



ASEAN Peatland Forests Project (APFP)



Status and Trends of Peat Swamp Forests in SE Asia

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SEApeat Project

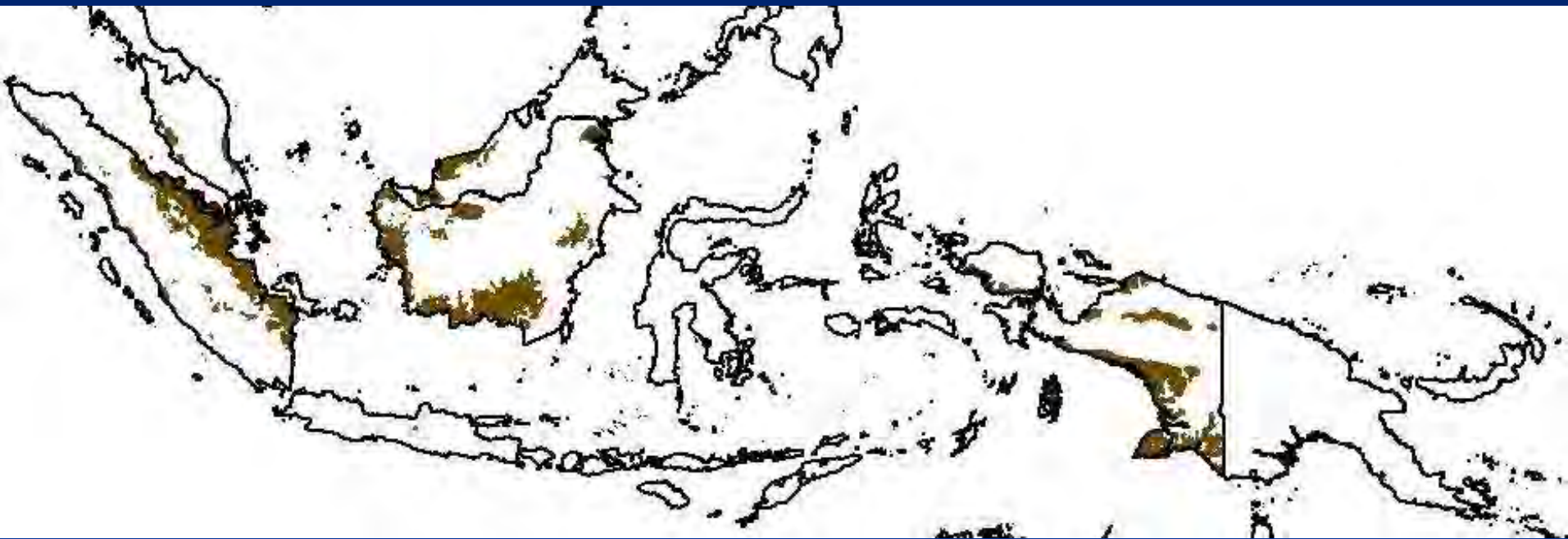
Workshop on Sustainable Management of Peatland Forests
in Southeast Asia
Bogor, Indonesia 27-28 June 2012

Peat Swamp forest is the main wetland forest type in Asia



Kampar, Sumatra

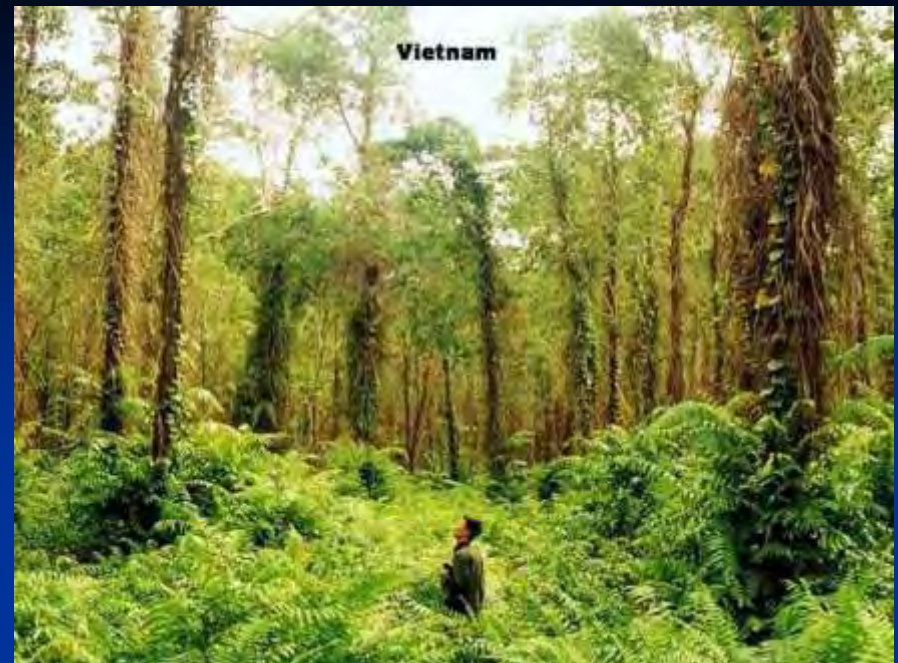
Peatlands cover about 25 million ha in Se Asia



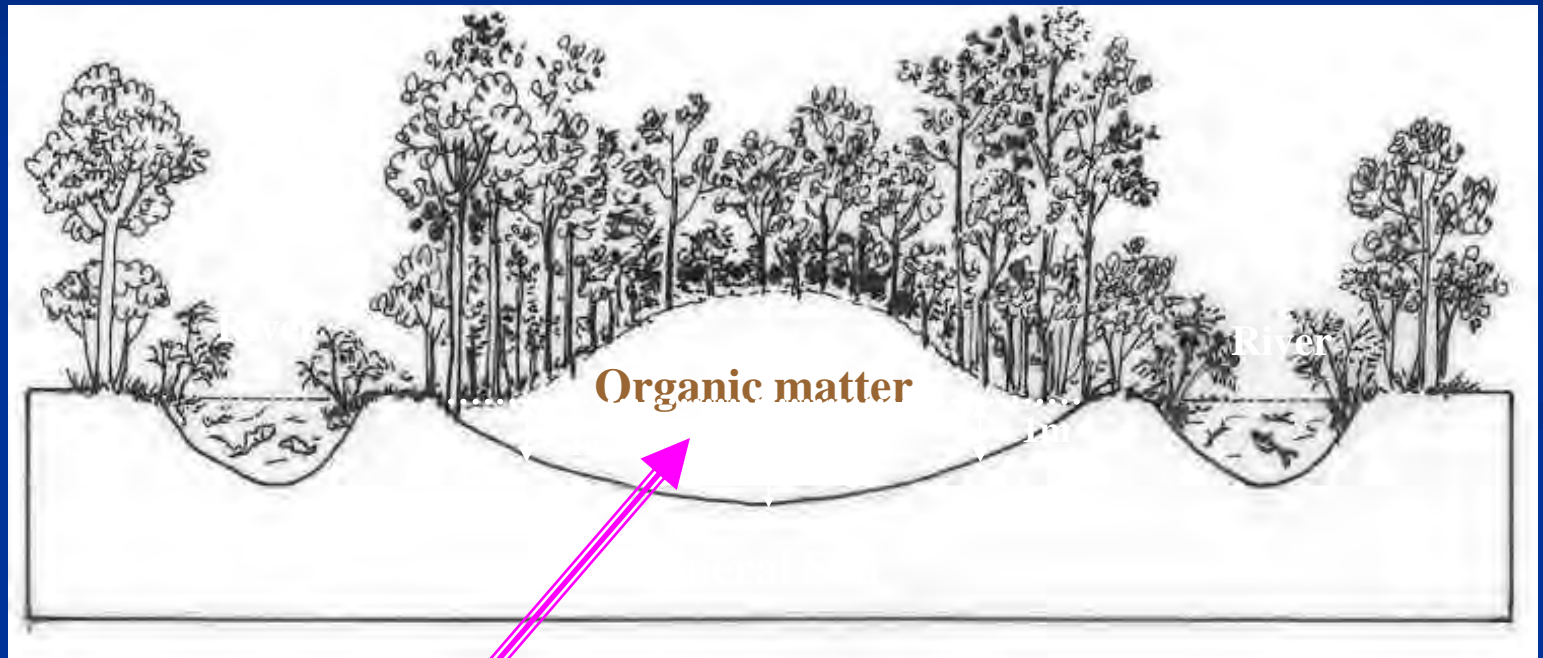
Source: Sarvision

Peatlands in SE Asia

Country	Area	Source
Brunei	90,900	Page et al, 2011
Cambodia	4,580	Quoi, L.P. 2012
Indonesia	20,695,000	Page et al 2011
Lao PDR	19,100	Page et al 2011
Malaysia	2,588,900	Page et al 2011
Myanmar	122,800	Joosten, 2009
Philippines	64,500	Page et al 2011
Singapore	50	NEA
Thailand	63,800	Page et al 2011
Vietnam	53,300	Page et al 2011



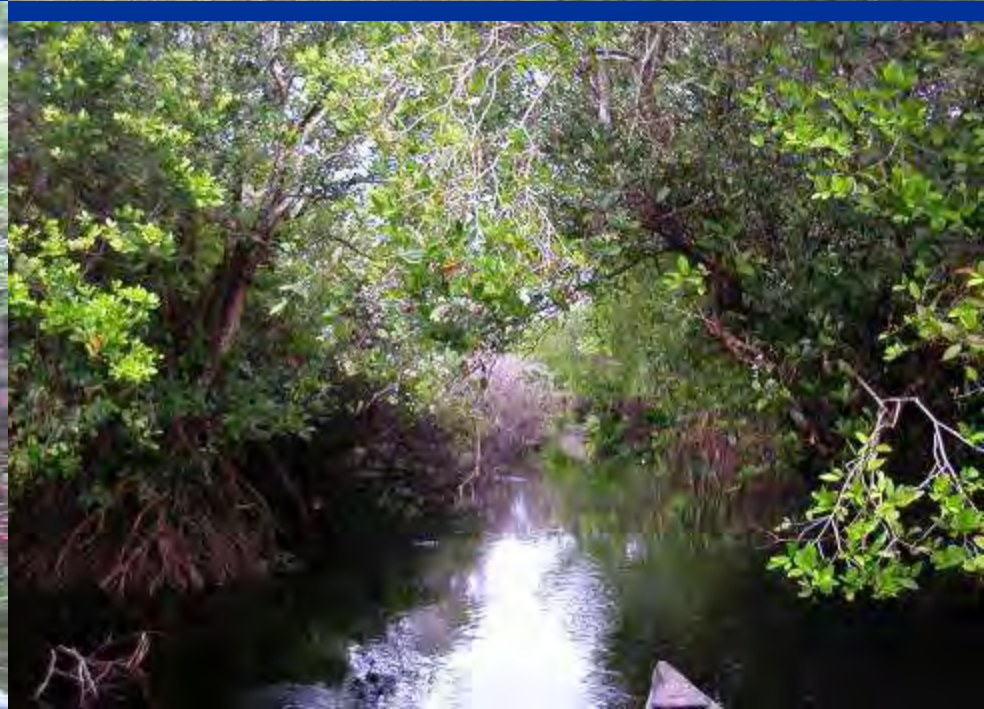
Peat accumulates in thick layers over thousands of years



Distance

Peat layer up to 20 m thick

Peatlands provide water and prevent floods



Peatlands Feed communities



Fishing, Pahang, Malaysia

Source: UNDP-GEF PSF Project

Peatlands support communities



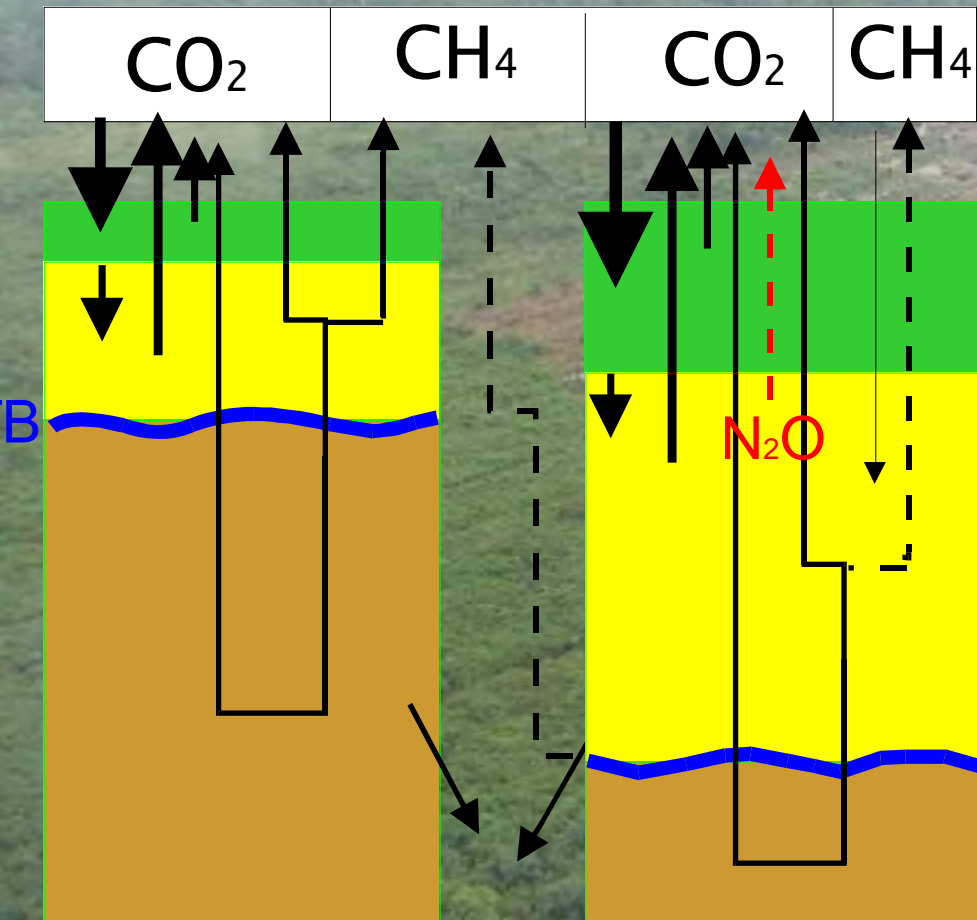
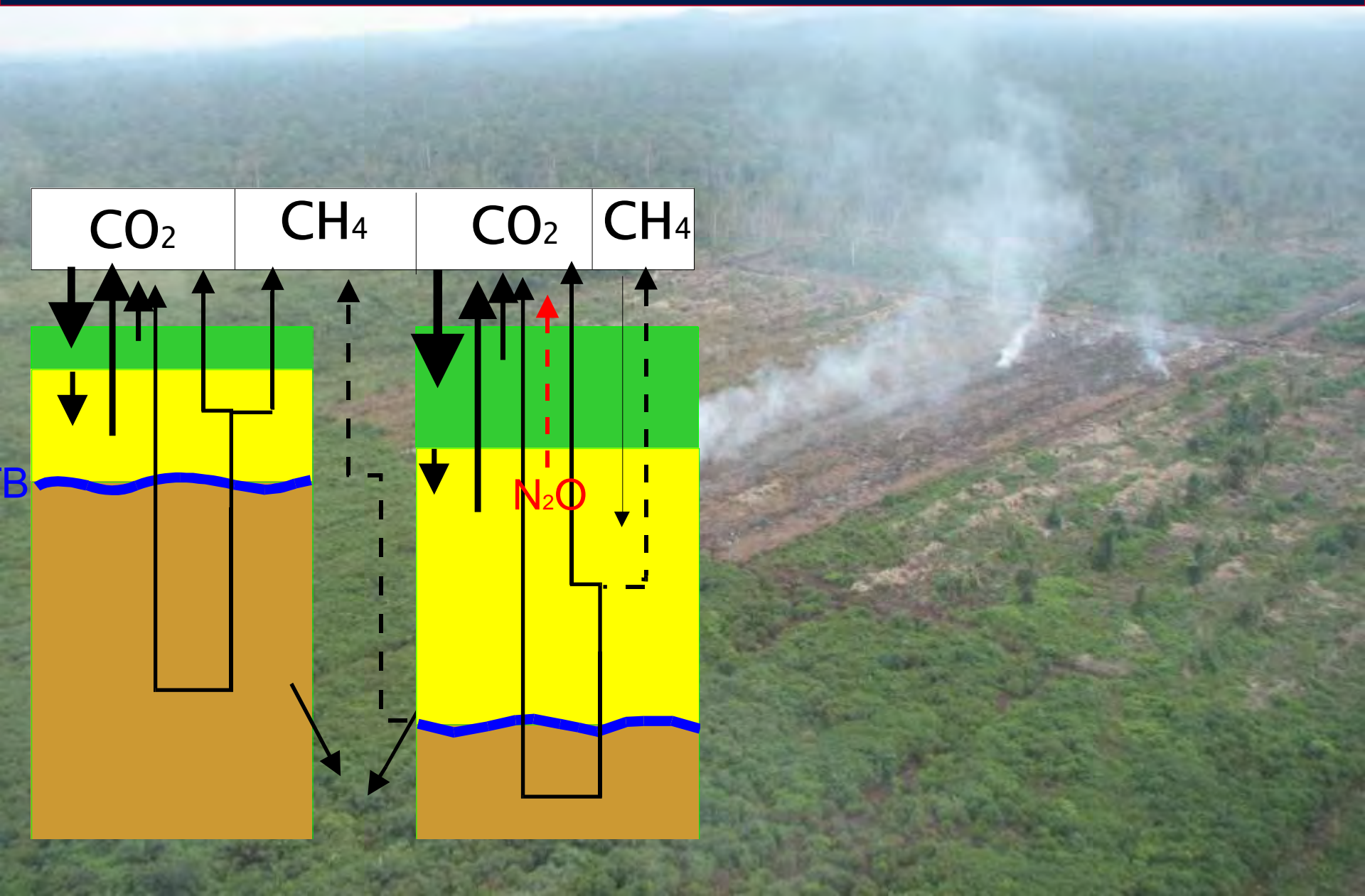
Jelutong - Chewing Gum tree, Indonesia

Unique Biodiversity

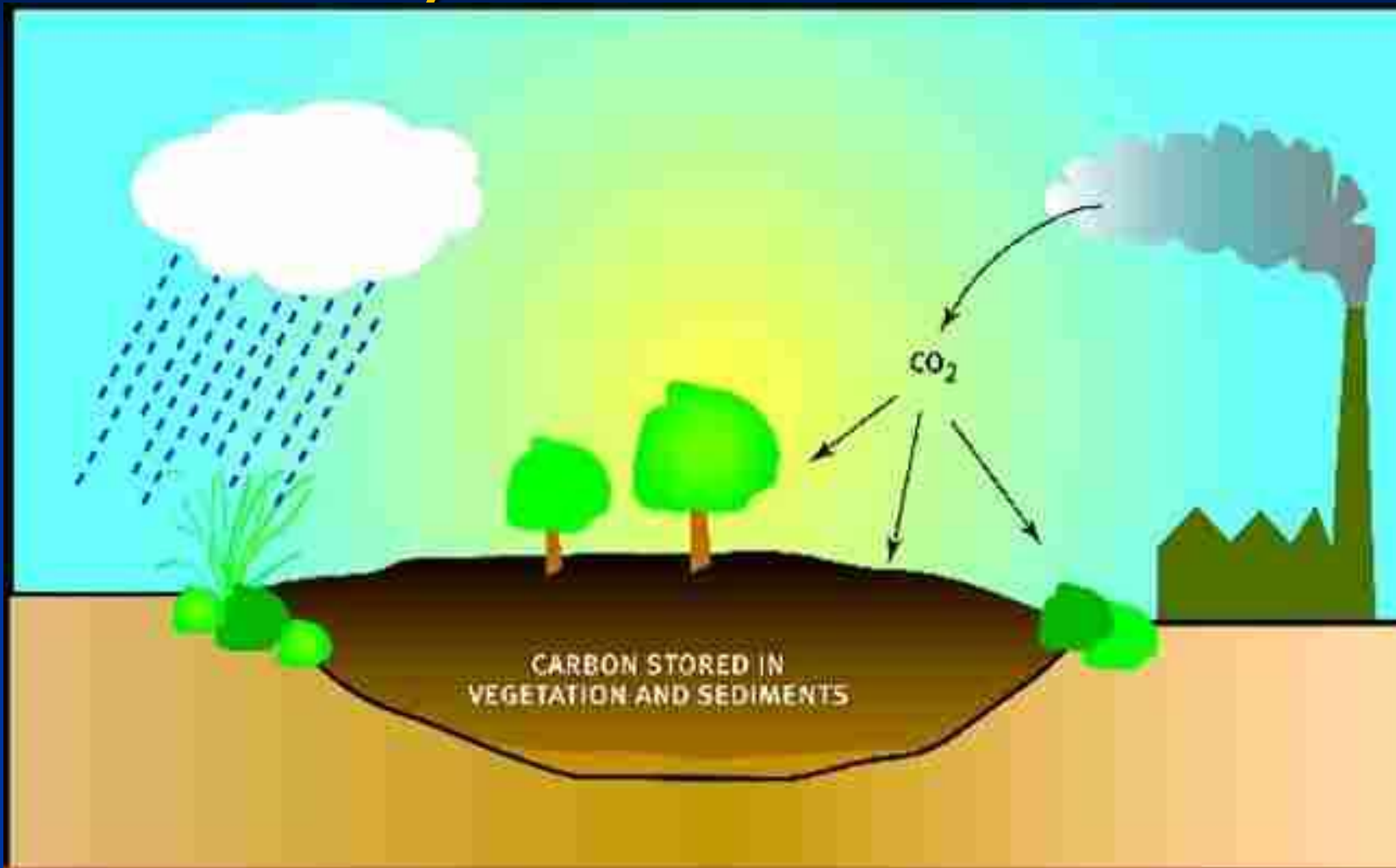




Peatlands regulate climate



Most important regional carbon Sink/Store in SE Asia



Peatlands store large amounts of carbon



**Peatlands in SE Asia Store c70 billion tonnes of carbon
twice as much as all forest biomass**

Status in 2010

Malaysia, Sumatra, Kalimantan

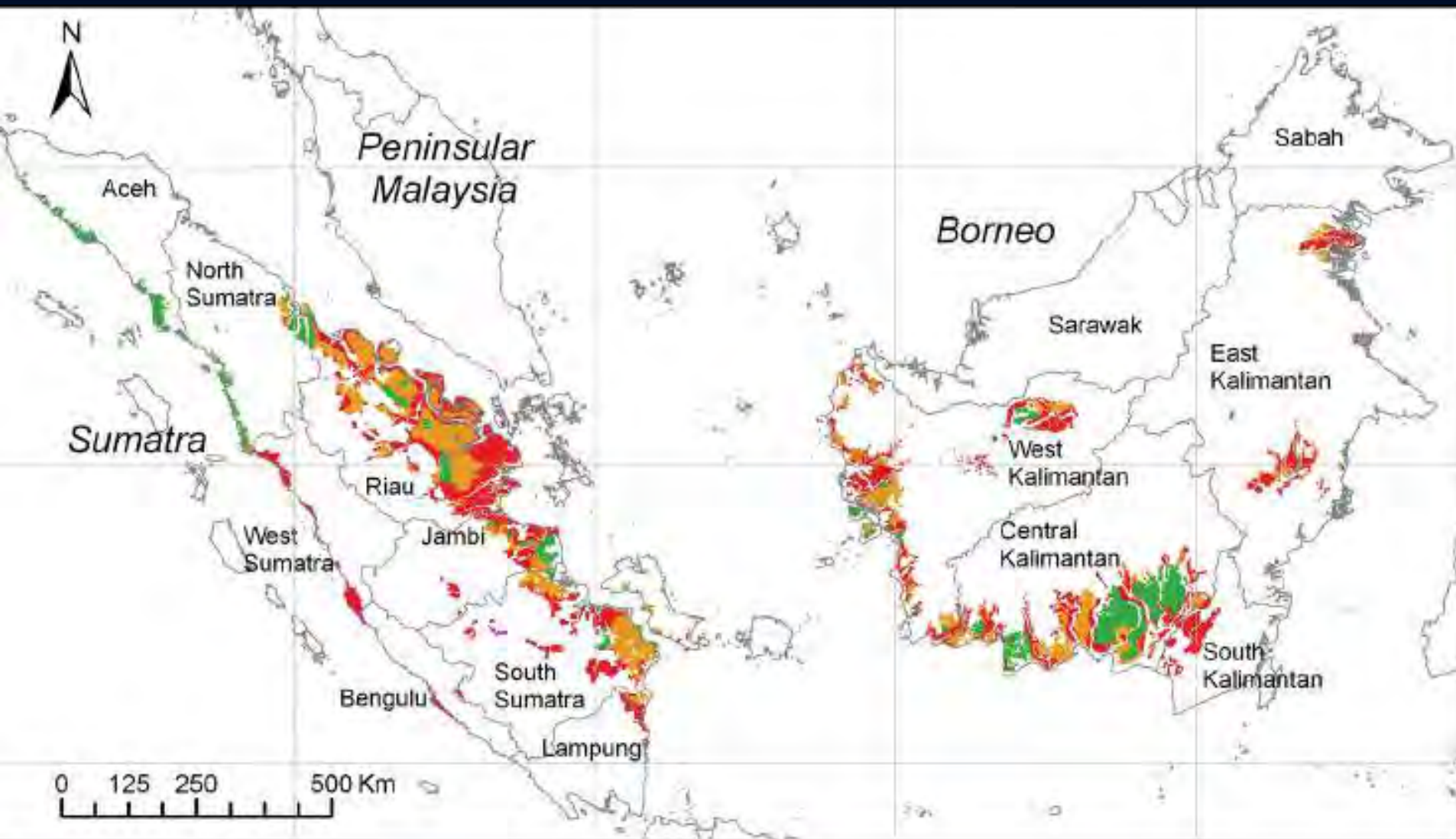
Vegetation cover	Area (ha)	Percentage
Peat swamp forest	5,249,000	34
Secondary PSF	4,186,000	27
Mosaic PSF	1,326,000	9
Open	1,536,000	10
Plantation	3,120,000	20
Other	120,000	1
TOTAL	15,528,000	100
Source: Miettinen <i>et al</i> , 2012		

Detailed status (Miettenen et al 2012)

	Peat swamp forest		Regrowth		Mosaic		Open		Industrial plantation		Other nonforest		Total
	1000 ha	%	1000 ha	%	1000 ha	%	1000 ha	%	1000 ha	%	1000 ha	%	1000 ha
Peninsular Malaysia	230	26	182	20	128	14	76	9	262	29	13	1	890
Aceh	108	39	94	34	18	6	10	4	46	17	0	0	277
North Sumatra	25	7	69	20	33	9	21	6	200	57	0	0	348
Riau	1382	34	1051	26	326	8	263	7	968	24	24	1	4014
West Sumatra	20	9	62	29	34	16	17	8	78	37	1	0	211
Jambi	181	25	255	36	75	10	60	8	146	20	1	0	717
Bengkulu	0	0	24	46	14	26	7	14	7	13	1	1	52
South Sumatra	107	7	537	37	134	9	220	15	449	31	2	0	1450
Lampung	3	3	24	26	6	7	45	49	10	11	3	3	92
Other provinces	24	32	33	45	4	6	11	15	0	0	1	1	74
Total Sumatra	1850	26	2150	30	643	9	655	9	1904	26	32	0	7234
Sarawak	380	26	403	28	47	3	82	6	525	36	6	0	1443
Sabah	39	20	49	26	15	8	33	17	52	27	3	2	191
West Kalimantan	1042	60	318	18	94	5	101	6	157	9	31	2	1743
Central Kalimantan	1454	48	780	26	291	10	357	12	118	4	8	0	3009
South Kalimantan	4	1	96	29	46	14	149	45	31	10	3	1	329
East Kalimantan	250	36	207	30	62	9	110	16	53	8	7	1	688
Total Borneo	3169	43	1853	25	555	7	832	11	936	13	57	1	7403
Total	5249	34	4186	27	1326	9	1563	10	3102	20	102	1	15528

Main drivers of change in status (1960 to 1995)

- Commercial logging;
 - Large logging concessions to private companies
 - Mainly kuda kuda system (rails/winning – later with drainage)
 - Management plans – some rehabilitation/treatment
- Nature conservation;
 - Establishment of nature reserves and parks
- agricultural drainage programmes
 - Transmigration and swamp development programmes - limited success



Land allocations



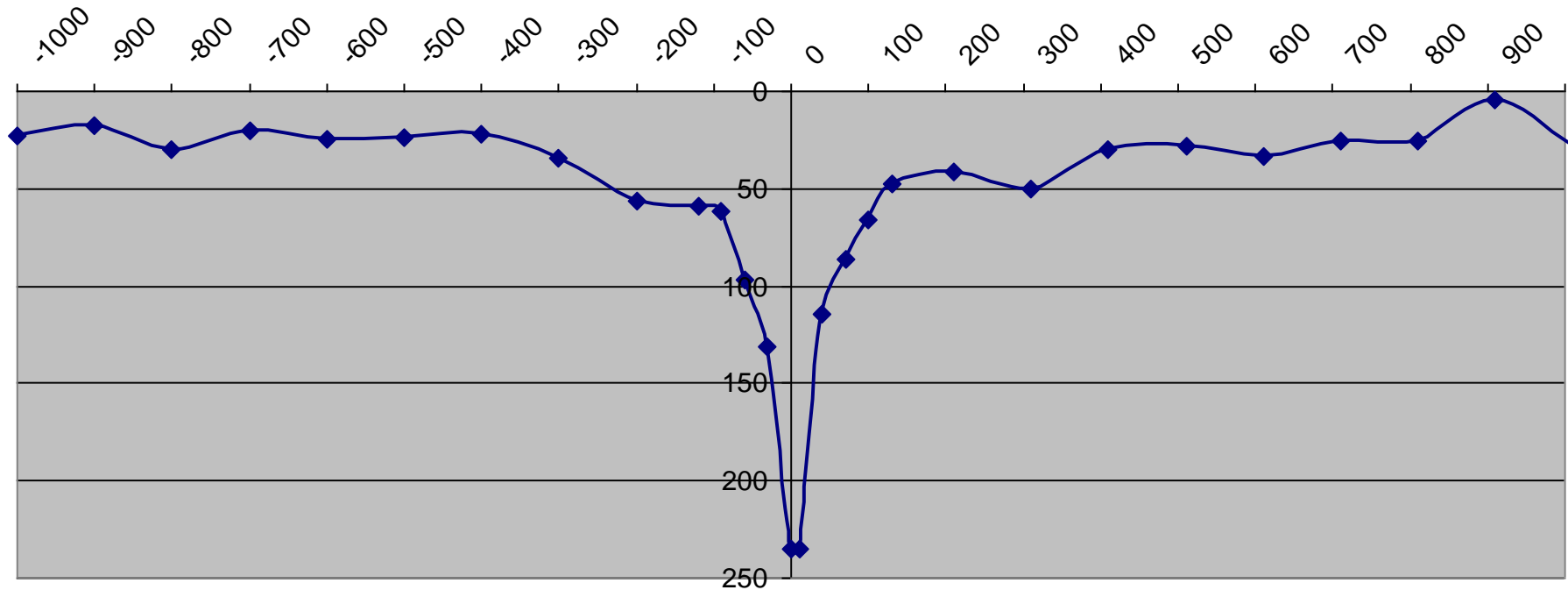


Drainage with logging led to degradation and fires



1 km Transect at Drain

Water Level from Ground (cm)



An aerial photograph of a forested area. A red line outlines a specific region. To the right, a river is visible. A large building complex is situated near the river. Three white lines point from the text 'Log transport canals' to the river, the building complex, and a canal within the red-outlined area.

Pekan FR

Log
transport
canals

Sg. Bebar

Challenges – Sustainable forest harvesting

- Protecting peatland forest resources
 - Avoiding over –harvesting
 - Management plans and cutting limits
 - Preventing illegal logging
 - Fire prevention and control
- Avoiding drainage (traxcavators)
- Encouraging post harvest regeneration
 - Early studies indicated good natural recovery.
 - Poor recovery following drainage and overharvesting
- Promote low impact extraction methods
 - Winching/Kuda Kuda system

Drivers 1995 -2010

- Agriculture and plantation development;
 - Mega-rice project – Kalimantan (1.5 million ha)
 - Oil Palm and pulp and paper plantations
 - Expanding smallholder agriculture
- Illegal logging;
 - Widespread illegal logging – especially Sumatra and Kalimantan
- Fires
 - 1 million ha East Kalimantan 1982/83 El Nino
 - 3 million ha in 1997/98 El Nino
 - Significant areas burnt in 2002, 2006











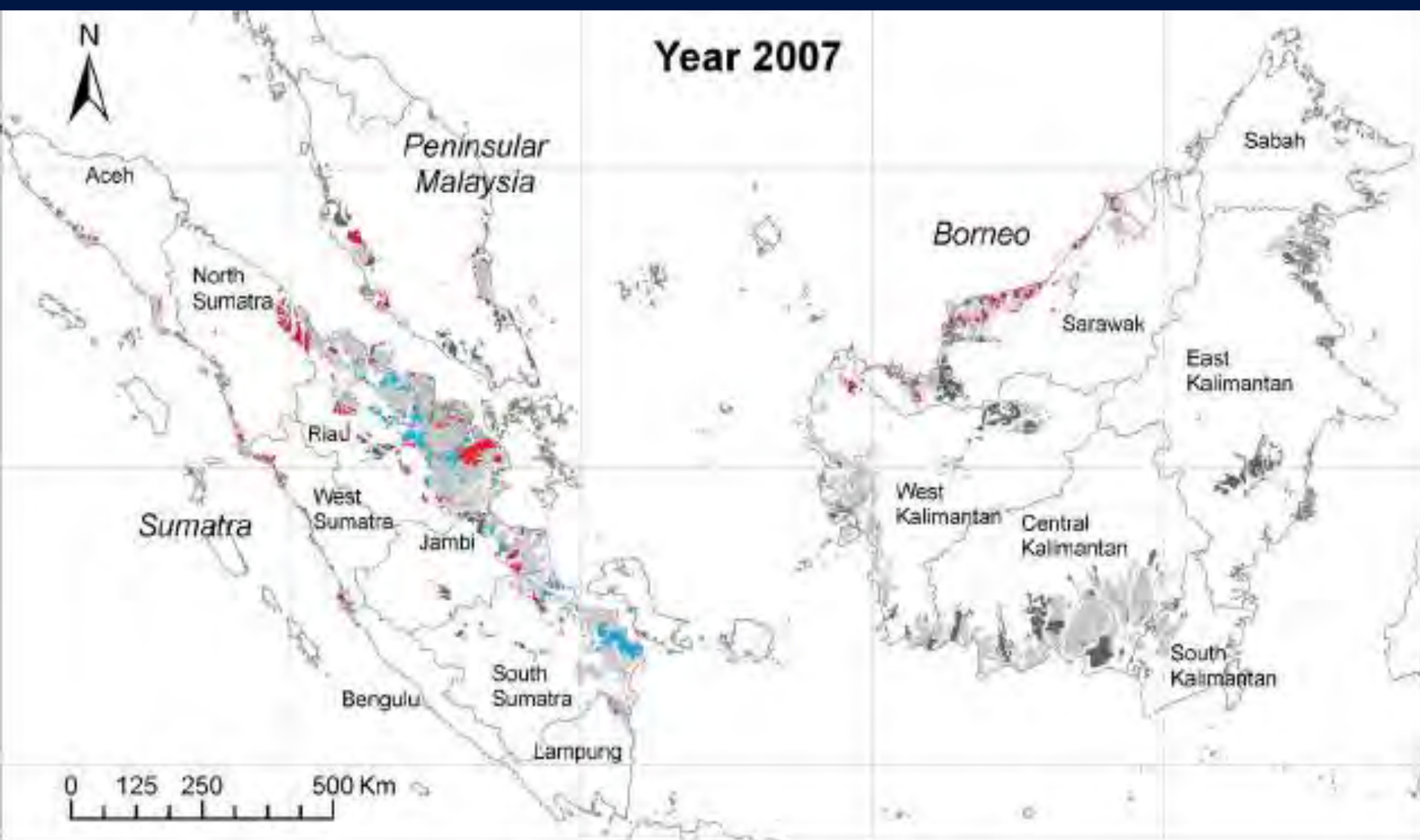


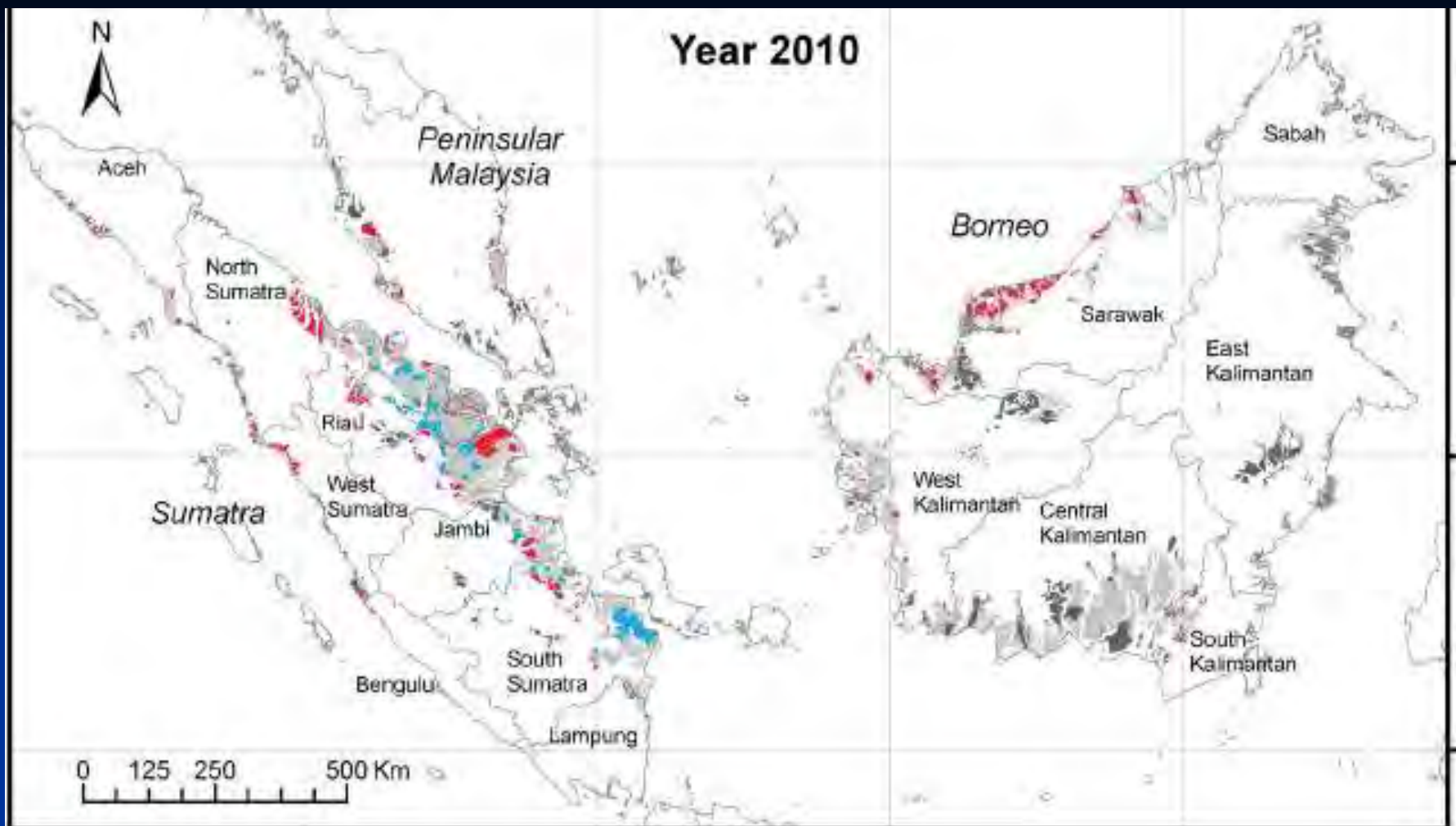
Year 2000



Legend

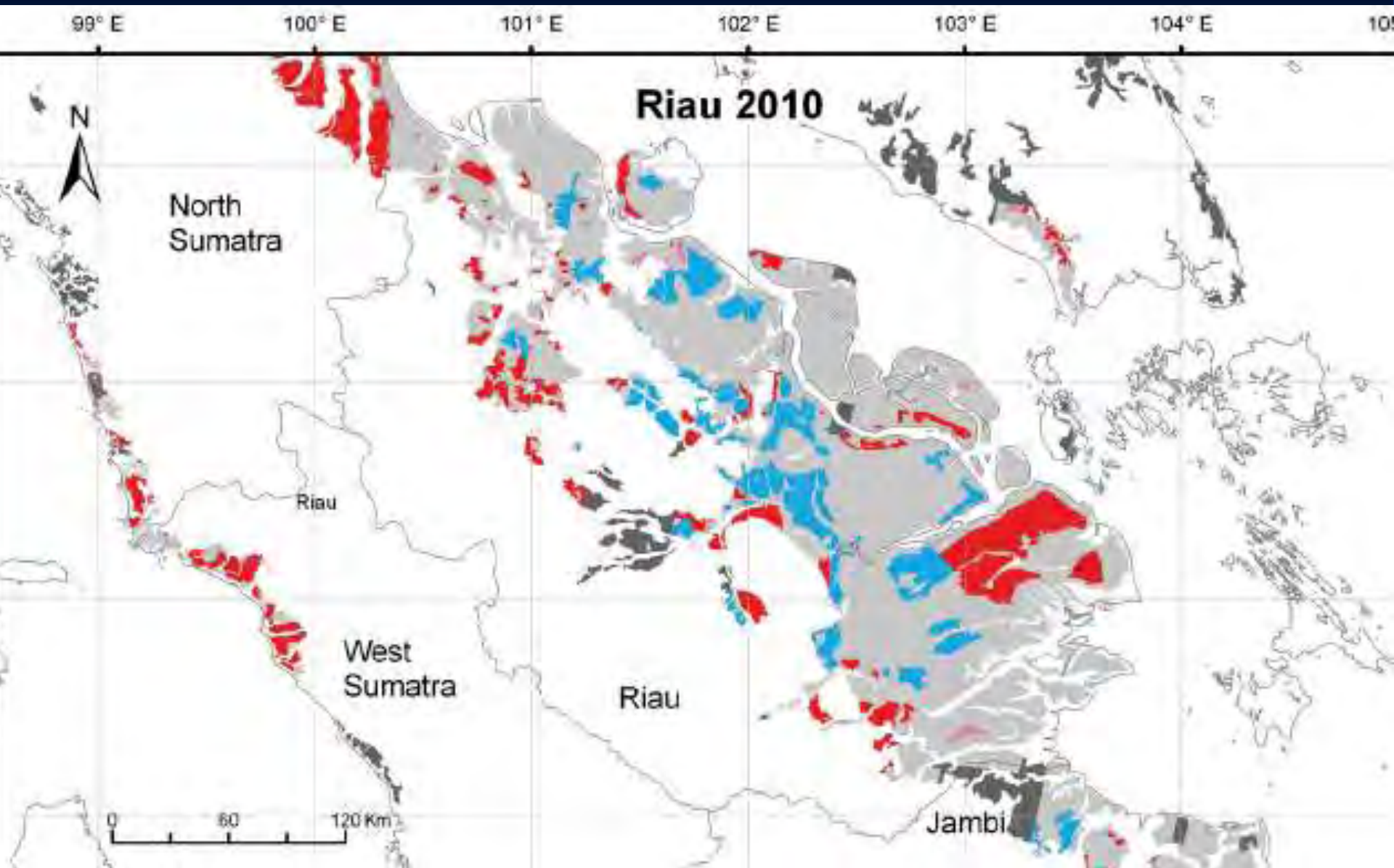
- Oil palm plantations
- Acacia plantations
- Other \ unknown plantations
- Other mapped peatland
- Unmapped peatland

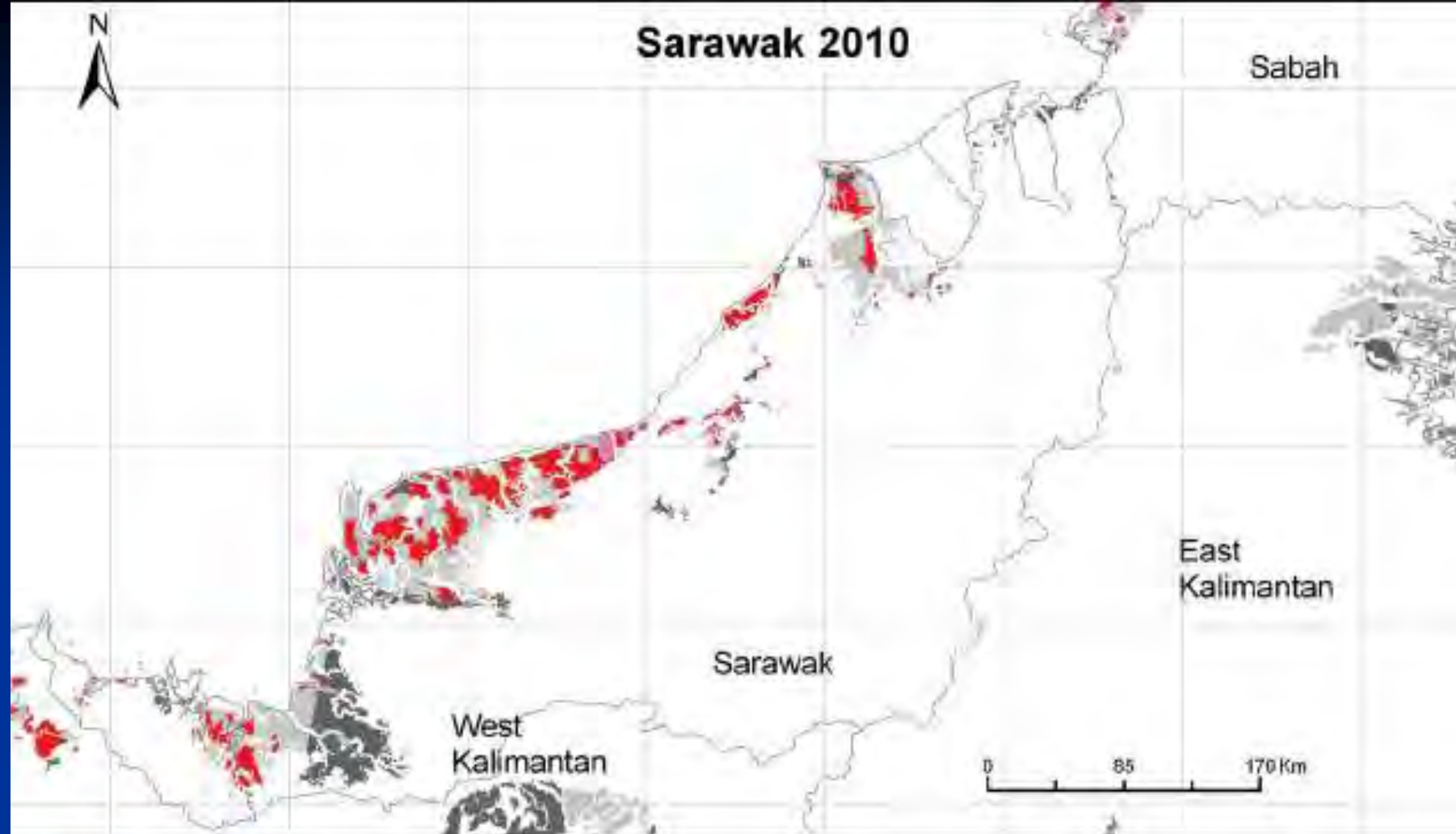




Legend

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Legend

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Extent of plantations on peat

		PEAT AREA	1990		2000		2007		2010	
		HA	HA	%*	HA	%*	HA	%*	HA	%*
Oil palm plantations	Sumatra	7,234,069	17,985	0.2	512,341	7.1	821,949	11	1,026,922	14
	Kallimantan	5,769,036	0	0	15,982	0.3	111,414	1.9	258,299	4.5
	Malaysia	2,489,059	233,440	9.4	384,701	15	624,407	25	843,933	34
	Indonesia + Malaysia	15,492,164	251,424	1.6	913,024	5.9	1,557,770	10	2,129,155	14
Acacia plantations	Sumatra	7,234,069	306	0	80,176	1.1	671,919	9.3	874,921	12
	Kallimantan	5,769,036	0	0	250	0	9,780	0.2	22,797	0.4
	Malaysia	2,489,059	0	0	0	0	0	0	0	0
	Indonesia + Malaysia	15,492,164	306	0	80,426	0.5	681,699	4.4	897,718	5.8



Peatland clearance and drainage for plantations may lead to fires GHG emissions and haze



Peatland fires lead to transboundary Smoke haze

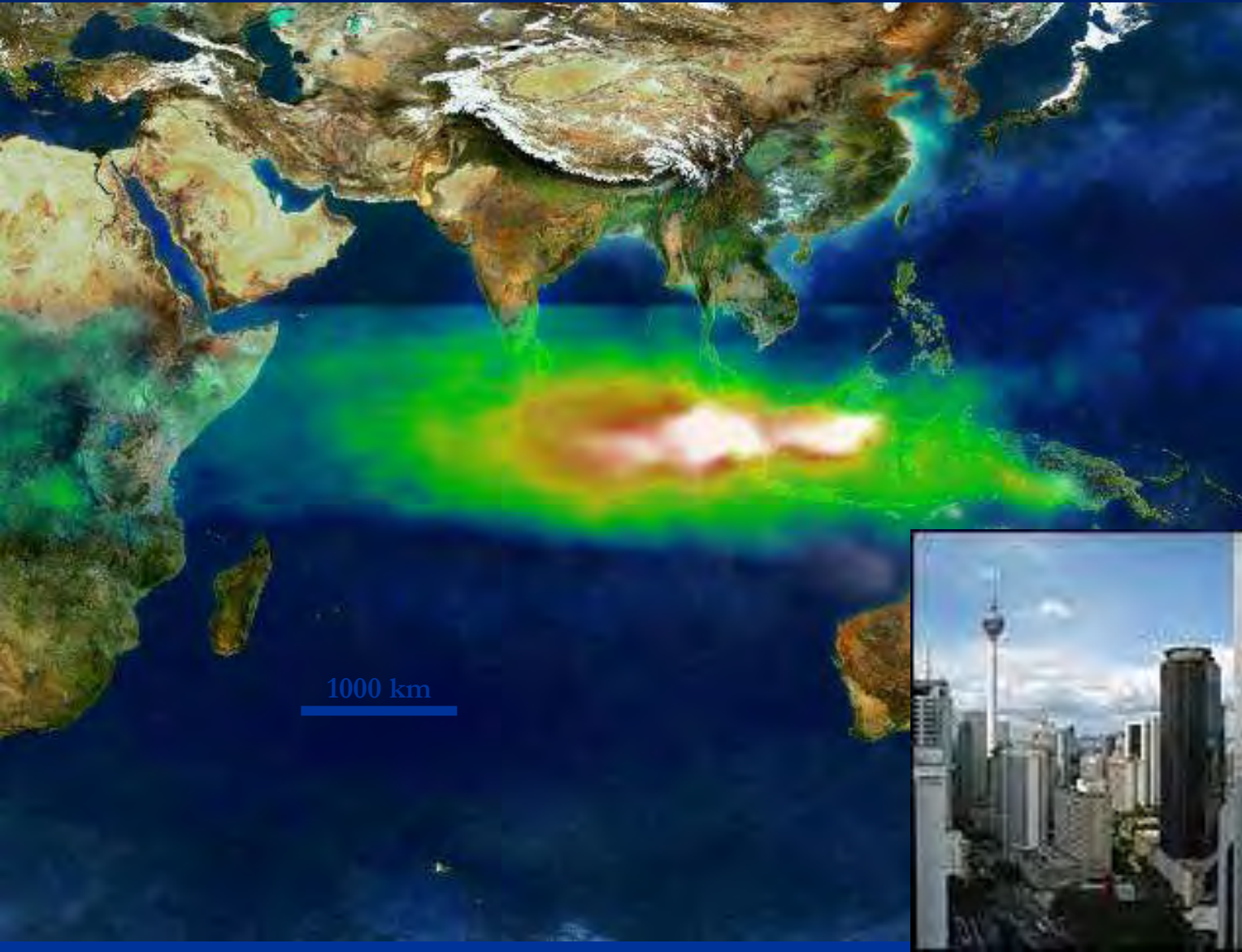


MODIS image June
2005 -

Red dots: fires

Courtesy MODIS Rapid Response
Team

Smoke Haze is the most serious regional environment problem in ASEAN



Drivers 2002-2012

- Regional Cooperation stimulated by fires and haze
 - ASEAN Agreement on Transboundary Haze pollution (2002)
 - ASEAN Peatland Management Initiative (2003)
 - ASEAN Peatland Management Strategy (2006)
 - ASEAN Peatland Forests project (2009-2014)
- Peatlands and Climate Change
 - Recognition by CBD and UNFCCC (2007-9)
 - REDD+ 2006-2012
 - Emission reduction targets Indonesia (41%)



ASEAN PEATLAND MANAGEMENT INITIATIVE



ASEAN PEATLAND MANAGEMENT STRATEGY





Pedoman Pelaksanaan Kebijakan ASEAN tentang Penyiapan Lahan Tanpa Bakar



Pedoman Pelaksanaan Praktek Pembakaran Terkendali

Didukung Oleh :



Dilaksanakan Oleh :



Penyusunan Pedoman ini dibiayai oleh :



ASEAN Haze Action Online
www.haze-online.or.id



ASEAN Peatland Forest Project

- Support implementation of ASEAN peatland Management Strategy 2006-2020
- Development of pilot projects in 4 ASEAN countries – Indonesia, Malaysia, Philippines and Viet Nam
- Identification and promotion of BMP for peatland
- Reduction in peatland fire and degradation
- Development of innovative Finance options
- Implemented 2009-2013

National actions

■ Policy and regulations

- Regn on Oil Palm on peatlands 2009, Indonesia
- Presidential instruction for Megarice project (2009)
- Moratorium On Peatland and forest development (2011)
- National Action Plan On peatlands (Malaysia 2011)

■ Rehabilitation programmes

- Climate change Forest and peatlands in Indonesia (2002-2007)
- Central Kalimantan Peatlands programme (2006-2009)
- Netherlands- Malaysia Programme in Sarawak (2005-2008)
- Raja Musa PSF rehabilitation programme, Malaysia (2008-2012)



ดั่งหนใบใหญ่
Calophyllum teysmannii

Nursery Technique



Wilding seedling



From seed





Block abandoned drains in adjacent lands and forests

CCFPI- Climate Change Peatland and Forest in Indonesia

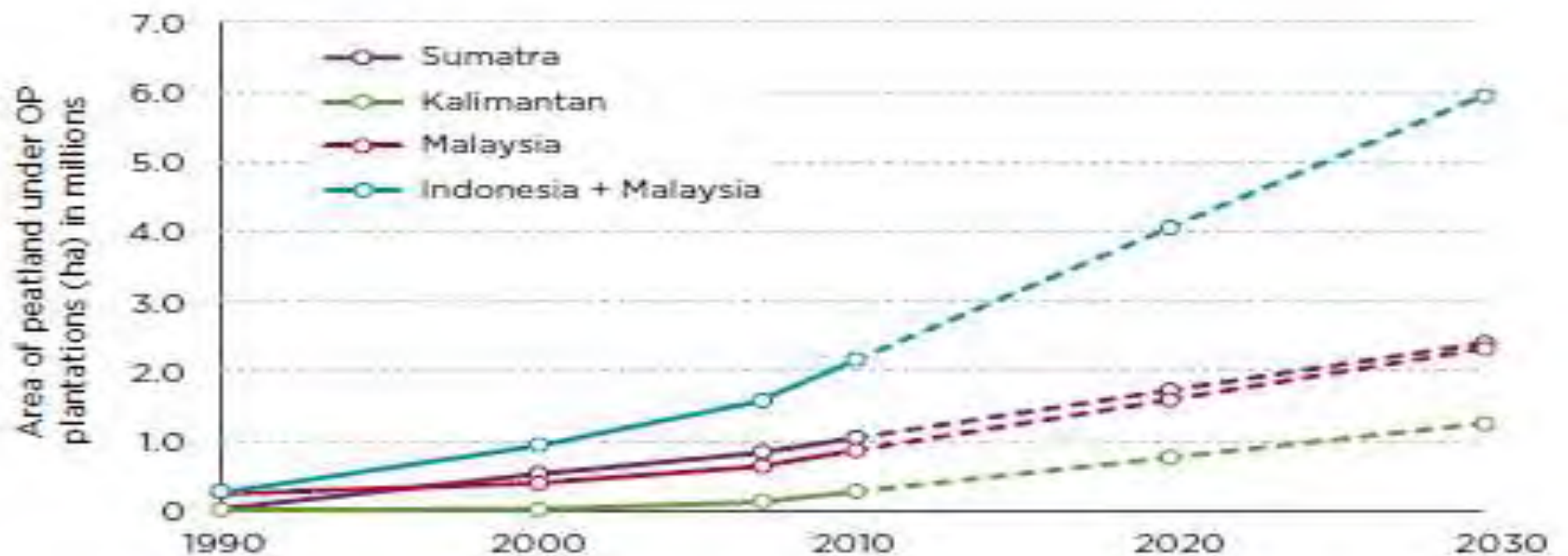
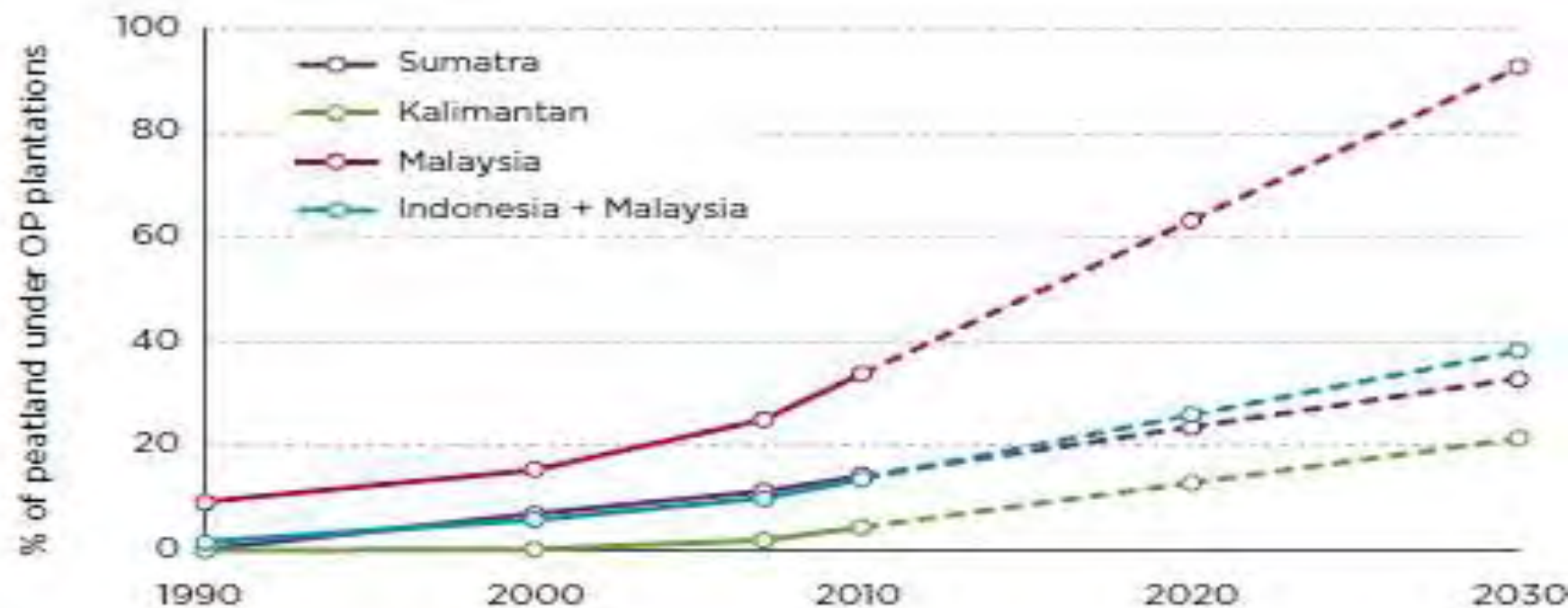




Future directions

- Scenario 1: Business as usual –
 - further conversion of remaining for plantations;
 - continued overharvesting of peat swamp forests
 - further degradation and fires
 - Encroachment of conservation areas

INDONESIA + MALAYSIA





The oldest subsidence experience in SE Asia: Johor, Malaysia

Surface before drainage?

*(subsidence pole placed
well after drainage)*

The first industrial
oil palm plantations
on peat, developed
early 1960s

Now we see **3 to 4
metres** of subsidence
within 50 years







**Area with no compaction and with shallow planting,
result in haphazard leaning of palms.**

FFB yield < 10 mt/ha/year on woody fibrists



Open drainage & intentional land-clearing fires progressing into Kerumatan Conservation Area



Alternatives to burning are needed to stop the use of fire for land-clearing in peat by
Teluk Meranti villagers

Future with scenario 1

- All peat outside conservation areas is converted
- Conservation areas are encroached
- Continuing fires, haze and GHG emissions
- Serious subsidence and unsuitable soil conditions leads to lower yields and conflict between uses.
- Cycle of abandonment and fires

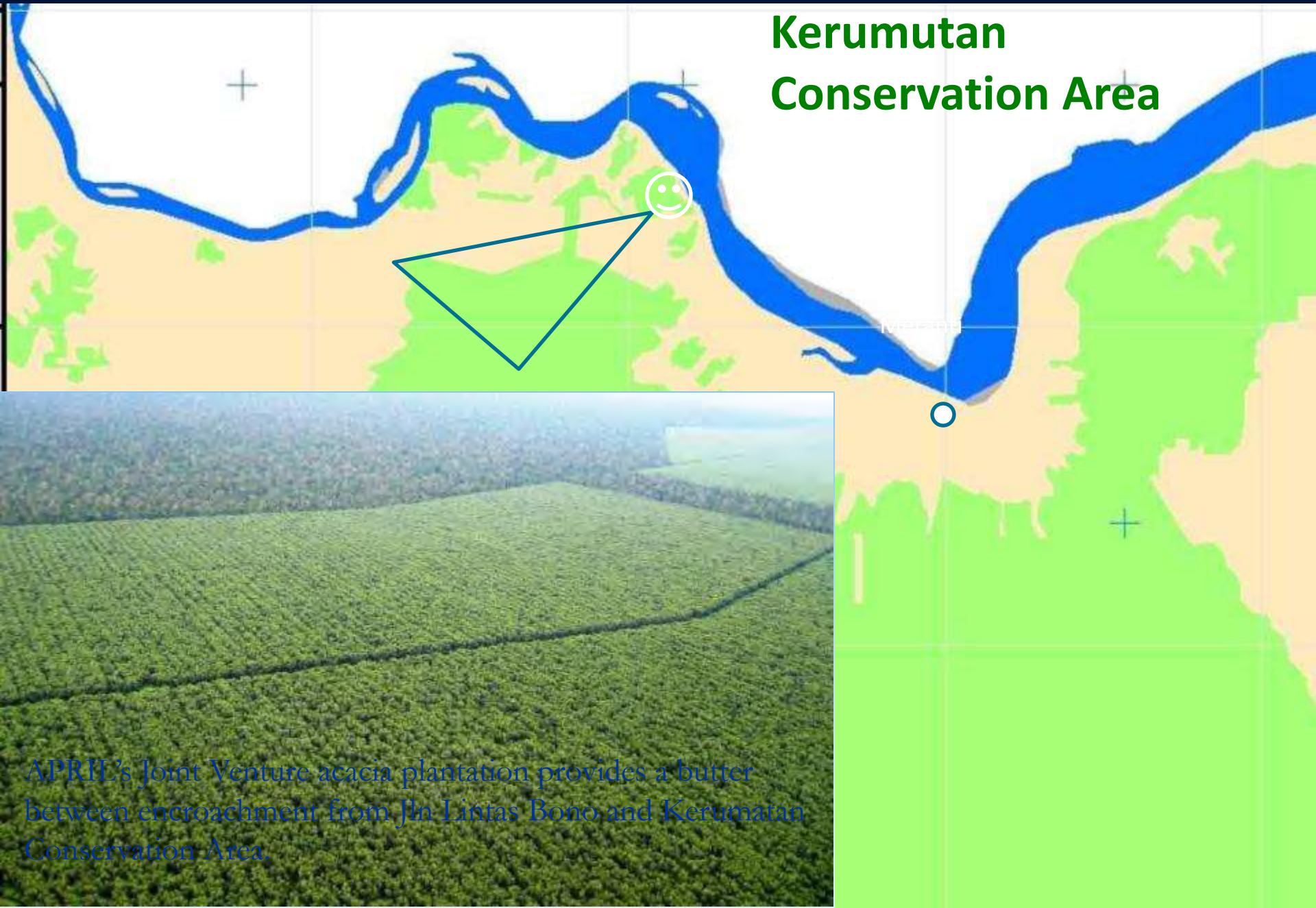
Scenario 2

- Climate finance and national policies support peatland protection and maintenance
- Further plantation or agricultural development on peat is restricted to mineral soils or severely degraded land.
- All deep peats are retained for nature, carbon or water resource conservation, or sustainable forest management
- Degraded peatlands are rehabilitated
- Existing plantations are managed according to best management practices to enhance yield on current lands.

Progress

- Oil Palm sector has already established new regulations for oil palm on peat.
- Major industry players have pledged to stop new plantations in peat.
- RSPO have adopted BMP manuals; Indonesia has established ISPO.
- Forest plantation companies have initiated conservation measures – forest conservation zones and land swaps
- Improved management especially water management has been introduced.
- REDD+ projects have been initiated.
- Fire prevention and community development programmes are in place.

2009 Forest Landcover: Kerumutan Conservation Area



APRIL's Joint Venture acacia plantation provides a buffer between encroachment from Jln Lintas Bono and Kerumutan Conservation Area.







RSPO BMP manual on Maintenance and Rehabilitation of Natural vegetation in oil Palm plantations on peatland

- Introduction
- Areas of peat swamp forest in and adjacent to oil palm estates requiring maintenance and rehabilitation
- Nature of PSF and causes of degradation
- Maintaining existing areas of PSF
- Assisting natural regeneration
- Preparation of seedlings/cuttings
- Land preparation, planting and maintenance
- Monitoring and evaluation

Community fire prevention and control



Conclusions

- Peat Swamp forest is the main wetland forest type in SE asia and plays a critical role for climate regulation, water supply and livelihood support.
- Only 34% of PSF remain in relatively intact albeit harvested form.
- 20% of peatlands have been converted to plantations and balance is degraded or fragmented.
- Unless situation can be changed – long term scenario is of continuing Degradation and fires and large scale land subsidence.
- Critical that new strategies are implemented in partnership with all stakeholders to conserve remaining intact forest, rehabilitate or better use degraded land and improve management on plantation land and bring benefits to local community.
- Enhance regional cooperation and partnership between government, private sector and local communities.

Thank you



Livelihood in Sumatra Indonesia