

**GCF Database****I. GCF Member name: Papua Province Government****II. GCF Member's Profile/ Province Overview**

1. Area (km<sup>2</sup>): 317,062 Km<sup>2</sup> (22% of the area of Indonesia)

2. Population:

- Total: 2.1 million
- Urban 27% of whom about 30% are indigenous Papuan
- Rural: 73% of whom about 75% are indigenous Papuan.
- % of National Population: 0.9%

3. GDP:

- Total: USD 5,828 million
- Forest sector: ND (This data is compiled by the Ministry of Forestry and expressed as aggregate amount nationally depending on the forest product. Getting to the original Province level data is proving difficult)
- Agricultural sector: 10 %
- Main income products: Mining, Forestry, Agriculture. Estate Crops (oil palm), Fishing.
- **Note: need percentage GDP breakdown**

4. Per capita income: USD 2,523

5. HDI: 0.621/0.696 (national)

Obs.: Poverty level is highest in Indonesia, poverty index 41.8 cf national 18.2; Education is lowest in Indonesia, 74.4% illiterate; Health lowest in Indonesia, child mortality 50.5 per 1000.

6. **Social Groups: TBA**

7. Forests (Typologies and Status):

- Total forest area: 31,406,663 km
- Forest Typologies (type/area):

Obs: Papua is essentially closed tropical humid forest with (probably) fire induced wet savannah in the southwest deltaic plains of Merauke, east to the Fly River on the border of Papua New Guinea. Forest structure and species composition and complexity is determined by elevation and drainage with the highest biomass and most species rich forests in the coastal lowlands on well drained alluvium. Poorly drained and regularly inundated swamp forest are common and sago, pandanus and nipa palm swamps occupy a large percentage of the lower deltas.

In terms of forest monitoring the Ministry of Forestry recognize Primary Forest, Secondary Forest and "Other Forest" within forest use categories: These are

- Protection Forest for ecosystem functions
- Conservation Forests for nature conservation functions
- Permanent Production Forest (including forest managed for native species and forest converted to plantations)
- Convertible Forest (Production Forest that is available to be removed from the National Forest Estate and used for other purposes such as agriculture, estate crops and settlement)
- The land of Papua is claimed under customary ownership by the indigenous Melanesian people who endeavour to exercise their rights over the land and the forest upon it. The strongest basis for this claim is that under the Special Autonomy Act of 2001 because it acknowledges the special cultural differences of Papua and custom; but application to forests is still disputed by the national government through the Ministry of Forestry.

- Status of Forests:
  - o Original forest area (pre-human disturbance): Estimated 85% of original forest area remains intact.
  - o Protection forests ( protected for ecological functions and secondary plant products: limited use) : 7,638,676 km<sup>2</sup>, 24%
  - o Conservation forests (managed for nature conservation values and comprising IUCN categories 1-4): 7,070,346 km<sup>2</sup>, 22.5%
  - o Permanent Production Forests: 10,210,968km<sup>2</sup>, 32.5%
  - o Convertible Forest (forest zoned for conversion to non-forest uses including settlement and estate crops): 6,486,673 (20.6%)
  - o Forests on private land: 8,205 (0.001%)

**Note: data on floristic/structural typology for forests still needs to be secured from the member Provinces or other sources**

8. Main Deforestation Drivers: logging (illegal and commercial), conversion to agriculture, development of new towns and roads

### **Components / Elements of REDD Action**

**Carbon Accounting Summary** - note this was not included in the original database template but is shown on the Wall Street on Demand Mockup, so this data will need to be secured from member Provinces.

### **III. Component 1: Environmental Service**

#### **1. Deforestation dynamics monitoring**

1.1 Deforestation is known? Yes

1.2 Deforested area (ha):  
 2000-2005: 108,832 ha  
 2003-2006: 68,695 ha

1.3 Average deforestation rate (ha/year):  
 2000-2005: 21,766 ha/yr = 0.6%  
 2003-2006: 19,513 ha/yr = 0.6%

1.4 Characterization of deforestation dynamics (direct and underlying causes and drivers of deforestation)

The period 2003-2006 has been accepted by all stakeholders as the official data period for measuring deforestation. These data are compiled by the Ministry of Forestry. The data for the period 2000 -2005 were accepted as official data for the analytical process leading up to COP 13 in Bali. Up to and including 2006 the main driver of deforestation has been logging (commercial and illegal) and some conversion to agriculture. As for elsewhere in Indonesia a significant reduction in deforestation rates was achieved after 2004 when illegal logging was brought under firmer control. There has been a strong pressure for conversion to oil palm and in the Merauke area to an extensive conversion to agriculture. This conversion pressure is being addressed through the Low Carbon Economic Development Strategy which will radically reduce the conversion rates by conserving at least 70% of the Convertible Production Forest.

1.5 Monitoring methodologies and accuracy

Forest cover monitoring for 2000-2005 was complicated by the different sets of available data. Landsat provides better resolution but is not as complete as

MODIS. The relationship between MODIS estimates and LANDSAT estimates is linear and statistically robust with  $r^2$  of 0.87 and a residual standard error 7.15% . The deviation between estimated and actual forest cover based on BAPLAN field sampling is about 15% and this value has been adopted as the order of error to apply to forest area loss

Forest Cover monitoring 2003-2006 is based on 1:250 000 scale interpretation of Landsat 7 ETM+ overlays for 2002/2003 and 2005/2006. Data from the Province is analysed by Provincial offices (BKLH) of the Ministry, compilation and reporting on a province level is the responsibility of the national government. Data concerning deforestation and degradation in the Districts (Kabupaten) is available from the BKLH and this data is also used for spatial planning at the Province and Kabupaten Levels of government.

#### 1.6 Needs identified for deforestation monitoring?

Forest cover monitoring is the responsibility of the Ministry of Forestry, Directorate General for Forest Planning. The data base FRIS (Forest Resource Inventory System) commenced in 2007 and is supported among other means by the Indonesia-Australia Forest Carbon Partnership (IAFCP). A MRV framework is also being developed in conjunction with National policy and is largely being driven by requirements under the Norway LOI. Discussions on the design and implementing framework for MRV where the roles and responsibilities of the National and Provincial Governments are a topic of discussion amongst GCF member Provinces and their liaison with the Central Government authorities. MRV case studies/ information from the broader context of REDD monitoring internationally would be valuable in providing member Provinces for tools and input into the national process.

## 2. Forest degradation dynamics monitoring

2.1 Degradation is known? Partially

2.2 Degradation level (km<sup>2</sup>; categories of degradation): 2003-2006: 594,660 ha

2.3 Characterization of degradation dynamics (direct and underlying causes and drivers of forest degradation)

Logging and forest fires resulting in the degradation of primary forest to secondary forest.

2.4 Monitoring methodologies used and accuracy

Note: to be defined

2.5 Needs identified for degradation monitoring?

See point 1.6

## 3. Forest Carbon Stocks quantification

3.1 Carbon stocks are known? Partially

3.2 Carbon stocks in forests:

More detailed data is required on carbon stocks in Papuan forests to take into account the range of structural types. The following table list national means for sample plots in different forest use categories.

National mean, and pooled standard deviation of area-weighted average by forest category

LANDUSE	Peat Swamp			Dry land		
	Mean	<i>S<sub>pooled</sub></i>	N	Mean	<i>S<sub>pooled</sub></i>	N
Conservation	174	30.4	174	183	31.5	1605
Conversion	179	28.4	403	185	32.1	844
Landuse unknown	178	25.5	79	174	24.0	244
Non-forest area	172	25.7	290	161	28.8	1464
Production	181	26.5	504	200	31.9	1792
Protection	181	36.2	171	189	33.7	816

Using these averages, the total carbon stocks are in the order of:

Conservation Forest: 123.0 Giga Tonne CO<sub>2</sub>e

Protection Forest: 138.3 Giga Tonne CO<sub>2</sub>e

Production Forest: 184.8 Giga Tonne CO<sub>2</sub>e

Convertible Forest: 116.1 Giga Tonne CO<sub>2</sub>e

### 3.3 Method used and accuracy:

The biomass carbon stock of forests range between 50 and 300 tC/ha for dryland forest and between 75 and 275 tC/ha for peat swamp forest<sup>1</sup>. The lowest estimates are in forests on Java, while the highest occur in Kalimantan and Papua. The resolution of the carbon maps is coarse as the data used to create it were based on regional and national datasets (e.g. climate, inventory data for calibration, and population density data at sub-national scales). This type of country-wide map provides estimates with uncertainty too high for robust analysis for the purposes of REDD, and this problem underlies the importance of an extended National Forest Inventory (NFI).

### 3.4 Needs identified for forest carbon quantification?

- Support for implementation of IPCC Tier 2 carbon stock analysis
- Capacity development within Government departments and Universities to design and implement IPCC measurement methodology, accuracy and ongoing quantification.

## 4. Baseline definition and emissions reduction targets

4.1 Baseline references used in REDD Program, methods used: The form of the baseline has not yet been defined. Given the low rates of historical deforestation the national government has acknowledged the value of a projected baseline taking into account broad economic development objectives. Development objectives are presently being tied to a low carbon economic strategy.

4.2 CO<sub>2</sub> Reduction Goals for the state and for REDD program: The President RI has committed to reduce emissions by 15% unilaterally by 2015 and by 41% with international support by 2020. Papua has translated this to mean a 25%

<sup>1</sup> Based on Gibbs and Brown (2007)

contribution to the national total of 15% by 2015 and a 10% contribution to the 41% assisted national goal by 2020

4.3 Estimated CO<sub>2</sub> savings per period: Depending on scenario and international support Papua Province aim to prevent the conversion of 5.2 million ha of Convertible Production Forest. By 2020 this will be equivalent to 1.8 Giga Tonnes of emitted carbon

4.4 Needs identified to improve baseline definition?

Baseline and emissions reduction targets are being addressed in the context of the national commitment and impact of the Indonesia-Norway LOI and moratorium.