

5<sup>th</sup> Meeting REDD+ Taskforce Meeting

## Key Steps for CAMBODIA to Developing National Forest Monitoring Systems Under REDD+



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By: Chivin LENG  
REL/MRV member team

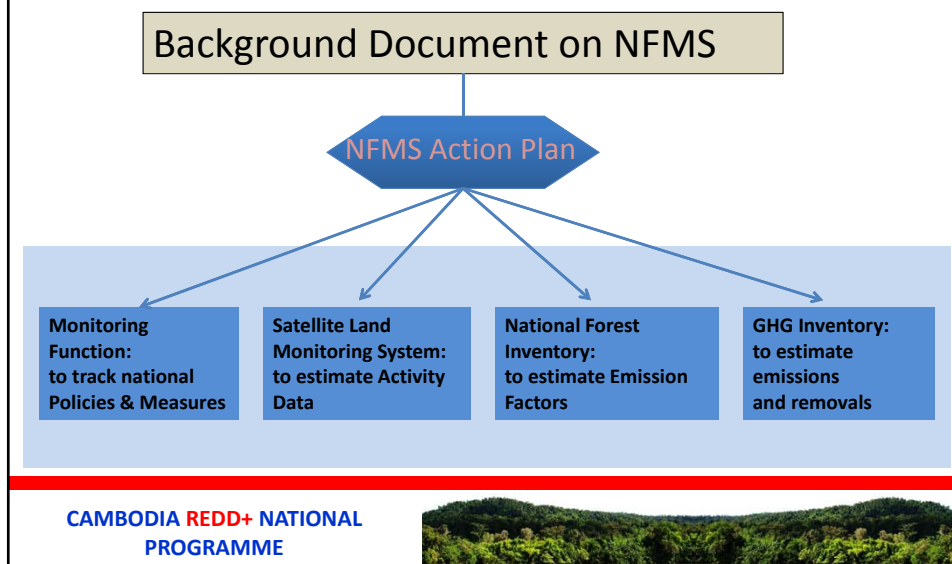


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## 1. National Forest Monitoring System Under REDD+



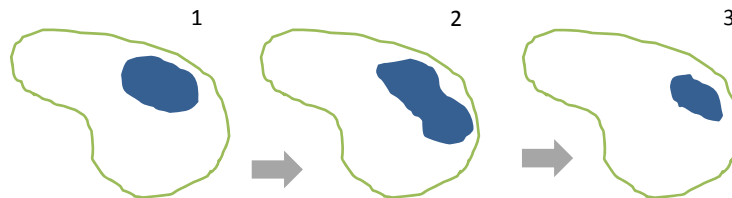
## Considerations for Cambodian Satellite Land Monitoring System

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- (i) For REDD+, parties are required to monitor and report carbon emissions/removal to UNFCCC;
  - (ii) Carbon emissions/removal is calculated by using two types of data. One is activity data (AD) and the other is Emission Factors (ED).
  - (iii) Activity data and Emission factors are combined to estimated the emissions and removals ( $AD \times EF = GHG$ ).
  - (iv) A Baseline Reference Emission Level (REL) can be produced by comparing carbon emissions/removal in the past to predict future emissions/removal levels



## Land monitoring

- (i) Activity data (AD) is basically derived from maps showing land use/cover;
- (ii) Series of maps are used to monitor and calculate land use and land use changes.



Example: Reporting on land use changes throughout time (Blue solid shape representing forest land at three different time points)

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## Reference Emission level

- (i) Reference Emission level (REL) is derived from comparing historical land use and carbon stock changes to predict future carbon emissions/removal development without reduction efforts
- (ii) In turn, the Reference Emission level is used to compare Emission reductions accomplished by REDD+

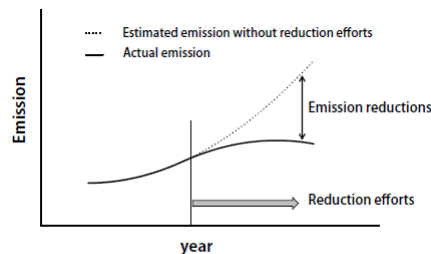
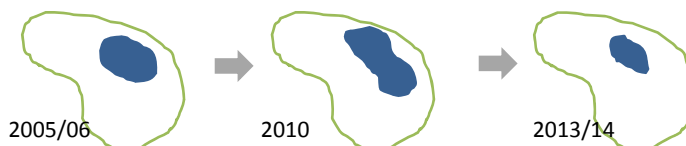


Figure 102-2 The concept of emission reductions

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## Cambodia Land Monitoring Proposal



- (i) As the baseline map, “2014 map” will be produced by using 2013 & 2014 satellite image data (LANDSAT 8). This map will cover the full country surface (Forest/Non-Forest) and will function as a basis for future monitoring future land use and land use changes;
- (ii) Two Historical maps will be used to derive historical land use and carbon stock change development
  - (i) By upgrading of existing 2010 FA map of 2010 . Verification of the map will be done by using ALOS AVNIR2 data for inaccessible areas. (Size of forest and non-forest area may change as the result of upgrading or modification). And consideration of other data sources for non-forest areas.
  - (ii) By translating the 2005/2006 FA map in a comparable legend. Verification of this map has already been carried out by GRAS. And consideration of other data sources for non-forest areas
- (iii) Additional maps/data points will be considered

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## Forest Definitions (International)

- (i) **IPCC 2006 Guidelines:** The “Forest Land” 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 *in situ* could potentially reach the threshold values used by a country to define the Forest Land category.
- (ii) **UNFCCC Decision 11/CP.7:** “Forest” is a **minimum area of land of 0.05-1.0 hectares** with tree **crown cover** (or equivalent stocking level) **of more than 10-30 percent** with trees with the potential to reach a **minimum height of 2-5 meters** at maturity *in situ*. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 per cent or tree height of 2-5 meters are included under forest, as are areas normally forming part of the forest area which are temporarily un-stocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest

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## 2. Consider of Forest Definition

Much global or regional information on forest resources is derived from national data:

- FAO has, therefore, developed forest-related definitions for national inputs to globally aggregated forest assessments and outlook studies.
- The Parties to the United Nations Framework Convention on Climate Change (UNFCCC) have developed forest-related definitions for use in climate change issues involving land use, land-use change and forestry.
- Other organizations have developed such definitions for other purposes, such as assessing forest resources or monitoring biological diversity in forests.

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## Forest Definitions (international)

- (iii) **UNFCCC Decision 11.CP19 (COP 19) 4.:** Also decides that national forest monitoring systems, with, if appropriate, subnational monitoring and reporting as an interim measure as referred to in decision 1/CP.16, paragraph 71 (c), and in decision 4/CP.15, paragraph 1(d) should:
  - (i) **Build upon existing systems**, as appropriate;
  - (ii) Enable the assessment of **different types of forest in the country**, including natural forest, as defined by the Party;
- (iv) **FAO (FRA) global definition of forest:** a **minimum threshold for the height of trees (5 m)**, **at least 10 percent crown cover** (canopy density determined by estimating the area of ground shaded by the crown of the trees) and a **minimum forest area size (0.5 hectares)**. Urban parks, orchards and other agricultural tree crops are excluded from this definition – as are agroforestry systems used for agriculture

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## Int. Forest definitions thresholds

Parameters	UNFCCC COP7/Marrakech Accord	UNEP/Convention on biological diversity	FAO/FRA
Young stands			
Temporarily unstocked areas			
Forestry land use			
Min. area (ha)	0.05 - 1	0.5	0.5
Min height (m)	2 - 5	5	5
Crown cover (%)	10 - 30	10	10
Strip width (m)			20

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## Existing Forest Definitions (national)

- (i) **Law on Forestry** : Defines "Forest" as unit of **natural or artificial forest ecosystem**, in the form of wet, inundated or dry land, covered by mixed vegetation, either natural or planted, including wildlife and other natural resources located therein, which the **main utilizations are the production of Timber Products and Non-Timber Forest Products, and other forest services**. Lands to which this law does not apply include all land designated by the State as permanent agricultural land, including: farms, idle land to be designated for other agriculture production than timber production, industrial areas, and land for urbanization and construction.
- (ii) **National Forest Programme**: "Forest" is the unit of the **natural ecosystem or plantation** in the forms of wetland, low land and dry land which covers by natural stands or plantation trees with a **height from 5 meters on an area at least 0.5 hectares with a canopy of more than 10 per cent**. The plantations such as rubber, oil palm, teak, acacia and eucalyptus and other kinds of trees which fall under the above criteria will also be classified as forests."

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## Forest Definitions (national)

### (iii) Cambodian afforestation and reforestation project activities (AR-CDM) Forest Definition:

Host Party's selected single minimum:			Host Party's <b>minimum selected values for A/R project activities</b> include:	
A single <b>minimum tree crown cover</b> value between 10 and 30 per cent	A single <b>minimum land area</b> value between 0,05 and 1 hectare	A single <b>minimum tree height</b> value between 2 and 5 metres	Palm trees	Bamboos
<b>10</b>	<b>0.5</b>	<b>5</b>	<b>No</b>	<b>Yes</b>

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## Observations

- The definition and criteria thresholds specified in the current national forest definitions largely fit with the definition and criteria threshold levels defined at the international level.  
some considerations:
  - Possible designation of rubber plantation as permanent agricultural land
  - Clarity needed on designation of palm tree plantation in UNFCCC definition
  - Possible consideration for urban parks, orchards and other agricultural tree crops (including Palm tree plantation above ) to be excluded from this definition
- The thresholds in both the CDM definition and NFP definition of forest are: a minimum tree height of 5 meters, a minimum land area at least 0.5 hectares, and a canopy/tree crown cover of more than 10 percent.

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## Considerations

1. Some research authors (Malyvanh and Feldkotter, ) argue that 10% threshold as used by FAO and developed in view of the, by nature, very open African Woodlands appeared to be rather low for the forests in South East Asia.
2. In past case 20% crown cover standard was applied in for forest/land cover maps (including MoE, 2007?)

**Recommendation:** In line with the definitions above it might be preferable to maintain the threshold (a minimum tree height of 5 meters, a minimum land area at least 0.5 hectares, and a canopy/tree crown cover of more than 10 percent) as in the current NFP and CDM definition, with additional clarification on urban parks, rubber tree, orchards and other agricultural tree crops.

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## Thank You!

Cambodia REL/MRV Team

Chivin LENG  
lengchivin@gmail.com

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