REDD-Forestry and Climate Change Cell

Ministry of Forests and Soil Conservation

Babarmahal, Kathmandu, Nepal

Terms of Reference for Development of a Reference Scenario (FCPF/REDD/S/QCBS-9)

1 Background and rationale

Reducing Emissions from Deforestation and Forest Degradation (REDD) is evolving as a means to reduce forest sector carbon emissions through forest management and enhanced forest governance in forestry and related sectors. The World Bank's Forest Carbon Partnership Facility (FCPF) is assisting Nepal with support to develop and apply strategies to address the drivers of deforestation and forest degradation.

The Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) agreed at the seventeenth Conference of the parties (COP 17) that "forest reference emission levels and/or forest reference levels expressed in tons of carbon dioxide equivalent per year, are benchmarks for assessing each country's performance in implementing [REDD+] activities". The UNFCCC "invites parties to submit information and rationale on the development of their forest reference emission levels and/or forest reference levels including details of national circumstances".

This will be the key to assess Nepal's progress in reducing forest-related emissions and to design a results-based financing mechanism linked to emissions of greenhouse gases and their removals.

2 Objectives

The REDD Cell therefore seeks technical advisors whose main tasks will be:

- to assist the Government of Nepal's REDD Readiness Programme in the development of a national Reference Level/Reference Emission Level (RL/REL) for REDD+.

As part of their mission the advisors will build the capacities of the REDD Cell and other key stakeholders to identify and quantify decreases and increases in forest carbon stocks themselves and to project future trends. This will help the REDD Cell understand the potential of various REDD+ interventions in terms of carbon emissions/fluxes and to assess the related strategic options.

3 Methodology

3.1 Guiding principles

To make the reference scenario the basis for receiving international carbon finance payments, all data collected (and their analysis) have to comply with the internationally recognised guidelines of the Intergovernmental Panel on Climate Change (IPCC). The formulation of the RL/REL has to follow the principles of transparency, completeness, consistency, comparability and accuracy.

Moreover the RLs/RELs will have to take into account the technical assessment guidelines for the proposed reference levels to be developed by the Subsidiary Body for Scientific and Technological Advice at its thirty-sixth session (May 2012).

All applied methods must be reviewable and repeatable and are dependent on approval by an international pear review, that will be facilitated by the REDD cell.

To analyse the data the consultant has to revisit and update the forest type categorisation of Nepal.

3.2 Using sub-national Reference Levels / Reference Emission Levels (RLs/RELs)

Following discussions amongst key stakeholders in Nepal the national level RL/REL will be defined through a step-wise method by establishing sub-national RLs/RELs for selected regions. In this context, care will have to be taken to avoid incompatibilities between sub-national and national RLs/RELs. Also, potential interregional leakage will have to be accounted for when determining the various sub-national RLs/RELs.

3.3 Cooperation with the ongoing Forest Resource Assessment project

To the extent possible the consultants will already make use of data and results that are the output of the ongoing Forest Resource Assessment (FRA) of the Department of Forestry Survey and Research.

3.4 Required accuracy of data and their analysis

The error of emission estimates shall be <25% with a 95% confidence level.

4 Specific Tasks

4.1 Task 1: Determine scope and definition of RLs/RELs

- Specify and finalise Nepal's definition of 'forests',

- Define which general approach is being followed, i.e. the setting of Reference Levels or Reference Emission Levels; explain the strategic options that the two approaches encompass
- Define pools and gases to be included in the RL/REL assessment and justify their inclusion/exclusion,
- Define the scope of REDD+ categories, compliant with IPCC Good Practice Guidance Framework,
- Select and justify the historic reference period for which emissions and removals will be estimated, and
- Define and justify the selected level and scale of RLs/RELs (sub-national vs. national).

4.2 Task 2: Compile and analyse activity data and emission factors

Activity data: to determine emissions /carbon removals related to deforestation/forest degradation and forestation/carbon stock enhancement the consultant will undertake the following activities:

- Compile and catalogue existing GIS and remote sensing data and ground-based data and assess their applicability for the development of sub-national and national RLs/RELs),
- Define accuracy targets and QA/QC protocols for RS interpretation,
- Determine data gaps and required additional information needed for accurate RL/REL development,
- Compile and catalogue existing data for activities related to forest degradation and carbon stock enhancement and identify data gaps and collect data to fill the gaps; as a minimum requirement the analysis will take into account:
  - the 1994 NFI data (i.e. the base year of the RLs/RELs) with a critical review of the inventory methodology, the extraction of allometric equations, an assessment of the biomass expansion factors and biomass conversion factors
  - other available forest inventory data, such as the ongoing FRA project (Terai physiographic region and Mid hills), the WWF Nepal – Terai Arc Landscape (TAL) Area, and the ICIMOD-FECOFUN-ANSAB project
- Interpret activity data in the reference period and create benchmark land cover maps. Interpret the land cover maps for at least three points in time.
- Determine data gaps and additional images incorporated in the analysis and fill the data gaps with additional RS data

Emission factors: Carry out a stock-change analysis and gain-loss analysis to quantify forest degradation:

- Compile existing relevant data, develop stratification factors and stratify the landscapes,
- Define accuracy and precision targets and QA/QC protocols,
- Compile and evaluate existing allometric equations, biomass expansion factors, inventory data, logging impacts, fuelwood collection impacts, regrowth rates and other degradation relevant information,

- Validate their suitability for national forest and identify gaps to be filled, including data on gross deforestation/reforestation/C stock enhancement and forest degradation
- Undertake an uncertainty assessment for the determined emissions factors.

Reference (emission) levels: To determine the historic forest related emissions relevant for the national REDD+ scenario the consultants will combine the activity data with the respective emissions factors. The consultants will assist the Government of Nepal in deciding whether the thrust of activities will be on Reference Levels (RLs) or Reference Emission Levels (RELs) and the related strategic options (i.e. curbing and degradation of forests and/or promoting activities to remove atmospheric carbon). Separate time series have to be prepared for the periods 1994-2000, 2000-2006, and 2006-2012. They get aggregated into one consolidated time series for the entire period (1994-2012) starting from regional studies in REDD hotspots and moving up the national level.

4.3 Task 3: Adjust for national circumstances

For greater reliability as a benchmark for emission measurements, the determined RL/REL have to be adjusted from projections of historical data by national circumstances (e.g. taking into consideration, the stage in forest transition (FT), changes in deforestation rates, economic development) that affect Nepal's overall forest emissions and removals. This shall be done as a detailed qualitative analysis supported by scenario analyses that justify the adjustments.

Important information for this step can be drawn from a 'Strategic Study' that is being carried out simultaneously. It will provide a complete description of historical land use patterns, along with an assessment of land tenure, natural resource rights and governance issues. It will also prioritise direct and indirect key drivers of deforestation and degradation of forests that need to be addressed by programmes and policies included in the country's REDD+ strategy.

4.4 Task 4: Capacity building strategy

Throughout the assignment the consultants will assess the capacities of the national authorities (in the REDD Cell, the Department of Forestry Survey and Research, the Department of Forestry) to later update the RL/REL by themselves.

In a comprehensive capacity building strategy the consultants identify existing capacity gaps as well as trainings and other capacity building activities required to overcome them in a systematic manner.

5 Expected Outputs and Deliverables

The REDD Cell receives a well referenced and comprehensive report that defines RLs/RELs for the main physiographic regions. The RLs/RELs shall consider both historic emissions and removals and will have to be adjusted for any specific national circumstances.

As a minimum requirement the document will include:

1. Activity Data and Emission Factors that define the historic emission and removals in Nepal
2. Past trends in gross deforestation/forestation and forest degradation carbon stock enhancement
3. Land cover (change) maps with the given accuracy targets. The maps will have to be analysed and interpreted for at least four points in time (1994, 2000, 2006, and 2012).
4. A documentation of the methodology used to adjust RL/REL for national circumstances
5. Methodological indications for Nepal how to eventually move from tier 2 to tier 3 (taking into consideration efficiency, cost-benefit, capacities, transparency issues...).
6. A comprehensive strategy to build the capacities of national stakeholders for the regular future update of the RL/REL
7. An eight page summary of the study, highlighting the approach followed, the work undertaken, key findings as well as implications for REDD+ readiness in Nepal.

The consultants will present complete, consistent and accurate information that has been validated through a stakeholder consultation process. The information will include methodological information, and a description of data sets, approaches, methods, models, if applicable and assumptions used.

The Reference (Emission) Level document has to be prepared in such a fashion that it is ready for submission to the UNFCCC, i.e. it must be prepared in a manner which allows for technical assessment of the data, methodologies, and procedures used in their development, and documentation of how the proposed RLs/RELs meet the IPCC principles for reporting of national emissions and removals of GHGs.

Upon concluding the assignment, the consultants will submit all raw data (satellite images, inventory data etc), analysis data as well as the final outputs in the form of a digital and hard copy to the client. The data will be property of the REDD Cell.

6 Work plan

The consulting firm / consortium of consulting firms will prepare an inception report with a detailed work plan to guide the process including a work schedule, methodology for data collection related to each key question, framework, information collection and analysis, and reporting. Based on the work plan, a detailed plan of study will be discussed and finalised jointly by the study team and the REDD cell.

7 Time frame

The consultant's services are scheduled for up to nine months.

8 Composition of the study team

The study team will be comprised of a team leader, three experts and a team of RS/GIS technicians. The Team Leader will be responsible for coordinating the overall process and reporting, while the other experts will help the Team Leader in specific activities. The Team Leader is expected to have a thorough understanding and experience in RS, GIS, forest inventories and carbon modelling. All other team members are also expected to have a clear understanding and solid experiences in REDD+ mechanisms, RS and GIS.

The consulting firm to be involved in this assignment must demonstrate the ability to carry out this study with sufficient experience in leading multi-disciplinary teams. The firm has to have the proven capability of studying and producing consistent high quality reports. The consultants will also have to demonstrate their expertise in the following areas (possibly one member can cover more than one field of expertise):

- TL (international) with a RS and GIS background, MSc as minimum requirement, proven track record in similar works and project management skills
- one specialist with a RS background, MSc degree as minimum requirement
- one specialist with a GIS background, MSc degree as minimum requirement
- one forestry/biometry specialist, MSc degree as minimum requirement
- a team of GIS /RS/ data entry operators

Next to the international Team Leader at least one of the subject matter specialists is expected to be an expert with a strong international track record.

9 Client's Input to the Consultant

The REDD Cell will designate a supervising officer to oversee the contract and to help implementing the study by proving feedbacks and coordinating with other government agencies and the Forest Resource Assessment (FRA) project if necessary.

10 Reporting Requirement

The consultant will submit an inception report within the first week of the contract agreement describing the consultant's plan of actions. This report has also to be accompanied with a work/ time schedule to confirm that the final submission will be timely made. The inception report must be approved by the client to proceed with the further work.

Draft copies of the final report will be submitted to the client within six months of signing of the contract agreement. Upon the final review by the client of the submitted draft documents and the ensuing communication, the consultant shall prepare and submit final five hard copies and one e-copy in WinWord of those documents to REDD Cell.