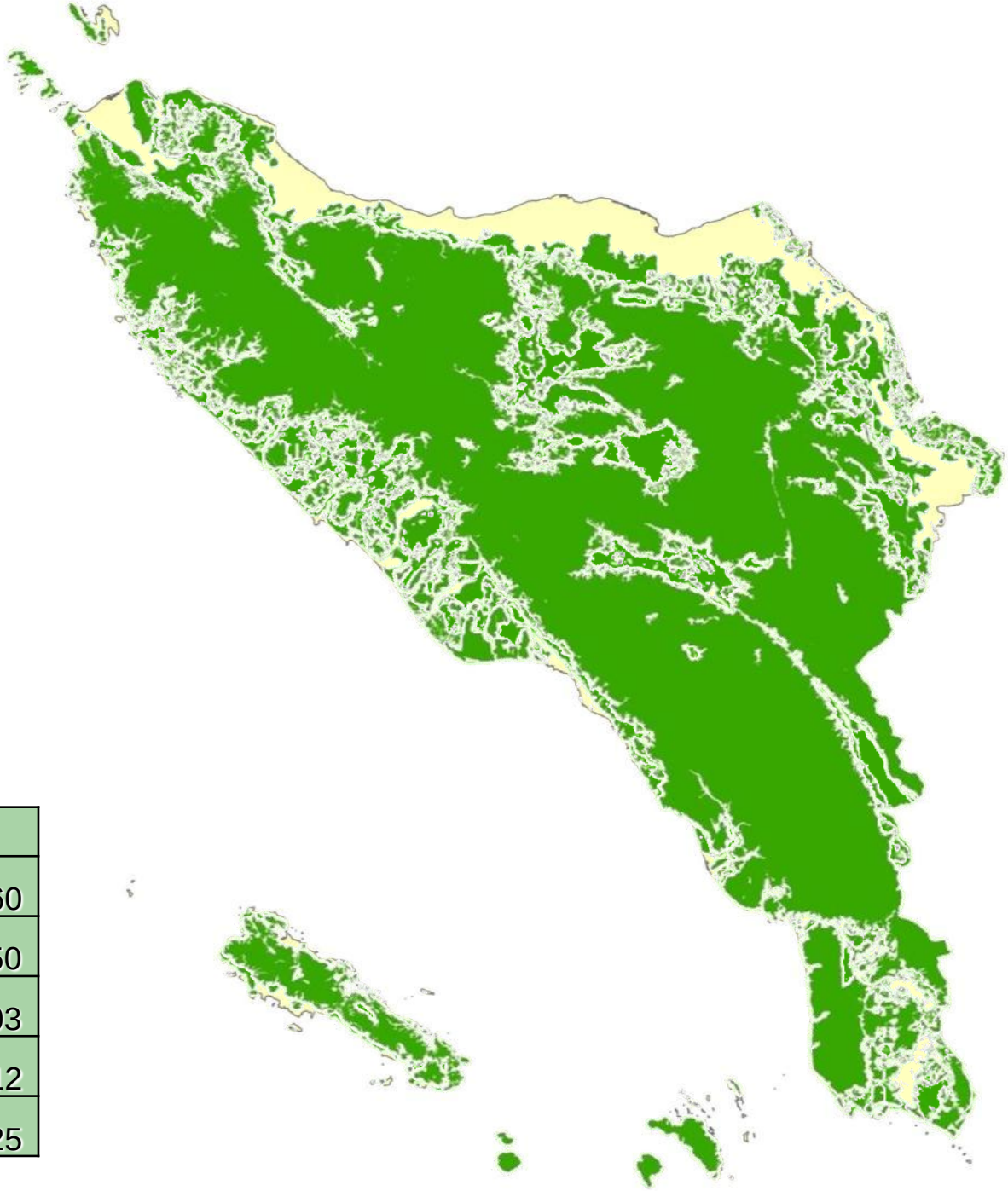
Defining Baseline for REDD Ulu Masen, Aceh

Bogor, 25-26 Agustus 2009

Forest cover & deforestation

Forest Cover 1945
Forest Cover 1980
Forest Cover 1990
Forest Cover 2000
Forest Cover 2006

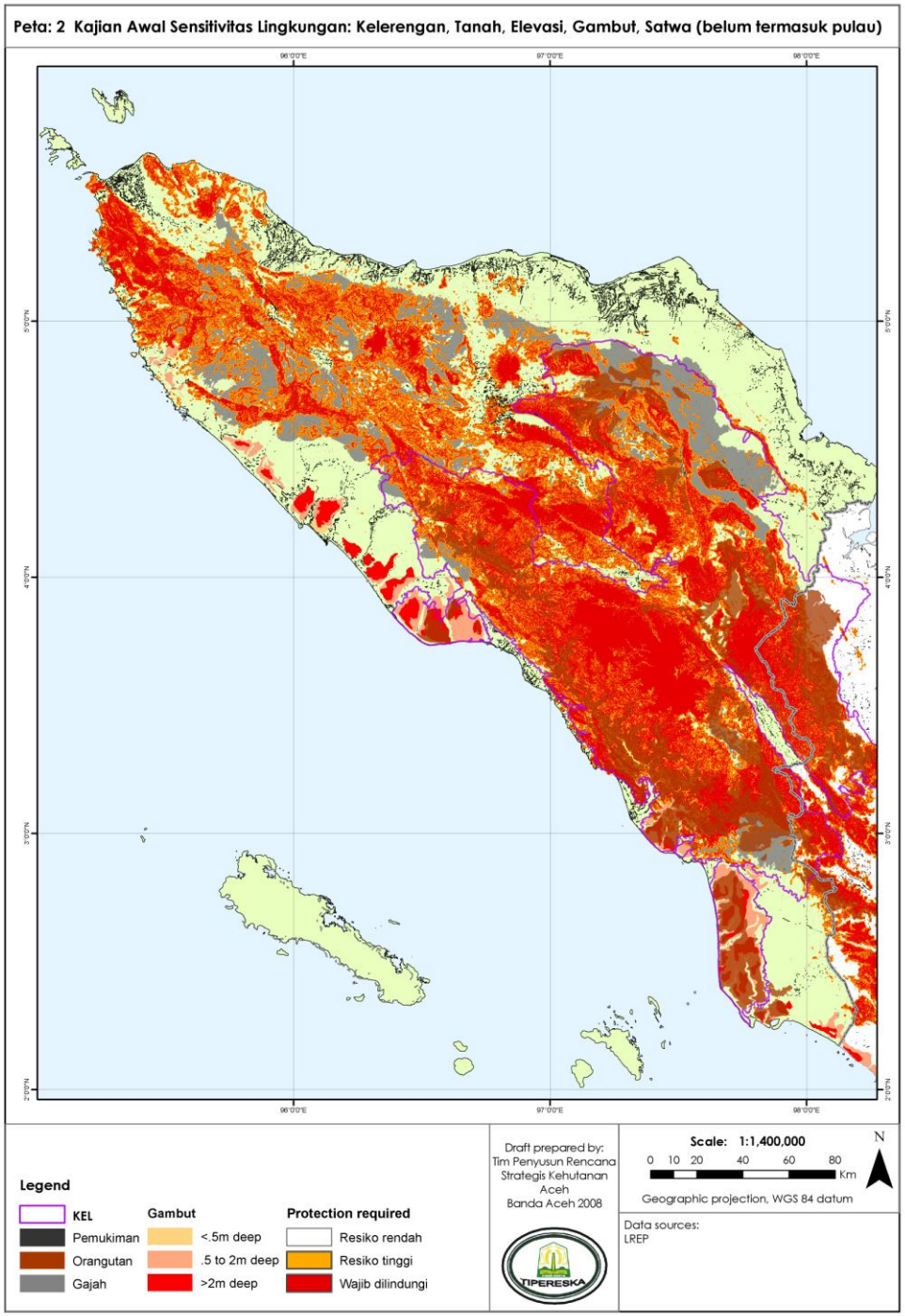
Deforestation



Forest cover 2006	
Forest	3,101,960
Degraded land	804,550
Plantation	209,703
Agriculture/settlement/urban	1,504,112
	5,620,325

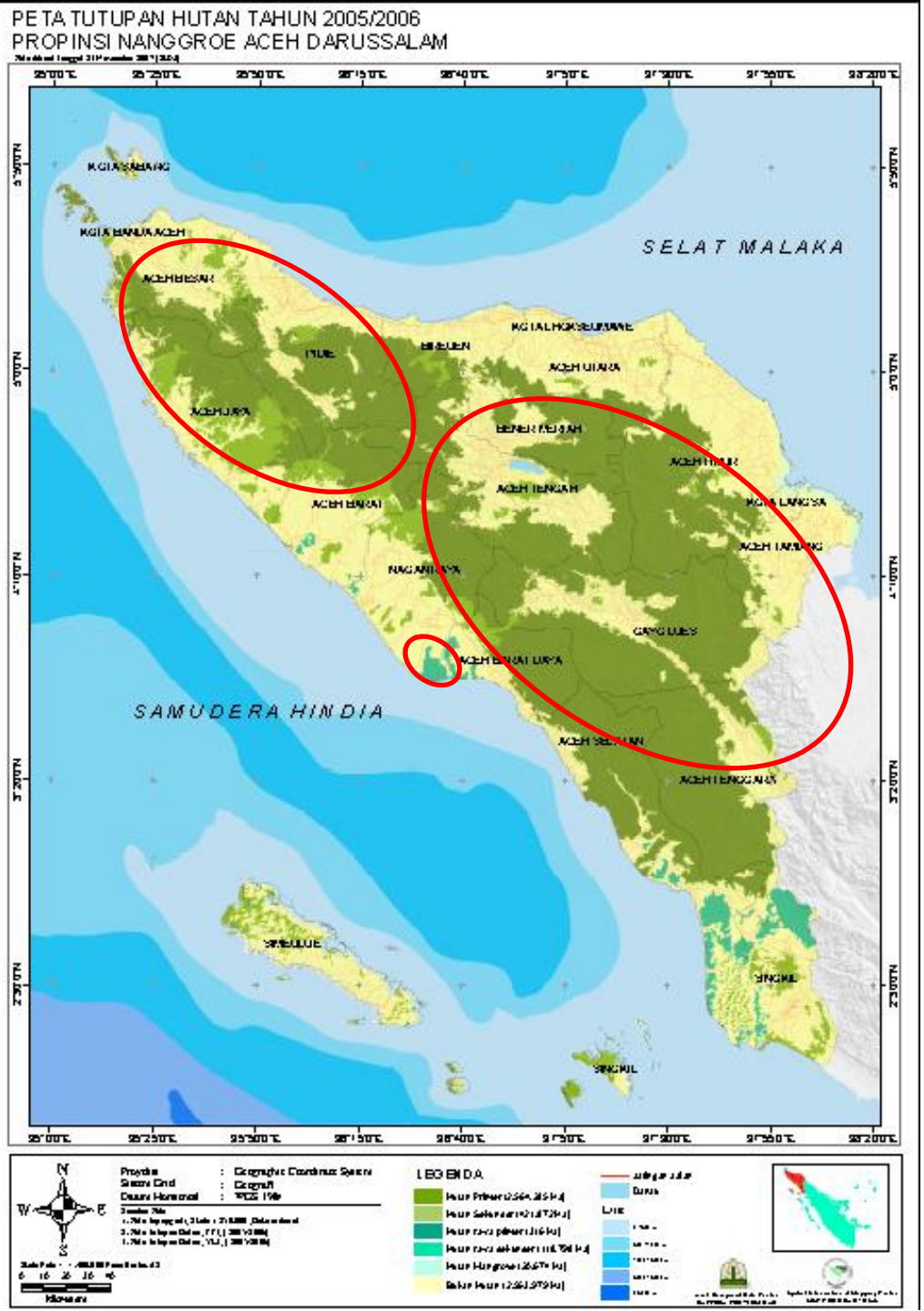
Kehilangan hutan di Aceh sejak 1980

Tipe Hutan	Elevasi (m dpl)	Luas (ha)	% dari total hutan yg habis
Hutan Dataran Rendah	0-500	679,760	74.3
Hutan Perbukitan	500-1000	123,418	13.5
Pegunungan rendah	1000-1500	81,207	8.9
Pegunungan	1500-2000	24,454	2.7
Alpin	>2000	5,583	0.6
Kehilangan total:		914,422	



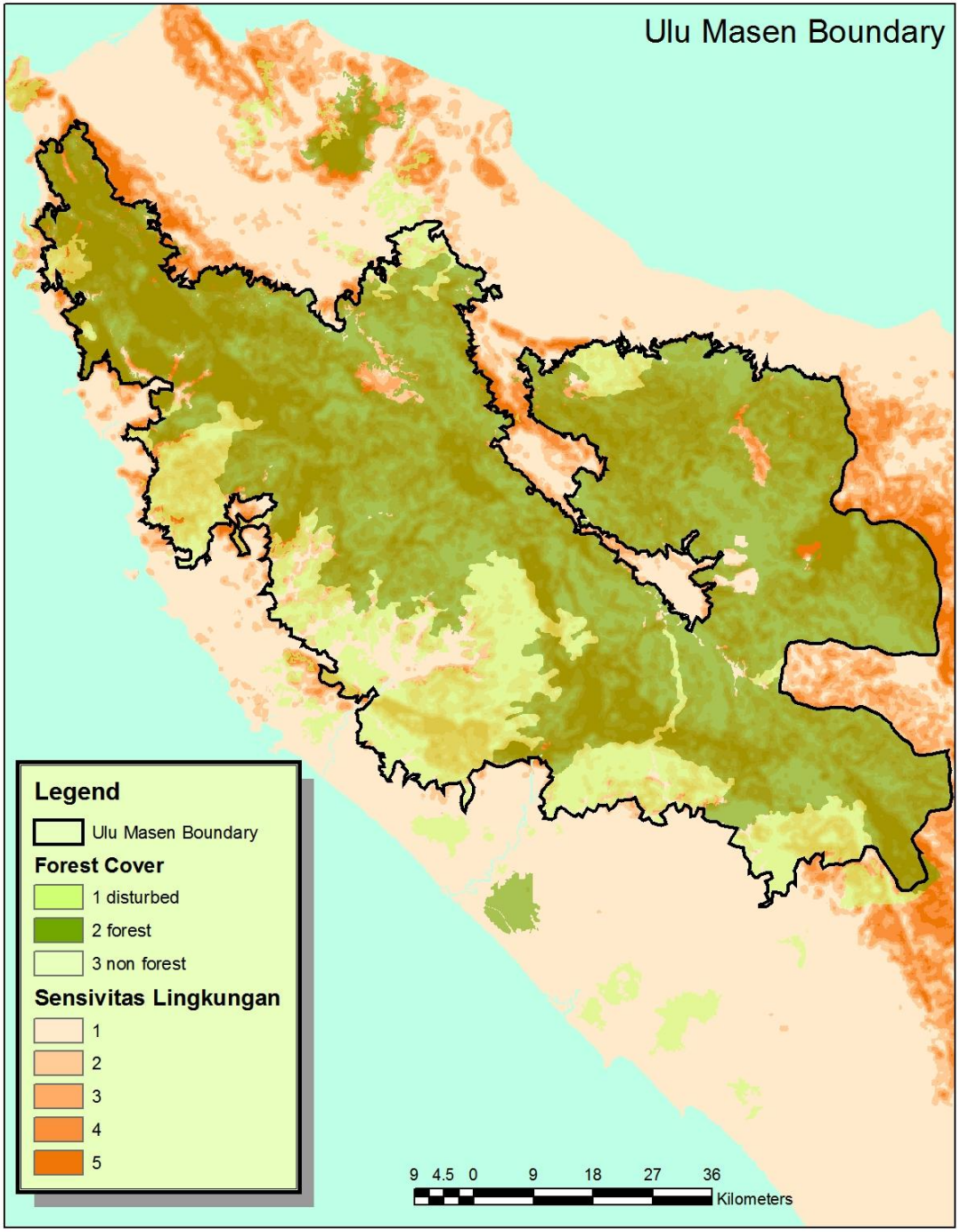
Mengacu ke peraturan yang menetapkan kriteria hutan/kawasan lindung:

- SK MenTan 837/1980 mengenai Kriteria Hutan Lindung (sistem skoring: kelerangan 40%; tanah; intensitas hujan; >2000m dpl)
- Keppres No.32 / 1990 mengenai Pengelolaan Kawasan Lindung (gambut > 3 meter; sempadan sungai 100 m kiri-kanan)
- UU no 5 tahun 1990 tentang Pengelolaan Sumber Daya Alam Hayati dan Ekosistemnya;



Potensi Proyek REDD

- Ulu Masen
- Kawasan Ekosistem Leuser
- Rawa Tripa



Menentukan batas Ulu Masen

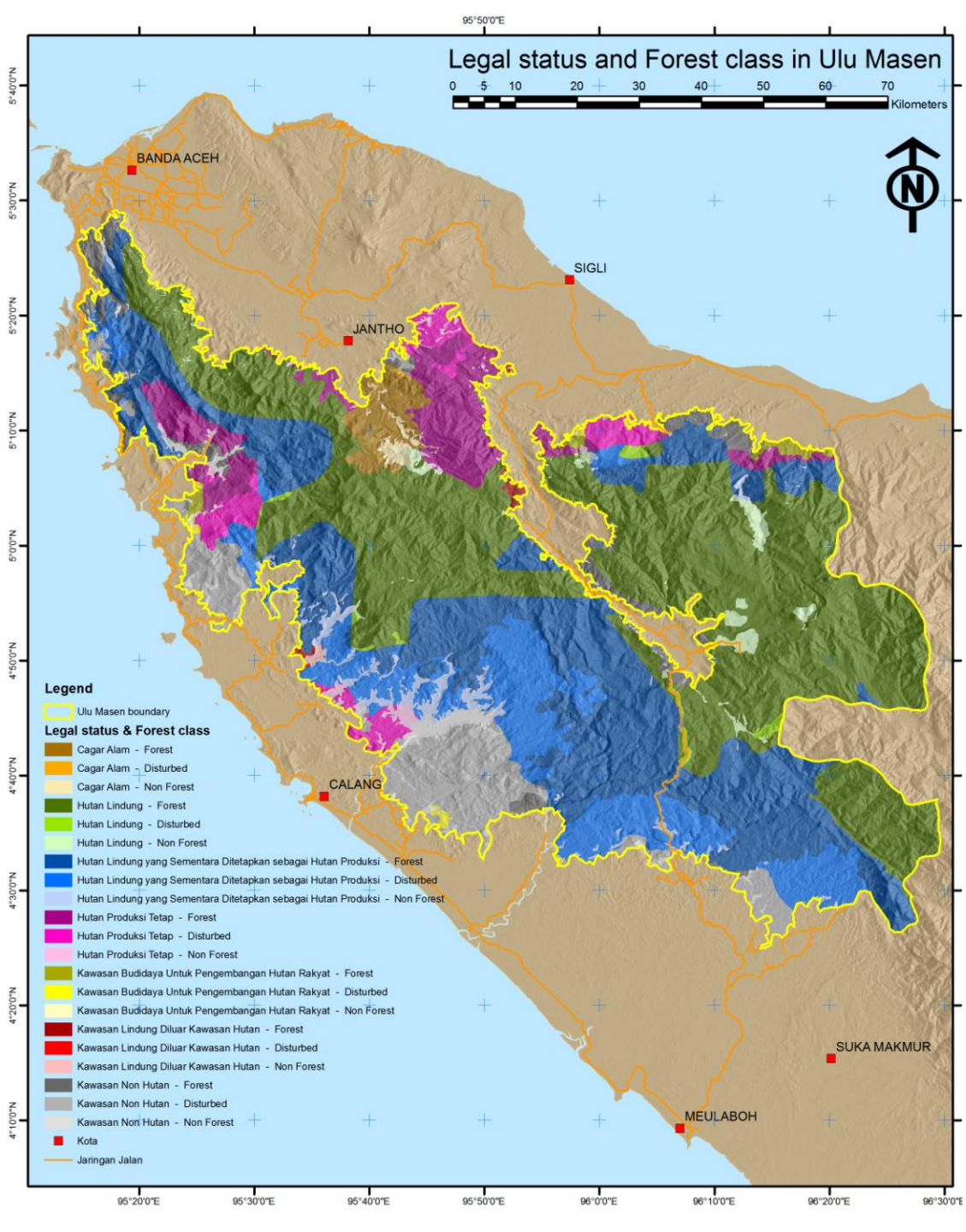
Kriteria kawasan
Tutupan hutan
Sensitivitas lingkungan
Habitat satwa

Menghitung “*Carbon Stock*”

IPCC Default value	
350	IPCC Default value for above ground biomass tropical moist forest, insular Asia, table 4.7
0.47	IPCC Default value for carbon fraction of above ground bimass (tropical and subtropical), table 4.3
164.5	tons of above ground carbon per hectare
1.37	tropical rainforest conversion from above ground to total biomass (table 4.4)
225.365	IPCC Estimate of Per Hectare Carbon in Insular Asia

Forest Cover and Elevation		
Elevation	Cover	Carbon
0-500	Intact	210
	Disturbed	160
500-1000	Intact	200
	Disturbed	150
1000-1500	Intact	190
	Disturbed	140
>1500	Intact	180
	Disturbed	130
Palm Oil		76
Shrub		65.1
Mixed		84.6

Forest Type		Hectares	Total Carbon	Average tC/ha
Elevation (m)	Condition			
0-500	Intact	132,547	27,834,870	210
	Disturbed	162,759	26,041,440	160
500-1000	Intact	220,814	44,162,800	200
	Disturbed	28,078	4,211,700	150
1000-1500	Intact	143,732	27,309,080	190
	Disturbed	1,309	183,260	140
>1500	Intact	61,289	11,028,520	180
	Disturbed	0	0	n/a
TOTAL		750,528	140,771,670	188


Legal status and Forest class in Ulu Masen
0 5 10 20 30 40 50 60 70
Kilometers
N
BANDA ACEH
SIGLI
JANTHO
CALANG
SUKA MAKMUR
MEULABOH
95°50'0"E
95°20'0"E
95°30'0"E
95°40'0"E
96°0'0"E
96°10'0"E
96°20'0"E
96°30'0"E
5°40'0"N
5°30'0"N
5°20'0"N
5°10'0"N
5°0'0"N
4°50'0"N
4°40'0"N
4°30'0"N
4°20'0"N
4°10'0"N
Legend
Ulu Masen boundary
Legal status & Forest class
Cagar Alam - Forest
Cagar Alam - Disturbed
Cagar Alam - Non Forest
Hutan Lindung - Forest
Hutan Lindung - Disturbed
Hutan Lindung - Non Forest
Hutan Lindung yang Sementara Ditetapkan sebagai Hutan Produksi - Forest
Hutan Lindung yang Sementara Ditetapkan sebagai Hutan Produksi - Disturbed
Hutan Lindung yang Sementara Ditetapkan sebagai Hutan Produksi - Non Forest
Hutan Produksi Tetap - Forest
Hutan Produksi Tetap - Disturbed
Hutan Produksi Tetap - Non Forest
Kawasan Budidaya Untuk Pengembangan Hutan Rakyat - Forest
Kawasan Budidaya Untuk Pengembangan Hutan Rakyat - Disturbed
Kawasan Budidaya Untuk Pengembangan Hutan Rakyat - Non Forest
Kawasan Lindung Diluar Kawasan Hutan - Forest
Kawasan Lindung Diluar Kawasan Hutan - Disturbed
Kawasan Lindung Diluar Kawasan Hutan - Non Forest
Kawasan Non Hutan - Forest
Kawasan Non Hutan - Disturbed
Kawasan Non Hutan - Non Forest
Kota
Jaringan Jalan

Deforestation Rate

- ## Indonesia

  According to data presented by FAO, Indonesia's annual deforestation rate has reached 1.87 million hectares[1]. This figure is lower than the official rate announced by the Ministry of Forestry, i.e. 2.8 million hectares every year[2]. Overall, Indonesia has already lost more than 72% of its intact forests and 40% of its forests completely[3]

- ## Sumatra

  Sumatra lost at least 6.6 million hectares of forest between 1985 and 1997, for an average annual deforestation rate of 2.4%[4].

- ## Aceh

  More recent work by Conservation International, estimates that between 1990 and 2000, Aceh lost on average 30,952 hectares of forest, for a province wide deforestation rate of approximately 0.86%[5]

1 *FAO 2005 'Global Forest Resources Assessment'.*

2 *The Jakarta Post '10 regents in Kalimantan prosecuted for illegal logging' 5th December 2005.*

3 *FAO 2005 'Global Forest Resources Assessment'.*

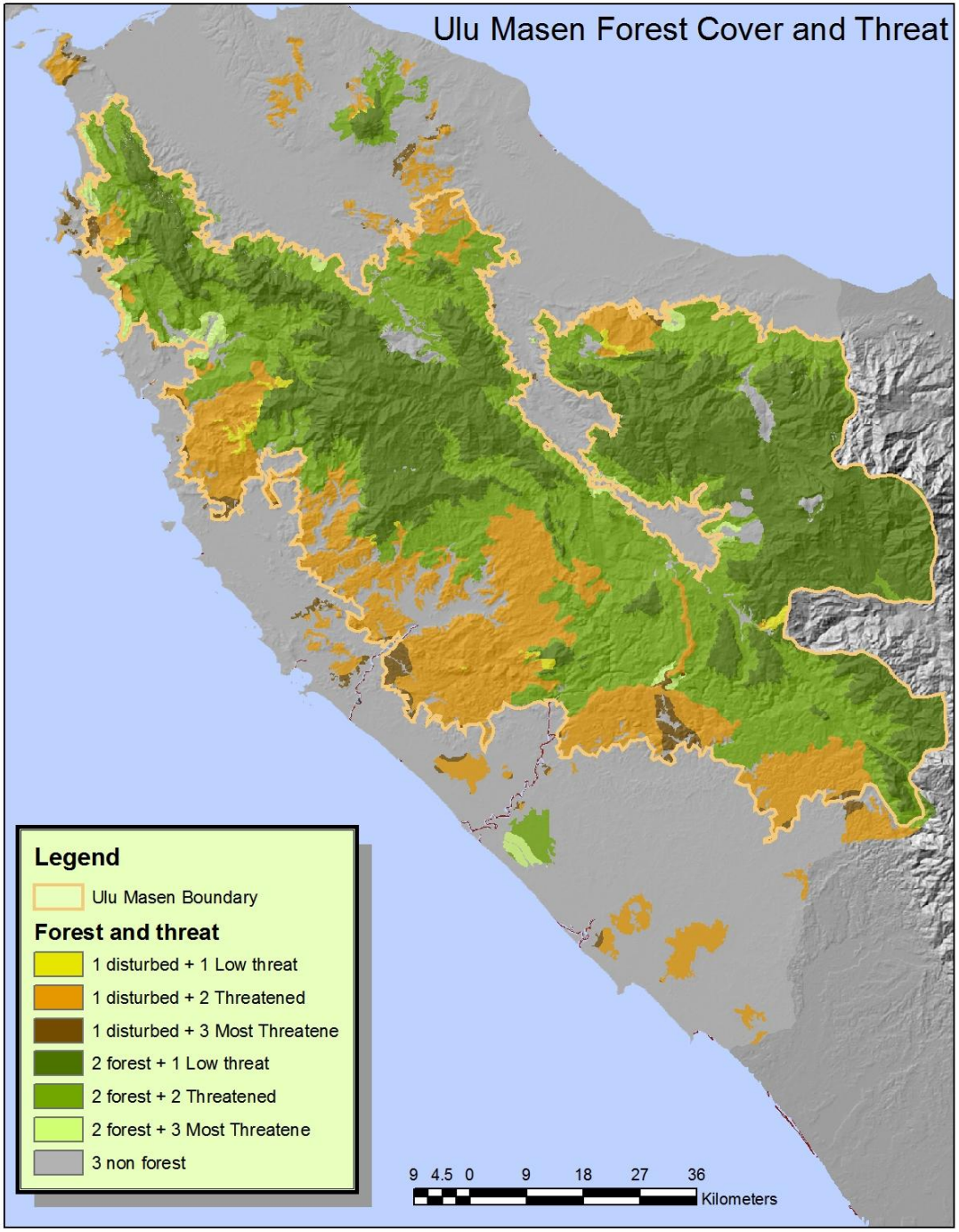
4 Forest Watch Indonesia/Global Forest Watch. 2002. The State of the Forest: Indonesia. Bogor, Indonesia and Washington DC.

5 An interview with Daniel Juhn, CABS Conservation International,

Project Deforestation Scenario

- Low deforestation scenario: 0.86% annual forest loss
- High deforestation scenario: 2.3% annual forest loss
- **Project deforestation scenario: 1.3% annual loss**

  we estimate an average annual deforestation rate (from 2008 to 2038) of **1.28%** per year. This corresponds to an annual loss of 9,630 hectares per year in Ulu Masen, resulting in approximately 289,000 hectares of forest loss in the project area over 30 years. Under this scenario, 38% of the forests in the project area are assumed to be deforested if no project activities are implemented.


Ulu Masen Forest Cover and Threat
Legend
Ulu Masen Boundary
Forest and threat
1 disturbed + 1 Low threat
1 disturbed + 2 Threatened
1 disturbed + 3 Most Threatene
2 forest + 1 Low threat
2 forest + 2 Threatened
2 forest + 3 Most Threatene
3 non forest
9 4.5 0 9 18 27 36
Kilometers

Forest Status (Land status)	Elevation	FOREST	Original C (t/ha)	Threat	Area (ha)	Original Total C
Cagar Alam	0 - 500	Intact	210	Threatened	5,755	1,208,550
Cagar Alam	500 - 1000	Disturbed	150	Threatened	64	9,600
Cagar Alam	> 1500	Intact	180	Low er Risk	392	70,560
Hutan Lindung	500 - 1000	Disturbed	150	Threatened	1,441	216,150
Hutan Lindung	500 - 1000	Disturbed	150	Low er Risk	934	140,100
Hutan Lindung	500 - 1000	Intact	200	Most Threatened	883	176,600
Hutan Lindung yang Sementara Ditetapkan Sebagai Hutan Produksi	0 - 500	Disturbed	160	Most Threatened	2,703	432,480
Hutan Lindung yang Sementara Ditetapkan Sebagai Hutan Produksi	0 - 500	Intact	210	Most Threatened	1,746	366,660
Hutan Produksi Tetap	0 - 500	Disturbed	160	Most Threatened	894	143,040
Hutan Produksi Tetap	0 - 500	Intact	210	Threatened	19,887	4,176,270
Hutan Produksi Tetap	0 - 500	Intact	210	Most Threatened	1,694	355,740

Sawit ~ 76 tC/ha
Scrub ~ 65 tC/ha
Mixed ~ 85 tC/ha

} Prediksi Kehilangan (% luas)

$\sum$tC stock & loss → ?$\sum tCO_2$ emitted → ?$\sum tCO_2$ Preserve

Skenario proyek 2008-2038

	Luas	Carbon	%
Project area	750,528		
Forest area	698,090	140,771,670	
Deforestation	9,630	1,080,252	1.28%
Total Def	288,900	32,407,574	38%
Project scenario			
Avoided def	245,650	27,546,438	85%
CO2 ~		101,003,606	
Annual Avoided def CO2 credit		3,366,787	

Tahapan selanjutnya

- Verifikasi
  - Mengembangkan metodologi verifikasi
  - Klasifikasi tutupan hutan dengan menggunakan citra satelit 2008/09
  - Melakukan ground truthing untuk klasifikasi hutan dengan lebih detail dan penghitungan biomassa
  - Uji laboratorium untuk mengetahui nilai “carbon fraction” di hutan Ulu Masen
- Rencana pengelolaan multipihak (KPH, BUMD)
- Distribusi manfaat ke masyarakat
- Monitoring hutan dan carbon stock
- Leakage analysis