DIREKTORAT JENDRAL PLANOLOGI
KEMENTERIAN KEHUTANAN

UN-REDD
PROGRAMME
INDONESIA

Historical Emission of Central Sulawesi Province

UNEP

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Green House Gas based compesation of REDD requires an agreement on country spesific emission reference levels. The setting of REL using various method will be based and highly consider the emission which happened in the past. Since Central Sulawesi has been choosed as provincial level REDD demonstration activities area, which defining REL as part of the step approaches, identify the historical emission of Central Sulawesi then become the prerequisites.

Past emission was calculated based on activity data and emision factor. Represent those data, various time series of landcover; yr 2000, 2003, 2006, and 2009 as well as emision factor was taken from Baplan used as an input. Hence this paper only focused the historical emission caused by deforestation and forest degradation.

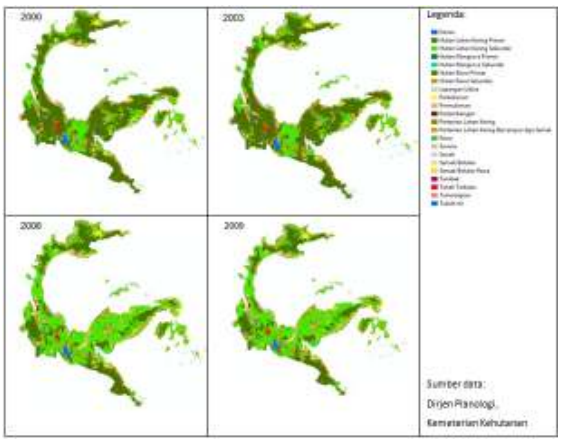

Figure 1. Landcover of Sulawesi Tengah since 2000 until 2009

Table 1. Emission Factor for Baplan LC Class

Landcover	stok_tCha	Source
Dryland Primary Forest	195.4	NFI
Dryland Secondary Forest	169.7	NFI
Primary Mangrove	170	NFI
Primary swamp forest	196	NFI
Secondary Mangrove Forest	120	NFI
Secondary Swamp Forest	155	NFI
Forest Plantation	100	NFI
Shrub	15	Wasrin, 2000
Shrub Swamp	15	
Estate Crop	63	
Settlement	1	
Grassland	4.5	
Dryland Agriculture	8	
Mixed Dryland Agriculture	10	
Paddy field	5	
Transmigration	10	

Table source: Baplan, 2011

1. Deforestation and Degradation Identification

Deforestation and forest degradation was identified at three sequential years; 2000 to 2003, 2003 to 2006, and 2006 to 2009.

[a] [b] [c]

Figure 2. Deforestation and forest degradation during: [a] 2000-2003, [b] 2003-2006, and [c] 2006-2009

Based on the analysis which presented on above series of deforestation and forest

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degradation maps, period 2003 to 2006 has highest deforestation and forest degradation rate during last decade in Central Sulawesi.

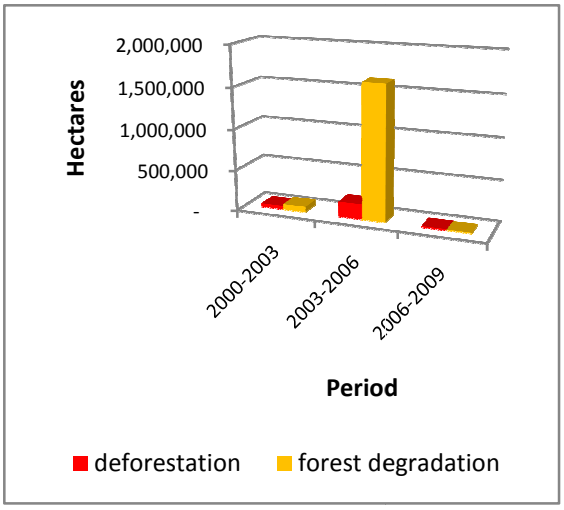

Figure 3. Deforestation and forest degradation at three different period in Central Sulawesi

Below are map indicated landuse change whic attend to deforestation and forest degradation from 2000 until 2009.

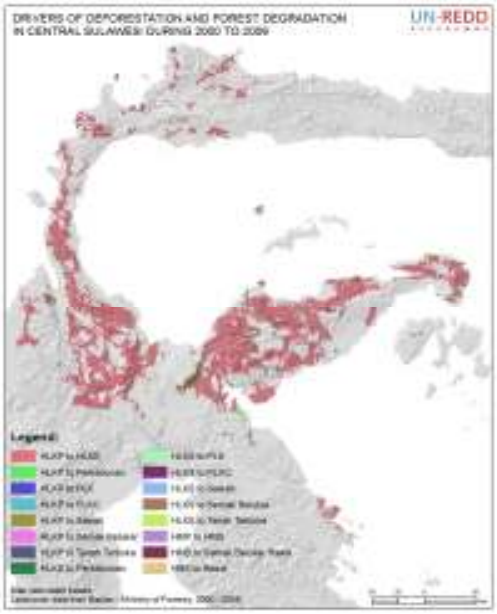

Figure 4. Map of landuse change which attend to deforestation and forest degradation since 2000 until 2009

Biggest landcover change which attend to deforestation since 2000 until 2009 is conversion from Dryland Secondary Forest to Shrub, Dryland Agriculture, and Shrub Mixed Dryland Agriculture.

Transmigration, mining, estate crop, and infrastructure development identified as factors which drive this forest conversion to shrub landcover type (Abdul Rauf, personal communication, 2012).

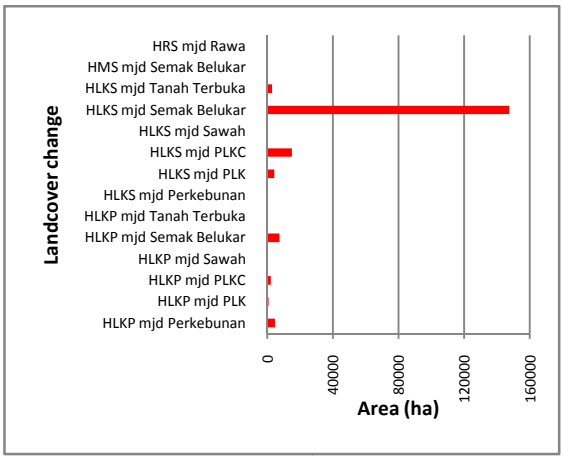

Figure 5. Landcover change which attend to deforestation since 2000 until 2009

Meanwhile, conversion from Dryland Primary Forest became Dryland Secondary Forest is the biggest landcover change which attend to forest degradation during this period.

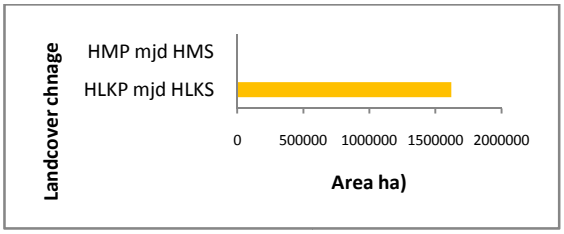

Figure 6. Landcover change which attend to forest degradation since 2000 until 2009

2. Initial Historical Emision from Deforestation and Forest Degradation

Based on above deforestation and forest degradation data and emission factor data, below are the initial historical emission which caused from deforestation and forest degradation in Central Sulawesi.

Table 2. Emission Caused from Deforestation and Forest Degradation since 2000 until 2009

Periode	Emisi (tonC)
2000-2003	8,512,430
2003-2006	59,719,937
2006-2009	2,551,198
Total 2000-2009	70,783,565

Total initial historical emission from deforestation and forest degradation is 70.783.565 tonC, which the biggest caused during 2003-2006 (59.719.937 tonC).

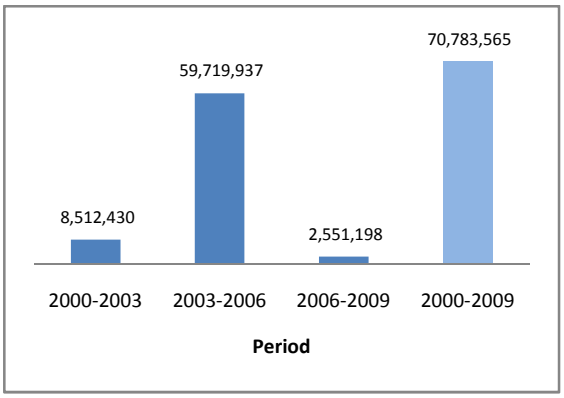

Figure 7. Emission caused from deforestation and forest degradation from 2000 until 2009

UN-REDD Programme Indonesia merupakan kerja sama kemitraan antara Kementerian Kehutanan Republik Indonesia, Food and Agriculture Organization (FAO), United Nations Development Programme (UNDP), dan United Nations Environment Programme (UNEP). Program ini mendukung upaya pemerintah Indonesia menurunkan kadar emisi akibat deforestasi dan degradasi hutan *(Deforestation and Forest Degradation)*