td>In progress</td>
<td>-</td>
</tr>
<tr>
<td>Monitoring system for forest, including National Measurement, Reporting, and Verification system</td>
<td>In progress</td>
<td>-</td>
</tr>
</tbody>
</table>

In addition to those studies, major institutional achievements under Readiness funding include: (i) the adoption of Decree 70/2013, which created the REDD+ Technical Unit (UT-  

\(^2\) The SESA is still pending RSA approval.
REDD+)\(^3\) and the inter-ministerial Technical Review Committee (CTR) for REDD+, of which the main objective is to promote inter-institutional coordination among sectors and stakeholders on every issues related to REDD+ activities in Mozambique; (ii) the creation of the Zambézia Multi-Stakeholders Landscape Forum (MSLF), which is a crucial instrument for stakeholders consultation and participation in the design and implementation of the ER Program – see section 5.

2.2 Ambition and strategic rationale for the ER Program

Since the late 1990s and early 2000s, the adoption of various national policies and the valorization of development priorities linked to ER, carbon stock enhancement, sustainable management of forest and conservation areas have shown the commitment of the GoM to REDD+ initiative. In particular, Mozambique has a progressive legal framework for the promotion of sustainable forest management (UT REDD+, 2015a). Through forest sector legislation (Law on Forests and Wildlife, 1999) and regulatory procedures for land management (Land Law, 1997), Mozambique seeks to balance social, environmental and economic issues, paying special attention to the role and benefits to rural communities. Actually, the very Constitution of the Republic of Mozambique of 2004 (Governo de Moçambique, 2004) specifies that the State shall adopt policies to “ensure the rational use of natural resources to safeguard its renewal capacity, ecological stability and rights of future generations” (Article 117, 2, d) as well as the “rational utilization of its natural resources” (Article 90, 2).

This commitment has been confirmed with the new Government, who took office in February 2015 after general elections. In particular, the new administration adopted a Five Year Government Plan (Plano Quinquenal do Governo - PQG) for the 2015-2019 period, for economic and social development (Governo de Moçambique, 2015b). The PQG settles five national priorities. In particular, the 5th strategic pillar is focused on transparent and sustainable management of natural resources and the environment. One of the strategic objectives is to “ensure the integration of the Blue/Green Economy and Green Growth agenda in national development priorities, ensuring conservation of ecosystems, biodiversity and the sustainable use of natural resources.”

Standing as its first program of results-based payments for ER in Mozambique, the ZILMP is fully keeping with this momentum. The program is expected to contribute to long-term sustainable management of forest in the province of Zambézia by addressing the main drivers of deforestation and forest degradation while implementing innovative measures aiming to increase rural communities’ income in the area. All in all, the ER Program aims to initiate a virtuous circle reconciling economic development and environmental preservation.

Ambition and strategic rationale

Accordingly with criterion 1 of the FCPF Methodological Framework (FCPF MF, 2016a), the ZILMP ER Program was designed at jurisdictional scale, as an up-scale of a previous REDD+ pilot project launched in the Gilé National Reserve (GNR) and its periphery in 2014 -

\(^3\) Since then, the UT REDD+ has been absorbed into the FNDS (see section 6), which is now responsible for implementing the REDD+ Strategy in Mozambique.
**see section 18 for more details.** In 2015, the GoM decided to upscale this initiative to make it an innovative REDD+ jurisdictional program, covering 7 and then 9 districts of Northern Zambézia\(^4\) (Mercier et al., 2016): Gilé, Pebane, Maganja da Costa, Mocubela, Ilé, Mulevala and Alto-Molocué, Mocuba and Gurué. Those districts were selected for various reasons:

(i) Zambézia province is characterized by relevant qualities for the ER Program: It concentrates 13% of Mozambique’s forest; it is the most densely populated province of Mozambique; 70.5% of its population lives under the poverty line; its economy is based on agriculture and the use of forest resources; it already comprises a strong private sector and civil society involvement;

(ii) Within Zambézia province itself, the 9 selected districts especially represent a strong area of expansion for deforestation - see below;

(iii) The selected districts are geographically coherent with the areas covered by other initiatives already funded by the World Bank (WB), including the Conservation Area for Biodiversity and Development Project (Mozbio project), the Mozambique Forest Investment Project (MozFip) and the Dedicated Grant Mechanism (MozDGM), as well as the Agriculture and Natural Resources Landscape Project (the “Sustenta” project) - see section 4.1;

(iv) Those existing funds also enable to secure long-term financing for the ER Program interventions and to provide lessons learned and local capacities for the ER Program - see section 6.2;

(v) The area is characterized by globally important biodiversity with mangrove forests, a significant range of endemic and vulnerable/endangered species and a protected area: the Gilé National Reserve (GNR)\(^5\) - see section 3.

Accordingly with criterion 1 of the FCPF MF, the ZILMP ER Program is also ambitious, in that it aims to address a significant portion of forest-related emissions and removals in the country. In 2014, the 9 districts involved in the program entail a total of 2.6 million ha of forest. They have suffered significant deforestation over the last 10 years, with about 7% of the 2005 forest cover being already lost – i.e. 193,847 ha. Between 2005 and 2014, the mean annual deforestation in the ER Program area represents 23,658 ha per year. In the ER Program area, deforestation has increased from 0.71% per year between 2005 and 2010 to 1.07% per year between 2010 and 2013 – that is, a mean annual deforestation rate of 0.89% between 2005 and 2013 – for more details, see section 8.

**Table 2:** Evolution of forest area in the ER Program area between 2005 and 2014 per district

<table>
<thead>
<tr>
<th>Forest areas in year (ha)</th>
<th>2005</th>
<th>2010</th>
<th>2014</th>
<th>Districts areas (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alto Molocué</td>
<td>259,960</td>
<td>248,594</td>
<td>227,596</td>
<td>630,812</td>
</tr>
</tbody>
</table>

\(^4\) The GoM initially presented an ER Program covering 7 districts in Zambézia province. Since the ER-PIN, it was decided to expand the ER Program area to two additional districts (Gurué and Mocuba), bearing to 9 the total number of districts covered by the program. Justification on the choice of the ER Program area is provided in this section, and more information on the ER Program location is given in section 3.

\(^5\) It should be noted that Zambézia province is home of another protected area: the archipelago of “Ilhas Primeiras e Segundas”, located in front of Nampula and Zambézia Province. Although they are not part of the ER Program accounting area for now (no ER Program activities are planned in those islands) they could be the subjects of further attention in the event of a potential up-sale of the ER Program in the future.
According to the National REDD+ Strategy, *ceteris paribus*, it is estimated that emissions from deforestation and forest degradation could reach 39 MtCO$_2$e/yr by 2030 in Mozambique. The overall National REDD+ Strategy’s target in terms of ER is to reduce those emissions to 3 MtCO$_2$e/yr in 2030, through reducing deforestation and increasing carbon stocks. This represents an overall objective of avoiding 170 MtCO$_2$e during the reference period going from 2016 to 2030. **The ER Program is expected to significantly contribute to this objective, its ambition being to achieve a total of 10.0 MtCO$_2$e of ER between 2018 and 2025, which corresponds to reducing deforestation in the ER Program area by 15% in the first 4 years (2018-2021) and by 20% in the following 4 years (2022-2025) - for more details on the estimation of the ERs expected from the program, see section 13.** The ER Program should therefore contribute to 5.8% of the National REDD+ Strategy’s objectives in terms of ERs.

### Consistency with the National REDD+ Strategy

The ER Program’s ambition is fully aligned with the National REDD+ Strategy, which promotes “integrated multisectoral interventions to reduce carbon emissions associated with land use and land use change through adherence to the principles of sustainable management of forest ecosystems (natural and planted), contributing to global mitigation and adaptation to climate change and to the efforts for an integrated rural development” (MITADER, 2016a). Those coincide perfectly with the planned interventions of the ER Program, detailed in section 4.3. Admittedly, the ER Program is based on multiple actions that reflect a variety of interventions from the national REDD+ strategy in a coordinated manner.
manner. Mozambique’s REDD+ Strategy comprises six strategic pillars translated into equal number of main sets of activities, namely:

1. Cross-cutting actions: establish an institutional and legal platform for inter-agency coordination to ensure the reduction of deforestation;

2. Agriculture: promoting alternative sustainable practices to shifting cultivation, which ensure increased productivity of food and cash crops;

3. Energy: increase access to alternative sources of biomass in urban areas and increase the efficiency of production and use of biomass energy;

4. Conservation Areas: strengthen the system of protected areas and find safe ways of generating income;

5. Sustainable Forest Management: promote the system of forest concessions, community management and strengthening forest governance;

6. Restoration of degraded forests and planting trees: establishing a favorable environment for forest businesses, restoration of natural forests and planting of trees for various purposes, production and use of biomass energy.

All the above interventions are established as priorities for the ER Program. The totality of the ER Program interventions are related to those objectives and were defined according to the six pillars of the National REDD+ Strategy. They are detailed and classified according to those pillars in section 4.3.

Consequently, the activities and results from the ER Program are also expected to generate lessons learnt to help fine-tune REDD+ National Strategy and extend REDD+ activities and interventions to other areas of the country in the future. It will also contribute to identify possible unforeseen gaps and need of the REDD+ strategy (UT REDD+, 2015a).

**Consistency with national policies and development strategies**

Generally speaking, the ER Program is highly consistent with national policies and development priorities in Mozambique. In particular, the National Sustainable Development Program (Governo de Moçambique, 2015a), promoted by MITADER, provides the key linkages between the country’s priorities and REDD+, stressing the need to invest in resilience to climate change with particular emphasis on the agricultural sector, tourism and infrastructure. The Program aims to achieve the goals and strategies reflected in the PQG by outlining key actions and projects to be implemented in rural Mozambique. More importantly, this vision includes MITADER’s Terra Segura (Secure Land) Project - aiming at registering 5 million parcels and completing 4,000 community land delimitations - as well as the Floresta Em Pé (Standing Forest) project, focusing on strategic policy and management options for the forest sector (UT REDD, 2016) – see section 4.1 for more details.

The ER Program will contribute to those goals, reaching for the protection of biodiversity and the sustainable use of forest resources and economic rural development through the promotion of secure tenure rights, of sustainable agricultural practices as well as of diversified agricultural production and increased efficiency of charcoal production, through a better management of wood resources, among other components - details on actions and interventions to be implemented under the proposed ER Program are provided in section 4.3.
Further, the ER Program has a strong social component and seeks to increase the participation of stakeholders in order to reduce poverty, especially in rural areas: it will support the strategic goals of the Forest Policy and Strategy (2016-2020), especially in relation with its objectives of (i) social participation and equitable benefit sharing mechanisms; (ii) environmental sustainability on the use of forest resources and (iii) increase of the economic contribution of forests to the country’s development. It is also fully aligned with the Forest Investment Plan (FIP) of the Climate Investment Fund (CIF), which was approved in January 2017, with a budget of USD 47 million – see section 4.1 for details.

Synergistic potential actions may also be identified in various sectors. The intensification of agriculture to increase production and productivity and improve soil conservation through conservation agriculture techniques, for instance, which is also an important component of the ER Program, is defined as a priority in the Strategic Plan for the Development of the Agricultural Sector (PEDSA - 2011-2020) (Governo de Moçambique, 2011a) and the National REDD+ Strategy. In the same way, the Ministry of Mineral Resources and Energy (MIREME) promotes actions linked to the production and sustainable use of biomass energy. It has been emphasized in the Strategy for Conservation and Sustainable Use of Energy from Biomass (Ministério da Energia, 2013) that lays down general guidelines for the production of biomass and its transformation into energy and sustainable use.

2.3 Political commitment

Inter-relation between the political commitment to REDD+ and to the ER Program

Mozambique’s political commitment to the ER Program is concomitant with the ever growing commitment of the GoM to REDD+ in general, which, since 2008, has been straightforward – see section 2.1.

Since the approval of its the Readiness Project Idea Note (R-PIN) in 2008, Mozambique has been developing its capacities in terms of Monitoring, Reporting and Verification (MRV) - which is a crucial element for ER initiatives and for the ER Program - and has engaged into a thorough consultation process on various aspects related to REDD+ (legal instruments, definition of forest, safeguards, etc.), which has benefited to the ER Program. In only two years (2015 – 2016), the GoM submitted to the FCPF its Early Idea and its Emission Reductions Project Idea Note (ER-PIN) related to the ER Program and engaged itself to long-term commitment to this Program with the signature of a LOI with the World Bank.

As stated before, this tendency was intensified with the new Government, who has publicly recognized forest-related challenges and shown commitment to addressing them: over the last two years, a number of remarkable changes took place, pointing to a change of direction in the management of the forest sector. They encompass measures related to the strengthening of the ER Program, with lots of progress in 2015 – 2016, including (inter alia): an analysis of the drivers of deforestation and the strategic options to address those drivers, an analysis of the legal and institutional framework for REDD+ in Mozambique, the intensification of MRV preparation for REDD+, a background study for the preparation of the ZILMP, the approval of the ESMF and PF for REDD+ initiatives, the establishment of the National Forest Definition, etc.

In particular, the GoM’s commitment to the ER Program was recently especially obvious with the creation of the Zambézia Multi-Stakeholders Landscape Forum (MSLF) – see section 5 -
and, more importantly, with the adoption of the National REDD+ Strategy, which lays out clear institutional arrangements to facilitate the flow of information within the State institutions and ease cooperation with the private sector and civil society, service providers and members of local communities who are expected to highly contribute to the ER Program (UT REDD+, 2015a). Those institutional arrangements completed the initial institutional design for REDD+ implementation, described in the Decree No. 70/13 of December 20th, 2013 ("Regulation of the procedures for approval of projects for reducing emissions from deforestation and degradation") (Governo de Moçambique, 2013), which established the REDD+ Technical Unit and the inter-ministerial CTR. Those institutional arrangements were even refined to enable a more efficient implementation of the ER Program, with the creation of the FNDS and the establishment of the provincial Landscape Coordination Unit (LCU)\textsuperscript{6} - for more information on institutional arrangements for REDD+ and for the ER Program, see section 6.

Those evolutions show that the GoM's commitment to REDD+ is inextricably linked to its commitment to the ER Program in particular. Admittedly, the design and progressive implementation of the ER Program has helped to shape mechanisms that, although they were primarily initiated for the ER Program, are now serving REDD+ initiatives in general, as shown in Table 4, which chronologically summarizes the complementary processes of the GoM's political commitment to REDD+ and to the ER Program.

Table 4: Chronological summary of political commitment to REDD+

<table>
<thead>
<tr>
<th>Significant events with regards to political commitment to the ER Program</th>
<th>Significant events with regards to political commitment to REDD+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008</strong></td>
<td></td>
</tr>
<tr>
<td>Submission and approval of the Readiness Project Idea Note (R-PIN).</td>
<td></td>
</tr>
<tr>
<td><strong>2012</strong></td>
<td></td>
</tr>
<tr>
<td>Submission and approval of the final version of the Readiness Preparation Proposal (R-PP).</td>
<td>Start of consultations on the legal instruments to regulate REDD+ projects in Mozambique;</td>
</tr>
<tr>
<td></td>
<td>Participation in SADC meeting on MRV in Johannesburg (South Africa) to discuss the possibilities of MRV development considering forest types in the region;</td>
</tr>
<tr>
<td></td>
<td>DNTF officer sent to the JICA training on REDD+ MRV in Japan;</td>
</tr>
<tr>
<td><strong>2013 - 2014</strong></td>
<td></td>
</tr>
<tr>
<td>Start of public consultations on the regulations of pilot projects for REDD+;</td>
<td>Adoption of the Decree No. 70/13 of December 20th, 2013 (&quot;Regulation of the procedures for approval of projects for reducing emissions from deforestation and degradation&quot;) that creates the</td>
</tr>
</tbody>
</table>

\textsuperscript{6} Also called Program Implementation Unit (PIU).
Due diligence in view of signing a Grant Agreement for R-PP implementation;

The GoM is granted a 3.8 M USD grant from the FCPF Readiness Fund.

<table>
<thead>
<tr>
<th>Due diligence in view of signing a Grant Agreement for R-PP implementation;</th>
<th>National Stakeholder meeting on SADC REDD+ MRV held Maputo;</th>
</tr>
</thead>
<tbody>
<tr>
<td>The GoM is granted a 3.8 M USD grant from the FCPF Readiness Fund.</td>
<td>Participation of Mozambique at the Participants Committee Sixteenth Meeting (PC16).</td>
</tr>
</tbody>
</table>

**2014 - 2015**

Selection of the ZILMP as a REDD+ pilot project.

Two days workshop for the operation of the Rules of Procedures for approving REDD+ projects, with the participation of technicians from MICOA and MINAG:

- Workshop on social and environmental safeguards organized at the World Bank office in Maputo;
- Start of consultations on the definition of forest;
- Start of SESA preparation with public consultation on TORs;
- Mozambique selected by SADC as a pilot country for Mopane ecosystem for SADCGIZ regional MRV system project, with capacity building training on Remote Sensing in DNTF-MINAG and training in forest inventory.

**2015 - 2016**

Presentation of the Early idea of the ZILMP ER Program;

- Creation of the Zambézia Provincial Forum for REDD+;
- Submission and approval of the Emission Reductions Project Idea Not (ER-PIN) for the ZILMP ER Program;
- Signature of Letter of Intent (LOI) between the FCPF CF and the GoM for the ZILMP ER Program.

Creation of a website for dissemination of REDD+;

- Analysis of the Drivers of Deforestation and the strategic options to address those drivers;
- Analysis of the Legal and Institutional Framework for REDD+ in Mozambique;

**Creation of the Ministry of Land, Environment and Rural Development (MITADER);**

Adoption of the Five Year Government Plan (Plano Quinquenal do Governo - PQG) for the 2015-2019 period;

Adoption of the National Sustainable Development Program with the Terra Segura (Secure Land) Project and the Floresta Em Pé (Standing Forest) project;

Forest Sector Review, including a forest license moratorium, new incentives toward sustainable
forest management and the assessment of forest operators;

Intensifying of MRV preparation for REDD+: (i) hiring of an international consultant to conduct the implementation of MRV in Mozambique; (ii) preparation of the MRV implementation plan for 2016-2018 period; (iii) participation of Mozambique at the GFOI open forum to share the experience and challenges on the implementation of MRV;

Creation of DGM steering committee for MozFip.

**2016**

Preparation of the first draft of the Forest Investment Plan (FIP) that will support the first stage of implementation of the ZILMP ER Program;

The GoM is granted an additional 5 M USD grant from the FCPF Readiness Fund;

Creation of the Zambézia Multi-Stakeholders Landscape Forum (MSLF)

Establishment of the provincial Landscape Coordination Unit (LCU);

Background study for the preparation of the Zambézia Integrated Landscapes Management Program;

Start of the preparation of the Emission Reductions Program Document (ER-PD);

**Creation of National Fund for Sustainable Development (FNDS) and of the International Funds Management Unit (UGFI) - which has, since then, been replaced by the Directorate for the Mobilization of Funds (PMR).**

Approval of the National REDD+ Strategy;

Establishment of the National Forest Definition;

Consultations for the National REDD+ strategies and for safeguard documents;

**2017**

Submission of R Package;

(ER-PD expected to be submitted for validation to the FCPF CF in December 2017).

Approval of the Environmental and Social Management Framework for the Mozambique Forest Investment Project, the Dedicated Grant Mechanism to Local Communities and REDD+ Initiatives;

Approval of the Mozbio Process Framework (PF), updated to cover REDD+ initiatives;

(Approval of SESA).

**Highest level of political commitment to the ER Program**

The highest level of political commitment to the ER Program is embodied in the MITADER and the FNDS, which is responsible for managing the proposed ER Program. Recently created – respectively, in January 2015 and in February 2016 – those bodies show that the current Government has publicly recognized forest-related challenges and shown commitment to addressing them. Their role in the design and implementation of the ER
Program is a clear sign that their creation coincides – and strengthens – the GoM’s commitment to the ER Program.

The main functions of the MITADER are to design, plan, coordinate, monitor and ensure the good implementation of policies in the fields of land management and administration (demarcation, land use planning and registry), forests and wildlife, environment, conservation areas and rural development (poverty reduction in rural areas) – see Table 5 - which all are significant areas of interventions for the ER Program. More precisely, with regards to forests management, MITADER is responsible for proposing development strategies linked to the forest sector and to the sustainable use of forest resources: it is also in charge of coordinating and of ensuring the good implementation of ER initiatives - see section 6.

| Land management | - Ensure the development, implementation and supervision of territorial planning instruments
|                 | - Develop a sustainable national land registration and information system on land including the rights of occupation in good faith and communal lands |
| Forest management | - Propose the approval of legislation, policies and development strategies in the area of forests
|                   | - Establish standards for licensing, management, protection, conservation, supervision and monitoring of sustainable use of forest resources
|                   | - Develop and implement policies and procedures on the use and sustainable management of forest resources
|                   | - Assess quantitative and qualitative forest resources and the reduction of emissions from deforestation and forest degradation
|                   | - Establish measures of prevention and control of uncontrolled fires
|                   | - Ensure sustainable use of woody biomass
|                   | - Promote rational use of secondary forest species and non-timber forest products
|                   | - Promoting community participation in sustainable management of forest resources
| Environment | - Propose policies and legislation and standards for preservation actions of environmental quality
|             | - Establish and implement policies and procedures for environmental licensing of development projects
|             | - Promote the adoption of integration policies of the green economy, biodiversity and of climate change in sectorial programs
|             | - Ensure participation of local communities in co-management of natural resources and ecosystems
| Rural development | - Propose policies and rural development strategies that are integrated and sustainable
|                   | - Promote community participation and empowerment of associations in local economic development processes
|                   | - Strengthen the local economic actors to contribute in the sustainable exploitation of natural resources and in boosting the local economy

Table 5: MITADER’s main responsibilities and relevance for REDD+
To sum up, the MITADER brings together responsibilities that were previously spread across several ministries, in order to facilitate the coordination needed to address challenges of cross-sectorial nature\textsuperscript{7}: the MITADER's coordination role is expected to be improved in a situation where it has direct management mandate over a wider number of important natural resources and social issues and particularly to manage rural development and forests. Note is taken of the fact that rural development is a cross-cutting subject. Its materialization relies on the coordination of multiple interventions (Beta and Nemus, 2016).

Since its creation, MITADER already adopted several strategic actions to address challenges in the forest sector, including a participatory audit of all forest concessions, the suspension of new requests for exploration areas, a ban on log exports, the updating of forest policies and regulations, and an ambitious project called "Floresta em Pé" (already mentioned in 2.1), which aims to promote sustainable integrated rural development though the protection, conservation, valorization, creation and sustainable management of forests – see section 4.1

The creation of MITADER is therefore a turning point, showing the efforts that the GoM has been carrying out to integrate complex issues and promote synergy between core challenges for REDD+ policies. This restructuring is a clear indication of the Government's vision and commitment to promote a landscape-based approach to forest and natural resources management. It is therefore coherent that most of the planned interventions under the proposed ER Program will fall under MITADER itself, which has the bulk of the responsibilities to manage forests and rural development and to manage the funds to implement the ER Program activities.

This commitment is also evidenced by the subsequent creation of the FNDS, in February 2016 (national decree n°6/2016) (Governo de Moçambique, 2016) under the sectorial tutelage of MITADER. The FNDS aims to, precisely, contribute to the strategic planning of the land, environment and rural development sector in Mozambique and to give impetus to the integrated and sustainable rural development process in a coherent and sustainable way. Its main objective is to promote and finance programs and projects that guarantee sustainable, harmonious and inclusive development, with particular emphasis on rural areas.

The FNDS is especially responsible for managing REDD+ funding and reports directly to the Minister – see section 6 on PMR's responsibilities and composition. In particular, the FNDS is

\textsuperscript{7} For many years (1994 - 2014), environmental issues had only been managed through the Ministry responsible for environmental coordination (the Ministry for the Coordination of Environmental Affairs / Ministério para a Coordenação da Acção Ambiental - MICOA), without vertical mandate or direct responsibility of implementing development programs on the ground (Beta and Nemus, 2016). Agricultural policies were only managed by the Ministry responsible for Agriculture (MINAG).
responsible for the technical and financial coordination of the ER Program, and works closely with some of MITADER’s technical directorates, mainly the National Directorate of Forests (DINAF), the National Directorate of Land (DINAT), the National Agency for Environmental Quality Control (AQUA) and the National Agency of Conservation Areas (ANAC), which are all playing a key role in the ER Program. On every REDD+ issues, the FNDS also liaises with other ministries such as the MASA and MIREME, amongst others.

Cross sectorial commitment

Cross-sectorial commitment in REDD+ in Mozambique is enhanced through Ministries’ cooperation, including for the implementation of the ER Program.

The Ministry of Agriculture and Food Security (MASA) maintains its focus on promoting agriculture productivity and management of planted forests in the country. However, most of the affairs related to REDD+ that were under the management of MASA have migrated to MITADER’s coordination. The next table summarizes specific tasks of MASA under each area of important responsibility for REDD+ (Beta and Nemus, 2016).

The Ministry of Mineral Resources and Energy (MIREME) also plays a critical role in REDD+ through the promotion of sustainable use of energy and managing the mining sector (UT REDD+, 2015a). Rural development is part of its priority axis of actions, with one of the objectives being to increase the offer of alternative energy to charcoal (Beta and Nemus, 2016) – the production of charcoal is an important driver of forest degradation in the ER Program area, as explained in section 4.1. This has been embodied in the adoption in 2013 of the Strategy for Conservation and Sustainable Use of Energy from Biomass (Ministério da Energia, 2013). MIREME especially contains the National Direction of Energy (DNE) as well as the FUNAE (Fundo de Energia – Energy Fund) – see section 6.

The Ministry of Economy and Finance (MEF), which brings the former Ministry of Planning and Development and the MEF into one Ministry, is responsible for the planning of all activities related to economical development in Mozambique. The recently created National Directorate for Rural Development Promotion (DNPDR) especially aims at implementing Mozambique’s Rural Development Strategy (EDR) (Beta and Nemus, 2016). The MEF is also actively engaged on issues related to climate change in Mozambique, and manages the Climate Change Unit (UMC). The participation of the MEF in the REDD+ program is also associated with its role and responsibilities in budgeting and making available public funds for overall development of the REDD+ strategy in Mozambique. MITADER, under which the ER Program is administered, has a close relationship with MEF on matters of planning and financial resources allocation.

---

8 Except for silviculture, planted forests and conservation agriculture.

9 As explained in section 4.1, in the ER Program area, even though charcoal production is responsible for forest degradation, it is for now almost exclusively restricted to areas that would be deforested for agricultural purpose in the near future; therefore, currently, charcoal production does not have any additional impact of forest cover, relatively to agriculture. However, given the high population growth and the increasing need in charcoal and energy (see (Mercier et al., 2016), and section 4.1), especially around urban centers, it is expected that charcoal production will remain stable or increase in the future: it is, therefore, still an important driver of forest degradation to address.
Within the dedicated REDD+ institutional arrangements, inter-institutional cooperation and cross-sectorial commitment can be observed in the very composition of the CTR, which is the means of consultation and supervision of all REDD+ activities in Mozambique. It is composed of representatives from the Ministry of Culture and Tourism, Ministry of Gender, Ministry of Education, Child and Social Action, Ministry of Industry and Commerce, Ministry of Economy and Finance, Ministry of State Administration and Public Function, Ministry of Justice, Constitutional and Religious Affairs, and Ministry of Mineral Resources and Energy, as well as by representatives from the private sector, NGOs and research institutions.

### Table 6: MASA's responsibilities under REDD+

<table>
<thead>
<tr>
<th>Relevant areas of performance for REDD+</th>
<th>Specific task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agro-forest plantations</strong></td>
<td>- Proposing legal and institutional frameworks that are appropriate for development of agro-forest plantations;</td>
</tr>
<tr>
<td></td>
<td>- Implementing sector policies, plans, programs and strategies;</td>
</tr>
<tr>
<td></td>
<td>- Proposing and establishing operational norms for agro-forest projects;</td>
</tr>
<tr>
<td></td>
<td>- Ensuring development of agro-forest plantations for conservation, energetic, commercial and industrial purposes;</td>
</tr>
<tr>
<td></td>
<td>- Promoting research activities and ensuring dissemination of results;</td>
</tr>
<tr>
<td></td>
<td>- Promoting local/internal processing of agro-forest products.</td>
</tr>
<tr>
<td><strong>Agriculture</strong></td>
<td>- Proposing policy framework for agrarian development in Mozambique;</td>
</tr>
<tr>
<td></td>
<td>- Establishing norms for sector licensing, monitoring of activities;</td>
</tr>
<tr>
<td></td>
<td>- Ensuring quality and phyto-sanitary measures in the sector;</td>
</tr>
<tr>
<td></td>
<td>- Promoting research activities and ensuring dissemination of results;</td>
</tr>
<tr>
<td></td>
<td>- Promoting extension services and ensuring these services are rendered to farmers;</td>
</tr>
<tr>
<td></td>
<td>- Providing capacity building to farmers;</td>
</tr>
<tr>
<td></td>
<td>- Promoting development of infrastructures that are relevant for the sector;</td>
</tr>
<tr>
<td></td>
<td>- Managing sector related information.</td>
</tr>
</tbody>
</table>
### Food security
- Promoting food security related to legal framework, strategies, policies and plans;
- Managing food security related information;
- Promoting information access on food conservation and processing;
- Promoting food security education of communities to ensure nutrition;
- Ensuring inter-institutional coordination in food security policy formulation, implementation, monitoring and evaluation.

---

## 3. ER PROGRAM LOCATION

### 3.1 Accounting Area for the ER Program

Mozambique is divided in Provinces, districts and municipalities that were first defined by its 1975 Constitution. The current administrative national organization comprises 11 provinces: Niassa, Cabo Delgado, Nampula, Zambézia, Tete, Manica, Sofala, Gaza, Inhambane, Maputo and Maputo City. Since the new Law of Administrative division 26/2013, which created 23 new districts, those provinces are divided in 151 districts. The ER Program will be implemented in part of the Zambézia province, in Central-Northern Mozambique. Within Zambézia province, the Gilé National Reserve (GNR), long considered as one of Mozambique’s main biodiversity hot spots, extends over the districts of Pebane and Gilé. It covers 436,400 ha, divided between a full protection zone - commonly called the Reserve (283,600 ha) - and a peripheral buffer zone (152,800 ha), where some activities are allowed, located mainly west of the Reserve (Mercier et al., 2016)\(^{10}\). Part of this buffer zone has become a community coutada.

---

\(^{10}\) It should be noted that Zambézia province is home of another protected area: the archipelago of “Ilhas Primeiras e Segundas”, located in front of Nampula and Zambézia Province. Although they are not part of the ER Program accounting area for now (no ER Program activities are planned in those islands) they could be the subjects of further attention in the event of a potential up-sale of the ER Program in the future.
As stated before, the ER Program area covers 9 districts in Zambézia province: Gilé, Pebane, Maganja da Costa, Mocubela, Ilé, Mulevala and Alto-Molocué, Mocuba and Gurué – see section 2.2. They cover a total area of 5.3 million ha\textsuperscript{11} (Mercier et al., 2016; Governo de Moçambique, 2005b; 2005c), including, in 2014, 2.6 million ha of forest, which represents 48% of the ER Program area.

\textsuperscript{11} Based on the data of (Mercier et al, 2016), updated to add the areas of the districts of Mocuba and Gurué (Governo de Moçambique, 2005b; 2005c).
Table 7: Surface of the ZILMP area (Mercier et al, 2016)

<table>
<thead>
<tr>
<th>District</th>
<th>District Area (ha)</th>
<th>Forest Area 2014 (ha)** (mangroves excluded)</th>
<th>Percentage of forest cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alto-Molocué</td>
<td>630,812</td>
<td>227,596</td>
<td>36%</td>
</tr>
<tr>
<td>Gilé</td>
<td>896,516</td>
<td>543,366</td>
<td>61%</td>
</tr>
<tr>
<td>Ilé</td>
<td>303,411</td>
<td>90,147</td>
<td>30%</td>
</tr>
<tr>
<td>Maganja da Costa</td>
<td>267,925</td>
<td>94,134</td>
<td>35%</td>
</tr>
<tr>
<td>Mocubela</td>
<td>499,234</td>
<td>319,636</td>
<td>64%</td>
</tr>
<tr>
<td>Mulevala</td>
<td>261,685</td>
<td>126,358</td>
<td>48%</td>
</tr>
<tr>
<td>Pebane</td>
<td>1,005,479</td>
<td>582,546</td>
<td>58%</td>
</tr>
<tr>
<td>Mocuba</td>
<td>873,300*</td>
<td>504,246</td>
<td>58%</td>
</tr>
<tr>
<td>Gurué</td>
<td>560,600*</td>
<td>73,144</td>
<td>13%</td>
</tr>
<tr>
<td><strong>ZILMP area</strong></td>
<td><strong>5,298,962</strong></td>
<td><strong>2,561,173</strong></td>
<td><strong>48%</strong></td>
</tr>
</tbody>
</table>

Those data are extracted from (Mercier et al., 2016) and from: (i) * Governo de Moçambique, 2005b; 2005c; (ii) ** Etc Terra for the ER-PD.

Figure 2: Location of the ER Program Accounting Area, including the GNR

Environmental conditions in the Accounting Area of the ER Program

Existing vegetation type

Mozambique is one of the few sub-Saharan countries to possess a significant portion of natural forest: 51% of its territory is composed of natural forest - that is 40.6 million ha (Marzoli, 2007). Miombo forest is the most extensive forest type, covering approximately two third of
the country and, especially, vast areas of the central and northern regions of Mozambique, where the ER Program area is located – see Figure 3.

Figure 3: Main vegetation types in Mozambique (MITADER, 2016d)

The ER Program area is located in the Zambézian Regional Centre of Endemism (MITADER, 2016c) and more precisely, as shown in Figure 3, in a zone of « Miombo dense forest », composed of medium Miombo forest and dry Miombo forest (Figure 4). Miombo forest represents 48% of the ER Program area - see Table 7. It is characterized by trees height reaching in average 12m to 18m, with a canopy cover that is superior to 40% and lower layers composed of bushes and grass (White, 1983 – cited in Fusari et al., 2010). This formation, widely found across Southern and Central Africa, is mainly composed of deciduous woody vegetation where *Brachystagia spp* and *Strichnos spinosa* are the dominant species. *Brachystagia* is commonly associated with *Julbernadia globiflora*,
Pterocarpus angolensis (called “Umbila” in Mozambique), Burkea africana, Bridelia micrantha, Cynometra sp., Dalbergia melanoxylon, Swartzia madagascariensis (called “Pau Ferro” in Mozambique) and Millettia stuhlmannii (called “Panga-Panga” in Mozambique). Strichnos is usually associated with Combretum spp, Terminalia spp, Pteleopsis myrtilifolia (MITADER, 2016d).

Miombo can store large amount of carbon: it is estimated that mean total biomass in Miombo forest is 84.7 tC/ha or 310.7 tCO$_2$e/ha (90% CI) (Mercier et al., 2016).

<table>
<thead>
<tr>
<th>Table 8: Carbon stocks in the natural Miombo forest (pre-deforestation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carbon stocks in tC/ha</strong></td>
</tr>
<tr>
<td>Average</td>
</tr>
<tr>
<td>Standard deviation</td>
</tr>
<tr>
<td>90% CI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Carbon stocks in tCO$_2$e/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
</tr>
<tr>
<td>Standard deviation</td>
</tr>
<tr>
<td>90% CI</td>
</tr>
</tbody>
</table>

In coastal areas, the vegetation is mainly composed of Mangroves, but they only represents 1% of the ER Program area - 53,348.00 ha out of 5.3 million ha in 2014.

In the ER Program area, the GNR is a significant share of undisturbed natural forest. The forests of the GNR and its buffer zone represent 7.2% of the ER Program area - 384,431.00 ha out of 5.3 million ha.$^{12}$

The GNR and its adjacent areas are mainly composed of trees belonging to the Caesalpinoidae legume sub-family: Brachystegia, Julbernardia and Isoberlinia (Campbell, 1996). Diplorhynchus condylocarpon, Brachystegia boehmii, Julbernardia globiflora, Dalbergia nitidula, Brachystegia spiciformis, Parinari curatellifolia and Pterocarpus angolensis account for more than 54% of the trees (Etc Terra, 2014). In addition to this dense forest, the GNR and its surroundings also entail Dambos areas: concentrated in low and wet land, dambos are very common at the base of the inselbergs and act as a buffer, capturing water and releasing it slowly throughout the year (MITADER, 2016d) – see figures below. The herbaceous cover is mainly composed of Themeda triandra (63% of transcripts), which is, most of the time (85%), dominant (Prin, 2008).

$^{12}$ They are already accounted for in the 48% of total Miombo forest share in the ER Program area - see above.
Climatic conditions

In the ER Program area, the climate is tropical continental, with one rainy season from November to April. This pattern of rainfall provides for only one good agricultural season per year, with a moderate water deficiency in winter, from April to October. Climatic conditions differ from hinterlands to the coastal areas, where rainfall is strongly influenced by proximity of the sea; the annual average rainfall vary between 500 and 1,400 mm per year, generally decreasing from North to South. Mean air temperature is related to altitude and varies from 18 to 24°C (MITADER, 2016c).
Today, Mozambique is one of the highest ranked African countries in terms of exposure to risks from weather-related hazards. It is especially subject to drought, floods and tropical cyclones, originated in the Mozambican Channel or to the east of the Channel, depending on the atmospheric conditions. Its low adaptive capacity and the high dependence of its population and economy on natural resources exacerbates this vulnerability to climate change (UT REDD, 2016): Mozambique is actually expected to be one of the countries that will be the most affected by climate change in the coming years. In addition, as stated in (UT REDD, 2016) forest degradation and deforestation may increase the vulnerability of rural communities to changing climatic conditions in the future.

Soil characteristics

The interior land (Ile, Gilé, Alto Molocué, Mulevala) is predominantly formed by medium textured red soils and clay grayish brown soils, produced from the weathering of granitic rocks and resulting from residual or limited transported soils. This area is predominated by red clay soils, characterized by depth and high retention capacity for water. Most of the soil has a medium texture to sandy loam and is generally well drained. The river valleys are dominated by alluvial soils, dark, deep, heavy texture and average to moderately drained, subject to regular flooding (FAO, 1995 - cited in MITADER, 2016c). The coastal zone of the Accounting Area (Pebane, Maganja da Costa and Mocubela) comprises yellow sandy, gray, soils. The coastal line is formed by loose, high permeable sandy soils, with scarce vegetation (MITADER, 2016c).

Rare and endangered species and habitat

Mozambique is endowed with considerable biodiversity associated with the high diversity of its existing ecosystems. Floristically, 4 phytogeographic regions of endemism are recognized in the country: (i) Zambezian, (ii) Swahilian, (iii) Swahilian-Maputaland transitional zone and (iv) Maputalaland-Tongoland (Ministry for the Coordination of Environmental Affairs, 2014). The Accounting Area is mainly located within the Zambezian Regional Centre of Endemism, which is the second largest phytogeographic region in Africa, probably having the richest and more diversified flora. There are at least 8,500 different species, 54% of which could be endemic species (White, 1983 - cited in MITADER, 2016c).

As stated in the ESMF (MITADER, 2016c), with regards to fauna, Zambézia is recognized as one of the richest provinces due to its edaphic and climate conditions. In particular, the forests in Zambézia province are especially important for birds, including the Namuli Apalis (Apalis Linesy), the Dapple-throat (Arcanator Orostruthus), the Cholo Alethe (Chamaetylas choloensi) - which is endemic to southeastern Malawi and adjacent Northern Mozambique - the Green Barbet (Cryptolybia Olivacea) - in mount Namuli, located in the ER Program area (Gurue district) - the Spotted Ground Thrush (Geokichla Guttata) - known to breed in only a few mid-altitude forests in eastern Africa - and the White-winged Apalis (Apalis Chariessa) - known from mid-altitude forest in central Tanzania, southeastern Malawi (cited in MITADER, 2016c). In the same way, In the GNR and its buffer zone, located within the ER Program area, up to 210 species of birds have been identified (Fondation IGF, 2011).

As shown in Table 9, most of those species are considered to be globally vulnerable, according to the IUCN Red List. The bird diversity of the region may be comparable to that of other sub-tropical Miombo woodlands. Biogeographically, of the Afromontane endemic or near-endemic bird species, 27 are known to occur in Namuli - located in the ER Program
area, in the district of Gurué - which compares favorably with 31 on the larger Mount Mulanje (Malawi). One is found only on Namuli (Dapple-throat) (Timberlake et al 2009 - cited in MITADER, 2016c). Actually, most of the inselbergs in Zambézia can be an Important Bird Area (IBA) based on the occurrence of those species (MITADER, 2016c).

Table 9: Near threatened and vulnerable species in the ER Program area (GNR)

<table>
<thead>
<tr>
<th>English name</th>
<th>Scientific name</th>
<th>UICN Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African clawless otter</td>
<td>Aonyx capensis</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>Chequered sengi</td>
<td>Rhynchocyon cirnei</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>European Rabbit</td>
<td>Oryctolagus cuniculus</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>Leopard</td>
<td>Panthera pardus</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>Spotted-necked otter</td>
<td>Lutra maculicollis</td>
<td>Near Threatened</td>
</tr>
<tr>
<td>African elephant</td>
<td>Loxodonta africana</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Temminck's ground pangolin</td>
<td>Smutsia temminckii</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Hippopotamus</td>
<td>Hippopotamus amphibius</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Lion</td>
<td>Panthera leo</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>African wild dog</td>
<td>Lycaon pictus</td>
<td>Endangered</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bateleur</td>
<td>Terathopius ecaudatus</td>
<td>Near threatened</td>
</tr>
<tr>
<td>Namuli Apalis*</td>
<td>Apalis Linesy</td>
<td>Near threatened</td>
</tr>
<tr>
<td>Southern ground hornbill</td>
<td>Bucorvus cafer</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Dapple-throat*</td>
<td>Arcanator Orostruthus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>White-winged Apalis*</td>
<td>Apalis Chariessa</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Cholo Alethe*</td>
<td>Chamaetlyas choloensi</td>
<td>Endangered</td>
</tr>
<tr>
<td>Spotted Ground Thrush*</td>
<td>Geokichla Guttata</td>
<td>Endangered</td>
</tr>
</tbody>
</table>

*Species identified in Zambézia province and expected to be also present in the ER Program area

This list is based on the IUCN Red List of Threatened Species and (Deffontaines, 2012), (Mésoschina et al., 2010), (MITADER, 2016c) and (Fusari et al., 2010)

Generally speaking, the GNR and it buffer zone contain regionally and nationally significant concentrations of biodiversity values - the GNR currently holds the status of a national
reserve and can be classified in IUCN "Management Category II" (Fusari, Lamarque, Chardonnet & Boulet, 2010) - with 70 different identified tree species and 10 different identified gramineae species (Prin, 2008). Wildlife is significant with, possibly, 75 different species of mammals (Deffontaines, 2012), ten of which are considered to be globally vulnerable, near threatened or endangered have been identified - see Table 9 and see "Annex 1: Lists of mammals and reptiles in the GNR and its buffer zone" for a full list of wildlife species identified in the GNR and its surroundings.

Actually, the GNR and its buffer zone include a site of high biodiversity conservation priority on the basis of Key Biodiversity Area (KBA) framework of vulnerability and irreplaceability, as defined by IUCN: more than 30 individuals of a vulnerable species have been identified, with 58 African elephants being present in the area (Ntumi et al., 2012).

The existence of other few remarkable species is worth noticing: for instance, Lichtenstein Hartebeests, who have been identified in the GRN and its buffer zone - they are estimated to be between 5 and 10 individuals (Brugière, 2013) - are in danger of extinction in Mozambique (Fusari, Lamarque, Chardonnet & Boulet, 2010).

All in all, although Miombo forest is not a rare woodland formation, the size and density of forest habitat make the Accounting Area be of particular biodiversity value. It also contains some of the world most precious hardwood timbers, including Pterocarpus angolensis, Millettia stuhlmannii, Pericopsis angolensis and Swartzia madagascariensis. The Accounting Area is, therefore, an important concentration of natural forest and threatened habitat to be preserved.

Social conditions in the Accounting Area of the ER Program

Population demographics and growth

Zambézia province is the most densely populated and the second most populated province of Mozambique: with 45 people per km² in 2014 (see Table 16) and an estimated population of 4.8 million people in 2015, it concentrates about 19% of Mozambique’s total population – which, in 2015, should represent 25.7 million people\(^{13}\).

The population composition in Zambézia is representative of the rest of the country with more than 51% of women and a significant share of young people, with over 80% of the population being younger than 40 years old. Most of the population of Zambézia province lives in rural area: 82.55% in 2007 and 79% in 2015 – at national scale, rural population is estimated to represent almost 70% of the population (INE, 2014).

The last population census in Mozambique was realized in 2007. It showed a significant rate of population growth in the country, with an average population growth rate of 3% for Zambézia province between 1997 and 2007 – see Table 10.

\(^{13}\) Those estimations are based on projection from the last population census of 2007 (INE, 2007b).
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alto-Molocué</td>
<td>185,224</td>
<td>275,155</td>
<td>4</td>
<td>346,369</td>
<td>375,504</td>
</tr>
<tr>
<td>Gilé</td>
<td>126,988</td>
<td>171,091</td>
<td>3</td>
<td>192,115</td>
<td>198,424</td>
</tr>
<tr>
<td>Ilé</td>
<td>224,167</td>
<td>293,054</td>
<td>2.7</td>
<td>323,116</td>
<td>331,706</td>
</tr>
<tr>
<td>Maganja da Costa</td>
<td>229,230</td>
<td>280,000</td>
<td>2</td>
<td>306,288</td>
<td>314,454</td>
</tr>
<tr>
<td>Mocubela</td>
<td>na</td>
<td>Na</td>
<td>na</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Mulevala</td>
<td>na</td>
<td>Na</td>
<td>na</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Pebane</td>
<td>135,275</td>
<td>187,289</td>
<td>3.3</td>
<td>215,481</td>
<td>224,462</td>
</tr>
<tr>
<td>Mocuba</td>
<td>214,748</td>
<td>303,973</td>
<td>3.5</td>
<td>365,707</td>
<td>385,902</td>
</tr>
<tr>
<td>Gurué</td>
<td>197,179</td>
<td>301,034</td>
<td>4.2</td>
<td>377,195</td>
<td>403,558</td>
</tr>
<tr>
<td>Total Zambézia</td>
<td>2,891,809</td>
<td>3,890,453</td>
<td>3%</td>
<td>4,563,018</td>
<td>4,802,365</td>
</tr>
</tbody>
</table>

* Data extracted from (INE, 2007a)

** Data extracted from INE projections (INE, 2007b)

Overview of stakeholders and rights holders

The linguistic diversity of Mozambique is very significant. Although Portuguese is the official language of the country, lots of various other languages are used: for the majority of the population, these sub-national languages constitute their mother tongue and are the most used in daily communication (INE, 2007a). As for the Zambézia province, it is the most diverse province of Mozambique in terms of ethnicity, even though 37.1% of its population primarily speaks Lomué and 23.5% primarily speak Chuabo. Only 9.2% of the population in Zambézia speak Portuguese as its mother tongue (INE, 2007a). In the ER Program area, more precisely, five major ethnic groups co-exist (Chuabo, Macua-Lomué, Manhaua, Marenge and Senas), with the Macua-Lomwé being predominant (Tanner, 2017a). Their main distribution per district is described in Table 11.

Table 11: Main ethnic groups in the ER Program area

<table>
<thead>
<tr>
<th>ZILMP Districts</th>
<th>Main Ethno-Linguistic Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alto-Molocué</td>
<td>Macua / Lomué</td>
</tr>
<tr>
<td>Gilé</td>
<td>Macua / Lomué</td>
</tr>
<tr>
<td>Ilé</td>
<td>Macua / Lomué</td>
</tr>
<tr>
<td>Maganja da Costa</td>
<td>Manhaua</td>
</tr>
<tr>
<td>Mocubela</td>
<td>Manhaua / Macua / Lomué</td>
</tr>
<tr>
<td>Mulevala</td>
<td>Macua / Lomué / Chuabo</td>
</tr>
<tr>
<td>Pebane</td>
<td>Macua / Lomué</td>
</tr>
<tr>
<td>Mocuba</td>
<td>Chuabo</td>
</tr>
<tr>
<td>Gurué</td>
<td>Macua / Lomué</td>
</tr>
</tbody>
</table>
Main livelihood and economic activities

Forest-based activities and industries are important contributors to the Mozambican economy and a major source of employment in Mozambique’s rural areas. The forest economy contributes to about 2% of Mozambique’s GDP. In 2011, this figure was approximately 2.8%. Twenty-two thousand people are directly employed by the forestry sector (IDA, 2017).

In the ER Program area, this situation is also prevalent and dependence on forest resources is significant. Most of the economy in Zambézia province is actually based on direct and integrated exploitation of natural resources with very little transformation (MITADER, 2016d). The collection of timber and non-timber forest resources is part of the everyday life of those populations.

Accordingly, agriculture is the main economic sector in Zambézia province, with 91.1% of the economically active population working in the agricultural sector (INE, 2010). The level of production is nevertheless low, agricultural activities being essentially subsistence means. The main form of land use is small-scale sedentary and shifting cultivation of maize, cassava, small grains and pulses. “Slash-and-burn” agriculture, in particular, is widely practiced in Miombo areas. This practice appears well adapted to the generally infertile soils of Miombo but has become the first driver of deforestation in the ER Program area – see section 4.

Table 12: Economically Active People (EAP) by sector and province (2008/09)

<table>
<thead>
<tr>
<th>Territory</th>
<th>EAP by Sector (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agriculture</td>
</tr>
<tr>
<td>Zambezia</td>
<td>91.1</td>
</tr>
<tr>
<td>National</td>
<td>81</td>
</tr>
</tbody>
</table>

INE, 2010

Those socio-economic conditions and, especially, stakeholders’ high dependence on forest resources, are key elements to be considered for the ER program. Ultimately, finding ways of changing natural resources unsustainable exploitation, transforming agricultural practices and securing income for rural population in the ER Program area should is central to the REDD+ jurisdictional program (Mercier et al., 2016).
4. DESCRIPTION OF ACTIONS AND INTERVENTIONS TO BE IMPLEMENTED UNDER THE PROPOSED ER PROGRAM

4.1 Analysis of drivers and underlying causes of deforestation and forest degradation and existing activities that can lead to conservation or enhancement of forest carbon stocks

This sub-section is based on (i) the study on the drivers of deforestation and forest degradation realized during the Readiness phase by Winrock International and CEAGRE (2015) for national (Mozambique) and regional (Northern Mozambique) estimates; and on (ii) the analysis provided in Mercier et al. (2016) for the ranking of the main drivers of deforestation and forest degradation in the ER Program area more specifically.

Between 2000 and 2012, in Mozambique, the mean historical deforestation rate is 0.23% per year. This represents an annual loss of 138,000 ha of forest and an amount of emissions close to 12 MtCO₂e per year (Winrock International and CEAGRE, 2015 - data based on Hansen et al., 2013). According to Winrock International and CEAGRE (2015), in Mozambique, deforestation is concentrated in areas of greater population density: it is the most intense in Northern Mozambique, where the ER Program area is located. In Northern Mozambique, between 2000 and 2012, the mean historical deforestation rate is 0.29% per year. The main drivers of deforestation and forest degradation in Northern Mozambique are described in the figure below, based on the model of Winrock International and CEAGRE (2015), in which it was assumed that the impact of forest degradation is captured in the estimates of deforestation.
Direct drivers of deforestation and forest degradation in the ER Program area

As stated earlier, in Northern Mozambique and in Zambezia province, the ER Program area is an especially important front of deforestation - see section 2.2. The mean annual deforestation rate in the ER Program area between 2005 and 2015 is 35,061 ha/yr, the total deforestation within the same period accounting for 350,610 ha.

Although they are not exactly the same\textsuperscript{14}, the shares of the drivers of deforestation and forest degradation in Northern Mozambique and in the ER Program area present some similarities; in both cases: (i) small-scale agriculture is, by far, the first driver of deforestation; (ii) forestry account for a significant part of forest degradation; (iii) large-scale agriculture is not considered as a significant driver of deforestation. An important difference is charcoal production: in the ER Program area, it is not considered as a driver of deforestation but as a driver of forest degradation almost exclusively (Mercier et al., 2016). The main drivers of deforestation and forest degradation in the ER Program area are summarized in Box 1 and detailed below.

\textbf{Box 1: Summary of the main direct drivers of deforestation and forest degradation in the ER Program area and how they inter-relate}

\begin{quote}
Although large-scale agriculture is almost non-existent in the ER Program area, \textbf{small-scale agriculture is, by far, the first driver of deforestation in the ER Program area}. It is due to itinerant (“slash and burn”) agriculture, especially for the production of maize and cassava, based on a land extension strategy, aiming at optimizing work productivity – and, to a lesser extent, overcoming poor soil fertility. \textit{Deforestation practices linked to slash and burn agriculture are also serving charcoal production}: in the ER Program area, it has been observed that the production of charcoal is almost exclusively derived from trees that are selected in areas that will be deforested for the opening of agricultural fields in the near future. Consequently, \textbf{in the ER Program area, small-scale agriculture and charcoal production are highly linked and, currently, charcoal production does not have any additional impact on forest cover}, relatively to agriculture. However, given the high population growth and the increasing need in charcoal and energy in the area, charcoal production might increase in the future. Because it is produced through a process of tree selection based on species and geographical position (next to the roads and cities), \textbf{it is still an important driver of forest degradation to address}.

Another important driver in the ER Program is the forestry sector, through too fast attribution of lands, leading to a rapid exploitation of the available timber, with low selection of tree species. With this regard, it should be noted that few forest concession operators are fully compliant with legislation and operational requirements. To the contrary of small-scale agriculture, which only is responsible for deforestation, \textbf{the forestry sector is also, and especially, an important driver of forest degradation}, due to miss-respect of concessions management plans. Outside of forest concessions - and, especially, in the
\end{quote}

\textsuperscript{14} This could partly be explained by the fact that, in the study by Winrock International and CEAGRE (2015), the impact of forest degradation on forest cover is captured in the estimates of deforestation.
buffer zone of the GNR - illegal logging accounts for most of forest degradation, with a thorough process of tree selection based on precious timber species.

To sum up, in the ER Program area, deforestation is, by far, mainly driven by small-scale agriculture and, to a far lesser extent, by the forestry sector, whereas forest degradation is mainly caused by forest exploitation - in forest concessions and outside, through illegal logging - and, to a lesser extend, by charcoal production - which is for now strongly linked to deforestation practices for agricultural purpose but remains an important driver of forest degradation to address.

Small-scale agriculture

In Mozambique, small-scale agriculture is defined as subsistence agriculture, with most of the production being consumed within the household. It is a familial agriculture, practiced by smallholders in rural area. These smallholders’ farming systems are capital extensive and use few inputs: less than 5% of households use mineral fertilizers (Leonardo et al. 2015). The cultivation system is usually made in mix fields, including cereals (especially maize), tubers (cassava, sweet potatoes, yams), legumes (peanuts, beans) and horticulture, but the two main food crops are, by far, cassava and maize, for which the production techniques are defined by itinerant agriculture (Sitoe et al., 2013). Maize and cassava play a key role in the population’s diet: those two crops alone represent more than 50% of caloric intake across the country, according to FAO 2011 Food balance sheet (Mercier et al., 2016).

Just like at national scale and in central-northern Mozambique – where it accounts for, respectively, 65% and 72% of deforestation (Winrock International and CEAGRE, 2015) – small-scale agriculture is, by far, the first driver of deforestation in the ER Program area (Mercier et al., 2016). It is related to the unsustainable land use practices including land clearing - continuous expansion of total area of cultivated lands for subsistence agriculture, based on “slash and burn” techniques.

In the ER Program area too, the two main food crops are cassava and maize, of which most of the production is also realized in mixed-fields (Mercier et al., 2016). The link between maize and cassava production and deforestation in the ER Program area is twofold (Mercier et al., 2016):

- First, it should be noted that in, the ER Program area, maize and cassava production cannot be separated, as small producers are used to culture associations and rotations within a same cleared plot. Most of the time, the first year of cultivation is restricted to maize because it is more demanding than cassava and needs to benefit from soil fertility; cassava is introduced in the same field from the second year.
- Second, the production pattern of maize (and associated cassava) follows a land expansion strategy. Savanna lands are characterized by poor soil fertility and, without any appropriate measures, they require a high amount of work for poor yields. Consequently, smallholders, looking for better soil fertility and optimization of their work productivity, deforest small part of forested land and grow on these new plots.

Eventually, with soil fertility depletion or excessive presence of weeds, they abandon this field (called “ruina” in Mozambique) and open a new field next to it by deforesting a new part of forest: this dynamic explains continuous extension of deforestation around rural localities that are mostly inhabited by farmers.
For seven districts of Alto Molocué, Gilé, Ilé, Maganja da Costa, Mocubela, Mulelava and Pebane, and according to the production statistics elaborated by the District Services for Economic Activities (Serviço Distrital das Atividades Económicas - SDAE), maize and cassava account for more than 56% of the agricultural area. However, Mercier et al. (2016) estimated this surface to reach 75% of total cultivated areas in the same seven districts. Both assumptions strengthen the position of the maize - cassava couple as the primary driver of land occupation in ER Program area.

![Figure 7: Breakdown of surfaces by crop in 2014 in the districts of Alto Molocué, Gilé, Ilé, Maganja da Costa, Mocubela, Mulelava and Pebane (SDAE)](image)

![Figure 8: Breakdown of surfaces by crop in 2014 in the districts of Alto Molocué, Gilé, Ilé, Maganja da Costa, Mocubela, Mulelava and Pebane (Rongead & Etc Terra in (Mercier et al, 2016))](image)

Just like in the rest of the country, where only 5% of households use mineral fertilizers, the main available resources for farmers in the ER Program area are their land and labor (Leonardo et al. 2015). Studies have shown that maize cultivation by smallholders is not constrained by land but by labor availability during peak season, especially for weeding (Leonardo et al., 2015; Baudron, 2009). In the context of the ZILMP, with no access to
external inputs (no animal traction, no mechanization, no fertilizers) and as long as forest land is available, the easiest way to increase labor productivity is to seek better natural fertility and lesser weed presence in newly cleared areas. Admittedly, smallholders’ move towards extensification rather than intensification is the very basis of the deforestation mechanism we observe in the ER Program area (Baudron et al. 2012).

**Charcoal production**

In Mozambique, the consumption of fuel wood is estimated to reach 9.3 and 5.5 million tons per year in, respectively, rural and urban areas. This represents a total consumption of 14.8 million tons per year at national level (Sitoe et al., 2013). The high demand through the informal markets for biomass energy in the urban areas has led to unsustainable exploitation of wood for charcoal in rural areas.

As stated in Mercier et al. (2016), because the production of charcoal is especially concentrated around urban areas, where the consumption is higher, and because it focuses on a few species only, it might be a driver of forest degradation almost exclusively - see **Box 2**. However, in the ER Program area, it seems that charcoal production is already accounted for in the deforestation process linked to small-scale agriculture. Indeed, charcoal production is associated with slash and burn agriculture: the majority of it is derived from trees that are selected on areas that will be deforested for the settlement of agricultural fields the same year or the year after. This assumption is significant as it means that charcoal production does not, currently, have any additional impact, relatively to agriculture, on forest cover - may it be in terms of deforestation and forest degradation. This is coherent with the facts that on field surveys have shown that, in the ER Program area, few producers have made charcoal production their unique economic activity: it usually constitutes their secondary revenues source, with 83% of charcoal producers also having another economic activity that often is, if not always, agriculture (Mercier et al., 2016)\(^{15}\). However, given the high population growth and the increasing need in charcoal and energy in the ER Program area, especially around urban centers, charcoal production is expected to remain stable or increase in the future (Mercier et al., 2016). It is, therefore, still an important driver of forest degradation to address.

**Box 2: Charcoal production in the ER Program area**

In the ER Program area, charcoal production is concentrated next to the roads (on a 2 km radius in average) and especially in areas characterized by a good availability of resources – that is, areas where forest cover is higher (Gilé and Maganja da Costa districts). The main supply basin in size and production is located around Alto-Molocué. The basins of Gilé, Maganja and Ilé are similar in size and production, which can be explained by their distance to main roads (Ilé) and to high forest cover (Gilé and Maganja).

According to Mercier et al. (2016), charcoal producers make, on average, 21 kilns of 3 to 6 m long every year. Their yields are usually low, hardly reaching 20% (Falcão, 2008), with an averaged production of 1.6 bags of 48 kg per m³.

The *Brachystegia spiciformis* and *Julbernardia globiflora* species, which are the main species found in the Miombo forest in ER Program area, are preferred species used for charcoal production, thanks to their size, abundance and combustion properties. In addition,
trees are selected in a small area located around kilns (25 meters radius in average) to ease wood transport.

Based on the production data and total consumption in the main district capitals of the ER Program area, (Mercier et al., 2016) deducted the average number of charcoal producer around urban centers in the seven districts of Gilé, Pebane, Ilé, Alto Molocué, Mulelava, Mocubela and Maganja da Costa.

Table 13: Characterization of charcoal consumption in urban centers in the districts of Gilé, Pebane, Ilé, Alto Molocué, Mulelava, Mocubela and Maganja da Costa

<table>
<thead>
<tr>
<th></th>
<th>Gilé</th>
<th>Pebane</th>
<th>Maganja da Costa</th>
<th>Alto Molocué</th>
<th>Ilé</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of inhabitants</td>
<td>21,969</td>
<td>22,535</td>
<td>13,438</td>
<td>37,437</td>
<td>15,570</td>
<td>110,949</td>
</tr>
<tr>
<td>Percentage of charcoal consumers in the city population</td>
<td>74%</td>
<td>63%</td>
<td>86%</td>
<td>93%</td>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>Mean number of bags consumed per month per households</td>
<td>2.8</td>
<td>2.6</td>
<td>2.6</td>
<td>2.4</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Equivalent in tons per year</td>
<td>3,707</td>
<td>3,684</td>
<td>3,036</td>
<td>7,634</td>
<td>3,363</td>
<td>21,424</td>
</tr>
<tr>
<td>Consumption of charcoal in t/year/household</td>
<td>1.5</td>
<td>1.6</td>
<td>1.7</td>
<td>1.3</td>
<td>1.4</td>
<td></td>
</tr>
</tbody>
</table>

Mercier et al., 2016

Table 14: Characterization of the charcoal production in the supply basins of urban centers in the districts of Gilé, Pebane, Ilé, Alto Molocué, Mulelava, Mocubela and Maganja da Costa

<table>
<thead>
<tr>
<th>Urban centers sampled in the ER Program area</th>
<th>Gilé - from the Miombo forest</th>
<th>Pebane - from mangroves</th>
<th>Maganja da Costa</th>
<th>Alto Molocué</th>
<th>Ilé</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radius of the supply basin in km</td>
<td>22</td>
<td>17</td>
<td>3</td>
<td>17</td>
<td>29</td>
<td>17</td>
</tr>
<tr>
<td>Estimates of the number of producers working in the supply basin</td>
<td>580</td>
<td>185</td>
<td>98</td>
<td>401</td>
<td>930</td>
<td>729</td>
</tr>
<tr>
<td>Mean number of kilns per producer per month</td>
<td>19</td>
<td>18</td>
<td>29</td>
<td>11</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Mean length of kilns in m</td>
<td>3.3</td>
<td>6.2</td>
<td>5.6</td>
<td>5.5</td>
<td>5.2</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Mercier et al., 2016

**Forestry**

In the ER Program area, the share of forestry in forest degradation can be explained by: (i) illegal logging, focused on specific rare and precious timber; (ii) a too rapid expansion of
areas granted under simple licensing exploitation, with subsequent fast exploitation of available timber; non-sustainable exploitation practices in concessions and simple licenses areas.

**Box 3: Forestry in the ER Program area**

In Mozambique, forestry is defined by forest concessions (allocation of lands to private companies for 50 years, which requires a precise management plan) and simple licenses (5 years permit for a maximal harvesting amount of 500 m$^3$ per year on an area that should not exceed 10,000 ha; for Mozambican citizens only). In recent years, the total surface of land granted in concessions and simple licensing has significantly increased in Zambézia province: in 2011, operational concessions and simple licenses represented, respectively, 15% and 4% of the area covered by the seven districts of Gilé, Pebane, Ilé, Alto Molocué, Mulelava, Mocubela and Maganja da Costa; in 2015, they represented, respectively, 31% and 21% of this area (Mercier et al., 2016).

The commercial exploitation of native trees species is done through a selective regime (species and sizes). Although the list of commercial timber species in Mozambique’s legislation recognizes about 118 species, less than 10 species are actually exploited for commercial purposes, including Umbila (*pterocarpus angolensis*), panga-panga (*Millettia stuhlmannii*), chanfuta (*Afzelia quanzensis*), blackwood (*Dalbergia melanoxylon*) and mondzo (*Combretum imberbe*) (Sitoe et al., 2013).

Forest degradation due to forestry is a different issue for the ER Program, as it is essentially driven by the international demand and failure of local law enforcement. As stated by Mercier et al. (2016), in Mozambique, the total exported wood quantities are higher than the licensed quantities: most exports are illegal and, therefore, excluded from official reports (Mackenzie 2006; Mackenzie and Ribiero, 2009). Statistical analysis conducted by the Environmental Investigation Agency (EIA, 2014) estimated that, in 2013, 93% of all commercial logging in Mozambique was illegal; between 2007 and 2013 it was, in average, 81% of commercial logging (EIA, 2014). More importantly, 50% of the quantities of timber shipped out of Zambézia is believed to be illegal (Ekamn et al., 2013; Mackenzie 2006; Mackenzie and Ribiero 2009). Illegality lies in different practices, from illegal harvest that do not respect management plans to violation of labor laws, violation of transport laws and illegal exports of unprocessed timber for first class species (Ekamn et al., 2013; Mackenzie 2006; Wertz-Kanounnikoff et al., 2013).

<table>
<thead>
<tr>
<th>Land cover classes</th>
<th>2011</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area</td>
<td>Concessions</td>
</tr>
<tr>
<td>Total area (ha)</td>
<td>3,865,062</td>
<td>594,925</td>
</tr>
<tr>
<td>Proportion of the area</td>
<td>100%</td>
<td>15%</td>
</tr>
<tr>
<td>Forest cover in 2013 (ha)</td>
<td>1,983,784</td>
<td>461,045</td>
</tr>
<tr>
<td>Proportion of the forest</td>
<td>100%</td>
<td>23%</td>
</tr>
<tr>
<td>Historical annual deforestation rate between 2010-2013</td>
<td>-0.86%</td>
<td>-0.39%</td>
</tr>
</tbody>
</table>
The impact of forestry on forest conservation should therefore be degradation rather than deforestation, as illegal logging and exploitation pressure are concentrated on a few species, and forest degradation is expected to be higher in areas under simple licensing, due to a fast attribution of lands, leading to a rapid exploitation of the available timber. Some cases of deforestation have nevertheless been identified by Mercier et al. (2016), especially in areas under simple licensing where deforestation can reach up to 0.86% per year. However, since land use is actually not restricted by law in forest concessions and in areas under simple licenses - which only guarantee ownership on timber - this may be explained by "slash and burn" agricultural practices conducted by smallholders inside of forest concessions and areas under simple licenses.

In addition, in Mozambique and in Zambézia province especially, current practices are based on short cutting cycles that jeopardize logging sustainability: although it is acknowledged that a 30 years rotation would be necessary in the Miombo forest to ensure regeneration after selective logging (Mackenzie and Ribiero 2009), management plans are usually based on a 20 years rotation, or less - often 5 to 10 years rotation. EIA (2014) estimates that, with a linear evolution of the 8% exploitation growth rate, the exploited species stocks would be exhausted within 15 years. With this regard it should be noted that, in 2015, DINAF held a nation-wide evaluation (audit) of 154 forest concessionaires and 727 simple license holders to assess their compliance against a set of criteria based primarily on national legislation. This first evaluation revealed low levels of compliance of the sector with national legislation (IDA, 2017). In the same way, according to a comprehensive evaluation of Mozambique’s forest concession operators in February 2016, only 7 concessions (5%) were fully compliant with legislation and operational requirements. Most forest management plans are outdated or not implemented, technical capacity is low and concessions lack of investments in regeneration, reforestation or protection activities (IDA, 2017).

Other potential drivers

**Large-scale agriculture** - In Mozambique, commercial agriculture, or large-scale agriculture, is limited and represents, in 2013, only 5.7% of total cultivated lands in Mozambique – that is 321,314 ha out of 5,634 million ha of cultivated lands. According to Winrock International and CEAGRE, 2015), large-scale agriculture, which is mainly driven by tobacco and cotton cultivation, only accounts for 4% of total deforestation in Mozambique. In the ER Program area, large-scale agriculture is not identified as a significant driver either.

In the districts of Gilê, Pebane, Ilê, Alto Molocué, Mulelava, Mocubela and Maganja da Costa, large-scale agriculture is almost non-existent. Little large-scale exploitations were settled during colonization, especially in Pebane and Maganja da Costa; they entail coconut plantations, which have been abandoned since then, and irrigated perimeter for rice, which have partly been rehabilitated.

In recent years, only one DUAT for large-scale agriculture was granted, to Cister company, for 250 ha of beans, in Alto-Molocué district. According to Mercier et al. (2016), large-scale exploitations are not responsible for current deforestation in those seven districts, with one exception in Ilê with the Chá de Socone tea plantation: created during colonization and abandoned during the war, it is now being restored through forest clearing.
It should be noted that, while commercial agriculture is not considered to be a significant driver of deforestation today, it could become one, if growth corridors envisaged by the Government are developed without adequate spatial and land-use planning.

In the two additional districts of Mocuba and Gurué, added in the ER Program area (see section 3) large-scale agriculture is more significant. However, although it may be higher in Mocuba and Gurué, the role played by large-scale agriculture in the ER Program as a whole is still not expected to out-weight the role played by small scale agriculture, which is by far the main driver of deforestation in Mozambique in general. In addition, in Northern Mozambique, it is established that large-scale agriculture only account for 2% of deforestation (Winrock International and CEAGRE, 2015). Consequently, the intervention planned in the proposed ER Program, while being defined in a comprehensive approach, does not especially focus on large-scale agriculture – see section 4.3 for more details.

Other drivers - No other factor has been identified as significant enough to be considered as a driver of deforestation in the ER Program area. It should be noted that mining in the ER Program area only focuses on two commodities: tantalum and heavy sands. Although a few concessions have been granted for tantalum exploitation, the deforestation impact of tantalum mining concessions is low, as the exploitation pit were opened a long time ago. In the same way, although two heavy sand prospection licenses were successful in the ZILMP area, exploitation has not started yet – and is not expected to start in near future. Likewise, urban sprawling is not considered as a direct driver of deforestation in the ER Program area - no plan at provincial level for new transport infrastructure in the ZILMP area and new houses are usually implanted on fields that already are opened for agriculture. However, urban extension reveals a growing demography that has to be sustained by additional agriculture production (Mercier et al., 2016).

Indirect drivers of deforestation and forest degradation
The analysis of the direct drivers of deforestation and forest degradation shows that these processes have complex roots that extend across different sectors of development. The direct drivers of deforestation are all interlinked with indirect and underlying causes that are both economic and social. They are related to population growth, poverty and the demand for timber products on the international market and include: (i) limited access to high productivity technologies by much of smallholders or means to implement them including sparse extension network; (ii) poor governance and weak enforcement of land, forests and environmental legislation; (iii) demand for food and wood products in the domestic and international markets and inadequate employment and income opportunities in the rural areas.

Poverty is the most important underlying cause of deforestation, with small income and poor access to alternative source of income for rural population being primary drivers for their unsustainable exploitation of forest. Their social environment is meaningful, forest and natural resources being used for traditional and hunting purposes – see section 3.

Demography and high population growth are other underlying causes, linked to the fact that the main identified drivers of deforestation and forest degradation in the ER Program area
are anthropic activities. Mercier et al. (2016) identified four major demographic forces in the ER Program area:

- Natural demography, especially from the historical Molocué settlement: Cultural and social organization, based on low centralization and little accumulation strategies (whether in the form of “plantation” or “cattle”), favors a diffuse population and extensive land use;

- Resettlement of people displaced by the war: In some scarcely populated areas and still highly forested, we can observe households re-opening plots that had been occupied a few decades ago, as attested by the presence of mango and cashew trees within the forest;

- Extension of coastal populations: coastal settlements - which are denser and have received influx of people during the war - supplied by international aid, are redeploying towards forest areas. This is especially true for southern area of the GNR;

- People who settle for mining and gather the typical characteristics of colonization as “veins” farms. They are especially present in the area northeast of Gilé.

Admittedly, with increasing demography in the ER Program area, pressure on forest is expected to rise, increasing deforestation and forest degradation rates, while the available lands will be reduced in some districts; this may intensify rural migration towards urban centers, with a subsequent increase of the demand for charcoal (Mercier et al., 2016).

At this stage, it should be noted that wildfires - which are frequent in the ER Program area - are not considered as a systematic underlying driver of deforestation and forest degradation. Each year, fires occur in the ER Program area, may they be natural or triggered by human activities - for hunting purpose or due to losing control when opening agricultural fields through "slash and burn" practices. Depending on when exactly they happen during the dry season, fires can reach different intensities, which vary with the quantity of available dry herbaceous. Their impact on forest cover depends on this intensity (Ryan and William, 2011) but it is not systematically significant - there is no systematic death of trees resulting in a loss of carbon stock loss.

This can be explained by the fact that Miombo forest is adapted to this pressure: although not all the woody species are equally sensitive to fire, the overall Miombo woodland species and most species present in ER Program area (especially Brachystegia and Julbernardia) are tolerant to fire (Cauldwell and Zieger, 2000). As a consequence, only late and very frequent fires can cause small scale forest degradation: generally speaking, Miombo forests are adapted to these events (Ryan and William 2011) and, actually, fires are one of the most significant ecological factors that control their structure (Chidumayo 1997).

However, despite the high capacity of Miombo species to coppice (Williams et al., 2008), when those fires are too frequent, they may have a higher impact on regeneration potential, preventing seedlings from growing. In addition, wildfires may cause changes in chemical composition, compaction and soil erosion (MINAG/SPFFB, 2002).

Frequent fires may raise soil and atmospheric temperatures, reduce organic matter, release gaseous elements and, indirectly, modify both the post-fire microclimate and the activity of the soil biota (Zolho, 2005). This may have direct consequences on vegetation composition and carbon cycles in the ER Program area, both influenced by fires frequency and fires
intensity. Several ER Program planned interventions therefore focus on fire management – see section 4.3
Table 16: Population density and deforestation per inhabitant for each district of the ER Program area (2005(2007) – 2014) – mangrove excluded

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alto-Molocué</td>
<td>630,812</td>
<td>275,155</td>
<td>44</td>
<td>259,960</td>
<td>360,604</td>
<td>57</td>
<td>227,596</td>
<td>0.090</td>
<td>0.041</td>
</tr>
<tr>
<td>Gilé</td>
<td>896,516</td>
<td>171,091</td>
<td>19</td>
<td>581,217</td>
<td>195,349</td>
<td>22</td>
<td>543,366</td>
<td>0.194</td>
<td>0.104</td>
</tr>
<tr>
<td>Ilé</td>
<td>303,411</td>
<td>293,054</td>
<td>97</td>
<td>102,624</td>
<td>327,558</td>
<td>108</td>
<td>90,147</td>
<td>0.038</td>
<td>0.014</td>
</tr>
<tr>
<td>Maganja da Costa</td>
<td>267,925</td>
<td>280,000</td>
<td>105</td>
<td>96,501</td>
<td>310,471</td>
<td>116</td>
<td>94,134</td>
<td>0.008</td>
<td>0.004</td>
</tr>
<tr>
<td>Mocubela</td>
<td>499,234</td>
<td>105266</td>
<td>21</td>
<td>327,213</td>
<td>na</td>
<td>na</td>
<td>319,636</td>
<td>na</td>
<td>0.051</td>
</tr>
<tr>
<td>Mulevala</td>
<td>261,685</td>
<td>74665</td>
<td>29</td>
<td>133,979</td>
<td>na</td>
<td>na</td>
<td>126,358</td>
<td>na</td>
<td>0.044</td>
</tr>
<tr>
<td>Pebane</td>
<td>1,005,479</td>
<td>187,289</td>
<td>19</td>
<td>603,705</td>
<td>220,040</td>
<td>22</td>
<td>582,546</td>
<td>0.096</td>
<td>0.063</td>
</tr>
<tr>
<td>Mocuba</td>
<td>873,300</td>
<td>303,973</td>
<td>35</td>
<td>549,006</td>
<td>375,934</td>
<td>43</td>
<td>504,246</td>
<td>0.074</td>
<td>0.039</td>
</tr>
<tr>
<td>Gurué</td>
<td>560,600</td>
<td>301,034</td>
<td>54</td>
<td>100,815</td>
<td>390,419</td>
<td>70</td>
<td>73,144</td>
<td>0.115</td>
<td>0.055</td>
</tr>
<tr>
<td>** Total ER Program area**</td>
<td>5,298,962</td>
<td>275,155</td>
<td>51</td>
<td>2,755,020</td>
<td>na</td>
<td>na</td>
<td>2,561,173</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>** Total Zambézia**</td>
<td>10,347,800</td>
<td>3,890,453</td>
<td>38</td>
<td>na</td>
<td>4,682,435</td>
<td>45</td>
<td>na</td>
<td>na</td>
<td>na</td>
</tr>
</tbody>
</table>

* Mercier et al., 2016
** Data extracted from (INE, 2007a)
*** Data from Etc Terra for ER-PD (2017)
Figure 9: Main tendency of population density in the ER Program area
Existing policies that can lead to conservation or the enhancement of carbon stocks

This subsection describes complementary programs, projects and initiatives related to REDD+ and upon which the ER Program will partly rely for its implementation.

National programs

◆ Agricultural sector

The agricultural sector is both a key for the national economy and the main driver of deforestation in Mozambique, as explained previously. The MASA has shown its commitment, those past few years, to raising rural incomes and improving food security with, inter alia, initiatives such as the Strategic Plan for the Development of the Agricultural Sector (PEDSA) - see section 2.2 - and the Adaptation Program for Action (NAPA). Through promoting an integrated competitive and sustainable agriculture sector, they set a political and practical relevant environment for the implementation of the ER Program, of which the core planned interventions are based on the promotion of sustainable agricultural practices - see ERI-D1 & ERI-D3 in section 4.3.

◆ The national Program for Sustainable Development and the *Projecto Floresta em Pé*

To implement its vision, MITADER formulated a new sustainable rural development program known as the National Program for Sustainable Development, which is a vision of integrated rural development guided by the priorities of PQG - see section 2.2. The National Program for Sustainable Development provides for an integrated development model for rural areas and is a key component of both MITADER's mandate and of the underlying landscape vision of the ER Program. This program is bolstered by complementary projects in, inter alia, conservation areas (see the MozBio project, below) and land rights (see the "Terra Segura" project, below). It is also strongly linked to the Standing Forest project ("Floresta em Pé").

The project *Floresta em Pé* aims to promote the protection, conservation, creation, use and valuing of forest resources in a rational, responsible and transparent manner that is expected to foster economic, social and environmental benefits and build resilience to climate change. To this end, *Floresta em Pé* has developed seven specific objectives that are also meaningful components of the proposed ER Program. They include: (i) the adaptation of forest policy and legislation to current challenges; (ii) the improvement of transparency in the forest sector, with the introduction of effective and participatory mechanisms based on the active involvement of communities, forest operators and civil society; (iii) the promotion of forest conservation activities; (iv) support to private sector through the development of the national timber industry in order to diversify and maximize the value chains in the forestry sector; (v) support to community management of forest resources - particularly of non-timber forest products; (vi) the promotion of increased job opportunities in the forest sector; (vii) the identification of available international funds and national revenue sources for the protection, and conservation of forests.

Defined at national scale, those objectives, which reflect a new political commitment to forest conservation in Mozambique (as explained in section 2.2), are expected to enhance the ER Program, of which most the planned interventions are reaching for the same goals.

---

16 A new Forestry Law is currently being designed to replace the forestry elements of the 1999 Forest and Wildlife Law – it is reaching an advanced pre-publication stage. The Land Law may also be revised during 2017/18
Internationally funded programs

◆ MOZFIP - Mozambique Forest Investment Project - USD 47 million

The Forest Investment Program (FIP) provides financing for REDD+ efforts in developing countries in order to address key drivers of deforestation and forest degradation with a focus on transformational change.

MozFip is a five years program (2017 – 2022) financed by the World Bank IDA, a Multi Donor Trust Fund and the Climate Investment Fund (CIF) that was endorsed by the FIP committe in June 2016 with a total budget of USD 47 million; and approved by the World Bank board in March. The main objective of MozFip is to improve the practices and enabling environment for forest and land management in targeted landscapes in Mozambique. Guided by the National REDD+ Strategy and governmental strategies, MozFip represents the GoM’s ambition for transformational change to address the drivers of deforestation and promote sustainable rural development. It is envisioned as a large-scale, modular framework for implementing the National REDD+ strategy across the country, including ambitious reforms in the forest sector.

One of its three components is based in the promotion of integrated landscape management, including through supporting the Zambézia landscape ER Program, in order to address the most important drivers of deforestation while reducing rural poverty. MozFip will actually be crucial for the implementation of the ER Program in Zambézia, which it will partly contribute to finance: it will especially support the regularization of land tenure, land-use planning, the promotion of integrated landscape management tools, multipurpose planted forests, the development of agroforestry systems and the introduction of sustainable charcoal production techniques. It will also set the basis to foster sustainable forest management with the development of the national land use plan, the strengthening of forest governance and the promotion of sustainable forest management initiatives.

◆ MOZDGM - The Dedicated Grand Mechanism in Mozambique - USD 4.5 million

The Dedicated Grant Mechanism (DGM) for Local Communities is part of a global program - the Dedicated Grant Mechanism for Indigenous Peoples and Local Communities (DGM) under the FIP. Its objective is to provide grants that enhance the capacity and support specific initiatives of local communities in FIP pilot countries. Acting as a funding mechanism, but with independent governance and decision-making, the DGM in Mozambique (MozDGM) has a 5-year project execution period.

MozDGM will promote synergies between MozFip and other REDD+ activities in Mozambique, including with the ER Program. Its main objective is to strengthen the capacity of local communities, community-based and civil society organizations to participate actively in sustainable forest and land management and REDD+ processes. It operates at two levels: (i) the national level, focusing on capacity building and institutional strengthening and (ii) the landscape level, focusing on the implementation of activities that promote sustainable local community initiatives in the two selected landscapes, including in the ER Program in Zambézia.

17 Mozambique is one of the new pilot countries, following Brazil, Burkina Faso, Democratic Republic of Congo, Peru, Indonesia, Ghana, Lao and Mexico.
◆ "Sustenta" project - Agriculture and Natural Resources Landscape Management project (2016 – 2021) - USD 40 million

The Agriculture and Natural Resources Landscape Management project (the “Sustenta” project) was approved in June 2016 for a total budget of USD 40 million. It covers 5 districts in Nampula province and 5 districts in Zambézia province – which are all part of the ER Program area. Its main objective is to contribute to improving the livelihoods of rural households and the sustainability of natural resources, with a strong emphasis on supporting new private sector investments in agriculture and on creating new value chains that can integrate local farmers and thus diversify and enhance their incomes. This objective will be achieved by promoting inclusive and sustainable agricultural and forest-based value chains through, *inter alia*, expanding the network of Small Emerging Commercial Farmer (SECF), supporting key investments of agribusinesses along the value chains and improving land tenure security.

The “Sustenta” project is therefore fully aligned with the ER Program, to which it is expected to highly contribute. The project encompasses 450,000 rural households, who mostly use traditional, low productivity agriculture practices: reducing “slash and burn” agriculture through the strengthening of value chains, which is a core objective of this project, is also a crucial component for and complementary to the ER Program initiatives. In addition, this project has an important land rights dimension: it will support the identification of land registration of collectively-held community “land use and benefit rights” (DUAT) and it will support the titling of DUATs of individual households within these communities. These activities create the tenure security needed for local people to take part in new economic activities and value chains that are also supported by the ER Program. They are essential for its successful implementation (Tanner, 2017a) – see section 4.4 on land tenure assessment.

◆ MOZBIO - Conservation Area for Biodiversity and Development Project (2016 – 2018) - USD 46.32 million

The Conservation Area for Biodiversity and Development Project (Mozbio) project is a 4 years project funded by the World Bank through the International Development Association (IDA) and the Global Environment Facility (GEF) for a total budget of USD 46.32 million. It is implemented in Mozambique by the National Agency for Conservation Areas (ANAC) and Biofund. Its overall objective is to increase the effective management of conservation areas and to enhance the contribution of these areas to the living conditions of surrounding communities. It is expected to directly benefit local people living within and around the targeted conservation areas through the promotion of sustainable livelihood activities.

The project is based on 5 components that are all relevant with regard to the ER Program. They include: (i) the institutional strengthening of conservation areas’ management at national scale; (ii) the promotion of tourism in conservation areas, in order to increase revenues and the number of beneficiaries from tourism-related economic activities in conservation areas; (iii) the improvement of conservation areas management (including through wildlife surveys and monitoring); and (iv) piloting sustainable community livelihoods around conservation areas, in order to foster the sustainable management of natural resources by local communities and to reduce deforestation and forest degradation.

This last component is especially important for the ER Program. It is applied in the surroundings of the GNR, located in the ER Program area, in the two districts of Gilé and Pebane, where pilot activities are implemented to address the main drivers of deforestation,
promote sustainable forest resource management and sustainable economic development. The activities carried out in this context are fully complementary to the ER Program ambitions and are expected to highly contribute to the forecasted emissions reductions:

(i) Law enforcement and enhanced protection of biodiversity in and around the GNR through capacity strengthening and improved surveillance;

(ii) Development of community management plans for non-timber products;

(iii) Promotion of conservation agriculture practices and agro-forestry;

(iv) Promotion of improved techniques for charcoal production;

(v) Promotion of a sustainable use of forest based on natural regeneration;

(vi) Valorization of the cashew value chain to increase smallholders’ revenues.

Figure 10: Map of other REDD+ project in the ER Program area with forest cover change
4.2 Assessment of the major barriers to REDD+

The barriers to applying REDD+ initiatives and therefore reducing deforestation are at the same time political, financial and institutional. From a more practical point of view, the application of REDD+ initiatives is also undermined by the lack of tangible information as a base for REDD+ projects designing. At local scale, with regards to the agents of deforestation themselves, the main barriers include poverty and the lack of alternative sources of income, among other factors.

Political, institutional and financial barriers to REDD+

From a political and institutional point of view, it should be noted that REDD+ implies high commitment from the government in order to meet its requirements. Although strong progress has been made in Mozambique, there still is room for improvement of the political and institutional framework for REDD+ and ER Program implementation.

Legal framework, law implementation and institutional challenges

Admittedly, Mozambique has a progressive legal framework for the promotion of sustainable forest management, even though its implementation might have had mixed success. Transparency and, especially, the accountability to the law by private sector entities and government officials is still a challenge, particularly in the timber industry. The current scenario is characterized by irrational and unsustainable use that occurs in the exploration and illegal export, mainly marked by the widespread breach of the rules and procedures of the law (MITADER, 2015).

Current forestry legislation clearly defines economic, social, ecological and institutional objectives and strategies to achieving them. All objectives are underpinned by principles of sustainable use, ecological integrity, creation of positive impact to the national economy and ensuring benefits to forest dependent communities. An interesting example of this is the GoM requiring 20% of timber royalties to return to communities for rural development purposes\(^{18}\). However, implementation of these various mechanisms is sometimes difficult as there is limited oversight of the proper delivery of the community share of royalty proceeds (IDA, 2016).

In addition, inter-institutional and sectorial collaboration is sometimes not performing enough. The coordination between the various sectors involved in REDD+ and in the implementation of the ER Program – such as environment, land, agriculture, energy, etc. - is crucial at all levels, from the national level to the provincial and district ones.

Those weaknesses indicate the need of increased transparency and the equitable application of laws is also necessary to ensure that access to opportunities and distribution of benefits is seen as fair to all stakeholder groups (IDA, 2016). Mozambique has already been working on this issue through various means, including the creation of the MITADER. In the same way, the legal framework associated to the management of forest in Mozambique is currently being reviewed. Indications from the first drafts are that the progressive nature of existing legislation with its focus on community rights and promoting partnerships with incoming investors is enhanced in the new law, which also introduces concepts like FPIC and clarifies the licensing and concession process.

\(^{18}\) See section 4.4 on Land Tenure Assessment and section 15 on Benefit Sharing Mechanisms for more details.
**Financial barriers**

Another barrier to REDD+ in Mozambique might be the financial component, characterized by a lack of upfront financing to support the adoption of new agriculture, forestry and charcoal production methods that are expensive and not commonly adopted as business as usual in the ER Program area. Developing innovative models for forest conservation, low emissions agriculture and sustainable development requires substantial investments to generate results in the long term. Yet, credit in the country is both expensive and difficult to obtain for many local operators. These financial barriers also constrain the ability to mobilize enabling investments that are needed to increase capacity, promote knowledge exchange and attract responsible businesses from the private sector and institutions committed to sustainable forestry production and deforestation free agricultural supply chains (IDA, 2016).

**Of significance for the ZILMP with regards to this barrier is the fact that most of its interventions falls under existing project (Sustenta, Mozbio, MozFip) for which the funding already are identified.**

**Lack of relevant data and information sharing**

**Poor accuracy of data on forest**

For long the forest sector has faced significant challenges in the provision of information, with the lack of timely, consistent and accurate data to support sound, evidence-based policy decision making and planning; limited information flow from central level to the district or the ground; insufficient data sharing and public access to data and information to ensure transparency; and the lack of an information system that has been systematically implemented at the district or field level (IDA, 2016).

**With regards to those barriers, a few measures have already been undertaken and should be underlined. Notably, a Forest Information system is currently being developed, with FAO technical support and financial backing from the MozFip program.** Its consolidating is actually part of the ER Program planned interventions, as described in section 4.3. This information system is designed to store data on forest and wildlife licensing, compliance efforts, contracts and elaborate reports.

An important module to be added to the information system is the MRV for forests, a specific tool required by the REDD+ process, for the measurement, reporting and verification of a country’s forest, and associated GHG emissions and removals, including their changes over time. **This, as well as a national forest inventory, are currently being designed in Mozambique and are expected to be concluded by end-2017. They are currently funded by the FCPF.**

**Poor information sharing with agents of deforestation**

In the same way, there used to be few platforms and consistent information sources in Mozambique enabling the involvement of civil society on policy implementation, lessons and challenges. The challenge is to improve timely availability of information to give opportunity for an informed response by communities. Several case studies (e.g. Nhantumbo and Salomao, 2009) have documented that this process is often not implemented according to regulations and some parties might use it to further their interests. Better information systems and better dissemination would enable stakeholders to participate in improving the
responsiveness of GoM institutions and create more incentive for greater compliance (IDA, 2016).

On that matter, it is worth noticing that the ER Program includes the creation, updating and continuous improvement of an interactive platform (GIS platform), relating all projects, activities and relevant data for forest conservation in the ER Program area - see section 5. This platform will be managed by the GoM thanks to data and information collected on the ground, with the support of the Zambézia Multi-Stakeholders Landscape Forum who will help provide part of the information, of the LCU who will help process the information for Zambézia. The creation and functioning of the Zambézia Multi-Stakeholders Landscape Forum actually is another meaningful initiative with regards to information sharing and stakeholders’ involvement - see section 5 for more details. The ER Program will also support it.

Weakeness in land zoning and tenure rights

Community land delimitation is a key instrument to reduce land conflicts and increase communities’ land tenure security. It is also important to create a base of community management of land and natural resources, and set the stage for local agreements with investors and new programs such as the ER Program. Despite recent and significant progress, with initiatives led by civil society organizations in cooperation with the GoM, land zoning and tenure right are not fully operational yet. Land zoning and secured tenure rights are believed to be essential for reducing deforestation as they enable stakeholders to invest in other practices on their own lands, and to assess performance with regards to emissions reduction - see section 4.4 on Land Tenure Assessment and section 15 on Benefit Sharing Mechanisms for more details.

This is a critical point that will be addressed in the ER Program and, especially, through the Sustenta and MozFip projects.

Barriers linked to the agents of deforestation

With regards to the barriers to REDD+ linked to the agents of deforestation themselves, as stated earlier, the main barriers remain poverty and the lack of alternative sources of income for rural population who is highly dependent on forest resources for their day-to-day life from an economic and social point of view – see section 3. Poor professional and economic opportunities linked to a limited access to credit may undermine the adoption of any other practices based on the reduction of forest exploitation, if this is not proven as economically beneficial for rural communities living in the ER Program area. This is also intensified by the difficulty to achieve compliance, at local scale, with forest law, as well as by the lack of strong community-based organizations, which undermines coordination of planned activities on the field.

Economic and financial viability of production, transformation and use of goods and the integration of actions that lead to reduced deforestation and forest degradation that are socially and culturally adapted to the local context are therefore meaningful components of Mozambique REDD+ Strategy and the ER Program.
4.3 Description and justification of the planned actions and interventions under the ER Program that will lead to emission reductions and/or removals

ER Program comprehensive approach: integrated landscape management program

The ER Program will be based on an integrated landscape management approach that recognizes the link between agricultural development, natural resources management and governance, both in terms of institutional management and practical implementation. This approach also implies that interventions have to be applied at the scale of the nine districts altogether in order to have efficient local impact on rural poverty and natural resources sustainability. This approach is fully aligned with Mozambique’s national REDD+ Strategy, which aims to promote integrated cross-cutting interventions to reduce carbon emissions associated with land use and land use change through adherence to the principles of sustainable management of forest, contributing to global mitigation and adaptation efforts to an integrated rural development.

Figure 11: Cross-cutting interventions and topics to be covered in the ER Program

The ER Program will be implemented through a cooperative approach combining national policies components, programs and projects activities across various levels of the government (at national, provincial and district levels) and multiple stakeholders (government, smallholders, communities, private sector, NGOs, etc.) to maximize funds and institutional capacity. The ER Program is based on a comprehensive approach, taking into
account the policies and activities described in section 4.1. It will therefore combine (i) “command-and-control” policies for land use to (ii) positive incentives for stakeholders to adopt new practices based on a sustainable use of forest resources (UT REDD+, 2015a). The proposed ER Program integrated approach aims to address the drivers of deforestation and degradation while generating rural development benefits by combining land-based economic activities with the management and conservation of natural resources, as shown in the crosscutting interventions described in Figure 11.

Overview of the prioritization of the ER Program activities

The prioritization of the ER Program activities depends on various factors, including their implementation risks and potential benefits. Most of the implementation risks of the ER Program interventions can actually be assessed through Reversal risks – see section 11 for more details on those risks and their assessment. As stated in section 11, key risks associated with the ER Program are political and financial risks, including the risk of the lack of long-term effectiveness in addressing the underlying drivers of deforestation and forest degradation.

Accordingly, the priority activities are those already funded through existing projects and initiatives that were listed in section 4.1.

The risk related to the difficulty to address the underlying drivers of deforestation and forest degradation is actually related to most of the ER Program activities aiming at changing non-sustainable behavior of the identified agent of forest degradation and deforestation. Those activities will all be implemented at the same time, considering the fact that their degree of implementation success – especially with regards to the adoption of sustainable practices based on behavior change for local population – depend on various factors: most of the ER Program interventions are mutually supporting and, eventually, reinforcing. This view is coherent with the comprehensive approach of the ER Program.

Prior to those activities, land tenure regularization, especially community delimitation, is a pre-requisite for most of the interventions. As explained in section 11, improved accountability and sense of « ownership » on forest areas through collaborative management and participatory forest monitoring is key to the ER Program success. This will be pursued through providing security over land to all actors and particularly to the communities. Secure tenure rights can give local people a strong stake in any developments involving natural resources. In addition, a sense of secure tenure that is respected by other parties also predisposes them to actively support the implementation of activities that at first sight may seem unfamiliar and in conflict with their livelihoods strategies (Tanner, 2017a). Those activities are key to and will be funded by the "Sustenta" and MozFip projects.

Planned actions and interventions

The Table 17 summarizes the main strategic objectives and associated planned interventions of the ER Program. They are linked to the six Strategic Objectives (SO) of the National REDD+ Strategy, which were followed and translated into concrete operational ER Interventions (ERI). For each area of intervention, the drivers of deforestation that are being addressed are clearly identified. Table 18, 19, 20 and 21 provide for more details on the various actions to be implemented under the ER Program. It should be noted that, because many of the actions are crosscutting interventions, they could actually fit in various topics within the four pillars that were defined above.
## Table 17: Summary of strategic objectives (SOs) and planned interventions (ERIs) of the ER Program

<table>
<thead>
<tr>
<th>Strategic objectives (SO) of the National REDD+ Strategy</th>
<th>Strategic objectives broken down into ER Program planned Interventions (ERI)</th>
<th>Drivers/underlying causes of deforestation and forest degradation and/or barriers to REDD+ that are addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross cutting actions and inter-institutional coordination (SO1): institutional and legal platform for inter-agency coordination to ensure the reduction of deforestation</td>
<td>Coordination and management of the ER Program (implementation of a grievance redress mechanism, oversight of field activities, fiduciary and safeguards management and communications, monitoring, evaluation and reporting, etc.) and support to the PMR</td>
<td>- Lack of community organization and engagement;</td>
</tr>
<tr>
<td>ERI – A1: Coordination and management of activities</td>
<td></td>
<td>- Poor inter-institutional and sectorial collaboration.</td>
</tr>
<tr>
<td>ERI – A2: Institutional development and strengthening and intersectoral communication</td>
<td>Financing of the additional costs of FNDS related to project management, including the costs of the Landscape Coordination Unit at the provincial level</td>
<td></td>
</tr>
</tbody>
</table>
**Strengthening of ANAC, Biofund and CITES secretariat**

**ERI – A3) Community awareness and capacity building – ensuring stakeholders’ involvement and participation in the ER Program**

Capacity building for local communities and CGRNs (decision-making, accountability, transparency, local governance, business planning and management, use and management of funds, partnerships with the private sector, use of information technology, etc.)

Workshops, trainings, meetings, communication and consultation about ER Program and REDD+, including through the consolidating of Multi-Stakeholders Landscape Forum in Zambézia (MSLFP) – also in ERI-B2

---

**B. Land Planning**

**Cross cutting actions and inter-institutional coordination (SO1):** institutional and legal platform for inter-agency coordination to ensure the reduction of

**ERI – B1: Regularizing land tenure**

Community land delimitation with community delimitation certificates, community land use plans and strengthening of community-based organizations (CBOs)

- Lack of organized process for recognizing land tenure and zoning, including for communities;
- Lack of community organization and

**Issuance of individual DUATs**
### C. Law enforcement and forest governance and management

**Conservation areas (SO4):**
Strengthening the system of protected areas and finding safe ways of generating income

**Sustainable Forest Management (SO5):**
Promoting the system of forest

<table>
<thead>
<tr>
<th>ERI - C1: Protection of conservation areas and restoration of natural habitats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoration of natural habitats through Assisted Natural Regeneration (ANR) and enrichment planting</td>
</tr>
<tr>
<td>Improvement of the management regime of the Gilé National Reserve</td>
</tr>
</tbody>
</table>

- Lack of effective control of conservation areas and of their boundaries (illegal logging, small scale agriculture);
- Poor benefits of conservation areas for local communities;

**ERI - B2: Improvement of districts land use planning & promotion of community level land use planning**

- Provision of technical advisory services and equipment to conduct land demarcations, natural resource mappings and legal registration
- Availability of grants for implementing subprojects, including micro-zoning for territorial management plans

(ERI-A3: consolidating of Multi-Stakeholders Landscape Forum (MSLF) in Zambézia)

- Strengthening of land administration services and upgrading of the land administration system
- Implementation of geospatial tools at the provincial and district levels to improve land-use planning, including with the operationalization of a GIS platform

- Development of the National Land Use Plan

**Deforestation**

- Lack of effective control of conservation areas and of their boundaries (illegal logging, small scale agriculture);
- Poor benefits of conservation areas for local communities;
<table>
<thead>
<tr>
<th>Concessions and Community Management and Strengthening Forest Governance</th>
<th><strong>Restoration of degraded forests and planting trees (SO6):</strong> Establishing a favorable environment for the increase of plantations areas, forestry businesses, restoration of natural forests and planting of trees for various purposes.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ERI – C2:</strong> Strengthening of forest governance, transparency and forest management</td>
<td><strong>Law enforcement and protection of biodiversity around the GNR</strong></td>
</tr>
<tr>
<td></td>
<td>- Illegal logging on selected species of precious timber and limited cost of “being illegal”;</td>
</tr>
<tr>
<td></td>
<td>- Lack of efficient control of licensing and management plans;</td>
</tr>
<tr>
<td></td>
<td>- Non-sustainable exploitation practices in licensed areas.</td>
</tr>
<tr>
<td></td>
<td><strong>Support to the government’s forest law enforcement institutions (particularly AQUA and ANAC)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Improvement of national monitoring, detection and land information systems, including with support to a forest information system</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Support to the National Forest Forum</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Training to forest operators and to forest administration</strong></td>
</tr>
</tbody>
</table>
### D. Sustainable production, livelihood and income generation

<table>
<thead>
<tr>
<th>Agriculture (SO2): Promoting alternative technique to shifting agriculture to ensure increased productivity of subsistence and cash crops</th>
<th>ERI-D1: Promotion of conservation agriculture and agroforestry system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support to agroforestry systems through technical assistance, provision of inputs, distribution of fruit trees and assistance to targeted nurseries</td>
<td></td>
</tr>
</tbody>
</table>

**ERI-D2: Structuring of key sustainable value chains**

**Study and analysis of the commercial potential of various cash-crops around the GNR**

- Lack of alternative source of income for forest
- Small scale agriculture based on “slash and burn” practices and uncontrolled wildfires
- Poor soil fertility associated with labor constraint
- Low income and poor social conditions
- Growing demography and increase of urban population

Trainings to conservation agriculture with extension services, support and monitoring of smallholders’ activities
(forestry-based value chains) for cash crops and support to the establishment of commercial agriculture in areas with no forest cover

- Technical assistance for cash crops production, training on quality standards and on the maintenance of orchards, provision of inputs for smallholders around the GNR

- Technical assistance to small emerging commercial farmers and other key rural micro, small and medium enterprise agribusiness, including on business plans

- Improvement of key selected rural infrastructures for commercialization of cash crops

- Implementation of a market information platform to support cash-crops producers, with the diffusion of information on markets dynamics and prices through SMS around the GNR

- Agribusiness finance to value chains actors, including support to access credit and financing schemes for agribusinesses (matching grant and partial credit guarantee)

Restoration of degraded forests and planting trees (SO6): Establishing a favorable environment for the increase of plantations areas, forestry businesses, restoration of natural forests and planting of trees for

- Lack of accessible alternative source of energy;

ERI-D3: Promotion of multipurpose plantations

Implementation of a planted Forests Grant Scheme and support to community out grower schemes

- Lack of alternative source of income for forest resources dependent rural population;

- Growing demography and increase of urban population;

- Poor access to markets for smallholders with limited information and infrastructure;

- Low income and poor social conditions.
## Energy (SO3): increasing access to alternative sources of biomass in urban areas and increasing the efficiency of production and use of biomass energy

<table>
<thead>
<tr>
<th>ERI-D4: Promotion of sustainable charcoal production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plantation of fast growing trees for energy purpose</td>
</tr>
<tr>
<td>Support to local producers for the creation of improved kilns for charcoal production</td>
</tr>
<tr>
<td>Training of producers for the elaboration and implementation of forest management plans and for the creation of partnerships with private operators</td>
</tr>
<tr>
<td>Training to Assisted Natural Regeneration (ANR) techniques to limit the negative impact of charcoal production</td>
</tr>
</tbody>
</table>

- Lack of accessible alternative source of energy;
- Wild production of charcoal to respond to high demand through informal market;
- Low yields of charcoal production techniques;
- Low income and poor social conditions;
- Growing demography and increase of urban population;

## Conservation areas (SO4): Strengthening the system of protected areas and finding safe ways of generating income

<table>
<thead>
<tr>
<th>ERI – D5: Valorization of the income generating potential of the GNR and sustainable livelihood around the GNR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of sustainable tourism in the GNR with support to a community sport hunting area</td>
</tr>
</tbody>
</table>

- Poor benefits of conservation areas for local communities;
- Limited exploitation of the revenue potential of conservation areas;

Sustainable use of NTFP
<table>
<thead>
<tr>
<th>A- Development, coordination and monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>(SO1): institutional and legal platform for inter-agency coordination to ensure the reduction of deforestation</td>
</tr>
<tr>
<td>(ERI - A1): Coordination and management of activities</td>
</tr>
<tr>
<td>(ERI – A2): Institutional development and strengthening and intersectoral communication</td>
</tr>
<tr>
<td>(ERI – A3): Community awareness and capacity building – ensuring stakeholders’ involvement and participation in the ER Program</td>
</tr>
</tbody>
</table>

**Drivers and underlying causes of deforestation and forest degradation and/or barriers to REDD+ that are addressed**

- Poor inter-institutional and sectorial collaboration
- Lack of community organization and engagement

**Description**

The good implementation of the ER Program, with **efficient coordination and management (ERI-A1)**, will require good relay at local scale, through improving both national and provincial government capacity and structures. Admittedly, **institutional development and strengthening and intersectoral communication (ERI-A2)** is a core objective of the ER Program. At local scale, capacity building will also be oriented towards communities, through participatory mechanisms. Community awareness is crucial to **ensure stakeholders’ involvement and participation in the ER Program (ERI-A3)**.

- Activities comprised in ERI-A1 are related to the coordination and management of the ER Program. This set of activities is expected to enhance intersectoral communication and coordination with and within the government and agencies. They include the management and monitoring of contracts, oversight of field activities that service providers, technical assistants, and consultants may implement along the ER Program lifetime, oversight of compliance with the safeguards policies and the implementation of a grievance redress mechanism – **see section 14**.

As part of ERI-A1 activities, support will also be given to both PMR and FNDS to coordinate and monitor the activities and manage financial and human resources in an efficient, results-oriented manner. Additional costs of FNDS related to activities management will especially be guaranteed by the MozFip program. This includes support for project coordination and management, including fiduciary and safeguards management and communications.

Activities of ERI-A1 also encompass support for monitoring, evaluation and reporting, including collecting baseline data, contracting service providers for data collection and reporting on indicators and conducting analyses when needed for supervision and evaluation. Financing of necessary audits and other studies according to the work plans and budgets, and any quality oversight needed through independent financial and technical audits, will be financed.
through the ERI-A1 component.

- Strongly linked to ERI-A1 are the activities related to institutional strengthening (ERI-A2). To ensure the sustainability of the ER Program activities, institutional development among relevant institutions is planned, for key public and private sector entities and in various aspects. As previously stated, this includes the establishment and operationalization of the PMR and LCU in Zambézia, but not only: the MozBio project focuses on the improvement of the capacities of ANAC, Biofund and CITES Secretariat.

Support to ANAC is based on the provision of equipment, technical assistance and training to improve the management of conservation areas and nature-based tourism development, in terms of staffing (including with the development of competitive human resources procedures and the provision of trainings), of administrative and internal management issues (planning, procurement, financial management, monitoring and evaluation, auditing and communication), for the elaboration and application of relevant regulations and policies and for its activities of awareness-raising (communication strategy, materials, events, etc.);

Support to Biofund is based on, *inter alia*: (a) the capitalization of the endowment fund for conservation areas (including the GNR, located in the ER Program area); and (b) the operationalization of Biofund with the provision of equipment, financing of operating costs and technical assistance, including the design and implementation of a fundraising strategy.

Support to CITES secretariat aims to adequate implementation of the CITES Convention in Mozambique, which is fundamental to improve wildlife management and has a direct impact on promoting tourism, especially for sport hunting - which is an important conservation-based income-generating activity (see ERI-D6).

- In order to ensure stakeholders’ involvement and participation in the ER Program, various elements are planned, including land tenure regularization activities – see ERI-B1. The activities comprises in ERI-A3 are more related to local capacity building and consultation processes. Those are important element of MozFiP, which supports governance reforms at national level - including improved efforts on communication and consultations. In this way, support will be provided to the Government to develop a broad and strategic communication plan that focuses on strategic communication approaches, improving existing communication channels and capacities in the Government while improving and targeting communication materials aimed at the range of stakeholders involved. One of the main objectives of the communication efforts is to build trust and learning between government and national stakeholders, in particular local communities.

This will also be achieved through the support to the Multi-Stakeholders Landscape Forum (MSLF) in Zambézia, which offers a platform for communication and transparency between the various stakeholders, including at provincial level.

At local scale, capacity building will also be based on the communities living around conservation areas – in this case, around the GNR – and, especially, on the Natural Resources Management Committees (*Comité de Gestão de Recursos Naturais*, CGRNs) including through the MozBio and the MozDGM projects. Associated activities comprise the training of local communities on
decision-making, accountability, transparency, local governance, business planning and management, use and management of funds, partnerships with the private sector and use of information technology. MozBio will also support the carrying out of capacity building programs for the design and implementation of subprojects. MozDGM will support capacity-building and institutional-strengthening activities for communities and civil society organizations. The activities to be financed aim to strengthen communities’ knowledge and technical capacity on matters related to climate change and forest and land management, as well as their managerial and grant-making competencies.

**Activities**

- **ERI-A1**: Coordination and management of the ER Program (implementation of a grievance redress mechanism, oversight of field activities, fiduciary and safeguards management and communications, monitoring, evaluation and reporting, etc.);
- **ERI-A2**: Financing the additional costs of FNDS related to project management, including the costs of the LCUs at the provincial level;
- **ERI-A2**: Support to the Directorate for the Mobilization of Funds (PMR);
- **ERI-A2**: Strengthening of ANAC, Biofund and CITES secretariat;
- **ERI-A3**: Capacity building for local communities and CGRNs (decision-making, accountability, transparency, local governance, business planning and management, use and management of funds, partnerships with the private sector and use of information technology);
- **ERI-A3**: Workshops, trainings, meetings, communication and consultation about ER Program and REDD+, including through the consolidating of Multi-Stakeholders Landscape Forum in Zambézia.

**Table 19: ERIs related to land planning**

<table>
<thead>
<tr>
<th>B - Land Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>(SO1): Institutional and legal platform for inter-agency coordination to ensure the reduction of deforestation</td>
</tr>
<tr>
<td>(ERI – B1): Regularization of land tenure</td>
</tr>
<tr>
<td>(ERI - B2): Improvement of districts land use planning &amp; promotion of community level land use planning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drivers and underlying causes of deforestation and forest degradation and/or barriers to REDD+ that are addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of organized process for recognizing land tenure and zoning, including for communities</td>
</tr>
<tr>
<td>Lack of community organization and engagement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land planning through <strong>land tenure regularization (ERI-B1)</strong> and the improvement</td>
</tr>
</tbody>
</table>
of districts and community level land use planning (ERI-B2) - including the promotion of integrated landscape management tools - is a critical component of the ER Program. As explained in sections 4.4 and 11, land tenure is a key element to ensure communities' involvement in the ER Program: stronger community land rights are expected to increase incentives for investments in long-term land use and for the adoption of sustainable land use practices. It is also likely to lead to greater benefits for local communities, including through win-win partnerships with the private sector. Accordingly, the ER Program provides for a significant component based on an integrated landscape management through securing land tenure regularization at the community and individual levels.

- ERI-B1 is supported by both the "Sustenta" and the MozFip projects, which provide for the issuance of individual DUATs and for community land delimitation: whereas the "Sustenta" project aims to secure land tenure rights of 270 rural communities and 150,000 individuals, the objectives of the MozFip project are the land delimitation of approximately 160 communities (community delimitation certificates, community-level land-use plans, strengthening of CBOs) and the issuance of approximately 3,100 DUATs to small and medium landholders engaged in forest plantations and agroforestry.

It should be noted that linking the delimitation process to business-oriented strengthening of CGRNs and CBOs actually is a key aspect of the "Sustenta" project approach, in line with the ER Program. Capacity building will have a dual goal, related to strengthening their management skills and capacity to (a) transform the sustainable management of natural resources into benefits to communities — for example, through activities such as nature-based tourism and forest-based value-chains development (see D – Sustainable production, livelihood and income generation) and (b) negotiate and implement mutually beneficial partnerships with investors interested in land or other resources available in the area. The delimitation identifies where local land rights exist (the collective ones of the local communities and/or the more individualized DUATs held by households or associations) and ensure these rights are officially registered. All in all, land tenure regularization will improve local communities' capacity to plan the use of natural resources over which they have rights and to enhance the capacity of local actors on land-use planning and on multi-stakeholder planning.

In the ER Program area, this action is reinforced by (i) the MozBio project that includes the provision of technical advisory services and equipment to conduct land demarcations, natural resource mappings and legal registration in order for communities to be able to engage in sustainable management of natural resources; (ii) MozDGM, which supports local communities and community-based organizations through grants for implementing subprojects, including micro-zoning for territorial management plans.

- The ER Program also provides for the improvement of districts and community level land use planning (ERI-B2). This is partly based on the strengthening of land administration services. With this regard, the "Sustenta" project comprises the strengthening of the capacity of provincial and district offices with the following objectives: (a) to improve the competencies of the provincial and district cadastral officers and national-level DINAT staff and (b) to strengthen the

---

19 Those objectives are for the entire areas cover by the two programs, in Zambézia and Cabo Delgado ("Sustenta" project) and national level (MozFip).
capacity in land administration services to issue community delimitation certificates and DUATs. This will be based on the provision of trainings to relevant staff at the recipient’s district and provincial level.

The promotion of the use of spatial tools that can inform land-use planning is also relevant, as spatial planning allows trade-offs over land allocation to be discussed among stakeholders in a transparent manner. Spatial tools include new technologies (use of geographic information systems, for instance) and participatory approaches. Precisely, the “Sustenta” project and the MozFip project will finance capacity-strengthening interventions and equipment. Efforts will also be devoted to the development of spatial planning capacity (including GIS).

In the same way, the MSFL, supported by the ”Sustenta” project (see A – Development, coordination and monitoring), will be a useful means to foster a common vision for management of the landscape across stakeholders.

Another important tool provided for the ER Program is Mozambique’s National Land Use Plan (NLUP). Supported by MozFip, it will enable national land use plan aiming to promote long-term sustainable land use decisions, including in the ER Program area. The NLUP will include a dynamic modeling platform for evaluating interventions for improved land-use management.

- **ERI-B1**: Community land delimitation with community delimitation certificates, community land use plans and strengthening of community-based organizations (MozFip: 160 at national scale; ”Sustenta”: 270 at landscape level – Zambézia and Cabo Delgado);

- **ERI-B1**: Issuance of individual DUATs (MozFip: to small and medium landholders engaged in planted forests and agroforestry at national level; ”Sustenta”: 150 000 at landscape level – Zambézia and Cabo Delgado);

- **ERI-B1**: Provision of technical advisory services and equipment to conduct land demarcations, natural resource mappings and legal registration (for communities to be able to engage in sustainable management of natural resources);

- **ERI-B1**: Availability of grants for implementing subprojects, including micro-zoning for territorial management plans;

- **ERI-B2 (& ERI-A3)**: Consolidating of Multi-Stakeholders Landscape Forum in Zambézia;

- **ERI-B2**: Strengthening of land administration services and upgrading of the land administration system (training, equipment);

- **ERI-B2**: Implementation of geospatial tools at the provincial and district levels to improve land-use planning (equipment acquisition and training), including the operationalization of a GIS platform;

- **ERI-B2**: Developing the National Land Use Plan (NLUP) to promote more sustainable long-term land-use decisions.
Table 20: ERIs related to law enforcement and governance in the forest sector

<table>
<thead>
<tr>
<th>C- Law enforcement and governance in forest sector and forest areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>(SO4): Strengthening the system of protected areas and finding safe ways of generating income</td>
</tr>
<tr>
<td>(SO6): Establishing a favorable environment for the increase of plantations areas, forestry businesses, restoration of natural forests and planting of trees for various purposes</td>
</tr>
<tr>
<td>(SO5): Promoting the system of forest concessions and community management and strengthening forest governance</td>
</tr>
<tr>
<td>(ERI – C1): Protection of conservation areas and restoration of natural habitats</td>
</tr>
<tr>
<td>(ERI – C2): Strengthening of forest governance, transparency and forest management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drivers and underlying causes of deforestation and forest degradation and/or barriers to REDD+ that are addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of effective control of conservation areas and of their boundaries (illegal logging, small scale agriculture)</td>
</tr>
<tr>
<td>Poor benefits of conservation areas for local communities</td>
</tr>
<tr>
<td>Illegal logging on selected species of precious timber and limited cost of “being illegal”</td>
</tr>
<tr>
<td>Lack of efficient control of licensing and management plans</td>
</tr>
<tr>
<td>Non sustainable exploitation practices in licensed areas</td>
</tr>
</tbody>
</table>

- The protection of conservation areas and restoration of natural habitats (ERI-C1) in the ER Program is based on support to the restoration of specific areas and on the improvement of the management of the GNR (conservation area).

The development of Assisted Natural Regeneration (ANR) techniques on deforested or degraded areas is crucial, as it enables to restore natural forest cover after ancient or recent cut. Given the regenerative capacity of Miombo forest, it is well suited for the ER Program area and will be applied in specific, targeted, zones of the ER Program area. It is part of the activities comprised in the Mozbio project, in which it is linked to the promotion of sustainable techniques for charcoal production (see ERI-D4) around conservation areas (in this case, around the GNR). The Mozbio project entails: (i) the promotion of ANR on 200 ha of degraded areas around the GNR; (ii) the management of 300 ha of forested fallows around the GNR with improved techniques for regeneration and (iii) the creation of 10 nurseries around the GNR for the production of Miombo autochthone trees plants to enrich forested fallows or to restore degraded areas. Local communities’ and community-based organizations’ projects linked to the restoration of degraded area could also be financed by MozDGM within the ER Program area.

In addition, the “Sustenta” project includes the restoration of 1,600 ha of degraded areas that are critical for specific value chains. The restoration of degraded land is expected to protect the productivity of topsoil, reduce erosion, and provide biological corridors for biodiversity. Critical areas for restoration will be identified through spatial analysis and participatory tools in order to select the most viable and effective areas. It should be noted that in

---

20 Those objectives are for the entire areas cover by the program, in Zambézia and Cabo Delgado.
the "Sustenta" project, restoration of degraded land includes ANR but also active enrichment planting with native and exotic species for conservation and domestic and commercial uses. Especially, enrichment planting is needed in highly degraded areas or to ensure that certain species are part of the new emerging forests.

The improvement of conservation areas’ management (in this case, of the GNR) is another component of ERI-C1. Institutional strengthening for conservation area and for the GNR management is an important issue for the ER Program, which will be supported by the Mozbio project. This component has been subdivided into two sub-components: i) improved management of the conservation area and ii) wildlife surveys and monitoring. Planned activities in the ER Program and supported by Mozbio comprise local measures such as the provision of specific training and field and office equipment (including communication hardware and software) and operating costs. Support to wildlife survey and monitoring will be provided to ANAC, responsible for monitoring key wildlife populations, especially those in the hunting areas. This subcomponent will develop various survey techniques and includes conventional stratified aerial surveys, road strip count surveys and abundance index techniques, and community-based monitoring systems. In addition, the Mozbio project is also supporting activities of law enforcement and protection of biodiversity around the GNR by strengthening rangers’ capacities to reduce illegal activities such as logging and poaching. Wildfires, triggered for agricultural or hunting purpose around the GNR, will also be subject to specific measures.

- The protection of conservation area also depends on the strengthening of forest governance, transparency and forest management (ERI-C2), both at local and national scale. Forest governance and forest management are strongly linked, especially with regards to benefits associated to the use of forest resources, which also plays a key role in the protection of conservation areas and of forest in general. Admittedly, the maintenance of illegal logging in the GNR and the possible spread of “slash and burn” agriculture from outside to inside of the GNR can be explained by various factors, among which the poor benefits associated to conservation areas for local population. The ER program has to offer incentives for local communities, who are used to engage in activities responsible for deforestation and forest degradation, to change their behavior and respect conservation area protection status. ER Program activities related to the sustainable use of forest resources and income-generating activities is addressed in table D, but, in addition to those, forest governance should rely on transparent mechanisms and efficient forest management, described below:
  - Forest governance and transparency. Improved forest governance is crucial to reduce forest-related crimes and illegal activities in the sector, to increase benefits to government and local communities from forest management and to ensure compliance with sustainable forest

---

21 With this regards, it should be noted that an assessment was undertaken during preparation to establish the management needs of all conservation areas in Mozambique. Needs were also prioritized, using selection criteria through a participatory process with key conservation stakeholders in the country. The main needs of the GNR are: operating costs, game translocation, staff accommodation, check points and outposts, electrification, game fence construction, new tourism facilities, communication (radios, etc.), rehabilitation of roads, construction of bridges, building of drifts/river crossing, construction of airstrips.
management practices. The improvement of forest governance and transparency at the national scale is a key component of the ER Program, as the control of illegal activities in the ER Program area is strongly linked to better management of the forestry sector at broader scale. In the case of the GNR for instance, this issue is very relevant: although the GNR staff has been working hard on limiting illegal logging in the GNR, it is still prevalent on specific rare species such as pau-ferro (*Swartzia madagascariensis*). Beyond local difficulties to prevent poachers from entering the GNR, illegal logging is eased by management weaknesses at provincial and national level. Accordingly, and as previously explained, the Mozbio project includes institutional strengthening at national scale, including the strengthening of the ANAC that is in charge of the GNR management (see A – development, coordination and monitoring).

In the same way, MozFip aims to support enabling and governance reforms in the forest sector, including through: (i) legal and institutional reform (technical assistance on the reform process); (ii) improvement of legality and transparency in the forest sector (better performance of national monitoring and detection systems, increase of the functionality of forest, environment and land information and monitoring systems, better coordination mechanisms amongst relevant institutions); and (iii) supporting enabling conditions for sustainability in the private sector (sustainable management of forests and promotion of planted forests).

Actually the ER Program, through MozFip, will address the main forest governance constraints in the forest sector by improving information management, monitoring and law enforcement in the forest sector, increasing institutional transparency and accountability across relevant institutions, creating the mechanisms for improving participatory decision-making in the sector and building the skills base and capacity of forest stakeholders around sustainability principles. Planned activities include support to the newly created National Agency for Environmental Quality and Control (AQUA) at the national level and in Zambézia. This will also comprise forest patrolling and increased surveillance, training and technical assistance on planning and monitoring for AQUA and, especially, establishment of AQUA’s provincial delegations in Zambézia (equipment, staff financing and training and operational costs).

Transparency will also be enhanced with support to the National Forest Forum and regular and participatory evaluations of the forest sector, promoted by MozFip in order to improve decision-making in the forest sector by promoting citizen engagement. In addition to support to the Forum, support will also be provided for a forest information system (equipment, data management infrastructure acquisition, capacity building) to increase transparency and accountability in the sector system by providing updated geo-referenced information on forest licensing, forest management plan implementation, inspection, and law enforcement.

---

22 The National Forest Forum is an entity formally created and steered by DINAF. It is composed of different forest stakeholders, including government, private sector, CSOs and academia. It has the objective to facilitate policy dialogue amongst stakeholders to reach consensus and serve as a national consultative platform on key forest-related issues.
From a more general point of view, it should be noted that transparency and the accountability to the law by private sector entities and government officials is an important topic for the ER Program, but this component is primarily handled at governmental level, including independently from the ER Program. Currently, there is a strong political will to reform the forest sector, with the recent endorsement of a new policy package including law enforcement elements, *inter alia*:

- Review of all forest operators in Mozambique;
- Moratorium from the 1st of January 2016 on the attribution of new concessions and licenses;
- Moratorium from the 1st of January 2016 on *pau-ferro* harvesting;
- Moratorium from the 1st of January 2016 on exportation of unprocessed logs, whatever the wood type.

*Forest management.* The ER Program also promotes the strengthening of natural forest management to ensure sustainable use of forest resources, to increase benefits to local communities and government and to add value to forest products. Section 4.1 already set the underlying causes of deforestation linked to the forestry sector that need to be addressed in the ER Program area. Through the MozFip project, the ER Program will support forest operators who are committed to sustainable forest management in obtaining forest certification and in adding value to forest products.

It will also support the forest administration, particularly at the provincial level, on different aspects of forest management, including forest management plan implementation and piloting new forest concession allocation systems. Planned activities comprise the improvement of forest concessions and the promotion of small scale forest business and of community enterprises and micro, small and medium enterprises (MSMEs) involved in sustainable forest management and forest products transformation (timber and non-timber) – through training and technical assistance on sustainable forest management practices and timber processing, equipment, consultancy and operational costs for selected small-scale sustainable forest businesses.

<table>
<thead>
<tr>
<th>Activities</th>
<th>ERI-C1: Restoration of natural habitats through Assisted Natural Regeneration (ANR) activities and enrichment planting;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ERI-C1: Improvement of the management regime of the Gilé National Reserve (improved management of the conservation area and wildlife surveys and monitoring);</td>
</tr>
<tr>
<td></td>
<td>ERI-C1: Law enforcement and protection of biodiversity around the GNR</td>
</tr>
<tr>
<td></td>
<td>ERI-C2: Support to the government’s forest law enforcement institutions (particularly AQUA and ANAC);</td>
</tr>
<tr>
<td></td>
<td>ERI-C2: Improvement of national monitoring, detection and land information systems, including with support to a forest information system;</td>
</tr>
<tr>
<td></td>
<td>ERI-C2: Support to the National Forest Forum;</td>
</tr>
</tbody>
</table>
Table 21: ERIs related to sustainable production, livelihood and income generation

### D - Sustainable production, livelihood and income generation

- **(SO2)**: Promoting alternative technique to shifting agriculture to ensure increased productivity of subsistence and cash crops
- **(SO6)**: Establishing a favorable environment for the increase of plantations areas, forestry businesses, restoration of natural forests and planting of trees for various purposes
- **(SO3)**: Increasing access to alternative sources of biomass in urban areas and increasing the efficiency of production and use of biomass energy
- **(SO4)**: Strengthening the system of protected areas and finding safe ways of generating income

#### Agriculture and value chains

- **(ERI-D1)**: Promotion of conservation agriculture and agroforestry system
- **(ERI-D2)**: Structuring of key sustainable supply chains (forestry-based value chains) for cash crops and support to the establishment of commercial agriculture in areas with no forest cover

#### Plantations and charcoal production

- **(ERI-D3)**: Promotion of multipurpose forest plantations
- **(ERI-D4)**: Promotion of sustainable charcoal production

#### Conservation areas

- **(ERI-D5)**: Valorization of the income generating potential of the GNR and sustainable livelihood around the GNR

<table>
<thead>
<tr>
<th>Drivers and underlying causes of deforestation and forest degradation and/or barriers to REDD+ that are addressed</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income and poor social conditions</td>
<td>The promotion of conservation agriculture and agroforestry system (ERI-D1) should be considered as one of the core components of the ER Program. As stated before, the increase of maize and cassava cultivation - and the</td>
</tr>
<tr>
<td>Growing demography and increase of urban population</td>
<td></td>
</tr>
<tr>
<td>Poor soil fertility associated with labor constraint</td>
<td></td>
</tr>
<tr>
<td>Small scale agriculture based on “slash and burn” practices and uncontrolled wildfires</td>
<td></td>
</tr>
<tr>
<td>Lack of alternative source of income for forest resources dependent rural population</td>
<td></td>
</tr>
<tr>
<td>Poor access to markets for smallholders with limited information and infrastructure</td>
<td></td>
</tr>
<tr>
<td>Lack of accessible alternative source of energy</td>
<td></td>
</tr>
<tr>
<td>Wild production of charcoal to respond to high demand through informal market</td>
<td></td>
</tr>
<tr>
<td>Low yields of charcoal production techniques</td>
<td></td>
</tr>
<tr>
<td>Poor benefits of conservation areas for local communities</td>
<td></td>
</tr>
<tr>
<td>Limited exploitation of the revenue potential of conservation areas</td>
<td></td>
</tr>
</tbody>
</table>
subsequent increase of land use - is the main driver of deforestation at national scale and in the ER Program area - see section 4.1. Given their strategic role in the population’s diet, improving agricultural practices, on the basis of agro-ecology and taking into account the constraints related to low labor productivity, is one of the most strategic options to reduce deforestation in the ER Program area.

Classic options to overcome fertility and weeding issues in a labor-constraint smallholding are the use of external inputs for fertility (from livestock and/or mineral fertilizers) and for weeding (chemical control or mechanic control of weeds). As shown in Mercier et al. (2016): (i) cattle cannot be introduced in the ER Program area due to trypanosomiasis prevalence; (ii) mineral fertilizer in Mozambique are only imported and, therefore, very expensive for smallholders and (iii) chemical control of weeds is difficult due to the high cost of chemical inputs and the environmental risk (loss of biodiversity, loss of nutrients cycles, toxicity). With no access to external inputs, intensification with the dissemination of agro-ecological practices for food production is the only response to fertility needs and weeding problems.

The FAO defines three broad principles that make up conservation agriculture: minimum or reduced soil disturbance, maintaining a permanent soil residue or vegetative cover, and crop rotations or intercropping with legumes (FAO, 2002). Conservation agriculture results in a reduction in labor needed for land preparation, improved soil fertility and a reduction in water stress, making it especially important to Mozambique in the context of regional impacts of climate change - which is marked by increased temperatures and increasingly erratic rainfall (see section 3) – and with regards to the previous explanation of the role of labor constraint in the appeal of “slash and burn” practices (see section 4.1). It should nevertheless be noted that in the case of agro-ecology, to date, there is no “one size fits all” solution. Progressive adoption of “good practices” by rural households requires the operators to adopt a pragmatic approach, close to households’ concerns, while integrating local and international economic dimensions. Refinements will be added according to the demographic and agro-ecological contexts of the various areas of the ER Program.

Those actions are especially supported by the MozFip project, which is promoting climate smart agriculture and conservation agriculture in order to increase productivity and income and to reduce the need for clearing new land. Extension services will be provided alongside financing. MozFip comprises the promotion of agro-forestry systems on approximately 1,500 ha by smallholders. Implemented as a pilot, this activity targets individual smallholder producers and informal and formal producer groups – including associations and cooperatives – with an initial goal of reaching approximately 3,000 producers. The project will finance agroforestry system inputs (seeds, tree seedlings, tools, fuel) and technical assistance to the targeted beneficiaries. A small number of nurseries identified near agroforestry system clusters will receive technical assistance to ensure that they meet the needs of agroforestry beneficiaries.

In the same way, the Mozbio project includes activities for sustainable forest management through the carrying out of activities related to agroforestry and conservation agriculture around the GNR, with direct support and training of people.

---

23 Those objectives apply at national level.
300 smallholders and indirect support of 900 smallholders (through the diffusion of the techniques by the 300 directly supported smallholders) for the adoption of agro-ecology techniques around the GNR and the distribution of 45,000 fruit trees to support agro-forestry systems.

- Among them, cashew trees hold a significant place that is enhanced in the ER Program set of activities aiming at structuring key sustainable value chains for cash crops (ERI-D2). Admittedly, the promotion of specific cash crops in the ER Program area is key to the ER Program activities: securing farmers’ incomes in the ER Program area is expected to facilitate risk taking and the adoption of new agro-ecological practices. Cash crops are still not valorized enough in the ER Program area and, currently, producers’ commercial strategies are based on minimum risk taking due to significant prices volatility, depending on global market and of the local structure of the value chain: they sale the majority of their products immediately after harvesting, in the numerous outlets on the roads that serve the area. This strategy is coherent with local constraints: limited market information and limited time for selling in certain parts of the ER Program area, which can quickly be landlocked during the rainy season (Mercier et al, 2016).

The planned activities of the ER Program with regards to cash crops and value chains valorization aim to address the constraints that currently prevent value chains from further developing and expanding. This includes the need to (i) strengthen technical capacity and skills among farmers to produce improved quality and increased quantity of selected commodities and to aggregate production for onward marketing; (ii) facilitate knowledge flow and the adoption of new technologies; (iii) strengthen other important value chains functions, such as financial services and risk management mechanisms; and (iv) invest in critical infrastructure to enhance market access and improve yields.

Those activities are supported by MozDGM (which will help financing sub-projects linked to sustainable agro-ecological production and the production and commercialization of artisanal and non-timber forest products) as well as the Mozbio and “Sustenta” projects. With this regards, the Mozbio project will, notably - and around the GNR: (i) provide for the training of 5,000 cashew producers on quality issues for their cashew nuts to meet specific quality standards and on the maintenance of orchards in combination with other crops; (ii) support the creation of an SMS platform to inform producers on a weekly basis on the cashew market dynamics and prices; (iii) finance a market study on the economic potential of the sesame and peanut commodities as other potential cash crops.

The “Sustenta” project also aims to increase smallholders and Small Emerging Commercial Farmers’ (SECF) participation in key agriculture and forest-based value chains. The agriculture value chains that have been identified include poultry, maize, soya, sesame, cashew nuts, beans, oilseeds, horticulture, and non-timber forest products (honey). The natural and planted forest value chains include honey, natural oils, and planted forest products such as timber and pulp. In average, in the “Sustenta” project, 10 SECFs per district will be supported – that is, 50 in the ER Program area. Planned activities for the ER Program include:

(i) Training and technical assistance to SECFs and key rural micro, small, and medium enterprise in agribusiness: value chains actors will be trained to on good agronomic practices and business and marketing skills. It should be
noted that in the Climate Smart Agriculture (CSA) principles of mitigation, enhanced productivity, and adaptation/resilience will be mainstreamed in extension services provided by SECFs. These practices will include, among others, the promotion of locally adapted drought-tolerant and short-maturing crop varieties, more efficient and effective fertilizer products, conservation agriculture techniques such as agroforestry, contour farming, mulching, reduced tillage, crop rotation, integrated pest management, and water management. SECFs will also be trained and supported to develop business plans and are expected to facilitate market linkages between rural households and larger agribusinesses in key commodities. In addition, support will be given to the growth of Micro, Small, and Medium Enterprise (MSME) agribusinesses, including SECFs, particularly in processing agricultural commodities, providing logistic services to smallholders (for example, storage, sorting, grading, and transport) and the provision of inputs. SECFs and MSME agribusinesses are the critical link between the large number of smallholder farmers and the few large agribusinesses. SECFs and MSME agribusinesses thus become the critical missing middle in Mozambique's agricultural value chains system.

(ii) Agribusiness finance to value chains actors with support to access credit, support to lowering the risk of exposure for participating financial institutions, implementing a weather-based agricultural index insurance scheme (“Index Insurance”) for the purpose of providing weather-based insurance coverage in respect of weather-based risks impacting farmers' production. The activities comprise support for acquisition of assets, working capital to SECFs and MSME agribusinesses that will enable the financing of additional and improved inputs and operating costs of machinery, and the availability of specific financing schemes for agribusinesses (matching grant and partial credit guarantee).

(iii) Improving rural infrastructure including through feasibility and design studies for irrigation and feeder roads, rehabilitation of irrigation schemes and rehabilitation and maintenance of rural roads. The objective of this activity is to improve agriculture and forest-based value chains by enabling factors related to key rural roads and irrigation infrastructure.

- Forest plantations are increasingly recognized for their important role in supplying the growing global demand for wood and wood products, including hardwood timber for furniture, general purpose and construction timber, transmission poles, and other products such as sustainable charcoal. **Multipurpose forest plantations (ERI-D3)**, established by local communities and small and medium landholders, will be supported by the ER Program (sawn wood, poles, wood chips, charcoal). In addition to contributing to restoring degraded areas (see table C and ERI-C1) and promoting agroforestry systems among small landholders (see ERI-D1) plantations are expected to contribute to the sustainable production of charcoal (ERI-D4). Plantations will especially be supported by the MozFip project with a dedicated planting forest grant schemes of which the objective is, precisely, to generate economic opportunities by promoting commercial tree plantations, to restore degraded areas and to link wood producers and markets. Within MozFip, the scheme aims to establish, in total, approximately 3,000 hectares of sustainable, multipurpose plantations and to restore around 500 hectares of degraded land through a performance-
based grants scheme, technical assistance to small and medium landholders and inputs to communities\(^2\). All in all, multi-purpose forest interventions will focus on supporting community out grower schemes in partnerships with the private sector and tree-planting to meet commercial, energy, conservation, restoration and community livelihoods needs. Notably, energetic plantations with high growing rate species, in order to ensure the sustainable production of charcoal and reduce the pressure on natural forest, will be part of this intervention.

- Admittedly, the **promotion of sustainable charcoal production (ERI-D4)** is significant in the ER Program and is based on the increase of wood transformation efficiency and the reduction of the overall use of wood for biomass fuel. The ER Program provides for specific actions in order to reduce the impact of charcoal production and consumption on forests.

With MozFip support, the ER Program will promote charcoal producers organizations to adopt forest management plans, promote higher efficiency in charcoal production, and build partnerships between producers and private operators in the forest sector to integrate charcoal production into forest operations. As the majority of producers also have another economic activity, they are settled in their area of production. Consequently, it is easier to identify them and to work with them on the adoption of sustainable practices. In order to meet market demand and achieve the same level of production for the use of less wood, the ER Program provides for the improvement of traditional kilns, currently characterized by low yields, without any additional investment and thanks to various techniques - management of humidity rate, temperature, duration of the pyrolysis, shape of the oven (Mercier et al., 2016). These kilns would be constructed of materials that are accessible in the area and need very low investment from producers. In the same way, with support of the Mozbio project, around the GNR, the ER Program will comprise the training of 165 charcoal producers to improved charcoal production techniques in the districts of Gilé and Pebane. 10ha of plantations for energy purpose are also planned.

- Finally, the Program entails a component aiming at **valorizing the income generating potential of the GNR and sustainable livelihood around the GNR (ERI-D5)**. This set of activities will mainly be supported by the Mozbio project, which includes a component aiming to increase revenues and the number of beneficiaries from tourism-related economic activities in conservation areas in Mozambique by addressing several barriers to nature-based tourism development, including: i) policy and regulations; ii) institutional challenges; iii) weak marketing; iv) inadequate planning; and v) lack of investments in tourism infrastructure. In addition to support to ANAC (*see table A – Development, coordination and monitoring*), planned activities in Mozbio include the provision of technical assistance for the establishment of a management system for the revenues collected by the conservation areas and for tourism and sport hunting statistics; the marketing and promotion of activities; the development of hunting areas plans; the organization of public-private partnership to manage and coordinate tourism and sport hunting.

Although tourism is not expected to be very significant in the GNR, the promotion of sport hunting is relevant for the ER Program and the creation of a sport hunting area is already ongoing. With this regards, planned activities

\(^2\) Those objectives apply at national level.
include: (i) the strengthening of the relationships with communities (implementation of a continued dialogue and strengthening of community associations, identification of potential benefits and options available to communities to utilize the revenue generated from the use of wildlife resources in the hunting area, etc.); (ii) support to regulatory framework (review of existing hunting contracts to establish the responsibilities of both parties, assessment of the revenue sharing modalities, support for drafting new/revised contracts that incorporate safeguards for all stakeholders, etc.); (iii) institutional and human capacity strengthening (development of standards for professional hunter licenses and of best practice standards, setting of sustainable quotas linked to monitoring and evaluation systems, development of a database on trophy hunting data, etc.).

The income generating potential of the GNR will also be valorized through the promotion of sustainable community livelihoods around the GNR. The objective of this component is to improve and strengthen natural resource-based livelihoods of communities around the GNR. It includes the promotion of non-timber forest products for local communities to diversify their use of forest resources, with the development of community management plans for non-timber products, such as mushrooms, to be implemented by the CGRNs around the GNR. The interventions to be promoted will cut across different sectors such as agriculture, forestry and energy, and will promote inter-sectorial coordination at the local level. They are therefore fully integrated in the previous ER Program planned interventions related to the sustainable production of charcoal (see ERI-D4), conservation agriculture (see ERI-D1) and the strengthening of key value chains (such as cashew nuts – see ERI-D2). It should be noted that these initiatives also contribute to the overall management of the GNR and are therefore also linked to ERI-C1 and ERI-C2.

### Activities

<table>
<thead>
<tr>
<th>Promotion of conservation and climate smart agriculture including:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ERI-D1</strong>: Trainings with extension services, support and monitoring of smallholders’ activities;</td>
</tr>
<tr>
<td><strong>ERI-D1</strong>: Support to agroforestry systems through technical assistance, provision of inputs, distribution of fruit trees and assistance to targeted nurseries;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structuring of key sustainable supply chains for cash crops, from production to transformation, selling and marketing with:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ERI-D2</strong>: Study and analysis of the commercial potential of various cash-crops around the GNR;</td>
</tr>
<tr>
<td><strong>ERI-D2</strong>: Provision of technical assistance for cash crops production, training on quality standards and on the maintenance of orchards, provision of inputs for smallholders around the GNR;</td>
</tr>
<tr>
<td><strong>ERI-D2</strong>: Provision and training of technical assistance to small emerging commercial farmers and other key rural micro, small and medium enterprise agribusiness, including on business plans;</td>
</tr>
<tr>
<td><strong>ERI-D2</strong>: Implementation of a market information platform to support cash-crops producers, with the diffusion of information on markets dynamics and prices through SMS around the GNR;</td>
</tr>
<tr>
<td><strong>ERI-D2</strong>: Agribusiness finance to value chains actors, including support to</td>
</tr>
</tbody>
</table>
access credit and financing schemes for agribusinesses (matching grant and partial credit guarantee);

- **ERI-D2**: Improvement of key selected rural infrastructures for commercialization of cash crops;

Development of multi-purpose plantations with:

- **ERI-D3**: Plantation of fast growing trees for energy purpose;
- **ERI-D3**: Implementation of a planted Forests Grant Scheme and support to community out grower schemes;

Improvement of charcoal production through:

- **ERI-D4**: Trainings of and assistance to local producers for the creation of improved kilns for charcoal production;
- **ERI-D4**: Training of producers for the elaboration and implementation of forest management plans and for the creation of partnerships with private operators;
- **ERI-D4 (& ERI-C1)**: Training to assisted natural regeneration techniques to limit the negative impact of charcoal production;

Valorizing the income generating potential and sustainable livelihood around the GNR with:

- **ERI-D5**: Improvement of sustainable tourism in the GNR with support to a community sport hunting area;
- **ERI-D5**: Sustainable use of NTFP.

### 4.4 Assessment of land and resource tenure in the Accounting Area

This sub-section aims at presenting the land and resource tenure regimes in the ER Program Accounting Area. It is based on the assessment carried out during the Readiness phase, including in (i) the legal and institutional study done by (Beta and Nemus, 2015); (ii) the Strategic Environment and Social Assessment; and (iii) the ER-PIN (UT REDD+, 2015a).

An additional assessment was led by Tanner (2017a) for the purpose of this ER-PD. The Assessment has still not been publicly vetted, although it has been appraised and approved internally by the World Bank. It is expected to be discussed in the context of the wider review of land policy and legislation that is soon to take place, led by MITADER, and could be on the agenda of the next Consultative Forum on Land, so as to underline the close link between land governance and a successful ER Program.

Legal framework of land tenure in Mozambique and relevance for the ER Program

*An overview of the existing legal texts covering land issues in Mozambique is provided in section 4.5 – Table 25.*
The defining parameter of the policy and legal framework is that since Independence, and right through to the most recent 2004 Constitution of the Republic of Mozambique (CRM), land is the property of the State and cannot be bought and sold, mortgaged or otherwise alienated. In its Article 110 however, the CRM confers a land use and benefit right (DUAT) to all who want to use land, “taking into account their social or economic purpose”. Furthermore, Article 111 of the CRM states that already acquired rights must be taken into account when new rights are being allocated - to investors for example.

The DUAT in fact dates back to the original post-Independence 1975 constitution. The big advance in turning it into a stronger private right took place in the 1990 revision, which ushered in the major shift to a market economy and political pluralism. Later research into local land use systems established a much broader understanding of “occupation” than a simple analysis of visible plots and other active evidence of use (deforested areas, fenced in grazing, etc.) and established that customary structures were still largely responsible for managing the land rights and use of the majority of the rural population (Tanner, 2002). This resulted in the formulation of a new National Land Policy (NLP) in 1995 and a new Land Law in 1997, which gave full recognition to rights acquired through these customary systems. Both instruments are still in place.

The 1995 National Land Policy - The 1995 NLP addressed the key challenge of securing largely customarily acquired land rights, while also promoting the entry of new investment into the countryside. It did this not by identifying separate areas for each kind of land user, but by providing a policy framework that integrates customary and formal land rights and land use within a single and shared territory - or landscape. The key principles established by the NLP are: (i) Maintain land as the property of the State; (ii) Guarantee the access to and use of land for the population as well as for investors - in this context the customary rights of access and management of land by the population are recognized, promoting social justice in the countryside; (iii) Guarantee the right of access to and use of land for women; (iv) Promote national and foreign private investment without prejudice to the resident population and ensuring benefits for this [population] and the national treasury; (v) Active participation of nationals as partners in private enterprises [that use land]; (vi) Definition and regulation of basic principles and guidelines for the transfer of use and benefit rights (DUATs) between citizens and or national enterprises, whenever investments have been made on the land; (vii) Sustainable use of natural resources in such a way as to guarantee the quality of life of future generations (Resolution 10/95 of 17 October, paragraph 17).

The NLP also provides for a process of negotiated access to local land by investors and others who want land for new projects – “the agrarian use of land”. This process involves two steps: (i) a “cadastral identification, demarcation and registration” process of the areas that may fall, under customary law and cultural rules, under the management of a Local Community and (ii) a negotiation process with the Local Community who can enter as a partner in the investment.

This principle underpins the later mandatory requirement in the 1997 Land Law that any new land access by a private investor or by the State (for public projects) must be preceded by a community consultation. It was then extended to new environmental legislation in 1997, to the new Forests and Wildlife Law in 1999 and to all subsequent laws that deal with natural resources in one form or another.

The idea of establishing partnerships between local land rights holders and other actors appears in many places in the 1997 Land Law and in the regulatory instruments to
implement it. The terms of partnership are to be established by the mandatory community consultation process established by Article 13 of the Land Law and Article 27 of its Regulations. Resolution 70/2008 of 30 December, which sets out the requirements for investors seeking large areas of land (defined as over 10,000 hectares) – see Table 25 – also requires them to include the partnership terms with the “holders of the DUAT by occupation” with their submissions. This principle of partnership is most recently developed further, and significantly for the ER Program, in the 2014 Law for Conserving Biodiversity, which opens the way for the State “celebrating contracts with the private sector and the local communities for the generation of income” (Beta and Nemus, 2015). The recently approved National REDD+ Strategy also makes reference to the need for the State to work closely with local communities in developing and implementing REDD+ programs.

These fundamental features of the 1995 land policy framework remain in place and provide a powerful platform for the ER Program that is participatory and inclusive, and which can enable local communities – as rights holders and as users of the resources in question – to share in the benefits generated through improved natural resources management techniques and triggering ER payments as a result. Together with provision in other legislation, they also have implications for how the GoM addresses the question of negotiating the sale of ERs with third parties such as the World Bank - see section 17.2.

The 1997 Land Law – The 1997 Land Law defines how to acquire a State-allocated DUAT. According to its article 12, this can be done in three ways: (i) through customary occupation according to customary norms and practices; (ii) through “Good faith” occupation over ten years (uncontested use of land which the occupant settles on and begins to use); (iii) through formal application to the State through its land agencies at provincial and central level, and municipalities. The right that results in each case is precisely the same in legal terms although, in the case of rights by occupation, it is likely that the vast majority will be unrecorded. The law makes it clear however that the lack of registration of a right by occupation does not prejudice that right (Article 14).

There are differences in the conditions attached to DUATs that are acquired by occupation or by request. The most important of these is that a DUAT by occupation, which is for subsistence and household production purposes, is indefinite, whilst a DUAT by request has a fixed term of 50 years. This fixed term is however renewable for a further 50 years, making the DUAT a very long state lease that is easily enough for investing and securing a return. Moreover, the DUAT is inheritable in either circumstance, whether acquired by occupation or by request.

The 1997 Land Law also created the concept of Local Community, also serving as the basic unit of natural resource occupation and use in the 1999 Forest and Wildlife Law. The “Local Community” is defined in Article 1(1) of the Land Law as follows:

“A grouping of families and individuals, living in a circumscribed territorial area at the level of a locality [the lowest official unit of local government in Mozambique] or below, which has as its objective the safeguarding of common interests through the protection of areas of habitation, agricultural areas, whether cultivated or in fallow, forests, sites of socio-cultural importance, grazing lands, water sources and areas for expansion”.

The definition derives from an understanding of occupation as a land use system that includes not just currently used resources – fields of crops and fenced in grazing for example – but also the extensive other resources that are essential for a sustainable land use
strategy. These might include forests as well, used and managed on a collective basis by a
group of households or villages, and extensive areas reserved for future use as current field
lose their fertility. Such a definition with its various elements of common interest centered
around a coherent resource use strategy and system, provides an ideal vehicle through
which to implement REDD+ initiatives. These include the ER Program with its focus on
altering the system to make it more sustainable, with behavioral change, new income
sources and benefit-sharing activities, and appeals to common interests.

The law and its regulations lay out how to identify the extent of Local Community
“occupation” and establish limits around the territory so defined. The land rights delimitation
methodology is well summarized in (World Bank, 2016) and (Tanner, Norfolk and de Wit,
2009). It should be noted that delimitation is community-driven – local people who occupy
and use land do it with support from 
external technical teams trained in the methods
employed. Community delimitation is not mandatory, but is “a priority” in certain contexts
where there are conflicts over land, when an investment project is proposed and when the
community itself requests it.

The CRM (2004 revision) also introduces the figure of community public domain, in relation
to property held in public domain areas (Article 98, State Property and Public Domain).
Thus, “The law shall regulate the legal regime of property in the public domain, as well as its
management and conservation, and shall distinguish between the public domain of the State,
the public domain of local authorities and the public domain of communities, with due respect
for the principles of imprescriptibility [something that cannot rightfully be taken away, lost, or
revoked] and immunity from seizure”(Article 98(3),

This principle has important implications for the discussion over the right to transact title over
ERs - which is covered in more detail in section 17.

**Individual rights at sub-community level** – In the ER Program Accounting Area, it is
expected that the majority of individual land rights at the sub-community level will be DUATs
acquired by occupation, either through customary norms and practices, or by so-called “good
faith” occupation. From article 12(a) of the Land Law it can be inferred that all sub-community
rights that are acquired and managed through the prevailing system of the particular
community – see below – are also equivalent to DUATs in law.

Like the collective DUAT, this more individual DUAT is very unlikely to have any form of
documentation attached to it. “Records” of occupation and possession of land by a specific
person or household will be held (i) in the verbal or collective memory of the customary
leaders and land chiefs and (ii) in the shared “social register” of neighbors and others, who
can verify and support any land claim and intervene in small disputes over boundaries, etc. -
this form of proof is provided for in Article 14 of the Land Law.

“Good faith” occupation refers to instances where someone has occupied a piece of land
without seeking formal approval from anyone, and has lived on and used the land for more
than ten years. If they have done this without any other person contesting the occupation,
then after 10 years have passed the occupant also has a DUAT by occupation. Such
occupation will also likely depend upon verification by local structures and neighbors.

It is highly likely that in the accounting area of the ER program, all individual DUATs will be
derived from one of these two channels. The consequences are twofold:
Proving them, recording them and then issuing a formal DUAT title document will require working with local leaders and others in the community to secure the necessary proof;

Any process of land titling regularization involving individually held DUATs should be preceded by the delimitation of the local community in which they exist. This will establish which local structures manage land, and underline the legitimacy of the acquired right. This is also in line with Article 24 of the Land Law, which gives the local community powers to manage natural resources, resolve conflicts, and participate in titling.

Community land use plan (CLUP) - The CLUP does not yet exist in formal terms, although it is now established as a key output of the delimitation process. In the course of the delimitation, local community members are encouraged to analyze how they use their land resources, and to consider their long-term needs and priorities. This may result in some areas being identified as available for investors through properly negotiated agreements, and others being clearly set aside as conservation areas or reserves. The result of this process is the CLUP, which then provides a platform for attracting new investment in a more orderly and negotiated fashion, for developing more sustainable and productive local agriculture, and for developing a program of community-based natural resources management and conservation – see the next figure. When linked to the rights securing and empowerment impact of delimitation, the CLUP can create the conditions for a shared and equitable use of a particular landscape. This can also include the development and implementation of conservation activities as part of the ER Program. This is shown in the next figure - extracted from (Tanner, 2017a). Several local communities are delimited in a given landscape; the CLUP identifies areas for fixed, improved agriculture, incoming private investment with negotiated partnerships, and for natural resources management activities.

Linking land rights to natural resources and the issue of “DUAF” – Although the possession of a DUAT does not give an automatic right of ownership over the resources found on a given piece of land, various elements of the legal framework do give local people – organized and recognized as Local Communities – significant use rights over “their” natural resources, and a say in how these resources are used by others.

The Local Community as defined in the 1997 Land Law – a land holding unit based around the customary use of a range of natural resources - is replicated exactly not only in the 1999 Forest and Wildlife Law, but in all other natural resources legislation. This precise overlap is of fundamental significance for making the link between land tenure rights, rights over forests, and the development of the ER Program that includes a benefits-sharing mechanism. Local Community delimitation establishes the spatial dimension of the right of use and benefit of land (i.e. the DUAT). Through the NLP and specific articles in the Land Law (Article 24) and elsewhere, this right extends over the natural resources that are found on the land covered by the DUAT. Therefore, while there is no legal equivalent to the DUAT when it comes to forests – a “DUAF”, the Legal rights to use and benefit from land and forests – the right to use and benefit from forests and other natural resources within the area of a Local Community is clear in all the relevant sectorial laws. The DUAF is there in all but name only. And as with land, if the community wants to move out of subsistence-based production into more commercial activities, the approval of the land-owner (the State) must be sought. Licenses are granted, and the community or a sub-set of it can proceed to exploit their resources commercially.
Delimited Communities with Basic Land Use Plans

- Forest (commons, forest products)
- Areas for investment (partnerships)
- Traditional agriculture rotates through landscape (and forest)
  - current plots
  - abandoned plots

DEFORESTATION

ER Program with the Landscape approach

- Sustainable local agriculture
- Large investment using available land
- Community-based investors with new individual DUATs
- Standing forest (conservation)
- Degraded area to restore

Figure 12: Example of CLUP
Tanner, 2017a
The Readiness phase studies note that it is difficult for local communities to do this in practice. However, this is not principally due to legal constraints, but to practical problems to do with capacity, documentation (most rural people do not have ID documents for example), and material constraints. Evidently, communities need support to navigate through the process; working with experienced NGOs can overcome these obstacles.

Further affirmation of the basic rights that local communities have over the natural resources in their areas is given by the provision in the Forest and Wildlife law, that 20% of State revenues from commercial forest and wildlife revenues is distributed to the communities where the resources are located – see section 15 for more details on this mechanism.

Further, as previously stated, all the natural resources laws require that a community consultation be carried out between commercial enterprises seeking to extract timber and the Local Community. As with the Land Law, the objective here is not merely to get a local “no-objection” so that the investment can proceed; it is to secure an agreement between the two sides which in principle will allow the community to gain from the commercial exploitation of “its” resources by an external third party.

Implementing the basket of laws that are currently available in Mozambique, with the starting point being the link between delimited acquired land rights and the accompanying management and jurisdictional right that communities have over “their” natural resources, is the best way at the present time to give concrete meaning to the implicit “DUAF” that exists in the forest and other relevant natural resources legislation.

Range of land and resources tenure rights in the ER Program area

Legal and customary rights - As stated above, legally, there is just one land right in Mozambique, the DUAT, allocated by the State to all land users irrespective of how they have acquired this right. This is the case in the ER Program accounting area and it would be incorrect to think in terms of “customary rights” being distinct or different from “private rights” over land. The key distinction is over how the right (DUAT) is acquired, taking into consideration the three ways detailed above and in the 1997 Land Law. In the case of natural resources, ownership is retained by the State, as is the case with land. And as with land, Local Communities and their members enjoy automatic subsistence use rights over all natural resources - subject to various regulations on protected species, hunting seasons, etc. Local Communities and their members are free to apply to the State for permission to use the natural resources in their area for commercial purposes, through a system of licenses that are issued by the provincial authorities, as explained above.

The issue of DUAT harmonization in the ER Program – In the context of the ER Program, land tenure regularization is being addressed by the land component of the "Sustenta" and of the MozFip projects, which are both part of the ER Program – see section 4.1.

Categories of right holders present in the Accounting Area - Officially, there are no indigenous peoples in Mozambique using the official guidelines provided by the UN Permanent Forum on Indigenous Issues (United Nations). It could however be argued that many local communities have elements of “indigenous” peoples, insofar as they have “strong links to territories and surrounding natural resources” Many are descendants of the original historical occupants, and are still governed by customary rules and structures.

Most land in the Accounting Area is occupied in this way. Mozambique has a complex ethnic make-up generally, and this is reflected even at the lower level of a large province. In section
3.3, Table 11 shows the variety of different groups that are found in the area, with the Macua being the most prevalent.

The more usual view in Mozambique is one of cultural diversity within a unified polity of state and people. The legitimacy of the many normative and legal systems that accompany this diversity is formally recognized in Article 3 (Legal Pluralism) of the 2004 Constitution. The legitimacy of customary land systems was also recognized in the 1995 NLP and formalized in the 1997 Land Law. This was achieved not by incorporating written or codified versions of the different normative systems, but by the simple device of the Local Community within which land and other natural resources are managed using the “customary norms and practices” of each specific area and its people. However, while there are no “indigenous people” with specific rights that are distinct from other those of other Mozambicans, most people get their land rights through a customary (indigenous) system of one sort or another (by either customary or “good faith” occupation). The way these rights are managed may vary from region to region, but they are all legally DUATs.

As stated in section 3.3, in the ER Program area, the predominant groups are Macua – Lomué, with Chuabo to the west (Mocuba) and Manhaua in the central part to the northwest of the Gilé Reserve – see Table 11 (section 3.3). This diversity does not present a problem for the ER Program in land tenure terms: all the rights acquired by any of the systems are legally recognized as DUATs and the indigenous nature of this “customary” occupation does not imply a distinct ethnic or cultural group set within the wider mainstream society. They are simply Mozambicans with different cultural origins and customs, which are manifested through a plurality of normative systems that enjoy full Constitutional recognition (according to the CRM, article 4, on Legal pluralism). Within the Local Community, the indigenous land management and administration procedures are legitimate provided that they do not contrive constitutional principles - in this way, rural women gain strong formal protection against discriminatory treatment by customary norms and practices.

Therefore, and following the Land Law then, there are essentially three “categories” of rights-holders present: (i) Local Communities; (ii) “good faith” occupants (individuals); and (iii) holders of new DUATs requested for commercial activities. In addition, there are areas of public domain land such as the GNR, where DUATs are not permitted by law, but investors and others can have use rights through special licenses. Any further categorization is according to the specific land use – agricultural, tourism forestry, etc.

The extent and location of rights acquired by occupation or by formal request in the ER Program Accounting Area

All delimitation work carried out to date underlines the fact that most Local Communities have contiguous boundaries. It is also clear that DUATs acquired by formal request exist and are registered inside and/or between different Local Communities. In other words, it is reasonable to say that there is no “free land” in Zambézia Province and in the nine districts of the ER Program area: all land is already covered by some form of DUAT, either customarily acquired or by formal request - with the exception of reserves and other areas of public domain.

According to Tanner (2017a), up to the end of 2014, a total of 223 Local Community delimitations had been carried out in Zambézia, with a total area of 4,776,351 hectares (Tanner, 2016). This gives an average area per Local Community of just under 21,500 hectares.
hectares. Other data from the ITC project in Zambézia suggests that the average population per delimited community is just over 3,200 (Tanner, 2016) – see Table 23 and Table 24.

As show in Table 22, Within the nine districts composing the Accounting Area of the ER Program, a total of 102 Local Communities have been delimited up to November 2016, covering a total area of 3,254,663 hectares. This gives a much higher average size of just over 31,900 hectares, which could reflect the remoteness and population density of many of the communities delimited.

Table 22: number of delimited local communities in the ER Program area

<table>
<thead>
<tr>
<th>ZILMP Districts</th>
<th>Communities Delimited Up to November 2016 [1]</th>
<th>Area in hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alto-Molocué</td>
<td>27</td>
<td>259,847</td>
</tr>
<tr>
<td>Gilé</td>
<td>4</td>
<td>666,773</td>
</tr>
<tr>
<td>Ilé [2]</td>
<td>6</td>
<td>38,909</td>
</tr>
<tr>
<td>Pebane</td>
<td>11</td>
<td>837,500</td>
</tr>
<tr>
<td>Mocuba</td>
<td>14</td>
<td>1,169,198</td>
</tr>
<tr>
<td>Gurue</td>
<td>27</td>
<td>147,251</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>102</td>
<td>3,254,663</td>
</tr>
</tbody>
</table>

[1] Official data show that all of these communities have completed processes with Certificates of Delimitation issued

[2] Ilé includes Mulevala, Maganja da Costa includes Mocubela; these two new districts were created from Administrative Posts upgraded in 2013; official land data does not yet reflect this change

Source: MITADER/DINAT

Legal status of rights and potential ambiguities or gaps

All rights acquired by occupation – customary and “good faith” – are formally recognized in law by the 1997 Land Law, and enjoy strong Constitutional guarantees as well - for example, when new land rights are being issued. All new rights, such as those given to new private enterprises, are also formally recognized and protected by the same Land Law, and in legal terms are no different to the DUATs acquired by occupation.

There are no ambiguities in the legal framework in this context, although there are some grey areas in relation to what happens to rights in specific circumstances - when DUATs expire, or when a privately-held DUAT is annulled, for example. Practical (operational) ambiguities occur because: a) many senior policy and decision makers do not accept this reality and adhere to the idea that radical title in the State somehow over-rules the provisions of the Constitution and the Land Law regarding acquired rights; and b) to date, the vast majority of rights acquired by occupation have not been formally identified on the ground and consequently still not registered in formal archives. This can give the false impression of free land when in fact it is occupied and used by extensive, customary land use systems. These systems of course include the itinerant agriculture that has been identified as major driver of deforestation.
### Table 23: Community delimitations up to 2014

<table>
<thead>
<tr>
<th>Province</th>
<th>To end 2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># Area</td>
<td># Area</td>
<td># Area</td>
<td># Area</td>
<td># Area</td>
<td># Area</td>
<td># Area</td>
<td># Area</td>
</tr>
<tr>
<td>Maputo</td>
<td>22</td>
<td>154,123.00</td>
<td>0</td>
<td>0.00</td>
<td>18,000.00</td>
<td>4</td>
<td>36,473.52</td>
<td>0</td>
</tr>
<tr>
<td>Gaza</td>
<td>20</td>
<td>472,484.00</td>
<td>4</td>
<td>27,658.73</td>
<td>16</td>
<td>3,824.60</td>
<td>23</td>
<td>51,869.47</td>
</tr>
<tr>
<td>Inhambane</td>
<td>11</td>
<td>575,712.00</td>
<td>0</td>
<td>0.00</td>
<td>5</td>
<td>5,238.55</td>
<td>5</td>
<td>80,739.94</td>
</tr>
<tr>
<td>Sofala</td>
<td>14</td>
<td>1,426,987.00</td>
<td>5</td>
<td>1,040,801.35</td>
<td>7</td>
<td>130,358.04</td>
<td>17</td>
<td>1,018,058.97</td>
</tr>
<tr>
<td>Manica</td>
<td>14</td>
<td>780,030.00</td>
<td>6</td>
<td>223,451.80</td>
<td>4</td>
<td>132,384.70</td>
<td>3</td>
<td>70,849.13</td>
</tr>
<tr>
<td>Tete</td>
<td>27</td>
<td>3,928,912.00</td>
<td>1</td>
<td>105.43</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Zambézia</td>
<td>91</td>
<td>4,205,012.00</td>
<td>9</td>
<td>2,241.06</td>
<td>10</td>
<td>26,954.48</td>
<td>13</td>
<td>6,824.85</td>
</tr>
<tr>
<td>Nampula</td>
<td>95</td>
<td>747,936.00</td>
<td>2</td>
<td>36,765.75</td>
<td>18</td>
<td>89,649.42</td>
<td>6</td>
<td>87,433.17</td>
</tr>
<tr>
<td>Cabo Delgado</td>
<td>0</td>
<td>0.00</td>
<td>4</td>
<td>112,648.78</td>
<td>7</td>
<td>54,626.45</td>
<td>9</td>
<td>42,360.00</td>
</tr>
<tr>
<td>Niassa</td>
<td>9</td>
<td>357.23</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>12</td>
<td>671,029.10</td>
</tr>
<tr>
<td>Total</td>
<td>303</td>
<td>12,291,553.23</td>
<td>31</td>
<td>1,443,672.90</td>
<td>51</td>
<td>1,415,847.82</td>
<td>104</td>
<td>2,067,545.40</td>
</tr>
</tbody>
</table>

### Table 24: Community delimitations funded by ITC since 2006

<table>
<thead>
<tr>
<th>Province</th>
<th># communities</th>
<th>Area delimited</th>
<th>% area total</th>
<th>Sum of Pop* (Total)</th>
<th>% of total Pop*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabo Delgado</td>
<td>50</td>
<td>461,832.87</td>
<td>8.50%</td>
<td>148,376</td>
<td>9.94%</td>
</tr>
<tr>
<td>Gaza</td>
<td>18</td>
<td>69,852.39</td>
<td>1.29%</td>
<td>15,454</td>
<td>1.04%</td>
</tr>
<tr>
<td>Manica</td>
<td>53</td>
<td>788,023.09</td>
<td>14.51%</td>
<td>170,300</td>
<td>11.41%</td>
</tr>
<tr>
<td>Nampula</td>
<td>111</td>
<td>587,066.35</td>
<td>10.81%</td>
<td>359,103</td>
<td>24.06%</td>
</tr>
<tr>
<td>Niassa</td>
<td>123</td>
<td>2,456,104.94</td>
<td>45.21%</td>
<td>179,332</td>
<td>12.02%</td>
</tr>
<tr>
<td>Sofala</td>
<td>12</td>
<td>227,560.41</td>
<td>4.19%</td>
<td>135,389</td>
<td>9.07%</td>
</tr>
<tr>
<td>Tete</td>
<td>34</td>
<td>104,620.36</td>
<td>1.93%</td>
<td>91,727</td>
<td>6.15%</td>
</tr>
<tr>
<td>Zambézia</td>
<td>122</td>
<td>737,315.48</td>
<td>13.57%</td>
<td>392,857</td>
<td>26.32%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>523</td>
<td>5,432,375.89</td>
<td>100.00%</td>
<td>1,492,538</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Tanner, 2016
Legal recognition of community land rights - According to Tanner (2017a), this may still be an issue in Mozambique, although it must be noted that Zambézia province has been the focus of significant bilateral support for community land rights delimitation since the early 2000s. A shift in GoM policy to include delimitation in its key “Terra Segura” (see section 4.1) project is a good indicator, although the focus of attention may be more titling individual DUATs.

As stated in Tanner (2017a), with World Bank support, the ER program addresses the insufficient implementation of community land rights recognition through the Sustenta and MozFip projects, which are included in the ZILMP. Sustenta will delimit 270 rural communities and generate individual DUAT title documents for 150,000 farmers who mainly hold their land under customary norms and practices; these farmers will engage in the value chain investment side of the project. MozFip will delimit approximately 80 communities and generate approximately 1,500 DUATs for small and medium landholders in Zambézia Province who are engaged in forest plantations and agroforestry.

In this way, the two projects will create the land rights platform and related local governance structures for the ER program. Local Community delimitation then appears as a logical mechanism for a) identifying and registering the acquired collective DUATs that exist in the area and the local structures that manage them; and b) developing land use and local development plans that can include a range of ER-related activities (Tanner, 2017a).

Disputes related to contested claims or rights and resolution mechanisms

Conflicts between neighbors always occur and are typically resolved by customary tribunals and resolution mechanisms (Trindade and dos Santos, 2004). NGOs report many cases of conflict between local communities and private investors of various sizes and types. Field evidence and research shows that consultations with communities are usually cursory and held only with traditional leaders who can be corrupted by the land requestor. Disputes are usually taken first to the local District Administrator, who then calls in the technical teams for land and any other sector that might be involved. If this does not work, the dispute passes up to provincial level, where the Governor frequently assumes a quasi-judicial role as representative of the State.

An increasing number of land and related disputes are finding their way into the formal tribunal structure, which begins at District level. Land and natural resources issues are now included in the formal professional training for judges and public counsels at the Ministry of Justice Center for Legal and Judicial Training (CFJJ), after a FAO supported program to train provincial and district level judicial officers in the new Land, Environment, and Forest and Wildlife laws.

More recently, a corps of paralegals has been created though a training program developed and implemented by the CFJJ with FAO support (Tanner and Bicchieri, 2014). The paralegal program was expanded in Zambézia with funding from the ITC program, and many paralegals now work in organizations and CBOs in Zambézia province. Part of their training includes mediation skills and taking on a role as go-between in relations between local communities and new investors seeking local land and resources. Anecdotal evidence suggests that many have become effective resources for conflict resolution in the complex context of community-external actor relations. The nature of their work also makes them

MOZFIP will carry out roughly the same number of each activity in Cabo Delgado Province as well.
effective educators and communicators, a useful resource for the ER Program, which seeks to change un-sustainable local behaviors.

With regards to the ER Program, although there is no Grievance Redress Mechanism designed for the specific topic of land tenure rights, a Grievance Redress Mechanism for the ER Program is described in section 14 – it will also apply to any grievances related to land tenure rights. In addition to the provisions detailed above and to the Grievance Redress Mechanism for the ER Program, the Zambézia Multi-Stakeholders Landscape Forum is also expected to help address grievances that cannot be resolved at District level, in accordance with its mediation-based functions - see section 5.

Implantation risk for the ER Program

According to Tanner (2017a), land tenure is a major risk to the ER Program if it is not adequately dealt with. A successful ER strategy requires a radical change in the way local people use forest resources, including the ending of itinerant agriculture and its deforestation impact. Sharing in benefits generated by ERs, and diversifying their livelihoods or increasing the productivity of their land, are key elements of an ER strategy, which must replace extensive forest use and deforestation with alternative sources of income. Having secure and recognized tenure rights over most of the land in the Accounting Area and, by extension, use rights over the forest and other NR found there, turns local people into direct stakeholders with a right to participate significantly in the financial benefits generated by the ER program, and engage with other economic actors in the wider ZILMP. Effective implementation of all aspects of the delimitation and land use planning activities, including under the Sustenta and MozFip projects, are therefore critical elements in the wider integrated ZILMP strategy, which includes achieving the ER targets.

"Delimitation", in both cases includes, not just the identification and certification of the limits of the community DUAT, but also the development of community land-use plans, creating and/or strengthening CBOs including the Community Natural Resources Management Committees (CGRNs), and the development of a Local Community development vision and agenda which will underpin and facilitate the ER program. It is critically important that this process be well implemented by competent and experienced service providers. The implementation risk linked to land tenure is also treated as a risk of Reversals in section 11.

Potential impact of ER Program on land and resource tenure

There are no identifiable negative impacts of the ER Program on existing land and resource tenure rights in the Accounting Area; there should be a positive impact that will enhance local rights if the land tenure element of the ER program is fully implemented, in conjunction with land activities in the “Sustenta” and MozFip projects.

4.5 Analysis of law, statutes and other regulatory frameworks

Since the Rio Conference on Sustainable Development in 1992, the GoM has been undertaking a significant legal and institutional reform movement to improve the country ability to manage the environmental issue (MITADER, 2016d). Those efforts can be observed in local, regional and national laws and regulatory framework as well as in the
GoM’s commitment to international treaties and conventions. The very 2004 Constitution of Mozambique includes two fundamental environmental pylons, namely (i) the right of every citizen to live in a clean environment and the responsibility to protect this right and (ii) the recognition of environmental protection as a public interest. It contains a series of general legal provisions aimed at: (i) preventing and controlling pollution and erosion; (ii) integrating environmental concerns into sectorial policies; (iii) promoting the integration of environmental values in educational policies and programs and (iv) ensuring the rational use of natural resources while maintaining their capacity for renewal, ecological stability and human rights of future generations. It is also concerned with the promotion of land use planning with a view to ensure an adequate location of activities and a sensible socio-economic development (MITADER, 2016d).

A complete analysis of the legal framework related to REDD+ has been provided in (Beta and Nemus, 2015) during Readiness phase. It is also a significant component of the SESA (currently being developed) and ESMF documents. This section provides an overview of the most important acts with regards to the ER Program design and implementation but does not pretend to offer an exhaustive analysis of the Mozambican legal framework. For more details please refer to (Beta and Nemus, 2015 and MITADER, 2016d).

Relevant local, regional and national laws, statutes and regulatory frameworks

The most important legal acts with regards to land and forest management in Mozambique are the Law on Forests and Wildlife (1999) and the Land Law (1997). MITADER is the lead agency for the implementation of these two laws and has dedicated National Directorates focusing on these legal mandates. The laws are implemented through regulations and ministerial decrees, which provide some leeway for adjustment and improvement without further legislative action. This is coherent with MITADER being also responsible for the overall National REDD+ Strategy. Under this legal framework, the GoM has created specific ministerial decrees that influence the way benefits are shared in the sector. Two in particular can be highlighted: i) the establishment of mechanisms to share 20% of revenues from wildlife and forestry exploration with local communities; ii) the establishment of a return of 40% taxes to private forestry operators that undertake secondary processing of wood domestically. A third decree lays out the framework for REDD+ implementation and responsibilities - see table below.

<table>
<thead>
<tr>
<th>Acts</th>
<th>Description and relevance for ER Program</th>
</tr>
</thead>
</table>
| **The Environmental Law**  
(nº 20/97) | The Environmental Law acts like a framework law, establishing the pillars of the system of legal protection of the environment. It aims at defining the legal basis for the improved use and management of the environment and its components to achieve a system of sustainable development in the country. The legislation prohibits the pollution of all environmental components (air, soil and water) as well as practices that may accelerate erosion, desertification and deforestation.  
Article 4 is especially meaningful with regard to the ER Program. It establishes a range of basic legal principles, including the principle of |
rational use and management of natural resources, with a view to further improve the quality of life of the population and the maintenance of biodiversity and ecosystems. It also provides for the participation of local communities in the formulation of policies and laws related to natural resource management and the management of protected areas.

This is a joint regulation between the ministries of agriculture, health and environment that aim at regulating the importation, distribution, production, disposal and use of agrarian pesticides for the protection of animal and public health purposes. It requires all operators active in the importation, distribution, and production of pesticides to be registered and classifies the various pesticides in three major categories according to their estimated danger.

Although the ER Program does not provide for the introduction of any pesticide in the ER Program area, agriculture is one of its core component; should any product be introduced later on, this regulation will have to be fully considered.

This regulation provides for: (i) the protection of vulnerable and threatened species and ecosystems; (ii) the impeding of unauthorized introduction and dissemination of alien species and invasive alien species; (iii) the management and control of invasive alien species in order to prevent or minimize their damage to the environment and biodiversity; (iv) the eradication of alien species and invasive alien species that may damage ecosystems and habitats; (v) the carrying out of environmental impact studies under Decree No 45/2004 of 29 September prior to the introduction of exotic species.

Although the ER Program does not provide for the introduction of any invasive species in the ER Program area, plantations are part of the ER Intervention and should, if necessary, respect this regulation.

Mozambique has developed a comprehensive regulation to cover the EIA process, which is included in the Regulation of the Process for Environmental Impact Assessment. The regulations are in line with the international environmental and social management best practices, including World Bank recommendations and procedures. The regulation details the procedures and criteria for ESIA and ESMP and implies the categorization of projects and subprojects (A+, A, B or C). Although the MITADER is responsible for regulating the EIA in Mozambique, it is the project proponent’s responsibility to ensure that standards and identified mitigation measures are met.

In the design of the ER Program, safeguard plans were accordingly developed, including SESA and ESMF.

The Physical Planning Law establishes key principles for environmental protection in the context of regional planning and establishes hierarchical responsibilities among central, provincial, district and local governments in land use planning processes. It also stipulates that expropriation for public interest will give rise to the payment of fairly calculated compensation in order to compensate for the loss of tangible and intangible goods and productive assets as well as the disruption of social cohesion.
The objectives to be pursued under this act are to protect, conserve, develop and rationally use sustainable forest and wildlife resources for the economic, social and ecological benefit of current and future generations of Mozambicans. It promotes, *inter alia*, the protection and conservation of specific biodiversity components as well as specific flora and fauna species found in certain places. The law also identifies the principles of local community participation in sustainable natural resources management in and outside protected areas. It introduces Local Participatory Management Councils (COGEPs). The ER Program is fully aligned with this key Law and has been designed in full knowledge of it.

**Requirements for Simple License Regimes, and the terms, conditions and incentives for the establishment of Planted Forests**

(Decree 30/2012)

Definition of the requirements for logging including the scheme, terms, conditions and incentives for the establishment of forest plantations, which are part of the ER Program interventions.

| The Forests and Wildlife Law  
| (nº 10/99)  
| and its regulations |

| National Land Policy  
| (Resolution n°10/95) |

The Land National Policy defines the Land as the property of the State in compliance with the guarantee of access and use for population and investors, in full recognition of customary rights of access and management of land for rural population.

The Land Law defined the regulatory procedures for land management. It provides the basis to define access rights, land use rights and procedures for the acquisition and use of land title by communities and individuals. The same law and its regulation embody key aspects defined in the Constitution in relation to the land, such as the maintenance of the land as state property, which cannot be sold. It introduces Direitos de Uso e Aproveitamento da Terra (DUATs), which can be acquired by occupation according to customary norms and practices, the uncontested occupation of a land over a period of ten years or the attribution of discretionary concessions by the State. The law allows local communities to hold a collective DUAT over the area within which they have jurisdiction.

The Land Law is an important component for the ER Program to take into account as it can have an impact on the way the ER interventions are implemented, on the involvement of stakeholders in the ER Program and on the benefit sharing mechanisms. *It is fully analyzed in section 4.4.*

| Technical Annex to the Regulation of the Land Law  
| (Ministerial Diploma n°29-A/2000) |

This Annex defines the requirements for the delimitation of the areas that are occupied by Local Communities and individuals in “good faith”, as well as for land demarcation in the context of the issuance of titles related to the right to use and benefit from the land.

| Procedures for the |

*The legal framework associated to Land management is analyzed in section 4.4.*
<table>
<thead>
<tr>
<th><strong>Presentation and Appreciation of Projects involving more than 10,000 hectares</strong></th>
<th>and assessment of private investment projects involving land extensions of more than 10,000 hectares.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specific procedures for the Community consultation</strong></td>
<td>This act provides for the adoption of specific procedures for consultation with local communities for the use of lands, recognizing their rights, in accordance with Regulation of the Land Law.</td>
</tr>
<tr>
<td>(Ministerial Diploma n°158/2011)</td>
<td></td>
</tr>
<tr>
<td><strong>Creation of the Consultative Forum on Lands</strong></td>
<td>This act establishes the Consultative Forum on Land as a consultation mechanism for the GoM to discuss land and related matters.</td>
</tr>
<tr>
<td>(Decree n°42/2010)</td>
<td></td>
</tr>
</tbody>
</table>

**Benefit-sharing**

**Ministerial Diploma 93/2005**

This key ministerial diploma established the mechanisms for channeling the 20% revenues from wildlife and forestry exploration, towards the benefits of communities that inhabit the areas where the exploration of such resources is taking place. Its stipulated that beneficiaries can only receive money if their community is organized in a legalized association with a bank account. This act is crucial in the designing of the benefit sharing mechanisms of the ER Program and was fully considered – see sections 4.4 and 15.

**Conservation areas**

**Conservation Areas Law (n°16/2014)**

The 2014 Law on Conservation Areas provides for the legal establishment of Conservation Area Management Boards (CGAC), which advisory bodies covering one or more CA composed of representatives of local communities, the private sector, associations and local state bodies for the protection, conservation and promotion of sustainable development and use of biological diversity. It also legalizes public-private partnerships for CA management and for concession contracts and defining specific criteria and principles for CAs’ management plans. It promotes the involvement of communities legally living inside CAs and their buffer zones, in income generating activities that promote biodiversity conservation.

The effects of this law are likely to be felt in various components of the ER Project. The communities living around the GNR will be engaged in the ER Program that promotes new income-generating activities. The future RPF (on going preparation) and its elements of the Process Framework (see section 14 on safeguards) will deal with the consequences related with restrictions to access and use of natural resources in and around the GNR.

**REDD+**

**Regulation on procedures for approval of REDD+**

The purpose of this Regulation is to establish the procedure for the approval of REDD+ projects and studies, as well as the setting of the institutional framework and competences. It deals, *inter alia*, with the
institutional framework, approbation and issuing of license for the marketing of carbon credits. It also discusses the procedures for the approval of REDD+ projects and place emphasis on community consultations. The REDD Regulation states that the REDD+ projects should clearly contain measures to promote and support compliance with the safeguards guidelines. All projects should provide for the distribution of benefits, including local communities under terms to be set by ministerial decree. It also creates the CTR for REDD+ and the UT REDD+ (now designated as the Landscape Management Unit). It provides for all the principles and procedures to be respected for the design and implementation of the ER Program.

**International conventions and agreements**

Mozambique has also ratified various international conventions and regional protocols related to the management of the environment. It should be noted that, under line 2 of article 18 of the GoM’s Constitution, the rules of international law have the same value in domestic law and once ratified by the Parliament and Government they become constitutional normative acts. As per point 1 of article 18 of the Constitution, the ”treaties and international agreements duly approved and ratified, are enacted in the Mozambican legal order” (MITADER, 2016d). The most important acts are summarized in the table below.

**Table 26: Summary of the main international agreements relevant for the ER Program**

<table>
<thead>
<tr>
<th>Acts</th>
<th>Description and relevance for ER Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ramsar Convention on Wetlands, 1971</strong> - ratified by Resolution No. 45/2003 of 5 November</td>
<td>The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. In this Convention, party countries, including Mozambique, commit themselves to the protection of pre-identified Wetland of International Importance within their territory, including through effective management of such areas. Although it is not directly part of the ER Program area, it should be noted that the Zambezi Delta is a Wet Land of International Importance under the Ramsar Convention ratified by the GoM(^{27}).</td>
</tr>
<tr>
<td><strong>International Convention on International Trade in Endangered Species</strong> (CITES, 1979)</td>
<td>CITES is a multilateral treaty to protect endangered plants and animals, aiming to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species in the wild. It accords varying degrees of protection to more than 34,000 species of animals and plants, several of which can be found in Mozambique.</td>
</tr>
<tr>
<td><strong>African Convention on Nature and Natural Resources Conservation</strong> - ratified by the Parliament’s Steering</td>
<td>The Convention aims at ensuring the conservation, use and development of land, water, forest and wildlife resources of SADC Member States, bearing in mind not only the general principles of nature conservation, but also the best interests of the communities themselves.</td>
</tr>
</tbody>
</table>

\(^{27}\) The other important Ramsar site in Mozambique is the Lake Niassa, in Niassa province.
Committee through Resolution nº 18/81, of 30 December

**United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, 1992 (amended 1997)**

The Kyoto Protocol (1997) is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC, 1992). It is binding for countries that have ratified the protocol to reduce and ultimately cap their greenhouse gas emissions (GHGs).

Mozambique signed the UNFCCC on 3 November 1992, and ratified the Kyoto Protocol on 18 January 2005, and entered the protocol into force on 18 April 2005. It should be noted that Mozambique being a developing country, those acts are not biding for the country to reduce GHGs. It nevertheless demonstrates the GoM’s political commitment to the reduction of carbon emissions.

**UN Convention on Biodiversity** - ratified by Resolution nº 2/94, of 24 of August

This international instrument advocates the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings. It is an essential foundation for the creation, development and protection of conservation areas in Mozambique. It is significant for the ERP Program, given that forests in Mozambique and elsewhere are the most biologically diverse systems. Forest biodiversity is increasingly threatened as a result of deforestation and forest degradation.


This protocol establishes common approaches to conservation and sustainable use of wildlife resources relating to the effective enforcement of laws in the region and within the domestic laws of each Party State.

**United Nations Convention to Combat Desertification (UNCCD), 1994**

The objective of this Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification. Achieving this objective will involve long-term integrated strategies that focus simultaneously, in affected areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level.

**COP 21 Paris Agreement on Climate – December 2015**

Mozambique is one of the 196 countries that signed and ratified the agreement to reduce greenhouse gas emissions to contain global warming to 2°C.

**Identification of potential gaps**

Although Mozambique is considered to have a progressive legal framework for the promotion of sustainable forest management, its land legal framework may still raise some issues that have to be taken into account for the ER program: they were already identified and describes in section 4.4. No additional meaningful legal and regulatory gap has been identified for the implementation of the ER Program. Such issues are also expected to be fully addressed in the coming months, as the GoM is currently engaged in a comprehensive revision of its forest law, which should be completed by the end of 2017.
In the same way, it should be noted that the above set of legislation and agreements, as stated earlier, is not exhaustive. The GoM is committed to other regulatory texts and statutes at national and international level that are detailed in (Beta and Nemus, 2015).

In addition, the GoM’s commitment to REDD+ and to the reduction of carbon emissions can be observed in non-regulatory initiatives, which were described in section 2. They include Mozambique’s Intended Nationally Determined Contribution (INDC) that was presented to the UNFCCC in 2015 and in which the GoM had pledged for the reduction of 76.5 MtCO$_2$e between 2020 and 2030, with 23.0 MtCO$_2$e by 2024 and 53.4 MtCO$_2$e from 2025 to 2030 (MITADER, 2015; IDA, 2017).

Mozambique has also developed a number of relevant policies, strategies, plans and projects with the vision of aligning the development of the country with economic, social and environmental benefits. Some of these have significant weight in guiding the country towards a reduction in deforestation and forest degradation rates. Of note is Mozambique’s National Climate Change Adaptation and Mitigation Strategy approved in 2012, which integrates disaster risk management actions and consolidates priorities and targets for action on climate change into national socio-economic planning - for more details, see section 2.

### 4.6 Expected lifetime of the proposed ER Program

Between 2018 and 2025, the ER Program is expected to generate the equivalent of 10.0 MtCO$_2$e of emission reductions, of which 8.7 MtCO$_2$e will be offered to the FCPF (accordingly with the terms of the LOI). Although the ERPA (2018 - 2025) and FCPF payments are expected to cover a 8 years period and to run until 2025, the lifetime of the ER Program is expected to extend beyond these dates if the activities implemented are to generate a long-term sustainable and durable transformation of the use of forest and forest resources: it will be developed with a long-term perspective of at least 20 years. Its implementation will be consistent with the action plan of Mozambique’s REDD+ strategy, in which it fully fits, as a broader frame - see Figure 13.

![Figure 13: Implementation of the Actions Plan of Mozambique REDD+ Strategy](image-url)
5. STAKEHOLDER CONSULTATION AND PARTICIPATION

5.1 Description of stakeholder consultation process

In Mozambique, the necessity to consult with stakeholders is embedded in its very legal framework: both the Mozambican Constitution and Environment Law establish the rights of citizens to have information about and to participate in decision-making about activities which may affect them and the environment; as stated in the ESMF (MITADER, 2016d), when it comes to land issues, local people and communities as well as their representatives need to be continuously involved in the decision-making process. One of the objectives of the Forestry and Wildlife Law (1999) actually is to increase the participation of rural communities in integrated management, fire protection, use and conservation of forest and wildlife resources. In the same way, according to the Land Law (1997) and its regulations (1998), local communities shall participate in the management of natural resources, conflict resolution and land titling processes.

Behind this principle is the underlying assumption that, despite belonging constitutionally to the State, the land is genuinely also considered as communities’ property: the 1997 Land Law and the 2004 Constitution of Mozambique recognized the necessity to integrate customary rights in land legislation and the Land Law actually recognizes as land property title (DUAT) any occupation and use rights over lands that are acquired through any normative systems that do not contradict the Constitution. It also created the “Local Community” body, which is the titleholder of DUAT attributed by the State to all land users within a given area. For more details about land tenure in Mozambique, see section 4.4.

As a consequence of this framework, local communities’ representation for issues over the land and, subsequently, for the design and implementation of REDD+ initiatives, is best embodied in (i) the Participatory Management Committees (Comité de Gestão Participativa – COGEP), created in the 1999 Forest and Wildlife legislation and composed of representatives of the local community, the private sector, the government and NGOs at local scale – see section 6; and (ii) the Natural Resources Management Committees (Comité de Gestão dos Recursos Naturais – CGRN), created by decree in 2005 and composed of member from the Local Community – they were fully integrated to the ER Program consultation process.

Since the ZILMP is fully aligned with Mozambique REDD+ National Strategy, the information sharing and consultation and participation mechanisms that have been used in the design of the ER Program are interlinked with the consultation structures and mechanisms that were used for the evaluation and validation of the REDD+ National Strategy, its safeguards instruments and related projects, including MozFIP, MozBio, and "Sustenta" Project. They include two components:

(i) A consultative and participatory process, relying on (i) extensive public consultations, workshops and interviews at national scale and on (ii) the creation of the Zambézia Multi-Stakeholders Landscape Forum (MSLF);
(ii) An information-sharing process, relying on (i) the automatizing of REDD+ information dissemination on social media, website and mails; (ii) the diffusion of didactic documents and (iii) other innovative communication events in local languages.

Consultation process in the design of the ER Program

In the design phase of the ER Program, consultations were led by UT-REDD+ in coordination with provincial and district governments, the CGRNs, local association and civil society organizations. It was implemented according to the international and national principles concerning REDD+: FCPF guidelines as well as the Mozambican legal and regulatory frameworks (Ministerial Diploma 158/2011 and Decree 70/2013 – see section 4.5) were used as guiding documents to ensure the transparent and effective participation of local and forest dependent communities.

Since the Readiness phase, consultations have covered a wide range of issues, from general information on REDD+ process, reference level scenarios and MRV system, legal and institutional framework for REDD+, drivers of deforestation and degradation to the identification of potential pilot projects. From 2013, consultations increasingly focused on the content of the REDD+ initiatives and associated projects – such as MozFip, MozDGM and Mozbio (see section 4.1) - and, from 2015 onwards, consultations on the ER Program were intensified in the ER Program area. They also focused on the recently designed REDD+ safeguards documents (SESA, ESMF and PF).

Figure 14: Mains objectives of the consultation process

The overall objective of this process was to ensure acceptance and interest in the program, as well as to build the trust of stakeholders and support their capacity to participate in REDD+ initiatives in a meaningful and effective way (UT REDD+ 2015a). More importantly, public consultations contributed to gathering and assessing community feedback and opinions on REDD+ and associated projects and programs. They focused on the identification and promotion of potential non-carbon benefits and the implementation of necessary safeguards. Most notably, at longer term, this process ought to maintaining a constructive relationship with the stakeholders during the implementation of the activities to ensure inclusive, transparent and accountable decision-making of locally impacted people throughout the program.
The methodology for the consultations relied on (FNDS, 2016): (i) the identification and mapping of relevant stakeholders in government institutions, civil society organizations (CSOs), formal and informal forest operators (private sector), local communities and other forest dependent communities; (ii) the organization of public consultations, workshops and interviews at central (Maputo), provincial (Zambézia) and community levels in areas where REDD+ initiatives are planned to be or are already being implemented.

**Intensification of consultation for the ER Program** - In Zambézia, the consultation process was intensified from early 2015 in order to precise the content and scope of the ER Program. Representatives from UT-REDD+ conducted a range of meetings at district and provincial levels in the ER Program area. Visits were also organized to meet key stakeholders such as local producers, cashew nurseries and farm schools, in order to discuss and get feedback on their perception on the causes of deforestation and on potential opportunities for REDD+ activities. In addition, interviews were organized with governmental stakeholders in order to enter into more technical discussions on the importance of planning for the ER Program – see Box 4. This process was completed from May 2015 by additional consultations, various workshops and interviews with specific stakeholders on the REDD+ safeguards documents – SESA, ESMF and PF.

They included discussions on the drivers of deforestation and forest degradation, land use and land tenure, social and environmental protection and sustainable forest management. In the same way, the workshops aimed to undertake a joint assessment of potential socioeconomic and environmental impacts of REDD+ and preliminary identifications of mitigation measures and strategies. Preliminary field visits were organized to understand the situation of the forest sector and the potential implications arising from the implementation of future REDD+ projects for communities.

The main issues addressed during the consultation process and the comments received are summarized in Table 29.

**Box 4: Key figures on consultation process**

**Key numbers on stakeholders’ consultations** (FNDS, 2016) - During Readiness phase, an extensive consultation process was undertaken at national level. Between February 2010 and July 2011, more than 1,500 participants took part in consultations and training workshop. From March 2013 to November 2016, 61 public consultation meetings on REDD+ and associated projects were organized. 10 of them were community consultations. Along those consultation, 3,370 participants were recorded, 29% of which were women. Those consultations were organized throughout the country, including in the ER Program area.

---

28 Provincial Director of Environmental Affairs; head of the Provincial Services of Forestry and Wildlife; Provincial Director of Agriculture; Provincial Delegate of the National Statistics Institute (INE); Deputy Chief of Rural Extension Services.

29 District Administration; Courts; Police; District Services for Economic Activities (SDAE); Environmental Provincial Directorate; Forest Provincial Directorate; Private sector (Anadarko, ENI and Forest Operators) and Forest and Environmental NGOs.
Platforms to enhance the full, effective and ongoing stakeholders’ participation

The implementation of the ER Program will build up on this consultation process and intensify it in order to ensure the long-term full, effective and on-going participation of all stakeholders in ER Program’s implementation. As part of this consultation process, multi-stakeholders platforms have also been created, both at national level for the general REDD+ initiative in Mozambique and at provincial scale for the specific REDD+ activities in Zambézia, including the ER Program.

The Technical Review Committee for REDD+ / National Steering Committee

The Technical Review Committee (Comité Técnico de Revisão - CTR) for REDD+ was created by national decree in 2013 (Decree No. 70/13 – see section 4.5). It is the overarching consultative and supervising organ of all REDD+ activities in Mozambique. The CTR is composed of members of the Government, members of the civil society organizations and academic institutions as well as representatives of the private sector. The CTR meets every trimester and can organize extraordinary meetings on specific issues related to REDD+ project when necessary – see section 6 for more details.

The Zambézia Multi-Stakeholders Landscape Forum (MSLF)

In August 2015, a Zambézia Provincial Forum was created in order to coordinate REDD+ projects in Zambézia and promote integrated landscape management. It has evolved into the Zambézia Multi-Stakeholders Landscape Forum (MSLF) - also called the Integrated Development Platform for Zambézia (Plataforma de Desenvolvimento Integrado da Zambézia) - which was officially launched in March 2017, after the signature of a first MoU between the Installer Commission of the MSLF and various partners form the NGOs, the private sector and academies, in July 2016 - The MoU and the Terms of Reference of the Platform are available in, respectively, Annex 4: MoU between the Installer Commission of the Zambezia MSLF and the Forum of ONGs, private sector and academies and in Annex 5: Terms of Reference of the Zambézia MSLF.

Created as a consultative body, the MSLF aims to create synergies of dialogue and sharing of information and knowledge between the actors involving in the broader context of natural resource management and sustainable development in Zambézia. Its main objectives are to foster debates on topics relevant for the development of Zambézia province, especially with regard to REDD+ initiatives; to promote sustainable practices and the integrated management of natural resources, including forests; to promote the valorization and integration of local communities and their leaders in this process; to increase awareness and ease the dissemination of information (study, experience, etc.) in this area; to ease the relationship between the various actors involved in landscape management in Zambézia province.

In this sense, it brings together government institutions, district services, private sector, civil society organizations, representatives of the communities and education institutes in Zambézia province working in the area of sustainable development. Those actors gather all together in plenary sessions, at least twice a year.

In order to facilitate discussions and operational working sessions, specific thematic groups, composed of specialist institutions in each area, have been created within the MSLF: (i) sustainable agriculture; (ii) forests and conservation areas; (iii) land, water resources and energy; (iv) governance, gender issues and climate change (see Annex 6: Thematic groups...
of the Zambézia MSLF). Each thematic group works on topics related to its area, promoting information sharing and aiming to facilitate decision-making and harmonize the activities implemented by the different stakeholders in Zambézia in regard to the MSLF’s focus. The thematic groups meet at least four times a year. A coordination group, composed of 17 members, was also created to represent civil society organizations, the public and private sector, communities, academies and coordinators of strategic projects and reference organizations. The coordination group meets at least four times a year.

Based on a transversal approach, the MSLF is therefore devoted to the promotion and diffusion of local knowledge, which are represented by the communities as reference actors, as a basis for the sustainable integrated development of the Zambézia province, especially with regard to REDD+ initiatives - including the ER Program. Precisely, the MSLF is expected to highly contribute to the full and transparent participation of the stakeholders in the day-to-day implementation of the ER Program activities in Zambézia. During its implementation phase, the MSLF will have to guarantee and support the effective integration of institutions involved and to help facilitating discussion between them, especially on the Benefit Sharing Plan and the feedback and grievance redress mechanism - see next section.

It will also strengthen communication on REDD+ activities in the ER Program area, with regular collect of information and systematization of dissemination.

| Table 27: Meetings of the Zambézia Provincial Forum for REDD+ (and of the Zambézia Multi-Stakeholders Landscape Forum which succeeded to it) |
|---|---|---|
| **Forum** | **Place & date & number of participants** | **Key topics** |
| 1st Zambézia Provincial Forum for REDD+ | Quelimane 01/08/2015 | Launching of the provincial REDD+ forum; presentation of the forum and its objectives; discussion on inter-sectorial and integrated cooperation; presentation and discussion on REDD+ pilot project in Zambézia (ER Program). |
| 2nd Zambézia Provincial Forum for REDD+ | Pebane 06/01 – 07/01/2016 | Discussion on the management of the Gilé National Reserve (GNR) and on the activities of the implementing partners. |
| 3rd Zambézia Provincial Forum for REDD+ | Quelimane 09/02/2016 | Discussion on the concrete activities to be implemented by the ER Program; debate on current REDD+ activities in the area; sharing on similar practices in Zambézia and in the rest of the country. |
| 4th Zambézia Provincial Forum for REDD+ | Quelimane 20/04 – 22/04/2016 | Design the action plan for the reduction of deforestation at provincial scale with coordination between the ER Program and MozBiO, MozFIP, and “Sustenta” projects; discuss the activities to be implemented for ER Program; find ways to institutionalize the Forum; discussion on safeguards documents. |
| Extraordinary Zambézia Provincial | Quelimane 30/06/2016 | This extraordinary forum was also the first meeting of the Sustainable Development for Zambézia / Zambézia Multi-Stakeholders Landscape Forum – see below. |
The role of the MSLF in GIS platforms for REDD+

Admittedly, geospatial data sharing is a key issue for the monitoring of activities implemented under the REDD+ strategy in Mozambique. Currently, the FNDS is developing a national GIS platform to integrate all geospatial information on activities related to sustainable development and REDD+ activities in the country. It will be based on the signature of Memorandum of Understanding for the sharing of geospatial data with other public institutions and actors (NGOs, private sector), etc.

There is an opportunity for the Platform to be a reference player in Zambezia for the production, valorization and sharing of information relevant for the geo-referencing of REDD+ activities in Zambézia, relying on the collection field data to produce spatial information map of the activities implemented by the members of the MSLF.

For now, this capacity is being developed by the Landscape Coordination Unit (LCU - see section 6 for institutional arrangements), based in Mocuba, as part of the various projects being implemented in the area (MozFip, Sustenta, Mozbio). Several spatial information tools therefore already co-exist in Zambézia, including the LCU GIS Platform and the Mozbio Website and geoportal (still under development). Therefore, three possibilities exist:

- Integrate the information produced by the members of the MSLF into the LCU GIS Platform or into the FNDS’ national GIS Platform;
- Take advantage of the Mozbio project GIS platform to integrate information of the activities implemented by the other actors of Zambézia Province - including the members of the MSLF;
- Continue developing several GIS platforms dedicated to specific uses and projects, provided that data crossing mechanisms can be guaranteed.

At the time of writing, discussions about the three possibilities are still on going.

Dissemination of information and consultation on ER Program and REDD+

As stated before, stakeholders’ consultation and participation in the design of the ER Program also relied on an extensive information-sharing process. The dissemination of information rely on technical communication of UT-REDD+, which ranges from mass
communication techniques through media including the radio, television and newspapers to more specific tools such as the utilization of social media (Facebook) and the UT-REDD+ web page.

The REDD+ website, the REDD+ Facebook page and the REDD+ mailing lists are the most used tools. Regular updates on the main events linked to REDD+ are regularly relayed through those channels. Pre-consultation information, announcements and invitations, in addition to direct contact with stakeholders, are automatically posted on both the REDD+ website and Facebook page, and shared on the radio and television. The REDD+ website also encompass the totality of the consultation reports and list of participants. A public Drop Box was also created to gather and disseminate all the documents related to the consultation process.

Table 28: Main information sharing tools for stakeholders’ consultation and participation

<table>
<thead>
<tr>
<th>Tool &amp; access</th>
<th>Main content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website for REDD+ in Mozambique</td>
<td>Reports from the consultations with accompanying participants’ lists; information on ongoing activities and project; updated news on REDD+ process in Mozambique; main contact of REDD+ initiative in Mozambique.</td>
</tr>
<tr>
<td>Facebook page for REDD+ in Mozambique</td>
<td>Information on ongoing activities and project; updated news on REDD+ process in Mozambique; main contact of REDD+ initiative in Mozambique; article related to REDD+ and forest in Mozambique; photos of REDD+ events.</td>
</tr>
<tr>
<td>REDD+ in Mozambique mailing lists</td>
<td>Mailing lists to diffuse information, invitations, reports and documents to stakeholders that registered.</td>
</tr>
<tr>
<td>REDD+ in Mozambique consultations dropbox</td>
<td>Reports from the consultations with accompanying participants lists.</td>
</tr>
<tr>
<td>Radio announcements</td>
<td>Announcement of the date, place and subjects of events related to REDD+ in Zambézia (local radio) and Maputo (national radio). Example here.</td>
</tr>
<tr>
<td>TV announcement</td>
<td>Announcement of the date, place and subjects of events related to REDD+ in Zambézia (local radio) and Maputo (national radio).</td>
</tr>
<tr>
<td>Films and videos</td>
<td>Presentation of REDD+ activities and projects in Mozambique; community consultation; theatrical workshop.</td>
</tr>
</tbody>
</table>

During consultation, information is also made available to all participants through the production and distribution of didactic material, such as pamphlets, policy briefings, posters or cartoons. They synthesize the main issues related to REDD+ in a concise and clear

---

30 The e-mail forum of discussion on REDD+ that was created in 2016 now comprises 119 members from different institutions within the Government, NGO’s, donors, private sector and academy.
manner, easily understandable and illustrated with meaningful pictures. The pamphlets are thematic and cover various topics such as agricultural practices or charcoal production.

Finally, stakeholders’ participation can also be encouraged through more innovative and punctual initiatives, such as the organization of theatrical events. In March 2016, the Landscape Coordination Unit organized a theatrical workshop in collaboration with the local theatre company Kassoria, who already is a member of the Zambézia Provincial Forum. They performed, in local languages, 8 small sketches on the main issues related to deforestation and forest degradation in Zambézia. This kind of initiative, which was filmed and disseminated on Internet, is expected to repeat in the future.

5.2 Summary of the comments received and how these views have been taken into account in the design and implementation of the ER Program

Table 29: Summary of comments received during stakeholders’ consultations

<table>
<thead>
<tr>
<th>Topics and stakeholders involved</th>
<th>Main comments received from consulted stakeholders</th>
<th>Solutions for ER Program design and implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploitation of natural resources</td>
<td>Many issues raised during consultations were related to the understanding of the drivers of deforestation, the potential of mitigation measures and their pros and cons.</td>
<td>The benefits for communities is the result of the goods and services that a healthy forest produces. The aim of the ER Program is to support the process of optimizing these goods and services for current users as well as for future generations. The ER Program will generate new benefits for local population to change their habits, diminish their dependence on forest resources and contribute to deforestation reduction; this will be achieved through specific ER Program activities aiming at diversifying their sources of revenues and proposing alternative way of subsistence – see section 16 on non-carbon benefits, section 15 on benefit-sharing mechanisms and section 4 on ER program activities.</td>
</tr>
<tr>
<td>Local population, civil society and communities</td>
<td>The over-exploitation of forest resources by rural population is linked to poverty and the lack of job opportunities. They are necessary to their subsistence. How to reconcile the reduction of deforestation and the question of subsistence of communities?</td>
<td></td>
</tr>
</tbody>
</table>
The use of forest by local communities is strongly embedded in their life habits and culture. Forest resources are used intensively for market purposes and in some instances with lucrative illegal logging, but also for food, firewood, production of charcoal, furniture production, and building fences and home and medicinal purposes. Changing those habits may be difficult.

How will REDD+ be compatible with agricultural and charcoal production?

The ER Program will not prohibit the entire use of forest resources but will be based on a reasoned use of them, in a sustainable way, so that local populations’ needs are met at longer term. Those non-carbon benefits will have to be clearly presented to local communities and their feedbacks should be taken into account at all times of ER Program implementation – see section 4 for ER Program interventions and justification.

The potential financial benefits induced by REDD+ activities may be lower than those induced by illegal logging. The ER Program will not prohibit any agricultural practices but will provide incentives for sustainable practices that will enable the agricultural production to increase while reducing deforestation. Agricultural productivity will be increased in order to reduce shifting agriculture and the net impact on agricultural production is expected to be positive. The production of charcoal will be subject to specific measure to reduce the quantity of wood necessary to meet the demand, with improved techniques of production (improved kilns with better yields).

**Significant issues raised during consultations also were about the understanding of economic and social impacts of REDD+ and mitigation measures proposed to mitigate any potential negative impact.**

The benefits sharing from REDD+ for local communities are not clear and sometimes not trusted, with complaints about corruption, grabbing of revenues and inefficient redistribution (including with regards to the “20% mechanism”).

The question of Benefit-Sharing has been central to the preparation of the ER-PD for the implementation of the ER Program and was partly based on the analysis of land tenure rights in the ER Program area – see section 4.4 and 15. The ER Program was designed taking into consideration this crucial question that is perceived to be key to its success. The ER Program will have to rely on a defined clear and efficient mechanism to distribute carbon benefits to the communities and ensure that the communities also perceive non-carbon benefits – see section 15. The distribution of carbon benefits should rely on transparent and efficient institutional arrangements and monitored.
The understanding the current economic, social and environmental value of forest and the implications for future generations has been regularly addressed during consultations.

It is necessary to address uncontrolled fires that are a major cause of deforestation and forest degradation. Burn-reduction activities are under development and the awareness raising and training on better management of fires is included in various interventions of the proposed ER Program. In addition, the ER Program interventions activities seek to increase the value of forest products to rural communities, thereby reducing incentives for fires (triggered for hunting and agricultural purposes) – see section 4 on ER Program interventions.

REDD+ pilot projects have contributed to increasing awareness concerning the need for sustainable use of forest and conservation but this awareness has not changed the patterns of forest use enough. Under the existing REDD+ pilot projects, conservation agriculture is being introduced by external sources. The concepts and ways of farming are new to the people in the region, and may clash with local land use/forest use traditions. It will take time to raise awareness for the need for change, and to get people to accept the conservation programs and adopt them.

The ER Program will therefore rely on a wide range of extension agents who are part of local communities. Consultation with communities will be crucial to understand their needs and promote coherent practices that do not clash with their cultural beliefs but which provide incentives for changes towards sustainable use of forest resources. This is partly ensured by the Zambézia Multi-Stakeholders Landscape Forum. Communication on benefits will be important.

The REDD+ Strategy is not only based on receiving money and income from the selling of carbon credits. Conversely, it aims at initiating long-term changes in the use of forest resources so as to ensure their sustainable use for local communities. Carbon payments will help to initiate this change but, assuming that the REDD+ strategy succeeds, the non-carbon benefits are expected to contribute to the maintaining of sustainable practices way after the application of ERPA and carbon payments, fueling a “win-win” environment – see section 16 on non-carbon benefits.

In addition to reforestation projects, it would be beneficial if individuals could participate in commercial agriculture. The valorization of cash crops for the increase of sustainable commercial agricultural activities is an important component of the ER Program. This will come along better access to market through various measures, including increasing smallholders’ knowledge about markets trends and prices. Small
## Government and donors

It is crucial to integrate REDD+ into the governance agenda of the GoM, so as it is addressed as a rural development strategy and not simply a carbon credits mechanism. The ER Program is fully integrated in the GoM commitment for reducing rural poverty. Various initiatives have been taken at governmental level to create a positive environment for the application of REDD+ and the ER Program which are part of the national development plan in general, and of rural development in particular – see section 2.

There should be a joint effort between government, private sector, civil society organizations and communities to reverse the current negative trends in the forest sector. The ER Program relies on various mechanisms that enable the full cooperation of the wide range of stakeholders in the design and implementation of its activities. Participatory mechanism such as provincial forum (such as the Zambézia Multi-Stakeholders Landscape Forum), inter-intuitionial and cross-sectorial bodies (such the CTR for REDD+) will be key in ensuring this joint effort and in the ER Program success. In addition, a forest governance assessment has been conducted in 2016 and will be replicated every 2 year in order to guide the changes in the forest sector.

## Conservation area

Complaints were raised about job opportunities in the protected areas. Communities want priority in receiving job opportunities in the protected areas, for positions such as rangers in order to supplement income while protecting their traditional land. With regards to conservation area, the ER Program will partly rely on the Mozbio project that will help generate new revenues for the communities living around the GNR. Job opportunities are also expected to be increased by ER Program interventions related to the commercialization of cash-crops and the potential local transformation of cashew – see section 4.

<table>
<thead>
<tr>
<th>Local population, civil society and communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complaints were raised about job opportunities in the protected areas. Communities want priority in receiving job opportunities in the protected areas, for positions such as rangers in order to supplement income while protecting their traditional land.</td>
</tr>
<tr>
<td>With regards to conservation area, the ER Program will partly rely on the Mozbio project that will help generate new revenues for the communities living around the GNR. Job opportunities are also expected to be increased by ER Program interventions related to the commercialization of cash-crops and the potential local transformation of cashew – see section 4.</td>
</tr>
</tbody>
</table>
### Government and donors

**Inspection fails in conservation areas, including in Gilé for the GNR.**

With regards to conservation area, the ER Program will partly rely on the Mozbio project that includes a component linked to the better management of protected areas – see section 4.1. In addition, through reducing the appeal of deforestation and forest degradation, the ER Program is expected to reduce the overall risk of “invasions” of protected forests. The MozFIP will also support AQUA on enhancing the law enforcement in the program area.

### M& MRV

**The Government should improve monitoring of forest operators to ensure that forest legislation is adhered to in practical terms.**

The GoM has launched a review of the Forest law framework that should also benefit REDD+ application. The ER Program will be based on an efficient MRV system that is currently being defined by a dedicated team, as well as on a forest information system, established at DINAF/AQUA. It will also support forest law enforcement. The ER Program, of which some interventions are dedicated to better management of forestry practices, will target forest operators.

### Communities should actively participate in the monitoring of forests

**Communities should actively participate in the monitoring of forests.**

The ER Program comprises a Participatory MRV (PMRV) system to ensure local communities involvement in this component – see section 14.

### Land issues

**Many issues raised during consultations were related to the understanding of the potential impact of REDD+ on land use and land tenure, in the ER implementation risks and possible adjustments linked to land tenure.**

In the ER Program, support is provided for community delimitation process as well as for the issuance of DUAT. Those ER Program interventions are supported by the MozFIP and “Sustenta” projects and are considered as key for the success of the ER Program implementation. The Mozbio project will also contribute to it with micro-zoning activities within delimited communities. This is considered as crucial to ensure the long-term rational use of natural resources and for benefit-sharing mechanism – see section 4.3 on ER program interventions, section 4.4 and the assessment of land tenure and section 15 for the benefit sharing mechanisms.
Civil society and NGOs should be engaged in land zoning process.

It is necessary to clearly delimit the area of application REDD+ interventions.

There is a need for better communication strategy at the community level, with better use of community radios, which have a lot of influence on communities.

REDD+ messages should be translated into several local languages in order to be more accessible to communities.

Communication is a significant part of REDD+ and of the ER Program and important efforts have been made in this sense. The dissemination of information rely on technical communication of UT-REDD+, which ranges from mass communication techniques through media including community radio but also television and newspapers as well as more specific tools such as the utilization of social media (Facebook) and the UT-REDD+ web page – see section 5.

Communications should be aware of existing forest resources and their importance to be able to protect them.

The ER Program is planning the dissemination of information in various languages including Portuguese and local languages – see section 5.

Stakeholders’ involvement

How will the comments raised during consultations be taken into account?

All record of consultations are posted on the Internet and made available to public. MITADER is responsible for gathering and managing them. They are taken into account for the design and implementation of the ER Program.

The ER Program recognizes that civil society organizations should support communities in the delimitation of community lands to strengthen them. Those are complex issues for which communities need assistance to work on them adequately. The ER Program will rely on a wide range of civil society and NGOs partners such as ITC and ORAM who already engaged in such initiatives. MozFIP is supporting o Plano Nacional de Ordenamento Territorial, and this activity will also take place in the project area.

Government and donors

It is necessary to clearly delimit the area of application REDD+ interventions.

The ER Program has a specific area of application that is clearly delimited by the borders of the districts that composes the accounting area – see section 3.
Civil society organizations should fully be involved in the REDD+ process. 

The involvement of women in the consultation process should be ensured and monitored.

It is necessary to represent all stakeholders in REDD+ strategy implementation.

A need was identified for greater outreach and greater involvement of communities in designing the Legal and Institutional Framework for the National REDD+ Strategy.

Civil society organizations are invited to participate in all activities of the REDD+ process, including public consultations and workshops throughout the country. This is also true for all the consultations related to the ER Program design and implementation. This should also be a way of listening and answering to any parties that is not in favor of REDD+, in order to understand their concerns and address them. In order to fully institutionalize stakeholders’ participation in the ER Program the Zambézia Sustainable Development Platform, which is succeeding to the Zambézia REDD+ Provincial Forum (also called the Zambézia Multi-Stakeholders Landscape Forum – MSLF) is currently being formalized. This Platform is composed of Civil Society Organizations (CSO) among other stakeholders (academia, private sectors, etc.).

The participation of women during the consultation process is already promising, 29% of consultations participants being women (see box 5). Along the ER Program implementation, their participation will continue to be strongly encouraged. The records of all the consultations, including the list of participants, are available online – see section 5.

It is necessary to represent all stakeholders in REDD+ strategy implementation.

The GoM if fully aware that REDD+ strategy and the ER Program are cross-sectorial initiatives. In order to ensure the on-going participation of all stakeholders and the integration of their different views, various mechanisms have been created. The most important tool with this regard is the creation of the MSLF, which should ensure the long term and active participation of a significant variety of stakeholders, including civil society, in the design and implementation of the ER Program. In addition, the CTR for REDD+, which includes representatives of several sectors of activity, aims to establish the procedure for approving projects related to REDD+, as well as establishing the institutional framework – see section 2 on cross-sectorial commitment and section 6 on institutional arrangements.

The overall participation of communities in the design and implementation of the ER Program is ensured through various mechanism that are detailed in section 5 and 6. Those also apply for the designing the Legal and Institutional Framework for the National REDD+ Strategy.
6. OPERATIONAL AND FINANCING PLANNING

6.1 Institutional and implementation arrangements

Recent evolution on REDD+ institutional and implementation arrangements

Although institutional and governance weaknesses have been identified as potential barriers to REDD+ implementation in Mozambique they have been, in the past few years, largely addressed through innovative measures and concrete efforts. One of the most obvious was the creation of the MITADER that, as stated in section 2, gathers into one single institution the management of cross-sectorial issues that are all very relevant to REDD+. Today, within the MITADER, the FNDS and its Directorate for the Mobilization of Funds (PMR) are the key organs managing REDD+ national supervision in Mozambique, in coordination with the Ministry of Agriculture and Food Security (MASA) and the Ministry of Energy (MIREME) and their associated Directorates - see Figure 17.

In addition, REDD+ policies and implantation in Mozambique are dependent on properly articulated institutions whose mechanisms were primarily defined by the Decree No. 70/13 of December 20th, 2013, ("Regulation of the procedures for approval of projects for reducing emissions from deforestation and degradation"), which created the REDD+ Technical Unit (UT REDD+) and the Technical Committee Review Committee for REDD+ (CTR). With the restructuring of government institutions, as a result of the legislative and presidential elections of 2014, the staff and functions of the UT-REDD+ have been placed inside of the FNDS. Later on, this institutional layout was reinforced by the National Steering Committee (NSC) for MozFip.
At the time of writing, Decree No. 70/13 was being revised by the GoM in order to clarify and ease the implementation of REDD+ in Mozambique. Although this revision should not alter the planned institutional arrangements for the implementation of the ER Program - but rather clarify them - this section will be updated before the submission of the ER-PD final draft. The new decree is expected to be approved before the submission of the final ER-PD to the FCPF CF.
Figure 16: Structure of the PMR
Figure 17: Coordination of the FNDS with MITADER’s and other ministries’ relevant directorates for REDD+

**National Directorate of Energy**: Responsible for the promotion of renewable energies in rural areas, the dissemination of new technologies for the production of energy and the coordination of the Inter-ministerial Commission of Bioenergy (CIB).

**Energy Fund (FUNAE)**: Responsible for (i) the development, production and use of various forms of low power energy to supply rural and urban areas inhabited by low-income populations; and (ii) promoting the conservation and sustainable management of energy resources. Those activities include the promotion of the sustainable consumption of biomass (including with the dissemination of improved cook stoves) as well as the development of forest plantations for the production of biomass.

MIREME

Figure 17: Coordination of the FNDS with MITADER’s and other ministries’ relevant directorates for REDD+
Oversight of ER Program implementation and link with national REDD+ framework

For institutional arrangements related to safeguards management and benefit sharing, please refer to sections 14 and 15.

The implementation of the ER Program in Zambézia will be embedded in the ongoing REDD+ process and aligned with the National REDD+ Strategy’s overall objectives and pillars. The objective is to create innovative and decentralized governance arrangements at national, provincial and district levels, including the government, private sector, civil society stakeholders and the communities (UT REDD+, 2015a).

**ERPA Signature** - The Ministry of Economy and Finance (MEF) will sign the Emission Reduction Payment Agreement (ERPA) with the FCPF CF. The MEF will manage the reception of ER payments and will transfer them to the MITADER’S FNDS.

**National supervision and coordination of the ER Program** - The MITADER will be in charge of supervising and coordinating the ER Program at central level. The MITADER is the primary actor responsible for the REDD+ process in Mozambique and the main point of contact with the FCPF. For the ER Program, it will work closely with the MEF and coordinate with the other relevant ministries (especially MASA and MIREME), as shown in Figure 17. In order to do so, the MITADER will primarily rely on its FNDS (see Figure 15) and its lead unit, the Directorate for the Mobilization of Funds (PMR) - see Figure 16. The UT REDD+, now designated as the Landscape Management Unit, is incorporated to the FNDS.

**National supervision and coordination of the ER Program** - The MITADER, which is the primary actor responsible for the REDD+ process in Mozambique and the main point of contact with the FCPF, will be in charge of supervising and coordinating the ER Program at central level. In order to do so, the MITADER will primarily rely on its FNDS (see Figure 15) and its lead unit, the Directorate for the Mobilization of Funds (PMR) - see Figure 16. The UT REDD+, now designated as the Landscape Management Unit, is incorporated to the FNDS. The FNDS will work closely with the MEF and also ensure the involvement of relevant national directorates in other line ministries (especially MASA and MIREME), as shown in Figure 17. Within those ministries, each agency and national directorate will appoint a focal point who will participate, including in the preparation of the annual work plans and budgets, annual progress reports, prepare terms of reference (TORs) in their respective areas of expertise, and contribute to the supervision of the actions under their areas of responsibility.

At National scale, the National Steering Committee (NSC) will also help coordinate activities. Created as a cross-sectorial coordination committee in order to oversee the implementation of the MozFIP and MozDGM activities in Mozambique, the NCS supports the FNDS in strategic decision-making regarding the FIP and REDD+ initiatives in general, including the ER Program - the ToR for the creation of the NSC are available in Annex 7 - Terms of Reference for the creation of the National Steering Committee (NSC) for MozFip. The NSC aims to complete the activities of the REDD+ Review Committee (CTR), which was created by Decree 70/2013 as the overarching consultative and supervising organ of REDD+ in Mozambique - see Table 30.

**National financing management of the ER Program and carbon payments** - From a

---

31 The exact terms for this process and the ability of the MEF to enter into such an agreement will soon be specified in the new REDD+ decree, currently under development. The new REDD+ decree is expected to be approved before the submission of the final ER-PD draft.
financial point of view, the PMR is also the coordinating body of the FNDS and the financial management unit for all REDD+ projects and activities, handling administrative and technical processes related to funding. The PMR coordinates and supervises major donor support programs, including FCPF, MozFIP, and Sustenta projects, and reports directly to the MITADER. It should be noted that the PMR is financially and technically supported by the MozFip and the "Sustenta" project. The institutional arrangements related to carbon payments and the distribution of carbon benefits are detailed in the next sub-section.

**Provincial management of the ER Program** - At provincial level, the provincial Government of Zambézia, through its Provincial Direction of Land, Environment and Rural Development (DPTADER) will manage the ER Program. The Landscape Coordination Unit (LCU), whose team is located in the ER Program area (Mocuba), will support it at local scale. The LCU will be a key link for local institutions and stakeholders.

**Box 5: Focus on the Landscape Coordination Unit (LCU)**

In 2013, Decree 70/13 created the UT REDD+ in order to coordinate and manage all REDD+ activities in Mozambique, with dedicated provincial coordinators in relevant provinces of the country. In Zambézia province, where the ER Program was being defined, the provincial UT REDD+ team was initially based in Quelimane, since 2015, and placed under the authority of the DPTADER. The UT REDD+ provincial coordinator’s responsibilities initially were to carry on the preparation, consultation process and implementation of the ER Program’s early activities. He was, and still is, also responsible for promoting stakeholders’ involvement in the design and implementation of the ER Program, through managing the Zambézia MSLF with local institutions and stakeholders.

In 2016, along with MozFip, the UT REDD+ was re-oriented towards the Landscape Management Unit (LMU), directly incorporated at central level into the FNDS. A dedicated Landscape Coordination Unit (LCU) succeeded to the provincial REDD+ team for the implementation of the ER Program. Composed of 6 technical specialists who supervise the various areas of application of the ER Program, including land policies, value chains improvement, forest management and infrastructures, safeguards, accounting. The whole team of the LCU is now gathered in Mocuba, in the ER Program area, in order to ensure full operational capacities of the team and better management of ER Program implementation on a day-to-day basis.

The main added value of the LMU and LCU is to enhance inter-sectorial and inter-institutional coordination at provincial and national levels, addressing one of the main REDD+ barriers in Mozambique - see section 4.1. It also shows the political will and sustained commitment of the GoM to efficiently implement REDD+ activities and the ER Program, strengthening local capacities to do so and showing a significant will to decentralize such responsibilities. The provincial LCU is also a means to overcome potential capacity and resources gaps, inherent to the size, level of ambition and complexity of any jurisdictional approach. It enables to concentrate on capacity building effort and gather human, technical and financial resources efforts into one single unit (UT REDD+, 2015a). The LCU is also in charge of the Zambézia REDD+ GIS platform - see section 5.

**Local Implementation of ER Program activities** - Generally speaking, the overall implementation of the ER Program activities will be coordinated by the LCU who will help
implement the ER Program activities under consultation with multi-stakeholders through the Zambézia MSLF - see section 5.

The practical ER Program activities’ local implementation will rely on service providers (private sectors, NGOs, etc.) who will be selected according to the procedures applying to each of the projects that are being implemented in Zambézia - MozFip and MozDGM, Mozbio, Sustenta. Stakeholders’ commitment and capacities to implement the ER Program activities in a coordinated manner may be ensured through the planned signature of various MoUs with the implementing partners, to make sure that all of them effectively contribute to the ultimate goals of the ER Program\textsuperscript{32}. MoUs could entail rights and duties of the implementing stakeholders, as well as associated budget. Other activities of the ER Program will rely on local administration and State entities, especially with regards to activities linked to land tenure and community delimitation. This, also, may rely when necessary on specific cooperation agreements with the provincial government of Zambézia and districts administrations.

Finally, a great deal of the ER Program activities will depend on the direct involvement of the local population and local communities and will be held within the communities who live in the ER Program area, involving the CGRNs, individual farmers and small community businesses.

Figure 18: Implementation scheme for the ZILMP ER Program

\textsuperscript{32} A MoU between the Zambézia Multi-Stakeholders Landscape Forum and civil society, the private sector and academic partners was signed in August 2016.
### Table 30: National management of the ER Program led by the MITADER

<table>
<thead>
<tr>
<th>ERPA</th>
<th>MEF</th>
<th>MINISTRY OF ECONOMY AND FINANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>MINISTRY OF LAND, ENVIRONMENT AND RURAL DEVELOPMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>National Fund for Sustainable Development (FNDS)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Directorate for the Mobilization of Funds (PMR)</strong></td>
</tr>
<tr>
<td>ERPA</td>
<td>MITADER</td>
<td><strong>Main responsibility in REDD+</strong>: Within the MITADER, the FNDS ensures the overall strategic guidance and coordination of all REDD+ activities implementation.</td>
</tr>
<tr>
<td></td>
<td>MITADER</td>
<td><strong>Main responsibility for the ER Program</strong>: The FNDS is responsible for the technical and financial coordination of the ER Program and works closely with some of MITADER’s technical directorates, mainly the National Department of Forests (DINAF), the National Department of Land (DINAT), the National Direction for Rural Development (DNDR) as well as with the AQUA and ANAC (see below). The FNDS also liaises with other ministries such as MASA and MIREME and their associated Directorates and agencies, and is responsible for the development and implementation of the MRV system for REDD+.</td>
</tr>
<tr>
<td></td>
<td>MITADER</td>
<td><strong>Main responsibility in REDD+</strong>: Within the FNDS, the PMR is the lead unit for REDD+. At central level, the PMR is responsible for the management of fiduciary issues and coordinates the work of the focal points from the Ministries to ensure their regular participation in the implementation of REDD+ activities.</td>
</tr>
<tr>
<td></td>
<td>MITADER</td>
<td><strong>Main responsibility for the ER Program</strong>: The PMR carries out the ER Program implementation at central level. The PMR is tasked with the technical supervision and coordination, overall planning, quality oversight, communication, safeguards management, reporting, procurement, financial management, monitoring of activities and monitoring and reporting of progress on a regular basis.</td>
</tr>
</tbody>
</table>
Main responsibility in REDD+: The CTR is means of consultation and supervision of REDD+ activities and the structure responsible for producing technical allowances for the UT-REDD+. It is the overarching consultative and supervising organ of all REDD+ activities in Mozambique, with the aim of piloting inter-institutional coordination among all the sectors and stakeholders involved.

Main responsibility for the ER Program: The NSC was recently created (2015) to complete the activities of the CTR (whose functioning had encountered some weaknesses) and to oversee the implementation of the MozFIP and MozDGM activities. It comprises government organizations, the private sector, research institutions and civil society organizations and has the overall mandate to support the PMR in strategic decision-making regarding the FIP and REDD+ initiatives in general, including the ER Program. Its main functions are to assume a technical advisory role, to ensure alignment and coordination between the various government programs and liaise with relevant stakeholders in order to: coordinate activities under the overarching investment plan; provide inputs to the annual work plans, budgets and reports; ensure alignment between the FIP and other government programs; liaise with development partners and relevant stakeholders; and advise on strategies and mechanisms for conflict resolution and improved management of forest resources.

MINISTRY OF LAND, ENVIRONMENT AND RURAL DEVELOPMENT

MITADER

National directorates

National Direction for the Environment (DINAB)

The DINAB is the focal point for all relation with UNFCCC. It is especially responsible for the coordination of the registry related to the Clean Mechanisms Projects.

National Direction for Rural Development (DNDR)

Responsible for the overall definition of rural development initiative with focus on inter-sectorial coordination for the sustainable use of resources and on the promotion of communities’ involvement in the process of local rural development.

National Direction of Lands (DINAT)

Responsible for the management of the national cadaster, the attribution of DUATs and the delimitation of community lands.
<table>
<thead>
<tr>
<th>National agencies under the tutelage of the MITADER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National Department of Forests (DINAF)</strong></td>
<td>Develop and update standards and procedures on the sustainable management of forest resources, including the national certification scheme. For the ER Program: in charge of the National Forest Inventory and of the designing of the Forest Information System, in cooperation with AQUA.</td>
</tr>
<tr>
<td><strong>National Agency for Conservation Area (ANAC)</strong></td>
<td>Main responsibility in REDD+: The ANAC under the tutelage of the MITADER and the FNDS and guarantees the effective management of all conservation areas, national parks, sport hunting areas and reserves in Mozambique, including through, <em>inter alia</em>, defining priorities for administration and sustainable use of conservation areas, ensuring the protection of biological diversity, licensing hunting and ecotourism activities in conservation areas, managing and training personnel, etc. Main responsibility for the ER Program: for the ER Program, the ANAC is responsible for the management of the Mozi bio project and of the GNR, which is part of the ER Program area – see section 4.1 for more details.</td>
</tr>
<tr>
<td><strong>National Agency for Environmental Quality Control (AQUA)</strong></td>
<td>Main responsibility in REDD+: The AQUA is a forest law enforcement agency under the tutelage of the MITADER and is currently developing a new strategy for forest law enforcement in the country. It is notably responsible for the activities of forest patrolling and inspection, prevention and detection, including through the regular assessment of forest concessions and forest operators. Main responsibility for the ER Program: Within this mandate, and relevant for the ER Program, AQUA is especially working on the development and implementation of the Forest Information System, in cooperation with DINAF.</td>
</tr>
</tbody>
</table>
### MINISTRY OF AGRICULTURE AND FOOD SECURITY

**MASA**

<table>
<thead>
<tr>
<th>National Directorates</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Directorate for Agricultural Extension (DNEA)</td>
<td>Responsible for increasing agricultural productivity, agro-processing and marketing through sustainable exploitation of natural resources with dissemination of good agricultural practices adapted to climate change and contributing to the protection of natural resources.</td>
</tr>
<tr>
<td>National Directorate for Agriculture and Forestry (DNAS)</td>
<td>Responsible for managing all forest plantations in Mozambique for promoting reforestation for conservation, energy, commercial and industrial purposes.</td>
</tr>
</tbody>
</table>

### MINISTRY OF MINERAL RESOURCES AND ENERGY

**MIREME**

<table>
<thead>
<tr>
<th>National Directorates</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Directorate of Energy</td>
<td>Responsible for the promotion of renewable energies in rural areas, the dissemination of new technologies for the production of energy and the coordination of the Inter-ministerial Commission of Bioenergy (CIB).</td>
</tr>
<tr>
<td>National agencies under the tutelage of the MIREME</td>
<td>Responsible for (i) the development, production and use of various forms of low power energy to supply rural and urban areas inhabited by low-income populations; and (ii) promoting the conservation and sustainable management of energy resources. Those activities include the promotion of the sustainable consumption of biomass (including with the dissemination of improved cook stoves) as well as the development of forest plantations for the production of biomass.</td>
</tr>
</tbody>
</table>
### Provincial Management of the ER Program

<table>
<thead>
<tr>
<th>PROVINCIAL GOVERNMENT OF ZAMBEZIA</th>
<th>In charge of implementing MITADER's policies at provincial level and coordination the ER Program activities in Zambézia.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROVINCIAL GOVERNMENT OF ZAMBEZIA</td>
<td><strong>Provincial Direction of Land, Environment and Rural Development (DPTADER)</strong></td>
</tr>
<tr>
<td>DISTRICT GOVERNMENTS</td>
<td><strong>Landscape Coordination Unit (LCU)</strong></td>
</tr>
<tr>
<td>DISTRICT GOVERNMENTS</td>
<td>Under the supervision of DPTADER, the LCU is in charge of coordinating MozFip activities and ER Program interventions and of monitoring project implementation progress at the provincial level.</td>
</tr>
<tr>
<td>DISTRICT GOVERNMENTS</td>
<td>The LCU reports to the national PMR Director and to the DPTADER and have regular meetings with the provincial governors. It also interfaces with the district authorities, especially SDAE – see below.</td>
</tr>
<tr>
<td>Zambézia MSLF</td>
<td><strong>District Services for Economic Activities (SDAE)</strong></td>
</tr>
<tr>
<td>Zambézia MSLF</td>
<td>Especially responsible for issues related with agricultural and land planning development. This include promoting good forest management, ensuring compliance of actors and activities with forest legislation, promoting population education on fire control, assessing cultivated areas, production level and yields, disseminating appropriate production techniques and promoting relevant mechanisms to finance agricultural production.</td>
</tr>
<tr>
<td>Zambézia MSLF</td>
<td>Also plays an important role in project coordination and in promoting integrated landscape management, through public consultation and forums, engaging the various stakeholders on decisions relating to integrated development programs and REDD+ projects. The findings of the consultation are published and serve as significant basis for the design of REDD+ projects and programs. As explained in section 5, the Zambézia MSLF is expected to enhance the coordination of projects and other initiatives in the landscape by facilitating the establishment of a common vision and knowledge exchange.</td>
</tr>
</tbody>
</table>
### Table 31: Local implementation of the ER Program

<table>
<thead>
<tr>
<th>Local Implementation</th>
<th>Local implementation ER Program activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>LANDSCAPE COORDINATION UNIT (LCU)</td>
<td>Overall coordination of the implementation of the ER Program activities under consultation with MSLF and especially responsible for the implementation of activities related to community awareness with the consolidating of the Zambézia MSLF (ERI-A3) and to the implementation of geospatial tools (ERI-B2).</td>
</tr>
<tr>
<td>Local administration and State bodies</td>
<td>Implementation of ER Program activities related to local capacity building for CGRNs and communities (ERI - B3); local workshop, training and consultations (ERI-B3); community land delimitation, community land use plans and process of DUATs (ERI-B1); the implementation of geo-spatial tools (ERI-B2); the protection of conservation areas and restoration of natural habitats (ERI-C1); the valorization of income generating potential of the GNR (ERI-D5).</td>
</tr>
<tr>
<td>Service Providers</td>
<td>Implementation of all ER Program activities, and especially those related to the restoration of natural habitats through ANR and plantations (ERI-C1); the promotion of agro-forestry systems and conservation agriculture (ERI-D1); the structuring of key value chains (ERI-D2); the establishment of multi-purpose plantations (ERI-D3); the promotion of sustainable charcoal production (ERI-D4).</td>
</tr>
<tr>
<td>Service providers will also support activities implemented by local administration and state bodies (see above).</td>
<td></td>
</tr>
<tr>
<td>Local communities, Civil society and smallholders</td>
<td>Local communities, smallholders and the civil society will be directly involved in much of the activities of the ER Program whose good implementation will depend on their commitment, including those related to: community awareness and capacity building (ERI-A1), trough their participation in the MSLF, workshops, training, etc.; land tenure (ERI-B1), trough their participation in the application of community land use plans; the restoration of natural habitats through ANR, agro-forestry systems and conservation agriculture (ERI-D1), the structuring of key value chains (ERI-D2) and sustainable charcoal production (ERI-D4) through their adoption and application of sustainable techniques.</td>
</tr>
</tbody>
</table>
Development and operation of the Reference Level and Forest Monitoring System and institutional arrangement related to MRV

The national MRV system has the overall objective of organizing and coordinating, with standardized and internationally accepted procedures, the quantification of emission and removal of greenhouse gases (GHG) from the Agriculture, Forestry and Other Land Use (AFOLU) sector. Currently, those procedures in Mozambique are part of the national REDD+ framework. The MRV is a comprehensive system composed of institutions, technologies, knowledge, data, infrastructures, standards and guidelines. The main elements composing the MRV system are listed in Table 32.

Table 32: Elements of the MRV system

<table>
<thead>
<tr>
<th>Greenhouse gases (GHG) monitoring</th>
<th>Information system</th>
<th>Reporting</th>
<th>Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Monitoring of cover and land use change produce information on deforestation and forest degradation;</td>
<td>- Management of Programs and Projects;</td>
<td>- National reports;</td>
<td>- Internal;</td>
</tr>
<tr>
<td>- Forest Inventory to produce emission factors;</td>
<td>- Transaction management;</td>
<td>- International reports.</td>
<td>- External.</td>
</tr>
<tr>
<td>- Monitoring of permanent plots to contribute to the establishment of the emission factors;</td>
<td>- Safeguards;</td>
<td>- Complaint Mechanisms;</td>
<td></td>
</tr>
<tr>
<td>- Development of improved methodologies that increase accuracy and reduce uncertainties in carbon estimation, in addition to increasing efficiency in the production of information.</td>
<td>- Benefit Sharing.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PMRV system centralized at national level - The MRV system applying to the ER Program builds on the national MRV system, which is a Participatory MRV (PMRV) - see section 9 for more details.

The national PMRV for Mozambique will measure, report and verify the selected activities: deforestation, forest degradation and enhancement of carbon stocks (A/F) through the implementation of a Continuous Forest Inventory (National Forest Inventory and National Net of Permanent Plots) combined with Forest area change mapping. These results will be gathered and integrated at National Level with access from the provincial and local levels.

Indeed, the PMRV is a multi-scale (three different levels: national, provincial and local) system in which selected activities are integrated into an accounting scheme of a larger jurisdiction (top-down approach with integration of low level data at the high level). There will be consistent monitoring of datasets at national level but these will also gather on field information from the lower levels, and provincial and local levels may also account additional activities or additional pools.

The MRV system is therefore centralized at national level in line with UNFCCC decisions.
relying on existing systems, ensuring the sustainability of the system, and avoiding the creation of duplicities. The reported results (GHG emissions) must be consistent with UNFCCC communications. Any results reported at sub-national level have to be fully consistent with the UNFCCC communications, meaning consistent with the reported results by the national MRV system.

National coordination and supervision of MRV - As previously stated, during Readiness phase, a REDD+ coordination unit (the UT-REDD+) was created within the FNDS. Within this team, a dedicated MRV unit was composed.

The MRV Unit is also responsible of compiling and processing all relevant information from lower levels and operationalize the geographic information management system and databases, the MRV platform, hosted in the two servers located in the offices of FNDS. The MRV Unit aims to frame, guide and technically support the production and management of official data for REDD+ by all institutions involved in the national MRV system. The results (data) derived from their activity are made available to the various official bodies that need them to respond to the correct implementation of REDD+ activities, which must be classified ("nested") in national procedures and accounting - see section 18. For their part, the official bodies producing sectorial information promote the compliance of these same data with the calculation needs of the MRV Unit.

Box 6: A MRV Task Force?

The possibility to create of MRV Task Force - Discussions are currently on-going on the possibility to create a MRV Task Force that would act as a technical group, monitoring and providing support and technical advice for the main components of the system. The Task Force would be composed of representatives of DINAB, DINAF, FNDS, UT REDD+, MRV unit, ITAM, CENARTA, UEM-FAEF (see below) and DEEF (Directorate for Economic and Financial Studies of the Ministry of Economy and Finance).

Provincial level - At provincial level, the department that has been mandated with a REDD MRV functions is the UT-REDD+/Landscape Coordination Unit. In the near future a small MRV team will be established and will be assigned with MRV responsibilities. The provincial MRV team will include two specialists within the LCU to coordinate the MRV at provincial level.

Local level - At the lower level of the system, service providers will develop their own monitoring system to collect relevant information on their project (forest inventory, project areas, detailed mapping of LULC classes and changes) and reporting to the Provincial and National Units in a consistent manner, following certain national standards. The MRV processes will be also developed in close collaboration with the local communities through selected agents - see section 14 for additional description of the PMRV and SIS.
6.2 ER Program budget

The ER Program budget is based on associated projects' budgets

As explained before, this ER Program builds on already designed and funded World Bank programs, namely: Sustenta 1 and Sustenta 2, MozFip, MozDGM and MozBio. As a consequence, with the exception of a few activities, all the activities comprised in the ER Program were defined in the projects’ respective Program Appraisal Documents (PAD). Their costs (institutional cost or implementation cost) were assessed in the same documents.

It should be noted that only part of the activities and associated investments comprised in Sustenta 1 & 2, MozFip, MozDGM and MozBio will contribute to the ER Program, while others are implemented out of the ER Program area. In other words, the totality of the ER Program interventions (ERIs) are part of, and financed by, Sustenta 1 & 2, MozFip, MozDGM and MozBio - but those projects also extend beyond the ER Program area.

The proposed financing plan is based on the financing plans of the WB programs as presented in their PAD. The contribution of each activity of these projects to the ER Program was estimated (in percentage) and broken-down along the lifetime of the program, accordingly with the example given in Box 7.

Box 7: Example of the contribution of a MozFip activity to the ER Program financing plan

MozFIP has a "Community land delimitation with community delimitation certificates, community land-use plans and strengthening of community-based organizations" activity for an estimated cost of 2,093,000 USD. One half of this activity is implemented in Cabo Delgado and the other half is implemented in the ER Program area, contributing to the Emission Reduction Intervention B1 "Regularizing land tenure". Accordingly, 50% of the cost was affected to the ER Program Financing plan and broken-down along the lifetime of the MozFip program.

No financial gap until 2022

As shown in the table below, the total costs of the ER Program amount to 51 MUSD. Currently, the total identified sources of funding represent 50 MUSD and, until 2022, there is no identified financial gap, as MozFip is expected help cover any potential shortfall linked to institutional and transaction costs of the ER Program.

The 1 MUSD gap from 2022 onwards is mainly due to running costs of the MRV system and other institutional mechanisms linked to the FCPF carbon fund requirements. However, this gap could be reduced through additional projects forecasted, through national budget allocation or from the revenues of the sale of ERs. This revenue has not been put into the table below as no sales are contracted so far.

It is important to note that the draft benefit sharing agreement foresees to use a share of the proceeds to pay for running costs of the ER Program such as the implementation of the MRV system - see section 15.
### In US Dollars

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Institutional costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERI - A1:</td>
<td>Coordination and management of activities</td>
<td>1 012 792</td>
<td>1 012 792</td>
<td>1 012 792</td>
<td>1 012 792</td>
<td>250 000</td>
<td>250 000</td>
<td>250 000</td>
<td>250 000</td>
<td>6 063 960</td>
<td></td>
</tr>
<tr>
<td>ERI - A2:</td>
<td>Institutional development and strengthening and inter-sectorial communication</td>
<td>164 492</td>
<td>164 492</td>
<td>41 992</td>
<td>41 992</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>454 960</td>
<td></td>
</tr>
<tr>
<td>ERI - A3:</td>
<td>Community awareness and capacity building – ensuring stakeholders' involvement and participation in the ER Program</td>
<td>345 000</td>
<td>345 000</td>
<td>320 000</td>
<td>320 000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 650 000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implementation of Benefit Sharing Plan and Safeguard Plan</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>450 000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implementation of the feedback and grievance redress mechanism</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>450 000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-total - Institutional costs</td>
<td>1 622 284</td>
<td>1 622 284</td>
<td>1 474 784</td>
<td>1 474 784</td>
<td>350 000</td>
<td>350 000</td>
<td>350 000</td>
<td>350 000</td>
<td>9 068 920</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ERI - B1: Regularizing land tenure</td>
<td>924 800</td>
<td>924 800</td>
<td>924 800</td>
<td>924 800</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4 624 000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ERI - B2: Improvement of districts land use planning &amp; promotion of community level land use planning</td>
<td>426 820</td>
<td>426 820</td>
<td>426 820</td>
<td>426 820</td>
<td>125 000</td>
<td>125 000</td>
<td>125 000</td>
<td>125 000</td>
<td>2 634 100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ERI - C1: Protection of conservation areas and restoration of natural habitats</td>
<td>585 000</td>
<td>585 000</td>
<td>400 000</td>
<td>400 000</td>
<td>125 000</td>
<td>125 000</td>
<td>125 000</td>
<td>125 000</td>
<td>2 870 000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ERI - C2: Strengthening of forest governance, transparency and forest management</td>
<td>402 338</td>
<td>402 338</td>
<td>402 338</td>
<td>402 338</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2 011 688</td>
<td></td>
</tr>
<tr>
<td>ERI-D1: Promotion of conservation agriculture and agroforestry system</td>
<td>770 999</td>
<td>770 999</td>
<td>770 999</td>
<td>770 999</td>
<td>770 999</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3 854 995</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>ERI-D2: Structuring of key sustainable value chains (forestry-based value chains) for cash crops and support to the establishment of commercial agriculture in areas with no forest cover</td>
<td>1 200 000</td>
<td>1 200 000</td>
<td>1 200 000</td>
<td>1 200 000</td>
<td>3 375 000</td>
<td>3 375 000</td>
<td>3 375 000</td>
<td>3 375 000</td>
<td>19 500 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERI-D3: Promotion of multipurpose plantations</td>
<td>719 405</td>
<td>719 405</td>
<td>719 405</td>
<td>719 405</td>
<td>719 405</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3 597 025</td>
<td></td>
</tr>
<tr>
<td>ERI-D4: Promotion of sustainable charcoal production</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>50 000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>250 000</td>
<td></td>
</tr>
<tr>
<td>ERI-D5: Valorization of the income generating potential of the GNR and sustainable livelihood around the GNR</td>
<td>372 000</td>
<td>372 000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>744 000</td>
<td></td>
</tr>
<tr>
<td>Sub-total - Implementation costs</td>
<td>5 451 362</td>
<td>5 451 362</td>
<td>4 894 362</td>
<td>4 894 362</td>
<td>3 625 000</td>
<td>3 625 000</td>
<td>3 625 000</td>
<td>3 625 000</td>
<td>40 085 808</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs to design REL/ RL</td>
<td>96 870</td>
<td>96 870</td>
<td>96 870</td>
<td>96 870</td>
<td>96 870</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>484 350</td>
<td></td>
</tr>
<tr>
<td>Costs of MRV</td>
<td>100 000</td>
<td>100 000</td>
<td>100 000</td>
<td>100 000</td>
<td>100 000</td>
<td>100 000</td>
<td>100 000</td>
<td>100 000</td>
<td>900 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal and contractual costs</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>225 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs related to registry</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
<td>225 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-total - Transaction costs</td>
<td>246 870</td>
<td>246 870</td>
<td>246 870</td>
<td>246 870</td>
<td>150 000</td>
<td>150 000</td>
<td>150 000</td>
<td>150 000</td>
<td>1 834 350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total costs</td>
<td>7 320 516</td>
<td>7 320 516</td>
<td>6 616 016</td>
<td>6 616 016</td>
<td>4 125 000</td>
<td>4 125 000</td>
<td>4 125 000</td>
<td>4 125 000</td>
<td>50 989 078</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Sources of Finance - National

| National budget | - | - | - | - | - | - | - | - | - |

## Sources of Finance - International

<table>
<thead>
<tr>
<th>Multilateral Sustenta 1</th>
<th>3 100 000</th>
<th>3 100 000</th>
<th>3 100 000</th>
<th>3 100 000</th>
<th>3 100 000</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>15 500 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multilateral Sustenta 2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3 875 000</td>
<td>3 875 000</td>
<td>3 875 000</td>
<td>3 875 000</td>
<td>15 500 000</td>
</tr>
<tr>
<td>Multilateral MozBio</td>
<td>704 500</td>
<td>704 500</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 409 000</td>
</tr>
<tr>
<td>Multilateral MozDGM</td>
<td>320 000</td>
<td>320 000</td>
<td>320 000</td>
<td>320 000</td>
<td>320 000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 600 000</td>
</tr>
<tr>
<td>Multilateral MozFip</td>
<td>3 196 016</td>
<td>3 196 016</td>
<td>3 196 016</td>
<td>3 196 016</td>
<td>3 196 016</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15 980 078</td>
</tr>
</tbody>
</table>

## Sub-total - International

| 7 320 516 | 7 320 516 | 6 616 016 | 6 616 016 | 6 616 016 | 4 125 000 | 4 125 000 | 4 125 000 | 4 125 000 | 50 989 078 |

## Revenue from Products & Services

| - | - | - | - | - | - | - | - | - | - |

## Revenue from Emission Reductions

| Revenue from emission reductions contracted | - | - | - | - | - | - | - | - | - |

## Total Financing Sources

| 7 320 516 | 7 320 516 | 6 616 016 | 6 616 016 | 6 616 016 | 3 875 000 | 3 875 000 | 3 875 000 | 3 875 000 | 49 989 078 |

## Gap

| (250 000) | (250 000) | (250 000) | (250 000) | (1 000 000) |
7. CARBON POOLS, SOURCES AND SINKS

7.1 Description of sources and sinks selected

According to criterion 3 of the FCPF MF (FCPF, 2016a), several sources and sinks can be accounted for. Degradation is required to be accounted for if it is significant (i.e. if it represents 10% of total forest-related emissions in the Accounting Area during the Reference Period). Justification for inclusion of sources and sinks is provided hereafter:

- **Deforestation**: Deforestation must be included;
- **Forest degradation**: In the ER Program area, forest degradation is mainly caused by forest exploitation and, to a lesser extent, by charcoal production (which is mainly a by-product of agriculture practices, this last being the main cause of deforestation – impact of charcoal production has probably been overestimated as a source in the ZILMP Background Study as it was accounted separately from deforestation (Mercier et al., 2016)). It was decided to not include forest degradation in the sources of emissions for the ER Program because it is a conservative option and it is estimated to not be a significant source for the following reasons:
  - While analyzing the factors to delimitate intact and degraded forest, we considered distance to anthropic activities (i.e. distance to deforestation patches of deforestation) or to forest edge in relation to carbon stocks – from biomass inventory data for the present program. It shows that proximity to anthropic activities or to forest edge does not have a significant impact on carbon stocks (Figure 20). Moreover, carbon stocks have an unexpected negative correlation to distance of deforestation patches (Figure 20). On this basis, it is not possible to delimitate degraded forest with the indirect approach of the GOFC-GOLD.
  - As a consequence, the method presented in the ZILMP Background Study (Mercier et al., 2016) using exploited volumes seems the most suitable. Based on estimation of exploited volumes in Zambezia (legal and illegal logging) with secondary data from the literature, it gives an estimation of emissions due to forest exploitation in the accounting area of 37,945 tCO$_2$e (Mercier et al., 2016), which corresponds to less than 10% of emissions due to deforestation. The method to estimate those emissions is described in Annex 3.
- **Enhancement of carbon stocks**: This activity can encompass carbon sequestration through tree plantation or assisted regeneration of natural forest (non-forestland to forestland or in forestland remaining forestland). It was decided to not account for enhancement of carbon stocks. First, this decision is conservative; second, these sinks are not considered as sufficient in the accounting area:
  - Some plantations exist in the ZILMP area, but not all of them respect the UNFCCC safeguards requiring that activities included in REDD+ programs do not lead to the conversion of natural forest. In addition, in the ZILMP Background Study, emission reductions potential associated with carbon stock enhancement was not estimated as significant enough (Mercier et al., 2016).
Although assisted natural regeneration activities are part of the proposed ER Program interventions (see section 4.3), the few areas managed for natural regeneration actually represent a small part of the ER Program area. They would be limited to 1,000 ha. Carbon sequestration for such an area, based on inventories on follows (see following section) would not be significant enough.

- **Sustainable management of forests:** Although some ER Program activities focus on improved forest management and planning, those would only result reduced degradation that is not accounted for. Moreover, it is conservative to not include this activity.

- **Conservation of carbon stocks:** in the ER Program accounting area, this would concern the Gilé National Reserve. Since its creation the GNR has proved to have efficiently maintained its forest cover (except for forest degradation due to illegal logging of specific tree species) in its central zone. However, a REDD+ project is developed in its buffer zone – where deforestation does occur – and the GRN will benefit from the program funds through its performance in reducing deforestation in this area. No additional accounting of conservation efforts was therefore included in the ER-Program.

At national level, for the development of national forest reference level (FRL), degradation and enhancement of carbon stocks will be analyzed, but results will only be available in 2018 (see R-Package). If the national analysis proves these sources and sinks to be significant, the possibility of their integration will be reassessed during the monitoring periods. The method planned for the analysis is described in the monitoring section - see section 9.

### Table 33: Selection of REDD+ activities

<table>
<thead>
<tr>
<th>REDD+ Activities</th>
<th>Included?</th>
<th>Justification / Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions from deforestation</td>
<td>Yes</td>
<td>At a minimum, ER Programs must account for emissions from deforestation.</td>
</tr>
<tr>
<td>Emissions from forest degradation</td>
<td>No</td>
<td>Not significant in the accounted area; it is conservative not to include it.</td>
</tr>
<tr>
<td>Enhancement of carbon stocks</td>
<td>No</td>
<td>It is conservative to not include it.</td>
</tr>
<tr>
<td>Sustainable management of forests</td>
<td>No</td>
<td>Not a sufficient level of effort to be included.</td>
</tr>
<tr>
<td>Conservation of carbon stocks</td>
<td>No</td>
<td>Reward of the GNR’s conservation effort through monitoring of performance to reduce deforestation in its buffer zone.</td>
</tr>
</tbody>
</table>
7.2 Description of carbon pools and greenhouse gases selected

According to the criterion 4 of the FCPF MF (FCPF, 2016a), significant carbon pools - i.e. carbon pools that contribute for more than 10% to total emissions - should be accounted for. They can otherwise be excluded if it is a conservative choice. For this ER Program, the following carbon pools can be selected:

- **Biomass in trees:**
  - Aboveground biomass (AGB): This pool is automatically considered.
  - Belowground biomass (BGB): This pool is usually significant in the case of deforestation because BGB is supposed to degrade itself after tree cut.

- **Biomass in non-woody vegetation:** This pool is usually non-significant and it is conservative to exclude it.

- **Dead organic matter (DOM),** which includes litter and dead wood carbon pool, is probably not significant as dead wood is collected for firewood or burnt during bush fires of the dry season. Although it is conservative to not account for this pool in the ER Program RL, it will be considered in the National Forest Inventory (currently under development - its results should be available in 2018) and will be estimated during national MRV.

- **Soil organic carbon (SOC)** is not included as it is conservative and it is considered to not be significant for the following reasons (No specific inventories for soils was made for the present document but data are available in the literature):
Woollen et al. (2012) sampled soil carbon stocks in the Miombo forest in Mozambique (in the Gorongosa National Park – soils range from sandy and ferrallitic to more hydromorphic, which is comparable to the global situation of the ZILMP area) and found an average of 12.1 tC/ha (± 0.6 tC/ha) in the top 5 cm and 40.1 tC/ha (± 2.5 tC/ha) in the top 30 cm. Ryan et al. (2010) found that, between 0 and 50 cm, the average carbon stock in soil was 76.3 tC/ha in Sofala Province.

Williams et al. (2008) also conducted a soil carbon stocks analysis in forests and in post deforestation areas such as abandoned machambas (from 2 to 20 years) in Mozambique (Sofala Province). He unexpectedly concluded that post deforestation dynamic was flat: there was no progressive decrease in soil carbon after fields’ abandonment. However, he underlined a clear decrease of soil carbon between forests (but no average is available from his results for the Miombo forest – median was 57.9 tC/ha) and abandoned fields. According to his results, the average for post deforestation soil carbon is 45.2 tC/ha (± 14.1 tC/ha).

Etc Terra realized an inventory around the GNR for the development of the Gilé REDD+ project. Although it is uncompleted, this inventory is interesting because it is situated in Zambézia province. The results show very low carbon stocks in soil organic matter: 14.3 tC/ha (± 9.2 tC/ha) for soil in the Miombo forest and 9.2 tC/ha (± 16.5 tC/ha) for soils in post-deforestation lands, resulting in a difference of 5.1 tC/ha or 18.7 tCO$_2$eq/ha.

It is not possible to establish emission factors with those estimations as they all use different methods in various locations in Mozambique. However, it appears that carbon stocks in the Miombo forest are relatively low and that the difference with soil carbon stocks in post-deforestation lands is also small. According to FCPF Methodological framework (criterion 4.2), a pool must be included if it contribute to 10% of the global emissions. As activity data are the same for carbon stocks changes in biomass and in soils, the criterion can be interpreted as 10% of emissions factor: emission factor for soil should be above 23.7 tCO$_2$eq/ha, which is unlikely according to the results presented in the literature.

In the present document, only the first pool (biomass in trees, AGB and BGB) is considered as significant. It is conservative to ignore the others in the baseline (Mercier et al., 2016). However, the National Forest Inventory (NFI), which currently is under development - its results should be available in the beginning of 2018 - will account for DOM and SOC. Although the NFI will therefore provide for updated data about the significance of these pools, they will remain excluded.
Table 34: Selection of carbon pools

<table>
<thead>
<tr>
<th>Carbon pools</th>
<th>Selected?</th>
<th>Justification / Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aboveground biomass in trees</td>
<td>Yes</td>
<td>Most significant pool.</td>
</tr>
<tr>
<td>Belowground biomass in trees</td>
<td>Yes</td>
<td>Significant pool related to the previous one.</td>
</tr>
<tr>
<td>Biomass in non-woody vegetation</td>
<td>No</td>
<td>Not significant in comparison to biomass in trees.</td>
</tr>
<tr>
<td>Dead organic matter</td>
<td>No</td>
<td>Not significant as litter is reduced (burnt frequently during the dry season) in Miombo forest and dead wood is collected for firewood or burnt during dry season.</td>
</tr>
<tr>
<td>Soil organic carbon</td>
<td>No</td>
<td>Data from literature show that this pool is not significant: emission factors related to SOC would be between 5.1 tC/ha (Mercier et al., 2016) and 12.7 tC/ha (Williams et al., 2008).</td>
</tr>
</tbody>
</table>

Sources of greenhouse gas (CO₂, CH₄ or N₂O) emissions except from deforestation - conversion of land from forest to non-forest (mainly agricultural land) - can be the following:

- **Biomass burning**: Biomass is burnt every year in the ER Program area during the conversion of forest into fields via “slash and burn” agriculture, or during the non-woody vegetation on forest-land - this activity that does not cause deforestation as Miombo forest is adapted to fires.
  - Although CO₂ emissions due to deforestation are automatically accounted for, this is not true for CH₄ and N₂O emissions because they are not significant enough (less than 10%). An estimation was done with the following equation and standard values from IPCC (2006) for combustion factor and IPCC (2003) for emission factor and global warming potential of CH₄ and N₂O on all deforested areas considered to be converted for slash and burn agriculture. It gives a result of 5% of total program emissions due to deforestation. Moreover, it is conservative not to account for it as the ER Program, in any case, also aims to reduce fires and related emissions.

  - Emissions due to other gas (CH₄ or N₂O) related to fires in forest or non-forests areas (Figure 21). As explained, this does not cause deforestation or degradation as only the herbaceous biomass (estimated to 8.7 tdm/ha – GIEC, 2003) burns. However, it causes every year greenhouses gas emissions but they correspond to less than 10% of emissions due to deforestation: in average (2001-2016) 3% of total emissions from fires in forests remaining forests and 9.7% of total emissions from all fires of the ZILMP area, including fires in savannah. Burnt areas were estimated with MODIS products (MCD45A1) over the period of reference on the whole ER Program accounting area. Results are presented in Figure 21. Forest

---

33 0.45 for open tropical forest
map used for this analysis is the one produced for the background study but extended to the whole program area as it is currently the most recent forest map (forest cover in 2014 - Mercier et al., 2016).

\[
E_{\text{biomassburn},i,t} = \sum_{g=1}^{G} \left( \left( A_{\text{burn},i,t} \times B_i \times COMF_i \times G_{g,i} \times 10^{-3} \right) \times GWP_g \right)
\]

Where:

\( E_{\text{biomassburn},i,t} \) Greenhouse gas emissions due to biomass burning as part of deforestation activities in stratum \( i \) in year \( t \) of each GHG (\( \text{CO}_2, \text{CH}_4, \text{N}_2\text{O} \) (t \( \text{CO}_2\text{e} \))

\( A_{\text{burn},i,t} \) Area burnt for stratum \( i \) in year \( t \) (ha)

\( B_i \) Average aboveground biomass stock before burning stratum \( i \), year (t d.m. ha\(^{-1}\))

\( \text{COMF}_i \) Combustion factor for stratum \( i \) (unitless)

\( G_{g,i} \) Emission factor for stratum \( i \) for gas \( g \) (kg t\(^{-1}\) d.m. burnt)

\( \text{GWP}_g \) Global warming potential for gas \( g \) (t \( \text{CO}_2\text{t gas g} \))

\( g \) \( 1, 2, 3 \ldots \) \( G \) greenhouse gases including carbon dioxide\(^1\), methane and nitrous oxide (unitless)

\( i \) \( 1, 2, 3 \ldots \) \( M \) strata (unitless)

\( t \) \( 1, 2, 3, \ldots \) \( t^* \) time elapsed since the start of the project activity (years)

Figure 21: Areas burnt every year on forests remaining forests or on savannas from MODIS burnt area product (in ha)

Table 35: Selection of greenhouse gases

<table>
<thead>
<tr>
<th>Greenhouse gases</th>
<th>Selected?</th>
<th>Justification / Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{CO}_2 )</td>
<td>Yes</td>
<td>The ER Program shall always account for ( \text{CO}_2 ) emissions and removals.</td>
</tr>
<tr>
<td>( \text{CH}_4 )</td>
<td>No</td>
<td>Source of emission from this gas are not significant in the context of the ZILMP.</td>
</tr>
<tr>
<td>( \text{N}_2\text{O} )</td>
<td>No</td>
<td>Source of emission from this gas are not significant in the context of the ZILMP.</td>
</tr>
</tbody>
</table>
8. REFERENCE LEVEL

8.1 Reference Period

According to the indicator 11.1 of the FCPF MF (FCPF, 2016a), the end-date for the Reference Period is “the most recent date prior to two years before the TAP starts the independent assessment of the draft ER Program Document”. Since this assessment is expected to take place in 2017, the end date for the ER Program Reference Period should be 2015. In the same way, indicator 11.2 requires the start date of the Reference Period to be about 10 years up to 15 years (with convincing justification) before the end date. As a consequence, the Reference Period used in the construction of the Reference Level for the ER Program should be 2005 – 2015. However, as stated in criterion 11 of the FCPF MF, alternative start and end dates could be allowed if justified, with the necessity for the start date to never exceed 15 years prior to end date.

At this stage, it should be noted that Mozambique has recently undertaken a thorough analysis of historical deforestation in order to establish its national FREL/FRL. This analysis is composed of a historical analysis of deforestation as described in the RL section and of the production of a LULC map with Sentinel 2 images to delimitate forest strata and produce Activity Data. In order to guarantee full alignment of the jurisdictional reference level with the national FREL, the data produce at national level are used in the present document. The program RL and MRV system is based on the national FREL/FRL and NFMS. The historical analysis of Activity Data at national level uses the reference period 2001-2016 and the MRV system will be based on the LULC reference map produced with 2016 Sentinel-2 and Landsat data (most recent date for which forest-cover data is available to enable IPCC Approach 3) as described hereafter in the RL section. Thus, in order to respect the FCPF MF, data for the ER Program RL have been extracted from national FREL/FRL for the Program accounting area and for the period 2005-2015.

8.2 Forest definition used in the construction of the Reference Level

According to the national REDD+ strategy and to the Final Report on Forest Definition (Falcão and Noa, 2016) approved by MITADER in November 2016, forest in Mozambique is defined as followed: minimum surface of 1 ha, minimum height at maturity of 5 m and minimum coverage of tree of 30%. This definition is the one used in the present document. As a consequence, for the production of deforestation map, minimum mapping unit was 1 ha, as explained in the following section.

Forest strata selected in the present document are based on the definition used in the FREL at national level (Table 36) and on the available data for carbon stocks estimation. For the historical AD analysis, forests strata considered are those presented in Table 36 but, since the NFI is not yet finished and carbon stocks estimation from dedicated inventories or bibliography are only available for few strata, they have been merged in 2 strata: Semi-deciduous forests and Evergreen forests (Table 39). According to the national classification, for the historical analysis of Activity Data, the following forest strata have been considered:
• **Semi-deciduous forests** in the ER Program area: open and dense Miombo and open and dense Mopane forests;
• **Evergreen forests** in the ER Program area: open and close montane forests, open and closed coastal forests and gallery forests;
• **Mangroves** are present in the ZILMP area but during the analysis of deforestation, no change points was observed in this stratum: it is therefore ignored in the reference level.

The definition of strata will be updated during the first monitoring event when results from the LULC benchmark map and the NFI will be available. Strata with significantly different carbon stocks will be defined on the basis of those results to stratified forest of the ZILMP accounting area.

Table 36: Classification used for the LULC map production at national level (From R-Package – Annex 6)

<table>
<thead>
<tr>
<th>Level1 IPCC</th>
<th>Level2 National Classification</th>
<th>Level 3 National Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cropland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1TCF</td>
<td>Tree crops</td>
<td>1TCF Tree crops</td>
</tr>
<tr>
<td>1FC</td>
<td>Field crops</td>
<td>1FC Field crops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1SCT Shrub Plantation (Tea)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1FCR Rainfed field crops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1FCI Irrigated field crops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3AC Rice crop</td>
</tr>
<tr>
<td>1CXF</td>
<td>Shifting cultivation with open to closed forested areas</td>
<td>1CXF Shifting cultivation with open to closed forested areas</td>
</tr>
<tr>
<td>Forest Land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1TCW</td>
<td>Forest Plantation</td>
<td>1TCW Forest Plantation</td>
</tr>
<tr>
<td>2FXC</td>
<td>Forest with shifting cultivation</td>
<td>2FXC Forest with shifting cultivation</td>
</tr>
<tr>
<td>2FE</td>
<td>Broadleaved (Semi-) evergreen closed forest</td>
<td>2FE Broadleaved (Semi-) evergreen closed forest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2DEC Coastal dense woody vegetation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4FF Mangrove dense</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2FEA Mecrusse dense</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2FEG Gallery forest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2FEM Closed broadleaved (Semi-) evergreen montaneous forest</td>
</tr>
<tr>
<td>2FD</td>
<td>Broadleaved (Semi-) deciduous closed forest</td>
<td>2FD Broadleaved (Semi-) deciduous closed forest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2FDB Miombo dense</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2FDC Mopane dense</td>
</tr>
<tr>
<td>Level 1 IPCC</td>
<td>Level 2 National Classification</td>
<td>Level 3 National Classification</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>2WE</td>
<td>Broadleaved (Semi-) evergreen open forest</td>
<td>2WE Broadleaved (Semi-) evergreen open forest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2DEO Coastal open woody vegetation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WF Mangrove open</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2WEA Mecrusse open</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2WEM Open broadleaved (Semi-) evergreen mountainous forest</td>
</tr>
<tr>
<td>2WD</td>
<td>Broadleaved (Semi-) deciduous open forest</td>
<td>2WD Broadleaved (Semi-) deciduous open forest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2WDC Mopane open</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2WDB Miombo open</td>
</tr>
<tr>
<td>2GL</td>
<td>Grasslands</td>
<td>2GL Grasslands</td>
</tr>
<tr>
<td>2T</td>
<td>Thicket</td>
<td>2T Thicket</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2TE Broadleaved (Semi-) evergreen thicket</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2TD Broadleaved (Semi-) deciduous thicket</td>
</tr>
<tr>
<td>2S</td>
<td>Shrubland</td>
<td>2S Shrubland</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2SE Broadleaved (Semi-) evergreen shrubland</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2SD Broadleaved (Semi-) deciduous shrubland</td>
</tr>
<tr>
<td>4SF</td>
<td>Aquatic or regularly flooded shrublands</td>
<td>4SF Aquatic or regularly flooded shrublands</td>
</tr>
<tr>
<td>4HF</td>
<td>Aquatic or regularly flooded herbaceous vegetation</td>
<td>4HF Aquatic or regularly flooded herbaceous vegetation</td>
</tr>
<tr>
<td>7WB</td>
<td>Artificial water bodies</td>
<td>7WB Artificial water bodies</td>
</tr>
<tr>
<td>8WB</td>
<td>Natural water bodies</td>
<td>8WB Natural water bodies</td>
</tr>
<tr>
<td>17</td>
<td>Salt lake</td>
<td>17 Salt lake</td>
</tr>
<tr>
<td>5</td>
<td>Settlements</td>
<td>5 Settlements</td>
</tr>
<tr>
<td>6BS</td>
<td>Bare soils</td>
<td>6BS Bare soils</td>
</tr>
<tr>
<td>6BR</td>
<td>Bare rocks</td>
<td>6BR Bare rocks</td>
</tr>
<tr>
<td>6SS</td>
<td>Dunes</td>
<td>6SS Dunes</td>
</tr>
</tbody>
</table>
8.3 Average annual historical emissions over the Reference Period

Description of method used for calculating the average annual historical emissions over the Reference Period

The method used to assess emissions is the one described in IPCC (2006) for Land (Forest in the present case) converted to other land use (croplands) consisting on the multiplication of activity data – area of land converted from forestland to other land (cropland in the present case) – by emission factors – difference of carbon stocks before and after deforestation – as presented on the following equations. The data used for the present document are Tier 2 (country specific data or country level estimates) or Tier 3 (data specifically produced for the ER Program) when possible. Activity data are produced on the reference period with spatially explicit method based on available satellites images. In compliance with criterion 13 of FCPF MF (FCPF, 2016a) that specifies that REL should not exceed the average annual historical emissions, different activity data of the reference period will be averaged to produce annual deforestation areas over the whole period.

Emissions factors are derived from literature or forest inventory in the accounting area. As analysis is done over the reference period, long term (10 years) changes (increase or decrease) of carbon stocks on deforested areas (land converted to another land use) are considered instead of annual increase or decrease - see the equation below.

\[
\Delta C = \Delta C_A + \Delta C_{\text{CONVERSION}} - \Delta C_L
\]

Where:

- \( \Delta C_A \) = annual change in carbon stocks in biomass on land converted to other land-use category, in tonnes C yr\(^{-1}\)
- \( \Delta C_G \) = annual increase in carbon stocks in biomass due to growth on land converted to another land-use category, in tonnes C yr\(^{-1}\)
- \( \Delta C_{\text{CONVERSION}} \) = initial change in carbon stocks in biomass on land converted to other land-use category, in tonnes C yr\(^{-1}\)
- \( \Delta C_L \) = annual decrease in biomass carbon stocks due to losses from harvesting, fuel wood gathering and disturbances on land converted to other land-use category, in tonnes C yr\(^{-1}\)

\[
\Delta C_{\text{CONVERSION}} = \sum_i (B_{\text{AFTER},i} - B_{\text{BEFORE},i}) \cdot \Delta A_{\text{other},i} \cdot CF
\]

Where:

- \( \Delta C_{\text{CONVERSION}} \) = initial change in biomass carbon stocks on land converted to another land category, tonnes C yr\(^{-1}\)
- \( B_{\text{AFTER},i} \) = biomass stocks on land type \( i \) immediately after the conversion, tonnes d.m. ha\(^{-1}\)
- \( B_{\text{BEFORE},i} \) = biomass stocks on land type \( i \) before the conversion, tonnes d.m. ha\(^{-1}\)
- \( \Delta A_{\text{other},i} \) = area of land use \( i \) converted to another land-use category in a certain year, ha yr\(^{-1}\)
- \( CF \) = carbon fraction of dry matter, tonne C (tonnes d.m.)\(^{-1}\)

\( i \) = type of land use converted to another land-use category

\[^{34}\] Vol. 4, Chapter 2 - Generic
Activity used for calculating the average annual historical emissions over the Reference Period

Activity Data estimation

Approach for activity data

Three different approaches to assess activity data can be considered:

1. Measuring total area for each land use category, without information on conversions (only net changes);

2. Tracking of conversions between land-use categories (non-spatially explicit land-use conversion matrix between 2 points in time);

3. Spatially explicit tracking of land-use conversions over time.

At national level, it was decided that the third one is the most desirable to be reached, in order to understand the drivers of deforestation and forest degradation and to plan the adequate mitigation activities. Approach 3 considers two different options for obtaining the activity data: through wall-to-wall mapping or point sampling. The second option was selected as it offers a good ratio between efficacy and accuracy at national level. As previously explained, in order to guarantee the alignment between national and jurisdictional levels, the AD used for the reference level of the ER Program are simply extracted from those produced for the national FREL. National FREL considers a spatially explicit tracking of land-use conversions over time (Approach 3) in order to understand the drivers of deforestation and forest degradation and plan the adequate mitigation activities. It uses a well-designed sampling approach to train a supervised classification of changes on a multi-temporal stack of images results. Result through this sampling approach could also be a map of changes.

The activity data that are presented in the present document are therefore derived from the national FREL/FRL that uses a point sampling method. In parallel, at national level, a national LULC benchmark map for the year 2016 is currently under development with Sentinel 2 images. The map will be available at the end of the year 2017 and will be used to refined results on activity data per strata. First results are available for the ER Program area and are presented in this section.

The methods and results described hereafter are extracted from the documents prepared at national level in the context of the development of R-Package (Gonzalo et al., 2017).

Production method of activity data – point sampling method used at national level

For the historical analysis of AD, the entire area of the country has been visually assessed on a 4 x 4 km regular grid at national level - which is the same grid used to allocate the NFI clusters from the Stratified Random Sampling design - using high and medium resolution imagery. The spatial assessment unit is almost the equivalent a 3 x 3 block of Landsat pixels (100 x 100 m) where a plot of the same dimensions and an internal grid of 5 x 5 points is overlapped. This set of data, which characterizes the current LULC and the changes produced in the historical series, will be used to decide the training areas for the LULC 2016
(sentinel-2 benchmark map) and for the image stack of Landsat 8 OLI and Landsat 5 TM (historical AD analysis).

This sampling approach for historical AD calculation based on the regular National 4 x 4 km grid has been designed and conducted using the high and medium resolution images repository available through Google Earth and Earth Engine as a visual assessment exercise. These imagery with the forms designed to collect the LULCC information on the points of the grid are automatically accessible through the Collect Earth tool (www.openforis.org) along with scripts accessible through Earth Engine code that facilitate vegetation type’s interpretation (e.g. MODIS or Landsat NDVI time series). Each point of the grid is photo-interpreted thanks to Collect Earth tool and the year and type of changes are also collected.
The use of various scripts programmed on Earth Engine Code facilitates the interpretation of the vegetation type and the determination of LULC changes. Specifically, the MOD13Q1 (NDVI 16-day Global Modis 250 m) graphic from 2001-2016, most recent Sentinel-2 image, most recent Landsat-8 pan sharpened image, Landsat-7 pan sharpened image (2000, 2004, 2008, 2012), etc. The completeness of the series is guaranteed using RS products from medium resolution imagery repositories from 2001 (e.g. Annual TOA Reflectance Composite, Annual NDVI Composite, Annual EVI Composite, Annual Greenest-Pixel TOA Reflectance Composite, etc. from Landsat 5 TM) and the most recent Sentinel-2 image from 2016. In this way, a temporal analysis of LULC changes has been completed for each node of the national 4 x 4 km grid (48,894 records). The period of AD analysis could be adapted within the general period 2001-2016 with little effort, due to the operators collecting the date of the LULC change.

Landsat 8 spatial resolution is 30 meters for VNIR and 15 meters for panchromatic. By using this product and Landsat 5 TM (Landsat 7) for historical AD analysis, thanks to its geometrical accuracy of 1 pixel (30m), a MMU of 3 x 3 pixels = 90 m x 90 m = 0.81 ha could be achieved, which is lower than the 1 ha MMU. A subset of these data (30% of points) will be used for validation - Accuracy assessment method is presented in section 12.

From this National 4 x 4 km grid, 48,894 nodes have been visually evaluated and their information collected in a complete database on LULC changes at the national level. Five trained operators have carried out the activity in approximately 98 effective working days (4.4 months). At jurisdictional level, this corresponds to 3,308 points being interpreted. The quality control has been performed through a random sample of a 10% of the nodes assessed by the various operators - that is, 4,889 nodes at national level.

Production method for the LULC map at national scale - Sentinel-2 imagery is being used to produce the benchmark map at national scale (it will be finalized in November, 2017) that is necessary to complete the historical AD analysis and as a starting point for MRV purposes. 4 national mosaics (2 epochs / 2 spectral resolutions and 2 spatial resolutions 10m/20m) have been prepared (See R-Package - Annex 1). The first mosaic covers the
entire area of Mozambique with Sentinel-2 A images dated on May-June 2016. The second mosaic is meant to support the classification of (semi-)deciduous formations. In view of the fact that dry Miombo loses its leaves along July-August, whereas wet Miombo loses them along August – September, it was decided to select August-September reference period to image deciduous with no leaves and, in this way improve the classification result.

The 2006 IPCC Guidelines considers the following land-use categories for greenhouse gas inventory reporting:

(i) **Forest Land**: This category includes all land with woody vegetation consistent with thresholds used to define Forest Land in the national greenhouse gas inventory. It also includes systems with a vegetation structure that currently fall below, but which *in situ* could potentially reach the threshold values used by a country to define the Forest Land category.

(ii) **Cropland**: This category includes cropped land, including rice fields, and agro-forestry systems where the vegetation structure falls below the thresholds used for the Forest Land category.

(iii) **Grassland**: This category includes rangelands and pasture land that are not considered Cropland. It also includes systems with woody vegetation and other non-grass vegetation such as herbs and brushes that fall below the threshold values used in the Forest Land category. The category also includes all grassland from wild lands to recreational areas as well as agricultural and silvo-pastoral systems, consistent with national definitions.

(iv) **Wetlands**: This category includes areas of peat extraction and land that is covered or saturated by water for all or part of the year (e.g. peatlands) and that does not fall into the Forest Land, Cropland, Grassland or Settlements categories. It includes reservoirs as a managed sub-division and natural rivers and lakes as unmanaged sub-divisions.

(v) **Settlements**: This category includes all developed land, including transportation infrastructure and human settlements of any size, unless they are already included under other categories. This should be consistent with national definitions.

(vi) **Other Land**: This category includes bare soil, rock, ice, and all land areas that do not fall into any of the other five categories.

And the following land-use conversions:

(i) \( FF = \text{Forest Land Remaining Forest Land}, \) \( LF = \text{Land Converted to Forest Land} \)

(ii) \( GG = \text{Grassland Remaining Grassland}, \) \( LG = \text{Land Converted to Grassland} \)

(iii) \( CC = \text{Cropland Remaining Cropland}, \) \( LC = \text{Land Converted to Cropland} \)

(iv) \( WW = \text{Wetlands Remaining Wetlands}, \) \( LW = \text{Land Converted to Wetlands} \)

(v) \( SS = \text{Settlements Remaining Settlements}, \) \( LS = \text{Land Converted to Settlements} \)

(vi) \( OO = \text{Other Land Remaining Other Land}, \) \( LO = \text{Land Converted to Other Land} \)

The classification system, consistent with the national FREL and the GHG inventory, should be composed of non-overlapping LULC classes and forest strata, with an independent class for forest systems where cyclical changes in forest cover are present, to be in compliance
with FCPF CF. National selected LULC classes (level 2) and national subclasses (level 3) and their correspondence with the IPCC classes (level 1) are shown in Table 36.

By using Sentinel-2 for MRV purposes (LULC map 2016 and LULC changes monitoring), a MMU of approximately 1,000 m² (10,000 m² is the required MMU) could be achieved, due to images spatial resolution (10m/20m) and its absolute geo-location uncertainty: 20 m at 2σ confidence level without Ground Control Points and 12.5 m 2σ with GCPs (absolute geo-location < 11 m at 95.5% confidence, baseline 02.04, 08/12/2016). When Sentinel-2 images are not available to cover the entire country with a mosaic free of clouds, the global mosaic is completed by Landsat images as shown in Figure 26. A total of 123 Sentinel-2 images will be used. Level-1C (Top Of Atmosphere) images from Sentinel-2 are used and the radiometric corrections are done by the technical team in charge of the classification.

The classification to produce the LULC map is a supervised one (maximum likelihood) and based on training areas. Those training areas will be located on the entire country to be representative of each stratum and the AD analysis will be used to help to choose relevant locations. Each training plot will correspond to at least 10 pixels on each band (10 bands from Sentinel-2 will be considered – see Annex 6 of the R-Package for details). A subset of these data (30% of training areas) will be used for validation of the LULC map.

To define the sample size, at national level, to produce the LULC map, the following equation for Cochran (1997) was used with a target of 0.01 for overall accuracy and for user’s accuracy: 0.7 for deforestation, 0.6 for forest gain and forest degradation.

\[
n = \frac{(\sum W_i S_i)^2}{[S(\hat{\phi})]^2 + (1/N) \sum W_i S_i^2 / S(\hat{\phi})}
\]

Where \(N\) is the number of units in the ROI, \(S(\hat{\phi})\) is the standard error of the estimated overall accuracy that we would like to achieve, \(W_i\) is the mapped proportion of the area of class \(i\), and \(S_i = \sqrt{U_i(1 - U_i)}\) (where \(U_i\) is the user’s accuracy of class \(i\)) is the standard deviation of stratum \(i\). Because \(N\) is typically large, the second term in the denominator can be ignored.
Figure 25: Sentinel-2 images used and gap filling with Landsat images for the LULC map (From R-Package, Annex 1)
Figure 26: Treatment flow for the production of the mosaic of Sentinel-2 images free of clouds (From R-Package, Annex 1)
The following table describes the different steps for treatments that will be done to produce LULC map 2016: atmospheric corrections and cloud masks for each sensor (Landsat 8 and Sentinel 2) and the algorithm (decision tree algorithm) that will be used for the classification (yet to be decided, for example C4.5). The MRV Unit at FNDS is preparing this LULC 2016 map. As presented in section 12.2, the accuracy of the LULC map will be assessed following the method of Oloffson et al. (2013).

Table 37: Technical specification of the treatment of Sentinel-2 and Landsat 8 images to produce the LULC map (From R-Package, Annex 8)

<table>
<thead>
<tr>
<th>Id</th>
<th>Descripción</th>
<th>Landsat 8</th>
<th>Sentinel 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>LULC-1</td>
<td>The operator selects the products on which the processing will be run.</td>
<td>In both cases the selection is done manually by the operator. The service takes a list of product identifiers as input.</td>
<td></td>
</tr>
<tr>
<td>LULC-2</td>
<td>Products are downloaded on the processing facility from the data providers.</td>
<td>Products are obtained from USGS.</td>
<td>Products are obtained from the Copernicus Data Hub.</td>
</tr>
<tr>
<td>LULC-3</td>
<td>The products are atmospherically corrected and cloud and cloud shadow masks computed.</td>
<td>The following software modules are used: LEAPS (Landsat Ecosystem Disturbance Adaptive Processing System) and FMASK (Zhe Zhu &amp; Curtis E. Woodcock, Center for Remote Sensing, Department of Earth and Environment, Boston University).</td>
<td>The following software modules are used: SEN2LCO2 for atmospheric corrections and SEN2THREE for the cloud and cloud shadow masks.</td>
</tr>
<tr>
<td>LULC-4</td>
<td>Computation of the values for the classification model and the tree/rules of the automatic classifier are applied. The classifier has been duly trained during the development phase.</td>
<td>A segmentation algorithm/technology will be used prior to the automatic classification. Users shall be able to tweak parameters of the segmentator when they use them out of the service. The same model is used for both sensors. The model has been trained using the land use and land cover map from 2016. This map was generated using Sentinel 2 products. The classifier algorithm is C4.5 or similar.</td>
<td></td>
</tr>
<tr>
<td>LULC-5</td>
<td>Resulting shapefiles are delivered to the user.</td>
<td>Delivery is done through a FTP server.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 27: Example of temporal and spatial selection and analysis for the FREL of the Zambezia ER-PD (From R-Package – Annex 5)
**Results for Activity Data** - The temporal analysis of LULC changes with Collect Earth Tool enables to obtain detailed estimation of annual deforestation rates. For the ER Program area, the results for the 2005-2015 period have been extracted and are presented in Table 38. It is possible to produce a map of forest cover and changes but the resolution is based on the grid for the sampling design, as presented in the following figure.

The results from the point sampling analysis are the annual areas of deforestation over the reference period that have been extracted from national database for the ER Program accounting area and are presented in the following table and the following figure. Over the sample of points, no point of deforestation was observed during the year 2015 but that does not mean that no deforestation occurs on other areas that were not sampled.

From the sample of points, the area for each stratum is calculated as followed:

\[ A_i = n_i \frac{A_{ZILMP}}{N} \]

Where:
- \( A_i \) is the area in hectare of the stratum \( i \)
- \( n_i \) is the number of points collected in stratum \( i \) over the reference period
- \( A_{ZILMP} \) is the accounted area of the program in hectare
- \( N \) is the total number of points

The annual rate of deforestation per strata corresponds to \( A_i \) divided by the number of year in the reference period (15).

Standard error of this estimation (\( E_i \) in %) is calculated for each stratum \( (i) \) as followed:

\[ E_i = \sqrt{\frac{p_i(1 - p_i)}{N - 1}} \]

Where

\[ p_i = \frac{n_i}{N} \]

The 90% Confidence interval is calculated as followed:

\[ CI_{90\%i} [\text{ha}] = 1.64 \times E_i [%] \times A_{ZILMP} \]

\[ CI_{90\%i} [%] = CI_{90\%i} [\text{ha}] / A_i \]

*All points used for the present analysis and the related information collected with Collect Earth Tool are available with the MRV team at FNDS.*
### Table 38: Annual deforestation areas extracted from national activity data on the ER Program accounting area for the period 2005 - 2015

<table>
<thead>
<tr>
<th>Year of the reference period</th>
<th>Points number</th>
<th>Area (ha)</th>
<th>pi</th>
<th>Standard Error (proportion)</th>
<th>Standard Error (ha)</th>
<th>Confidence Interval (ha)</th>
<th>Error %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>10</td>
<td>18,166</td>
<td>0.003</td>
<td>0.0010</td>
<td>5,737</td>
<td>±11,244</td>
<td>± 0.62</td>
</tr>
<tr>
<td>2006</td>
<td>17</td>
<td>30,883</td>
<td>0.005</td>
<td>0.0012</td>
<td>7,472</td>
<td>±14,645</td>
<td>± 0.47</td>
</tr>
<tr>
<td>2007</td>
<td>13</td>
<td>23,616</td>
<td>0.004</td>
<td>0.0011</td>
<td>6,538</td>
<td>±12,815</td>
<td>± 0.54</td>
</tr>
<tr>
<td>2008</td>
<td>23</td>
<td>41,783</td>
<td>0.007</td>
<td>0.0014</td>
<td>8,683</td>
<td>±17,019</td>
<td>± 0.41</td>
</tr>
<tr>
<td>2009</td>
<td>32</td>
<td>58,132</td>
<td>0.010</td>
<td>0.0017</td>
<td>10,228</td>
<td>±20,047</td>
<td>± 0.34</td>
</tr>
<tr>
<td>2010</td>
<td>28</td>
<td>50,866</td>
<td>0.008</td>
<td>0.0016</td>
<td>9,573</td>
<td>±18,764</td>
<td>± 0.37</td>
</tr>
<tr>
<td>2011</td>
<td>23</td>
<td>41,783</td>
<td>0.007</td>
<td>0.0014</td>
<td>8,683</td>
<td>±17,019</td>
<td>± 0.41</td>
</tr>
<tr>
<td>2012</td>
<td>24</td>
<td>43,599</td>
<td>0.007</td>
<td>0.0015</td>
<td>8,869</td>
<td>±17,383</td>
<td>± 0.40</td>
</tr>
<tr>
<td>2013</td>
<td>13</td>
<td>23,616</td>
<td>0.004</td>
<td>0.0011</td>
<td>6,538</td>
<td>±12,815</td>
<td>± 0.54</td>
</tr>
<tr>
<td>2014</td>
<td>10</td>
<td>18,166</td>
<td>0.003</td>
<td>0.0010</td>
<td>5,737</td>
<td>±11,244</td>
<td>± 0.62</td>
</tr>
<tr>
<td>2015</td>
<td>0</td>
<td>0</td>
<td>0.000</td>
<td>0.0000</td>
<td>0</td>
<td>±0.0</td>
<td>± 0.0</td>
</tr>
<tr>
<td>Total Global</td>
<td>193</td>
<td>350,610</td>
<td>0.058</td>
<td>0.0041</td>
<td>24,494</td>
<td>±48,008</td>
<td>± 13.7%</td>
</tr>
</tbody>
</table>

Total deforestation between 2005 and 2015 in the ER Program accounting area is 350,610 ha – corresponding to 35,061 ha/yr. It is distributed as follows: 270,678 ha in semi-deciduous forests and 79,932 ha in evergreen forests (the two strata that are accounted for – see section 8.2) corresponding to a rate of 27,068 ha/yr and 7,993 ha/yr respectively - see Table 39.

Those results will be improved, on the delimitation of forest strata, once the LULC 2016 map from Sentinel-2 images will be available. They will be updated for the first monitoring event in order to be perfectly aligned with the results obtained at national level.
Table 39: Results of the point sampling analysis extracted from national activity data on the ER Program accounting area for the period 2001-2016

<table>
<thead>
<tr>
<th>IPCC category</th>
<th>Points number</th>
<th>Area (ha)</th>
<th>pi</th>
<th>Standard Error (proportion)</th>
<th>Standard Error (ha)</th>
<th>Confidence Interval (ha)</th>
<th>Error %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest remaining forest</td>
<td>1,641</td>
<td>2,981,091</td>
<td>0.496</td>
<td>0.0087</td>
<td>52,248</td>
<td>± 102,407</td>
<td>± 3.4%</td>
</tr>
<tr>
<td>Non-forest -&gt; forest</td>
<td>12</td>
<td>21,800</td>
<td>0.004</td>
<td>0.0010</td>
<td>6,283</td>
<td>± 12,314</td>
<td>± 56.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest -&gt; Non-forest</td>
<td>193</td>
<td>350,610</td>
<td>0.058</td>
<td>0.0041</td>
<td>24,494</td>
<td>± 48,008</td>
<td>± 13.7%</td>
</tr>
<tr>
<td>Semi-deciduous</td>
<td>149</td>
<td>270,678</td>
<td>0.045</td>
<td>0.0036</td>
<td>21,673</td>
<td>± 42,479</td>
<td>± 15.7%</td>
</tr>
<tr>
<td>Miombo open</td>
<td>92</td>
<td>167,130</td>
<td>0.028</td>
<td>0.0029</td>
<td>17,183</td>
<td>± 33,679</td>
<td>± 20.2%</td>
</tr>
<tr>
<td>Miombo dense</td>
<td>56</td>
<td>101,731</td>
<td>0.017</td>
<td>0.0022</td>
<td>13,481</td>
<td>± 26,423</td>
<td>± 26.0%</td>
</tr>
<tr>
<td>Mopane open</td>
<td>1</td>
<td>1,817</td>
<td>0.000</td>
<td>0.0003</td>
<td>1,817</td>
<td>± 3,561</td>
<td>± 196.0%</td>
</tr>
<tr>
<td>Mopane dense</td>
<td>0</td>
<td>-</td>
<td>0.000</td>
<td>0.0000</td>
<td>0</td>
<td>± 0</td>
<td>-</td>
</tr>
<tr>
<td>Evergreen forests</td>
<td>44</td>
<td>79,932</td>
<td>0.013</td>
<td>0.0020</td>
<td>11,972</td>
<td>± 23,464</td>
<td>± 29.4%</td>
</tr>
<tr>
<td>Montane open</td>
<td>12</td>
<td>21,800</td>
<td>0.004</td>
<td>0.0010</td>
<td>6,283</td>
<td>± 12,314</td>
<td>± 56.5%</td>
</tr>
<tr>
<td>Montane closed</td>
<td>8</td>
<td>14,533</td>
<td>0.002</td>
<td>0.0009</td>
<td>5,133</td>
<td>± 10,060</td>
<td>± 69.2%</td>
</tr>
<tr>
<td>Coastal forest open</td>
<td>2</td>
<td>3,633</td>
<td>0.001</td>
<td>0.0004</td>
<td>2,569</td>
<td>± 5,035</td>
<td>± 138.6%</td>
</tr>
<tr>
<td>Coastal forest dense</td>
<td>0</td>
<td>-</td>
<td>0.000</td>
<td>0.0000</td>
<td>0</td>
<td>± 0</td>
<td>-</td>
</tr>
<tr>
<td>Gallery forest</td>
<td>22</td>
<td>39,966</td>
<td>0.007</td>
<td>0.0014</td>
<td>8,494</td>
<td>± 16,648</td>
<td>± 41.7%</td>
</tr>
<tr>
<td>Non-forest remaining non-forest</td>
<td>1,462</td>
<td>2,655,914</td>
<td>0.442</td>
<td>0.0086</td>
<td>51,897</td>
<td>± 101,717</td>
<td>± 3.8%</td>
</tr>
<tr>
<td>Total</td>
<td>3,308</td>
<td>6,009,414</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The activity data per forest strata (see section 0) that are accounted for are summarized in the following tables. They correspond to the annual deforestation rate obtained by dividing the total area of deforestation per stratum over the reference period by the duration of the period (15 years).
Table 40: Activity data information – Semi-deciduous forest annual cover change

<table>
<thead>
<tr>
<th>Description of the parameter, including the time period covered</th>
<th>A/10 Semi-deciduous forest (Miombo and Mopane forest) annual cover change between 2005 and 2015 in the 9 districts of the ER Program area.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation for which sources or sinks of the parameter is used</td>
<td>Mean annual historical deforestation per reference period to furnish activity data per period and calculated reference emissions per year.</td>
</tr>
<tr>
<td>Data unit</td>
<td>ha/yr</td>
</tr>
<tr>
<td>Value for the parameter</td>
<td>27,068</td>
</tr>
<tr>
<td>Source of data or description of the method for developing the data, including (pre-) processing methods for data derived from remote sensing images (including the type of sensors and the details of the images used):</td>
<td>Spatially explicit tracking of land use conversions through the point sampling method using Collect Earth tool of Google Earth Engine. Semi-deciduous class is separated in various strata for the classification of point land use changes but are merged in on class of homogeneous carbon stock. Images used are various, those available in Collect Earth tool, included from different Landsat sensors.</td>
</tr>
<tr>
<td>Spatial level (local, regional, national or international):</td>
<td>ER Program area</td>
</tr>
<tr>
<td>Discussion of key uncertainties for this parameter:</td>
<td>Sources of uncertainties are: Operator error during the interpretation of land use land cover during the classification of points</td>
</tr>
<tr>
<td>Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:</td>
<td>90% CI associated with this deforestation class: ± 3,554 ha/yr Error: ± 13.1 %</td>
</tr>
</tbody>
</table>

Table 41: Activity Data information – Evergreen forest annual cover change

<table>
<thead>
<tr>
<th>Description of the parameter, including the time period covered</th>
<th>A/10 Semi-deciduous forest (Miombo and Mopane forest) annual cover change between 2005 and 2015 in the 9 districts of the ER Program area.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation for which sources or sinks of the parameter is used</td>
<td>Mean annual historical deforestation per reference period to furnish activity data per period and calculated reference emissions per year.</td>
</tr>
</tbody>
</table>
Data unit: ha/yr

Value for the parameter: 7,993

Source of data or description of the method for developing the data, including (pre-) processing methods for data derived from remote sensing images (including the type of sensors and the details of the images used):

Spatially explicit tracking of land-use conversions through the point sampling method using Collect Earth tool of Google Earth Engine. Semi-deciduous class is separated in various strata for the classification of point land use changes but are merged in on class of homogeneous carbon stock. Images used are various, those available in Collect Earth tool, included from different Landsat sensors.

Spatial level (local, regional, national or international):

ER Program area

Discussion of key uncertainties for this parameter:

Sources of uncertainties are:

- Operator error during the interpretation of LULCC on sampled points
- Classification of images with model

Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:

90% CI associated with this deforestation class: ± 1,963 ha/yr

Error: ± 24.6%

Description of method used for producing emission factors

Emissions factors are the difference between pre- (forests) and post-deforestation (crop fields mainly) carbon stocks for different strata. These carbon stocks were derived from several sources, from the literature or dedicated biomass inventories.

Field inventories have been carried out to estimate aboveground biomass in Miombo forest. For other strata, data from literature were used.

For them to be representative, inventories were planned in several parts of the Miombo forests of the ER Program area, including in potentially degraded forest areas (near cities or roads) and in dense forest: forest in the GNR core zone, forest in its buffer zone, forest in the Mocubela – Mulevala massifs, forest in the Alto-Mollocué and North of Gilé districts, etc. A total of 100 plots were inventoried (see Figure 28). A sample design was realized with groups of 4 plots on a topographical and vegetation transect in order: (i) to account for influence of biophysical variables, such as slope or elevation; and (ii) to reduce inventory work time. Each plot on each transect was separated by 2 km. For each transect location, plots were located according to the elevation map available (ASTER DEM). To estimate the number of plots necessary to guarantee forest inventory accuracy, the tool developed by Winrock (Walker, http://www.winrock.org/resources/winrock-sample-plot-calculator) was used.
Pearson, and Brown 2007) was used. It depends on the mean biomass measured and on the standard deviation. With current dataset, to achieve a confidence level of 90% with an error of 10%, 50 plots should be inventoried. With the current inventory, the sample size (100 plots) is largely above this minimum threshold guaranteeing the accuracy and representativeness of the inventory. The location of plots is presented in Figure 28.

The inventory was conducted on circular plots of a 16 m radius. For each plot, GPS coordinates and altitude were collected. For every tree above 5 cm diameter, the following measurements were gathered: diameter at breast height (DBH), height (with a vertex) and tree species.

Aboveground biomass is calculated using an allometric equation linking biomass to diameter and, potentially, height. Given the high species composition heterogeneity in tropical forests, multi-species equations are more relevant. Few generic equations are available for the Miombo forest. The Chave’s global equation (Chave et al. 2014), presented below, was selected because it is adapted to the range of measured diameters and it accounts for tree height, which is more precise.

Trees height and diameter are measured during inventories. Wood density for each species encountered during inventories was selected from the global wood density database (Zanne et al. 2009; Chave et al. 2009).

According to IPCC (2003), carbon fraction in aboveground biomass averages 0.47 tC/tdm. In IPCC (2006), belowground to aboveground ratio (or root-to-shoot ratio) in tropical dry forests is expected to average:

- 0.56 if aboveground biomass is below 20 t/ha;
- 0.28 if aboveground biomass is above 20 t/ha.

The same method was used to determine post-deforestation carbon stocks on 10 years old fallows (younger fallows were not selected to remain conservative). Vegetation on fallows is comparable to the one of natural Miombo forest as it is composed of clump shoots or root suckering, but with less diversity. 18 plots of this inventory were realized around the GNR. Data from literature exists for Mozambique but they do not involve Zambezia (McNicol et al., 2011) and it is more conservative to use those produced for the GNR.

The method for this inventory is described in Mercier et al. (2016). It is based on 16-m diameter circular plots on which DBH and height of tree above 5-cm diameter are measured and tree species are reported for the correspondence with wood density (use of the global wood density database). The allometric equation that is used is the one of Chave et al. (2014) for dry forests.

### Chave’s allometric equation used:

\[
AGB = 0.0673 \times (\rho D^2 H)^{0.976}
\]

Where AGB is aboveground biomass, \(\rho\) is wood density, \(H\) is tree height and \(D\) is diameter at breast height.

As previously explained, the MRV Unit in FNDS is currently conducting a NFI. When results are available for the strata that are present in the ER Program area, at the first monitoring event (2018), they will replace those presented here, in order to be consistent with national
level, as recommended by the FCPF MF (2016a). The strata that will be inventoried are presented in Table 36. The methods used for the NFI are described in section 9 (MRV).

Inventories on Miombo forests are considered as representative of semi-deciduous stratum and data from the literature about Montane forest are considered as representative of evergreen forest. The tables below show results of forest inventories on pre- and post-deforestation strata of Miombo forest. Results for carbon stocks in 10-years fallows around the GNR are comparable to other results from another district in Mozambique for crops (9.4 tC/ha in ABG) and savannahs (11.5 tC/ha in ABG – McNicol et al., 2011).

Figure 28: Map of inventories on Miombo pre- and post-deforestation strata
Pre-deforestation strata:

Table 42: Emissions factors information – pre-deforestation strata; Carbon stocks in Semi-deciduous strata (Miombo forests)

<table>
<thead>
<tr>
<th>Description of the parameter including the forest class if applicable:</th>
<th>Carbon stocks in AGB and BGB of semi-deciduous strata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data unit (e.g. t CO₂/ha):</td>
<td>tCO₂e/ha</td>
</tr>
<tr>
<td>Value for the parameter:</td>
<td>AGB: 241.6</td>
</tr>
<tr>
<td></td>
<td>BGB: 67.6</td>
</tr>
<tr>
<td>Source of data (e.g. official statistics, IPCC, scientific literature) or description of the assumptions, methods and results of any underlying studies that have been used to determine the parameter:</td>
<td>Data are from a forest inventory planned specifically for this purpose and described in the ZILMP Background Study for the development of the ER-PD (Mercier et al., 2016). The inventory is composed of data from 100 plots of 16 m of diameter and biomass was estimated using the Chave et al. (2014) allometric equation. Belowground biomass is estimated with default factors of IPCC (2006) - 0.56 if aboveground biomass is below 20 t/ha and 0.28 if aboveground biomass is above 20 t/ha.</td>
</tr>
<tr>
<td>Spatial level (local, regional, national or international):</td>
<td>ER Program area</td>
</tr>
<tr>
<td>Discussion of key uncertainties for this parameter:</td>
<td>Uncertainties derive from (i) the representativeness of selected plots to the whole strata; (ii) the evaluation of DBH and tree height from field operator; and (iii) error related to the choice and the allometric equation used.</td>
</tr>
<tr>
<td>Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:</td>
<td>Confidence levels are calculated based on standard deviation between plots. Results are the following:</td>
</tr>
<tr>
<td></td>
<td>AGB 90 % CI: 17.1 (7%)</td>
</tr>
<tr>
<td></td>
<td>BGB 90 % CI: 4.8 (7%)</td>
</tr>
<tr>
<td></td>
<td>To assess the representativeness of the inventory to Miombo forest, Winrock tool(^{36}) (Walker, Pearson, and Brown 2007) was used as presented in Mercier et al. (2016).</td>
</tr>
</tbody>
</table>

---

\(^{36}\) [http://www.winrock.org/resources/winrock-sample-plot-calculator](http://www.winrock.org/resources/winrock-sample-plot-calculator)
<table>
<thead>
<tr>
<th>Description of the parameter including the forest class if applicable:</th>
<th>Carbon stocks in AGB and BGB of Montane forests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data unit (e.g. t CO2/ha):</td>
<td>tCO₂e/ha</td>
</tr>
<tr>
<td>Value for the parameter:</td>
<td>Root/shoot ratio of 0.27 was applied as for AGB above 20 t/ha (IPCC, 2006).</td>
</tr>
<tr>
<td>Source of data (e.g. official statistics, IPCC, scientific literature) or description of the assumptions, methods and results of any underlying studies that have been used to determine the parameter:</td>
<td>Lisboa et al. (2014)</td>
</tr>
<tr>
<td>Spatial level (local, regional, national or international):</td>
<td>International</td>
</tr>
<tr>
<td>Discussion of key uncertainties for this parameter:</td>
<td>/</td>
</tr>
<tr>
<td>Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:</td>
<td>Uncertainties are those presented in the results of the reference used.</td>
</tr>
<tr>
<td></td>
<td>AGB 90% CI: 38.9 (11%)</td>
</tr>
<tr>
<td></td>
<td>BGB 90% CI: 10.5 (11%)</td>
</tr>
</tbody>
</table>
### Post-deforestation strata:

**Table 44: Emissions factors information – post-deforestation strata - Carbon stocks in Semi-deciduous stratum (Miombo forests)**

<table>
<thead>
<tr>
<th>Description of the parameter including the forest class if applicable:</th>
<th>Carbon stocks in AGB and BGB in 10-years fallows after deforestation of Miombo forests and cultivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data unit (e.g. t CO$_2$/ha):</td>
<td>tCO$_2$/ha</td>
</tr>
<tr>
<td>Value for the parameter:</td>
<td></td>
</tr>
<tr>
<td>AGB:</td>
<td>34.8</td>
</tr>
<tr>
<td>BGB:</td>
<td>15.3</td>
</tr>
<tr>
<td>Source of data (e.g. official statistics, IPCC, scientific literature) or description of the assumptions, methods and results of any underlying studies that have been used to determine the parameter:</td>
<td>Post-deforestation uses of the land are agriculture – succession of fields and fallows – and savannas. One post-deforestation stratum and long term average carbon stock of this stratum was used. A biodiversity and biomass inventory was realized around the GNR in 2016 (mainly in the buffer zone where deforestation occurs) following, for biomass estimation, the same method as the one for pre-deforestation data, except that plots’ size was 10 m of diameter. Inventories were realized on fallows of different ages but, to remain conservative, only biomass data from fallows of 10 years are used in the present document (this stratum is represented by 18 plots). The same methodology for inventory as the one used for estimation of biomass in Miombo forest was used.</td>
</tr>
<tr>
<td>Spatial level (local, regional, national or international):</td>
<td>Local</td>
</tr>
<tr>
<td>Discussion of key uncertainties for this parameter:</td>
<td>Uncertainties derive from: (i) the representativeness of selected plots to the whole strata; (ii) the evaluation of DBH and tree height from field operator; and (iii) error related to the allometric equation used.</td>
</tr>
<tr>
<td>Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:</td>
<td>Confidence levels are calculated based on standard deviation between plots. Results are the following:</td>
</tr>
<tr>
<td>AGB 90 % CI:</td>
<td>17.1 (47%)</td>
</tr>
<tr>
<td>BGB 90 % CI:</td>
<td>4.7 (36%)</td>
</tr>
</tbody>
</table>
Table 45: Emissions factors information – post-deforestation strata – Carbon stocks for evergreen stratum (Montane forests)

<table>
<thead>
<tr>
<th>Description of the parameter including the forest class if applicable:</th>
<th>Post deforestation for mountainous forests(^\text{37})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data unit (e.g. t CO(_2)/ha):</td>
<td>tCO(_2)/ha</td>
</tr>
<tr>
<td>Value for the parameter:</td>
<td></td>
</tr>
<tr>
<td>AGB:</td>
<td>34.8</td>
</tr>
<tr>
<td>BGB:</td>
<td>15.3</td>
</tr>
</tbody>
</table>

Source of data (e.g. official statistics, IPCC, scientific literature) or description of the assumptions, methods and results of any underlying studies that have been used to determine the parameter:

Use of the same data as for Semi-deciduous stratum (Miombo forest) in the ER Program area.

Spatial level (local, regional, national or international):

Discussion of key uncertainties for this parameter:

Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:

Confidence levels are calculated based on standard deviation between plots. Results are the following:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AGB 90 % CI:</td>
<td>17.1 (47%)</td>
</tr>
<tr>
<td>BGB 90 % CI:</td>
<td>4.7 (36%)</td>
</tr>
</tbody>
</table>

\(^{37}\) This section will be updated, pending on data from NFI. For now, it is based on post deforestation data for Miombo.
**Emissions factors:**

<table>
<thead>
<tr>
<th>Description of the parameter including the forest class if applicable:</th>
<th>Emission factor for AGB in all forest strata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data unit (e.g. t CO₂/ha):</td>
<td>tCO₂e/ha</td>
</tr>
</tbody>
</table>
| Value for the parameter: | Semi-deciduous: 206.7  
Mountainous forests: 313.2 |
| Source of data (e.g. official statistics, IPCC, scientific literature) or description of the assumptions, methods and results of any underlying studies that have been used to determine the parameter: | Difference of carbon stocks of pre- and post-deforestation strata. When deforested, AGB is considered to be completely instantly emitted. |
| Spatial level (local, regional, national or international): | ER Program area |
| Discussion of key uncertainties for this parameter: | Uncertainties for this parameter are combination of uncertainties for pre- and post-deforestation carbon stocks for each forest stratum. The only dedicated inventories are those on Miombo forest (semi-deciduous stratum) for which we can calculate indicators of precision. Other data are from existing literature and we have no access to databases. |
| Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation: | 90% confidence intervals for emission factor are the following:  
Miombo forest: ±17.5 (9%)  
Montane forest: 33.5 (11%) |
**Table 47: Emission factor for BGB in all forest strata**

<table>
<thead>
<tr>
<th>Description of the parameter including the forest class if applicable:</th>
<th>Emission factor for BGB in all forest strata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data unit (e.g. t CO2/ha):</td>
<td>tCO₂e/ha</td>
</tr>
<tr>
<td>Value for the parameter:</td>
<td>Miombo: 55.2</td>
</tr>
<tr>
<td>Mountainous forests: 78.6</td>
<td></td>
</tr>
<tr>
<td>Source of data (e.g. official statistics, IPCC, scientific literature) or description of the assumptions, methods and results of any underlying studies that have been used to determine the parameter:</td>
<td>Difference of carbon stocks of pre- and post-deforestation strata. When deforested, BGB is considered to be emitted at a rate of 10% per year according to IPCC recommendation, as the decomposition is progressive.</td>
</tr>
<tr>
<td>Spatial level (local, regional, national or international):</td>
<td>ER Program area</td>
</tr>
<tr>
<td>Discussion of key uncertainties for this parameter:</td>
<td>Uncertainties for this parameter are combination of uncertainties for pre- and post-deforestation carbon stocks for each forest stratum. The only dedicated inventories are those on Miombo forest for which we can calculate indicators of precision. Other data are from existing literature and we have no access to databases.</td>
</tr>
<tr>
<td>Estimation of accuracy, precision, and/or confidence level, as applicable and an explanation of assumptions/methodology in the estimation:</td>
<td>90% confidence intervals for emission factor are the following:</td>
</tr>
<tr>
<td>Miombo forest: ±4.5 (8%)</td>
<td></td>
</tr>
<tr>
<td>Montane forest: ±8.3 (11%)</td>
<td></td>
</tr>
</tbody>
</table>
Calculation of the average annual historical emissions over the Reference Period

According to the FCPF MF (FCPF, 2016a), the REL equals to the average over the reference period of activity data multiplied by emission factors. Emission factors for AGB and BGB are added to account for all tree biomass. In the following tables, activity data (annual deforestation rate) and emissions due to deforestation in each forest strata are presented.

The addition of all these emissions gives a mean annual emissions for the entire ER Program accounting area of: 10,220,558 tCO\textsubscript{2}e/yr.

<table>
<thead>
<tr>
<th>Reference periods</th>
<th>Historical deforestation rate - in ha/yr</th>
<th>Emissions related to AGB - in tCO\textsubscript{2}e</th>
<th>Emissions related to BGB - in tCO\textsubscript{2}e</th>
<th>Total reference emissions - in tCO\textsubscript{2}e/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-deciduous forests</td>
<td>27,068</td>
<td>4,106,199</td>
<td>1,095,393</td>
<td>7,088,755</td>
</tr>
<tr>
<td>Evergreen forests</td>
<td>7,993</td>
<td>1,707,103</td>
<td>428,217</td>
<td>3,131,803</td>
</tr>
<tr>
<td><strong>Average over the reference period - baseline</strong></td>
<td><strong>35,061</strong></td>
<td><strong>5,813,302</strong></td>
<td><strong>1,523,610</strong></td>
<td><strong>10,220,558</strong></td>
</tr>
</tbody>
</table>

8.4 Upward or downward adjustments to the average annual historical emissions over the Reference Period

*Not applicable to this ER Program.*

8.5 Estimated Reference Level

As deforestation is the only source of emissions accounted for in the ER Program and as no adjustment is demanded, the REL correspond to the mean annual emissions as presented in Table 48, which corresponds to the multiplication of the mean deforestation rate in ha/yr and emissions factors per forest stratum considered.
### ER Program Reference Level

<table>
<thead>
<tr>
<th>ERPA term year t</th>
<th>Average annual historical emissions from deforestation over the Reference Period (tCO₂e/yr)</th>
<th>If applicable, average annual historical emissions from forest degradation over the Reference Period (tCO₂e/yr)</th>
<th>If applicable, average annual historical removals by sinks over the Reference Period (tCO₂e/yr)</th>
<th>Adjustment, if applicable (tCO₂e/yr)</th>
<th>Reference level (tCO₂e/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>2</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>3</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>4</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>5</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>6</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>7</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>8</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>9</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
<tr>
<td>10</td>
<td>10,220,558</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10,220,558</td>
</tr>
</tbody>
</table>

### 8.6 Relation between the Reference Level, the development of a FREL/FRL for the UNFCCC and the country’s existing or emerging greenhouse gas inventory

The program Reference Level is fully aligned with the national FREL/FRL because it was built in that purpose. Activity data of the RL are an extraction of the FREL/FRL for the emissions due to deforestation. Other sources of emissions will be considered (such as degradation) in the process of the development of the FREL and if they are found to finally be significant, the program RL will be updated at the first monitoring event, by adding other sources.

Emissions factors for the program RL and the FREL/FRL are not estimated with the same method. It is difficult to know if results will be comparable as some decisions still need to be made at national level such as the allometric equations that will be used. However, at the first monitoring event, once the NFI is completed, emissions factors for the ER Program will also be updated with carbon stocks of the significant pools from the NFI (results available in 2018).

The last greenhouse gas inventory of Mozambique dates from 1994\(^\text{38}\). The MRV unit of the FNDS is currently updating this inventory, by using the results of the FREL/FRL for the LULUCF/LUCF emissions linked to deforestation or forest degradation.

---

\(^{38}\) [http://unfccc.int/di/DetailedByParty/Event.do?event=g0](http://unfccc.int/di/DetailedByParty/Event.do?event=g0)
9. APPROACH FOR MEASUREMENT, MONITORING AND REPORTING

9.1 Measurement, monitoring and reporting approach for estimating emissions occurring under the ER Program within the Accounting Area

The Program M&MRV system is based on the NFMS (National Forest Monitoring system), which is being developed at national level by the MRV team in the FNDS. For the ER Program, the activity data and the emissions factors will be extracted from the results of the NFMS on the same frequency for the sources and sinks and carbon pools considered in the program. The NFMS is composed of:

- **The NFI**: the results from the first inventory will be available in the beginning of 2018 and the NFI will be updated every 10 years. It will monitor all carbon pools for all selected class of vegetation types (Table 36) associated with deforestation, forest degradation and enhancement of carbon stocks;

- **The Activity Data monitoring system**: it is expected to periodically update the analysis of activity data – every 2 years - and the National Land Cover Map. Since enhancement of carbon stocks is excluded for the ER Program - see section 7 - only data for deforestation and degradation will be extracted from national MRV.

The National Greenhouse Gas Inventory will be updated in 2018 and will periodically estimate and report anthropogenic emissions by sources and removals by sinks. *Information of the method used is provided here, but more details are available in the documentation composing the R-Package.*

**Monitoring of activity data**

The method used to update the AD will be the one developed at national level with extraction of results for the ER Program area. For the MRV purposes in the NFMS, new tools and algorithms improving results will be positively valued and considered.

LULC maps will be prepared every 2 years for MRV in order to monitor the implementation of the mitigation activities and their impact - and for other purposes as NFI design, forest management, etc. In jurisdictional programs, more detailed information could be prepared at local level (bottom-up perspective) to train a change detection mosaic under a sampling approach methodology or to produce an updated version of a LULC map.

As for the FREL/FRL, LULC maps during the M&MRV will be produced with Sentinel-2 and Landsat-8 mosaic of images with 3 spatial resolutions (10, 20 and 30 m) on the entire country territory and 2 dates in the year will be analyzed: (i) in May/June, when the cloud cover is reduced but the trees of dry Miombo have lost their leaves; (ii) in August/September to confirm first classification with trees having their new leaves but higher cloud cover. For the monitoring of AD, the entire area of the country will be visually assessed on the same 4 x 4 km grid, by using also the mosaic of Landsat 8 and Sentinel-2 images.
Based on the production of LULC map, AD will be updated every 2 years (consistent with the biennial reporting set under the UNFCCC), but the MRV Unit (FNDS) will generate annual reporting capacity. The method at national level to monitor AD is based on the comparison of LULC map at 2 dates (Figure 29), starting with the LULC benchmark map of 2016. LULC changes map will be produced once the LULC 2016 benchmark map will be finalized. The principles of the analysis are described in Table 49 but the algorithm still have to be developed for Mozambique with the objective of a first result in 2018. In the meantime, the analysis of AD with Google Earth Engine will be repeated in order to make possible the comparison with the results of the MRV method and the one of the FREL.

Figure 29: Steps of the chain generating LULC maps (top) and the analysis of changes for production of AD (bottom) (From R-Package - Annex 8)
Table 49: Processing steps to produce LULCC maps and generate AD during the MRV
(From R-Package - Annex 8)

<table>
<thead>
<tr>
<th>Id.</th>
<th>Descripción</th>
<th>Landsat 8</th>
<th>Sentinel 2</th>
<th>ALOS-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCC-1</td>
<td>The operator selects the products on which the processing will be run.</td>
<td>In all three cases the selection is done manually by the operator. The service takes a list of product identifiers as input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCC-2</td>
<td>Products are downloaded on the processing facility from the data providers.</td>
<td>Products are obtained from USGS.</td>
<td>Products are obtained from the Copernicus Data Hub.</td>
<td>Products are obtained from PASCO through a mechanism to be defined (IICA collaboration).</td>
</tr>
<tr>
<td>LCC-3</td>
<td>Pre-processing</td>
<td>Same atmospheric corrections and cloud and cloud shadow mask computation as done in the land use and land cover map processing chain.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCC-4</td>
<td>Bitemporal image comparison.</td>
<td>Based on the application of the iMad (iterative multivariate alteration detection transformation) and post-processing using the MAF algorithm (maximum autocorrelation factor transformation). The iMad transformation is based on a canonical correlation analysis between two points in time of multivariate data; Canonical correlation of changes between bands. This scheme transforms two series of multivariate observations into a difference between two linear combinations of the original variables, these differences quantify the maximum change in all variables simultaneously. The MAD transformation is invariant on a linear scale and can be used iteratively. In the first instance, it can be used to detect outliers and noise and in a second iteration, it can be used to perform real change detection, once the previous result is managed. In order to improve the spatial consistency of the change components, the MAF (Maximum Autocorrelation Factor) transformation (also invariant on a linear scale) is applied to the MAD components, equivalent to a minimum noise fraction transformation that generates image components with a Maximum signal-to-noise ratio.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCC-5</td>
<td>Resulting shapefiles are delivered to the user.</td>
<td>Delivery is done through a FTP server.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, SAR (Synthetic Aperture Radar) data, specifically Phased Array type L-band Synthetic Aperture Radar (PALSAR is an active microwave sensor using L-band frequency to achieve cloud-free and day-and-night land observation) from ALOS (2006, Advanced Land Observing Satellite – JAXA - Japan Aerospace Exploration Agency) and from the new ALOS-2 (launched in 2014) would provide useful and complementary information for specific vegetation types and activities (forest degradation). JAXA has produced the 4 year-25m spacing global PALSAR mosaics, that Advanced Land Observing Satellite (ALOS)/ Phased array Type L-band SAR (PALSAR) collected globally from 2007 to 2010 using the accurate SAR processing, and the same product for 2015 (ALOS-2)\(^{39}\).

This product will be analyzed in the context of the NFMS to assess degradation at national level. The same method as the one presented for the monitoring of deforestation (Table 49) of comparison between 2 dates will be applied to the RADAR imagery and classification maps but it is still under development. If degradation is found to be significant thanks to this method development at national level, degradation will be included in the Program M&MRV after an update of the baseline and the same method will be repeated periodically to monitor AD of degradation. The results from this analysis will be available in 2018.

---

Human resources and materials

The implementation of the M&MRV is coordinated by the UT-REDD+ and implemented by the MRV team at the FNDS with support from the Department of Natural Resources Inventory (DIRN). The MRV team is currently trained during the establishment of the national FRE/L/FRL. A complete geospatial laboratory has been designed and purchase in the framework of the R-Package development. All the equipment required is described in the Annex 4 of the R-Package.

List of monitored parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AD_{def,strata,t}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Activity data for deforestation on all forest strata included in the ER Program (i.e. semi-deciduous and evergreen forests)</td>
</tr>
<tr>
<td>Data unit</td>
<td>Hectares</td>
</tr>
<tr>
<td>Source of data or measurement/calculation methods and procedures to be applied (e.g. field measurements, remote sensing data, national data, official statistics, IPCC Guidelines, commercial and scientific literature), including the spatial level of the data (local, regional, national, international) and if and how the data or methods will be approved during the Term of the ERPA</td>
<td>Extraction of deforestation statistics for the ER program accounting area from NFMS (realized with the change detection method based on sentinel-2 images) on a biennial basis</td>
</tr>
<tr>
<td>Frequency of monitoring/recording:</td>
<td>Every 2 years</td>
</tr>
<tr>
<td>Monitoring equipment:</td>
<td>Satellite images and computers for analysis – use of free softwares</td>
</tr>
<tr>
<td>Quality Assurance/Quality Control procedures to be applied:</td>
<td>Accuracy assessment will be implemented for the LULC changes map (AD), to estimate confidence intervals of each LULC change class following Olofsson et al. (2014)</td>
</tr>
<tr>
<td>Identification of sources of uncertainty for this parameter</td>
<td>Sources of uncertainties are:</td>
</tr>
<tr>
<td></td>
<td>Operator error during the interpretation of LULCC on sampled points</td>
</tr>
<tr>
<td></td>
<td>Classification of images with model</td>
</tr>
<tr>
<td>Process for managing and reducing uncertainty associated with this parameter</td>
<td>Sufficient number of points to be representative</td>
</tr>
<tr>
<td>Any comments</td>
<td>/</td>
</tr>
<tr>
<td>Parameter</td>
<td>Forest strata - LULC map</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Description</td>
<td>Distribution of all forest strata included in the ER Program area</td>
</tr>
<tr>
<td>Data unit</td>
<td>Hectares (of the distribution of each class)</td>
</tr>
<tr>
<td>Source of data or measurement/calculation methods and procedures to be applied (e.g. field measurements, remote sensing data, national data, official statistics, IPCC Guidelines, commercial and scientific literature), including the spatial level of the data (local, regional, national, international) and if and how the data or methods will be approved during the Term of the ERPA</td>
<td>Production of a LULC map with Landsat 8 and Sentinel 2 images and a method based on a supervised classification (production of training plots)</td>
</tr>
<tr>
<td>Frequency of monitoring/recording:</td>
<td>Every 5 years</td>
</tr>
<tr>
<td>Monitoring equipment:</td>
<td>Free satellite images, computers for analysis and use of free softwares</td>
</tr>
<tr>
<td>Quality Assurance/Quality Control procedures to be applied:</td>
<td>Sources of uncertainties are: Operator error during the interpretation of LULCC on sampled points Classification of images with model</td>
</tr>
<tr>
<td>Identification of sources of uncertainty for this parameter</td>
<td>Sufficient number of training plots to be accurate</td>
</tr>
<tr>
<td>Process for managing and reducing uncertainty associated with this parameter</td>
<td></td>
</tr>
<tr>
<td>Any comments</td>
<td></td>
</tr>
</tbody>
</table>
Monitoring of emission factors

The emissions factors will be updated every years with the survey of half of the national network of permanent plots created for the NFI (48 over 96 plots including 22 plots in Semi-deciduous forests and 12 in Evergreen forests – see following box) and the NFI will be updated every 10 years. For the NFI, a total of 620 clusters of inventory plots will be realized across the country in all strata (Table 36).
Clusters are the same as those used for point sampling analysis of deforestation with remote sensing techniques. The shape of cluster for forest inventory is presented in Figure 30. On each plot, trees’ DBH, height and species will be measured for the calculation of aboveground tree biomass and, soil (30 cm depth) and litter (on 25 x 25 cm sub-plots) will be collected for lab analysis. *A detailed procedure for the measurements to be done in each plots of the NFI is available as a separated document in Annex 3 of R-Package* (Gonzalo et al., 2017). Allometric equations to calculate AGB for the NFI are not chosen yet. A synthesis of all equations existing for Mozambique have been produced but the best equations for each stratum have still to be selected.

![Figure 31: Shape of plots for the NFI in Mozambique](image)

NFI is being coordinated by the DNF and implemented by *Serviços Provinciais de Florestas e Fauna Bravia* (MITADER), DIRN, IIAM and UT-REDD+ (MRV Unit, FNDS), and with the support of other collaborating Institutions (Eduardo Mondlane University). *The complete method and budget for the NFI is described in the Mozambique R-Package.*

With the results from the NFI, it will be possible to calculate by the beginning of 2018 the carbon content for aboveground (AGB) and below-ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC) by vegetation type/land use, and the corresponding EFs. If carbon pools that are not included in the present document happen to be significant, they will be integrated in the RL that will be revised for the next MRV phase, once results from the NFI are available. Moreover, national average for the strata of interest in the ER Program area (Miombo, Mopane, Montane and Coastal forests) will be used to
update EF of the RL for the next MRV session of the ER program in order to guarantee consistency with national FREL. In 2018, AD and EF of each stratum identified on the LULC map in the ER Program area will be accounted for and updated if the carbon stocks between strata are significantly different. Otherwise, strata will be merged as it has been done in the present document (Semi-deciduous forest for Miombo and Mopane forests for example).

Box 8: Establishment of a National Net of Permanent Plots (2018)

The MRV Unit, in close collaboration with IIAM, UEM, DINAF and JICA, has planned to establish a net of permanent plots (RNPAP — Rede Nacional de Parcelas de Amostragem Permanentes) in key ecosystems in Mozambique to deepen the knowledge of species composition, structure, dynamic, and specifically to serve as a basis of the MRV system allowing estimate repeatedly over time key carbon stocks and EFs. It is intended to add 60 permanent plots to the existing 36 and complete the representativeness of the different vegetation types. In table 50, the distribution of permanent plots by vegetation types in forest ecosystems in Mozambique is summarized (preliminary proposal). The net of permanent plots should be measured again every two years to report differences in carbon stocks and EFs (48 plots are measured per year). It is a sustainable proposal on which the EFs’ updating process (Tier 3) could be based, rather than on the National Forest Inventory that should be updated every 10 years.

Table 50: Permanent plots

<table>
<thead>
<tr>
<th>Vegetation types</th>
<th>Existing variables</th>
<th>Additional variables</th>
<th>Permanent plots that already exits</th>
<th>New permanent plots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floresta sempre verde</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Floresta sempre verde de montanha</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Floresta semi decidua</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Miombo</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>Mopane</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Mecruusse</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Mangal</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Galeria</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Savana</td>
<td>DBH, H, Hc,commercial, quality, health status and altitude</td>
<td>Aboveground biomass (AGB) and below ground biomass (BGB), dead organic matter (litter and dead wood) (DOM) and soil pools (SOC), EFs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>36</td>
<td>60</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td></td>
<td></td>
<td>96</td>
</tr>
</tbody>
</table>
Monitoring of DOM

During the NFI, carbon stocks of the Dead Organic Matter pool will be measured in trunks lying down on the soil. In each inventory plot, diameter (if above 10 cm) of the lying trees intersection in the central axe will be measured as presented in the following figure. For each tree the following information will be needed: tree species (vernacular, commercial and scientific names), tree diameter and decomposition state of a scale of 3 classes. However, even if this pool is accounted for in the NFI, it will stay excluded in the Program baseline and MRV.

![Diameter measurement of lying trees on the central axe of inventory plots](image1)

Figure 32: Diameter measurement of lying trees on the central axe of inventory plots

Monitoring of SOC

Soil Organic Carbon will also be estimated during the NFI. At each plot center (4 plots per cluster), samples of litter on a 25x25 cm square and of soil collected with a auger on the first 30 cm of depth will be collected (Figure 33). A total of 1 kg of soil will be collected in each cluster (addition of the samples of the 4 plots of each cluster). Samples will be sent for analyses at the laboratory of the UEM in Maputo. For the estimation of the soil density, an undisturbed sample of soil will also be collected in each plot. This sample will be weighted after having been dried. However, even if this pool is accounted for in the NFI, it will stay excluded in the Program baseline and MRV.

![Collection design for the litter and soil sample in inventory plots](image2)

Figure 33: collection design for the litter and soil sample in inventory plots
Human resources and material

In each province, 8 field teams are mobilized for the NFI. A team is composed of:

- 1 team leader, responsible for the location of plots, the delimitation of plots with guides, the filling of field forms and for getting the insurance that all required data have been collected on a plot;
- 3 technicians, for measurement purposes: 1 for the measurement of tree diameter, 1 for tree height and 1 for collection of soil and litter samples in addition to the measurements of the diameter of lying trees;
- 1 botanist for tree species identification;
- 2 guides who help to locate the plots and to facilitate the access.

After fieldwork, data sheets are sent to the FNDS specialists for analysis. The Material used is the following:

- A GPS for plots center location;
- A measuring tape for the plot delimitation;
- For tree measurements in order to estimate AGB: a measuring tape for DBH, a hypsometer (Vertex) for tree height and a machete to evaluate decomposition state of lying trees;
- For soil and litter samples collection: a measuring tape, plastic bags, a weighting scale, an auger and a metallic cylinder.

List of monitored parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>ΔAGB&lt;sub&gt;strata&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Difference between AGB on pre- and post-deforestation strata, for each stratum of the Program (i.e. Miombo forest, mangroves, montane forests)</td>
</tr>
<tr>
<td>Data unit</td>
<td>tCO&lt;sub&gt;2&lt;/sub&gt;e/ha</td>
</tr>
<tr>
<td>Source of data or measurement/calculation methods and procedures to be applied (e.g. field measurements, remote sensing data, national data, official statistics, IPCC Guidelines, commercial and scientific literature), including the spatial level of the data (local, regional, national, international) and if and how the data or methods will be approved during the Term of the ERPA</td>
<td>Average carbon stocks from NFI (national scale) for each stratum included in the program</td>
</tr>
<tr>
<td>Frequency of monitoring/recording:</td>
<td>Every years on half of the permanent plots and repetition of the NFI every 10 years</td>
</tr>
<tr>
<td>Monitoring equipment:</td>
<td>Inventory material (measuring tapes, GPS devices, clinometer, etc.)</td>
</tr>
<tr>
<td><strong>Quality Assurance/Quality Control procedures to be applied:</strong></td>
<td>Confidence interval per forest stratum will be calculated from inventory data</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Identification of sources of uncertainty for this parameter</strong></td>
<td>Uncertainties are from (i) the representativeness of selected plots to the whole strata, (ii) the evaluation of DBH and tree height from field operator and (iii) error related to the allometric equation used.</td>
</tr>
<tr>
<td><strong>Process for managing and reducing uncertainty associated with this parameter</strong></td>
<td>Sufficient number of plots to be representative</td>
</tr>
</tbody>
</table>

**Parameter** | DOM and SOC per stratum |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Carbon stocks in DOM and SOC pools on pre- and post-deforestation strata, for each stratum of the Program (i.e. Miombo forest, mangroves, montane forests)</td>
</tr>
<tr>
<td><strong>Data unit</strong></td>
<td>tCO₂e/ha</td>
</tr>
<tr>
<td><strong>Source of data or measurement/calculation methods and procedures to be applied (e.g. field measurements, remote sensing data, national data, official statistics, IPCC Guidelines, commercial and scientific literature), including the spatial level of the data (local, regional, national, international) and if and how the data or methods will be approved during the Term of the ERPA</strong></td>
<td>Average carbon stocks from NFI (national scale) for each stratum included in the program</td>
</tr>
<tr>
<td><strong>Frequency of monitoring/recording:</strong></td>
<td>Every years on half of the permanent plots and repetition of the NFI every 10 years</td>
</tr>
<tr>
<td><strong>Monitoring equipment:</strong></td>
<td>Inventory material (measuring tapes, GPS devices, auger, etc.)</td>
</tr>
<tr>
<td><strong>Quality Assurance/Quality Control procedures to be applied:</strong></td>
<td>Confidence interval per forest stratum will be calculated from inventory data</td>
</tr>
<tr>
<td><strong>Identification of sources of uncertainty for this parameter</strong></td>
<td>Uncertainties are from (i) the representativeness of selected plots to the whole strata, (ii) the quality of the samples collected by the field operator and (iii) error related to analysis in the laboratory.</td>
</tr>
<tr>
<td><strong>Process for managing and reducing uncertainty associated with this parameter</strong></td>
<td>Sufficient number of plots to be representative</td>
</tr>
</tbody>
</table>

**Any comments**
Community participation in monitoring

In accordance with criterion 16 of the FCPF MF (2016a), the ER-program has explored opportunities for communities to participate in monitoring and reporting for carbon and non-carbon benefits and safeguards. Carbon accounting will be based on techniques ensuring high qualification and will be managed at national level because it is completely linked to the NFMS. Hence, it would not be relevant to include communities in this system.

The MRV Unit in FNDS is still designing the PMRV system. This section will be updated with final decisions for the final ER-PD draft. This sub-section presents the current findings and possible way forwards in the process. Additional information on institutional arrangement for PMRV is provided in section 6.

PMRV at national level (From R-Package)

Besides the contribution of different national entities, in the context of a national forest assessment and monitoring, time and financial resources to support participatory approaches of communities (PMRV) for the monitoring of activity data or emissions factors is very limited.

Aerial photographs and satellite images haven't proved very functional in the village context; high costs, limited availability and need of abstraction of lower resolution imagery - it has been demonstrated in the early stages of implementation of the national forest inventory where it has not been operationally possible to implement at the same time the collection of forest information and other indicators more related to the Safeguards Information System (Social and Environmental variables).

Conversely, Google Earth covers most rural landscape areas at a high resolution with fairly updated images, meaning that it is possible to view villages and landscapes in considerable detail. It is thus adequate to conduct “virtual transects”. It would be possible to conduct village focus groups discussions pinpointing areas in the landscape using Google Earth and with the LULC and LULC change products biennially generated. For this purpose Internet connectivity is not necessary, as it is possible to download workable imagery of the village areas to be discussed ahead of time.

Local level interpretation of Google Earth images (key informant and focus group) is recommended in order to assess currents LULC and LULC changes. It would be possible to organize focus group with a computer running Collect Earth and pick out points in the landscape on the grid of particular interest to develop a further understanding of e.g. current LULC, recent or past changes of LULC, management regimes of particular forest blocks, social and economic conditions etc.

Thus a combined biophysical and socio-economic survey (e.g. a household survey, part of the SIS) could be conducted at the same time with the proper design of tables and forms that will be more effectively and efficiently answered in a focus groups setting, with the support of the Collect Earth tool. These forms will be accessible by clicking on the grid plots in Google Earth.

Another relevant activity would be the survey with GPS of the perimeters of afforested / reforested areas (Enhancement of Carbon stocks A/R) and areas of intervention or implementation of the project or program activities. The results of these analyses could be sent (uploaded to the platform: NFMS) by the UT-REDD+ specialist at each province. After verification by the MRV unit, the polygons of this AD national product could be modified or
updated with this field information. Through pilot testing of the PMRV system in Mozambique in 15 districts of the Cabo Delgado and Zambezia provinces during the 2018, optimal areas will be detected for local interpretation (square rectangle that represents the surroundings of the village: e.g. 15 km).

**PMRV at jurisdictional level**

The MRV system applying to the ER Program builds on the national MRV system as well as the definition of the PMRV system. The national PMRV will focus on the collect of information to understand the dynamics of deforestation through focus groups where results of the MRV realized at national level will be presented on Google Earth images. This activity will be organized with provincial and local authorities and the results specific to the ER Program area will be reported to national level for capitalization. This activity will most probably be coordinated by the provincial MRV unit.

**9.2 Organizational structure for measurement, monitoring and reporting**

The national MRV system has the overall objective of organizing and coordinating, with standardized and internationally accepted procedures, the quantification of emission and removal of greenhouse gases (GHG) from the Agriculture, Forestry and Other Land Use (AFOLU) sector. The MRV team based in the FNDS is coordinating all works related to MRV. It includes the implementation of the FNMS, the SIS and the Green House Gas National inventory (Figure 34). The organizational structure of the ER Program for MRV is based on national arrangements:

- **A stated before, a national MRV unit** exists within the FNDS. It is composed of 5 technicians who are trained to remote sensing and forest resources analysis. They will be in charge of the measurement, monitoring and reporting at national level of activity data and carbon stocks from NFI. MRV Unit at FNDS is currently preparing the LULC 2016 map based on Sentinel-2 products.

- **A provincial MRV unit** is located within the LCU in Mocuba. It is composed of 2 persons. They will be responsible for extracting data from national monitoring for the ER Program and to guarantee the flow of data to the relevant beneficiaries. They will also assure the link with other projects and programs that may have their own measurement and monitoring systems. The provincial unit will also be responsible for compiling data from communities about the ER Program activities.

The MRV Unit is also responsible of compiling and processing all relevant information from lower levels and operationalize the geographic information management system and databases, the MRV platform, hosted in the two servers located in the offices of FNDS. The MRV Unit aims to frame, guide and technically support the production and management of official data for REDD+ by all institutions involved in the national MRV system. The results (data) derived from their activity are made available to the various official bodies.

- **Local level:** Local offices for community monitoring will be created in each district where local activities have to be monitored. CGRN, where they exist, will be reinforced for this
purpose. Data from this monitoring will be transmitted to the provincial MRV unit.

Complementary information on institutional arrangement for PMRV is provided in section 6.

The organizational structure for measurement, monitoring and reporting is summarised in the Figure 34. The responsibility of each actor is summarized in Table 51.

![Figure 34: Institutional arrangements at national level for the MRV (From R-Package – Annex 7)](image)

**Production and management of data** - As shown in Figure 34, MRV institutional arrangements for the ER Program will primarily rely on governmental structure, with each of the relevant directorates in the MITADER and MASA involved. The DINAF is especially expected to ensure a key role in the process, accordingly with its national functions⁴⁰. Relevant partners expected to participate also are:

- The National Center for Cartography and Detection (CENACARTA): CENACARTA, through the processing of satellite images, cartography and tele-detection, has a high capacity to process and distribute the images, produce land cover and land use maps, including changes;

- The National Institute for Agrarian Research (IIAM): the IIAM has a Department of Natural Resources with various sections including Forests, Gene Bank, Water Management and Management of Soil Fertility, equipped with human capacity and materials for soil analysis. This capacity can be used to assess change of carbon stocks as result of current uses and adoption of REDD+ activities. They will be in

---

⁴⁰ Conducting national inventories at national scale as well as provincial and regional level; processing and analyzing satellite imagery on forest cover; defining forest use categories and producing of forest maps, etc.
charge of the management of the permanent plots network with financial support of the UT-REED;

- The Department of Forestry of Eduardo Mondlane University (UEM-FAEM): the UEM-FAEM is used to research on various forest issues including remote sensing and aerial photography to assess vegetation, changes in forest cover, forest degradation, change of species composition, assessment of forest biomass and stocks of carbon in the forest ecosystems. UEM also offers training to institutions at national and local level, including districts and communities on MRV.

Table 51: MRV institutional arrangements and roles (from Gonzalo, 2016 – R-Package)

<table>
<thead>
<tr>
<th>Activities</th>
<th>National Level</th>
<th>Provincial Level</th>
<th>Project Level / Communities</th>
</tr>
</thead>
</table>
| Measurement | - MRV Unit at FNDS will produce the LULC map and disaggregate it into adequate forest classes and will implement the AD analyses.  
- MRV Unit regularly will collect primary and secondary data (AD/EFs) from lower MRV levels, will analyze and compile this data.  
- The MRV Unit elaborates the GHG emission calculation at national, provincial and project level. | - MRV team at provincial UT-REDD+ will collect, compile and analyze primary and secondary data on project interventions, e.g. emission factors, boundaries of activities, ltc changes, etc. This includes databases, GIS and remote sensing data.  
- Relevant forest information and socio-economic and environmental information will be collected at Community level. | *Project implementer will design its own monitoring system (following national guidelines) and will collect and analyze primary and secondary data within project boundaries; e.g. forest inventory data, boundaries of activities, ltc changes mapping, etc. This information includes databases and GIS data. |
| Reporting | - MITADER (appropriate directorate: DINAB) is responsible for reporting at international (UNFCCC) and National Level and also for generating the information in collaboration with provincial institutions and project implementers for program and project reports.  
- MITADER (appropriate directorate:DINAB) reports to UNFCCC. | - UT-REDD+ is responsible for compiling results from the Provincial MRV Unit for the province and reports in form of a Monitoring Report. | *Project implementer is responsible for compiling results from the Federal MRV Unit and Regional MRV Unit for the project and reports in form of a Monitoring Report. |
| Verification | *Third party national or international (accredited agency) | | |

9.3 Relation and consistency with the National Forest Monitoring System

Since a NFMS is currently under development in Mozambique, in respect to criterion 15 of the FCPF MF (FCPF, 2016a), the MRV system of the ER Program will follow the NFMS as described in section 9.1. For each monitoring event, data for the ER Program will be extracted from results of the national monitoring, which is described previously. Thus, the MRV system is perfectly consistent with the NFMS. As the NFMS will be spatially explicit, performance of zones of interest can be specifically monitored for benefit sharing system for example.
10. DISPLACEMENT

According to criterion 17 of the FCPF MF (FCPF, 2016a), the ER Program should be designed and implemented so as to “prevent and minimize potential Displacement” of emissions from the ER Program Accounting Area to outside of it. The ER Program fully complies with this requirement.

10.1 Identification of risk of displacement

The ER Program is not expected to generate any displacement of emissions, as it was already stated in the ER-PIN (UT REDD+, 2015a). The only possible displacement of emissions may be related to the risk of market leakage, depending on the evolution of the prices of precious timber on the international market - on which the ER Program has no grip.

Admittedly, as shown in section 4.3, the planned interventions under the proposed ER Program are all addressing the main drivers of deforestation and forest degradation in the ER Program area through specific and targeted measures. Those measures are primarily based on incentives and on the valorization of non-carbon benefits rather than coercive and, therefore, are expected to lower the appeal of deforestation and forest degradation per se for the agents of deforestation – which should contribute to reducing the risk of displacement. The only coercive measures are related to interventions aiming at reducing artisanal logging of precious timber (through support to AQUA - ERI-C2 - and law enforcement around the GNR - ERI-C1 - for instance) – which already is an illegal activity also addressed at national scale by the GoM outside of the ER Program.

Those interventions were defined taking into account (i) the strategies and needs of the agents of deforestation and (ii) the main barriers to REDD+ in Mozambique – including potential institutional weaknesses, which are addressed in section 6. Their associated risk of displacement was assessed and categorized, according to criterion 17.1 of the FCPF MF (FCPF, 2016a).

This section focuses on the direct drivers of deforestation.
Figure 35: Reminder of the main drivers and agents of deforestation and forest degradation in the ER Program area

Table 52: Identification of risks of displacement of emissions

<table>
<thead>
<tr>
<th>Driver of deforestation or degradation</th>
<th>Small scale agriculture based on “slash and burn” techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of displacement</td>
<td>Low</td>
</tr>
<tr>
<td>Main agents of deforestation / degradation identified</td>
<td>Smallholders and local population</td>
</tr>
</tbody>
</table>

As stated in section 4.1, the main driver of deforestation in the ER Program area is small-scale agriculture based on “slash and burn” techniques. Displacement of “slash and burn” agriculture because of the ER Program is very unlikely to happen. One of the priority objectives of the ER Program is, precisely, to reduce deforestation through land intensification and progressive disappearance of itinerant agriculture.

Because the main agents of deforestation are smallholders and local population, the displacement of “slash and burn” agriculture outside of the ER Program area would imply a significant population displacement far from their current localization, which is not expected to happen. In any case, if smallholders were really prone to displacement because of the ER Program, they would likely migrate to forestland areas; yet, at national scale, there is few – if any – other districts with as much forest cover as those comprised in the ER Program area. Their displacement would therefore be limited within the ER Program Accounting Area.

In addition, one of the most important ER Program interventions is the implementation of sustainable agricultural techniques (conservation agriculture) in the ER Program area (ERI-D1), which is expected to favor agricultural activities’ settlement through land intensification. The ER Program provides for the training of smallholders (main agents of deforestation) in order for them to adopt and benefit from sustainable and settled agriculture.

The ER Program seeks to lower deforestation with the actual increase of agricultural production in the ER Program area, through sustainable and improved practices based on - in addition to conservation agriculture: (i) support to cash-crops production (ERI-D2); (ii) support to the establishment and strengthening of commercial agriculture (ERI-D2) and (iii) the strengthening of NTPF valorization around the GNR (ERI-D5). Those measures are expected to generate new agricultural and commercial opportunities for smallholders in the ER Program area. The potential additional revenues generated will contribute to the long-term settlement of agricultural practices, agents of deforestation and drivers of deforestation, thus reducing the risk of displacement of deforestation.
All in all, the ER Program is therefore not based on the prohibition of any agricultural practices – except in the central zone of the GNR, which has already been the case over the past 10 years - which could have generated displacement of “slash and burn” agriculture. Conversely, it is based on incentives for agricultural intensification and settlement within the ER Program area.

At this stage, it should be reminded that, although this section focuses on the risk for the displacement of emissions from the ER Program area to outside of the ER Program area, a possibility that could also be forecasted is the displacement of emissions that were occurring outside of the ER Program area to inside of it, due to population increase. If the ER Program area is to become an appealing area to live in, thanks to the success of the ER Program, one could argue that more people may want to live in this area, especially in a context of fast growing population.

However this risk is considered as low: a scenario is which the ER Program area would become a “high standard living place” in comparison to neglected neighboring areas, making local population decide to massively move towards the ER Program area, is very unlikely to happen. The rest of Zambézia province will not be abandoned on behalf of the ER Program, which fits into a broader REDD+ framework. Other activities, aiming at improving the quality of life of local population, are occurring in Zambézia even if they are not part of the ER Program area.

In any case, the planned interventions of the ER Program, addressing anthropogenic causes of deforestation and forest degradation, were defined so as guarantee the actual reduction of emissions in the ER Program area, taking into account various possible variables, with projection of future deforestation and map of risks of future deforestation. See section 12 on uncertainties on the accuracy of planned ER.

<table>
<thead>
<tr>
<th>Driver of deforestation or degradation</th>
<th>Charcoal production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of displacement</td>
<td>Low</td>
</tr>
<tr>
<td>Main agents of deforestation / degradation identified</td>
<td>Smallholders and local population</td>
</tr>
</tbody>
</table>
As stated in section 4.1, charcoal production may be a driver of forest degradation, but is it above all strongly linked to agricultural practices (see Box 1). Most of the time, the agent of deforestation and forest degradation linked to charcoal production is the local population, also engaged in other activities that are often, is not always, agriculture. Charcoal production actually is a typical by-product of “slash and burn” agriculture (see Box 1). Consequently, in this case too, a displacement of charcoal production due to the proposed ER Program measures would imply a massive population displacement from outside of the 9 districts that compose the ER Program area, which is not expected to happen.

This is also reinforced by the fact that charcoal production is located close to demand areas that are the urban centers within the ER Program area. Because population growth is expected to continue its high progression, charcoal demand is also expected to increase in the ER Program area. Consequently, the ER Program interventions comprise a significant component of charcoal production improvement rather than prohibition, in order to limit its impact on forest cover (see ERI-D4). This, too, is likely to reduce any risk of displacement of charcoal production.

Admittedly, the ER Program interventions linked to charcoal production follow the same logics as those focusing on small-scale agriculture: no practices are prohibited but the measures rely on the improvement of the production techniques in order to meet the increasing demand with sustainable practices ensuring the maintaining of forest cover. The creation of fast growing species plantations for energy purpose (see ERI-D3 & ERI-D4) and the improvement of kiln yields (ERI-D4) are expected to create a “win-win environment” in which charcoal production displacement outside of the ER Program area would not benefit the agents of deforestation, reducing this risk.

<table>
<thead>
<tr>
<th>Driver of deforestation or degradation</th>
<th>Unsustainable forestry practices, including illegal logging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of displacement</td>
<td>Medium</td>
</tr>
<tr>
<td>Main agents of deforestation / degradation identified</td>
<td>Industrials / concessionaires; local population / artisanal (illegal) loggers</td>
</tr>
</tbody>
</table>

Because unsustainable forestry practices and illegal logging are very linked, they are here addressed together. At this stage, it should be reminded that they are mainly responsible for forest degradation (and not deforestation), of which the emissions are not accounted for in the ERP.

As stated in section 4.1, deforestation linked to forestry is mainly driven by:
(i) the too rapid expansion of areas granted under simple licensing exploitation, with subsequent fast exploitation of non-selected timber and by
(ii) non-sustainable exploitation practices in both concessions and simple
licenses areas, with too short cutting cycles.

The proposed ER Program measures addressing this issue (ERI-C2) are mainly focusing on improving the management of the sector and the relationship between industrials and local communities (ERI-A3 through the MSLF and ERI-C2 through the National Forest Forum) – such activities are not expected to motivate any displacement. All the more so as the ER Program interventions focusing on improving governance and transparency in the forestry sector (ERI-C2) will also be implemented at national scale (improvement of national monitoring, for instance). This should help adopt a comprehensive approach and address any risk of displacement outside of the ER Program area, which will not be treated in isolation from the rest of the national territory.

In addition, the risk of displacement linked to the attribution of new licenses outside of the ER Program area to compensate for the ER Program interventions is mitigated by the recent adoption of the Moratorium on the attribution of new concessions and licenses at national scale (see table 20). It should be reminded that forest concessions in the ER Program area are granted for 50 years and a significant part of forest concessions and simple licensing in the ER Program area were granted between 2011 and 2015. In 2015, 31% of the area covered by the districts of Gilé, Pebane, Ilé, Alto Molocué, Mulelava, Mocubela and Maganja da Costa was under forest concessions regimes (see section 4), concessionaires being bound for several years to their leasing contract within the ER Program area: they are unlikely to move outside of the ER Program area to exploit new concessions.

Illegal logging, which is a significant driver of forest degradation in the ER Program area, is essentially driven by the international demand and failure of local law enforcement. The proposed ER Program measures aiming at reducing this driver are essentially based on increased surveillance and law enforcement and on improved forest management in the ER Program area (see ERI-C1). For instance, the GNR and its surroundings, which are preferred zones of illegal logging because they entail significant and precious tree species such as pau-ferro (*Swartzia madagascariensis*), are covered by the ER Program interventions and will benefit from enhanced law enforcement measures (ERI-C1).

However, the risk of displacement of emissions related to forestry and logging still exist: because illegal logging is linked to international demand and illegal exports of unprocessed timber for first class species that are also available outside of the ER Program area, the ER Program interventions aiming at reducing this driver may not be sufficient to limit the risk of displacement in other areas in Mozambique. In the same way, and independently from the success of the ER Program measures and from law enforcement in Mozambique, a risk of international displacement towards other (and neighboring) countries exists (market leakage), due to the causal relation between logging and the prices of precious timber on the international market, on which the ER Program has no grip.
10.2 ER Program design features to prevent and minimize potential displacement

As stated in section 10.1, the risk for the displacement of emissions from the ER Program area to outside of the ER Program area is expected to be limited – if any. The table below details the mitigating measures aiming to minimize any unplanned risk of displacement linked to the proposed ER Program measures. Those mitigating strategies are not exhaustive and should be apprehended in the framework of the ER Program as a whole, of which the comprehensive approach enables to forecast an overall net benefit of emissions reductions. *More details are provided in section 4.3 with the description of ER planned interventions.*

Table 53: Mitigation of the risks of displacement and prioritization of sources of displacement

<table>
<thead>
<tr>
<th>Identified risk of displacement</th>
<th>Unsustainable forestry practices, including illegal logging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritization</td>
<td>1 - <em>Medium risk of displacement &amp; medium significance in ER Program area</em></td>
</tr>
</tbody>
</table>

As stated above, the proposed ER Program interventions aiming at reducing unsustainable forestry practices and illegal logging may not entirely limit the risk of displacement of this driver outside of the ER Program area. The main strategies and intervention of the ER Program with this regards are expected to contribute to the reduction of those unsustainable practices in the ER Program area through (see section 4.3):

- Improving law enforcement around the GNR (ERI-C1) and at broader scale (through supporting the government’s forest law enforcement institutions – ERI-C2);
- The creation of online forest platform to increase transparency in forest sector – GIS platform (ERI-B2) - *see sections 4 and 6 for more details*;
- Strengthening forest governance, transparency and forest management (ERI-C2) in the ER Program area and at national scale.

The remaining displacement risk is expected to be mitigated by:

- The overall approach of the ER Program that, based on a comprehensive vision, aims at improving livelihood in the ER Program area: through addressing the underlying causes of deforestation in the ER Program area, increasing smallholders’ revenues and improving local population livelihood (see section 4), the ER Program is expected to reduce the appeal
of deforestation and forest degradation practices, including illegal logging.

- Governmental initiatives outside of the scope of the ER Program and at national scale, with which the ER Program is aligned. Those mitigating measures include the overall reform of the forest sector law (supported by MozFip – see section 4.1) and the recent adoption (January 2016) of a moratorium on the harvesting of pau-ferro (*Swartzia madagascariensis*) - which is the species that is the most illegally logged - and on exportation of unprocessed logs, whatever the wood type\(^{41}\). In 2015, the GoM had already suspended the issuing of new permits for logging, for a period of two years. Those are core concern of the ongoing forest sector law revision.

Those measures are expected to highly contribute to mitigate any risk of displacement linked to the ER Program interventions with regards to illegal logging and unsustainable forestry practices. Applied at national level, they are expected to reduce the global volume of logging in Mozambique and are fully complementary to the ER Program measures in Zambézia. Granted, the risk of displacement due to market leakage can hardly be fully mitigated. It should be considered as an "acceptable" risk, providing that is is not dependent on the good implementation of the ER Program but on the evolution of timber prices the international market.

Consequently, this overall risk is considered as "medium": although there is still a risk of displacement at the international level, governmental initiatives (including ban on pau ferro harvesting, ban of unprocessed logs exports, ban on attribution of new concessions) and ER Program mitigation measures should reduce the risk of displacement at national level - see also section 11 on reversals.

<table>
<thead>
<tr>
<th>Identified risk of displacement</th>
<th>Small scale agriculture relying on &quot;slash and burn&quot; techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Categorization</strong></td>
<td><strong>2 - Low risk of displacement &amp; high significance in ER Program area</strong></td>
</tr>
</tbody>
</table>

Risk mitigation measures

As discussed above, small-scale agriculture does not involve any substantial risks for displacement. The main measures that are mitigating this risk are all contributing to the settlement of agricultural practices in the ER Program are through increasing the benefits associated to it for smallholders. They include:

- The promotion of conservation agriculture (ERI-D1) through

\(^{41}\) The Ministerial Decree 10/2016 banned pau-ferro from logging for 5 years. The law entered into force on January 1\(^{st}\), 2016. The same document decrees closed in exploration of the species that produce the first class wood for 5 years period too.
trainings, support, and monitoring of smallholders’ activities (MozFip and Mozbio);

- The support to cash-crops (ERI-D2) and agroforestry system (ERI-D1) with the distribution of selected tree plants (distribution of at least 45,000 fruit trees) according to relevant markets to support agro-forestry systems, including 30,000 cashew trees around the GNR; 5,000 cashew producers should be trained on quality issues for their cashew nuts to meet specific quality standards and on the maintenance of orchards.

- The support to the establishment of commercial agriculture in areas with no forest cover (ERI-D2) including the implementation of a market information platform to support producers, with the diffusion of information on markets dynamics and prices through SMS.

- The promotion of value chain development of non-timber forest products (NTFP) (ERI-D5), to improve and strengthen natural resource-based livelihoods of communities living in the ER Program area. In particular, the development of community management plans for non-timber products will ensure the long-term character of this initiative.

This list is not exhaustive. For more details please refer to section 4.3.

Finally, although it is very unlikely, the remaining risk of displacement of emissions that were occurring outside of the ER Program area to inside of it will be mitigated by the very existence of the LCU, which is assuming a significant role in the implementation of the ER Program (see section 6), to ensure that all activities will be well coordinated according to an integrated approach and landscape vision, in which MRV (see sections 6 and 9) holds a significant place to reduce the risk of un-forecasted deforestation/forest degradation.

In the same way, it should be reminded that the ER Program activities are not random actions: they are well organized and were defined according to spatial geographic tools, including GIS techniques enabling to produce maps of risk of future deforestation based on projections on the evolution of the drivers of deforestation, which are all linked to anthropogenic activities.

<table>
<thead>
<tr>
<th>Identified risk of displacement</th>
<th>Charcoal production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritization</td>
<td>3 - Low risk of displacement &amp; medium significance in ER Program area</td>
</tr>
<tr>
<td>Risk mitigation measures</td>
<td>As discussed above, charcoal production does not involve any substantial risks for displacement. The main measures that are mitigating this risk are all contributing to the settlement of charcoal</td>
</tr>
</tbody>
</table>
production in the ER Program are through making sustainable production of charcoal benefit small producers and local population. They include:

- The sustainable use of biomass through the introduction of improved and efficient kilns (ERI-D4), including the training of 165 charcoal producers to improved charcoal production techniques in the districts of Gilé and Pebane;
- The promotion of plantations for energy purpose (ERI-D4 and ERI-D3). Those measures include the plantation of 10ha of fast growing trees for bioenergy production around the GNR.

For more details please refer to section 4.3.

11. REVERSAL

11.1 - Identification of risk of reversals and ER Program

Within the scope of the ER Program, reversals refer to the non-permanence of removed carbon – that is, a reversal of the ER process. It occurs « if one or more disturbance event(s) result in the aggregate amount of ERs measured and verified within the Accounting Area for one reporting period being less than the aggregate amount of ERs measured and verified within the Accounting Area for the previous reporting periods » (FCPF, 2015). The risk of reversal is the risk associated with any physical disturbance within the accounting area that may result in a reversal (FCPF, 2015). The risk of reversal therefore represents the possibility of reversing climate benefits through the loss of forest carbon biomass that was not provided for in the rationale and design of the ER Program. Those reversals can be of anthropogenic nature (intentional) or linked to natural phenomena on which the ER Program has no control (unintentional).

Following indicator 18.1 of the FCPF CF (FCPF 2016a), this section aims to identifying anthropogenic and natural risks of reversal that might affect ERs during the term of the ERPA and undermine its sustainability. Those risks of reversal can also be apprehended as potential ER Program implementation risks. They have been summarized in the next tables, which also present the mitigation strategies associated with each identified risk, in accordance with criterion 18.2 of the FCPF MF (FCPF, 2016a).

Table 54: Description, assessment and mitigation of Risk A

<table>
<thead>
<tr>
<th>Risk A - Lack of broad and sustained stakeholders’ support</th>
</tr>
</thead>
</table>

Associated sub-risks and factors:

- Continuation of Illegal logging:
Mitigation measures in the ER Program

The continuation of illegal logging and the limited adoption of improved agricultural and charcoal production practices can be apprehended as reversal risks as well as implementation risks.

The poor benefits of carbon and non-carbon benefits generated by the ER Program, the limited understanding of REDD+ and of the ER Program and the lack of clear mechanisms for compensation and performance may highly affect both the efficiency of the implementation of the ER Program and the reduction of emissions in the ER Program area, due to a lack a stakeholders' wish to really engage in the Program. Those risks will be addressed through several mitigation measures.

First, local population should be able to make use of a transparent, clear and well-known Feedback and Grievance Redress Mechanism (FGRM) all along the ER Program implementation process in order for their concerns and criticism to be taken into account in the design and implementation of the ER Program. As stated in (MITADER, 2016d), the grievance mechanism will be available to all Project Affected Persons throughout the project life cycle — see section 14. This is a key element that, at short term, will enable the ever-on-going definition of the ER Program so as to be as coherent as possible with stakeholders' needs and, consequently, maximize their chance of commitment to the Program; at longer term, and beyond the terms of the ERPA, is it likely to generate autonomous schemes respecting stakeholders' requirement and, therefore, having the potential to be maintained on the long run, beyond the project life time.

Linked to this component is the understanding by stakeholders of both REDD+ and the benefits linked to it. With this regards, it should be noted that, even out of the scope of the ER Program and according to the Ministerial Diploma n°158/2011 and the Regulation of the Land Law, community consultation is mandatory for all projects related to land use — see section 4.5. This is expected to favor long-term understanding of issues related to land, including REDD+. Communication with stakeholders in a transparent and participatory way is also ensured in the ER Program through the creation of the Zambézia Multi-Stakeholders Landscape Forum (MSLF) for which various MoUs will be signed, including with the ER Program implementing partners — see section 5 on stakeholders' engagement. Such platform should also guaranty the careful planning, implementation and monitoring of ER intervention in order to harmonize all interests. More importantly, the direct benefits of the MSLF for all stakeholders is expected to valorize such a participatory initiative on the long-term, including beyond the scope of the ER-PA. In addition, the broad and sustained local population support is also ensured through the implementation of the MozBio project (see section 4.7) which focuses on providing communities with alternative livelihoods choices - in this case, some form of participating in conservation revenues - that can facilitate and promote a long-term change in behavior with regard to currently unsustainable land and natural resources management and use (Tanner, 2017a).

With regard to illegal logging, the improvement of control, forest management and overall livelihood
that the ER Program is expected to generate should reduce both the possibility and the appeal of illegal logging. In order to ensure the long-term reduction of illegal logging and the sustainable commitment of rural population to the ER Program, the interventions will partly focus on increasing revenues for smallholders in the ER Program area, as an incentive for their long-term endorsement.

In addition, improved accountability and « ownership » on forest areas through collaborative management and participatory forest monitoring are part of the proposed interventions – through the creation and maintaining of an efficient PMRV (see section 14) and participatory inventories of resources involving local communities and authorities.

They partly rely on a land titling process, in order to provide security over land to all actors and particularly to the communities. This is an important component of the ER Program, supported by the "Sustenta" project and MozFip – see section 4. It will include efficient delimitation and zoning of the areas of interventions. This mitigation measures is significant: as stated by (Tanner, 2017a) and as previously explained (see section 4.4), land tenure is a major risk for the ER Program and, in general, for the adoption of long term sustainable behavior with regard to natural resources, if it is not adequately dealt with: secure land tenure rights are the bedrock upon which “alternative means of economic and food security” can be built. Land rights are therefore a critical factor in the successful implementation of the ER Program and in the mitigation of risks of Reversal linked to the lack of broad support from stakeholders. As Tanner (2017) puts it, slowing or even halting deforestation and forest degradation in areas that have significant levels of population evidently implies a) an impact on local livelihoods that rely heavily on forest access and use; and b) the need to involve these same populations in project activities. Whilst land and natural resources are constitutionally State property in Mozambique, secure tenure rights (DUATs) can give local people a strong stake in any developments involving these resources. In addition, a sense of secure tenure which is respected by other parties also predisposes them to actively support the implementation of activities that at first sight may seem unfamiliar and in conflict with their livelihoods strategies. As a consequence, long-term adoption of sustainable practices by smallholders and the population of the ER Program area will be ensured by an efficient and large enough land titling process that will guarantee stability of land rights on the long run.

Finally, respecting local tenure rights also imposes on others (the State, private sector actors, etc.) an obligation to follow more participatory and equitable strategies when it comes to developing new initiatives, be they for economic activities or for conservation and natural resources management purposes. The way tenure rights – and the consequent right to participate – are treated therefore establishes important parameters for the development and implementation of benefit sharing schemes – which, if successful, completes a “virtuous circle” that encourages local acceptance of and involvement in the ER Program (Tanner, 2017a). The definition of a performing and precise benefit sharing plan is therefore key to ensuring that benefits of the ER Program are perceived by rural population and to gain their support for the ER Program. This is also achieved through efficient communication and practical observation of the non-carbon benefits that the ER Program is expected to generate, including through the SIS that will be implemented – see section 14.

Conclusion: All in all, assessment indicators (listed below) tend to show that the risk of reversals associated with a lack of broad and sustained stakeholders’ support is low. However, despite the existence and implementation of relevant safeguards mechanisms with this regard, their efficiency is still difficult to assess on the long term. The ER Program is a pilot program and the processes it builds on (benefit sharing mechanism, feedback and grievance redress mechanism, etc.) are young and, for most of them, still inexperienced initiatives in Mozambique. Examples of remaining identified risks include: (i) the disappearance of fundamental mechanisms, such as the MSLF, due to financial shortfall after the terms of the ERPA; (ii) unplanned delays in actually perceiving carbon and non carbon benefits for local population, hindering their adoption of and commitment to promoted sustainable practices; (iii) the impairment of non-carbon benefits perception by stakeholders after the
terms of the ERPA, when ER payments end, leading them back to previous un-sustainable practices; (iv) the failure of the land titling process, etc. This non-exhaustive list shows that, although theoretically the ER Program provides for a wide range of measures aiming at reducing risk A to almost zero, one has to keep in mind that un-forecasted parameters may still alter their efficiency, in the long run, including beyond the terms of the ERPA. Consequently, the overall risk assessment, even with the existence of a wide range of mitigation measures expected to be efficient, is medium.

**Risk A – Assessment indicators**

- Existence of a transparent Benefit Sharing Mechanism;
- Existence of legal mechanism for the systematization of community consultation;
- Signature of MoU with implementing partners;
- Existence of a Feedback and Grievance Redress Mechanism (FGRM) during the ER Program implementation, likely to generate the implementation of long-term efficient practices beyond the project life time;
- Existence of consultative forums and platforms involving various stakeholders with concrete and immediate perception of benefits, likely to make consultation become a long-term concern (including out of the scope of the ER Program);
- Implementation of an efficient and large enough land titling and delimitation process to ensure stability of land rights in the long run.

**Overall risk assessment (with mitigation measures) – Risk A: Medium**

**Table 55: Description, assessment and mitigation of Risk B**

**Risk B – Lack of institutional capacities and/or ineffective vertical/cross sectorial coordination**

**Associated sub-risks and factors:**

- Unclear distribution of the responsibilities with regard to ER Program implementation;
- Poor cooperation between the various levels of the Government;
- Poor political commitment;
- Insufficient human resources at national and local level.

**Mitigation measures in the ER Program**

The institutional arrangements for the implementation of the ER Program are described in both the ER-PD and the REDD+ National Strategy. Political commitment and capacities for the implementation
of the ER Program are ensured through the creation of the Landscape Management Unit (LMU) at national level, the provincial Landscape Coordination Unit (LCU) in Zambézia, the MITADER and the FNDS – see section 6 on institutional arrangements and section 2 on the creation of the MITADER and FNDS. MITADER consolidates responsibilities for land, environment and rural development into one agency with a wider and more integrated mandate. FNDS consolidates funding capacity with the broader mandate required by the new multi-sector Ministry. This provides a strong foundation for improving coordination, streamlining implementation, and clarifying roles and responsibilities for the implementation of REDD+ initiatives, including for the ER Program.

In the same way, various multi-stakeholders platforms, including the National Steering Committee, insure the on-going participation and cooperation of the various levels of the governments and of the various ministries involved in REDD+ and in the ER Program – see sections 2 and 6.

It should be noted that the activities of MozFip are partly focused on fostering and coordinating political and institutional change that will generate the enabling conditions needed to add value and increase the sustainable use of the forests, and on generating the capacities and linkages between various stakeholders, institutions and markets. In the same way, the “Sustenta” project focuses on the government capacity strengthening, with a component dedicated to the “Support to the UGFI and provincial implementation units”, including support for project coordination and management at provincial level, fiduciary and safeguards management, monitoring and evaluation and communications - see section 4.1. MozFip and the "Sustenta" project are significant supports for the ER Program.

At local level, implementation capacities have been strengthened with the creation of the Landscape Coordination Unit that have been reinforced with additional staff – see section 6. In the same way, capacity building investments from many development partners have trained hundreds of staff members in project management, monitoring and assessment. A JICA funded project has trained over 35 technicians at the Provincial and National levels in various skills such as Remote Sensing and Carbon Stock Measuring. MITADER also has significant capacity on the ground, making use of Provincial and District representatives and coordinating sector activities at field level. Those initiatives and trainings will ensure that the activities related to forest management and monitoring in the ER Program can be maintained in the long run and outside of the ER Program lifetime.

**Conclusion:** All in all, institutional capacities have strongly been reinforced for the implementation of the ER Program and should guarantee an effective vertical and cross-sectorial coordination. Because the main assessment indicators listed below are respected, risk B should be considered as low. However, just like for risk A, risk B has to be assessed in light of the innovative feature of the ER Program, which relies on ever evolving processes, including with regards to institutional arrangements that are, actually, still being designed. Due to the recent creation of MITADER, its experience in terms of cross-sectorial coordination is still a learning process. In the same way, The risk that the newly created units (LCU, MRV unit, etc.) encounters un-forecasted functioning problems cannot be ignored, despite being limited. Those points argue for reassessments of risk B, from low to medium, on a precautionary note and in order to be realistic and acknowledge the (still) young experience of such institutions in REDD+ coordination.

---

**Risk B – Assessment indicators**

---

42 The International Fund Management Unit (UGFI) is now called the Directorate for the Mobilization of Funds (PMR). It is the financial management unit for all REDD+ activities, handling administrative and technical processes related to funding – see section 6 for more details.
- Existence of designated and empowered relevant structure for ER Program implementation;
- Experience in multi-sectorial project implementation;
- Experience of collaboration between different levels of government;
- Existence of dedicated mechanism or body for inter-sectorial cooperation;
- Support from additional projects and programs for institutional capacities strengthening;
- Deployment of relevant staff on the ground;
- Training for long-term capacities on forest management and monitoring.

**Overall risk assessment (with mitigating measures) – Risk B: Medium**

**Table 56: Description, assessment and mitigation of Risk C**

**Risk C - Lack of long term effectiveness in addressing underlying drivers**

**Associated sub-risks and factors:**

**Implementation risks that may lead to reversals**

- Poor adoption of sustainable practices addressing the mains drivers of deforestation (including shifting agriculture and charcoal production);
- Increased deforestation linked to unpredicted levels of cultivation of cash-crops;
- Continuation of wildfires;
- Maintaining of overall local population’s too high dependence on forest resources;
- External non forecasted projects, including infrastructure projects;

**Political, economic and financial risk**

- Difficult mobilization of up front finance to implement activities;
- Macroeconomic risk;
- Poor political stability and commitment;
- Unpredicted institutional and legislative changes.

**Mitigation measures in the ER Program**
Implementation risks that may lead to reversals

The poor adoption of sustainable practices for agricultural and charcoal production is an implementation risk that could lead to reversals. The associated mitigating measures are comprised in the wide range of interventions that the proposed ER Program offers - they are detailed in sections 4 and 10.

Generally speaking, in order to ensure long-term effectiveness in addressing the main drivers of deforestation, which are of anthropogenic nature, the priority is to ensure the long-term commitment of stakeholders to the adoption of sustainable practices, including beyond the terms of the ERPA and the project lifetime. With this regards, see the mitigation strategies associated to Risk A. In addition, the design of the ER Program should be clear enough for local communities: compensation, as a result of carbon sequestration, should be appealing enough, may it be in term of “payment for result” or, more importantly, on long-term non-carbon benefits. Communities will need to understand the compensation or the market returns expected for their commitment. Non-carbon benefits, especially, are key for forest conservation to turn into a long-term concern for stakeholders, beyond the terms of the ERPA and payments for performance. See mitigation strategies associated to Risk A.

In the same way, and at shorter term, adjusting promoted sustainable practices to the local context will be needed in order to make sure they can be followed in the long run. The expansion of conservation agriculture and improved charcoal techniques should be accompanied by the deployment of committed extension agents who understands and know local problematic. The individual commitment of the extension agents and knowledge of local habits are essential: the promoted techniques will always be adapted to local constraints in order to facilitate their adoption. This is also true for the reduction of wildfires: most of them, in the ER Program area, are of anthropogenic origin, triggered for the opening of new fields or for hunting purposes. This issue is addressed through the promotion of fire management practices, relying on significant trainings and awareness rising, as well as through the measures associated to conservation agriculture – see section 4 of ER Program interventions and justification.

With regards to cash crops, it should be noted that their promotion is essentially based on the valorization of cashew nuts and of the cashew value chain and, therefore, based on the promotion of fruit trees. With regards sesame (and cashew), one of the ER Program proposed interventions is to valorize the production through premiums based on “zero deforestation” labels. Deforestation would be closely monitored in order to make sure that this label, and associated premium prices, will be granted to smallholders who adopt sustainable practices promoted by the ER Program and do not engage in any deforestation activities - may it for cashew cultivation or for food crops such as maize and cassava. Those activities entail a strong formation and training component and enable to forecast long-term benefits of cash-crops commercialization, once the labels obtained. Nevertheless, the introduction of new crops, value chains or markets would have to be consulted and aligned with community preferences.

Investments external to the sector, including infrastructure development, mining activities, transport/roads, or large commercial agriculture projects might contribute to the deforestation drivers without proper management, coordination, and integrated development planning that takes into account rural development, local livelihood and environmental needs. The establishment and empowerment of a cross-sectorial coordination will help to take into consideration forestry and REDD+ related activities and the need to plan for multiple uses and to manage trade-offs. This mitigation strategy is included in Risk B assessment.

Political, economic and financial risk
The most serious risks facing the ER Program hinge around underlying capacity concerns and deeper political tensions in the country at the present time and in the future. The country remains susceptible to further outbreaks of political and social conflict, although a return to full-scale civil war is seen as very unlikely. The more likely risks are that continual and perhaps more frequent episodes of localized unrest and violence – as well as unofficial labor protests - could affect the rural economy including in the districts of the ER Program area, through lower production, deterring of foreign investment and slow development of supporting infrastructure. Other risks could arise from a change in government and possible shifts in political appointment, which may hinder buy-in and progress of the project (IDA, 2017).

According to Tanner (2017a), other more immediate concerns relate to legislative changes that are in the pipeline: the new Forestry Law, and the strong probability that the Land Law will also be revised during 2017/18. However, those changes are not expected to constitute a risk: (i) the Local Community concept, crucial for land tenure rights (see section 4.4), as well as the community consultation mechanism, will be maintained in both texts; (ii) the new Forestry law will formally introduce the concept of Free, Prior and Informed Consent into the Mozambican forest legislation; (iii) the revision of the Land Law will engage a lot of stakeholders and is expected to offer the opportunity to improve and consolidate, rather than embark on radical changes. It will be important for implementing and monitoring the ER program to both track this process, and where appropriate, contribute to it with feedback from program implementation on the ground.

With regards to the macroeconomic risk, the increase in debt levels, the depreciation of the metical and external shocks (such as commodity price) has heightened Mozambique’s macroeconomic vulnerability and exposure to fiscal risk. A deteriorating macroeconomic context may affect the appetite to invest in Mozambique’s agriculture sector and create a difficult business environment for the private sector through higher prices, exchange rate volatility and lower demand. While presently investors remain confident in Mozambique’s long term growth prospects, driven by the gas sector, macroeconomic instability or low commodity prices could have an impact on growth and opportunities in sectors such as agriculture (IDA, 2017).

While the ER program can do little to address those risks, it can work to improve coordination at all levels. Some of such mitigation strategies are associated to Risk B – see above. Other measures include the maintaining of a strong and stable legal framework that ensures the continuation of the ER Program beyond government term and to prepare adaptive management measures to respond to potential change in security situation.

Finally, financial risk for the ER Program could also lead to reversal, if the ER Program interventions cannot be adequately implemented due to budget shortfalls. However, this risk is almost entirely prevented in the case of this ER Program since most of the funding is already identified - see section 6 on budget. All the planned intervention of the ER Program area are supported by projects and programs backed by the World Bank (MozFip, MozDGM, MozBio, “Sustenta”) and for which budgets are already well defined. Economic sustainability of the ER Program is therefore pursued through a well defined budget plan, the previous identification and securing of financing and the existence of a well defined structure, the Directorate for the Mobilization of Funds (PMR) – see section 6 on institutional capacities and budget plan.

Conclusion: Risk C is mitigated by a good range of measures that enable to limit major reversals in the future. However, implementation risks still exist and the wider context in which the ER Program fits it, including in terms of financial stability, makes it impossible to reduce this risk to zero. Risk C is therefore considered as medium.
Risk C – Assessment indicators

For the implementation risks that may lead to reversals

- Experience in decoupling deforestation and degradation from economic activities;
- Support from additional projects and programs oriented on deforestation and forest degradation reduction;
- Existence of a relevant legal and regulatory environment conducive to REDD+ objectives in the long run;
- Creation of relevant incentives for adoption of sustainable agricultural practices in the long run, including beyond the project lifetime;
- Clear perception of non-carbon benefits for stakeholders at long term and especially beyond the terms of the ERPA;
- Adaptation of promoted sustainable practices to local constraints and dynamic in order to make them be able to be maintained in the long run;
- Deployments of efficient and committed extension-agents at long-term.

For the political, economic and financial risk

- Potential administrative changes are expected to be progressive and participatory;
- Well defined structures to ensure continuation of ER Program beyond government term;
- Pre-identification of financing sources.

Overall risk assessment (with mitigating measures) – Risk C: Medium

Table 57: Description, assessment and mitigation of Risk D

Risk D - Exposure and vulnerability to natural disturbances

Associated sub-risks and factors:

- Typhoons, floods or drought;
- Pest and other diseases;
- Fires.

Mitigation measures in ER Programs
The ER Program area is located in a zone that is sensitive to climate change and natural environmental risks. As stated in section 3, Mozambique is expected to be one of the countries that will be the most affected by climate change in the coming years and is one of the highest ranked African countries in terms of exposure to risks from weather-related hazards. In this context, tropical cyclones, for instance, might be considered as potential source of ERs reversals. This climatic risk, along with the risk of typhoons, flood or drought, may implies destruction of agricultural fields that would result in smallholders needing additional areas to compensate, with the subsequent opening of new fields on forested lands. This may lead to un-forecasted emissions and, therefore, reversals.

As a consequence, a relevant mitigation strategy will rely on training on conservation agriculture taking this situation into account so as to promote adequate models and crops. Appropriate selection of species able to resist to such conditions and appropriate selection of locations for specific ER Program interventions will be necessary. Generally speaking, the diversification of crops and improved soil fertility management enable to cope more easily with drought episodes, notably. The ER Program interventions focusing on the promotion of climate smart agriculture (see ERI-D1), supported by the MozFip and “Sustenta” projects, are therefore fully contributing to mitigating this risk. Those techniques are expected to be adopted and maintained in the long run, including after the project lifetime, thanks to the non-carbon benefits they will generate - see section 16.

Second, in order to reduce the risk of pest and other disease, a Pest Management Plan has been designed with provisions for specific biological controls and the development and use of crop varieties that are resistant or tolerant to the pest – see (MITADER, 2016c) and section 14 on safeguards plans developed for the ER Program.

Finally, with regard to fires, which are almost exclusively of anthropogenic nature, they are subject to specific mitigation measures and will be closely monitored – see section 4 and table above. In any case, as previously explained, it should be noted that Miombo forest - composing most of the forest of the ER Program accounting area - is tolerant for fire.

**Conclusion**: Although the risk natural disturbance in the ER Program area is relevant, and despite the possible increase of drought events, the “mortality risk” for the Miombo forest composing the ER Program area during the terms of the ERPA is low: Miombo is already well adapted to fires and droughts and relevant mitigation measures are reducing this risk. However, the risk of occurrence of typhoons is too hard to predict and the emissions resulting from subsequent slash and burn agriculture cannot be fully mitigated. Risk C should therefore be considered as medium.

**Risk D – Assessment indicators**

- Vulnerability to fires, storms and droughts;
- Capacities and experience in effectively preventing natural disturbances or mitigating their impact;
- Promotion of climate smart agricultural practices;

**Overall risk assessment (with mitigating measures) – Risk D: Medium**
11.2 ER Program Design features to prevent and mitigate Reversals

This section was treated directly in section 11.1 and the tables above, in which specific mitigation measures are described.

11.3 Reversal management mechanism

Choice of reversal management mechanism

As stated in Gonzalo (2016b) and in accordance with criterion 19 of the FCPF CF (2016a), the ER Program implementation comprises the creation of two separate buffer reserve accounts, which are ER Program specific: (i) an Uncertainty Buffer to create incentives for improving uncertainty associated with the estimation of ERs and manage the risk that the emission reductions were overestimates for prior reporting periods; (ii) a Reversal Buffer to insure against potential Reversals.

Table 58: Selection of reversal management mechanism

<table>
<thead>
<tr>
<th>Reversal management mechanism</th>
<th>Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1 – The ER Program has in place a Reversal management mechanism that is substantially equivalent to the Reversal risk mitigation assurance provided by the ER Program CF Buffer approach</td>
<td>No</td>
</tr>
<tr>
<td>Option 2 - ERs from the ER Program are deposited in an ER Program -specific buffer, managed by the Carbon Fund (ER Program CF Buffer), based on a Reversal risk assessment.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Option 2 of the FCPF MF (FCPF, 2016a) will be applied to the ZILMP ER Program, with the creation of an ER – Program specific buffer managed by the Carbon Fund (ER Program CF Buffer) (FNDS, 2017c).

The mechanism will act as insurance: a proportion of the credits generated by the ER Program will contribute to the reversal buffer. This proportion should correspond to the estimated risk of reversals. Separate accounts will be created in the ER Transaction Registry – yet to be created (see section 18) - for the exclusive purpose of receiving, disbursing, or canceling ERs that will be allocated to the reversal buffer and the pooled reversal buffer. Transfers of ERs to and from the account, and cancelation of ERs from the account, may only be initiated by the Buffer Manager. Once the ERs generated by the ER Program are determined for a specific reporting period, the administrator of the ER Transaction Registry should establish serial numbers for the amount of total ERs and transfer and deposit a portion of the serialized ERs, as Buffer ERs, into the Reversal Buffer account43 (Gonzalo, 2016b; FCPF, 2015; FNDS, 2017c).

Number of ERs to be deposited in the ER Program CF Buffer

43 The same should apply for the Uncertainty Buffer.
As stated in (FCPF, 2015), certain additional quantity of ERs out of the Total ERs should be allocated as Buffer ERs to the Reversal Buffer account to help manage the Reversal Risk. This additional quantity is calculated as a percentage of the Contract ERs and Additional ERs designated for transfer to the CF following each reporting period under the ERPA. This percentage should be determined by the Trustee, following consultations with the Program Entity, or by the Buffer Manager, as applicable, in accordance with the Reversal Risk assessment tool. Although this process still has to be undertaken and the percentage validated, we provide here a proposition based on the Reversal Risk assessment tool and the previously identified risks – see section 11.1. According to this analysis, 26% of the ERs generated by the ER Program will be deposited in ER Program CF Buffer.

Table 59: Risk assessment tool to assess the number of ERs to be deposited in the ER Program CF Buffer

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Risk indicators</th>
<th>Default Reversal Risk Set Aside Percentage</th>
<th>Discount (increment)</th>
<th>Resulting Reversal Risk Set-Aside Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default Risk</td>
<td>Not applicable, fixed minimum amount</td>
<td>10%</td>
<td>Not applicable</td>
<td>10%</td>
</tr>
<tr>
<td>Risk A - Lack of broad and sustained stakeholder support</td>
<td>Existence of a transparent Benefit Sharing Mechanism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Existence of legal mechanism for the systematization of community consultation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signature of MoU with implementing partners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Existence of a Feedback and Grievance Redress Mechanism (FGRM) during the ER Program implementation, likely to generate the implementation of long-term efficient practices beyond the project life time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Existence of consultative forums and platforms involving various stakeholders with concrete and immediate perception of benefits, likely to make consultation become a long-term concern (including out of the scope of the ER Program)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implementation of an efficient and large enough land titling and delimitation process to ensure stability of land rights in the long run</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk B – Lack of institutional capacities and/or ineffective vertical/cross sectorial coordination</td>
<td>Existence of designated and empowered relevant structure for ER Program implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Experience in multi-sectorial project implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Experience of collaboration between different levels of government</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Existence of dedicated mechanism or body for inter-sectorial cooperation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Support from additional projects and programs for institutional capacities strengthening;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reversal risk is considered Medium: 5% discount</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Risk C - Lack of long term effectiveness in addressing underlying drivers | Deployment of relevant staff on the ground  
Training for long-term capacities on forest management and monitoring  
Experience in decoupling deforestation and degradation from economic activities  
Support form completing projects and programs oriented on deforestation and forest degradation reduction  
Existence of a relevant legal and regulatory environment conducive to REDD+ objectives in the long run  
Creation of relevant incentives for adoption of sustainable agricultural practices in the long run, including beyond the project lifetime  
Clear perception of non-carbon benefits for stakeholders at long term and especially beyond the terms of the ERPA  
Deployments of efficient and committed extension-agents at long-term  
Adaptation of promoted sustainable practices to local constraints and dynamic in order to make it possible for them to be maintained in the long run  
Potential administrative change are expected to be progressive and participatory  
Well defined structures to ensure ensures the continuation of the ER Program beyond government term  
Pre-identification of financing sources | Reversal risk is considered medium: 5%  
2% discount | 3% |

| Risk D - Exposure and vulnerability to natural disturbances | Vulnerability to fires, storms and droughts  
Capacities and experiences in effectively preventing natural disturbances or mitigating1 their impacts  
Promotion of climate smart agricultural practices  
Existence of a Pest Management Plan | Reversal risk is considered medium: 5%  
2% discount | 3% |

**Actual Reversal Risk Set-Aside Percentage:** 10+(Result A+ Result B+ Result C+ Result D)  
= 10 + 5 + 5 + 3 +3  
= 26%

### 11.4 Monitoring and reporting of major emissions that could lead to Reversals of ERs

The monitoring of major emissions in the Accounting Area or changes in the ER Program circumstances that could lead to Reversals of ERs transferred to the Carbon Fund during the term of the ERPA will be ensured by the overall MRV system of the ER Program, which is fully technically capable of identifying Reversals, in accordance with criterion 21.1 of the FCFP MF (FCPF, 2016a). *The MRV system is described in section 9.* This involves major emissions that could lead to reversal and, therefore, are expected to be easily identified - as a result of extreme climatic event, for instance.
Reversals will be reported to the Carbon Fund within the timeline prescribed in the FCPF MF (FCPF, 2016a), that is, within 90 calendar days after their identification. The potential reversals will be addressed by the Reversal management mechanism described in section 11.2. When the occurrence of any kind of reversal is confirmed and identified, Buffer ERs should be canceled from the Reversal Buffer account to compensate for the Reversal, according to the arrangements described in (FCPF, 2015).

12. UNCERTAINTIES OF THE CALCULATION OF EMISSION REDUCTIONS

12.1 Identification and assessment of sources of uncertainty

The method used to estimate annual GHG emissions of the program in the reference period is based on a multiplication of activity data and emission factors for different strata and carbon pools. Hence, sources of uncertainties for the estimation will be assessed separately for both components.

Sources of uncertainties of activity data

Identification of sources of uncertainties

Possible sources of uncertainties associated with the production of the historical AD for deforestation and production of the LULC reference map could be related to the quality of images used and the interpretation of operators for both and, the classification model for the LULC 2016 map.

- **Quality of satellite data**

The analysis of historical AD have been done for the entire country with images available in Collect Earth Tool (Google Engine) that allow to select best images available for the dates of interest. The images that were used are from Landsat sensors, mainly: Landsat 5, 7 and 8. When product from LANDSAT Global Land Survey products (GLS) were available, they were selected as a priority, as recommended by the GOFC GOLD. According to Gutman et al. (2008), these data have sufficient radiometric and geometric qualities to perform land use change analysis. As explained before, the entire area of the country is being visually assessed on a 4 x 4 km grid at national level using high and medium resolution imagery. The spatial assessment unit is almost the equivalent a 3 x 3 block of Landsat pixels (100 x 100 m), where a plot of same dimensions and an internal grid of 5 x 5 points is overlapped. This precise set of data that characterizes the LULC changes produced in the historical series will be used in this case to decide the training areas for the image stack of Landsat 8 OLI and Sentinel-2. Moreover, the use of images from different sensors with Collect Earth Tool guarantee the absence of cloud cover on the areas of interpretation of sampled points.

- **Point interpretation**

To analyze historical AD, the main key step is the interpretation of land use on sampled points. This step is done by photo-interpretation of points on different classes and, as such, it is based on the expertise of the operators. However, the use of various scripts programmed
on Earth Engine Code facilitates the interpretation of the vegetation type and the
determination of LULC changes. Specifically: the MOD13Q1 (NDVI 16-day Global Modis 250
m) graphic from 2001-2016, most recent Sentinel-2 image, most recent Landsat-8 pan

- **Sampling design**

As the historical AD estimation is based on a point sampling analysis, the accuracy also
depends on the design of the sampling. It is designed here on a regular basis on 4 x 4 km
grid where squares of 100 x 100 m are defined. The sampling is not stratified and does not
focus on the detection of changes - which can be used to produce wall-to-wall maps. The
accuracy decreases with the distance between grids. Hence, as the deforestation can be
concentrated on relatively small areas (it is related to the opening of 1 ha slash and burn
fields for small scale farming) the distance between grids may be too high, but the
procedures is constrained by available time and budget.

- **Classification algorithm accuracy**

For the production of the LULC 2016 reference map, an algorithm for the classification will be
used based on the interpretation of training plots. However, the algorithm has not been
selected yet so it is not possible to assess its accuracy.

- **Validation procedure**

For the validation of the LULC 2016 reference map, 30% of the training plots will be used,
with the method described in Olofsson et al. (2013).

- **Assessment and contribution of sources of uncertainties**

The main uncertainties are those related to the interpretation of sampling design. Systematic
sampling is generally more efficient than simple random sampling to estimate areas, but less
than a stratified one depending on the location of change areas. One-dimensional
systematic sampling is optimal if the autocorrelation is positive, decreasing and convex, but
the main drawback of systematic sampling is the absence of an unbiased estimator for the
variance. Then, the variance estimation formulae for random sampling are used (IPCC,
2006, warns that it is an approximate formula). This, generally, overestimates the variance
(the overestimation is much more for denser grids), so we can consider the application of
this formula as a conservative option (other options are variance estimators that compare
each sample element with neighbors, pair differences techniques, etc.). The results of this
accuracy analysis are presented in the following section.

The errors related to the interpretation of sampled points would be systematic and random.
Those uncertainties are related and cannot be analyzed independently. However, they are
estimated with the analysis of the variance for the historical AD analysis based on a point
sampling method. The estimation of the areas corresponding to land-use and land-use
changes categories in the framework of this systematic sampling approach (based on the
visual assessment of the nodes of a 4 x 4 km national grid) can be based on assessments of
area proportions. The proportion of each land-use or land-use change category is calculated
by dividing the number of points located in the specific category by the total number of
points, and area estimates for each land-use or land-use change category are obtained by
multiplying the proportion of each category by the total area of interest.
For the LULC 2016, the confusion matrix that will be produced by the accuracy assessment - following best practices as described in Olofsson et al. (2013) - furnishes a good estimation of those uncertainties, aggregated.

**Steps to minimize uncertainties**

Uncertainties have been minimized through the application of QC/QA procedures. To reduce interpretation errors during creation of training plots or during the validation procedure, the following measures were taken:

- Interpretations are done by remote sensing experts, fully trained to these methods and knowing the field conditions;
- Several operators were mobilized to avoid bias due to wrong interpretation of an individual;
- The use of various scripts programmed on Earth Engine Code facilitate the interpretation of the vegetation type and the determination of LULC changes, specifically the MODIS NDVI trend.

The National Historical AD database is a very complete source of information on LULC changes during the last fifteen years (2001-2016) in Mozambique. The completeness of the series is guaranteed using RS products from medium resolution imagery repositories from 2001 (e.g. Annual TOA Reflectance Composite, Annual NDVI Composite, Annual EVI Composite, Annual Greenest-Pixel TOA Reflectance Composite, etc. from Landsat 5 TM) and the most recent Sentinel-2 image from 2016.

For the production of the LULC 2016 reference map, atmospheric corrections are performed using relevant software (The following table describes the different steps for treatments that will be done to produce LULC map 2016: atmospheric corrections and cloud masks for each sensor (Landsat 8 and Sentinel 2) and the algorithm (decision tree algorithm) that will be used for the classification (yet to be decided, for example C4.5). The MRV Unit at FNDS is preparing this LULC 2016 map. AS presented in section 12.2, the accuracy of the LULC map will be assessed following the method of Oloffson et al. (2013).

Table 37).  

**Sources of uncertainties of emission factors**

**Identification of sources of uncertainties**

Emissions factors are the difference between average of carbon stocks pre- and post-deforestation. Uncertainties of these factors are therefore related to the estimation of carbon stocks.

- **Measurements errors**

These errors correspond to errors in the measurements of DBH and tree height (parameters used in the allometric equation) by field operators. They are random errors and the quantity of measurements (4,721 trees in forest and 342 in post-deforestation strata) allows reducing the error. Moreover, errors done at tree level would be averaged at plot level and, according to Picard et al. (2015), these errors are limited compared to other sources.

- **Standard factors used**
The allometric equation used also requires wood density of tree species identified in the inventory. These data were selected in the Global Wood Density Database\textsuperscript{44}. Uncertainties related to those data exist but they are random and considered to be low.

To calculate BGB from AGB estimation, default factors of root-shoot ratio for tropical dry forest from IPCC (2006)\textsuperscript{45} are used. Two factors are reported, depending on AGB biomass: 0.56 (if AGB<20 t/ha) with a range of 0.28 and 0.68 (standard error 0.086) and, 0.28 (if AGB>20 t/ha) with a range of 0.27 and 0.28 (standard error 0.003). As they are global data, uncertainties are related to the estimation of the factor itself and to the application on local data but they are difficult to assess precisely. Picard et al. (2015) do not consider those uncertainties in their study on errors for the estimation of emission factors.

- **Allometric model error**

Uncertainties related to the allometric model are due to the errors of the model itself (coefficient and residual model error) and to the choice of the allometric model. First source is low with the model of Chave et al. (2014). Picard et al. (2015) estimated that the latter was the main source of errors in the Congo Basin. Other allometric equations exist in Mozambique for Miombo forest (Mercier et al., 2016) but they were not selected to calculate carbon stocks because they are either site specific, non-adapted to the measured range of DBH or do not account for tree height as a parameter.

- **Sampling error**

These errors are related to the sampling design: location of plots representative of the variability of the studied forest strata, the number of plots and the size of the plots to represent local conditions.

**Steps to minimize uncertainties**

The measures to minimize uncertainties for the establishment of EF for the Program RL are the following:

- Measurements in the field were realized by a team that has significant experience on such inventories and composed of a botanic specialized in Miombo forest;
- The allometric equation was chosen after having compared the conditions of application of all available in order to choose the most suitable one;
- The sampling plan was designed (i) to have a minimum number of plots calculated to represent variability on carbon stocks with the tool developed by Winrock\textsuperscript{46} and (ii) to be representative of the variability of conditions in the Miombo forest strata by spreading the most homogeneously plots on forests of the ZILMP accounting area and by distributing plots in transect of four in order to account for micro-topographic variations.


\textsuperscript{45} Table 4.4 of IPCC (2006), V4, Chapter 4 – Forest Land.

During the MRV, the uncertainties will be minimize through the employment of a trained team that will be the same doing regularly the measurements in permanent plots and managing the NFI. The sampling design for the NFI and permanent plots will stay the same as it is considered to be representation of all strata at national level. It has been designed to account for the variation in carbon stocks of the main strata as presented in the following table. Moreover, the choice of allometric equations for the NFI will be based on the comparison of all equations existing for Mozambique to select the most relevant for each stratum.

### Table 60: Number of cluster per main stratum based on the variation coefficient for the NFI (From R-Package)

<table>
<thead>
<tr>
<th>N</th>
<th>Strata</th>
<th>Area (ha)</th>
<th>N/ha</th>
<th>AB/ha</th>
<th>Vt/ha</th>
<th>Cv</th>
<th>n° clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Semi-evergreen mountainous forest</td>
<td>884,858</td>
<td>58.3</td>
<td>4.0</td>
<td>39.2</td>
<td>38.4</td>
<td>59</td>
</tr>
<tr>
<td>2</td>
<td>Semi-evergreen open forest (+Miombo open + Tree savanna)</td>
<td>29,725,985</td>
<td>81.9</td>
<td>4.3</td>
<td>33.3</td>
<td>71.9</td>
<td>91</td>
</tr>
<tr>
<td>3</td>
<td>Semi-evergreen dense forest (+Miombo dense)</td>
<td>7,547,903</td>
<td>88.2</td>
<td>6.4</td>
<td>60.9</td>
<td>57.0</td>
<td>127</td>
</tr>
<tr>
<td>4</td>
<td>Mopane</td>
<td>2,183,139</td>
<td>77.4</td>
<td>2.8</td>
<td>20.9</td>
<td>50.0</td>
<td>98</td>
</tr>
<tr>
<td>5</td>
<td>Semi-evergreen forest (+Gallery Forest)</td>
<td>1,662,652</td>
<td>91.0</td>
<td>5.2</td>
<td>47.9</td>
<td>50.0</td>
<td>97</td>
</tr>
<tr>
<td>6</td>
<td>Mecrusse</td>
<td>526,349</td>
<td>58.5</td>
<td>3.1</td>
<td>26.3</td>
<td>40.6</td>
<td>66</td>
</tr>
<tr>
<td>7</td>
<td>Semi-evergreen forest</td>
<td>2,421,296</td>
<td>73.6</td>
<td>3.4</td>
<td>24.8</td>
<td>68.3</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>44,952,183</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>620</td>
</tr>
</tbody>
</table>

### Assessment and contribution of sources of uncertainties

As a summary, the main errors would be those related to (i) the choice of the allometric model and (ii) the sampling plan, the last being minimized by the number of plots and their spatial distribution and assessed by the tool developed by Winrock, as presented previously.

#### 12.2 Quantification of uncertainty in Reference Level setting

The uncertainties of the REL were calculated following the approach 1 of IPCC (2006) using the propagation of error method. Confidence intervals were assumed symmetrical in all cases. Two uncertainties were calculated for activity data and emissions factors before assessing global uncertainty related to the REL. The following equations were used for addition or multiplication.
For addition:

\[ U_{total} = \sqrt{(U_1 x_1)^2 + (U_2 x_2)^2 + \cdots + (U_n x_n)^2} \]

\[ |x_1 + x_2 + \cdots + x_n| \]

Where:

\( U_i \): percentage uncertainty associated with each of the parameters

\( x_i \): the value of the parameter

\( U_{total} \): the percentage uncertainty in the sum of parameters

For multiplication:

\[ U_{total} = \sqrt{U_1^2 + U_2^2 + \cdots + U_n^2} \]

Where:

\( U_i \): percentage uncertainty associated with each of the parameters

\( x_i \): the value of the parameter

\( U_{total} \): the percentage uncertainty in the sum of parameters

Calculation of uncertainties of activity data

The variance estimation formulae for random sampling are used (IPCC, 2006, warns that it is an approximate formula) to estimate the accuracy of the analysis of activity data. This, generally, overestimates the variance (the overestimation is much more for denser grids), so we can consider the application of this formula as a conservative option (other options are variance estimators that compare each sample element with neighbors, pair differences techniques, etc.).

The standard error (ha) of an area estimate is obtained as:

\[ e = A \sqrt{pi (1 - pi) / (n - 1)} \]

Where:

\( pi \): is the proportion of points in the particular land-use category

\( A \): the known total area

\( n \): the total number of sample points

FCPF MF requires that accuracy is estimated with a 90% CI. The 90% confidence interval for \( Ai \), the estimated area of a land use or land use change category i, will be given approximately by \( \pm 2e \), and the relative error as a percentage of the quotient \( 2e/A \). Results for deforestation in each stratum are presented in Table 39 and are summarized in the table hereafter. For the global rate of deforestation (35,061 ha/yr) on the ER Program accounting area, the 90% CI is 4,801 ha/yr corresponding to an error of +/- 13.7%.
In addition, it has been conducted a quality control of the AD visual assessment performed for reporting purposes in a random sample of a 10% of the nodes assessed by different operators (4,889 nodes).

Table 61: summary of uncertainty estimated for emission factors of different forest strata

<table>
<thead>
<tr>
<th></th>
<th>Deforestation in Semi-deciduous forests</th>
<th>Deforestation in Evergreen forests</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value of the parameter - ha/yr</strong></td>
<td>27,068</td>
<td>7,993</td>
<td>23,374</td>
</tr>
<tr>
<td><strong>90% CI in ha</strong></td>
<td>± 3,554</td>
<td>± 1,963</td>
<td>± 4,017</td>
</tr>
<tr>
<td><strong>90% CI in %</strong></td>
<td>13.1%</td>
<td>24.6%</td>
<td>12%</td>
</tr>
</tbody>
</table>

During the MRV, AD data estimation will be done through the production of a Land use change map based on LULC maps (with Sentinel and Landsat imagery following the same classification method as for the LULC 2016 map). Accuracy estimation of the LULC maps will be realized following Olofsson et al. (2013) and summarized in the following box. The LULC benchmark map is not yet available so it is not possible to provide accuracy elements for this in the present document.
Accuracy estimation for the LULC maps that will be produced during MRV:

**Accuracy parameters derived from a population error matrix of q classes:**

<table>
<thead>
<tr>
<th>Map class/Reference class</th>
<th>class 1</th>
<th>class 2</th>
<th>class j</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>class 1</td>
<td>$p_{11}$</td>
<td>$p_{12}$</td>
<td>$p_{1j}$</td>
<td>$p_{1n}$</td>
</tr>
<tr>
<td>class 2</td>
<td>$p_{21}$</td>
<td>$p_{22}$</td>
<td>$p_{2j}$</td>
<td>$p_{2n}$</td>
</tr>
<tr>
<td>class i</td>
<td>$p_{i1}$</td>
<td>$p_{i2}$</td>
<td>$p_{ij}$</td>
<td>$p_{in}$</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$p_{1}$</td>
<td>$p_{2}$</td>
<td>$p_{j}$</td>
<td>$1$</td>
</tr>
</tbody>
</table>

Overall accuracy: $O = \sum_{j=1}^{q} p_{jj}$

User’s accuracy of class $i$ (the proportion of the area mapped as class $i$ that has reference class $i$): $U_i = p_{ii}/p_{i}$

Producer’s accuracy of class $j$ (the proportion of the area of reference class $j$ that is mapped as class $j$): $P_j = p_{jj}/P_{j}$

For overall accuracy, the estimated variance is: $\hat{\sigma}(O) = \sum_{i=1}^{q} W_i^2 \hat{U}_i (1 - \hat{U}_i)/(n_i - 1)$

For user’s accuracy of map class $i$, the estimated variance is: $\hat{\sigma}(\hat{U}_i) = \hat{U}_i (1 - \hat{U}_i)/(n_i - 1)$

For producer’s accuracy of reference class $j=k$, the estimated variance is:

$$\hat{\sigma}(\hat{P}_j) = \frac{1}{N_{jj}} \left[ \frac{N_j^2 (1 - \hat{P}_j)^2 \hat{U}_j (1 - \hat{U}_j)}{n_{jj} - 1} + \hat{P}_j^2 \sum_{i=k}^{q} \frac{N_i^2 n_{ij} (1 - n_{ij})/(n_i - 1)}{n_{ij}} \right]$$

where $N_{jj} = \sum_{i=1}^{q} N_i n_{ij}$ is the estimated marginal total number of pixels of reference class $j$, $N_j$ is the marginal total of map class $j$ and $n_j$ is the total number of sample units in map class $j$.

These variance estimator would not apply to a polygon assessment unit or to a mixed pixel situation.
Calculation of uncertainties of emission factors

Uncertainties related to sampling of the forest were estimated through the variability of carbon stocks calculated with the allometric equation and estimated with the standard deviation of results associated to the average used for both forest inventories for pre- and post-deforestation on Semi-deciduous forests (Miombo forest). On other forest strata, uncertainties are derived from standard deviation presented in the sources of the data (see section 7). As emission factors result from a difference between averages of carbon stocks, the equation for propagation of error in the case of addition was used. The results for the various forest strata that are accounted for in the ER Program are presented in the following table.

Concerning uncertainties related to the allometric model, it is considered more precise to account for tree height, and Chave et al. (2014) equation gave more conservative estimation than the other one with this parameter for Miombo forest. Moreover, according to Chave et al. (2004), the error related to the allometric model is estimated to be 13% when wood density is considered in the equation. This was estimated on plots in Panama but as no similar studies exist for Mozambique, it was applied to the estimation of the uncertainties of EF of the present program. The consideration of these errors is a conservative choice.

This level of uncertainties will be updated with NFI data in 2018.

### Table 62: summary of uncertainty estimated for emission factors of different forest strata

<table>
<thead>
<tr>
<th>Semi-deciduous forests (Miombo forest)</th>
<th>AGB</th>
<th>BGB</th>
<th>Total EF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-deforestation</td>
<td>Post-deforestation</td>
<td>EF</td>
</tr>
<tr>
<td>Carbon stock average - in tCO₂e/ha</td>
<td>241.6</td>
<td>34.8</td>
<td>206.7</td>
</tr>
<tr>
<td>90% CI</td>
<td>7%</td>
<td>47%</td>
<td>9%</td>
</tr>
<tr>
<td>allometric model error</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>total error</td>
<td>15%</td>
<td>49%</td>
<td>14%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evergreen forests (Montane forests)</th>
<th>AGB</th>
<th>BGB</th>
<th>Total EF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-deforestation</td>
<td>Post-deforestation</td>
<td>EF</td>
</tr>
<tr>
<td>Carbon stock average - in tCO₂e/ha</td>
<td>347.7</td>
<td>34.8</td>
<td>313.2</td>
</tr>
<tr>
<td>90% CI</td>
<td>11%</td>
<td>47%</td>
<td>11%</td>
</tr>
<tr>
<td>allometric model error</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>total error</td>
<td>17%</td>
<td>49%</td>
<td>16%</td>
</tr>
</tbody>
</table>
Calculation of uncertainties related to REL

The REL is the result of (i) the multiplication of activity data and emission factors for the estimation of emissions related to each forest strata and (ii) the addition of all emissions from different strata and sources. Uncertainties were calculated using the method of propagation of errors. Results are presented in the following table. The overall level of uncertainties is 15% at the 90% confidence interval, corresponding to mean annual emissions of 10,220,558 tCO₂e/yr +/- 1,522,387.

<table>
<thead>
<tr>
<th>Table 63: summary of uncertainty estimated for REL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deforestation in semi-deciduous forests</td>
</tr>
<tr>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Activity data in ha</td>
</tr>
<tr>
<td>Emission factor in tCO₂e/ha</td>
</tr>
<tr>
<td>Annual emissions in tCO₂e</td>
</tr>
<tr>
<td>90% CI</td>
</tr>
</tbody>
</table>

Calculation of uncertainties related to Emission Reductions

During monitoring events, ER and associated uncertainties will be calculated. To comply with FCPF MF requirements, indicator 9.2, those uncertainties will be quantified using a Monte Carlo analysis (approach 2 of IPCC). As described in IPCC (2006)47, the following steps will be realized (illustrated in Figure 36):

- The different parameters to which uncertainties are associated will be identified and corresponding Probability Density Functions (PDF) will be defined (for activity data and carbon stocks, data distribution is usually normal) with mean and standard deviation;
- For each of these parameters, random values (at least 1,000) will be generated following the shape of PDF;
- Emissions will be calculated from those random values, for the same number of values, and, mean and uncertainties (90% CI) will be calculated from these estimations;
- The process will be repeated until mean and uncertainties of emissions remain stable

---

47 Vol 1, Chapter 3 - Uncertainties
Figure 36: Illustration of Monte Carlo method (From IPCC, 2006)
13. CALCULATION OF EMISSION REDUCTIONS

13.1 Ex-ante estimation of the Emission Reductions

Emissions Reductions objectives of the ER Program are based on 2 different periods over the crediting period: 2018 - 2021 and 2022-2025. For the first period (2018-2021), the program aims at reducing deforestation by 15% below the reference level. For the second period, the efficiency of the ER Program is expected to increase because enabling and operational activities will have been developed for a few years already. Therefore, for the second period of its implementation (2022-2025), the ER Program aims at reducing deforestation by 20% below the reference level.

According to criterion 22 of the FCPF MF, the expected proportion of ERs to be set aside because of uncertainties would be 4% because the level of uncertainties is just at the threshold of 15%. This level will be estimated at monitoring events with the method presented in the previous section to estimate the buffer related to uncertainties. As shown in section 11, the proportion of ERs to be set aside because of possible reversals would be 26%.

The expected total level of Emission Reductions over the crediting period (2018-2025) is estimated at 10,016,147 tCO₂eq.

<table>
<thead>
<tr>
<th>ERPA term year t</th>
<th>Reference level (tCO₂e/yr)</th>
<th>Estimation of expected emissions under the ER Program (tCO₂e/yr)</th>
<th>Estimation of expected set-aside to reflect the level of uncertainties associated with the estimation of ERs during the Term of the ERPA (tCO₂e/yr)</th>
<th>Estimation of expected set-aside to reflect the level of possible reversals associated with the estimation of ERs during the Term of the ERPA (tCO₂e/yr)</th>
<th>Estimated Emission Reductions (tCO₂e/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>10,220,558</td>
<td>1,533,084</td>
<td>61,323</td>
<td>398,602</td>
<td>1,073,159</td>
</tr>
<tr>
<td>2019</td>
<td>10,220,558</td>
<td>1,533,084</td>
<td>61,323</td>
<td>398,602</td>
<td>1,073,159</td>
</tr>
<tr>
<td>2020</td>
<td>10,220,558</td>
<td>1,533,084</td>
<td>61,323</td>
<td>398,602</td>
<td>1,073,159</td>
</tr>
<tr>
<td>2021</td>
<td>10,220,558</td>
<td>1,533,084</td>
<td>61,323</td>
<td>398,602</td>
<td>1,073,159</td>
</tr>
<tr>
<td>2022</td>
<td>10,220,558</td>
<td>2,044,112</td>
<td>81,764</td>
<td>531,469</td>
<td>1,430,878</td>
</tr>
<tr>
<td>2023</td>
<td>10,220,558</td>
<td>2,044,112</td>
<td>81,764</td>
<td>531,469</td>
<td>1,430,878</td>
</tr>
<tr>
<td>2024</td>
<td>10,220,558</td>
<td>2,044,112</td>
<td>81,764</td>
<td>531,469</td>
<td>1,430,878</td>
</tr>
<tr>
<td>2025</td>
<td>10,220,558</td>
<td>2,044,112</td>
<td>81,764</td>
<td>531,469</td>
<td>1,430,878</td>
</tr>
<tr>
<td>TOTAL</td>
<td>112,426,138</td>
<td>14,308,781</td>
<td>572,351</td>
<td>3,720,283</td>
<td>10,016,147</td>
</tr>
</tbody>
</table>
14. SAFEGUARDS

14.1 Description of how the ER Program meets the World Bank social and environmental safeguards and promotes and supports the safeguards included in UNFCCC guidance related to REDD+

National framework for environmental and social management

In order to comply with the social and environmental requirement of the World Bank, Mozambique and the ER Program firstly rely on an overall progressive framework, based on an efficient land tenure, environmental and forestry legal framework, in which communities are given a central role. Admittedly, since the Rio Conference on Sustainable Development in 1992, Mozambique has been undertaking an enormous legal and institutional reform movement to improve the country ability to manage the environment and turn it into a more sustainable process. Those progress rely on:

- The adherence to and the adoption of a series of international and regional environmental protection and conservation conventions and protocols, which were described in section 4 and Table 26;
- The approval of a significant set of legislation with direct and indirect implications to environmental protection, which were detailed in section 4 and in Table 25;
- The creation of specific public institutions or strengthening of existing institutions dedicated to both environmental and social management.

As explained in sections 2 and 6, the recent institutional transformation in the management of the environmental components in Mozambique culminated with the establishment of the MITADER and the FNDS. Another important contribution is the recent updating of the Regulation on the Environmental Impact Assessment\(^\text{48}\) (EIA).

The Environmental Impacts Assessment (EIA) Regulation, approved by Decree 54/2015 to regulate the same process

Mozambique has developed comprehensive regulations to cover the EIA process, which are included in the Regulation of the Process for Environmental Impact Assessment. The regulations are in line with the world’s environmental and social management best practices, including World Bank recommendations and procedures. The new Decree (54/2015), which was enacted on the 1st of April 2016, has added a new category A+ to the existing categories defining the scope of the Environmental and Social Impacts Assessment (ESIA) required prior to approval of interventions: the new A+ category, followed by a simple Category A. Whereas simple A projects are expected to be reviewed by the normal review process that

---

\(^\text{48}\) Decree No 45/2004 has been replaced by Regulation 54/2015, as from 1 April 2016 (date of enactment after publication in January 2016).
has been in use, A+ projects should now be reviewed by independent (and more professional) assessors. Under the new Decree, the two A Category projects are required to assess their impact on biodiversity and present and plan to offset any potential biodiversity losses. Screening is done by DPTADER, while projects under Category A and A+ are then supervised by the central MITADER and Category B and C (exemptions) are the domain of the provinces. The new ESIA process in Mozambique is shown in Figure 37.

---

49 Comprising mainly MITADER technicians and those of other sectors (e.g. agriculture, mining, energy, fisheries, water, etc.) seen as relevant in each specific case.
Safeguard plans that have been developed for the ER Program

In addition to this general framework, three specific safeguard documents were developed for the ER Program, with support from the FCPF:

- A Strategic Environmental and Social Assessment (SESA);
- An Environment and Social Management Framework (ESMF);
- A Process Framework (PF)\(^\text{50}\).

They were prepared concurrently with this ER Program Document, as required by indicator 24.2 of the FCPF MF (FCPF, 2016) and completed a range of safeguard documents that had already been prepared for the ER Program associated projects - namely Mozbio and Sustenta projects - see Table 65.

Table 65: List of the safeguard plans that have been developed

<table>
<thead>
<tr>
<th>Safeguard document</th>
<th>State of approval</th>
<th>Public disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safeguard documents approved for the ER Program</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic Environmental and Social Assessment (SESA)</td>
<td>Completed - Pending RSA approval</td>
<td>Not yet publicly vetted</td>
</tr>
<tr>
<td>Environment and Social Management Framework (ESMF) for REDD+ initiatives, MozFip and MozDGM</td>
<td>Approved in January 2017</td>
<td>Available online (English)</td>
</tr>
<tr>
<td>Process Framework (PF) for National REDD+ initiatives, MozFip and MozDGM</td>
<td>Approved in January 2017</td>
<td>Available online (English and Portuguese)</td>
</tr>
<tr>
<td><strong>Other safeguard documents related to associated projects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment and Social Management Framework (ESMF) for the Agriculture and Natural Resource Landscape Management (Sustenta) Project</td>
<td>March 2016</td>
<td>Available online (English)</td>
</tr>
<tr>
<td>Resettlement Policy Framework (RPF) for the Agriculture and Natural Resource Landscape Management (Sustenta) Project</td>
<td>March 2016</td>
<td>Available online (English)</td>
</tr>
<tr>
<td>Pest Management Plan (PMP) for the Agriculture and Natural Resource Landscape Management (Sustenta) Project</td>
<td>March 2016</td>
<td>Available online (English)</td>
</tr>
<tr>
<td>Environment and Social Management Framework (ESMF) for the Mozbio project</td>
<td>July 2014</td>
<td>Available online (English)</td>
</tr>
<tr>
<td>Pest Management Plan (PMP) for the Mozbio project</td>
<td>July 2014</td>
<td>Available online (English)</td>
</tr>
<tr>
<td>Process Framework (PF) for the Mozbio project</td>
<td>July 2014</td>
<td>Available online (English)</td>
</tr>
</tbody>
</table>

\(^{50}\) Both the ESMF and the PF were approved in January 2017, whereas the SESA is still pending RSA approval - this should happen before the application of the ERPA.
The SESA analyzes the strategic objectives and options for REDD+ in Mozambique and assesses them with a complete opportunity and risk analysis, comprising social impact, environmental impact and mitigation measures. It was based on a thorough literature review and on an extensive consultation process conducted at community, district, provincial and national levels in order to ensure a participatory and comprehensive approach and to identify in a transparent way the environmental and social issues that need to be addressed at sub-sector level - see section 5 on consultations. Based on those elements, it provides a synthesis of opportunities, risks, mitigation and enhancement measures for REDD+ strategies in Mozambique, which are crucial for the design of the ER Program.

Following the SESA, the ESMF helped to screen the proposed ER Program interventions, to ensure that they do not negatively affect natural and social environment. More precisely, the ESMF ensures that relevant World Bank Safeguard Policies and GoM environmental and social applicable regulations are strictly adhered to in REDD+ activities implementation – which includes the ER Program (MITADER, 2016d). According to the ESMF, given the nature, scale and scope of the proposed investments, their potential adverse environmental and social impacts are expected to be moderate, reversible and temporary (MITADER, 2016d).

Finally, although the ER Program and MozFip are not expected to trigger resettlement, a PF was conducted in order to ensure that involuntary resettlement is avoided or minimized where feasible, exploring all viable alternative project designs (MITADER, 2016e). The PF mainly deals with the restrictions of access and use of resources to be associated with the project, especially by components dealing with land and forests resources use planning and delimitation (MITADER, 2016e). This is in accordance with the WB broad conception of resettlement, which is not restricted to its usual meaning - that is "physical displacement": it also includes economic displacement, namely adversely affecting people's livelihoods even when they do not have to relocate (MITADER, 2016d).

Compliance with the WB safeguards and promotion of the safeguards included in UNFCCC guidance related to REDD+

As stated in the Mozambique REDD+ National Strategy (MITADER, 2016a), within REDD+ framework, safeguards are guidelines that aim at enhancing the positive impacts and reducing the negative impacts of REDD+ projects’ implementation activities. In this situation, they refer to the various measures that the GoM must adopt to manage potential risks in the design and implementation of the ER Program in Zambézia, in accordance with the World Bank social and environmental safeguards requirements. According to the FCPF Carbon Fund MF (FCPF, 2016a), in order to meet them, the ER Program should:

- Take into account the safeguard policies triggered during readiness preparation and the relevant social and environmental sustainability issues identified during the SESA process;
- Implement the Safeguards Plans prepared in accordance with the ESMF.

The ER Program fully complies with those requirements. The planned interventions and activities of the ER Program were designed in full alignment of the National REDD+ Strategy and taking into account the safeguard policies triggered during readiness preparation and the relevant social and environmental sustainability issues identified in the SESA and the ESMF.
Table 66: Compliance with UNFCCC guidance related to REDD+ (Cancun, 2010)

<table>
<thead>
<tr>
<th>Safeguards for policy approach and positive incentives on issues relating to REDD+ - Appendix I of the Decision 1/CP.16 adopted by the UNFCCC</th>
<th>Compliance of the ER Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions complement or are consistent with the objectives of national forest programs and relevant international conventions and agreements</td>
<td>Yes</td>
</tr>
<tr>
<td>See sections 2.2 &amp; 4.3 &amp; 4.5</td>
<td></td>
</tr>
<tr>
<td>See SESA and ESMF</td>
<td></td>
</tr>
<tr>
<td>Transparent and effective national forest governance structures, taking into account national legislation and sovereignty</td>
<td>Yes</td>
</tr>
<tr>
<td>See sections 2.2 &amp; 2.3 &amp; 4.5 &amp; 6 &amp; 9</td>
<td></td>
</tr>
<tr>
<td>See SESA and ESMF</td>
<td></td>
</tr>
<tr>
<td>Respect for the knowledge and rights of indigenous peoples and members of local communities</td>
<td>Yes</td>
</tr>
<tr>
<td>See sections 4.4 and 5</td>
<td></td>
</tr>
<tr>
<td>See SESA, ESMF and PF</td>
<td></td>
</tr>
<tr>
<td>Full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities</td>
<td>Yes</td>
</tr>
<tr>
<td>See sections 5 &amp; 6</td>
<td></td>
</tr>
<tr>
<td>See SESA and ESMF</td>
<td></td>
</tr>
<tr>
<td>Actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions (...) are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits</td>
<td>Yes</td>
</tr>
<tr>
<td>See section 4.3 &amp; 16</td>
<td></td>
</tr>
<tr>
<td>See SESA, ESMF and PF</td>
<td></td>
</tr>
<tr>
<td>Actions to address the risks of reversals</td>
<td>Yes</td>
</tr>
<tr>
<td>See section 11</td>
<td></td>
</tr>
<tr>
<td>See SESA, ESMF and PF</td>
<td></td>
</tr>
<tr>
<td>Actions to reduce displacement of emissions</td>
<td>Yes</td>
</tr>
<tr>
<td>See section 10</td>
<td></td>
</tr>
<tr>
<td>See SESA, ESMF and PF</td>
<td></td>
</tr>
</tbody>
</table>

Social and environmental issues and risk mitigation measures

According to the ESMF, seven of the 10+2 World Bank Operational Safeguards Policies are expected to be triggered during REDD+ and the ER Program implementation - see Table 67.

Table 67: World Bank safeguard policies triggered by ER Program

<table>
<thead>
<tr>
<th>World Bank Operational Safeguards Policies</th>
<th>Triggered by ER Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment (OP/BP 4.01)</td>
<td>X</td>
</tr>
<tr>
<td>Pest Management (OP 4.09)</td>
<td>X</td>
</tr>
<tr>
<td>Involuntary Resettlement (OP/BP 4.12)</td>
<td>X</td>
</tr>
<tr>
<td>Natural Habitats (OP/BP 4.04)</td>
<td>X</td>
</tr>
<tr>
<td>Forests (OP/BP 4.36)</td>
<td>X</td>
</tr>
<tr>
<td>Physical Cultural Resources (OP/BP 4.11)</td>
<td>X</td>
</tr>
<tr>
<td>Indigenous Peoples (OP/BP 4.10)</td>
<td>-</td>
</tr>
<tr>
<td>Safety of Dams (OP/BP 4.37)(^{51}) - preemptively</td>
<td>X</td>
</tr>
<tr>
<td>Projects on International Waterways (OP/BP 7.50)</td>
<td>-</td>
</tr>
<tr>
<td>Projects in Disputed Areas (OP/BP 7.60)</td>
<td>-</td>
</tr>
</tbody>
</table>

\(^{51}\) Despite the project’s association with agricultural and forestry development, no major water related infrastructure is expected, nevertheless the OP/BM 4.37 on Safety of Dams is triggered mainly as a precautionary measure.
The ESMF has made provision to address potential concerns afferent to OP/BP 4.04 (Natural Habitats), OP/BP 4.36 (Forest), including possible impacts under OP/BP 4.11 (Physical Cultural Resources) based on “chance findings”. The PF prepared under the related MozBio Project covering the PAs in the program area was updated to meet the requirements of the Involuntary Resettlement (OP/BP 4.12) Safeguard Policy requirements related with ways of dealing with restrictions of access and use of natural resources by local people. The ESMF also contains elements of an Integrated Pest Management Plan (IPMP) to satisfy OP 4.09 requirements to streamline the best ways of dealing with the potential use of pesticides.

Environmental Assessment (OP/BP 4.01) - According the ESMF, all indications are that most of the activities of the ER Program will fall either under Category B or C as defined by the World Bank, meaning that: (i) the possible impacts of the ER Program are site-specific and easier to deal with; (ii) few if any of them are irreversible; and (iii) in most cases, appropriate mitigation measures can be readily designed.

In order to comply with OP/BP 4.01, the ER Program comprises the preparation and approval of a specific ESMF and a PF. The SESA is still under revision but should be approved before the ER-PD final draft submission. All the projects comprised in the ER Program also were subject to specific safeguard plan, listed in Table 65.

Pest Management (OP 4.09) - As stated in the ESMF, the MozFip and MozDGM projects - which are included in the ER Program - trigger OP 4.09 the World Bank Safeguard Policy on Pest Management, since certain forest operations foreseen under those projects - and under the ER Program - have the potential of being associated with the use of pesticides.

In order to comply with OP/BP 4.09, an Integrated Plan Management Plan (IPMP) was prepared to manage potential pest problems that may arise in the course of the ER Program implementation and to help ensure that the use of all pesticides, insecticides, herbicides, chemical fertilizers and other chemicals associated with the ER Program will be handled appropriately and in accordance with World Bank Operational Policy 4.09.

In particular, the ER Program will support agricultural development and post-harvest pest control to minimize post-harvest pest damage. Procurement of pesticides will not be financed until it becomes evident that local capacity exists to adequately manage their environmental and social impacts in compliance with OP 4.09, particularly with regards to health and safety aspects that are directly linked to human health conditions affecting women, the poor and most vulnerable groups of the community, such as toddlers, elderly and handicapped. More details on the IPMP are provided in the ESMF final draft (see MITADER, 2016d).

Involuntary Resettlement (OP/BP 4.12) - At this stage, it should be noted that land acquisition for public interest will systematically be avoided by the ER Program, as will all other activities discovered during subproject screening that might require resettlement or compensation. All the ER Program planned activities aim to be achieved through voluntary agreements with communities, interest groups or individuals according to specific provisions, rules and principles details in the ESMF.

However, the ER Program triggers OP/BP 4.12 of the World Bank Safeguard Policy on the

52 Applying to “programs/projects with potential adverse environmental and social impacts on human populations or environmentally and socially important areas, including wetlands; forests, grasslands, and other natural habitats” (category B) and “programs/projects likely to have minimal or no adverse environmental and social impacts” (category C).
basis that some of the ER Program planned activities may restrict communities from accessing and using natural resources in designated protected area: although physical resettlement will not be supported by the ER Program, economic displacement (restricted access to and use of natural resources) is anticipated, which may be caused by activities in the Gilé National Reserve and its buffer zone.

In order to comply with OP/BP 4.12, and as previously stated, an amended version of the PF for MozBio was prepared concurrently with the ESMF. Both documents were approved in January 2017 - see Table 65. This updated PF included lessons-learnt from the MozBio implementation of the PF and results of REDD+ public consultation - see section 5. Public consultation meetings were organized, during which the updated PF and clarification of the safeguards documents were disclosed and discussed.

**Natural Habitats (OP/BP 4.04)** - Accordingly to OP/BP 4.04 of the World Bank Safeguard Policy, the critical natural habitat to be considered by the ER Program are: legally protected areas, wetlands, riparian forests, forests with known high biodiversity value, sacred forests and areas with slopes of more than 25%. These formations must represent the program’s Negative List of natural habitats to be negatively affected. Since the ER Program area extends over the Gilé National Reserve (GNR), the ER Program triggers OP/BP 4.04 of the World Bank Safeguard Policy: its impact may extend to natural habitats outside and inside protected areas.

In order to comply with OP/BP 4.04, the ESMF recommends a series of actions to ensure that adequate measures are taken to minimize the negative impacts that may occur, even where interventions will take place in conservation areas.

First, on the Gilé National Reserve, the main activities will be institutional support, technical assistance to forest sustainable management and law enforcement strengthening.

Second, no conversion of critical natural habitat will be financed and, as stated in the ESMF, eventual conversion of non-critical natural habitats (or fragments of non-natural habitats) or degraded natural habitats (including Miombo forests), due to activities on the ground (e.g. plantation, agro-forestry) must be with the objective to enhance sustainable development of the area/community, improving landscape and land use sustainable management. They must also include restoration of degraded areas as mitigation or compensation measures, hence enhancing ecosystem services. For the promotion of forest plantations and agro-forestry, degraded areas (including degraded Miombo forest) will be prioritized through the use of GIS-based tools and participatory land use approaches.

Finally, all plantations and agro-forestry activities considered under the ER Program must adopt a simplified management plan following internationally recognized forestry good practices to mitigate impacts and enhance environmental value.

**Forests (OP/BP 4.36)** - As previously stated, the ER Program aims at reducing deforestation and enhancing the environmental contribution of forested areas. Of particular interest for the ER Program (in particular for activities comprised in MozFip) is the fact that the Bank does not finance plantations that involve any conversion or degradation of critical natural habitats.

Although, in the last few years, there have been episodes of unsustainable use of forests resources - including exclusion of local people from benefiting from it - since its establishment in January 2015, the MITADER has been at the forefront of counteracting this tendency. The ER Program will make concerted efforts to demonstrate that negative
practices can be reversed and that forests resources can be used in an inclusive and sustainable manner and ultimately meet the core objectives of REDD+.

At this stage, it should be specified that the ER Program does not promote harvesting operations, but rather promotes plantations and agro-forestry. Only the activities pertaining to natural forests management (and not to plantation or agro-forestry activities) should be subject to OP 4.36’s certification requirement. As part of the ER Program activities, technical assistance is being proposed on natural forest management, including to private sector operators towards obtaining forest certification (hence, in line with OP 4.36 requirements).

In addition, as stated in the ESMF, the FNDS has prepared maps, including for Zambézia, to identify potential sites for plantations ("go" areas, in opposition to "no-go" areas) based on satellite images - see Annex 8: Geographic prioritization of forest plantation and agro-forestry areas for MozFIP Although the “go” areas do not contain significant forest cover (other criteria are: accessibility, proximity to forest fragments, and precipitation), due to pixel technical consideration (30 meters per 30 meters) there is a possibility of some forest fragments in these areas; hence, before any activity to be implemented, an on-the-ground High Conservation Value Forests (HCVF) assessment will be made by the service provider (or safeguard specialist) and will be monitored by the government. The “no-go” areas are protected areas, or areas with significant forest cover, in which no plantations can be forecasted.

Physical Cultural Resources (OP/BP 4.11) - Although no important physical cultural resources do exist in the ER Program area or are expected to be affected by the ER Program, a “Chance Find Procedure” is provided for in the ESMF. If an important artefact is found during ER Program implementation, the related construction activity should be stopped and the responsible Mozambican authorities be warned and involved in an investigation of the site. This especially includes the chance to find forests that have special value for local communities, groups or families in the ER Program area.

Safety of Dams (OP/BP 4.37) - Despite the ER Program’s association with agricultural and forestry development, no major water related infrastructure is expected; nevertheless the OP/BM 4.37 on Safety of Dams is considered as triggered mainly on a precautionary note. As stated in the ESMF, precautionary measures need to be taken under this ER Program to ensure that where dams will be called upon, the defined safeguard regulations are ready to be put in place.

In any case where dams will be involved under this or other directly related programs/projects, these will be limited to small irrigation schemes upgrade and maintenance, rehabilitation of water storage facilities, and other types of priority water control structures that can be expected to cause minimal adverse impacts in the area. All precautions will still need to be taken not only to deal with the physical aspects but also the biological and social, such as maintaining environmental flows to preserve the health of the ecosystems and to avoid disturbance to the social activities (water for humans, livestock, etc.), downstream the infrastructures including avoiding interfering negatively with people’s life styles and assets.

53 Archeological sites, special architecture, important cemeteries, forests or where unique immaterial cultural resources.
Implementation of safeguard plans in the course of the ER Program

The ER Program will be fully aligned with the recommendations formulated in the SESA, the ESMF and the PF documents, which have been conceived as strategic safeguards umbrellas to ensure that environmental and social considerations are integrated in the formulation of the REDD+ Strategy and in all other REDD+ related programs, including the Zambézia ER Program. In particular, the ESMF sets out the structures and procedures for undertaking environmental and social due diligence and for the management of future projects, policies and activities through which the refined REDD+ strategy is implemented.

Principles and rules for the implementation of safeguard policies

Basic safeguard principles and requirements will be applied throughout the expected lifetime of the proposed ER Program and will be taken into account in the definition and implementation of additional projects (MITADER, 2016a; 2016c). They were defined in the ESMF and are listed in Table 68. Those principles form an efficient social and environmental screening process that will help (i) determine if activities are likely to have potential negative environmental and/or social impacts; (ii) determine the level of environmental and social work required, including whether an ESIA/ESMP is required or not; (iii) determine appropriate mitigation measures for addressing adverse impacts; (iv) incorporate mitigation measures into the activities financed; (v) indicate the need for preparation of Community Development Action Plans in line with the PF; (vi) facilitate the review and approval of the subproject proposals; and (vii) create, enhance or protect the same type of natural resources at another suitable and acceptable location, compensating for lost resources.

Table 68: Safeguard principles and requirements for ER Program implementation (ESMF)

| Systematic procedure of participatory screening for project sites and activities with environmental and social considerations |
| Step-by-step procedure for predicting the main potential environmental and social impacts of the planned activities and interventions |
| Typical environmental and social management plan for addressing negative externalities during activities implementation |
| Step by step monitoring and evaluation system for implementation of mitigation measures |
| Capacity building measures for environmental and social planning and monitoring of the activities |
| Budget to ensure that adequate resources are available, especially for the preparation and implementation of potential Environmental and Social Impact Assessments (ESIAs), Environmental and Social Management Plans (ESMPs) and Resettlement Action Plan (RAPs) |

Where relevant, site specific ESIA with a budgeted Environmental and Social Management Plan (ESMP) will be prepared so that the planned activities (i) do not result in adverse environmental and social impacts on resources or areas considered as sensitive; (ii) prevent the occurrence of negative environmental and social impacts; (iii) prevent any future actions that might adversely affect environmental and social resources; (iv) limit or reduce the degree, extent, magnitude or duration of adverse impacts by scaling down, relocating, redesigning elements of the project; (v) repair or enhance affected resources, such as natural habitats or water resources, particularly when previous developments have resulted in significant resource degradation; (vi) restore affected resources to an earlier (and possibly
more stable and productive) state, typically ‘background/pristine’ condition; and (vii) create, enhances or protects the same type of resources at another suitable and acceptable location, compensating for lost resources, including involving people potentially or actually experiencing restrictions of access to natural resources in protected areas in planning alternative livelihoods activities as defined under WB OP/BP 4.12 on Involuntary Resettlement.

As part of the ESMF extensive publicity, awareness creation, capacity building, environmental and social clearance continuous assistance on the ground will also be given prominent position in the entire ER Program, projects and subprojects cycles. Community, landholders, micro and small enterprises and forest operators/concessionaries candidates will be carefully identified, trained and assisted to implement the ER Program activities, accordingly with the principles defined by the ESMF and listed in Table 68.

**Arrangements for the implementation and monitoring of safeguard plans**

As stated in section 6, safeguards implementation will build on the existing structure already in place in the MITADER and the FNDS, which has been recently strengthened in safeguards capacity at central level. These specialists will team up with the specialist of the LCU at provincial scale, to ensure that the ER Program implementation respect the environmental and social requirements, and will work closely with a focal point for environment and social issues identified within Zambézia DPTADER. The FNDS team will count on MITADER support at both central and provincial levels and relevant ministries for the timely and adequate handling of the environmental, social and communication dimensions of the Program throughout its life cycle. These staff will be trained by WB Safeguards Specialists, and in close collaboration with MITADER.

The safeguard specialists at central level and landscape level will have the overall responsibility for coordinating and monitoring implementation of the ESMF. They will ensure that: (i) all critical people/entities (at local, district and provincial) levels have the necessary knowledge and skills to perform their duties; (ii) all project activities are implemented per the environmental and social management requirements of the ESMF and PF and, where applicable, specific ESMPs; and (iii) problems arising during implementation are addressed early enough to avoid any spill-over that could subsequently hinder the outcomes of the ER Program - see next sub-section of FGRM.

**Table 69: indicators of food safeguards implementation (National REDD+ Strategy)**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communities’ participation and involvement</td>
<td>Compliance with the GoM guidelines and International Conventions on communities’ participation and involvement</td>
</tr>
<tr>
<td>Validation process of the Environmental Management Plan</td>
<td>Compliance with environmental licensing requirements</td>
</tr>
<tr>
<td>Forests management plans</td>
<td>Compliance with the requirements of forest management plans in the areas in which the activities are implemented</td>
</tr>
</tbody>
</table>
Transparency and good governance

| Poverty Reduction and Benefit Sharing | The economic and social benefits generated by REDD+ programs and projects are proportionally shared between stakeholders, with special attention to women integration and gender issues |
| Land use plans | Compliance with land use plans, mapping and zoning, including the zoning of specific areas - such as conservation areas (GNR) |
| Land Use Rights and Forest Resources: | Compliance with the national legal framework |

Monitoring will therefore be fundamental to ensure that the objectives set forth in the ER Program and the safeguard plans are being achieved satisfactorily and, where there are nonconformities, timely corrective action can be taken. The components recognized as relevant indicators of safeguards implementation are set in the National REDD+ strategy (MITADER, 2016a) and listed in Table 69. The monitoring of the ER Program compliance with the risk mitigation measures during its implementation will be based on specific Mitigation Risk Mechanisms, including the PMRV, the SIS and the FRGM (described in the next sub-sections). The participation of communities in those mechanisms is central, especially in the PMRV.

**Participatory (community-based) Measuring, Reporting and Verification (PMRV)**

It is explicitly referred to in Mozambique REDD+ National Strategy that the standards, procedures and guidelines for monitoring and measuring REDD+ activities and results in Mozambique should be prepared considering the strategic objective that aims to ensure the active participation of local communities.

In this aim, the ER Program builds on a complete MRV system that was described in section 6 (institutional arrangements) and section 9 (approach for measurement, monitoring and reporting) and which is based on a participatory, or community-based, approach (PMRV). In this scheme, although the monitoring of datasets is realized at national level, on field information will be collected as a priority: at the lowest level of this MRV system, relevant forest information and socio-economic and environmental information will be collected at community level. In addition, projects or interventions will have their own monitoring systems to collect relevant information for feeding the Provincial and National MRV systems. The information will include for instance data reported by REDD+ projects (forest inventories, project areas, detailed mapping of LULC classes, etc.), data reported by M&E systems (planted areas, etc.) or other data (biomass surveys, etc.) (FNDS, 2017c).

Therefore, this PMRV is planned as an innovative participatory approach that aims at engaging various stakeholders, including forest-dependent communities, in monitoring and verification work, including for the implementation of safeguards plans. It implies to collect local carbon stock data to improve carbon accounting at the national level (in compliance with international standards) with the objective of increasing the participation of local communities.

54 Those mechanisms will be tested in 2018 in a pilot project covering 15 districts in Zambézia and Cabo Delgado.
communities to maximize the co-benefits of REDD+ (FNDS, 2017a). As a consequence, the PMRV will contribute to the good implementation of the social and environmental safeguard during the ER Program development. This PMRV is actually designed so as to include useful information for the definition of environmental indicators related to the reduction of deforestation and forest degradation and related emissions, economic and social indicators linked to integrated rural development, as well as the specific indicators of environmental and social safeguards, as set out in the ESMF.

14.2 Description of arrangements to provide information on safeguards during ER Program implementation

First, it should be noted that the approved safeguard instruments are available online on the Mozambique REDD+ website. Second, as explained in section 5, their design has been part of an extensive consultation process in Mozambique, which is continuous – see section 5 for more details; it is also described in the ESMF document. Finally, information on safeguards will also be achieved thanks to the PRMV and the REDD+ Safeguards Information System (SIS), developed in compliance with the principles and standards applicable to REDD+ implementation. The SIS is one of the key REDD+ information systems for REDD+ activities within the MRV system.

The Safeguard Information System (SIS)

As required in Decision 1/CP.16 adopted by the UNFCCC, Mozambique has developed a full range of key elements for the implementation of the ER Program, including a Safeguards Information System (SIS) that will be implemented to provide information on how safeguards are handled and respected throughout the implementation of the ER Program. This is a necessary requirement to obtain payment by results.

Functioning and principles

The functioning of the SIS is expected to be simple, accessible, inclusive, transparent, auditable, and comprehensive and to respect national legislation. Admittedly, it is still an incipient process in Mozambique that demands a coordinated structure to enable the full participation of stakeholders (community, private sector, government and civil society) who are expected to take part in the process of collecting information (FNDS, 2017c). In order to do so, the SIS will be based on the following principles: (i) compliance with legislation and good governance; (ii) promotion of transparency and public and social responsibility; (iii) respect for local culture and traditions; (iv) significant participation of affected people and stakeholders (especially the most vulnerable); (v) act as a platform for hearing out grievances and act as a conflict resolution mechanisms; (vi) protection and conservation of forests, contributing to the improvement of the multiple functions of forests.

Methodology

The methodology to be used for the monitoring process of indicators includes interviews,

---

55 The other elements required by the Decision 1/CP.16 adopted by the UNFCCC are the (i) national REDD+ strategy (approved by the GoM in November 2016); (ii) the national forest reference emission level (REL) and a forest reference level, as well the (iii) national forest monitoring system (currently being finalized).
questionnaires, direct observation and public consultations whenever necessary. Continuous dissemination programs will be part of the process to enable stakeholders to be actively involved, making an efficient and transparent implementation of REDD+ projects and initiatives, including in the ER Program area (FNDS, 2017c). The collection and recording of information for the SIS will be the responsibility of the FNDS and DINAF at central level. Focal points have been identified in the relevant directorates. They will send the requested information to the responsible team at central level according to the schedule indicated in Table 70, before registration on the web platform - see Annex 9 - Characteristics of the Web portal for MRV REDD+ in Mozambique.

For information related to cultural heritage indicator, data will be collected at the local level, with the local community or administrative and district councils, as well as service providers. The information must be validated at district level, with the community management officers in conservation areas (namely, for the ER Program, the GNR) being responsible for forwarding the information at central level, along with the Forestry Technical Assistants of the FNDS at the landscape level and with the support of DPTADER Community Officers.

The system will rely on the Web Portal for MRV REDD+ in Mozambique, which is being designed by the MRV Unit in the FNDS - technical characteristics of the portal are detailed in Annex 9 - Characteristics of the Web portal for MRV REDD+ in Mozambique. The SIS indicator registration platform will be updated on a biannual basis.

**List of SIS indicators**

The list of SIS indicators presented Table 70 is the consolidated proposal prepared after consulting with various institutions involved in the process, reviewing the technical notes for preparing the Project Appraisal Document (PAD) of MozFIP and MozDGM projects, as well as bibliographical revision with special attention to the guide of good practices to identify areas of high conservation value. The seminars for discussion and harmonization of safeguards indicators for SIS involved a technical team from the forestry, agriculture, rural development, conservation, and energy and environment sectors. This list if composed of indicators that have been proven to be easily monitored and optional indicators that could be monitored if possible and when data exist - not on an automatic basis.

<table>
<thead>
<tr>
<th>Item</th>
<th>Sub item</th>
<th>Description</th>
<th>Scale</th>
<th>Frequency</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVERNANCE AND TRANSPARENCY Transparency</td>
<td>Record of public consultations linked to land tenure</td>
<td>Landscape and communities</td>
<td>Biannual</td>
<td>DINAT, SPGC, FNDS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Publication of records of FGRM files</td>
<td>Landscape</td>
<td>Annual</td>
<td>FNDS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Report on the evaluation of forest operators</td>
<td>National</td>
<td>Every 2 years</td>
<td>DINAF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Publication of all relevant documentation (laws, decrees, etc.)</td>
<td>National, Landscape</td>
<td>Continual</td>
<td>FNDS, DINAF, ANAC, DINAS</td>
<td></td>
</tr>
</tbody>
</table>
### ENVIRONMENT

<table>
<thead>
<tr>
<th>Compliance with norms and procedures (law compliance, environmental licenses)</th>
<th>Environmental licenses issued</th>
<th>National, Landscape</th>
<th>Annual</th>
<th>DINAF, DPTADER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest concessions permits issued</td>
<td>Forest concessions permits issued</td>
<td>National, Landscape</td>
<td>Annual</td>
<td>DINAF, DPTADER</td>
</tr>
<tr>
<td>Management plans existing</td>
<td>Management plans existing</td>
<td>National, Landscape</td>
<td>Annual</td>
<td>DINAF, ANAC</td>
</tr>
<tr>
<td>Environmental Management Plans</td>
<td>Environmental Management Plans</td>
<td>Landscape</td>
<td>Annual</td>
<td>DINAB, DPTADER</td>
</tr>
<tr>
<td>Charcoal production licenses</td>
<td>Charcoal production licenses</td>
<td>Landscape</td>
<td>Annual</td>
<td>DINAF, DPTADER</td>
</tr>
</tbody>
</table>

#### Forest

<table>
<thead>
<tr>
<th>Area of planted forest established (Reforestation)</th>
<th>Area of planted forest established (Reforestation)</th>
<th>National, Landscape</th>
<th>Annual</th>
<th>DINAS, DINAF, DPTADER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of forest concessions under sustainable forest management</td>
<td>Area of forest concessions under sustainable forest management</td>
<td>Landscape</td>
<td>Annual</td>
<td>DINAF</td>
</tr>
</tbody>
</table>

#### Biodiversity

<table>
<thead>
<tr>
<th>Registration of fragile ecosystems identified and preserved</th>
<th>Registration of fragile ecosystems identified and preserved</th>
<th>Landscape</th>
<th>Annual</th>
<th>DINAT, ANAC, FNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of endangered species (fauna and flora)</td>
<td>List of endangered species (fauna and flora)</td>
<td>National, Landscape</td>
<td>Annual</td>
<td>IUCN, DINAB</td>
</tr>
</tbody>
</table>

### SOCIO CULTURAL AND ECONOMIC

<table>
<thead>
<tr>
<th>Registry of existing and respected cultural rituals</th>
<th>Registry of existing and respected cultural rituals</th>
<th>Landscape, Communities</th>
<th>Annual</th>
<th>SDAE (district consultation council, local community and local population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registry and preservation of sacred sites</td>
<td>Registry and preservation of sacred sites</td>
<td>Landscape, Communities</td>
<td>Annual</td>
<td>SDAE (district consultation council, local community and local population)</td>
</tr>
</tbody>
</table>

#### Land tenure

<table>
<thead>
<tr>
<th>Number of certificates issued</th>
<th>Number of certificates issued</th>
<th>Landscape, Communities</th>
<th>Bi-annual</th>
<th>DINAT, SPGC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of individual DUAT issued</td>
<td>Number of individual DUAT issued</td>
<td>Landscape</td>
<td>Bi-annual</td>
<td>DINAT, SPGC</td>
</tr>
</tbody>
</table>

#### Training

<p>| Number of community members and government involved in capacity building training in the context of reduction of deforestation (per topic, age range and sex) | Number of community members and government involved in capacity building training in the context of reduction of deforestation (per topic, age range and sex) | Communities | Annual | DINAF, FNDS |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
<th>Location</th>
<th>Frequency</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>Number of smallholders who have adopted agro-forestry systems</td>
<td>Landscape, Communities</td>
<td>Annual</td>
<td>DINAF, DINAS</td>
</tr>
<tr>
<td></td>
<td>Number of community delimitation (including data on population)</td>
<td>Landscape, Communities</td>
<td>Annual</td>
<td>DINAT</td>
</tr>
<tr>
<td><strong>OPTIONNAl INDICATORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>Record of projects using chemical products</td>
<td>Landscape</td>
<td>Annual</td>
<td>FNDS</td>
</tr>
<tr>
<td></td>
<td>Record of water course pollution due to excessive use of chemical products</td>
<td>Landscape</td>
<td>Annual</td>
<td>FNDS</td>
</tr>
<tr>
<td></td>
<td>Record of wildfires (area)</td>
<td>Landscape</td>
<td>Bi annual</td>
<td>FNDS</td>
</tr>
<tr>
<td></td>
<td>Areas where licensed charcoal producers have adopted improved production techniques</td>
<td>Landscape</td>
<td>Annual</td>
<td>FNDS</td>
</tr>
<tr>
<td></td>
<td>Communities aware about the FGRM (including population data)</td>
<td>Landscape, communities</td>
<td>Bi annual</td>
<td>FNDS</td>
</tr>
<tr>
<td></td>
<td>Record of land conflicts and means of conflict resolution</td>
<td>Landscape, communities</td>
<td>Bi annual</td>
<td>FNDS</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>Number of charcoal producers benefiting from improved techniques training</td>
<td>Landscape</td>
<td>Bi annual</td>
<td>FNDS</td>
</tr>
<tr>
<td></td>
<td>Number of beneficiaries of safeguards training (with distinction between government, private sector, communities)</td>
<td>National</td>
<td>Annual</td>
<td>FNDS</td>
</tr>
</tbody>
</table>
14.3 Description of Feedback and Grievance Redress Mechanism (FGRM) in place and possible actions to improve it

Assessment of existing FGRM (including customary FGRM)

**FGMR for REDD+ and ER Program based on updated existing mechanisms**

Accordingly with criterion 26.1 of the FCPF MF (FCPF, 2016a), an assessment of existing Feedback and Grievance Redress Mechanisms (FGRMs), including any applicable customary FGRMs, was conducted and made public. Admittedly, the FGRM to be applied to the ER Program is based on existing FGRMs, including those that were previously established for the Sustenta and MozBio projects - to handle issues related to protected areas such as the GNR and its buffer zone.

During readiness phase, theses mechanisms were tested, analyzed and discussed during public consultations at national level, described in the SESA and the ESMF. Those mechanisms were finally updated for REDD+ initiatives, which include the ER Program.

**Planned actions to improve FGRM for ER Program**

The updated FRGM for REDD+, including for the ER Program, has firstly been described in the PF for REDD+ initiatives, MozFip and MozDGM (MITADER, 2016e). Its overall scheme is still being improved, in consultation with relevant stakeholders and under the lead of the MRV Unit in the FNDS (FNDS, 2017c; FNDS, 2017d). Its main features, although they still have to be approved and tested, are already well defined. They are described below.

*The complete PRMV system for REDD+ and the ER Program, including the SIS and FGRM, will tested be as a pilot in 2018, in 15 districts of the provinces of Zambézia and Cabo Delgado. The FGMR has been designed to work on the REDD+ MRV web platform (see annex 9), which will be tested at the same time.*

Preventive measures to avoid conflicts
Justification and potential complaints

As stated in the PF (MITADER, 2016e), conflicts and grievances generally arise from poor communication, inadequate or lack of consultation, inadequate flow of accurate information or restrictions that may be imposed on people through the implementation of REDD+ projects activities. In the case of the ER Program, grievances may be generated by:

- Mistrust generated by activities aimed to address anti-poaching and illegal logging and measures of Protected Areas (PA) and Forestry management, where community members may be caught between conflicting interests. This may generate tensions within the communities themselves and with PA rangers, Environmental Police (AQUA), Forestry Inspectors and forest concessionaires;

- Illegal exploitation of natural resources in which communities may be involved;

- Land speculation that could be generated by project activities related to forest plantations. This could undermine the transparency of the land acquisition process. Customary law and traditional systems on decision making could also favor traditional leaders’ personal interests. This situation should nevertheless be avoided by the planned process of land tenure regularization under the MozFip and Sustenta projects, as part of the ER Program. Neither population displacements nor expropriation are forecasted in the ER Program.

Preventive measures in the ER Program

As preventative measures, awareness rising about the activities related to the ER Program will be continued throughout their implementation, in order to reduce misunderstanding and grievances. In particular, the consultations that were already started during Readiness phase will be carried on. This will also be enhanced by the action of the Zambézia MSLF.

The participatory land use planning process (see ERI-A2 - section 4.3), forest management planning and subsequent participatory action plan formulation - including through PMRV - will help identify potential conflicts and involve potentially affected people.

Training for technical teams, CGRNs and local leaders in conflict management will also assist in minimizing the negative impact of conflicts. To empower communities, they will be involved in awareness-raising and training concerning their rights and obligations, how to obtain legal advice and representation, and how to seek redress against what they regard as unfair practices by investment partners, forest inspectors (fiscais) or others.

Main features of the ER program FGRM

Institutional arrangement for the FGRM

Central level - The FGRM management is the responsibility of MITADER / FNDS, who should ensure implementation with the support of central, provincial and local government as well as service providers of the ER Program activities (FNDS, 2017d). The FNDS is therefore defined as the Project Authority in terms of all grievances recourses related to the ER Program - with the exception of those related to the MozDGM project56. At central level, the

---

56 Although the MozDGM is a project within the initiatives of the Forest Investment Program, the implementation of if FGRM is the total responsibility of the National Executing Agency (NEA), entity responsible for the technical and administrative execution of said project. The NEA will report to the FNDS every six months on the FGRM.
safeguards team will be supported by:

- Institutions (NGOs, universities, civil society institutions, etc.) and/or qualified and independent technicians with experience in mediation and/or conflict resolution to assist in cases that could not be resolved at community level (see Box 9);

- A small advisory fund for highly vulnerable claimants who need support to present their cases;

- A specific platform for the FGRM, as part of the SIS (Safeguards Information System) and of the MRV web platform of REDD+ (see Annex 9 - Characteristics of the Web portal for MRV REDD+ in Mozambique

- A fund to hire the services of the independent mediator if necessary (level 3 of resolution - see Box 9).

**Provincial and local levels** - In Zambézia, the focal points for the FGMR at provincial level are the Safeguard officers of the LCU as well as the community managers at DPTADER level. They are responsible for receiving, processing, investigating and monitoring the complaint resolution process. For complaints that can not be resolved at this level, safeguards officers and community officials will be responsible for channeling them to other decision-making bodies and keeping the complainants informed (FNDS, 2017d).

A diagrammatic presentation of the possible communication channels for presenting complaints and the points of their potential resolution and communication back to the complainants is presented in Figure 38 (FNDS, 2017e). The MSLF holds a significant place in the process to address grievances that cannot be resolved at local level, with some form of mediation-based function.
Complaints management steps

Three levels of complaints management have been identified for the ER Program FGRM. They are detailed in Box 9 and summarized Figure 39. Because communities substantially rely on their own internal legal and regulatory systems that work in parallel with the formal systems, those should be primarily preferred: as shown in Figure 38 and in Figure 39, any treatment of complaints and conflicts arising in the implementation of the ER Program will primarily involve local communities’ influential leaders, CGNRs and associations in providing a first level of listening and informal resolution. Representatives of local communities include territorial leaders (régulos, muenes), their subordinates and the local government structures, political party secretaries and village presidents. In some areas, local influence leaders who are trusted, especially by women, may in practice receive and redress local issues; these may include religious leaders, teachers, interest group leaders, community health practitioners and local extension workers. Some land and resource-use related conflicts may be resolved by traditional leaders.

Box 9: Level of FGRM complaint resolution in the FGMR

Level 1: Community level

If a friendly resolution cannot be reached, the case will move to the first level of resolution. At this level, the mediators will be:

- Community Court, for disputes arising between individuals or groups of individuals;
- District Service for Economic Activities (SDAE), for disputes arising between individuals or groups of individuals or community and service provider or ER Program staff;
- NGO not attached to the ER Program, for disputes arising between individuals or groups of individuals or the community and governmental institutions.

The focal point will inform the relevant mediator of the nature of the complaint, the results of the investigations and the proposed solutions and results. The mediator will attempt to reach an amicable solution within 15 working days or other period agreed by the parties.

If the claimant accepts the proposed solution, the focal point prepares a report that has to be signed by the parties. If the claimant does not accept the proposed solution, the focal point prepares a report explaining the reasons of the refusal and refers the case to the FNDS Safeguards Department (Level 2).

**Level 2: Technical level (FNDS - Department of Safeguards)**

The FNDS safeguards department has all the information available in the REDD+ MRV platform system to carry out the analysis of the complaint and will assign the processing of each complaint to a safeguards officer. At the request of the complainant, or if considered as necessary, the safeguards officer responsible for the case will arrange a site visit to hear the parties involved and propose a solution. The FNDS safeguards department will have a maximum of 20 days to report on its findings.

If the claimant accepts the proposed solution, the responsible safeguards officer prepares a report that has to be signed by the parties. If the claimant does not accept the proposed solution, the responsible safeguards officer prepares a report explaining the reasons of the refusal and refers the case to level 3.

**Level 3: Independent (neutral and independent mediator)**

Most complaints are expected to be concluded by friendly solution before reaching this last resort level. However, if the complainant is not satisfied with the solution proposed by the FNDS team, he may present his case to an independent mediator.

In this case, the FNDS safeguards officer responsible for the complaint will prepare a summary report (including the origin of the complaint, the results of the investigations and detailing the previous steps) for the independent mediator. The mediator will analyze this information and propose a solution. If necessary, it may call the parties involved to a meeting or request additional documentation or investigations. The independent mediator will have a maximum of 20 working days to deliberate.

If the claimant accepts the proposed solution, the FNDS safeguards officer responsible for the case prepares a report that has to be signed by the parties. If the claimant does not accept the proposed solution, the FNDS safeguards officer prepares a report explaining the reasons of the refusal and the focal point informs the complainant of his rights and the means of appeal against the mediator's decision in court.

**Judicial system**

The judicial appeal is not part of the FGRM but is an available option that the claimants must be aware of from the beginning of the process. The use of judicial remedies should be avoided as much as possible due to delays in resolving cases. If community interests are nullified or invalidated by other government actions, there are legal provisions to appeal to a
higher level, such as national directors and ministers. Finally, all citizens have the right to refer their complaints to the Public Prosecutor, the responsible institution to ensure that the law is correctly applied.

FGRM procedures for the ER Program

Accordingly with criterion 26 of the FCPF MF (FCPF, 2016a), and as shown in the description of its procedures (see below), the FGRM for REDD+ and the ER Program will demonstrate: legitimacy, accessibility, predictability, fairness, rights compatibility, capability to address a range of grievances - including those related to benefit-sharing arrangements – and transparency. FGRM procedures are set in the PF and have recently been updated by the MRV unit in FNDS - see FNDS (2017e).

Step 1: Gather suggestions and complaints

The FRGM fully respects the criterion of accessibility and fairness. Any person or group of people who has a relationship with the ER Program or is affected by its activities may submit a query or complaint, may they be communities, service providers, NGOs, local governments or any individual or group affected. Suggestions and anonymous complaints are also accepted. In order to gather suggestion and complaints, four main channels will be used:

- The use of a "Green Line" (free call): claimants will receive a text message, email or receipt in order to follow up on their complaint;
- The use of specific forms (see Annex 10 - Grievance form example for the FGRM that will be placed in strategic places in order to be easily accessed (headquarters of
Conservation Areas, CGRN headquarters, schools) where a responsible authority (president, secretary, teacher, etc.) will be identified;

- Community meetings: Complaints may also be presented at meetings with traditional community leaders or CGRNs. A secretary must be appointed to record the suggestions and complaints.
- Personally: the FGRM team, community officials, service providers, NGO staff and local government technicians will be able to assist people with difficulties writing or without access to the phone to complete the forms and submit complaints.

**Step 2: Registration and Categorization of suggestions and complaints**

Queries and complaints will be recorded in specific category in the FGMR system that is located in the SIS of the REDD+ MRV web platform (see Annex 9 - Characteristics of the Web portal for MRV REDD+ in Mozambique)

- Environment: this category applies to suggestions and complaints concerning the impact of ER Program activities on the environment, such as disappearance of specific species, deforestation, erosion, contamination of water, etc.;
- Social: this category applies to suggestions and complaints regarding the impact of project activities on community life, such as restrictions on access to natural resources, protection of sacred sites, disputes related to land use rights, etc.;
- Legal: this category applies to suggestions and complaints regarding compliance or violations of law and contracts and agreements;
- Project performance: this category applies to suggestions and complaints regarding the performance of the ER Program and associated project and their staff, such as lack of presence of staff on the ground, poor supervision of activities, delays in delivery of funds and materials, etc.;
- Disregard: this category applies to suggestions and complaints that are not estimated to be within the scope of the ER Program.

**Step 3: Confirmation**

For inappropriate suggestions or claims, applicants will be informed within 5 working days after receiving the complaint regarding the reasons for the invalidity and, if relevant, other channels of resolution will be suggested.

For suggestions, consultations or requests for clarification, applicants will be contacted to clarify the doubts or questions presented and, if relevant, indicate the follow-up actions that should be agreed with applicants and relevant actors of the project, along with respective deadlines. This process must be carried out within 10 working days after receiving the query.

For grievances and complaints, applicants will be informed that their case has been registered and a meeting with the parties involved with be set to investigate and document the elements of the complaint and seek a friendly solution - or set up a review process at another level. This information must be sent to the applicant within 5 working days after receiving the complaint and the meeting should take place within 5 working days after notification.
Step 4: Verification, investigation, action of complaints

The FGRM focal point together with the complainant and the other parties involved (service provider, contractors, project coordinator, etc.) will carry out an investigation to verify the validity of the complaint and to seek a friendly solution. As previously stated, complaints should, as far as possible, be resolved in a friendly and local manner. If it is necessary to consider significant additional compensation, complex corrective measures or sanctions, it should be in line with projects operational rules, national legal framework and World Bank policies.

In the event that the claimant is not satisfied, the focal point will inform the complainant about the different levels of resolution of the complaints (see Box 9), including the judicial appeal. Unless it is a complex case, an alternative time frame is agreed between the parties concerned, or the complainant demands to proceed to the next level of resolution. The various level of complaints management were detailed in Box 9.

Step 5: Implementation of agreed actions

Upon completion of each process, the FGRM focal point and the FNDS safeguards officers will take the necessary actions to implement the agreements reached within 15 working days after the signature of the agreement. For agreements requiring permanent modifications for the ER Program and its systems or processes, or measures requiring more time, the agreement should include an action plan with a timetable. It should also indicate the budget required for its implementation and the actors responsible for each activity.

Step 6: Monitoring and Evaluation

The FNDS safeguard staff will carry out the monitoring of the FGRM. As previously explained, this will be done using the FGMR system located on the REDD+ MRV web platform.

Monitoring will follow-up of the complaints and their resolution, in order to (i) monitor the number and type of complaints to take proactive action to avoid future claims; and (ii) monitor the effectiveness of the FGRM in terms of use (number, type, origin of cases, trends), efficiency of response (answers and conclusions in time) and overall effectiveness (level of satisfaction of users). In order to assess the effectiveness of monitoring and resolution of complaints, the following indicators will be used:

- Number of complaints registered;
- Percentage of complaints answered within the deadlines;
- Percentage of complaints resolved at each level / step;
- Minimum, maximum and average time required to resolve complaints;
- Percentage of ER Program who are aware of the FGRM;
- Level of community and users satisfaction regarding the FGRM (perception survey).

The monitoring will generated lessons- learnt and should actually help to make strategic and operational decisions in the implementation of the ER Program and subprojects, as well as political decisions, which may avoid actions resulting in similar claims in the future.
The key results of the system and monitoring will be disseminated among communities to increase transparency, credibility and confidence in the system, through the use of brochures, community radio messages and meetings with communities.

Communication on the FGRM

While the system is being operationalized and the main actors (focal points, community officials, SDAE technicians and service providers) are being trained in the management of the FGRM mechanism, an information campaign will be organized in the ER Program area through its associated project in order to present (FNDS, 2017e):

- The type of complaints that may be submitted;
- The channels to submit complaints;
- The progressive process and step of actions, including and deadlines;
- The options that claimants have if they are not satisfied with results (including legal);
- The opportunity to solve problems with ER Program and subprojects staff;
- The seriousness of the system and the importance of putting together documents and information and presenting grievances in good faith and before any escalation; etc.

Communication should be made in locally relevant languages and use appropriate channels for the messages to reach the most marginalized groups (including community radio, videos, community meetings, posters, specific meetings with focal point and community leaders, local leaders, etc.).

15. BENEFIT-SHARING ARRANGEMENTS

The ER Program is expected to be associated with high non-carbon value, generated during its implementation and which is expected to continue long after the terms of the ER-PA. In addition, the expected ERs associated to the ER Program will also, eventually, generate monetary benefits, through the sale of carbon credits to the FCPF - and, potentially, other buyers. Those benefits will have to be shared between the various stakeholders of the program according to specific mechanisms, principles and channels that will be defined by a specific Benefit Sharing Plan (BSP).

In accordance with criterion 29 of the FCPF MF (2016a), this section provides a description of the planned benefit-sharing arrangements for the ER Program, on which the BSP will build. However, it should be noted that the BSP is currently being designed (see section 15.2) and is not yet available. As required by criterion 30.1 of the FCPF MF (2016a), it will be made publicly available prior to ER-PA signature, and as soon as it is approved by the GoM. An advanced draft will already be ready at the time of the ER-PD final draft submission.
15.1 Description of benefit-sharing arrangements

Type and scale of potential benefits associated to the ER Program

Non carbon benefits

As explained in section 16 of this ER-PD, since the ER Program aims to initiate innovative and sustainable practices in its area of implementation, it is expected to have positive impact in the long run. Non-carbon benefits, also called "co-benefits", gather all the potential positive outcomes that the ER Program will generate during its implementation and which are expected to continue long-after the terms of the ER-PA. Detailed in section 16, those non-carbon benefits mainly result from the overall improvement of rural population's livelihood, the strengthening of forest management and governance, as well as long-term environmental benefits. They are listed in Table 74 and prioritized in Table 75.

Carbon benefits

The ER Program will also generate carbon benefits, associated to the payments that will be provided to the GoM by international buyers when purchasing ERs resulting from the ZILMP - given that the overall objective of the ZILMP is to achieve a total of 10,016,147 tCO$_2$eq of ER by 2025. For now, the first identified buyer is the FCPF CF. According to the terms of the LOI that was signed in December 2015 between the GoM and the World Bank, the FCPF could buy up to 8,724,732 tCO$_2$eq to the GoM. The scale of those carbon benefits is still difficult to define, but ER payments from the FCPF will run under the ER-PA (2018 - 2025).

Categories of potential beneficiaries

The potential beneficiaries of the ER Program benefits are various, and include:

- The central and provincial bodies of the GoM (including the 9 district governments in the ER Program area) in the form of the specific agencies and line sectors involved in the development and implementation of the ER Program and as the actor responsible for selling the ERs to the FCPF;

- The Gilé National Reserve: as a conservation area, the GNR is expected to assume an important role in the process of emissions reduction during the ERP and is subject to specific measures - see section 4.3;

- Service providers: private sector enterprises and NGOs that operate within the ER Program area, to the extent that they may be directly involved in implementing ER Program and REDD+ related activities;

- The populations and all forest dependent communities who live in the ER Program area and who should in principle benefit directly from the implementation of the ER Program and from subsequent payments for ERs by the FCPF.
Table 71: Proposal of classification of beneficiaries

<table>
<thead>
<tr>
<th>Recipient of carbon benefits</th>
<th>Implication in the ER Program</th>
<th>Use of carbon benefits (benefits for ER payments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central and provincial bodies of the GoM</td>
<td>Involved in the development, coordination and implementation of the ER Program and responsible for selling the ERs to the FCPF</td>
<td>Cover management costs for the implementation of the ER Program (program costs, including MRV system, registry, functioning of FNDS, etc.)</td>
</tr>
<tr>
<td>Gilé National Reserve (GNR)</td>
<td>As a protected area within the ER Program area, the forest of the GNR and of its buffer zone should represent an important part of the ER realized and are subject to specific ER Program measures (especially under Mozbio project)</td>
<td>Cover investment cost for the implementation of projects that contribute to the objectives of ERs in the GNR and its buffer zone + foster investment in further activities/initiatives contributing to achieving ER</td>
</tr>
<tr>
<td>Service providers (private sector, NGOs, etc.)</td>
<td>Operate within the ER Program area in implementing ER Program and REDD+ related activities</td>
<td>Cover investment costs for the implementation of projects that contribute to the objectives of ERs in the ER Program area + foster investment in further activities/initiatives contributing to achieving ER</td>
</tr>
<tr>
<td>Local populations (forest dependent communities who live in the ER Program area)</td>
<td>Live in the ER Program area ad are the first agents of deforestation and forest degradation. The adoption of sustainable practices promoted by the ER Program is a crucial variable in achieving ERs.</td>
<td>Provide for additional income and revenues for local population</td>
</tr>
</tbody>
</table>

Public bodies and service providers

In order for the ER Program to be possible, ER payments are expected to cover the implementation and management costs of the ER Program and of enabling activities. In this sense, potential recipients of ER payments may be: (i) the governmental bodies implementing the ER Program and especially responsible for the enabling activities (MRV, land tenure regularization, etc.), with the FNDS on the front line; (ii) the 9 district administration of the ER Program area, who could after be in charge of channeling the funds to their population; (iii) the administration of the GNR; (iv) service providers, acting as external parties (NGOs, private sector, etc.) who would be implementing projects contributing to reducing emissions in the ER Program area.

The benefits of these recipients should be assessed according to the costs of their involvement in the program, so as to (i) cover the costs of running the ER Program and/or (ii) favor initiatives that contribute to the objective of the ER Program in the long run.
Given this, the first task that the BSP will undertake is to identify and evaluate the minimum functioning costs of the ERP, which should represent the exact share of benefits allocated to the governmental bodies at the very start of the benefit sharing process (beginning of the string). Along with the costs of ERP management, it is also necessary to assess the cost of the benefit repartition system.

The role of the 9 district governments in the Benefit Sharing will have to be analyzed. They can be considered as part of the "governmental bodies" group in order for their costs to be fully covered by the ER Program. However, their individual performance may also have to be taken into account, including through the idea of a competition - see the next section on "performance based payments". Districts also act as intermediaries if they are to assume the responsibility of allocating ER payments to communities and/or individual households living in their territory.

**Local population and forest dependent communities**

While all of the above are important to achieve the ER Program success, the focus group for the ER Program is the population who lives in and directly uses and/or benefits from the forest. Their share in the benefit sharing arrangements is crucial as a way to enhance their participation in the ER Program on the long-rung.

As shown in Figure 40, no matter the mechanism that is chosen, carbon benefits distributing to the local population could be realized through two different channels:

(i) Payment to the communities as a whole;

(ii) Payments to individual households of the communities.

This raises several issues, including on the criteria to be used for communities to receive such payments, and the role of the districts in allocating those payments to the communities and/or to individual households - see below and see Figure 40. *These questions will be addressed in the BSP.*
Payment to communities as a whole: the issue of delimitation - For the ER payments to be shared with the communities as a whole, they have to be clearly identified and represented. Those two features are crucial and should be considered as the basis for the Benefit Sharing Mechanisms.

Communities' representation, for now, is arguably best embodied in the CGRN. They are composed of member representatives of the local communities and are created with every
community official delimitation and every time a forest concession is granted. As previously stated (see section 4), they are the bodies in charge of capitalizing the “20% revenues” for local communities. According to the DPTADER, there are 78 CGRN in Zambézia province, associated to forest concessions.

Local community delimitation plays its part here too, as the process will identify the local structures responsible for customary land management systems and the rights that are allocated and then legally recognized as DUATs acquired by customary norms and practices or by “good faith” occupation - see section 4 on land tenure. According to Tanner (2017a), the inclusion of the “Local Community” as core legal entity and concept in both the Land Law and the Forest and Wildlife law precisely underlines the fact that a community delimited according to the Land Law is then also the one that will form a CGRN and conduct consultations with forest investors in the Forest and Wildlife context.

These same structures can logically play a role in determining how benefits are used and distributed at the sub-community level, bearing in mind the internal community “map”, which includes the relevant permanent areas that are occupied and used by each family (and over which a DUAT title can be issued) and the other areas that are collectively used (“community public domain” land, as established in the 2004 constitutional amendment). This may serve to guide how the devolved resources should be allocated to the one or more communities whose resources are being exploited. This is shown in Figure 41, where three communities have been delimited. Without a delimitation process, it is impossible to determine if indeed the forest “belongs” to one or all three communities; and it is difficult to determine what share of any revenue payments each community should get. With a delimitation carried out, these questions are resolved relatively easily (Tanner, 2017a).

![Figure 41: Example of community delimitation](image)

---

57 As already explained, according to this mechanism, by Law, 20% of the revenues derived from the management of forest and fauna resources should be transferred to the relevant local communities.
Admittedly, the same principle can apply to the delimitation of areas for ER Program interventions. As Tanner (2017) puts it, local people need to see a clear advantage in participating in the ER Program, which may impose constraints on present livelihoods strategies. Going on to develop a Benefit-Sharing after developing appropriate measures to control forest degradation, for example, is a critical element of the overall ER Program.

**Individual payments** - However, the existence of individual DUATs at sub-community level should also be stressed. As stated by (Tanner, 2017a), if one objective of the sharing of benefits is to change behaviors over land and forest use to achieve ER targets, the benefits of these changes will have to be felt by individual households where the food security and livelihoods impacts will be directly experienced. It may therefore be necessary to find some way of allocating some part of the resources coming through a benefit-share arrangement, to individual households, and especially to those most involved in the measures to control deforestation and improve natural resources management.

Those issues are core questions for the benefit sharing arrangement of the ER Program, which will be decided and justified in the Benefit Sharing Plan, after consultation with all relevant stakeholders - see section 15.2.

**Means of assessing share of benefits per beneficiaries and recipients**

From a general point of view, the share of benefits to be channeled to each beneficiary can be assessed through four different ways:

- **The assessment of performance**: beneficiaries are allocated a part of the benefits according to their measured performance, assessed as the actual reduction of emissions against a specific baseline;
- **The use of proxies**: beneficiaries are allocated a part of the benefits according to an indirect measure of their participation in the reduction of emissions;
- **The estimation of costs**: beneficiaries are allocated a part of the benefits according to the cost of the activity that they are implementing and which contributes to reducing emissions;
- **Non-conditional payment**: beneficiaries are allocated a part of the benefits on the principle that they are in the ER Program area. This implies that the ER payments will (only) be based on land ownership and the recognition of Local Communities and smallholders’ DUATs.

In the context of this ER Program, the means of defining the share of benefits may vary for group of beneficiaries, may they be part of the governmental bodies, the service providers, or local population living in the ER program area. The various means of assessing the share of benefits are not exclusive: several can be chosen and applied simultaneously. For instance, a fix percentage can be allocated to beneficiaries living in the ER Program area, and an additional variable portion could be added according to their performance, etc.

**Performance based payments**

Whether this is combined with other principles, it is genuinely accepted that carbon benefits, one way or the other, and at some point in the process, should be linked to the activities that are taking place in the accounting area: rights to payments should always be linked to
performance, meaning that the beneficiaries may not receive payments (only) because they have some kinds of rights on the area but because they are actively contributing to ERs.

This performance will therefore have to be assessed prior to any payment. Performance for benefit sharing system can be assessed in several ways depending on the intern MRV system of the ER Program:

- It can be evaluated based on deforestation maps to be compared to local baseline for each spatial unit to be considered in the benefit sharing system;
- It can be estimated by proxies of activity implemented by beneficiaries of the program that aim to reduce deforestation (e.g. number of hectares managed with conservation agriculture or forest managed for conservation, number of improved cook stoves, etc.);
- It can be a simple negotiation of a percentage of program benefits per beneficiary.

Non-conditional payments: the issue of the 20% mechanism

One of the options for channeling benefits would also be to make use of the "20% mechanism", or of the concept of the "20% mechanism", to guarantee a fix percentage of benefits to local communities - see section 4 and sub-section on Links with the Readiness process and pre-existing benefit-sharing arrangements. Two options can be foreseen.

Option 1: Adapt the concept of the "20% mechanism" to ER payment

In this scenario, a fix percentage of the ER payment (may it be 20% or more) will automatically be allocated to the communities on the basis that the ER are considered as a kind of "natural resource" on which they have right, by virtue of the Land Law and of the Forest and Wildlife Law principles - see section 4. If this option is to be applied, the percentage to fix will be crucial and should be publicly discussed, during the planned revision of the REDD+ decree, for instance.

As stated earlier, the GoM has initiated a process of revision of the REDD+ decree, which is currently on going. This question will be part of the discussions, as part of the BSP design. It should be decided before the submission of the next ER-PD draft, which will be updated accordingly. The revised REDD+ decree is expected to be approved before the submission of the final ER-PD to the Carbon Fund.

Option 2: Create a "revised 20% scheme"

This scenario deepens the very concept of the 20% mechanism to include, into one single fund, the various revenues, including those derived from the ER payments, that could be shared altogether with the beneficiaries. This "revised 20% scheme" is promoted by Tanner (2017a) as it would, according to him, "result in larger payments reaching the local communities and these payments may have a greater impact, enabling the funding of larger and more widely beneficial projects". The idea is to gather into one single fund:

(i) Existing sources of revenue share:
- Commercial forestry fees and dues paid to the State by firms;
- Concession fees and charges for sports hunting;
- National park and reserve revenues (entry fees, etc.)

(ii) New sources of revenues:
- *Shares in ER payments from the FCPF to the GoM*;
- Land fees and taxes;
- Fees and revenues paid by agricultural enterprises that make agreements to occupy and use local land.

Aggregating all of these payments within a single system for allocating benefit share and other revenues and managing them at community level could result in far more substantial and useful sums being available for local development initiatives. These can mitigate the impact of ER-focused changes in behavior; and also feed into a loop that consolidates this change in a longer-term process of agricultural and agrarian transformation.

According to Tanner (2017a), the task of creating such a unified system with revised and clear procedures for channeling the funds and working with local communities is made much easier by the creation of the FNDS within MITADER.

### 15.2 Summary of the process of designing the benefit-sharing arrangements

**The on-going process of BSP design**

**Description of achievement and next steps for the design of the BSP**

Following the TAP visit realized in April 2017 in Maputo, a Benefit-Sharing Working Group has been created. Although its final composition still has to be approved by the FNDS, it should be composed of representatives of the main ministries directorates and specialists of various governmental bodies involved in the ER Program and in activities related to rural development and relation with communities. This working group is planned to meet regularly in Maputo from early September 2017, in order to progress as fast as possible on political decisions associated with the BSP. When key elements are already well discussed by the BSP working group and a first draft available, the discussions should be extended to the civil society, through public consultations and / or workshops. In between, consultations of local stakeholders, especially in Zambézia, will be organized.

In addition, based on the list of possible benefits (monetary and non-monetary) generated by the ER Program, a first draft of benefit sharing arrangements has been elaborated. This draft plan is meant as a basis to list questions that have to be assessed and to arbitrate choices, especially for the BSP working group to study. From this plan, a list of options has also been elaborated and several proposals were formulated, including on the means of assessing the share of benefits and on the possible channels of distribution - see Figure 42, Figure 43 and Figure 44.

For now, the preliminary draft on the Benefit Sharing Plan identified the following issues to be addressed as a priority by the BSP working group:
- **Identification of the potential beneficiaries in the ER Program area with clear list and population data.** Preliminary results of the land tenure assessment clearly show that, based on the recognition of customary right and the attribution of DUATs, local communities and rural population leaving in the areas of intervention of the ER Program are eligible.

- **Definition of monetary benefits according to beneficiaries:** this is linked to the ER-Program strategic options and to the budget evaluation of benefits and costs for management and MRV. A priority question is: what are the minimum operating costs of the ER Program and of the BS mechanism? - See section 6.2 on this point.

- **The measurement and assessment of performance adapted to beneficiaries and to the MRV system in place:** should it be based on relevant proxies or on direct carbon measurement?

- **The importance to be given to the "20% mechanism":** Should communities receive a fix percentage of benefits and what percentage should it be? Should the local population receive benefits through their community (payment to the community as a whole) or as individuals (or both)?

- **The significance of the GNR in the process:** How should the GNR be integrated into the BSP?

### Examples of proposals and options for BS arrangements

As stated before, the preliminary draft on the BS arrangements for the ER Program provided for several proposals and options for channeling benefits and assessing the share of benefits according to identified beneficiaries. Below are some examples of those.

Those proposals will be analyzed, discussed and validated by the GoM, the BSP working group and WB during several work sessions. A record of the decisions made will be established at the end of each validation meeting.
Figure 42: proposal for assessing share of benefits according to beneficiaries

Figure 43: Example of benefits sharing scheme with fixed percentage of benefits allocated to communities at the beginning of the process
Timeline for the design process of the BSP

After the validation of the rules for sharing benefits with the ER Program stakeholders, institutional arrangements will be studied in order to guarantee transparency in the process, to insure the integrity of the identified entities (control by third part if relevant) and to avoid any corruption and conflicts of interest in the program management team. This component will be prepared for the end of the assignment. These arrangements include:

- **Identification of the relevant structures** to assure the verification of monitored and reported performance, funds management and disbursement;
- **Definition of the roles and responsibilities** of each identified entity and method of control;
- **Procedure to guarantee the transparency** of the monetary and non-monetary fluxes.

Finally, legal documents formalizing the benefits sharing plan between all stakeholders will be prepared and submitted to the UT-REDD+ for transmission to the relevant entities after validation by the FNDS.

**Table 72:** Timeline for the design process for the Benefit Sharing Plan

<table>
<thead>
<tr>
<th>Task</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submission of zero draft of preliminary finding on benefit sharing plan with main questions raised and first proposals (options)</td>
<td>June 2017</td>
</tr>
</tbody>
</table>
Submission of a series of more advanced drafts on the main issues listed above, for the members of the BSP working group to analyse before starting the discussions | Early August 2017

Analysis of the drafts and preliminary comments from the BSP working group | August 2017

Start of meetings with the BSP working group | Early September

Advanced Draft Benefit Sharing Plan with Proposition of option and first decisions of the GoM | October/November 2017 - before ER-PD submission to FCPF (December 2017)

Presentation to participants of the ER Program development (FNDS, UGFI, WB, etc.) | End of 2017

Consultation of beneficiaries in the Program area | 2018

Final version of BSP and approval of the plan by management unit of the program and GoM | End of 2018

Implementation of the benefit sharing plan at the first payment of the program | 2019 - 2020, depending on ERPA signature (first monitoring in 2020)

Persons and entities who have been participating in the process: consultations and inputs of relevant stakeholders

In accordance with criterion 31 of the FCPF MF (FCPF, 2016a), the benefit-sharing arrangements are designed in a « consultative, transparent, and participatory manner». It will facilitate the delivery and sharing of Monetary and Non-Monetary Benefits that promote successful ER Program implementation. In order to do so, the design of the Benefit Sharing Plan will fully reflect inputs by relevant stakeholders, especially from local communities, through taking into consideration the main comments and feedbacks received during public consultations, which were organized in the context of the definition of the National REDD+ Strategy and of the Safeguards plans, especially the SESA – see section 5 on stakeholders consultation and section 14 on safeguards plans.

Currently, as the Benefit Sharing Plan is being designed, the GoM - especially the MITADER/FNDS - the World Bank and the FCPF, are involved during work sessions and meetings. The BSP working group, still under approval, should be composed of representatives of FNDS, ANAC, DINAF, DNDR and other ministries, such as the Ministry for Women and Social Actions. The final composition of the working group should be approved in the next weeks and will be annexed to the next ER-PD draft. The Landscape Coordination Unit and NGOs are also associated to the process through individuals meetings. A Land Tenure specialist - C. Tanner; see (Tanner, 2017a) - is also closely associated to the design process of the Benefit Sharing Plan. Finally, Mozambican specialists of benefit sharing and engagement of communities are or will be consulted.

Once a first advanced draft is reached, the text will be presented and discussed during large-scale public consultations, probably in 2018.
Links with the Readiness process and pre-existing benefit-sharing arrangements

According to criterion 31 of the FCPF MF (FCPF, 2016a), the Benefit Sharing Plan should “be informed by and builds upon the national readiness process, including the SESA, and taking into account existing benefit-sharing arrangements, where appropriate”.

Actually, as stated by (Tanner, 2017a) and (UT REDD+, 2015a), Mozambique already has a benefit-sharing scheme to devolve a portion of public revenues derived from local resource use back to the communities who depend upon and use those resources, through the "20% mechanism" - detailed in section 4.4 and 4.5. Within this framework, 20% of the revenues derived from the management of forest and fauna resources should be transferred to the relevant local communities.

At first glance, it therefore seems that the main legal basis for the BSP of the ER Program could rely on the “20% mechanism”, on the basis that 20% of the revenues derived from the sale of ERs, considered as a natural resources could be channeled in the same way to local beneficiaries.

Although there have been some practical difficulties and criticisms regarding this scheme it still represents, today, the most achieved experience of benefit sharing through the use of forest resources in Mozambique: between 2005 (first payments) and 2011, a total of MZN 103.9 million (about USD 3.89 million at the time) have been distributed to 861 communities across the country. In 2012, seven years after the approval of the Ministerial Decree regulating this mechanism, a total of 1,089 communities had been identified as potential beneficiaries, and 896 has successfully organized themselves with a CGRN and bank account (Chidiamassamba, 2012).

Arguably, in the Legal Framework study conducted during Readiness phase (Beta and Nemus, 2015), it was recognized that the “20% mechanism” is well established in Mozambique and works relatively well, even more so when local communities are supported by NGOs. A wide variety of organizations actually get involved in the process, to help organize the communities and to facilitate the payment of the funds.

In Zambézia province, 9 different government agencies and civil society organizations were identified as “intervening” in the process of getting the 20% to recipient communities, ranging from the Provincial Services for Forestry and Wildlife, to national NGOs such as ORAM and several smaller local NGOs (Tanner, 2017a). The same actors could be mobilized in helping to implement the BSP of the ER Program in the ER Program area.

The issue regarding how to make use of the "20% mechanism", and whether it should be used as part of the BSP for the ER Program, is currently being discussed. It will be one of the priority questions to be studied by the BSP working group and is expected to be decided before the submission of the ER-PD final draft.

15.3 Description of the legal context of the benefit-sharing arrangements

At this stage, it should be reminded that Mozambique is considered to have an extremely progressive framework which recognizes local rights over land and resources, and
guarantees the participation of local people in projects that aim to achieve REDD+ objectives (Beta and Nemus, 2015; Tanner, 2017a). The design and implementation of the BSP of the ER Program will have to comply with relevant applicable laws in Mozambique, including agreements and customary rights, as required by criterion 33 of the FCPF MF.

To this end, and pending on the final BSP, this sub-section describes the legal context in which the BSP will be elaborated and the main legal basis, text and principles that are taken into account during its design process.

**Land Law instruments and key principles for the BSP**

From a general point of view, it seems that the use of Land Law instruments – including the “20% mechanism” (see above) - establishes both rights and responsibilities over forest resource that might be considered for the BSP of the ER Program, especially with regards of the overall land and resource tenure framework, with which the legal context of the BSP is intertwined. With this regards, the main legal concepts to be underlined for the BSP are those of DUAT (land use right), Local Community, Community Delimitation and Partnership. The "20% mechanism" is, also, a very interesting starting principle to think about the design of the BSP. For more details on the land tenure rights in Mozambique, please refer to Tanner (2017) and to section 4.4 of this ER-PD.

**DUAT and recognition of customary rights** - As benefit-sharing will partly be based on the recognition of some sort of rights on land and the resources that are on this land – namely, forest and carbon – the first legal base to consider is the very constitution of Mozambique, in which originates the concept of DUATs. Although land is an absolute state property, the DUAT is the only existing land use right allocated by the State. Land use is therefore is a private right that enjoys strong constitutional protection (Tanner, 2017a).

Further, the National Land Policy, although maintaining land as state property, also recognizes customary rights of access and management of land by the population and states that, in case of investment on a land, the community living on that land “can enter as a partner in the investment, sharing profits and the benefits resulting from that investment” (Beta and Nemus, 2015). See section 4.4 on DUAT attribution.

**The legal concept of partnership** - The concept of Local Community as being a “partner” – and, therefore, being able to collect some sort of the benefits generated on the said land – is repeated in other crucial texts, such as the Resolution 70/2008 of 30 December, which sets out the requirements for investors seeking large areas of land (defined as over 10,000 hectares) and the 1997 Land Law and its Regulation, which also create the mandatory community consultation (Tanner, 2017a). This principle of partnership is most recently developed further, and significantly for the ER Program, in the 2014 Law for Conserving Biodiversity, which enable the State “to establish partnerships with the private sector, local communities, and national and foreign civil society organizations, on the basis of contract (...) for the administration of conservation areas”. In that case, “the possibility is underlined of celebrating contracts with the private sector and the local communities for the generation of income” (Beta and Nemus, 2015).

**Local community and community delimitation** - In the framework of the recognition of customary right, the 1997 Land Law is, aging, crucial and formalizes the concept of Local Community. The key document in this context is the Technical Annex for delimiting rights acquired by occupation: this process is now commonly known as “community delimitation”,
although it also applies to DUATs acquired by “good faith” occupation – see section 4.4
According to (Tanner, 2017a), Land Law instruments such as Local Community delimitation and community consultations are key features, not only for channeling public funds to local level, but also for delivering significantly greater benefits through active economic agreements with investors.

The “20% Mechanism” - As stated above, the main legal basis for the Benefit Sharing Plan of the ER Program may lay in the “20% mechanism”, established in the 1999 Forest and Wildlife Law and implemented via the Forest and Wildlife Regulations (Decree 12/2000 of 6 June) and Ministerial Diploma 93/2005 of 4 May. As previously explained, in section 4, this mechanism implies that 20% of the revenues from wildlife and forestry exploration should be channeled towards the benefits of communities that inhabit the areas where the exploration of such resources is taking place. Its potential for the designing of the BSP of the ER Program is currently being discussed.

To sum up, and according to Tanner (2017), “the legal framework therefore both protects and empowers local people, through the device of the Local Community. This process starts with the recognition of customary rights, is reinforced by delimitation according to the Technical Annex, and is given real content by the mandatory community consultation and its resulting agreement, or “terms of partnership”, between local rights holders and third parties wanting to meddle with local land and resources. Most importantly, the overall process brings local people into the development process as stakeholders with a potentially powerful voice when it comes to making decisions about how their land and resources area to be used”. This position also gives them legitimacy in receiving substantial shares of the benefits (monetary and non monetary) generated by the sustainable use of land and resource promoted by the ER Program.

### List of legal text that may be relevant for the BSP of the ER Program

**Table 73: Main legal basis for the Benefit Sharing Plan**

<table>
<thead>
<tr>
<th>Acts</th>
<th>Relevant concepts for Benefit Sharing Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004 Constitution of the Republic of Mozambique (CRM)</td>
<td>DUAT</td>
</tr>
<tr>
<td>National Land Policy (Resolution nº10/95)</td>
<td>- Recognition of customary rights of access and management of land by the population</td>
</tr>
<tr>
<td></td>
<td>- Introduction of the idea of “Partnership” with local communities</td>
</tr>
<tr>
<td>Procedures for the Presentation and Appreciation of Projects involving more than 10 000 hectares (Resolution nº70/2008)</td>
<td>- Confirmation of the idea of “Partnership” with local communities</td>
</tr>
<tr>
<td>The Land Law (nº 19/97) and its regulation</td>
<td>- Confirmation of the idea of “Partnership” with local communities</td>
</tr>
<tr>
<td></td>
<td>- Mandatory community consultation</td>
</tr>
<tr>
<td></td>
<td>- Formalization of the official concept of “Local Community”</td>
</tr>
</tbody>
</table>
16. NON CARBON BENEFITS

16.1 Outline of potential non-carbon benefits and identification of priority non-carbon benefits

The ER Program is expected to be associated with high non-carbon value, which should be generated during its implementation and which is expected to continue after the terms of the ERPA. Admittedly, the ER Program aims to initiate innovative and sustainable practices in its area of implementation that will have positive impact in the long run. As such, all the planned activities under the proposed ER Program will be aligned with MITADER’s overall mission to promote rural development.

This section starts with a description of the various non-carbon benefits that the ER Program is expected to generate, before focusing on five priority non-carbon benefits that have been identified and that will be monitored through specific measures. At the end of the section, Table 76 describes more precisely how the ER Program will generate and enhance the priority non-carbon benefits. For more details on interventions associated to each non-carbon benefit, see section 4.3.

Outline of potential non-carbon benefits

The non-carbon benefits are numerous. They have primarily been identified during consultations with stakeholders that were organized at national level and in Zambézia province, related to the REDD+ strategy and associate projects - such as MozFip, Mozbio...
and the Sustenta project - on safeguards and on the ER Program design – see section 5 on public consultations.

Table 74: Outline of all potential non carbon-benefits associated with the ER Program

<table>
<thead>
<tr>
<th>Direct non carbon benefits improving rural population’s livelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ Sustainable use and long-term access to forest resources</td>
</tr>
<tr>
<td>♦ Increase and diversification of income and employment opportunities</td>
</tr>
<tr>
<td>♦ Alternative and sustainable energy sourcing and health benefits</td>
</tr>
<tr>
<td>♦ Adaptation of agricultural practices to climate change to increase agricultural production</td>
</tr>
<tr>
<td>♦ Clarified land tenure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strengthening of forest management and governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ Increased transparency in the forest sector</td>
</tr>
<tr>
<td>♦ Long-term engagement of multiple stakeholders in forest management with strong role of Local Communities</td>
</tr>
<tr>
<td>♦ Reduction of unsustainable practices and illegal logging</td>
</tr>
<tr>
<td>♦ Improvement of business environment in forestry sector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Long term environmental benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ Soil conservation</td>
</tr>
<tr>
<td>♦ Protection of ecosystems</td>
</tr>
<tr>
<td>♦ Maintenance of high-value biodiversity</td>
</tr>
<tr>
<td>♦ Rehabilitation of degraded lands</td>
</tr>
</tbody>
</table>

**Direct non carbon benefits improving rural population’s livelihood**

**Securing sustainable use and long-term access to forest resources** - As explained in section 3, the rural population leaving in the ER Program area is highly dependent on natural and forest resources. Yet, ongoing deforestation and forest degradation in the “without project scenario” is expected to eventually reduce their access to such resources that will become scarcer, especially with high population growth and subsequent increased anthropogenic pressure on forest. *Section 4.1 already underlined the link between population growth and deforestation.* Through reducing deforestation, the ER Program as a whole is therefore expected to generate the most important non-carbon benefit: the maintaining of forest cover and associated natural resources, helping communities to secure their long-term access to resources they highly depend on.

**Long-term increase and diversification of income and employment opportunities** - One of the main objectives of the proposed ER Program is to help promote a range of intertwined income-generating activities for local population, linked to conservation agriculture, sustainable charcoal production and NTPFs management. The promotion of conservation agriculture in the ER Program area is based on the use of various crops and on improving
market access. This component provides for the integration of smallholders into improved supply chains for local, regional and global markets, which is expected to generate new employment opportunities – with increased production and transformation potential - and to reduce reliance on "slash and burn" agriculture (UT REDD+, 2015a). By improving the position of smallholders in value chains and helping them certify their crops through fair trade schemes, the ER Program is expected to allow smallholders to sell their products with premium prices and get extra income. In the same way, the ER Program interventions focusing on adding value to NTPFs should also contribute to increase revenues and profits for local communities.

**Securing alternative and sustainable energy sourcing and health benefits** - The ER Program provides for the promotion of sustainable biomass use and production that could decrease deforestation and forest degradation, improve forest management and generate health benefits. This component includes energy plantations and the dissemination of improved charcoal production techniques. Through addressing the unsustainable exploitation of wood for energy, the ER Program will reduce possible forest degradation in rural areas and maintain a reliable source for domestic use, in the long term – which is coherent with the first non-carbon benefit (“Securing sustainable use and long-term access to forest resources”). In addition, with more efficient charcoal-making technology and the promotion of alternative sources of energy, health risks linked to traditional cook stoves may be reduced - using charcoal and fuel wood for cooking implies a high incidence of acute respiratory infections due to air pollution (UT REDD+, 2015a).

**Adaptation of agricultural practices to climate change to increase agricultural production** - Mozambique is extremely vulnerable to climate variability and change – see section 3.2. Zambézia is a heavily affected province, facing unpredictable climatic conditions - including intense droughts, unpredictable rains, floods and uncontrolled fires. As many communities depend on the productivity of their crops for their subsistence, the promotion of conservation agricultural techniques and climate smart techniques can generate substantial change in increasing their ability to adapt to climate change – including through reducing their vulnerability to drought – thereby securing long-term agricultural production. In addition, by promoting the formation of cooperatives or other types of agricultural associations, the ER Program seeks to generate knowledge exchange between smallholders and to help them combine their sales in order to obtain better prices (UT REDD+, 2015a).

**Clarified land tenure** – Land tenure regularization and community delimitation are important components of the ER Program that will contribute to securing local population’s rights on the natural resources that are present in the ER Program area. As explained in section 4.3, 4.4 and 11, secure tenure right is a pre-requisite to on-going participation of stakeholders in the ER Program and in ensuring the long-term change of unsustainable behaviors based on the over-exploitation of forest and natural resources. It therefore a necessary base for much of the other non-carbon benefits – depending on the success of ER Program implementation.

**Strengthening of forest management and governance**

**Increased transparency in the forest sector** – The ER Program is expected to increase the overall transparency of the forest sector in Mozambique, through various means including better involvement of local population in the monitoring of forest resources. Transparency in terms of business activities and illegal income generating activities is also crucial in order for all participants to be on an equal basis for the use of natural resources
and in the receiving of carbon (and no carbon) benefits. Increased transparency is also meant to secure long-term and sustainable practices with regard to forest management that will be able to continue after the terms of the ERPA, making all stakeholders be accountable for their behavior in the ER Program area. This will be achieved, inter alia, through the establishment of national and provincial Monitoring, Reporting and Verification (MRV) offices, the creation and maintaining of online forest management platform and the improvement of land use planning and registration. This benefit is strongly linked with the long-term engagement of multi stakeholders in forest management – see below.

**Long-term engagement of multiple stakeholders in forest management with strong role of Local Communities** - The proposed ER program will promote a transparent and participatory decision making process that aims to: (i) increase local communities’ rights to land and forest resources; (ii) promote land use planning; and (iii) implement benefit sharing mechanisms. The proposed interventions will not only improve community-based forest management, by promoting community organization and capacity building, it will also help ensure the participation of various entities in the area, ranging from community organizations, civil society and the private sector to provincial and district governments - *For more details, see also section 5.*

**Reduction of unsustainable practices and illegal logging** - In the ER Program, improved implementation and enforcement of legislation (and transparency) are expected to reduce unsustainable and illegal practices and to increase revenues for the GoM. Stronger enforcement will also increase the legally stipulated benefits to communities, and provide a basis for long-term and sustainable production of timber products that can provide a lasting stimulus to rural economy. Various interventions, including land tenure regularization, are aiming at this benefit.

**Improvement of business environment in forestry sector** - Improving law enforcement is also the key to generating revenues for legitimate private sector operators. It will help reducing the unfair competition of the forest concessionaires, simple license holders and informal loggers who manage to avoid the costs of complying with the law on forest activities, industry regulations, taxes and trade duties. The ER Program focuses on those issues in order to make illegality be more “expensive” and to valorize legal and transparent behaviors in the forestry sector.

**Long term environmental benefits**

Eventually, the ER Program is also expected to provide significant environmental benefits that will be enhanced by sustainable management of forests. It should be recalled that the environmental services provided by forests are innumerable. Sustainable management of forest ensures that ecosystems’ functions and services are maintained at an optimum, including watershed protection, water regulation, soil fertility, erosion and flooding control and wildlife habitat protection. The ER Program is fully aligned with this strategy.

**Soil conservation** - The promotion of conservation agriculture and improved agricultural techniques in the ER Program area will contribute to enhance soil conservation and to increase land productivity. Its sustainable forest landscape management approach should create a sensible link between forest and agriculture that will eventually generate opportunities in rural areas, especially for forest and agriculture dependent communities, of whom many are women and vulnerable groups.
**Protection of ecosystems** - Conservation agriculture will partly be based on improved fire management, reducing wildfires in biologically critical ecosystems while avoiding the emissions of GHG. As stated in section 4.1, Mozambique is highly affected by wildfires, which have negative implications for communities and Miombo forest ecosystems. By implementing fire management activities, The ER Program is expected to protect communities from fires and to reduce the loss of valuable forest and wildlife resources that provide income-generating activities, while helping endemic species to regenerate.

**Maintenance of high-value biodiversity** - As previously explained, Zambézia Province is home to one of the most well preserved patch of Miombo forests in the country: the GNR. Through improving the management of forests, the ER Program will help to conserve and maintain the local environment and associated ecosystems in and around the GNR. It will also make ecosystems be less vulnerable to adverse impacts of human pressure and climate change (UT REDD+, 2015a).

**Rehabilitation of degraded lands through reforestation** - Land degradation is an increasingly severe problem in Zambézia, threatening wildlife habitat, grazing lands and community livelihoods. As explained in section 4.3, the project includes forest plantations and the promotion of agroforestry systems. They will contribute to addressing this issue.

**Identification of priority non-carbon benefits**

Among those non-carbon benefits, priority ones have been identified and classified in two main categories: (i) the improvement of rural population's livelihood and (ii) the strengthening of forest governance and forest resources management. In those two groups, a total of five priority non-carbon benefits have been identified. They monitoring will be realized through the MozFip monitoring plan (already approved) and the SIS - see SIS indicators in section 14 - so as to make sure they actually be assessed along the implementation of the ER Program.

<table>
<thead>
<tr>
<th>Table 75: Priority non-carbon benefits associated with the ER Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improvement of local livelihood through securing long-term access to forest resources and environmental benefits</strong></td>
</tr>
<tr>
<td>Priority NCB n°1 Increase of land areas under sustainable landscape management practices</td>
</tr>
<tr>
<td>Priority NCB n°2 Long term adoption of sustainable land use practices</td>
</tr>
<tr>
<td>Priority NCB n°3 Clarified land tenure</td>
</tr>
<tr>
<td><strong>Forest Governance and Management</strong></td>
</tr>
<tr>
<td>Priority NCB n°4 Improved forest governance and transparency</td>
</tr>
<tr>
<td>Priority NCB n°5 Enhanced participatory forest and land use management</td>
</tr>
</tbody>
</table>
Improvement of local livelihood through securing long-term access to forest resources and environmental benefits

NCB 1: Increase of land areas under sustainable landscape management practices - This non-carbon benefit is related to land area that, as a result of the ER program activities, benefits from improved sustainable landscape management practices. This NCB 1 can be described as a spatial achievement of the objectives of the ER Program in the landscapes and reflects several project outcomes, namely the restoration of degraded areas, reduced pressure on natural forests for agriculture and charcoal production, improved forest resources management, sustainable production and use of forest resources, and effective forest monitoring and control, including of conservation areas (GNR). Environmental benefits, especially in terms of soil conservation and rehabilitation of degraded lands, are linked to it. Areas that come under sustainable landscape management practices are defined as:

- Areas of planted forests, established under the Planted Forest Grant Scheme (these areas comply with a Forest Management Plan, which is a criterion for eligibility for the Scheme);
- Areas of agroforestry systems established;
- Area of forest concessions under sustainable forest management (national forest certification);
- Conservation areas and protected areas under improved management plans and law enforcement, as measured by the Management Effectiveness Tracking Tool. This should include the area of the Gile National Reserve\(^58\).

NCB 2: Long-term adoption of sustainable land use practices - This non-carbon benefit is related to the number of people who have adopted sustainable land use and land management practices thanks to the ER Program. This NCB2 can be described as a successful change of behaviors and practices of people in the ER Program area and enhancement of the sustainability of their land use practices. Just like for NCB 1, significant environmental benefits are linked to those practices. Users adopting sustainable land management practices include:

- Planted forest landholders under the Planted Forest Grants Scheme who comply with their Forest Management Plans;
- Agroforestry system holders;
- Charcoal producers;
- Forest concession holders whose concessions are certified under the national forest certification standard.

NCB 3: Clarified land tenure - As explained in section 4.3, 4.4 and 11, secure tenure right is a pre-requisite to the on-going participation of stakeholders in the ER Program and in ensuring the long-term change of unsustainable behaviors based on the over-exploitation of

\(^{58}\) Area brought under improved management is accounted for when their METT score moves up by one level. The levels are: Level 1: 0-35%; Level 2: 36% and 45%; Level 3: 46% and 55%; Level 4: 56% and 65%; Level 5: 66% and 75%; Level 6: > 76% of total possible score. The methodology is a rapid assessment based on a scorecard questionnaire.
forest and natural resources. As a necessary base for much of the other non-carbon benefits – depending on the success of ER Program implementation - it is, therefore, a top priority non-carbon benefit.

**Forest Governance and Management**

**NCB 4: Improved forest governance and transparency** - This non-carbon benefit is related to the improvement of the enabling environment for transparent and effective governance in the forest sector, including through (i) the adoption of the National Land Use Plan, which is expected to foster proper land use planning, with land use decisions being based on transparent information and a consultative process on land use priorities; and (ii) the operationalization of the National Forest Information System, which is expected to improve information availability, accessibility and transparency, contributing to an effective forest monitoring and control. This NCB 4 also comprises the improvement of the capacity of the forest administration and forest law enforcement authorities in terms of control, enforcement of regulations and promotion of sustainable use of forest resources and improved forest management practices - this includes annual inspection of forest concessions to check the compliance of forest operators with management plans and other legal and basic sustainability requirements (fiscal obligations, social security, qualified rangers, concession contract, availability of statistical information, industrial plans, technical capacity, delimitation of area and harvesting blocks, etc.).

**NCB 5: Enhanced participatory forest and land use management** - This non-carbon benefit relates to the ability of the local population living in the ER Program area to engage and participate in forest and land-use decisions, whether through specific interventions or as a result of the expansion of such opportunities generally in the landscapes. This NCB 5 comprises improved overall governance and access to information. It also includes enhanced landscape-level dialogue and multi-stakeholder decision-making on the use of natural resources, contributing to integrated landscape management, through the well functioning of the Zambézia MSLF. Eventually, their ability to participate in decisions over natural resources can empower stakeholders and bring additional long-term benefits for resource management.

**16.2 Approach for providing information on priority non-carbon benefits**

**Information on generation and enhancement of non-carbon benefits**

According to criterion 35 of the FCPF MF (FCPF, 2016a), information on the generation and/or enhancement of priority Non-Carbon Benefits should be provided during ER Program implementation. At this stage, although there is no specific communication strategy for non-carbon benefits, benefits as a whole (carbon and non-carbon) of the ER Program are largely presented to the stakeholders and, especially, to local population during public consultations related to the implementation of the ER Program.

**Preferred methods for collecting and providing information**

The monitoring of the generation and enhancement of non-carbon benefits should be based on an approach utilizing methods available at the time to collect and provide information on
priority Non-Carbon Benefits. In this approach, it should be reminded that the FCPF recognizes that community participation, proxy indicators and information drawn from or contributing to the SIS are relevant (FCPF, 2016a). The main instruments planned to be used for collecting information on non-carbon benefits are the:

(i) Multi-stakeholders platforms – such as the Zambézia Multi-Stakeholders Landscape Forum – in which stakeholders can provide direct information;

(ii) The Feedback and Grievance Redress Mechanism, which is also expected to be useful in analyzing the impacts of the ER Program on local population and the way its non-carbon benefits are perceived.

(iii) The PMRV (see section 14) that, while being primarily used to collect local carbon stock data, is also useful to get environmental and social information and impacts of REDD+ implementation directly from local population;

(iv) The SIS, which will also be used to provide relevant information on how safeguards are handled and respected to enhance non-carbon benefits. The proposed SIS indicators actually are good indicators of non-carbon benefits. As explained in section 14, this process will involve various partners from base community organizations, government and civil society organizations, following an extensive participatory approach. In addition to public consultations, interviews, questionnaires and direct observation will be used. The indicators of the SIS are described in section 14 and Table 70.
<table>
<thead>
<tr>
<th>Priority Non-carbon benefits</th>
<th>To be generated and/or enhanced by</th>
</tr>
</thead>
<tbody>
<tr>
<td>And associated non-carbon benefits</td>
<td>ER Program interventions (non-exhaustive list – see section 4.3)</td>
</tr>
</tbody>
</table>

**Table 76: Non-carbon benefits and associated ER Program interventions**

**Improvement of rural population’s livelihood through securing long-term access to forest resources and environmental benefits**

- **Priority NCB 1 - Increase of land areas under sustainable landscape management practices**
- **Priority NCB 2 - Long term adoption of sustainable land use practices**

**Maintaining of forest cover and associated natural resources**

- Promotion of sustainable practices to address the main drivers of deforestation and forest degradation, especially itinerant agriculture and charcoal production - see below;
- Restoration of degraded areas and planted forest through the Planted Forest Grant Scheme;
- Value chain development of non-timber forest products (NTFP) and of cash crops, including through agri-business finance (support to access credit, support to lowering the risk exposure of participating financial institutions, implementing a weather-based agricultural index insurance scheme, etc.);
- Reducing the impact of charcoal production on forest and health through the introduction of improved production techniques and more efficient kilns, the plantation of fast growing trees for energy purpose and the introduction of natural assisted regeneration techniques;
- Support to agro-forestry systems, including with the development of cashew orchards in relevant areas;
Support to sustainable cash crops (sesame, cashew, etc.) with the provision of technical assistance and inputs (seeds, equipment);

Value chain development of non-timber forest products (NTFP) and of cash crops, including through agri-business finance (support to access credit, support to lowering the risk exposure of participating financial institutions, implementing a weather-based agricultural index insurance scheme, etc.);

Support to safeguards management and implementation;

Training to fire management;

Introduction of sustainable practices for agriculture and charcoal production;

Improving the management regime of protected areas of native forests (RNG) - hotspot of biodiversity;

Restoration of natural forests and planting of trees for various purposes, including through the Planted Forest Grant Scheme.

Improving land use planning and registration with a process of community delimitation, issuance of individual DUATs, the development of Community Land Use Plans (CLUPs) and the strengthening of CGRNs that can be charged with basic land and natural resources management functions.

Adoption of the national land use plan;

Establishment of national and provincial Monitoring, Reporting and Verification (MRV) offices;

Improvement of land use planning and registration – see above;

Operationalization of the National Forest Information System;

Annual inspection of forest concessions;
<table>
<thead>
<tr>
<th>NCB 5 - Enhanced participatory forest and land use management</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term engagement of multi stakeholders in forest management with strong role of Local Communities;</td>
<td>Support to the establishment of commercial agriculture in areas with no forest cover, especially to the cashew and sesame sector with:</td>
</tr>
<tr>
<td></td>
<td>o Market study on the economic potential of various cash-crops;</td>
</tr>
<tr>
<td></td>
<td>o Training of producers on quality issues for the products to meet quality (international) standards;</td>
</tr>
<tr>
<td></td>
<td>o Implementation of a market information platform to support producers, with the diffusion of information on markets dynamics and prices through SMS;</td>
</tr>
<tr>
<td></td>
<td>Long-term increase and diversification of income;</td>
</tr>
<tr>
<td></td>
<td>Employment opportunities.</td>
</tr>
<tr>
<td></td>
<td>Value chain development of non-timber forest products (NTFP) and of cash crops, including through agri-business finance (support to access credit, support to lowering the risk exposure of participating financial institutions, implementing a weather-based agricultural index insurance scheme, etc.).</td>
</tr>
</tbody>
</table>

- Improvement of law enforcement and good governance and of the management regime of protected areas of native forests (RNG);
- Creation and maintaining of the Zambézia Multi-Stakeholders Landscape Forum;
- Introduction of community based forest monitoring with the strengthening of CGRNs in forest monitoring.
17. TITLE TO EMISSION REDUCTIONS

17.1 Authorization of the ER Program

<table>
<thead>
<tr>
<th>Name of entity</th>
<th>Ministry of Economy and Finance (MEF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main contact person</td>
<td>To be completed</td>
</tr>
<tr>
<td>Title</td>
<td>To be completed</td>
</tr>
<tr>
<td>Address</td>
<td>To be completed</td>
</tr>
<tr>
<td>Telephone</td>
<td>To be completed</td>
</tr>
<tr>
<td>Email</td>
<td>To be completed</td>
</tr>
<tr>
<td>Website</td>
<td>To be completed</td>
</tr>
</tbody>
</table>

Reference to the decree, law or other type of decision that identified this entity as the national authority on REDD+ that can approve ER Programs | To be completed |
17.2 Transfer of Titles to ERs

This sub-section aims to assess the ability of the Government of Mozambique (GoM) and, more precisely, of its Ministry of Economy and Finance (MEF), to transfer titles over ERs generated by the ZILMP to the FCPF, according to the terms of the ERPA.

Assessment of ER Program’s entity’s ability to transfer Titles to ERs to Carbon Fund

Establishment of the ability of the State to transfer titles to ERs

Natural resources and carbon are State properties - Carbon is a constituent element of forests. If carbon is seen as a constituent part of all natural resources, which exists per se, current constitutional and sectorial legislation is adequate for establishing that ownership over carbon resides with the State. The starting point is Article 98 of the CRM, of which the clause 1 clearly states: "Natural resource in the soil and the subsoil, in inland waters, in the territorial sea, on the continental shelf and in the exclusive economic zone shall be the property of the State". In addition, Article 102 of the CRM goes on to say that "The State shall promote the knowledge, surveying and valuing of natural resources, and shall determine the conditions under which they may be used and developed subject to national interests" - for more details, see Tanner (2017c).

The concept of "use and development" of natural resources - The intention of the Constitution in this overall context is clear: the State as owner shall determine how natural resources are "used and developed" and, further, this determination can include selling the natural resource once it has gone through this process of "use and development". In other words, the carbon can be sold if it is subject to some sort of conversion or transformation into a marketable commodity (Tanner, 2017c).

In the specific context of natural forests, which are State property, and which are in the public domain, the key legislation is the 1999 Forest and Wildlife Law (Law 10/99), which gives mandated agencies in the Government the right to assess requests to "use and develop" natural resources. Since 2015, the mandated agency is the MITADER, with two basic forms of use and development allowed: licenses and concessions.

ERs are products of "use and development" of carbon natural resources - Precisely, ERs can be seen as a product of this "use and development" process. ERs are not a natural resource, conversely to carbon: they are the outcome of a decision by the State and/or others with rights over natural resources, and can only be produced by a transformational process or action implying to reduce deforestation and forest degradation. As such, they could be considered as "environmental commodities", identifiable and marketable in their own right. As a consequence, the CRM and existing natural resources laws are sufficient for determining ownership of ERs through the application of the "use and development" concept: the "user and developer" of the natural resources (in this case, forest carbon stocks) implements activities that result in ERs being produced.

Once is has been established that ERs are generated by a process of "use and development", the question remains to know "who owns these products"?
Ownership of ERs generated in conservation areas - The ownership of ERs as the results of developing and using carbon stocks in conservation areas, such as the Gilé National Reserve, is affirmed in the 2014 Law on Conservation and Biodiversity. While the focus of this legislation is on conservation areas, the principles it establishes regarding the possession of the right to use and benefit from carbon stocks are clear and can be extended to other areas of public domain land, providing that: "The right of use and benefit over the carbon stocks existing in a conservation area and its respective buffer zone belong to the entity which manages this conservation area, and the marketing of this right can be carried out in collaboration with other public and private entities" (Decree Law 16/2014, Article 11, Clause 3).

Ownership of ERs generated in State public domains - Article 22 of the same law extends this principle explicitly to areas of community public domain, where natural forests in the possession of the State are largely found. These forests are likely to exist within the territory of delimited Local Communities to whom, as explained below, natural resources management power are attributed by both the Constitution and the Land Law. The implication is that possession of titles over carbon credit rights lies with the holder of the DUAT title over the land in question, or in other words the respective Local Community, which has rights and duties associated with its community public domain over public spaces and common land and the NR found there. These points underline the arguments regarding the need to work closely with Local Communities, as explained in the next sub-section.

Ownership ERs generated though REDD+ projects - Decree 70/2013 is primarily about non-State REDD+ projects in which the "user and developer", may it be a firm, individual, or a collective entity such as a Local Community or Association, has ownership of title over the ERs that are produced. In this context, the State can only sell ERs in two scenario: (i) the State sells ERs on behalf of the "use and developer"; or (ii) the State has retained its rights over the ERs generated by a third party - meaning that the State has agreed to the commercial activity but the ERs that result from sustainable forest use are still State property. In both cases, this has to be clearly established through agreements and contract between the State and the third party.

However, the State can also act in the role of user and developer of its own resources and, in this case, the ERs that result from a publicly-implemented REDD+ project would be the property of the State. This is true for the ZILMP ER Program, where the State as owner of the natural resources and the carbon they contain intends to instruct its agents and service providers to carry out activities that will reduce deforestation and thus produce ERs over a specified period of time. These ERs, as an outcome of the process of use and development, belong to the State and can be sold by it to a third party through a nominated agency.

Consequently, in the current ER Program, the State retains control over the remaining natural forests and ownership over the ERs that are generated by promoting behavioral change on the part of forest users. It is therefore free to sell the titles over these ERs, following the arguments presented above.

In all of these contexts, no new legislation is needed to allow the "State-as-developer" to sell these ERs resulting from publicly implemented projects (or where the State retains its rights over the ERs generated by non-State projects). However, given the unfamiliar nature

59 Approved by Decree No 16/2014 of 20 June
of the carbon and ER issue, specific legislation could greatly clarify the question of title and ER sales. This is currently being prepared as part of the on-going revision process of the REDD+ Decree. It should be updated before the submission of the ER-PD final draft.

Existence of possible other rights and constraints on the ability of the State to transfer titles to ERs

However, one could argue that the State does not have such an automatic property right over ER titles. Although this right seems clearly established for conservation areas such as the GNR and for areas of State public domains⁶⁰ where, in principle there will be few, if any, other pre-existing rights or claims over the resources in question, this may not be true for other types of areas, for which there are many other rights over the resources in question that must be taken into account, deriving from existing laws and constitutional provisions.

Areas under DUAT and DUAF - The existing legal framework for land and natural resources is adequate for establishing third party rights over the trees and forests that are the focus of any ER Program. Those rights may be secured by DUATs and/or DUAFs, from which may emerge potential claims of rights on the ERs generated in those areas - see section 4 for definition of those two concepts. Yet, it is likely that some areas involved in the ER Program area are already covered by DUAT⁶¹ or linked to DUAF⁶²: in areas outside of state public domain, the State may therefore have to negotiate partnership or intermediation agreements with the holders of DUATs or DUAF - which usually involve local communities.

The land tenure legislation⁶³ is the starting point for this, and the key instrument in this context is the Local Community concept - detailed in section 4. As explained in section 4, in this context, carrying out a proper community delimitation, as it is planned in the ER Program activities, is crucial.

Community public domain - The freedom of the State to transfer ER titles generated inside delimited Local Community areas is even more constrained by the 2004 CRM revision, which introduces the concept of community public domain. With this regard, the CRM clearly states that: “The law shall regulate the legal regime of property in the public domain, as well as its management and conservation, and shall distinguish between the public domain of the State, the public domain of local authorities and the public domain of communities, with due respect for the principles of imprescriptibility and immunity from seizure” (Article 98, Clause 3, emphasis added); and “The law shall establish institutional mechanisms for liaison with local communities, and it may delegate to local communities certain functions that are within the powers of the State (Article 263, Clause 5, emphasis added).

---

⁶⁰ The State seems able to freely transfer ER titles emanating from forest conservation measures inside national parks and reserves.

⁶¹ May they belong to a community or held individually by households who have acquired their land rights through “customary norms and practices” (Law 19/97, Article 12) or by “good faith occupation” over ten years.

⁶² Law 10/99 (Forest and Wildlife) makes it clear that local communities have the right to use the forests and natural resources for their own consumption and household economy purposes (Law 10/99, Article 1, Clause 9, and Article 9).

⁶³ The principal instruments are the Land Law (Law 19/97), the Land Law Regulations (Decree 66/98), and the Technical Annex to the Land Law Regulations (Ministerial Diploma No. 29-A2000). Other decrees have also been passed relating to the registration of DUATs in the Legal Registry, or Conservatoria do Registo Predial (Decree 1/2003), adjustments in the fees and land charges paid by DUAT holders to the State (Decree 50/2007), and the conduct of consultations (Decree 43/2010).
According to Tanner (2015c), the community public domain concept allied with the existing public functions specified in the 1997 Land Law introduces an entirely new level of right over natural resources and the products of their "use and development". These are State resources, and the State therefore has the right to negotiate and transfer the titles to ERs that are produced from them. However, as public assets, these resources are also within the community public domain, and are managed by the respective Local Community.

Therefore, in the current legislation, while the State may be the ultimate "owner" of the ERs and thus able to transfer ER title to third parties (like the World Bank), the Local Community (duly delimited and certified) is also "owner" of the ERs insofar as they derive from resources that are part of its community public domain. Consequently, the GoM agencies empowered to negotiate over and transfer ER titles may have to reach an agreement with the representatives of the Local Communities.

**The role of the Ministry of Economy and Finance**

Admittedly, the overall ability of the State to transfer the titles over ERs requires these ERs to be monitored, reported, verified and certified accordingly with UNFCC procedures and FCPF CF methodological guideline. This process has been explained in other sections of the ER-PD and is expected to be fully operational. Two registry systems - see section 18 - will help to structure and secure the process of transferring ERs.

The discussion of certification and negotiations underlines how the Ministry of Economy and Finance is really the only entity able to enter into international negotiations over ER titles transfers, however the ERs are generated. If this is confirmed, the MEF will be responsible for all discussions and negotiations about the funding of REDD+ projects, and the sale of ERs to the Carbon Fund. MEF will also have to have an oversight role to ensure that any funds generated from ERs are properly accounted for in national accounts.

At this stage, enabling legislation is needed to give the GoM the power to sell (transfer title over) ERs to an external third party and to specifically name the entity responsible for it, which is expected to be the Ministry of Economy and Finance.

The nomination of a specific sector charged with the task of transferring titles over ERs to the World Bank (or any other third party) has not yet been mentioned, even in the recently approved National REDD+ Strategy. *This is an issue that is currently being addressed in the on-going revision process of the REDD+ Decree. It should be decided before the submission of the ER-PD final draft.*

**Conclusion: measures to establish State ability to transfer Title to ERs in possibly contested areas**

As stated in (Tanner, 2017a), the Readiness phase documents conclude that, to date, there is no appropriate legislation yet in Mozambique regarding State title over carbon and which entities or specific Government agency exercises this right in the name of the State. However, the analysis reveals that, in fact, existing constitutional and sectoral legislation is adequate for determining who “owns” the ERs; how to reach negotiated agreements over the ownership and right to market the ERs; and over how the benefits are to be distributed.
The analysis above shows that the State can transfer titles over ERs treated as products of a process of "use and development" of forest resources, either by the State itself through a REDD+ or ER project, or by other actors who agree that the State retains its property rights over any ERs that are produced by non-ER activities.

However, later discussions also indicates that the State may not have an automatic right to freely transfer ER titles in every part of the ER Program area. There are many other rights over the resources in question that must be taken into account, including though the concepts of DUAT, DUAF and community public domain.

For now, the way in which the State, through its authorized GoM agency, handles the sale and transfer of ER titles is therefore determined by the territorial category of the area where the forest resources in question are located. In addition, the sector that will negotiate and sign international agreements for the transfer of ER titles in the name of the State still has to be clearly designated by law.

Appropriate legislation, and absolute confidence in the rule of law and in the transparency of the registry systems that are established (see section 18), are both critical requirements for Mozambique being able to guarantee the legitimacy of the ER titles which it aims to transfer to the Carbon Fund.

To this aim, as previously stated, a revision of the REDD+ Decree is currently conducted. This revision will help establish the uncontested ability of the ER Program entity to transfer titles to ERs to the Carbon Fund in full understanding and consideration of local communities rights and in full compliance of the methodological requirement of the FCPF. Box 10 summarizes the main elements that are currently considered as necessary and which will be included in the new REDD+ Decree, which is expected to be approved before the submission of the final ER-PD draft. This ER-PD section will be updated accordingly.

Box 10: Main points of attention for the current revision of the REDD+ Decree

According to Tanner (2017c), the main points of attention for the current revision of the REDD+ decree are:

- Reaffirmation of state ownership of carbon, and of ERs as the product of "use and development" which are tradeable and can be owned by the State and/or the user-developer (firm, local community, etc.);
- Detailed regulations for developing, approving and implementing new REDD+ projects, both private and public, and how to reach agreements with relevant parties;
- Sections covering the question of institutional mandates:
  - Which sector handles all negotiations on behalf of the State with regards to ER titles [this must clearly and unequivocally address the need for the "uncontested ability" of the selected sector to act on behalf of the State – a "legal and regulatory framework stipulating such authority" (as per Criteria 36 of the FCPF MF)]
  - Which sector distributes ER-payments and through which central level mechanism;
Which sector sets up, runs and oversees the process of ER titling, registration, and the management of ER sales and subsequent movements on national and international markets.

- The respective roles and mandates of devolved state bodies with devolved powers and functions over natural resources and other governance issues, when it comes to ER ownership, participation in returns from sales, and local distributional issues;

- Benefit-sharing mechanisms and legally prescribed parameters for determining which share of ER-payments are passed down to stakeholders at different levels, including local community structures.

Following the preliminary work of the REDD+ Decree Review Committee, other elements will also be considered:

- Institutionalization of the SIS platform;

- Clear definition of the main REDD+ concept, including baseline, inventory and carbon credits (ER titles);

- Setting of the REDD+ jurisdictional framework, which should be part of the Constitutional one;

- Designation of the institutional entities respectively responsible for (i) regulation; (ii) monitoring; (iii) validation and verification.

- Interaction of private projects with national REDD+ framework and associated rules.
18. DATA MANAGEMENT AND REGISTRY SYSTEMS

18.1 Participation under other GHG initiatives

Registration of part of the ER Program under other level standards (VCS)

As show in Table 77 and in Table 78, two other projects located in the ER Program area are registered under other level of standards. However, only one of them is planning to transfer ERs to other GHG mitigation initiatives.

Table 77: Carbon projects within the ER Program area registered in the Markit Registry

<table>
<thead>
<tr>
<th>ID</th>
<th>Proponent</th>
<th>Project Type</th>
<th>Status</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1004000000012419</td>
<td>ANAC</td>
<td>Forest Conservation &amp; Avoided Deforestation</td>
<td>Under Validation</td>
<td></td>
</tr>
<tr>
<td>10030000000003742</td>
<td>Makuto S.r.l.</td>
<td>Energy Efficiency – Domestic</td>
<td>Listed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 78: Carbon project with the ER Program area registered in the VCS project database

<table>
<thead>
<tr>
<th>Project ID</th>
<th>Project Name</th>
<th>Project Proponent</th>
<th>Country</th>
<th>Project Type</th>
<th>CCB Standards</th>
<th>Distinction</th>
<th>CCB Status</th>
</tr>
</thead>
</table>

REDD+ Pilot project to mitigate deforestation and forest degradation in the GNR and its surrounding (2014 - 2017) - FFEM project

As stated in section 3, the ER Program accounting area includes the Gilé National Reserve (GNR) – see section 3 for the map of the accounting area. Since 2014, the GNR and its surroundings are part of the Gilé REDD+ Pilot project to mitigate deforestation and forest
The Gilé REDD+ pilot project was launched in January 2014 and will definitively end in September 2017. It is financed by the FFEM with a total budget of EUR 2 millions.

The goal of this project is to implement, with local communities, agro ecological techniques that foster both food security and forest conservation. Along with improved surveillance and management of the GNR, those activities are contributing to lower deforestation rate in the buffer zone of the GNR, promoting both economic development and forest conservation.

In order to secure the long-term, sustainable funding of those activities and to continue the rehabilitation efforts that have been made in the GNR, this project has registered to the CCB and VCS standards to sale carbon credits on the voluntary carbon market, under the project ID PL1674. To this aim, a Project Design Document (PDD) has been submitted and a mission took place to validate the certification of credits in April 2017. After validation of the final report by Ecocert SA - expected to happen in the coming weeks - between 330,000 and 360,000 credits will be available for sale by the end of the year 2017. The project was registered on the Markit registry under the ID 104000000012419 and is currently listed as "under validation" on the VCS site, where the project description documents are made public. After its validation and verification, the project will be able to sell the credits on the voluntary market (at each sale of credits, one part is retained by the register - from 0.10 to 0.15 $ - and By the standards: $ 0.10 / credits for the VCS and $ 0.05 / credit for the CCB).

It should be noted that the FFEM project is complementary to the ER Program, which was partly designed as an upscale of this pilot project. Most of the activities that were comprised in the FFEM project are now carried on by the Mozbio project, as part of the ER Program, which furthers and extends them over the two districts of Gilé and Pebane.

Of importance for the ER Program is that the reference period of the FFEM project is 2011 - 2016 - that is, before the start of the ER Program (2018) and before the application of any ER-PA. Consequently, from 2018 onwards, the ERs generated in the GNR and its surrounding will be fully and exclusively accounted for in the ER Program accounting area. Neither double counting nor multiple claims to ERs titles linked to the GNR project are therefore expected to arise. Any remaining risk of double accounting will, finally, be mitigated by the planned implementation of an efficient Data Management and Registry Systems by the MRV unit - see section 18.2

Improved cook stoves for rural families in Gile Reserve Zambezia (2016 - 2020) - CarbonSink project

Around the GNR, another project financed by the European Union (EU) - under the Thematic Program for Environment and Sustainable Management of Natural Resources (ENRTP) - started in 2016 for four years. The "Strengthening Financial Sustainability and Biodiversity in the National Reserve of Gilé" project focuses on the introduction of new financial mechanisms to protect biodiversity in the GNR. A component of this project, implemented by COVS and CarbonSink, is based on the distribution of 4,000 efficient cook stoves in rural

---

64 The International Foundation for Wildlife Management (IGF) was already benefiting from a loan from the FFEM since 2009, to rehabilitate the Reserve through the re-establishment of its infrastructures, anti-poaching activities and wildlife reintroduction (buffalo, wildebeest, zebra).
communities located around the GNR, in order to reduce wood consumption and generate health positive effect. The project aims to be registered with Gold Standards as a micro-scale domestic energy efficiency project. For now, it is listed in the Markit Registry under the ID 1030000000005747.

Although this project will be monitored according with carbon standard methodologies to provide a certified and transparent data on potential emission reductions achievable with efficient cooking technologies, it has been agreed with FNDS and the WB that **no credit issuance will be claimed in the upcoming years under this project**, in order to avoid possible double counting with the ER Program.

**Transfer of ER to other GHG mitigation initiatives outside of the ER Program area**

The projects that are currently registered in the Markit Registry (Plan Vivo, VCS, Gold Standard) are listed in Table 79. Currently, beside the FFEM project (see above), four other projects that are located outside of the ER Program area are registered in the Markit Registry to transfer ERs to other GHG mitigation initiatives. Three of them are implemented by co2Balance UK Ltd, based on the promotion of domestic energy efficiency (improved cook stoves) and registered for the Gold Standards. Credits have already been issued. The fourth one is located in Sofala and implemented by Envirotrade Carbon Limited and registered under the Plan Vivo initiative. It is under the status “active” but has not started to transfer any ERs yet.

The projects that are currently registered in the VCS project database are listed in Table 80. Currently, beside the FFEM project (see above), two other projects that are located outside of the ER Program area are registered in the VCS database for the CCB standards. Although the Sofala Community Carbon Project, implemented by Envirotrade, was registered, its validation has already expired. The Niassa Forest Project, implemented by Green Resources, has been approved.

**Table 79: Carbon projects in Mozambique in the Markit Registry (FNDS, 2017f)**

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Location</th>
<th>Status</th>
<th>Projects Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GS1247 Improved Kitchen Regimes Multi-Country PoA Master Project VPA 23</strong></td>
<td>Maputo (Mozambique)</td>
<td>Energy Efficiency - Domestic</td>
<td>Gold Standard</td>
</tr>
<tr>
<td><strong>GS1247 VPA 52: Improved Cook Stoves in Chamanculo C, Maputo (Mozambique) phase II</strong></td>
<td>Maputo (Mozambique)</td>
<td>Energy Efficiency - Domestic</td>
<td>Gold Standard</td>
</tr>
<tr>
<td><strong>GS1247 VPA 53: Improved Cook Stoves in Chamanculo C, Maputo (Mozambique), phase III</strong></td>
<td>Maputo (Mozambique)</td>
<td>Energy Efficiency - Domestic</td>
<td>Gold Standard</td>
</tr>
<tr>
<td><strong>Sofala Community Carbon Project (formerly the N’hambita Community Carbon Project)</strong></td>
<td>Sofala (Mozambique)</td>
<td>Forest</td>
<td>Plan Vivo, Active</td>
</tr>
</tbody>
</table>
18.2 Data management and Registry systems to avoid multiple claims to ERs

In the context of REDD+ Readiness under the FCPF, the Registries for REDD+ have focused on a tool to support the operation of a REDD+ implementation framework and country specific solutions need to be found to define the role of the participants in REDD+ transactions. However, regardless of the country context, information on the implementation framework should be comprehensive and made publicly accessible through a national georeferenced REDD+ information system (or registry), containing all relevant information to operate future national and international REDD+ implementation frameworks (FNDS, 2017f).

Accordingly with criterion 37 and criterion 38 of the FCPF MF (FCPF, 2016a), the ER Program design implies the selection of appropriate arrangements, based on national needs and circumstance, to: (i) avoid having multiple claims to an ER Title and (ii) ensure that any ERs from REDD+ activities under the ER Program are not generated more than once and that any ERs from REDD+ activities under the ER Program sold and transferred to the Carbon Fund are not used again by any entity for sale, public relations, compliance or any other purpose.

Figure 45: Data management system architecture for REDD+ in Mozambique
In Mozambique, those discussions on the issue Data Management and Registry Systems are still on going, pending on final political decisions on their practical implementation schemes. Although final decisions still have to be made, concrete progress have been made in the past few months for designing both the REDD+ Program and Project Data Management System and the ER Transaction Registry, under the lead of the MRV Unit in FNDS. They are described below and their complementary functioning is represented in Figure 45.

Program and project data management system

In order to register and report on REDD+ projects/programs in the country the GoM has, accordingly with criterion 37.1 of the FCPF MF (FCPF, 2016a), decided whether to maintain its own comprehensive national REDD+ Program and Projects Data Management System or to use a centralized REDD+ Programs and Projects Data Management System managed by a third party on its behalf: Mozambique will implement and maintain its own comprehensive national REDD+ Program and Projects Data Management System, linking this system with:

- The National Forest Monitoring System for REDD+, specifically with the Participatory MRV System, to check consistency regarding national/program/project FRELs, MRV data (AD and EFs), and Safeguards Information;
- The GHG Inventory, to check consistency on Forest related emissions;
- The National Appropriate Mitigation Actions (NAMA) and Clean Development Mechanism (CDM) Registries, to track other mitigation initiatives, thus avoiding double accounting;
- The carbon project standards registries, including:
  - The Markit Registry, providing tool for managing global carbon, water and biodiversity credits. The Markit Registry enables to track environmental projects and to issue, transact and retire serialized credits. Markit Registry includes: Plan Vivo, VCS and Gold Standard.
  - VCS (Verified Carbon Standard) projects database, acting as a central storehouse of information on all VCS, CCB (the Climate, Community & Biodiversity Standards) and California projects managed by VCS.

The REDD+ Program and Project Data Management System comprises the following functionalities:

- Registering and Managing official approvals and collecting/distributing information on REDD+ project/program proponents;
- Checking, evaluating and validating this information with reference to other records from other linked registries related to emission reduction projects and programs.

Accordingly with criterion 37.3 of the FCPF MF (FCPF, 2016a), the information contained in this system will be made available to the public via the Internet, in Portuguese (national official language in Mozambique). Admittedly, the REDD+ Program and Project Data Management System is considered as part of the REDD+ MRV system in Mozambique.

---

65 Final decision will be made before the submission of the ER-PD final draft, which will be updated accordingly.
and, as such, will for now be located on the same web platform, along with the PMRV, SIS and FGRM mechanisms - see Annex 9 - Characteristics of the Web portal for MRV REDD+ in Mozambique. If it is necessary, it will easily be transferred to another institution later on. As required by criterion 37.2 of the FCPF MF (FCPF, 2016a), the information collected and distributed via the Internet MRV platform will include:

- The entity that has Title to ERs produced (the full legal and beneficial title and exclusive right to ERs contracted for under the ERPA);
- Georeferenced information on the location of REDD+ projects/programs (boundaries, buffers, zoning, areas of intervention, etc.);
- The scope of REDD+ activities and Carbon Pool;
- The reference levels at different scales;
- MRV data to specific REDD+ projects/programs;
- Safeguards plans in specific REDD+ projects/programs;
- CF payments and benefit sharing for specific REDD+ projects/programs.

This REDD+ Project/Program Data Management System should also support independent verification and validation of REDD+ Projects and Programs. In order to comply with criterion 37.4 of the FCPF MF (FCPF, 2016a), the administrative procedures for operating the national REDD+ Programs and Projects Data Management System will be prepared in the short term and will be ready before the submission of the ER-PD final draft to the FCPF CF. Finally, an audit of the operations will be carried out by an independent third party periodically, as agreed with the Carbon Fund, once the ER-PA comes into operation.

**Box 11: Next steps for the REDD+ Program and Project Data Management System**

The next step in the implementation of the national REDD+ Program and Project Data Management System in Mozambique is the approval of its administrative procedures. This should be stated in the new REDD+ Decree, which is currently being developed, and which is expected to happen before the submission of the final ER-PD draft to the FCPF CF. It should also be decided which institutions will be responsible for hosting the system. For now, the entity responsible for the coordination of the national REDD+ Program and Project Data Management System is DINAF, with support from the UT REDD+.

**ER transaction registry**

In order to handle the process of issuing offsets units with unique serial numbers, once the information on ERs generated by a project / program has been verified through the REDD+ Program and Projects Data Management System, the GoM is currently designing the scheme of its ER Transaction Registry, with the support of the MRV Unit in FNDS.

It should be noted that, at this stage, the GoM has not yet decided whether to maintain its own comprehensive national ER Transaction Registry or to use a centralized ER Transaction Registry managed by a third party on its behalf, as required by criterion 38.1 of the FCPF MF (FCPF 2016a). In order to reach a decision soon, and before the submission of the ER-PD final draft, several options are currently being analyzed.

Based on Mozambique’s national needs and circumstances, two types of ER Registries and
issuing procedures are considered:

i. Projects and programs registered in a Voluntary Standard (VCS, Golden Standard, CCB, Plan Vivo):
   - Rules and methodologies are issued by that voluntary standard;
   - Each voluntary standard also provides an ER Registry and issuing procedures.

ii. ER Program and projects supported by the FCPF Carbon Fund:
   - Rules and methodologies are issued by FCPF CF Methodological Framework;
   - An ER Registry will be required as a prior condition to ERPA signature, with several options under considerations:
     - Use an existing "independent" or "private" GHG registry tool, such as the World Bank CARS, which probably satisfies the needs of Carbon Fund participants. A specific ER Unit would be created;
     - Use any "established" GHG Registry (voluntary standard or Annex 1 countries registries), where potential buyers could already have an account open;
     - Create a new registry for the issuing REDD Country. This new registry could be either: (i) developed in-house, or integrated from existing software under license: or (ii) provided ‘as a service’ (IT or IT & operations) by a GHG Registry Vendor.

The GoM still need to make a final decision on this scheme, according to the forecasted advantages and inconvenient of each model, as described in Table 81.

In any case this national or centralized ER transaction registry will reports ERs for the Carbon Fund using the accounting methods and definitions described in the FCPF CF MF and allowing an operational guidance that clarifies the roles and responsibilities of entities involved in the ER transaction registry, as well as rules for operation of the registry. Finally, an independent audit report certifying that the national or centralized ER transaction registry performs required functions will have to be made public.

Box 12: Next steps for the ER Transactions registry

The next steps for the implementation of the ER Transactions registry implies for the GoM to make a final decision on whether to maintain its own comprehensive national ER Transaction Registry or to use a centralized ER Transaction Registry managed by a third party on its behalf. It should also be decided where to host the registry and the final institutional arrangements linked to its management, through a well-defined operational guide. For now, discussions within the REDD+ Decree Review Committee are in favor of:

- The ER Transactions Registry being managed by the MEF in collaboration with the FNDS;
- Potential buyers having the obligation to register with the MEF prior to transactions;
- The GoM having its own comprehensive national ER Transaction Registry.

*Those elements are still being discussed and will be definitely decided by the ER-PD final draft submission.*
## Table 81: advantages and disadvantages of the various ER Transaction Registry options

<table>
<thead>
<tr>
<th>Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
</table>
| **Option 1. ‘De minimis’ Registry System** | o Simple, cheap and easy to implement | o Sensitive to mistakes  
o Less transparent, less reliable  
 o Difficult to guarantee environmental integrity if many subnational project/programs are generating ERs sold to multiple buyers  
 o CARS may not be used for non FCPF CF transactions |
| **Option 2. Use existing registry (REDD Country and buyers are account holders in an existing registry)** | o Ready to be used, no development needed  
 o Tested and proven infrastructure and administrative processes  
 o Less costly than other options  
 o Minimize risks and complexity  
 o Already / rapidly available linking may be facilitated  
 o Access to a market demand may be facilitated | o No possibility to change/adapt (legacy) – especially reporting  
 o Country doesn’t manage its GHG emissions and ER units (sovereignty),  
 o Information would potentially be scattered across repository and harder to consolidate. |
| **Option 3. Outsource Registry administration and IT** | o Turn-key Registry Administration and system (IT)  
 o Shorter development process building on experience of third party  
 o Potential to synergies in development and operation (common developer/operator)  
 o Linking may be facilitated  
 o Access to a market demand may be facilitated  
 o Reduce risks and complexity | o Limited but existing customization possibilities  
 o Potentially costlier depending on service provider |
| **Option 4. Build Own Operate (BOO)** | o Design your own specifications  
 o Potential to add custom functionalities allows for flexibility for countries to better support their internal administrative processes  
 o Benefit from existing open source software or in-country software  
 o Increased national ownership and capacity  
 o Provide end-users support  
 o Potentially creates a “use” option for other REDD Countries | o Requires IT and administrative capacity to be developed and properly managed  
 o Costly development process and learning curve  
 o Requires resources to improve, maintain, host and establish user support |
REFERENCES


Beta, Nemus. 2015. *Análise do Quadro Legal e Institucional para Implementação do REDD+.* Moçambique: FUNAB.


FNDS. 2017c. Participatory MRV system for Mozambique. MITADER. June 2017.


Governo de Moçambique. 1997b. Lei nº19/97, de 1 de Outubro – Lei de Terras. Maputo, Mozambique.


Governo de Moçambique. 2015a. Estratégia Nacional de Desenvolvimento Sustentável. Maputo: MITADER.


IUCN. The IUCN Red List of Threatened Species 2016. Available at: http://www.iucnredlist.org/


MITADER. 2015. *Intended Nationally Determined Contribution (INDC) of Mozambique to the United Nations Framework Convention on Climate Change (UNFCCC)*.


Tanner, C., De Wit, P., and Norfolk, S. 2009. *Participatory land delimitation: an innovative development model based upon securing rights acquired through customary and other forms*


Tanner, C. and Bicchieri, M. 2014. When the Law is not enough: paralegals and natural resources governance in Mozambique. Publication of the Food and Agriculture Organization of the United Nations. Roma, Italy.


Trindade, J-C, and Dos Santos, B. 2004. A paisagem da justiça em Moçambique. Coimbra, Center for Social Studies and Maputo, Center for Legal and Judicial Training (CFJJ)


UT-REDD+. Spreadsheet on Consultation events. Continuous Updating. Available on:
https://docs.google.com/spreadsheets/d/1LOo1dvQyUOXMHOU20Djg61E3ECM7OgDbJEhf68jPZ5c/edit#gid=862126948

UT-REDD+. Summaries and documents available on all consultations with stakeholders. Continuous updating. Available on:
https://www.dropbox.com/sh/suxo9ki0a595qle/AAAeRtyQSmBi_uXTnFbJ1dba/Relat%C3%B3rios%20das%20consultas?dl=0


Winrock International and Centro de Estudos de Agricultura e Gestão de Recursos Naturais. 2015. Identificação e Análise dos Agentes e Causas Directas e Indirectas de Desflorestamento e Degradação Florestal em Moçambique.


## Annex 1: Lists of mammals and reptiles in the GNR and its buffer zone

Table 82: Consolidation of main mammals identified in the GNR and its buffer zone and their relative abundance, classified by Order

<table>
<thead>
<tr>
<th>English name</th>
<th>Scientific name</th>
<th>AKIe in the GNR / buffer zone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Artiodactyla</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natal red duiker</td>
<td>Cephalophus natalensis</td>
<td></td>
</tr>
<tr>
<td>Hippopotamus *</td>
<td>Hippopotamus amphibius</td>
<td></td>
</tr>
<tr>
<td>Sable antelope</td>
<td>Hippotragus niger</td>
<td>0,148</td>
</tr>
<tr>
<td>Waterbuck</td>
<td>Kobus ellipsiprymnus</td>
<td>0,276</td>
</tr>
<tr>
<td>Suni</td>
<td>Nesotragus moschatus</td>
<td></td>
</tr>
<tr>
<td>Klipspringer</td>
<td>Oreotragus oreotragus</td>
<td></td>
</tr>
<tr>
<td>Warthog</td>
<td>Phacochoerus aethiopicus</td>
<td></td>
</tr>
<tr>
<td>Bush pig</td>
<td>Potamochoerus porcus</td>
<td>0,195</td>
</tr>
<tr>
<td>Southern reedbuck</td>
<td>Redunca arundinum</td>
<td>0,275</td>
</tr>
<tr>
<td>Common duiker</td>
<td>Sylvicapra grimmia</td>
<td>4,39 / 0,320</td>
</tr>
<tr>
<td>Bushbuck</td>
<td>Tragelaphus scriptus</td>
<td>0,831 / 0,416</td>
</tr>
<tr>
<td>Greater kudu</td>
<td>Tragelaphus strepsicus</td>
<td>0,294 / 0,656</td>
</tr>
<tr>
<td><strong>Carnivores</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African clawless otter</td>
<td>Aonyx capensis</td>
<td></td>
</tr>
<tr>
<td>Marsh mongoose</td>
<td>Atilax paludinosus</td>
<td></td>
</tr>
<tr>
<td>Bushy-tailed Mongoose</td>
<td>Bdeogale crassicauda</td>
<td></td>
</tr>
<tr>
<td>Side-striped jackal *</td>
<td>Canis adustus</td>
<td></td>
</tr>
<tr>
<td>African civet</td>
<td>Civettictis civetta</td>
<td></td>
</tr>
<tr>
<td>Spotted Hyaena *</td>
<td>Crocuta crocuta</td>
<td></td>
</tr>
<tr>
<td>Wild cat</td>
<td>Felis silvestris</td>
<td></td>
</tr>
<tr>
<td>Miombo genet</td>
<td>Genetta angolensis</td>
<td></td>
</tr>
<tr>
<td>Common genet</td>
<td>Genetta genetta</td>
<td></td>
</tr>
<tr>
<td>Blotched genet</td>
<td>Genetta tigrina</td>
<td></td>
</tr>
<tr>
<td>Dwarf mongoose</td>
<td>Helogale parvula</td>
<td></td>
</tr>
<tr>
<td>Ichneumon mongoose</td>
<td>Herpestes ichneumon</td>
<td></td>
</tr>
<tr>
<td>White-tailed mongoose</td>
<td>Ichneumia albicauda</td>
<td></td>
</tr>
<tr>
<td>Striped polecat</td>
<td>Ictonyx striatus</td>
<td>0,341</td>
</tr>
<tr>
<td>Serval*</td>
<td>Leptailurus serval</td>
<td></td>
</tr>
<tr>
<td>Spotted-necked otter</td>
<td>Lutra maculicollis</td>
<td></td>
</tr>
<tr>
<td>Animal Type</td>
<td>Scientific Name</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td>African wild dog *</td>
<td>Lycaon pictus</td>
<td></td>
</tr>
<tr>
<td>Ratel</td>
<td>Mellivora capensis</td>
<td></td>
</tr>
<tr>
<td>Banded mongoose</td>
<td>Mungos mungo</td>
<td></td>
</tr>
<tr>
<td>African palm civet</td>
<td>Nandinia binotata</td>
<td></td>
</tr>
<tr>
<td>Lion *</td>
<td>Panthera leo</td>
<td></td>
</tr>
<tr>
<td>Leopard *</td>
<td>Panthera pardus</td>
<td></td>
</tr>
<tr>
<td><strong>Cetartiodactyla</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lichtenstein Hartebeest</td>
<td>Alcelaphus lichtensteinii</td>
<td></td>
</tr>
<tr>
<td>African buffalo</td>
<td>Syncerus caffer</td>
<td></td>
</tr>
<tr>
<td><strong>Eulipotyphla</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrews</td>
<td>Crocidura sp.</td>
<td></td>
</tr>
<tr>
<td><strong>Hyracoidea</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southern tree hyrax</td>
<td>Dendrohyrax arboreus</td>
<td></td>
</tr>
<tr>
<td>Bush hyrax</td>
<td>Heterohyrax brucei</td>
<td></td>
</tr>
<tr>
<td>Rock hyrax</td>
<td>Procavia capensis</td>
<td></td>
</tr>
<tr>
<td><strong>Lagomorpha</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrub hare</td>
<td>Lepus saxatilis</td>
<td></td>
</tr>
<tr>
<td>European rabbit</td>
<td>Oryctolagus cuniculus</td>
<td></td>
</tr>
<tr>
<td>Natal red rock hare</td>
<td>Pronolagus crassicaudatus</td>
<td></td>
</tr>
<tr>
<td>Smith’s Red Rock hare</td>
<td>Pronolagus rupestris</td>
<td></td>
</tr>
<tr>
<td>Four-toed sengi</td>
<td>Petrodromus tetradactylus</td>
<td></td>
</tr>
<tr>
<td>Chequered sengi</td>
<td>Rhynchocyon cirnei</td>
<td></td>
</tr>
<tr>
<td><strong>Pholidota</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temminck’s ground pangolin</td>
<td>Smutsia temminckii</td>
<td></td>
</tr>
<tr>
<td><strong>Primates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grivet monkey</td>
<td>Cercopithecus aethiops</td>
<td></td>
</tr>
<tr>
<td>Samango monkey</td>
<td>Cercopithecus mitis</td>
<td></td>
</tr>
<tr>
<td>South African galago</td>
<td>Galago moholi</td>
<td></td>
</tr>
<tr>
<td>Brown greater galago</td>
<td>Otolemur crassicaudatus</td>
<td></td>
</tr>
<tr>
<td>Yellow baboon</td>
<td>Papio cynocephalus</td>
<td></td>
</tr>
<tr>
<td><strong>Proboscidea</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African elephant</td>
<td>Loxodonta africana</td>
<td></td>
</tr>
<tr>
<td><strong>Rodentia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spiny mouse</td>
<td>Acomys spinosissimus</td>
<td></td>
</tr>
<tr>
<td>Rats</td>
<td>Aethomys sp.</td>
<td></td>
</tr>
<tr>
<td>Lord Derby's anomalure</td>
<td>Anomalurus derbianus</td>
<td></td>
</tr>
<tr>
<td>Long tailed pouched rat</td>
<td>Beamys hindei</td>
<td></td>
</tr>
<tr>
<td>Forest giant pouched rat</td>
<td>Cricetomys emini</td>
<td></td>
</tr>
<tr>
<td>African dormouse</td>
<td>Graphiurus sp.</td>
<td></td>
</tr>
<tr>
<td>Scientific name</td>
<td>Common name</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>----------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Silvery mole rat</strong></td>
<td>Heliophobius argenteocinereus</td>
<td></td>
</tr>
<tr>
<td><strong>Mutable sun squirrel</strong></td>
<td>Heliosciurus mutabilis</td>
<td></td>
</tr>
<tr>
<td><strong>African porcupine</strong></td>
<td>Hystrix aferiaeaustralis</td>
<td></td>
</tr>
<tr>
<td><strong>Single-striped mouse</strong></td>
<td>Lemniscomys rosalia</td>
<td></td>
</tr>
<tr>
<td><strong>Natal multimammiate mouse</strong></td>
<td>Mastomys natalensis</td>
<td></td>
</tr>
<tr>
<td><strong>Mices</strong></td>
<td>Mastomys sp.</td>
<td></td>
</tr>
<tr>
<td><strong>Ethiopian striped mouse</strong></td>
<td>Muriculus imberbis</td>
<td></td>
</tr>
<tr>
<td><strong>Typical Vlei Rat</strong></td>
<td>Otomys typus</td>
<td></td>
</tr>
<tr>
<td><strong>Smith's bush squirrel</strong></td>
<td>Paraxerus cepapi</td>
<td></td>
</tr>
<tr>
<td><strong>Striped bush squirrel</strong></td>
<td>Paraxerus flavovittis</td>
<td></td>
</tr>
<tr>
<td><strong>Red squirrel</strong></td>
<td>Paraxerus palliatus</td>
<td></td>
</tr>
<tr>
<td><strong>Black rat</strong></td>
<td>Rattus rattus</td>
<td></td>
</tr>
<tr>
<td><strong>Gerbils</strong></td>
<td>Tatera sp.</td>
<td></td>
</tr>
<tr>
<td><strong>Lesser cane rat</strong></td>
<td>Thryonomys gregorianus</td>
<td></td>
</tr>
<tr>
<td><strong>Greater cane rat</strong></td>
<td>Thryonomys swinderianus</td>
<td></td>
</tr>
<tr>
<td><strong>Tubulidentata</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aardvark</strong></td>
<td>Orycteropus afer</td>
<td></td>
</tr>
</tbody>
</table>

AKIe: Abundance Kilometre Index of species

* Those species have not been directly spotted for a long time so they are rare or are not considered to be permanent in the GRN despite records on their crossing in the area.

Based on (Deffontaines, 2012); (Mésochina et al., 2010); (Fusari et al., 2010)

Table 83: Main reptiles identified in the GNR and its buffer zone

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Common name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Snakes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Bitis arietans</strong></td>
<td>African puff adder</td>
</tr>
<tr>
<td><strong>Crotaphopeltis hotamboeia</strong></td>
<td>White-lipped herald snake/Red-lipped snake</td>
</tr>
<tr>
<td><strong>Dasypeltis scabra</strong></td>
<td>Common egg eater</td>
</tr>
<tr>
<td><strong>Dendroaspis polyplepis</strong></td>
<td>Black mamba</td>
</tr>
<tr>
<td><strong>Dendroaspis angusticeps</strong></td>
<td>Eastern green mamba</td>
</tr>
<tr>
<td><strong>Dispholidus typus</strong></td>
<td>Boomslang</td>
</tr>
<tr>
<td><strong>Naja annulifera</strong></td>
<td>Snouted cobra</td>
</tr>
<tr>
<td><strong>Naja melanoleuca</strong></td>
<td>Forest cobra</td>
</tr>
<tr>
<td><strong>Naja mossambica</strong></td>
<td>Spitting cobra</td>
</tr>
<tr>
<td><strong>Philothamnus hoplogaster</strong></td>
<td>South Eastern green snake/Green water snake</td>
</tr>
<tr>
<td><strong>Philothamnus natalensis</strong></td>
<td>Natal Green Snake/Eastern green snake</td>
</tr>
<tr>
<td><strong>Philothamnus semivariegatus</strong></td>
<td>Spotted bush snake</td>
</tr>
<tr>
<td><strong>Psammophis phillipsi mossambicus</strong></td>
<td>Olive whip snake</td>
</tr>
<tr>
<td><strong>Psammophis subtaeniatus orientalis</strong></td>
<td>Eastern stripe-bellied sand snake</td>
</tr>
<tr>
<td><strong>Python natalensis</strong></td>
<td>South African python</td>
</tr>
<tr>
<td><strong>Python sebae</strong></td>
<td>African rock python</td>
</tr>
<tr>
<td><strong>Telescopus semiannulatus</strong></td>
<td>Tiger snake</td>
</tr>
<tr>
<td><strong>Thelotornis capensis</strong></td>
<td>Twig snake</td>
</tr>
<tr>
<td><strong>Thelotornis mossambicanus</strong></td>
<td>Eastern twig snake</td>
</tr>
</tbody>
</table>

**Lizards and monitors**

| **Gerrhosauros validus**   | Giant plated lizard |
| **Platysaurus sp.**        | Flat lizard |
| **Varanus albigularis microsticus** | Rock monitor |
| **Varanus niloticus**      | Nile monitor |
| **Hemidactylus sp.**       | The house gecko |

**Crocodiles**

| **Nilo Crocodylus niloticus** | Nilo Crocodylus niloticus |

Based on (Fusari et al., 2010); (Mésochina et al., 2010); (Fondation IGF, 2013)
### Annex 2: Prioritization of interventions according to the National REDD+ Strategy – Action Plan

<table>
<thead>
<tr>
<th>Actions</th>
<th>Priority 1</th>
<th>Priority 2</th>
<th>Priority 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SO1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design and implementation of relevant systems and tools for planning,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>implementing and monitoring REDD+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reinforcement of the land use planning system with focus on the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>identification of forests to be conserved and areas to be restored</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train partners and extension agents (capacity building)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assess the need to adjust the national legislation to reinforce</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>actions to reduce deforestation and forest degradation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research on REDD+ implementation techniques, technologies and policies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and their impact on society</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate the implementation of fiscal and non-fiscal incentives to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>promote the reduction of emissions from deforestation and forest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>degradation and the increase of carbon stocks through forests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish an M &amp; MRV and SIS system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SO2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improvement of the productivity and of the conservation of soils</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>through the reduction of itinerant agriculture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer of technology and organization of agricultural producers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valorization of post-harvesting operations: marketing, processing and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>storage of agricultural products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotion and support of partnerships between large, medium and small</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>producers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planting of multiple use trees in agricultural areas and promotion of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>agroforestry systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restoration and rehabilitation of degraded areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SO3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable use of biomass energy in urban areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improving access to alternative energy sources to biomass in urban and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>peri-urban areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National production of improved stoves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable biomass energy production (biomass production and coal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>processing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FCPF Carbon Fund – Mozambique ZILMP</strong></td>
<td><strong>Advanced Draft ER-PD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Formalization of the coal business in large cities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Review and re-qualification of conservation areas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Establishment of sustainable business in conservation areas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attracting funding and other sources of income to conservation areas that are compatible with biodiversity conservation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Review and strengthening of forest governance and monitoring system</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Forest statistical information system for the registration, control and public disclosure of forest operations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Forest inventories and forest management plans for productive timber areas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Establishment of standards for wood products and improvement of the efficiency and integral use of wood; Diversification of products and services within areas of forest concessions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Classification of wood in the customs tariff</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Training of forestry operators (in matters of forest operations, use of the management plan and use of wood)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Model Forest Concessions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Facilitate and simplify procedures for access, security and land tenure for the establishment of industrial, community and family forest plantations, as well as for the restoration of degraded forest areas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Network for testing species and provenances of multiple use trees in the main agro-ecological zones</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AUM species germplasm bank (seeds and clones)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Restoration of degraded forests using ROAM techniques</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Industrial forest plantations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Small and medium-scale forest plantations (communities and families)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Markets for forest products and services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annex 3: analysis of the emissions due to illegal logging in the ZILMP area

The present analysis, about emissions related to legal and illegal logging in the ZILMP implementation area (forest degradation), have been made for the background study in preparation of the ER PD development (Mercier et al., 2016). It was realized at this time on 7 districts that constitute initially the boundary of the program. Emissions related to this activity are therefore compared to emissions on the same area and it appeared that it is less than 10% of those. Main results of the analysis are summarized hereafter.

Emissions due to forest exploitation were estimated with data relating to the total volume that is officially exploited in the program area and to the estimated share of illegal logging. The result is emissions of 37,945 tCO$_2$eq/yr. Great uncertainties exist about those volumes: a field survey would be necessary to improve the analysis. It will however remain difficult to access data on illegal logging. It was impossible to gather data on the roads created for wood extraction out of the logging area. Hence, some emissions are not part of this estimation, which is therefore conservative. Furthermore, since there are no available estimates on the areas impacted by roads or wood parks for the Zambézia province, activity data could not be established.

Context of logging in the ZILMP area

Logging in Mozambique can occur in two types of land uses that obey to different regulations:

- **Concessions**: lands are allocated to companies for 50 years. To obtain the administrative authorization to exploit those concessions, a management plan is required. Companies also need to be in possession of timber processing facilities. They are prohibited from exporting unprocessed log of first class species.

- **Simple licenses**: they consist of a 5 years permit that limit the maximal harvesting amount to 500 m$^3$ per year, on an area that should not exceed 10,000 ha. They are available for Mozambican citizens only and require simplified management plan.

- Forest concessions were introduced in 1999 to guarantee the sustainability of exploitations. Although they were, initially, supposed to replace simple licenses, the latter still exist: as they imply fewer responsibilities and represent a higher part of production (about two third of the authorized volume, according to Sitoe et al. (2012), they still are more appealing.

The main legal instruments that define forest exploitation in Mozambique are the following (Falcão et al. 2015):

- The Forestry and Wildlife Regulations (2002), which recognizes forest concessions as a new regime of land use to promote sustainability.
- Conservation law (2014).

---

66 22 species of which Jambire (Millettia stuhlmannii), Chanfutta (Afzelia quazensis), Umbila (Pterocarpus angolensis) and Pau-Ferro (Swartzia madagascariensis)
- Environment law (1997).
- Policy and strategy for the development of the Forestry and Wildlife sector (1997).
- The moratorium on pau-ferro (Schwartzia madagariensis) exploitation and on the deliverance of new forest concession and simple licenses (1st of January 2016).

In 2015, 31% and 21% of program area was ruled, respectively, by operational concessions and simple licenses (Figure 46). In 2011, operational concessions and simple licenses represented, respectively, 15% and 4% of the program area showing an important increase in area under forest exploitation in the period. The percentage of forest covered by simple licenses is inferior to the percentage of the ZILMP area covered by simple licenses, we can conclude that licenses are surprisingly attributed in area where there is low forest cover. 31% of delimitated concessions are currently operational. The final approval for the attribution of the remaining 69%, which is still being analysed by the administration, will depend inter alia on the approval of the management plans. Concerning simple licenses, currently 58% are operational and the status of the other is pending.

In order to assess the share of deforestation that occurs inside concessions and simple licenses areas, data were extracted from deforestations maps produced for the background study (Table 84). They were analysed in light of the past deforestation data from the 2010 – 2013 period and of the 2011 delimitations of concession and simple licenses areas.

Figure 46: Map of operational forest concessions and simple licenses in the ZILMP area in 2015 (Source: SPFFB Zambézia, retreatment by Etc Terra)
Without any restriction on land use by households in logging concessions, it is not possible to differentiate deforestation what would have been caused, exclusively, by logging or by “slash and burn” agriculture. However, to the contrary of agricultural practices, it is very likely that logging leads to degradation rather than deforestation: exploitation pressure being concentrated on few species only. Whereas deforestation rates in concession areas are similar to those of the overall program area (Table 84), they are higher in simple licenses areas, highly above the program area rate: 0.86%/yr. This may be explained by fast attribution of lands, leading to a rapid exploitation of the available timber, with lower selection of tree species (Table 84). Given this, we can infer that logging concessions or licenses do not mitigate deforestation dynamics.

Table 84: Proportion of forests in the program area that was under concession or simple license status in 2011 and in 2015 and corresponding deforestation rate during the recent period 2010-2013

<table>
<thead>
<tr>
<th>Land cover classes</th>
<th>ZILMP</th>
<th>2011</th>
<th>2015</th>
<th>2015</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Concessions</td>
<td>Simple</td>
<td>Concessions</td>
<td>Simple</td>
</tr>
<tr>
<td>Total area</td>
<td>3,865,062</td>
<td>594,925</td>
<td>157,794</td>
<td>1,208,748</td>
<td>799,292</td>
</tr>
<tr>
<td>Proportion of the ZILMP area</td>
<td>100%</td>
<td>15%</td>
<td>4%</td>
<td>31%</td>
<td>21%</td>
</tr>
<tr>
<td>Forest cover in 2013</td>
<td>1,983,784</td>
<td>461,045</td>
<td>82,829</td>
<td>766,025</td>
<td>348,119</td>
</tr>
<tr>
<td>Proportion of the forest</td>
<td>100%</td>
<td>23%</td>
<td>4%</td>
<td>39%</td>
<td>18%</td>
</tr>
<tr>
<td>Historical deforestation rate between 2010-2013</td>
<td>-0.86%</td>
<td>-0.39%</td>
<td>-1.12%</td>
<td>-1.09%</td>
<td>-1.75%</td>
</tr>
</tbody>
</table>

In Mozambique, and in Zambézia province especially, current practices are based on short cutting cycles that jeopardize logging sustainability: although it is acknowledged that a 30 years rotation would be necessary in the Miombo forest to ensure regeneration (Mackenzie and Ribiero 2009), management plans are usually based on a 20 years rotation, or less (often, 5 to 10 years rotation). EIA (2014) estimates that, with a linear evolution of the 8% exploitation growth rate, the exploited species stocks would be exhausted within 15 years.

Official data estimate exploitation volumes in Zambézia (German and Wertz-Kanounnikoff, 2012; Mackenzie and Ribiero, 2009):

- In 2009, in Zambézia, licensed volumes were 18 046 m³ for concession areas and 22 345 m³ for simple license areas. That was the second highest production of Mozambique, just after Sofala province (source: DNFT as reported by German and Wertz-Kanounnikoff 2012).
- In 2007, 14 simple licenses and 99 concessions licenses were issued in Zambézia province for a total volume of 36 693 m³, close to the 2009 amount (Mackenzie and Ribiero, 2009).
Exported quantities are higher than licensed quantities: most exports are illegal and, therefore, excluded from official reports – as explained hereafter (Mackenzie 2006; Mackenzie and Ribiero 2009). Hence, estimates given by official data should be far below timber exploitation real rates.

Significance of Illegality in the logging sector

Today, 50% of the quantities of timber shipped out of Zambézia is believed to be illegal (Ekamn et al., 2013; Mackenzie 2006; Mackenzie and Ribiero 2009). In Mozambique, this share could reach 76% to 93% of timber production (EIA 2014). Most of the wood (about 80%) is exported towards China (Ekamn et al. 2013; Mackenzie and Ribiero 2009). Yet, Mozambican reports of exportations towards China do not correspond to the Chinese importation level from Mozambique (Figure 48), giving an indicator of illegal exportation.

Figure 47: Exports of wood from Cabo Delgado province of Mozambique by destination during the year 2010 in m³ (From (Ekamn, Wenbin, and Langa E. 2013))

Figure 48: Value of timber exports from Mozambique (Moz) to China (CH) and to the world as reported by the respective countries (Source: UN COMTRADE as presented in (German and Wertz-Kanounnikoff 2012))
Illegality lies in different practices, from illegal harvest that do not respect management plans to violation of labor laws, violation of transport laws and illegal exports of unprocessed timber for first class species (Ekamn et al. 2013; Mackenzie 2006; Wertz-Kanounnikoff et al. 2013). Again, whereas Mozambican authorities declare that 20% of exports are composed of unprocessed logs, in accordance with the law, China declares 75% of unprocessed log imports in 2010, underlying illegal practices in timber processing (German and Wertz-Kanounnikoff 2012; Ekamn et al. 2013). A study of Falcão et al. (2015) shows that companies that export unprocessed logs can reach a 2,430 USD benefit per container, against 530 USD per container for legal wood, because (i) cost is not related to processing and (ii) logs are sold at a higher price in China. According to (EIA 2014), uncollected taxes related to illegal logging accounted for approximately 146 millions USD between 2007 and 2012 between 3 and 6 USD per log are usually paid to the loggers hired in villages.

Widespread illegality in logging sector is enhanced by weak law enforcement, as illustrated by the limited number of fines - 177 in Zambézia province in 2007 - compared to the extent of the illegality phenomenon, and a high degree of corruption along the value chain (Mackenzie 2006; Mackenzie and Ribiero 2009). In Zambézia province, the main agents of logging are Mozambican and Chinese companies (German and Wertz-Kanounnikoff 2012; Mackenzie and Ribiero 2009).

Estimations of emissions due to forest degradation by legal and illegal logging

Estimates of emissions due to forest exploitation (legal and illegal) can be based on exported quantities from Zambézia and on several hypotheses about exploitation methods and impacts. To do so, we followed the VM0011 VCS methodology for improved forest management “Logged to protected forest: calculating GHG Benefits from preventing planned degradation”, developed by Carbon Planet Limited and approved by VCS in 2011. For emissions sources and removals, the methodology is as follows:

- **Emissions from the dead wood pool** composed of residual from stand damage, branches and trimmings left in soil after logging. Carbon from this pool is gradually emitted while the biomass is degrading. In this pool, carbon can be estimated with factors detailed in literature and correlated to carbon stocks in merchantable quantities. However, the lack of data on forest exploitation in Mozambique prevented us from following this methodology. Instead, dead wood pool carbon stocks were considered as a difference between carbon stocks in the estimated total biomass and merchantable biomass (i.e. biomass in logs). The decay rate was considered similar to the one recommended by IPCC for belowground biomass (i.e. 10%/yr).

  - **Total biomass** is estimated with expansion factors for conversion of wood removals (BCEF) as recommended by the (IPCC 2006).
  - **Merchantable biomass** is estimated with a relation between wood density and exploited volume as recommended by IPPC. For wood density, an average for the main exploited species was used.

- **Emissions from long term harvested wood products** (ltHWP), composed of emissions from the decomposition or burning of processing residues and from the oxidation of long-lived wood products. The first component was conservatively set to zero wood, since it is mostly not processed in Mozambique and few relevant data are available about processing techniques. The second component was estimated as precious wood from forest exploitation in Mozambique, as it is mostly used to form planks and pieces of furniture. According to VM0011 methodology, fraction of carbon
remaining in ltHWP can be estimated with the following equation (k being the rate of oxidation of ltHWP and t the elapsed time since wood processing):

**Equation 1:**

\[ F_{ltHWP_{remain}} = e^{-k_{ltHWP}t} \]

- **Removals from regrowth after selective logging** have to be assessed with annual growth rates. However, since it is not possible to assess the areas that have actually been impacted by selective logging, the total biomass would be retrieved with a delay considered in a 5% regrowth rate - which means that 20 years would be necessary to ensure post-logging regeneration (Mackenzie and Ribiero 2009).

Data and hypothesis are summarized in Table 85. The result is an estimation of 0.04 MtCO\(_2\)eq over a period of 10 years (Table 86). This represents a proportion of 1.2% of emissions due to deforestation in the 7 districts of the ER Program implementation area, 3.3 MtCO\(_2\)eq/yr, as assessed by the baseline of the ER program established in the background study (Mercier et al., 2016).

<table>
<thead>
<tr>
<th>Factors and pools</th>
<th>Data</th>
<th>Units</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exploitation data</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Licensed volume exploited in Zambézia</td>
<td>Concessions</td>
<td>18,046</td>
<td>m(^3)</td>
</tr>
<tr>
<td></td>
<td>Simple license</td>
<td>22,345</td>
<td>m(^3)</td>
</tr>
<tr>
<td></td>
<td>Part in the program area</td>
<td>50%</td>
<td>8,939</td>
</tr>
<tr>
<td></td>
<td></td>
<td>48%</td>
<td>10,796</td>
</tr>
</tbody>
</table>
Total with illegal exploitation 78,938 m³

**Total tree biomass**

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCEF</td>
<td>0.89</td>
<td>tdm/m³</td>
</tr>
<tr>
<td>Root-to-shoot ratio</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td>Bark fraction</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Carbon fraction</td>
<td>0.47</td>
<td>tC/tdm</td>
</tr>
</tbody>
</table>

Carbon in merchantable volume

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood density</td>
<td>0.79</td>
<td>tdm/m³</td>
</tr>
<tr>
<td>Carbon fraction</td>
<td>0.47</td>
<td>tC/tdm</td>
</tr>
</tbody>
</table>

Total merchantable biomass 29,310 tC

**Emissions dead wood pool**

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon in residual stand damage and branches and trimmings</td>
<td>-</td>
<td>tC</td>
</tr>
</tbody>
</table>

Difference between merchantable biomass and total biomass 16,258 tC

Annual decay 0.1

**Long term harvested wood product**

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks in residues from processing</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Oxidation rate</td>
<td>0.023</td>
<td>VM0011, VCS</td>
</tr>
</tbody>
</table>

**Regrowth after selective logging**

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual rate</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Table 86: Results of the estimation of emissions from selective logging (legal and illegal) over 10 years in the program area

<table>
<thead>
<tr>
<th>Year</th>
<th>Emission from non merchantable volume</th>
<th>Emission from processing</th>
<th>Emission from merchantable volume - lTHWP</th>
<th>Removals from regrowth</th>
<th>Total emissions</th>
</tr>
</thead>
</table>

316
<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5,961</td>
<td>0</td>
<td>2,444</td>
<td>-</td>
<td>8,354</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>11,922</td>
<td>0</td>
<td>7,275</td>
<td>-</td>
<td>16,708</td>
<td>2,489</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>17,883</td>
<td>0</td>
<td>14,444</td>
<td>-</td>
<td>25,062</td>
<td>7,262</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>23,845</td>
<td>0</td>
<td>23,887</td>
<td>-</td>
<td>33,416</td>
<td>14,315</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>29,806</td>
<td>0</td>
<td>35,561</td>
<td>-</td>
<td>41,770</td>
<td>23,597</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>35,767</td>
<td>0</td>
<td>49,414</td>
<td>-</td>
<td>50,124</td>
<td>35,057</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>41,728</td>
<td>0</td>
<td>65,396</td>
<td>-</td>
<td>58,478</td>
<td>48,646</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>47,689</td>
<td>0</td>
<td>83,457</td>
<td>-</td>
<td>66,832</td>
<td>64,314</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>53,650</td>
<td>0</td>
<td>103,552</td>
<td>-</td>
<td>75,186</td>
<td>82,016</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>59,611</td>
<td>0</td>
<td>125,633</td>
<td>-</td>
<td>83,540</td>
<td>101,705</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>32,786</td>
<td>-</td>
<td>51,106</td>
<td>-</td>
<td>45,947</td>
<td>37,945</td>
</tr>
</tbody>
</table>
Annex 4: MoU between the Installer Commission of the Zambezia MSLF and the Forum of ONGs, private sector and academies
MEMORANDO DE ENTENDIMENTO
ENTRE
A COMISSÃO INSTALADORA DA PLATAFORMA PARA O DESENVOLVIMENTO SUSTENTÁVEL DA ZAMBÉZIA
E
FÓRUM DAS ONG DA ZAMBÉZIA, SECTOR PRIVADO E AS ACADEMIAS

Doravante denominados as "Partes"

Desejando promover a coordenação, diálogo, partilha e disseminação de informação no contexto do desenvolvimento sustentável integrado da Província da Zambézia, particularmente sobre políticas sectoriais, uso de terra e outros recursos naturais, protecção ambiental, governação participativa e pesquisas relacionadas com o desenvolvimento;

Ressaltando a necessidade da colaboração intersectorial para o desenvolvimento sustentável e gestão de recursos naturais, com vista ao alcance a uma melhor qualidade de vida e um desenvolvimento econômico, social e ambiental sustentável e na necessidade de aumentar e promover o intercâmbio de experiências, conhecimentos, metodologias e tecnologias no campo do desenvolvimento sustentável;

Chegaram ao seguinte entendimento:

Artigo 1º

As Partes concordaram no estabelecimento de uma Plataforma Provincial, denominada por "PLATAFORMA DE DESENVOLVIMENTO SUSTENTÁVEL DA PROVÍNCIA DA ZAMBÉZIA", constituída por Organizações da Sociedade Civil, Instituições Publicas e Privadas, Academias e Comunidades locais.

Artigo 2º

Com esse espírito, as Partes acordaram em promover no contexto da Plataforma ações permanentes de consultas, coordenação, intercâmbio de experiências, partilha de informações, estudos e pesquisas técnico-científicos e tecnológicos, nas seguintes áreas temáticas:

a) Agricultura Sustentável;

b) Gestão Florestal;

c) Administração e Gestão de Terras;

d) Energia e Biomassa;

e) Gênero e Diversidade;

f) Recursos Minerais e Hídricos;

g) Governança e Mudanças Climáticas;

Artigo 3º

As Partes concordam no âmbito da Plataforma em estabelecerem consultas que servirá para: (i) manter diálogo estratégico sobre temas de interesse mútuo; (ii) ter discussões técnicas sobre os temas escolhidos; (iii) compartilhar informações sobre a execução dos projectos e programas em curso; e (iv) explorar novas iniciativas conjuntas.
Artigo 4º

As Partes reconheceram a importância da visibilidade da criação de uma Plataforma multi-sectorial, uma iniciativa inovadora, e comprometem-se a promovê-la conjuntamente nos níveis provincial, nacional, regional e internacional, por meio de ferramentas mais relevantes e com os recursos disponíveis.

Artigo 5º

As partes entendem como uma oportunidade para o fortalecimento dos Fóruns e Redes Temáticas existentes na Província no espetro representativo no nível da Plataforma, colaborando nos processos de dialogo com o Governo (Observatório de Desenvolvimento e Reuniões Anuais da Sociedade Civil e Sector Privado com o Governo).

Artigo 6º

As partes acordaram que no espírito do presente Memorando de Entendimento, esta reconheçida a necessidade de criação da Plataforma de Desenvolvimento Sustentável da Província da Zambézia sob liderança da Comissão Preparatoria pela RADEZA (Rede de Organizações para Ambiente Comunitários Sustentável da Zambézia).

Artigo 7º

Qualquer das Partes poderá, a qualquer momento sugerir revisões deste Memorando de Entendimento, as quais entrarão em vigor mediante acordo das Partes. Qualquer das Partes poderá denunciar o presente Memorando de Entendimento mediante notificação por escrito com antecedência de 30 dias.

Os conflitos derivados da execução e interpretação deste memorando devem ser resolvidos de forma amigável pelas partes.

Artigo 8º

Este Memorando de Entendimento entrará em vigor na data de sua assinatura pelas Partes.

Feito em Quelimane, aos 12 de Agosto de 2016

Assinado por:
A Comissão

Sociedade Civil/FONGZA

Conselho Empresarial da Zambézia

Academia/UNIZAMBEZE
## Lista de Presenças

<table>
<thead>
<tr>
<th>Ord</th>
<th>Nome</th>
<th>Instituição</th>
<th>Contacto</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bob Gwinyane</td>
<td>RADEZA</td>
<td>845688849</td>
<td>bgwinyane@yahoocom</td>
</tr>
<tr>
<td>2</td>
<td>An浴室</td>
<td></td>
<td>8682268</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Amade Ndame</td>
<td>CONSILMA</td>
<td>826803726</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Leonel Dzauma</td>
<td>ORAFI</td>
<td>840434158</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>José Manuel Gomes</td>
<td>NRFHT</td>
<td>827980080</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Esperito Soares</td>
<td>AROMA</td>
<td>888454602</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Hériaq Pardio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Unhongo Junias</td>
<td>UNHONGA</td>
<td>820223223</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Tião Godo</td>
<td></td>
<td>8252027</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Francisco Sanga</td>
<td>IEFD</td>
<td>893110564</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Téo Moruo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Mário I. C. Amado</td>
<td>INSTITUTÉ</td>
<td>828920226</td>
<td></td>
</tr>
</tbody>
</table>

Quelimane 12 de Agosto de 2016

321
Acta da Reunião da Comissão Instaladora com os Fóruns da Província da Zambézia

Participantes:
FÓRUNS: FONGZA, CECOHAS, MMMR, G-20, OTM- CS, GD. NAFEZA

Comissão: Cândida Magalhães, Estêvão Neves, Rui Rodolfo, Tomás Bastique, Hilário Patrício, João Machel, Daniel Maula, Farai Muchiguel, José Gonçalo,

Aos Catorze dias do mês de Julho do ano de dois mil e dezesseis, teve lugar uma reunião da comissão instaladora alargado aos Fóruns da Zambézia, nos escritórios da RADEZA, em Quelimane e estiveram presentes 7 membros dos Fóruns e 8 membros da comissão.

A reunião teve como ponto da agenda, dar seguimento as recomendações do Fórum extraordinário que teve lugar no dia 30 de Junho do ano em curso, na cidade de Quelimane.

O Presidente da Comissão, fez a contextualização sobre a criação do Fórum, e passou em revista as questões colocadas no Fórum Extraordinário com enfoque para: i) Inquietação sobre a criação do novo Fórum; ii) Sustentabilidade do Fórum, iii) Processo de integração de vários actores no mesmo Fórum. Frisou ainda que o Fórum que se pretende criar é de âmbito provincial e não jurisdicional, tendo em vista várias iniciativas que estão em curso em toda a Província.

Os membros da Comissão acrescentaram no seguinte: Deve-se ter em conta o Foco do que se pretende criar, grupo alvo, necessidade de abrangência e visitas de trocas de experiências.

Por sua vez, os membros do Fórum reiteraram da opção de criação de uma Plataforma e não Fórum. Dada a impossibilidade jurídica para a constituição de um Fórum com diversos actores (governo sociedade civil e sector privado) uma prática não aplicável no país pelo motivo mencionado. Esclareceram também a diferenciação entre Fórum e Plataforma.

Por conseguinte algumas questões foram apresentadas com a criação da plataforma: i) Quem será o implementador das actividades? ii) Quem irá prestar contas FONGZA ou a Plataforma? iii) Qual é o papel real da Fongza, seu nível de organização e prestação de contas?

Por consenso foi acordado o seguinte:
1. Elaboração do Memorando de Entendimento;
2. Actualização dos TOR's da Plataforma;
3. A plataforma deve trazer soluções para os Fóruns existentes;
4. A plataforma deve incluir as seguintes redes temáticas:
   a. Agricultura Sustentável;
   b. Gestão Florestal;
   c. Administração e Gestão de Terras;
   d. Energia de Biomassa;
   e. Género e Diversidade;
   f. Recursos Hídricos e Minerais;
   g. Mudanças Climáticas e Governação.

Com base nas discussões acima, a comissão considera que a criação de uma Plataforma acomoda todos os intervenientes, porque esta funcionará numa base de coordenação, partilha de informação e troca de experiências, advocacia e poderá estar hospedada numa instituição que assegurará o seu funcionamento a médio e longo prazo.

A Comissão considera que a Plataforma poderá funcionar com base em Termos de Referencia onde estarão acomodados todas as funções, objectivos, estrutura de funcionamento, constituindo assim o documento da sua oficialização. Pretende-se num futuro breve a elaboração de um plano estratégico ou de actividades.

A Comissão conclui que nesta fase a Plataforma deverá estar hospedada numa Rede já existente - RADEZA dada a natureza do seu trabalho na Província (ambiente, recursos naturais e desenvolvimento comunitário) para que a sua máquina administrativa possa dar o devido suporte a gestão financeira dos fundos concedidos pelos parceiros de desenvolvimento para o funcionamento da Plataforma.

Sem mais assuntos a tratar, foi dada por encerrada a reunião.

Quelimane, aos 14 dias de Julho de 2016

Elaboração:

Tomás Bastique  e  Hilário Patrício

APROVADA POR

<table>
<thead>
<tr>
<th>#</th>
<th>Nome</th>
<th>Instituição</th>
<th>Assinatura</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daniel F. Paulo</td>
<td>RADEZA</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CHARLES P. CHICHONE</td>
<td>CTA/CEPZ</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ferni Rashav</td>
<td>ADRA</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Litoral Clôvez</td>
<td>PROEZA-MOCUBA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HILÁRIO PATAS</td>
<td>ITC</td>
<td>Helio Patas</td>
</tr>
<tr>
<td>---</td>
<td>---------------</td>
<td>-----</td>
<td>-------------</td>
</tr>
<tr>
<td>6</td>
<td>Simão Biliu</td>
<td>LAc</td>
<td>Simão</td>
</tr>
<tr>
<td>7</td>
<td>Caetano Soares</td>
<td>AMOM</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>João Machel</td>
<td>JF-H.B2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>João Manuel Fonseca</td>
<td>G.I. A.R.N</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Marco de Andrade</td>
<td>FOUG</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Anna de Nalci</td>
<td>GMOG20</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Delina</td>
<td>NMNR</td>
<td>Delina</td>
</tr>
<tr>
<td>13</td>
<td>Sérgio Harmon</td>
<td>RM</td>
<td>Sérgio Harmon</td>
</tr>
</tbody>
</table>

Quelimane, aos 02 de Agosto de 2016

**Legenda**

FONGZA  Fórum das ONGs da Zambézia  
CECOHAS  Centro de Coordenação Para Higiene, Agua e Saneamento  
MMMR  Movimento Moçambicano Mulher Rural  
G-20  Plataforma para Governação da Zambézia  
OTM-CS  Organização dos Trabalhadores Moçambicanos, Central Sindical  
GD  Grupo Moçambicano da Dívida  
NAFEZA  Núcleo da Associações Femininas da Zambézia
Annex 5: Terms of Reference of the Zambézia MSLF

Termos deReferência da Plataforma de Desenvolvimento Integrado da Zambézia

Contextualização

1 - A recente abordagem sobre o desenvolvimento mostra tendências cada vez maior de se avançar para uma intervenção integrada com envolvimento de todos sectores para dar resposta aos desafios permanentes de uso dos recursos naturais e governação sustentável.

2 - As abordagens sectoriais, na maioria dos casos não tomam a devida atenção às perspetivas de desenvolvimento das partes interessadas, da ligação e interação dos factores biofísicos e a promoção das interações institucionais e dos sistemas produtivos críticos para geração e sustentabilidade de benefícios dos vários actores da sociedade.

3 - Na Província da Zambézia, existem varias iniciativas de gestão de recursos naturais que inclui o sector específico de agricultura e florestas que beneficiarão ao governo as comunidades, sector privado, academias e a sociedade civil, cuja abordagem se encerrem em modelos de interação comum dos sectores abrangidos. Exemplos disto destacam-se os projectos, Redução de Emissões Por Desmatamento e degradação Florestal (REDD+), Projecto de Biodiversidade e Desenvolvimento das Áreas de Conservação (Mozbio), Projecto de Gestão Integrada da Agricultura e Recursos Naturais (PGIARN), Programa de Investimento Florestal (FIP) e Mecanismo Dedicado as Comunidades Locais (DGM), sob tutela do Ministério de Terra, Ambiente e Desenvolvimento Rural (MITADER) financiados pelo Banco Mundial entre outros projectos em curso e em carteira.

4 - Os presentes Termos de Referência definem as linhas gerais e as condições que orientam as actividades da Plataforma no âmbito do seu funcionamento e articulação entre os seus membros, parceiros de cooperação e os demais interessados no processo de desenvolvimento da província da Zambézia.

Abordagem

5 - A Plataforma tem uma abordagem mais ampla da gestão de recursos naturais e desenvolvimento sustentável seguindo um modelo multisectorial.

6 - A Plataforma não vem substituir as várias redes temáticas e Fóruns da sociedade civil e outros existentes na Província, mas sim fortalece-las e criar sinergias de diálogo e partilha de informações e conhecimento no contexto multisectorial com forte ligação com

   a) Os decisores governamentais;
   b) O sector privado;
   c) A sociedade civil;
   d) As comunidades;
   e) As academias e os institutos de ensino técnico;
   f) Os parceiros nacionais e internacionais.
7 - Reconhecendo essa abordagem transversal, a Plataforma dedica-se, de uma maneira geral, a promoção e difusão dos conhecimentos locais, os quais são representados pelas comunidades como actores de referência, como base para o desenvolvimento integrado sustentável da Província.

**Objectivos**

8 - A Plataforma de Desenvolvimento Integrado da Zambézia (designada Plataforma) tem como objectivos:

a) A promoção de diálogo;
b) A partilha e disseminação de informação entre as partes interessadas e intervenientes no desenvolvimento, particularmente sobre políticas sectoriais, uso de terra e outros recursos naturais;
c) A conservação e protecção ambiental;
d) A governação participativa;
e) O desenvolvimento de pesquisas relacionadas com o desenvolvimento integrado e sustentável.

**Estruturação da Plataforma**

9 - Para operacionalizar o funcionamento interno da Plataforma, é instituída a seguinte composição:

a) Sessão Plenária
b) Grupo de coordenação
c) Grupos temáticos

**Designação da Estrutura**

10 - **Sessão Plenária** – é um momento de interatividade entre os diferentes participantes, desde o nível provincial até ao nível das estruturas locais, que se reúne 2 vezes por cada ano.

11 - **Grupo de Coordenação** – é um órgão de coordenação constituído por 17 (dezassete) membros, representando organizações da sociedade civil, o sector público e privado, comunidades, academias e coordenadores de projectos estratégicos e de organizações de referência.

12 - **Grupos Temáticos** – é o órgão de implementação composto por instituições especializadas em áreas temáticas que reúnam perfil para tal feito e aprovadas pelo Grupo de Coordenação.

13 - Organizações de referência, nomeadamente o FONGZA e o CEP, estão ligadas aos órgãos da Plataforma como membros observadores, referindo-se ao Memorando de entendimento assinado no dia 12 de Agosto de 2016 entre a Comissão Instaladora da Plataforma e os Fóruns das ONGs da Zambézia, o sector privado e as academias.

**Mandato**

14 - A Plataforma tem um período indeterminado.
15 - A Sessão Plenária reúne-se 2 vezes ao ano e discute temas de interesse público através de debates e troca de experiências.

16 - O mandato da presidência e do Grupo de Coordenação é de 2 anos e meio, renovável uma única vez.

17 - O mandato dos Grupos Temáticos é ilimitado dependendo de empenho, responsabilidade e dinamismo.

18 - Ao longo do processo, lições e boas práticas serão adquiridas, partilhadas e incorporadas para o melhoramento do seu funcionamento e dos presentes termos de referência.

**Funcionamento dos Órgãos**

**Sessão Plenária**

19 - Sessão Plenária reúne ordinariamente duas vezes por ano. E extra-ordinariamente sempre que for necessário por convocação do presidente da plataforma ou por iniciativa de 2/3 dos seus membros.

20 - As Sessões Plenárias são dirigidas pelo presidente coadjuvado pelo vice-presidente e secretário, referido no número 0, artigos 25 - e 26 -.

21 - **Competências da Sessão Plenária:**

   a) Discutir e debater temas de interesse Nacional e da Província em particular
   b) Promover troca de experiências e boas práticas
   c) Eleger os membros do Grupo de Coordenação
   d) Garantir a representação e participação das comunidades e suas lideranças nos processos de consulta e tomada de decisão no desenvolvimento da Província

**Grupo de Coordenação**

22 - O Grupo de Coordenação, reúne-se trimestralmente em sessões ordinárias e extraordinariamente sempre que for necessário por convocação do presidente da plataforma ou por iniciativa de 2/3 dos seus membros.

23 - O grupo de coordenação é composto por 17 (dezassete) membros, de entre eles, um presidente, um vice presidente, um secretariado e 14 (quatorze) vogais aprovados pela Sessão Plenária.

24 - **Competências do Grupo de Coordenação:**

   a) Representar a Plataforma
   b) Apreciar e aprovar o plano de actividades e orçamento anual
   c) Coordenar as actividades da Plataforma nos espaços entre as sessões plenárias
   d) Apreciar e aprovar o relatório de actividades e o de contas
   e) Ratificar a composição e o funcionamento dos grupos temáticos
   f) Eleger o presidente, o vice-presidente e o secretariado da Plataforma
   g) Garantir a divulgação e partilha de informação e estudos realizados
   h) Garantir a implementação do plano de actividades da Plataforma
i) Assegurar a prestação de contas  
j) Mobilizar parcerias  
k) Recomendar estudos e pesquisas em área atinentes  
l) Propor a celebração de contratos de prestação de serviços a Plataforma  
m) Convocar Sessões Plenárias ordinárias e extraordinárias sempre que necessário ou a pedido dos membros  
n) Manter encontros regulares com os grupos temáticos

25 - Para a operacionalização das tarefas do Grupo de Coordenação é estabelecido um secretário dedicado a gestão da plataforma nos domínios administrativos, financeiros e patrimoniais. O secretariado é eleito entre os membros dos grupo de Coordenação

26 - O secretário funciona na instituição eleita para o efeito, recebendo todo o apoio logístico da máquina administrativa da instituição hospedeira. Para garantir a execução interna das actividades do secretariado, é contratado um(a) profissional a tempo inteiro.

**Grupos Temáticos**

27 - Os Grupos Temáticos são constituídos por instituições que trabalham nas áreas da Agricultura sustentável, Gestão Florestal, Administração e Gestão de Terras, Energia e Biomassa, Género e diversidade, Recursos Hídricos e Minerais, Governança e Mudanças Climáticas, Áreas de conservação. Havendo necessidade, serem alargadas.

28 - Os Grupos Temáticos são liderados por organizações, instituições, redes de referência que trabalham nas áreas afins. Partilham os resultados dos debates em Sessão Plenária, garantem assim uma abordagem integrada do desenvolvimento específico da área junto dos seus actores principais.

**29 - Competências dos Grupos Temáticos:**

a) Disseminar no seio das suas instituições e membros as deliberações da Sessão Plenária e as recomendações do Grupo de Coordenação  
b) Desenvolver actividades específicas no âmbito da sua área temática  
c) Organizar debates, estudos, pesquisas sobre temas de interesse da plataforma  
d) Promover a ligação entre a plataforma e as comunidades locais/beneficiários  
e) Promover e facilitar a partilha de informação entre os membros da Plataforma  
f) Apreciar e aprovar o relatório de actividades e o de contas  
g) Ratificar os tratados de cooperação e de parceria estabelecidas pelo grupo de coordenação

**Eleição dos Órgãos**

30 - A eleição dos Órgãos refere-se a Presidência, Vice-présidência e Secretário da Plataforma.

31 - A eleição da Presidência, Vice-présidência e Secretário da Plataforma compreende:

a) Representatividade  
b) Competência  
c) Reconhecimento
d) Profissionalismo

e) Consenso

32 - O membro a ser eleito deve estar representando numa organização da sociedade civil, o sector público ou privado, academias e coordenadores de projectos estratégicos e de organizações de referência ligados aos Grupos Temáticos referidos no número 0 e a operarem na Província de Zambézia, sendo a sua organização a propor a sua candidatura.

33 - A organização, instituição, rede ou fórum a candidatar-se deve ter uma competência sobre a área que leve ao reconhecimento da sua participação e intervenção na agricultura sustentável e gestão de recursos naturais com profissionalismo em prol de desenvolvimento da Província.

**Sessão Plenária**

34 - Os membros participantes a Sessão Plenária são aprovados pelo Grupo de Coordenação segundo as propostas voluntárias das organizações, instituições, rede o fórum relevantes.

**Grupo de Coordenação**

35 - A composição do Grupo de Coordenação é proposta em Sessão Plenária e submitida a aprovação das organizações participantes. O seu mandato é de 2 anos e meio, renovável uma única vez.

**Presidência, Vice-presidência e secretário da Plataforma**

36 - O presidente, vice-presidente e secretário da Plataforma são eleitos entre os 17 (dezassete) membros do Grupo de Coordenação, seguindo as candidaturas respectivas. A eleição do presidente, vice-presidente e secretariado é feita durante uma reunião eleitoral ordinária do Grupo de Coordenação num espaço de tempo de 2 anos e meio com agenda específica para o efeito, podendo ser convocada com antecipação se as condições assim o exigirem.

**Grupos Temáticos**

37 - A composição dos Grupos Temáticos é aprovada pelo Grupo de Coordenação segundo as propostas voluntárias emitidas pelas organizações membros da Plataforma.

**Actividades Gerais da Plataforma**

a) Organizar debates sobre temas relevantes ao desenvolvimento da Província

b) Identificar áreas/temas de pesquisas que contribuem para o desenvolvimento da Província

c) Partilhar e disseminar de informação e resultados de estudos

d) Facilitar a ligação fluente entre os membros da Plataforma com os Fóruns da sociedade civil, as instituições do governo, sector privado e parceiros

e) Promover a valorização e integração das comunidades locais e suas lideranças no processo de desenvolvimento

f) Fortalecer o papel interventivo da Plataforma, do Fóruns da sociedade civil, Redes Temáticas e Plataformas Distritais da sociedade civil
g) Promover práticas sustentáveis de gestão integrada dos recursos naturais
h) Promover e participar em trabalhos de estudos e pesquisas
i) Desenvolver campanhas de sensibilização, consciencialização e educação ambiental das comunidades locais no uso sustentável dos recursos naturais
j) Incentivar práticas sustentáveis de agricultura, uso de terra e mineração
k) Incentivar o maneio de florestas (plantações, produtos não madeireiros e energia de biomassa)
l) Promover intercâmbios e trocas de experiências ao nível local, nacional, regional e internacional

Representação e Tomada de Decisões

38 - A presidência da Plataforma lidera o Grupo de Coordenação e representa a Plataforma ao nível interno e externo.

39 - O Grupo de Coordenação supervisa as actividades dos Grupos Temáticos e trabalha para manter e melhorar a democracia participativa, transparência partilhada e clareza na tomada de decisões ao nível da Plataforma.

40 - A tomada de decisões para o funcionamento da Plataforma será feita pela Sessão Plenária, órgão máximo da Plataforma, e nas sessões do Grupo de Coordenação e dos Grupos Temáticos.

41 - Quaisquer conflitos ou fortes divergências de opinião do Grupo de Coordenação e dos Grupos Temáticos serão submetidos à votação por um quórum mínimo de 2/3 dos membros. As opiniões que não constem do acordo podem ser levadas a Sessão Extraordinária num período de espaço mínimo de 30 dias considerável.

42 - As decisões são tomadas pelos representantes das organizações ou seus mandatários devidamente autorizados, membros do Fórum, do Grupo de Coordenação e Grupos Temáticos.

Dissolução da Plataforma

43 - A sua dissolução será aprovada pela Sessão Plenária convocada para o efeito

Outros Aspectos Relevantes

44 - Quaisquer aspectos relevantes não cobertos nestes TdR serão descritos na base do regulamento interno da Plataforma. Em caso de conflitos, uma terceira entidade será chamada a arbitrar.

45 - Em casos de força maior, serão aplicados os mecanismos de arbitragem de acordo com a legislação Moçambicana.

Aprovado pela Sessão Constituinte
Quelimane, no dia 5 de Abril de 2017
## Annex 6: Thematic groups of the Zambezia MSLF

**Governo da Província da Zambézia**

**Direcção Provincial da Terra, Ambiente e Desenvolvimento Rural**

**Plataforma de Desenvolvimento Integrado da Zambézia**

Proposta de lista dos membros do Grupo de Coordenação

**Data:** 06/04/2017  
**Local:** sala de conferências da Direcção Provincial de Economia e Finanças, Cidade de Quelimane

<table>
<thead>
<tr>
<th>#</th>
<th>Instituição</th>
<th>Seguimento</th>
<th>Observações</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RADEZA</td>
<td>Sociedade civil</td>
<td>Presidência</td>
</tr>
<tr>
<td>2</td>
<td>Industria e Construções Sotomane, Lda</td>
<td>Sector privado</td>
<td>Vice-presidência</td>
</tr>
<tr>
<td>3</td>
<td>REDD+</td>
<td>Governo</td>
<td>Secretario</td>
</tr>
<tr>
<td>4</td>
<td>UniZambeze</td>
<td>Academia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nome</td>
<td>Enumerable</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------</td>
<td>--------------------</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>DGM</td>
<td>Comunidade</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Líder Comunitário</td>
<td>Comunidade</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Unidade de Maneio Comunitário</td>
<td>Governo</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Sustenta</td>
<td>Governo</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>SPER (Serviço Provincial de Extensão Rural)</td>
<td>Governo</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>AMAZA</td>
<td>Sector privado</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>APAMAZ</td>
<td>Sector privado</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>ITC</td>
<td>Sociedade civil</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>ORAM</td>
<td>Sociedade civil</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>ADRA</td>
<td>Sociedade civil</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>PRODEA</td>
<td>Sociedade civil</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>CECOHAS</td>
<td>Sociedade civil</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>MMMR (Movimento Moçambicano de Mulheres Rurais)</td>
<td>Sociedade civil</td>
<td></td>
</tr>
</tbody>
</table>
Annex 7 - Terms of Reference for the creation of the National Steering Committee (NSC) for MozFip

Contexto

O Programa de Investimento Florestal (FIP) foi criado no âmbito dos Fundos de Investimento Climático (CIF), para apoiar os esforços de REDD+ dos países em desenvolvimento. O FIP visa catalisar políticas, acções e mobilizar fundos para facilitar a implementação das actividades para a redução do desmatamento e da degradação florestal, e promover a melhoria da gestão sustentável das florestas, contribuindo para a redução de emissões e a protecção das reservas de carbono florestal. Em Março de 2015, Moçambique confirmou seu interesse em participar do Programa de Investimento Florestal (FIP), através da apresentação de uma manifestação de interesse, que foi aprovado em Maio de 2016.

O Governo de Moçambique coordenou a preparação do Programa de Investimento Florestal (FIP) no país através do Ministério da Terra, Ambiente e Desenvolvimento Rural (MITADER), para o qual o processo foi liderado pela Unidade Técnica de Redução de Emissões de Desmatamento e Degradação Florestal (UT-REDD+).

Como parte do MozFIP, o Governo de Moçambique vai receber US$ 47 milhões, bem como um adicional US$ 4.5 Milhões no âmbito do Mecanismo de Doação Dedicado a comunidades locais (DGM).

Em Novembro de 2016 Moçambique aprovou a sua Estratégia Nacional de REDD+, e o Governo assumiu que o processo do FIP esteja integrado com os processos e planos existentes sob o REDD+. A maior parte dos esforços realizados para estratégia nacional REDD+, como estudos sobre causas do desmatamento, arranjos institucionais, Definição de florestas, consultas, enquadramentos e regimes de salvaguardas e partilha de benefícios, sistemas de monitoramento, foram portanto utilizados para a criação do Plano de Investimento Florestal.

Desta forma o Governo pretende usar o FIP para:

- Apoiar os esforços de REDD+, fornecendo financiamento imediato para reformas e investimentos públicos e privados identificados através do processo nacional do REDD+;
- Se esforçar para maximizar os benefícios do desenvolvimento sustentável, incluindo a conservação da biodiversidade, a protecção dos direitos das comunidades locais, redução da pobreza e melhorias de meios de subsistência rurais;
O FIP financiará os esforços para resolver as causas do desmatamento e da degradação florestal e para superar os obstáculos que têm dificultado os esforços anteriores.

A orientação do Plano de Investimento utilizou os seguintes critérios do FIP para examinar as estratégias, programas e projectos de investimento, bem como para priorizar programas e projectos pilotos na perpectiva do REDD+, com vista a maximizar o impacto transformacional dos recursos do FIP: 1) Potencial de mitigação de mudança de clima 2) Potencial de demonstração à escala 3) Relação custo-eficácia 4) Potencial de implementação 5) Integração do desenvolvimento sustentável (co-benefícios) e 6) Salvaguardas ambientais e sociais.

O objectivo do FIP é melhorar as práticas e gestão de terras e florestas em paisagens específicas em Moçambique. Para alcançar este objectivo, o FIP actuará em duas componentes:

i. Promoção da Gestão Integrada de Paisagens;

ii. Fortalecimento das Condições para a Gestão Florestal Sustentável.

Deste modo, este projecto inicialmente trabalhará em em 9 distritos na província da Zambézia ((Mocuba, Ilé, Mocubela, Mulevala, Gurúe, Alto Molóque, Maganja da Costa e Pebane) e em 7 distritos da Provincia de Cabo Delgado (Ibo, Macomia, Meluco, Quissanga, Ancuabe, Metuge, Montepuez).

Neste contexto a FNDS está a conduzir um processo para o estabelecimento do Comité Nacional de Gestão (CNG-FIP) que é a entidade que irá assessorar o MITADER na fase de elaboração assim como na fase de implementação do MozFIP no país.

**Objectivo do Comité Nacional de Gestão**

O CNG é uma comissão de coordenação transectorial a nível nacional, constituída pelas diferentes entidades interessadas, governamentais e não governamentais.

Tem como objectivo principal apoiar/assessorar o MITADER na planificação, gestão implementação, e monitoramento da implementação do FIP.

Os presentes Termos de Referência tem como objectivo definir as linhas de orientação do funcionamento do CNG-FIP em Moçambique.

**Tarefas**

As tarefas específicas para o CNG-FIP incluem:

Na fase de elaboração do Plano de Investimento Florestal:

- Assessorar o FNDS (MITADER) na priorização das actividades nas áreas geográficas de implementação do FIP em Moçambique;
• Assessorar o FNDS (MITADER) na definição das modalidades de implementação do FIP;
• Apoiar o FNDS (MITADER) na articulação e coordenação com os vários intervenientes do FIP.
• Assegurar que as actividades propostas do FIP estejam de acordo com as estratégias e programas do país;
• Harmonizar as actividades propostas com os diferentes sectores económicos e sociais bem como dos seus diferentes sectores, nomeadamente, governo, sociedade civil, sector privado e comunidades locais. (para retirar ou juntar com a priorização)

Na fase de implementação do Projecto de Investimento Florestal (FIP):
• Acompanhamento e aconselhamento na implementação das actividades do MozFIP e eventuais serviços contratados para a execução;
• Apoiar na identificação das necessidades de serviços
• Apreciar os Planos e os relatórios periódicos e anuais do FIP;
• Acompanhar a o processo de resolução de conflitos que envolvem os diversos intervenientes na implementação do MozFIP,
• Recomendar mecanismos de funcionamento do MozFIP com diferentes intervenientes.

Duração
O CNG-FIP terá a duração de vigência do FIP.

Periocidade de Encontros
O CNG-FIP encontrar-se-á trimestralmente na fase de preparação de FIP, e semestralmente durante a fase de implementação para acompanhamento e monitoria, no entanto poderá haver encontros extraordinários quando se justificar

Pontualmente poderão ser convidados apresentações técnicas de assuntos relevantes a MozFIP.

Orçamento
O Comité deverá ter um orçamento para o seu funcionamento e actividades de monitoria acordadas em reuniões do Comité

Composição
A composição proposta do CNG é o seguinte:
  1 Representante da DINAF
  1 Representante da AQUA
  2 Representantes do Sector Privado – AMOMA, Portucel?
  2 Representantes das ONG (CTV, IUCN, WWF?)
  1 Representante da UEM
2 Representantes do MASA (DNEA - Extensão, DINAS)
1 Representante do IIAM
1 Representante do Ministério dos Recursos Minerais e Energia
1 Representante da PRM (PPPNMA)
1 Representante do Banco Mundial
1 Representante do IFC
1 Representante dos Doadores
1 Representante do Steering Committee do DGM
1 Representante da FNDS - que deverá Secretariar o Comité

O Comité seria presidido pelo FNDS.
Annex 8: Geographic prioritization of forest plantation and agro-forestry areas for MozFIP
Mapa de Priorização para Mecanismo de Incentivo a Plantações Florestais na Zambézia

Legenda
- Limite do Distrito
- Projecto FIP
- Área de Floresta (exclusão)

Nível de Prioridade
- Baixa
- Média
- Alta
- Muito Alta
Mapa de Priorização para Mecanismo de Incentivo a Sistemas Agro-Florestais em Zambézia

Legenda
- Limite do Distrito
- Projecto FIP
- Área de Floresta (exclusão)

Nível de Prioridade
- Baixa
- Media
- Alta
- Muito Alta
Annex 9 - Characteristics of the Web portal for MRV REDD+ in Mozambique

- The application is based on a multi-tier architecture, based largely on modular software components running on the application server:
  - Presentation layer (top tier, client tier) that provides services to end user, in particular everything related to user interface, which may be web based or stand-alone. It can be seen as the client-side in client-server architectures modules. Multiple clients (they are supported by browsers) may be running concurrently at a given time.
  - Logic Business layer (middle tier, process management tier), which handles the received requests from clients (browsers) for processes execution. It’s the heart of the system. It supports the server-side software applications run on, that are the core of the system. Server applications include the web server, which acts as a proxy redirecting requests to application server.
  - Data layer (computation tier) is composed by the data structures as databases (POSTGRESQL+POSTGIS), file store systems, dissemination data repositories, etc. This layer collects and deals with the business data such as services data, order requests information and monitoring of the information. The COTS used are PostGreSQL + PostGIS, Googlemaps API, Spring, Tomcat, Liferay.

- It is based on the use of JSR168 specification, commonly named as portlets. The use of this specification provides several advantages: maintenance, upgrade and reuse. Logical modules and components can be separated physically as different and independent software applications although the behavior for users is totally transparent and appears as a whole system interconnected. This physical separation implies several advantages for the tool:
  - Modular design of subcomponents, providing supervision information in structured way;
  - Easiness to package, maintain and upgrade each of the modules without needing to stop or to abort the other modules implementing functionalities for the system;
  - Updating Portlets in a separate file on a live system does not impact the rest of the system.
  - Facilitates scalability and extensibility.

- User web interface is adapted and customized according to the specific SIS indicators and users (Multiple user configurations). Pure HTML and JavaScript is used (to avoid compatibility issues with different browsers). No additional plugins are envisaged. For applications that must run in multiple OS, the current standard is Java. Interfaces for tablet/mobile devices are simplified agreed according to the results of the pilot testing of the PMRV system in Mozambique in 15 districts of the
# Annex 10 - Grievance form example for the FGRM

**PROJECTO ________________**

**REGISTO DE DIÁLOGO E RECLAMAÇÕES**

<table>
<thead>
<tr>
<th>FORMULARIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nome:</td>
</tr>
<tr>
<td>Nº de Telefone:</td>
</tr>
<tr>
<td>Outro meio de contacto:</td>
</tr>
<tr>
<td>Comunidade:</td>
</tr>
<tr>
<td>Distrito:</td>
</tr>
<tr>
<td>Data de recebimento:</td>
</tr>
<tr>
<td>Projecto: [ ] MozBio [ ] MozFIP [ ] DGM [ ] SUSTENTA</td>
</tr>
</tbody>
</table>

**Resumo do Conteúdo:**

_________________________________________________________________________________________________________________________________________________________
### Mecanismos de Diálogo e Reclamações (FNDS)

Nome ____________________________________________

Data __/__/__

<table>
<thead>
<tr>
<th>Assinatura Reclamante</th>
<th>Assinatura Receptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>_____________________</td>
<td>____________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assinatura do Reclamante</th>
<th>Assinatura do Receptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
<tr>
<td>_______________________</td>
<td>_______________________</td>
</tr>
</tbody>
</table>
Annex 11 - Detailed executive summary

Mozambique is one of the few sub-Saharan countries to possess a significant portion of natural forest: 51% of its territory is composed of natural forest - that is 40.6 million hectares (ha). Miombo forest is the most extensive forest type, covering approximately two thirds of the country. Yet, historical deforestation rate in Mozambique is estimated to reach 0.23% between 2000 and 2012, representing an annual loss of 138,000 ha of forest per year and an amount of emissions close to 12 MtCO$_2$e per year. Deforestation is especially concentrated in the Central and Northern provinces of the country, where the Emission Reductions (ER) Program that is being presented here is located.

The Zambézia Integrated Landscape Management Program (ZILMP), which currently is one of the two national REDD+ pilot programs in Mozambique, was designed in this very framework: standing as its first program of results-based payments for ER in Mozambique, the it is expected to contribute to long-term sustainable management of forest in the province of Zambézia by addressing the main drivers of deforestation and forest degradation, while implementing innovative measures aiming to increase rural communities’ income and to generate long-term non-carbon benefits.

The Emission Reductions Project Idea Note (ER-PIN) of the ZILMP was accepted in October 2015 into the Carbon Fund’s pipeline and a Letter of Intent (LOI) between the World Bank and the Government of Mozambique (GoM), on the potential purchase of ER from the ER Program in Mozambique, was signed during the Paris COP in December 2015. The GoM is now presenting this Emission Reductions Program Document (ER-PD) to the Forest Carbon Partnership Facility (FCPF), hoping that the quality and ambition of its ER Program will justify a positive decision from the FCPF to proceed to negotiating an Emission Reductions Payment Agreement (ERPA), in order to be able to sell carbon credits.

The Zambézia Integrated Landscapes Management Program

Designed at jurisdictional scale, the ZILMP is located in Zambézia province of Mozambique, of which it covers in 9 districts (Alto Molocue, Gile, Gurue, Ile, Maganja da Costa, Mocuba, Mocubela, Mulevala and Pebane). They represent a total area of 5.3 million ha including, in 2014, 2.6 million ha of forest (49% of the ER Program area). The choice of the ZILMP ER Program answers to various criteria:

(i) Zambézia province is characterized by relevant qualities for the ER Program: It concentrates 13% of Mozambique’s forest; it is the most densely populated province of Mozambique; 70.5% of its population lives under the poverty line; its economy is based on agriculture and the use of forest resources; it already comprises a strong private sector and civil society involvement;

---

The other large-scale landscape/REDD+ Program that has been identified is the Cabo Delgado/Quirimbas Emissions Reductions Program (PROGIP-CD). The Program covers 7 districts in Cabo Delgado: Ancuabe, Macomia, Metuge, Quissanga, Meluco, Montepuez and Ibo, in which deforestation rate between 2011 and 2013 reached 0.31% (5 522 ha) per year.
(ii) Within Zambézia province itself, the 9 selected districts especially represent a strong area of expansion for deforestation, the annual deforestation rate in the ER Program area reaching 0.89% between 2005 and 2013 and 1.07% between 2010 and 2013;

(iii) The selected districts are geographically coherent with the areas covered by other initiatives already funded by the World Bank (WB), including the Conservation Area for Biodiversity and Development Project (Mozbio project), the Mozambique Forest Investment Project (MozFip) and the Dedicated Grant Mechanism (MozDGM), as well as the Agriculture and Natural Resources Landscape Project (the "Sustenta" project), which are all contributing to the ER Program’s objectives;

(iv) Those existing funds also enable to secure financing for the ER Program interventions (no financial gap is forecasted for the ER Program until, at least, 2022) and to provide lessons learned and local capacities for the ER Program;

(v) The area is characterized by globally important biodiversity with mangrove forests, a significant range of endemic and vulnerable/endangered species and a protected area: the Gilé National Reserve (GNR). It represents a significant share of natural forest: uninhabited, it is the largest uninterrupted forest massif of Northern Mozambique.

---

68 It should be noted that Zambézia province is home of another protected area: the archipelago of "Ilhas Primeiras e Segundas", located in front of Nampula and Zambézia Province. Although they are not part of the ER Program accounting area for now (no ER Program activities are planned in those islands) they could be the subjects of further attention in the event of a potential up-sale of the ER Program in the future.
Figure 49: Localization of the ER Program in Mozambique
Figure 50: Forest cover in Zambézia from Global Forest Watch data
Main drivers of deforestation in the ER Program area

During Readiness phase, the main drivers and causes of deforestation in Mozambique were analyzed in Winrock International and CEAGRE (2015). It has been refined for the ER Program area in Mercier et al. (2016). Those studies show that the drivers of deforestation and forest degradation are highly linked to the socio-economic context.

Most of the population of Zambézia province is living in rural area (79% in 2015) and is highly dependent on natural and forest resources. Accordingly, agriculture is the main economic sector in Zambézia province: 91.1% of the economically active population is working in the agricultural sector. The level of production is nevertheless low, agricultural activities being essentially subsistence means. The main form of land use is small-scale sedentary and shifting cultivation, mainly for maize and cassava: “slash-and-burn” agriculture is widely practiced in Miombo areas. Just like at national scale and in Northern Mozambique where it accounts for, respectively, 65% and 72% of deforestation, small-scale (itinerant) agriculture is the first driver of deforestation in the ER Program area. Smallholders' move towards extensification rather than intensification actually is the very basis of the deforestation mechanism we observe in the ER Program area, and is almost exclusively driven for maize and cassava production, constrained by labor availability during peak season (rather than by land availability).

Charcoal production, in the ER Program area, only accounts for forest degradation and not for deforestation. On field studies in the ER Program area have shown that charcoal is actually produced through practices that are already accounted for in the deforestation process linked to small-scale agriculture: it is therefore, for now, not expected to have any additional impact, relatively to agriculture, on forest cover. However, given the high population growth and the increasing need in charcoal and energy, especially around urban centers, charcoal production might increase in the future. It is, therefore, still an important driver of forest degradation to address. In the ER Program area, the main supply basins in size and production are located around Alto-Molocué, Gilé, Maganja and Ilé. They are characterized by low production yields due to non-efficient kilns.

At national scale, forestry is another driver of forest degradation that is difficult to assess due to the share of illegal logging. It is estimated that forestry could account for 9% of deforestation and forest degradation in Mozambique and in Northern Mozambique. In the ER Program area, this can be explained by: (i) illegal logging, focused on specific and precious timber; (ii) non-sustainable exploitation practices in concessions and simple licenses areas. Forest degradation due to forestry is a different issue for the ER Program: because it is essentially driven by illegal logging, which is enhanced by the international demand and failure of local law enforcement, the efficiency of the measures implemented will also depend from national policies and should be backed at national scale. In 2013, 93% of all commercial logging in Mozambique was illegal and at least 50% of the quantities of timber shipped out of Zambézia are also believed to be illegal.

Finally, although it is a bit more significant at national scale (4%), in Northern Mozambique, large-scale agriculture only represents 2% of deforestation. In the ER Program area, it is almost non-existent. This is coherent with the fact that, in 2013, large-scale agriculture represented only 5.7% of total cultivated lands in Mozambique. Accordingly, large-scale agriculture is not directly involved in the ER Program interventions.
Consequently, small-scale agriculture really is the driver that represents an increasingly significant share of deforestation in the ER Program area: it will concentrate a significant part of the planned interventions of the proposed ER Program. However, the analysis of the direct drivers of deforestation and forest degradation shows that these processes have complex roots that extend across different sectors of development. The direct drivers of deforestation are all interlinked with indirect and underlying causes that are both economic and social. They are related to population growth, poverty and the demand for timber products on the international market. Poverty is the most important underlying cause of deforestation, with small income and poor access to alternative source of income for rural population being primary drivers for their unsustainable exploitation of forest. In the same way, demography and high population growth can also account for a significant part of deforestation and forest degradation and may be responsible for future deforestation and possible displacement of ERs.

Interventions of the proposed ER Program and complementary initiatives

The ER Program will be based on an integrated landscape management approach that recognizes the link between agricultural development, natural resources management and governance, both in terms of institutional management and practical implementation. This approach also implies that interventions have to be applied at the scale of the nine districts altogether in order to have efficient local impact on rural poverty and natural resources sustainability. The landscape approach will target an integrated territorial planning process in order to create an enabling environment and involve stakeholders in relevant sectors. This approach is fully aligned with the National REDD+ Strategy.

The table below summarizes the main strategic objectives and associated planned interventions of the ER Program. They are all linked to the six Strategic Objectives (SO) of the National REDD+ Strategy, which were translated into various ER Interventions (ERI). It should be noted that all those interventions will be supported by various initiatives already in place in the ER Program area, such as the “Sustenta” project, the Mozbio project and MozFip that will significantly contribute to financing the ER Program.

<table>
<thead>
<tr>
<th>Summary of ER Program planned Interventions (ERI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Development, coordination and Monitoring</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
| **ERI - A1: Coordination and management of activities**  
| Coordination and management of the ER Program (implementation of a grievance redress mechanism, oversight of field activities, fiduciary and safeguards management and communications, monitoring, evaluation and reporting, etc.) |
|  
| **ERI – A2: Institutional development and strengthening and intersectoral communication**  
| Financing of the additional costs of FNDS related to project management and of the Landscape Coordination Unit (LCU) at the provincial level and support to the Directorate for the Mobilization of Funds (Pelouro para a Mobilização dos Recursos - PMR) and LCU  
| Strengthening of ANAC, Biofund and CITES secretariat |
|  
| **ERI – A3: Community awareness and capacity building – ensuring stakeholders’ involvement and participation in the ER Program**  
| Capacity building for local communities and CGRNs (decision-making, accountability, transparency, local governance, business planning and management, use and management of funds, partnerships with the private sector, use of information technology, etc.)  
| Workshops, trainings, meetings, communication and consultation about ER Program and REDD+, including through the consolidating of Zambézia Multi-Stakeholders Landscape Forum (MSLF) – also in ERI-B2 |
### B. Land Planning

- **ERI – B1: Regularizing land tenure**
  - Community land delimitation with community delimitation certificates, community land use plans and strengthening of community-based organizations (CBOs)
  - Issuance of individual DUATs (right of land use)
  - Provision of technical advisory services and equipment to conduct land demarcations, natural resource mappings and legal registration
  - Availability of grants for implementing subprojects, including micro-zoning for territorial management plans

- **ERI - B2: Improvement of districts land use planning & promotion of community level land use planning**
  - (ERI-A3: consolidating of the Zambézia Multi-Stakeholders Landscape Forum)
  - Strengthening of land administration services and upgrading of the land administration system
  - Implementation of geospatial tools at the provincial and district levels to improve land-use planning, including with the operationalization of a GIS platform
  - Development of the National Land Use Plan

### C. Law enforcement and forest governance and management

- **ERI – C1: Protection of conservation areas and restoration of natural habitats**
  - Restoration of natural habitats through Assisted Natural Regeneration (ANR) and enrichment planting
  - Improvement of the management regime of the Gilé National Reserve
  - Law enforcement and protection of biodiversity around the GNR

- **ERI – C2: Strengthening of forest governance, transparency and forest management**
  - Support to the government's forest law enforcement institutions (particularly AQUA and ANAC)
  - Improvement of national monitoring, detection and land information systems, including with support to a forest information system
  - Support to the National Forest Forum
  - Training to forest operators and to forest administration
  - Support to small-scale forest businesses

### D. Sustainable production, livelihood and income generation

- **ERI-D1: Promotion of conservation agriculture and agroforestry system**
  - Trainings to conservation agriculture with extension services, support and monitoring of smallholders' activities
  - Support to agroforestry systems through technical assistance, provision of inputs, distribution of fruit trees and assistance to targeted nurseries

- **ERI-D2: Structuring of key sustainable value chains (forestry-based value chains) for cash crops and support to the establishment of commercial agriculture in areas with no forest cover**
  - Study and analysis of the commercial potential of various cash-crops
  - Technical assistance for cash crops production, training on quality standards and on the maintenance of orchards, provision of inputs for smallholders around the GNR
  - Technical assistance to small emerging commercial farmers and other key rural micro, small and medium enterprise agribusiness, including on business plans
  - Improvement of key selected rural infrastructures for commercialization of cash crops
  - Implementation of a market information platform to support cash-crops producers, with the diffusion of information on markets dynamics and prices through SMS around the GNR
  - Agribusiness finance to value chains actors, including support to access credit and financing schemes for agribusinesses (matching grant and partial credit guarantee)

- **ERI-D3: Promotion of multipurpose**
  - Implementation of a planted Forests Grant Scheme and support to community out grower schemes
Involvement of stakeholders and local population

Since it is fully aligned with Mozambique REDD+ National Strategy, the information sharing and consultation and participation mechanisms that have been used in the design of the ER Program are interlinked with the consultation structures and mechanisms that were used for the evaluation and validation of the REDD+ National Strategy and related projects (MozFip and MozDGM, Mozbio and Sustenta) and safeguards instruments. They include two components: (i) a consultative and participatory process, relying on extensive public consultations and on the MSLF; (ii) an information-sharing process, relying on the automatizing of REDD+ information dissemination on social media, website and mails, on the diffusion of didactic documents (pamphlets, policy briefings, posters, cartoons) and on other innovative communication events in local languages. From March 2013 to November 2016, 61 public consultation meetings on REDD+ and associated projects were organized in the country. 10 of them were community consultations. Along those consultations, 3,370 participants were recorded, 29% of which were women.

Admittedly, the design and implementation of the ER Program are based on the on-going participation of all stakeholders, accordingly with the Mozambican legal framework and with the FCPF Methodological Framework (FCPF MF). This will especially be achieved by supporting the Multi-Stakeholders Landscape Forum in Zambézia (MSLF). It will also rely on a clear land tenure framework, which is an important component of the ER Program, promoted in both the Sustenta and MozFIP projects, in order to create the tenure security needed for local people to take part in new economic activities and value chains development. Behind this principle is the underlying assumption that, despite belonging constitutionally to the State, the land is genuinely also considered as communities’ property: the 1997 Land Law and the 2004 Constitution of Mozambique recognized the necessity to integrate customary rights in land legislation and the Land law actually recognizes as land property title (DUAT) any occupation and use rights over lands that are acquired through any normative systems that do not contradict the Constitution. It also created the “Local Community” body, which is the titleholder of DUAT attributed by the State to all land users within a given area.

Ambition and potential of the ER Program

Reference Emissions Level - In order to respect the FCPF MF, data for the ER Program RL have been extracted from national FREL/FRL for the Program accounting area and for the

| ERI-D4: Promotion of sustainable charcoal production | Plantation of fast growing trees for energy purpose |
| Support to local producers for the creation of improved kilns for charcoal production |
| Training of producers for the elaboration and implementation of forest management plans and for the creation of partnerships with private operators |
| Training to Assisted Natural Regeneration (ANR) techniques to limit the negative impact of charcoal production |

| ERI – D5: Valorization of the income generating potential of the GNR and sustainable livelihood around the GNR |
| Improvement of sustainable tourism in the GNR with support to a community sport hunting area |
| Sustainable use of NTFP around the GNR |

**Ambition and expected Emissions Reductions** - The ER objectives of the ER Program are based on the articulation of two successive periods, with the ambition to reduce deforestation in the ER Program area by 15% below the reference level in the first 4 years (2018-2021) and by 20% in the following 4 years (2022-2025). This represents a total of 10,016,147 tCO₂eq of ER to be achieved by 2025, of which 8,724,732 tCO₂e will be provided to the FCPF, according to the terms of the LOI.

This ambition is highly consistent with national policies and development priorities in Mozambique and the ER Program actually holds a significant place in the national strategy of reducing carbon emissions. In its Intended Nationally Determined Contribution (INDC), the GoM has pledged for the reduction of 76.5 MtCO₂e between 2020 and 2030. In the same way, the National REDD+ Strategy has an overall objective of avoiding 170 MtCO₂e during the reference period going from 2016 to 2030. The ER Program should therefore contribute to 5.8% of the National REDD+ Strategy’s objectives in terms of ERs.

**Non-carbon benefits** - The expected ER associated to the ER Program will eventually generate carbon and monetary benefits, through the sale of carbon credits to the FCPF. However, the ER Program is also expected to be associated with high non-carbon value, which should be generated during its implementation and which is expected to continue long after the terms of the ER-PA. The non-carbon benefits are numerous and can be classified in three main categories: (i) improvement of rural population’s livelihood; (ii) strengthening of forest management and governance and (iii) environmental benefits.

**Risks associated to the ER Program and safeguards**

**Displacements and reversals** - Most of the ER Program measures are primarily based on incentives and on the valorization of non-carbon benefits rather than coercive. They are therefore expected to lower the overall appeal of the activities that cause deforestation and forest degradation per se for the agents of deforestation and, at this stage, the ER Program is not expected to generate any displacement of emissions (with the exception of potential market leakage at international scale, on which the ER Program has no grip).

Most of the implementation risks of the ER Program interventions can also be assessed through Reversal risks. Arguably, the main risks associated with the ER Program comprise political and financial risks, the risk of the lack of long term effectiveness in addressing the underlying drivers of deforestation and forest degradation, the risk of not securing broad and sustained stakeholders support, the lack of institutional capacities and the exposure and vulnerability to natural disturbances. Although the implementation of specific risks mitigation measures result in those risks being all considered as medium, a specific reversal management mechanism is based on the creation of an ER – Program specific buffer managed by the Carbon Fund, in which 26% of the ERs generated by the ER Program will be deposited as an “insurance” mechanism.

**Safeguards** - In addition, in order to enhance the positive impacts and reduce any risk of negative impacts of REDD+ projects’ implementation activities, various safeguard documents were prepared. They include a Strategic Environmental and Social Assessment (SESA), an Environmental and Social Management Framework (ESMF) and a Process Framework (PF).
The ER Program will be fully aligned with the recommendations formulated in those documents. Safeguards implementation will be monitored throughout the project lifetime. In particular, a Safeguards Information System (SIS), a Participatory Monitoring, Reporting and Verification (PMRV) system and an efficient Feedback and Grievance Redress Mechanism (FGRM) are designed and implemented.

Specific arrangements for the ER Program success

**Institutional arrangements** - From a general point of view, REDD+ policies and implantation in Mozambique are dependent on properly articulated institutions, enabling the proposed activities to be carried out in harmony. They are especially defined by the National REDD+ Strategy and Decree No. 70/13 on the “Regulation of the procedures for approval of projects for reducing emissions from deforestation and degradation”. Although the ER-PA is expected to be signed by the Ministry of Economy and Finance (MEF), the overall management and implementation of the ER Program will be coordinated at national level by the National Funds for Sustainable Development (FNDS), as part of the Ministry of Land, Environment and Rural Development (MITADER). The FNDS will also guarantee inter-institutional coordination with the relevant directorates of the key ministries of Agriculture and Food Security (MASA) and of Energy (MIREME). At provincial scale, the implementation of the ER Program will mostly be supervised by the Landscape Coordination Unit (LCU), based in Mocuba, in full cooperation with the Zambézia government and the provincial representation of the MITADER (DPTADER).

**Political commitment** - Actually, the recent creations of the MITADER\(^{69}\) and of the FNDS\(^{70}\) are subsequent signs of the commitment of the GoM to REDD+. The main functions of the MITADER are to manage and implement policies in the fields of land management and administration, forests and wildlife, environment, conservation areas and rural development. Its creation shows the efforts that the GoM has been carrying out to integrate complex issues and promote synergy between those core challenges for REDD+ in Mozambique. This restructuring is a clear indication of the Government’s vision and commitment to promote a landscape-based approach to forest and natural resources management.

Financial capacity for the implementation of the ER Program was reinforced with the creation of the Directorate for the Mobilization of Funds\(^ {71}\) (Pelouro para Mobilização dos Recursos - PMR), based in FNDS, responsible for managing REDD+ funding - it coordinates and supervises major donor support programs, including REDD+. It will have a strong implication in the implementation of the ER Program.

**Monitoring, Reporting and Verification** - The Measurement, Monitoring and Reporting (MRV) system of the ER Program will be based on the national arrangements. The MRV unit, based in FNDS, is currently designing the process and functioning of a Participative MRV (PMRV) scheme, partly based on community participation. For each monitoring session, data for the ER Program will be extracted from results of the national monitoring. Since natural regeneration and plantations are not accounted for the ER Program, only data for deforestation will be extracted from national MRV. The overall organizational structure of the

---

\(^{69}\) Which brings together responsibilities that were previously spread across several ministries, namely the Ministry of Agriculture (MINAG) and the Ministry responsible for the Coordination of Environmental Affairs (MICOA).

\(^{70}\) The decree of creation of the FNDS is available [here](#).

\(^{71}\) Formerly called the International Funds Management Unit (UGFI).
ER Program for MRV is based on national arrangements with specific staff within the FNDS at national level and within the LCU at provincial level, as well as with the creation of local offices for community monitoring.

**Benefit sharing mechanisms** - Specific arrangements will be created for the distribution of the monetary and non-monetary benefits generated by the ER Program. A Benefit Sharing Working group was created and a first preliminary draft on key finding for the Benefit Sharing Plan (BSP) was elaborated, with options and proposals to be analyzed. Those arrangements are still being discussed and will be concluded before the ER-PD final draft in the form of a dedicated Benefit Sharing Plan for the ER Program. At this stage, it should be stressed that the ER payments may be performance based. Performance will therefore have to be assessed prior to any payment, through the MRV system. This should be defined clearly by the Benefit Sharing Mechanism that is currently being designed.