Module 1.3 Assessing and analyzing drivers of deforestation and forest degradation

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After the course the participants should be able to:

- Explain the need for monitoring direct and indirect drivers of deforestation and forest degradation within the UNFCCC REDD+ context
- Summarize different approaches to monitor drivers of deforestation and forest degradation
- Assess likely direct drivers of deforestation and degradation in a country

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GOFC-GOLD Global Observation of Forest and Land Cover Dynamics

FOREST CARBON PARTNERSHIP FACILITY

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Outline of lecture

1. Background and UNFCCC requirements on addressing drivers of deforestation and forest degradation
2. Definitions and overview of drivers
3. Different approaches for monitoring drivers of deforestation and forest degradation
4. Role of drivers in developing national forest reference (emission) levels and designing policy interventions

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UNFCCC requirements on addressing drivers of deforestation and forest degradation

(UNFCCC. 2014. 15/CP.19; UNFCCC. 2011. 1/CP.16)

- Developing country parties are requested, when developing and implementing their **national strategies or action plans** to **address the drivers** of deforestation and forest degradation.
- Drivers of deforestation and forest degradation have many causes; actions to address these drivers are **a function of a countries' national circumstances, capacities, and capabilities.**

UNFCCC requirements on addressing drivers of deforestation and forest degradation

Countries are encouraged to:

- **Take action to reduce** the drivers of deforestation and forest degradation
- **Share the results** on addressing drivers, including via the web platform on the UNFCCC website (http://unfccc.int/redd)
- Take note of the information from **ongoing and existing work on addressing the drivers** of deforestation and forest degradation by developing country parties and relevant organizations and stakeholders

Relevance of drivers in REDD+ policy development and implementation

- Addressing all direct and indirect drivers (see next section) is essential for **effectively reducing emissions** from deforestation and forest degradation and enhancing forest carbon stocks in every REDD+ country.
- Understanding of drivers is essential for:
  - Designing interventions **specifically to target the drivers**, thereby increasing the likelihood of reducing emissions through REDD+
  - **Assessing the impact of mitigation actions** (track drivers locally, nationally, internationally)

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Direct and indirect drivers of deforestation and forest degradation

- **Direct drivers** (or *proximate drivers*): human activities or immediate actions that directly impact forest cover and loss of carbon:
  - Deforestation drivers, mainly large-scale processes
  - Forest degradation drivers, mostly small-scale processes
  - For examples of direct drivers of deforestation and forest degradation, see next slides
- **Indirect drivers** (or *underlying drivers*): social, economic, political, cultural, and technological processes that give rise to the direct drivers:
  - Examples of indirect drivers: population growth, migration, market growth, agro-technical change, weak governance and enforcement, individual and household behaviour, etc.

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Monitoring drivers of deforestation and forest degradation

- Drivers and REDD+ interventions are key to defining priorities and appropriate methods for MRV.
- Monitoring drivers important for:
  - Tracking forest change activities over time
  - Attributing emissions to specific causes
- Monitoring drivers requires resources and efforts additional to estimation and reporting of GHG emissions.
- Engagement with nonforest sectors is important in order to track drivers.

Approaches to monitor direct drivers of deforestation

- Integrate and combine capacity-development efforts for monitoring drivers with ongoing national forest monitoring for REDD+: **Link activity data monitoring with monitoring drivers**.
- Remote sensing analysis:
  - Linking forest area changes to specific activities and follow-up land use (time series analysis)
  - Spatial context and location and other features (e.g., roads, settlements) can help in interpretation and can be a useful input for stratification, as set out in the GDOI MGD
- Ground observations for interpretation of land-use patterns: gather national inventories or local and regional knowledge from experts and communities.

Remote sensing for monitoring direct drivers

Driver	Indicator of driver	Method	Sensors
Deforestation			
Industrial agricultural clearing for cattle ranching, row crops, etc.	Large-clearings (>25 ha); post-clearing land use	Size of deforestation polygons (see section 2.1); map of land use following deforestation	MODIS, Landsat-like sensors
Small-scale agricultural clearing for pastures, shifting cultivation, smallholder farming	Small clearings (<25 ha)	Size of deforestation polygons (see section 2.1)	Landsat-like sensors
Infrastructure expansion (roads, mines etc.)	Road networks, new mines	Visual analysis or automated detection of infrastructure features	Landsat-like and high resolution sensors
Degradation			
Unsustainable logging	Logging roads	Spectral mixing (see section 2.1.3)	Landsat-like sensors
Fuel wood and NTFP collection	Footpaths, low biomass, ground data	No accepted method	High resolution
Forest grazing	Ground data	No accepted method	High resolution
Wildfire	Burn scars	Burn scar detection (see section 2.5)	Landsat-like sensors, MODIS

Source: GOFC-GOLD Sourcebook 2014, table 2.8.1.

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In summary

- Addressing drivers of deforestation and forest degradation part of national strategies or action plans to reduce emissions in the context of REDD+
- Distinction between direct drivers (proximate causes) and indirect drivers (underlying causes) of deforestation and forest degradation
- Remote sensing analysis combined with ground observations important for assessing direct drivers
- Indirect drivers analysis more complex than direct, good subnational data from different sources and sectors needed
- Drivers input essential for developing REDD+ forest reference emission levels and for developing effective REDD+ policy strategies and interventions

Country examples and exercises

Country examples

- National analysis of drivers of deforestation in:
  - Democratic republic of the Congo
  - Indonesia

Exercises

- Assessing and analyzing drivers of deforestation in a tropical country:
  - Exercise 1 – Strategy development on how to address drivers
  - Exercise 2 – Qualitative assessment of drivers of deforestation

Recommended modules as follow-up

- Module 2.1 to proceed with REDD+ measuring and monitoring and focus on monitoring activity data for forests using remote sensing

- Modules 3.1 to 3.3 to learn more about REDD+ assessment and reporting