

(R)EDD monitoring by WWF Indonesia

*WWF data contained in this presentation is not yet published,
Please keep this for your eyes only.*

ALOS K&C9 meeting, 24 January 2008

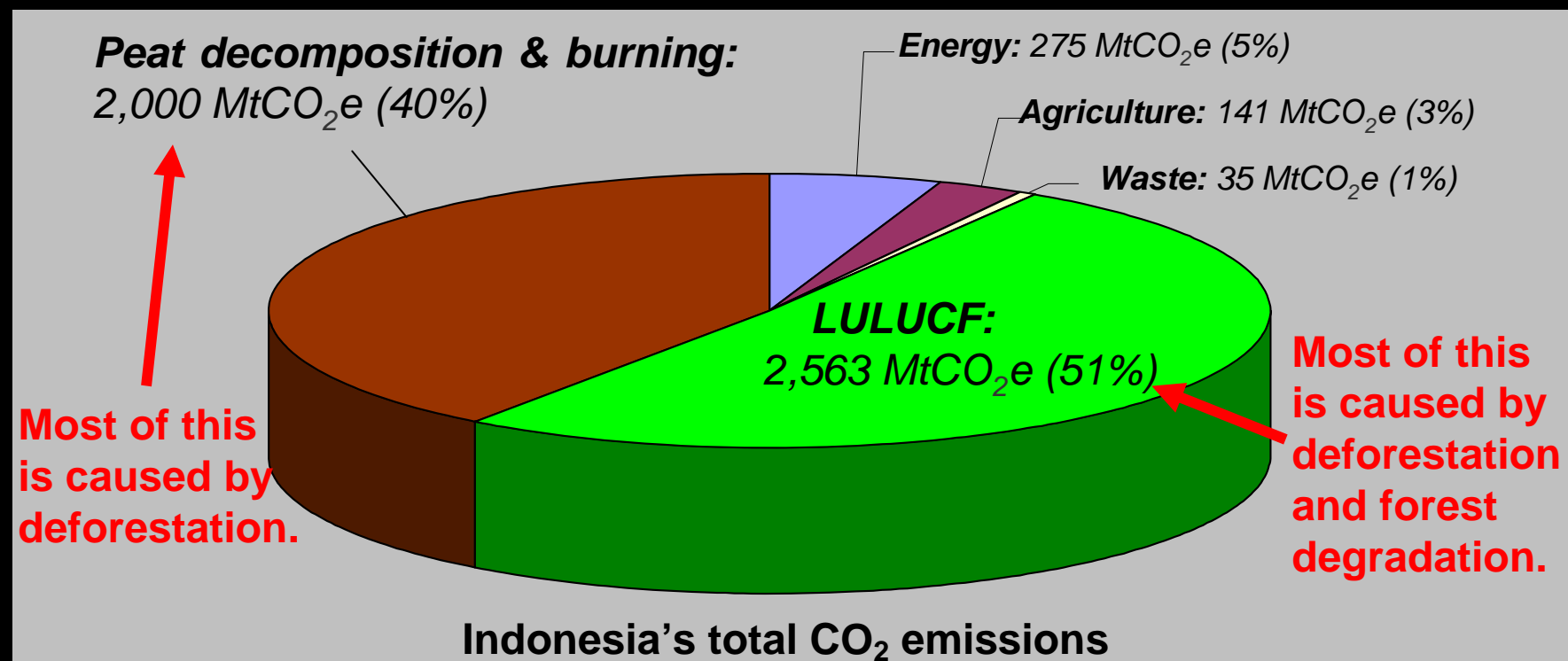
Yumiko Uryu

Consultant to WWF

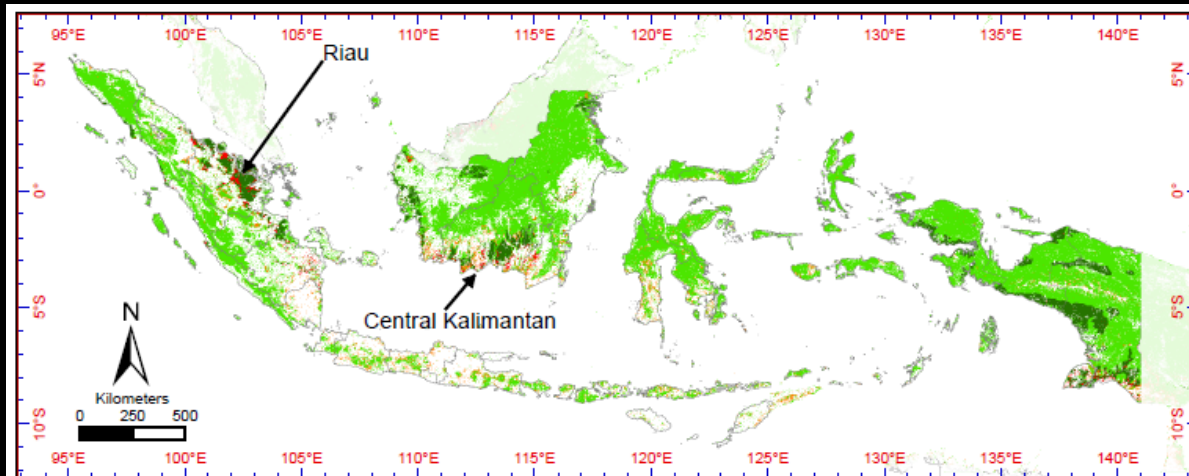
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REDD and Indonesia

- Ca. 20% of the world's greenhouse gas (GHG) emissions are caused by deforestation globally, ca. 50% of that in Indonesia and Brazil (Baumert *et al.* 2006).
- Indonesia's CO₂ emissions from deforestation, forest degradation, peat decomposition and burning make the country the 3rd CO₂ emitter in the world (PEACE 2007, CAIT Ver.5.0, Hooijer *et al.* 2006).

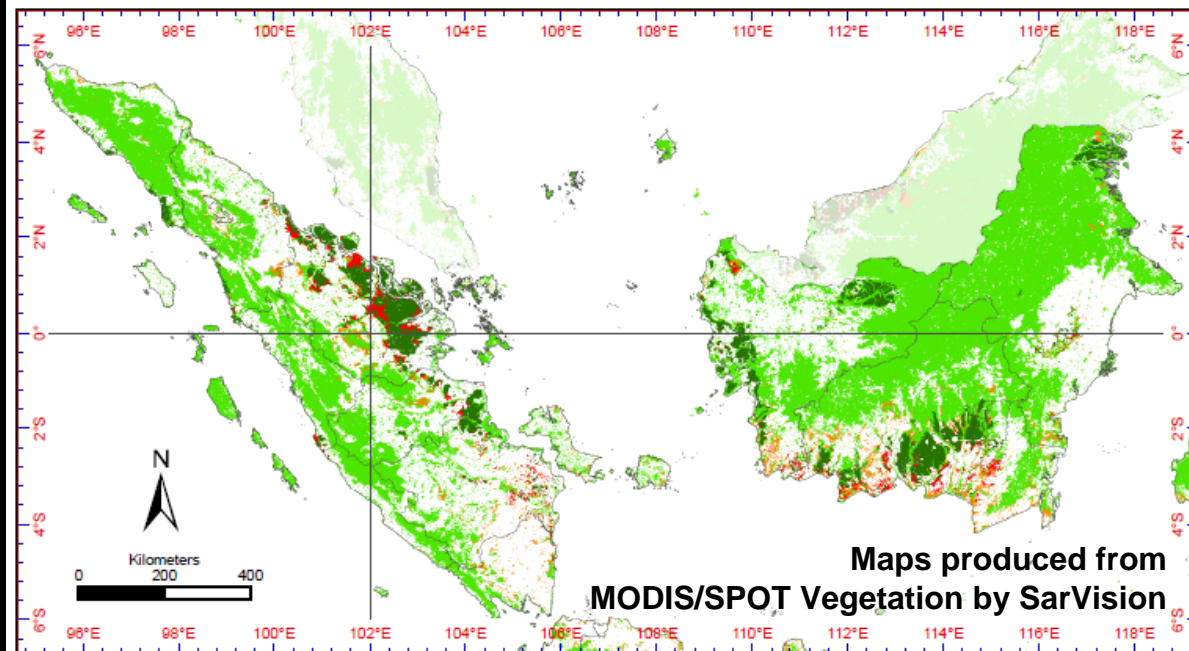


REDD and Indonesia and Riau



- *Riau is the top driver of national deforestation.*

- *Riau's annual deforestation rate is higher than even in the Brazilian Amazon.*



- *Riau has the largest volume of peat in the country, with estimated 14.6 Gt of carbon (Wahyunto et al. 2003). They are highly threatened by deforestation, causing large amount of CO₂ emission.*

Maps produced from MODIS/SPOT Vegetation by SarVision

■ Forest on peatland remaining 2007	■ Forest on peatland lost 2000-2007
■ Forest on non peatland remaining 2007	■ Forest on non peatland lost 2000-2007

REDD and Riau and WWF

WWF aims to stop deforestation in Riau by :

- Getting all of Riau Province and related areas chosen as official pilot REDD areas.
- Providing baseline data needed for the process.
- Improving the current the “*Eyes on the Forest* deforestation monitoring system”.

→ How can ALOS help?

Baseline data generated so far

Deforestation
Forest Degradation
CO₂ Emissions
Biodiversity Loss

Past: 1982 – 2007
and
Future: 2007 - 2015

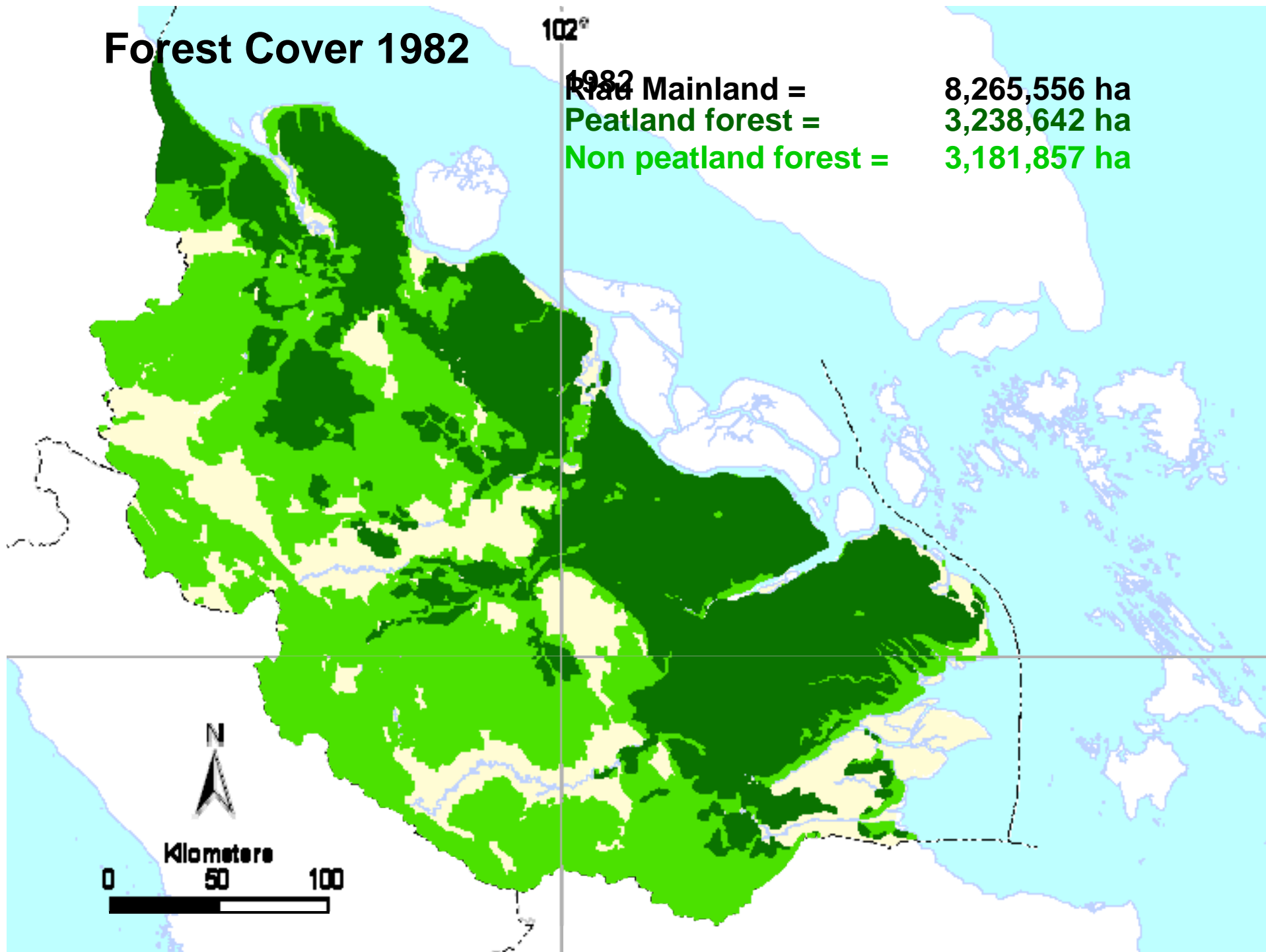
Data:

1990, 1995, 2000, 2005 and 2007 Landsat/field survey based land use maps,
some simple forest-non forest maps from 1982,
above ground biomass,
peat atlas, fire hotspots, decomposition parameters,
biodiversity (Sumatra elephant and tiger) distribution,
land owner/users/concession, topography/infrastructure maps,
field surveys, etc..

Past DD

Forest Cover 1982

1982 Mainland = 8,265,556 ha
Peatland forest = 3,238,642 ha
Non peatland forest = 3,181,857 ha



Deforestation 1982-2007

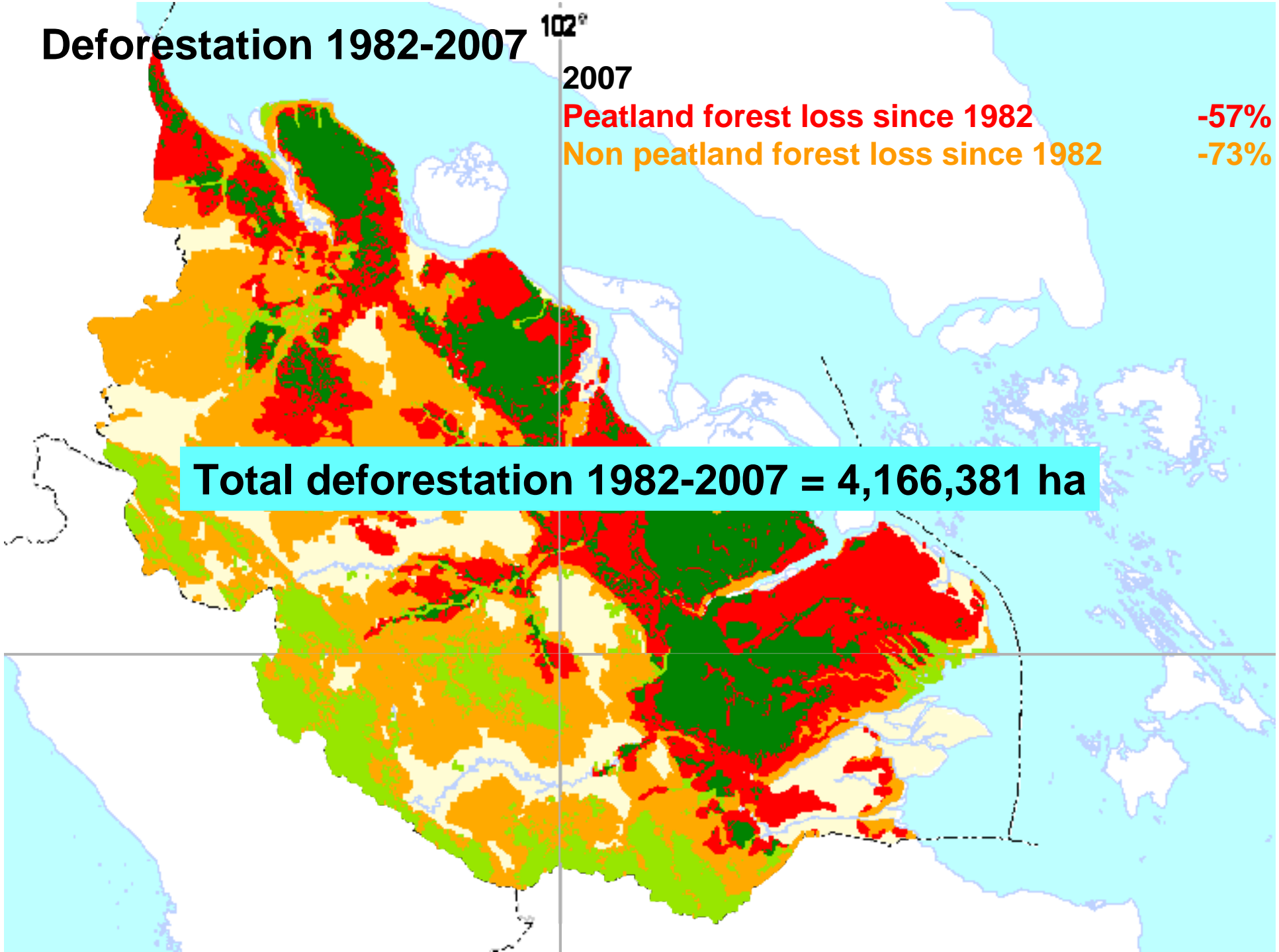
102°

2007

Peatland forest loss since 1982 -57%

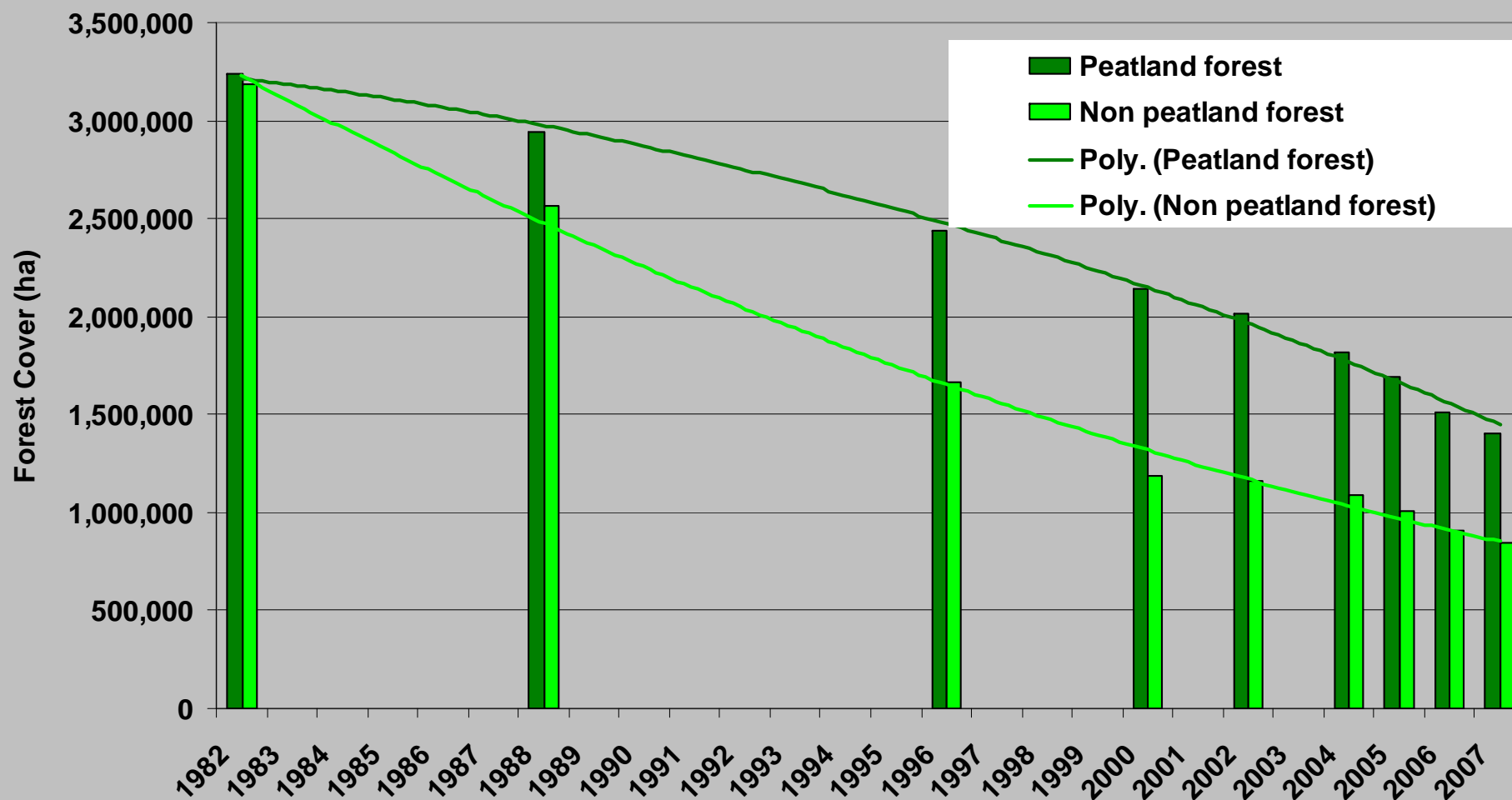
Non peatland forest loss since 1982 -73%

Total deforestation 1982-2007 = 4,166,381 ha

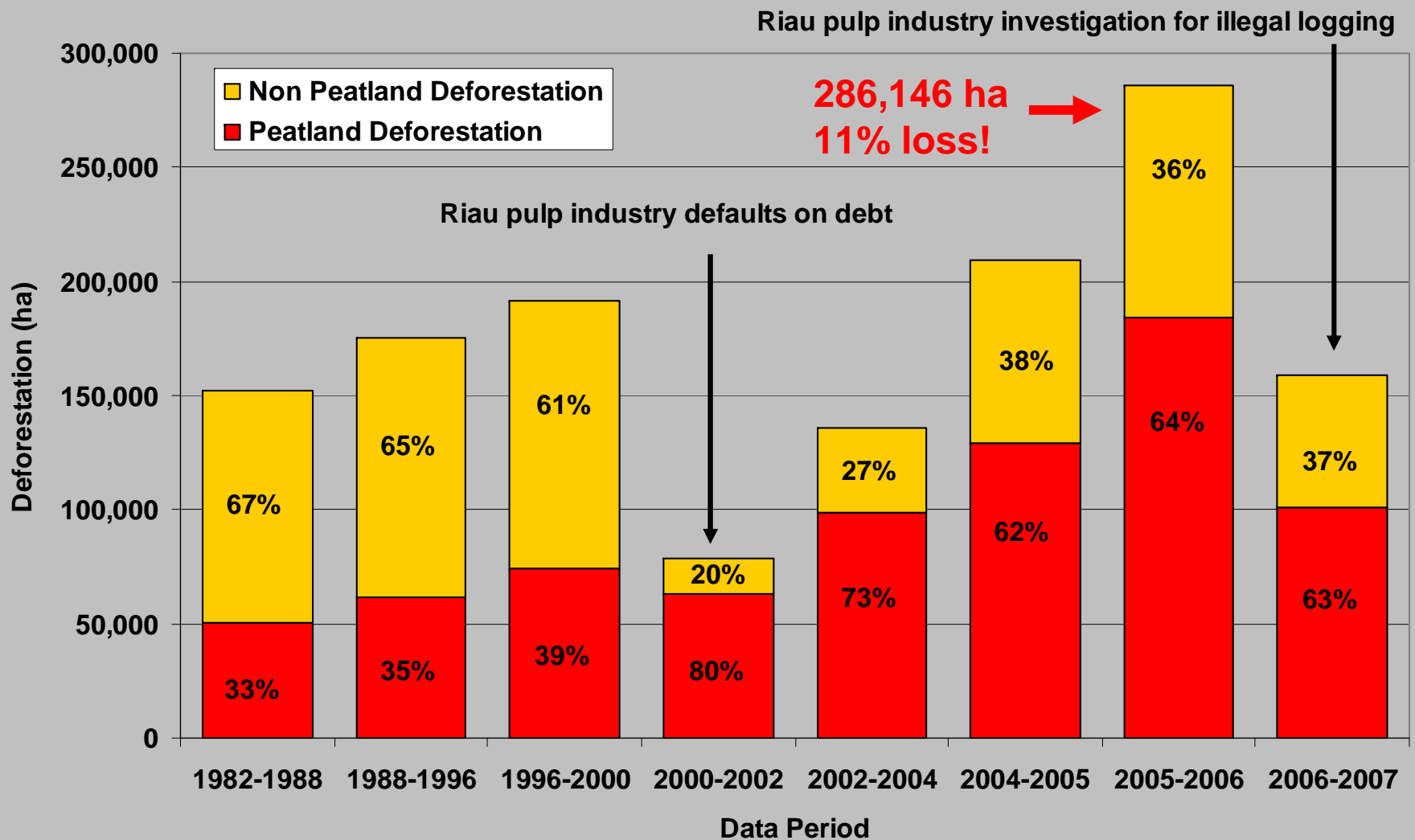


Deforestation Baseline

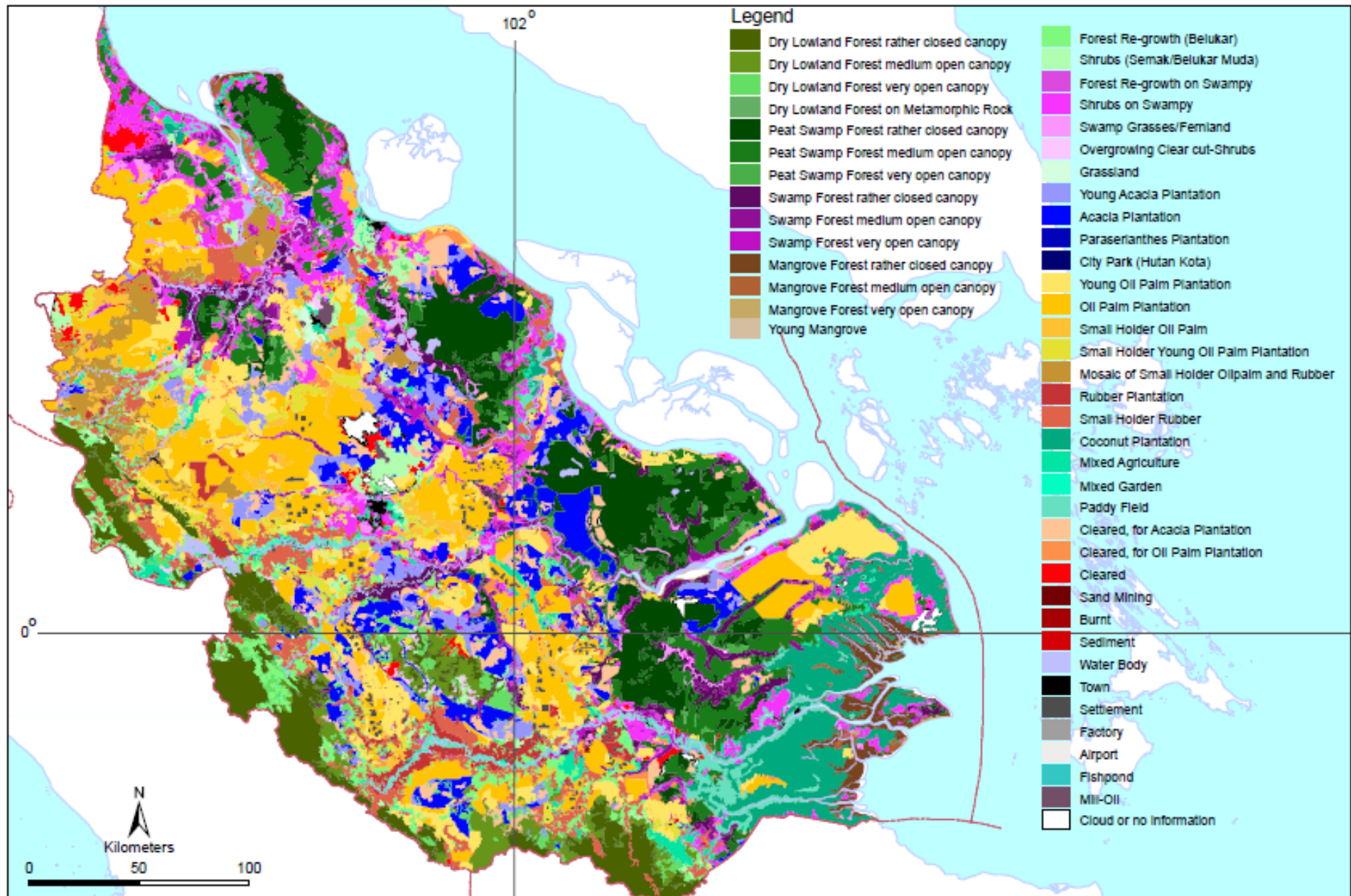
Peatland and non peatland forest areas 1982-2007



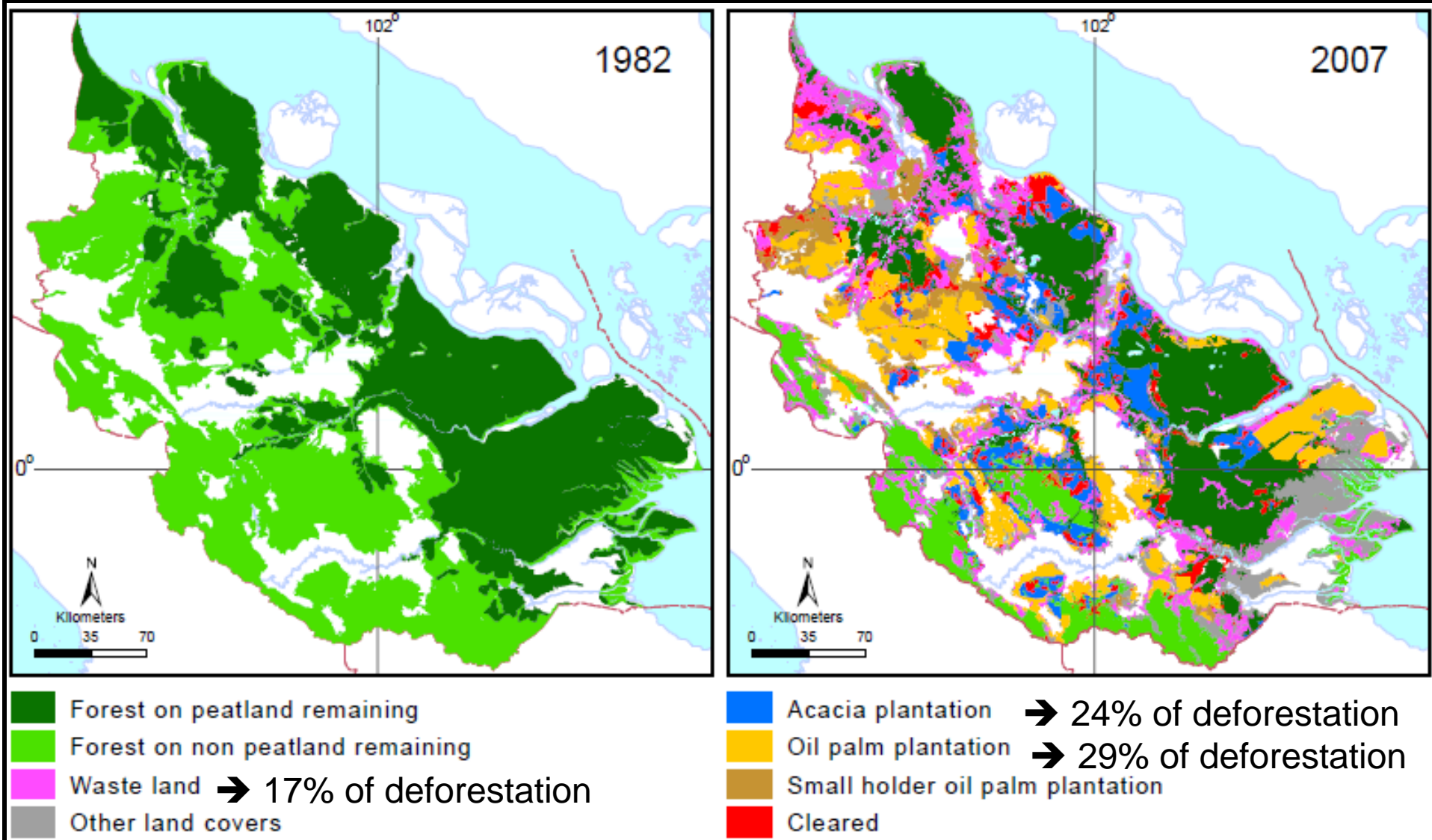
Average annual deforestation and impact of pulp industry



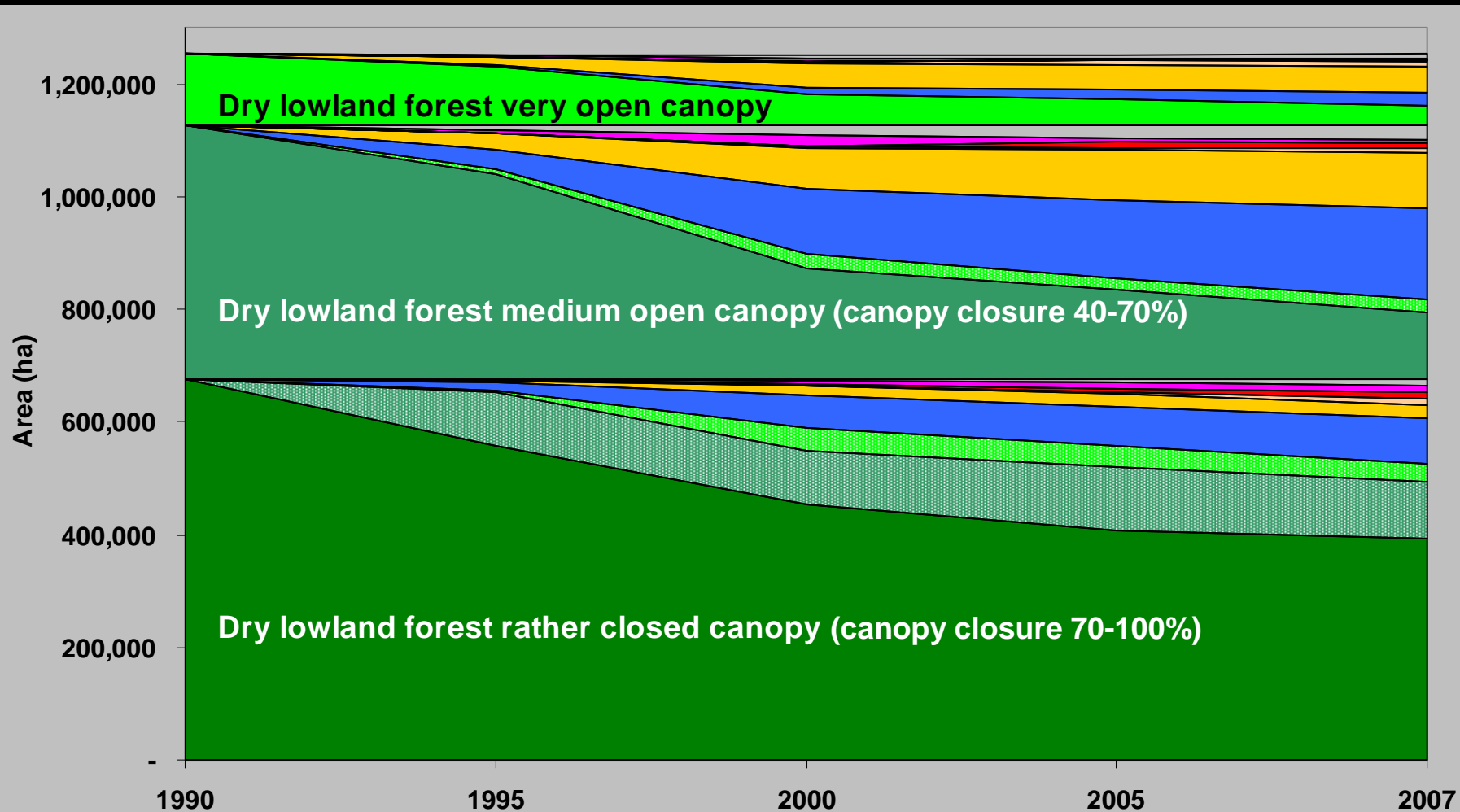
WWF Riau 2007 Land Cover Database



What replaced natural forests? 1982-2007

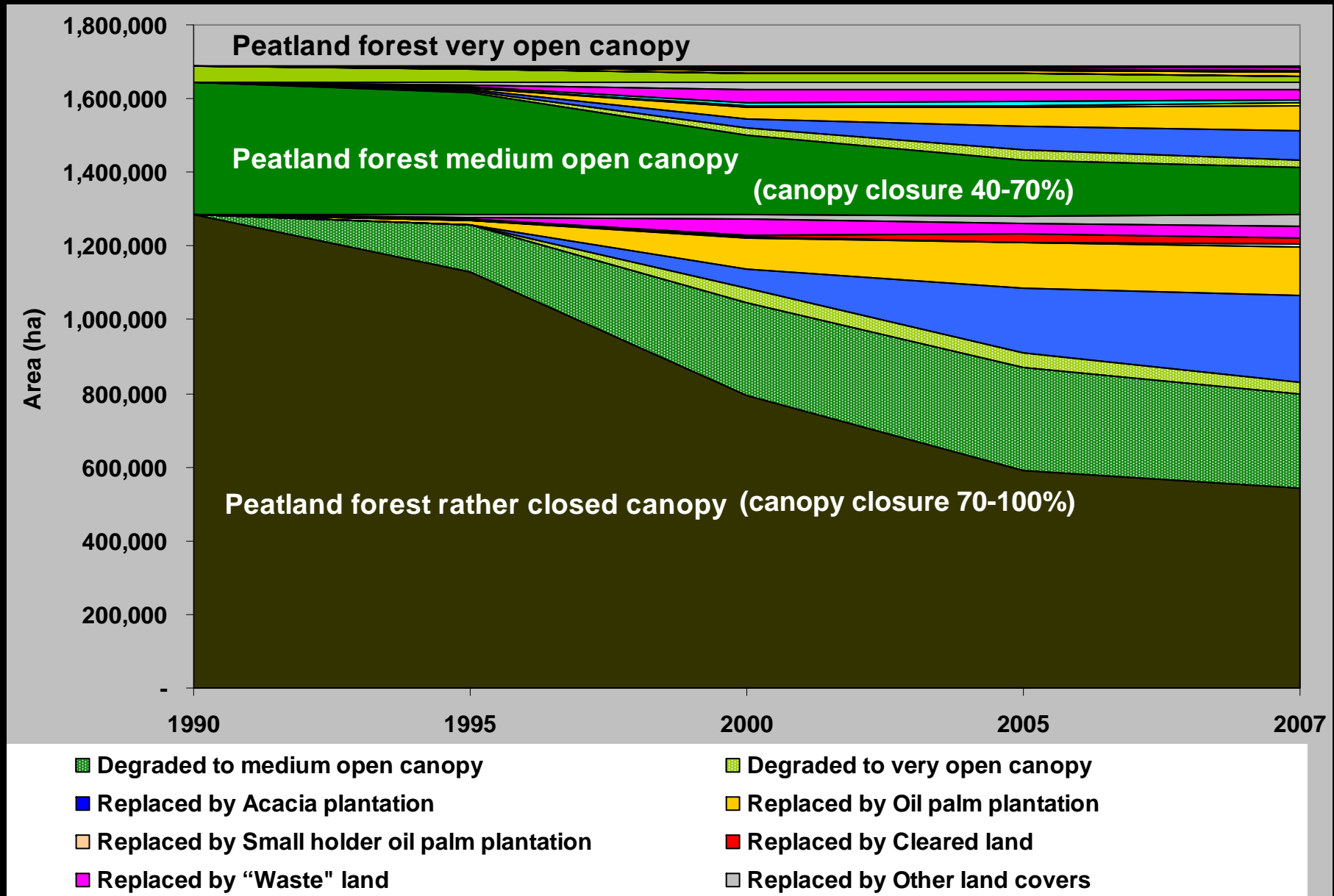


Peatland Degradation 1990-2007

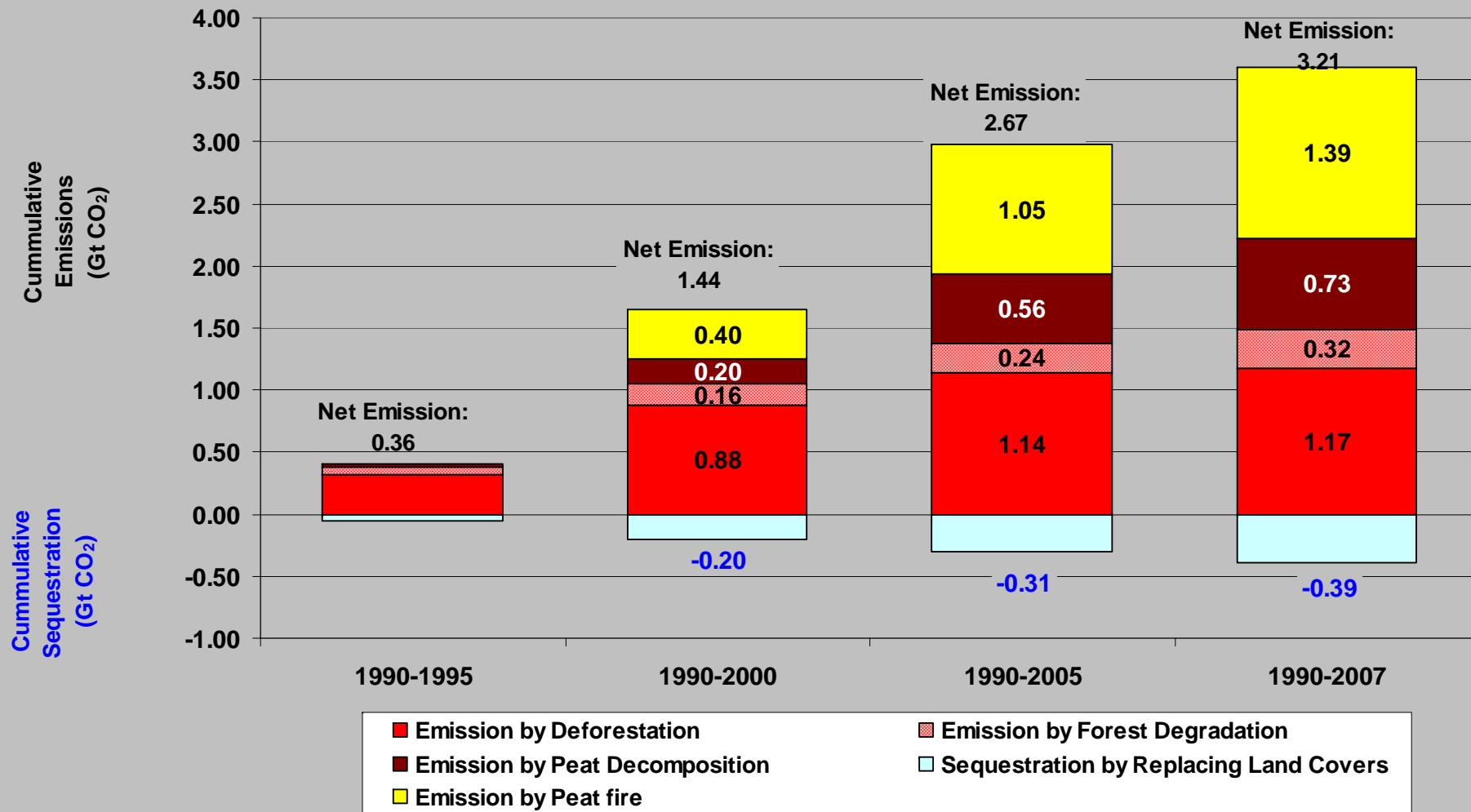


- | | |
|--|---|
|  Degraded to medium open canopy |  Degraded to very open canopy |
|  Replaced by Acacia plantation |  Replaced by Oil palm plantation |
|  Replaced by Small holder oil palm plantation |  Replaced by Cleared land |
|  Replaced by "Waste" land |  Replaced by Other land covers |

Non Peatland Degradation 1990-2007



CO₂ emissions from Riau, 1990-2007

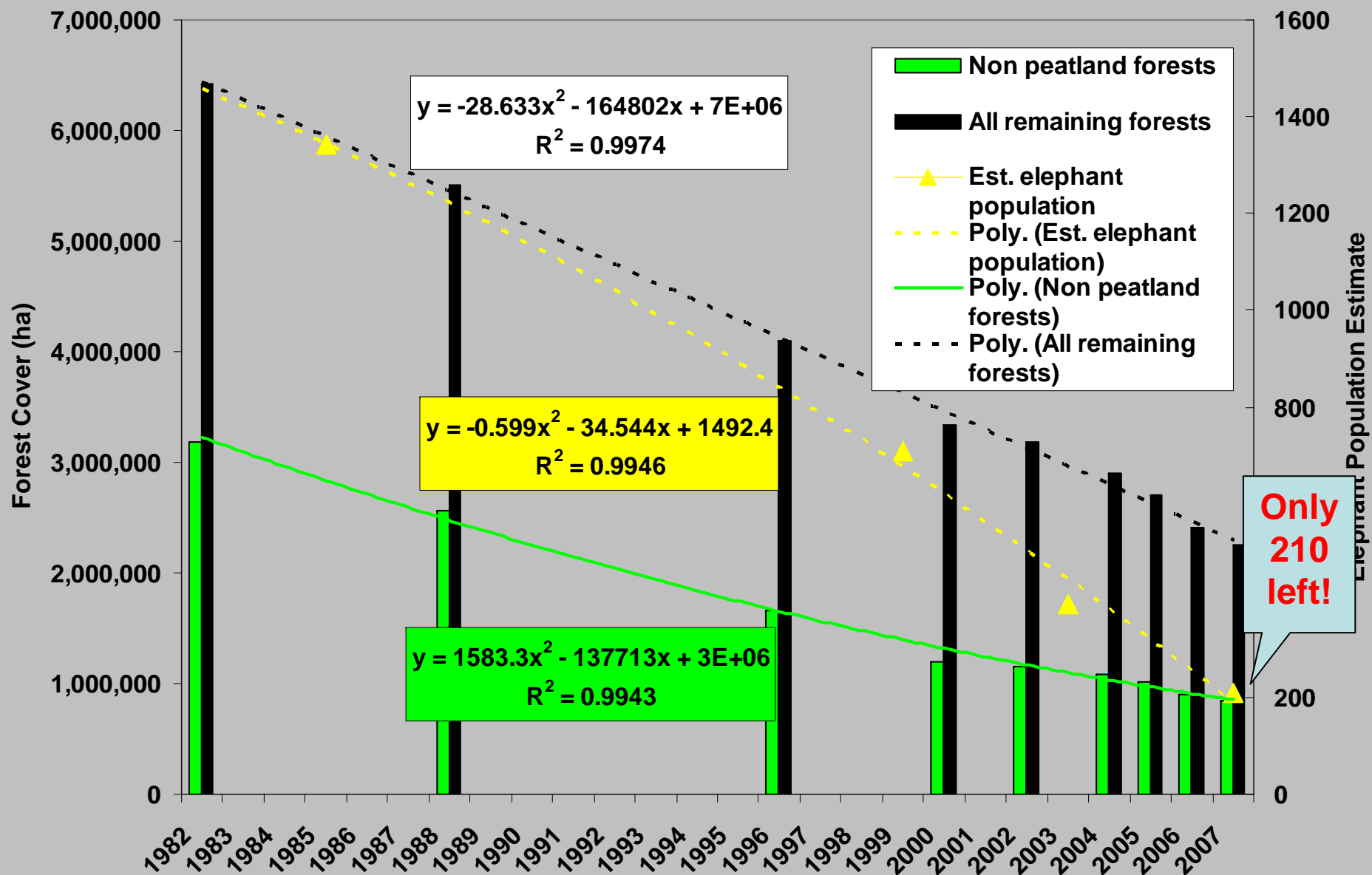


Average annual CO₂ emissions from Riau 1990-2007

	Annual CO ₂ Emissions (Gt)	Riau's Annual Emissions Relative to Others
Riau: all emissions from deforestation, forest degradation, peat decomposition & peat fire: 3.21 Gt CO ₂ (1990 – 2007)	0.19	100%
Indonesia: energy sector emissions (2004)	0.28	68%
Australia: total CO ₂ emissions including emissions/removals from LULUCF (2005)	0.38	50%
Germany: total CO ₂ emissions including emissions/removals from LULUCF (2005)	0.84	22%
Netherlands: total CO ₂ emissions including emissions/removals from LULUCF (2005)	0.18	106%
United Kingdom: total CO ₂ emissions including emissions/removals from LULUCF (2005)	0.56	34%
European Community: total CO ₂ emissions including emissions/removals from LULUCF (2005)	3.16	6%
Kyoto Protocol Annex I countries: collective annual GHG emissions reduction target in the first commitment period (2008-2012) (5% from 1990 levels in CO ₂).	0.93	20%

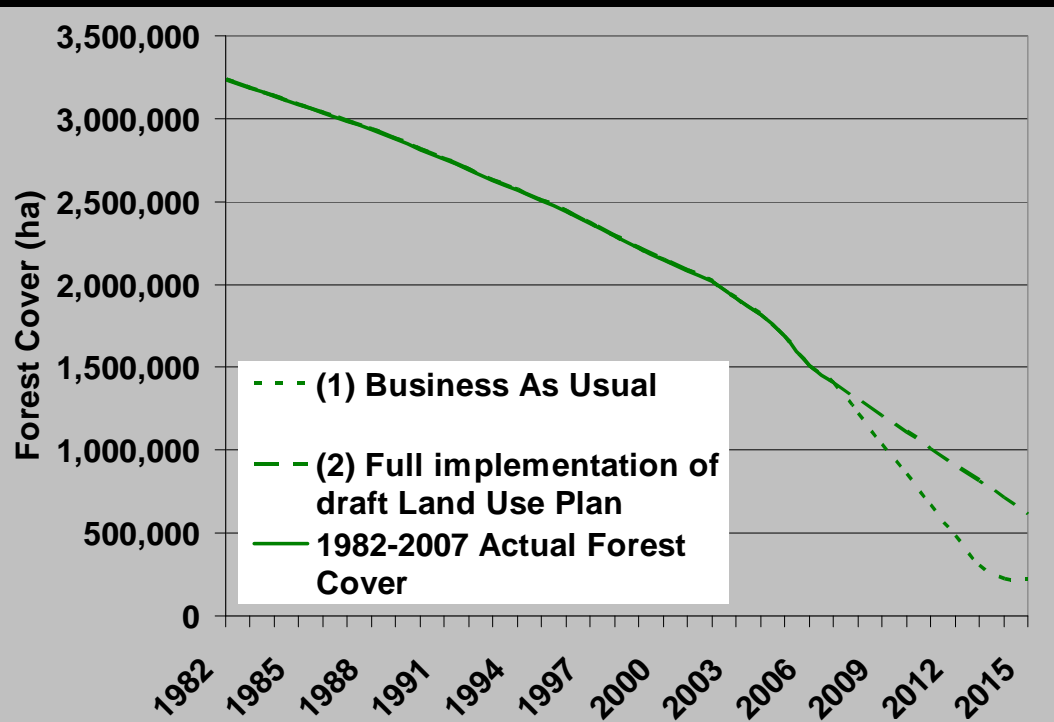
Riau alone produced more CO₂ per year than Germany saved to achieved Kyoto goals.

Elephant population decline in Riau, 1985-2007



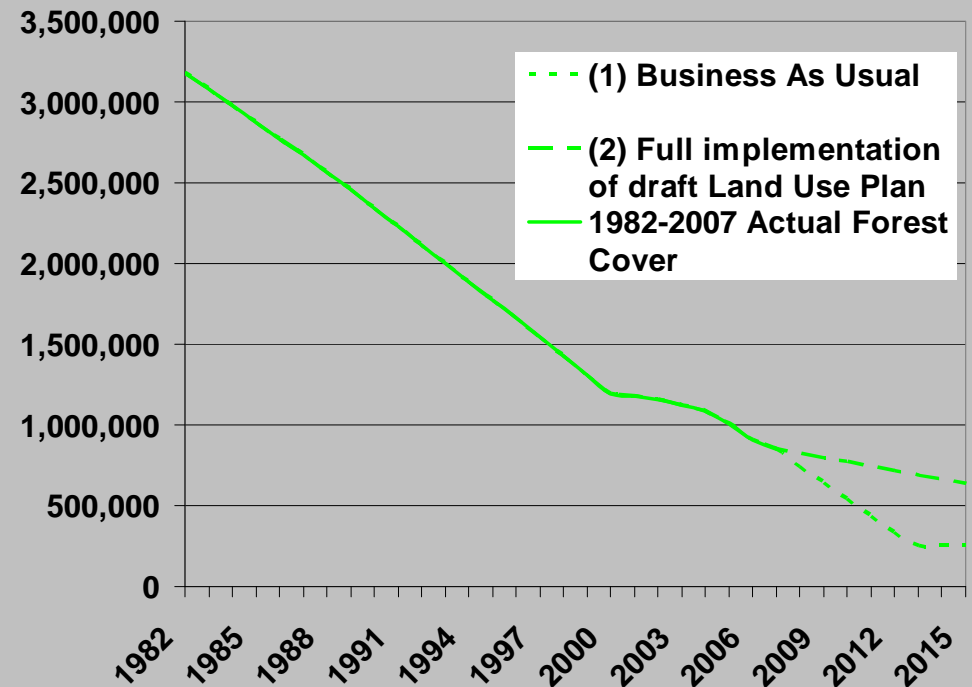
The Future

Reference for Avoided Deforestation Calculations



**Future deforestation
scenario for
peatland forest**

**Future deforestation
scenario for
non peatland forest**

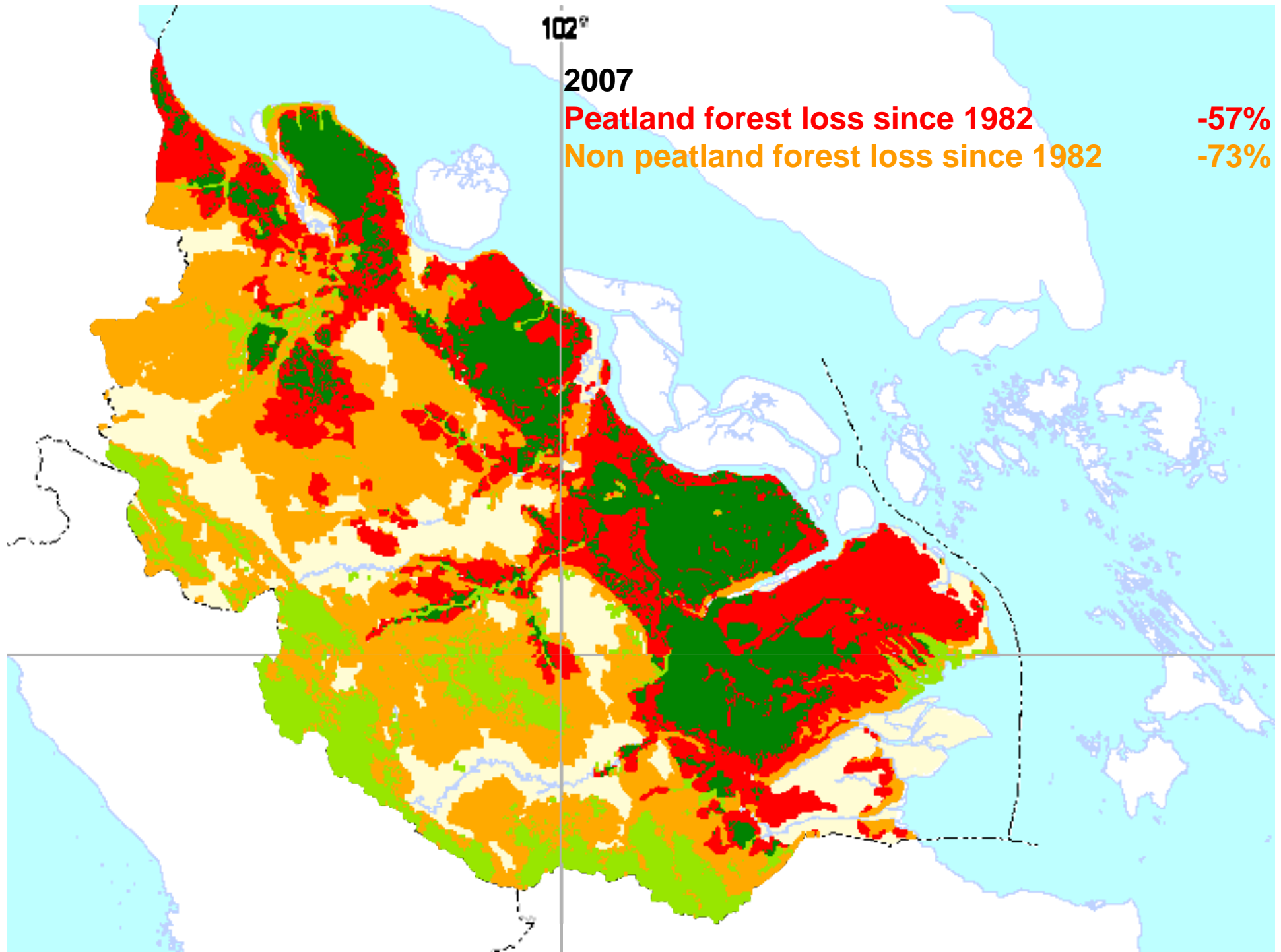


102°

2007

Peatland forest loss since 1982 -57%

Non peatland forest loss since 1982 -73%



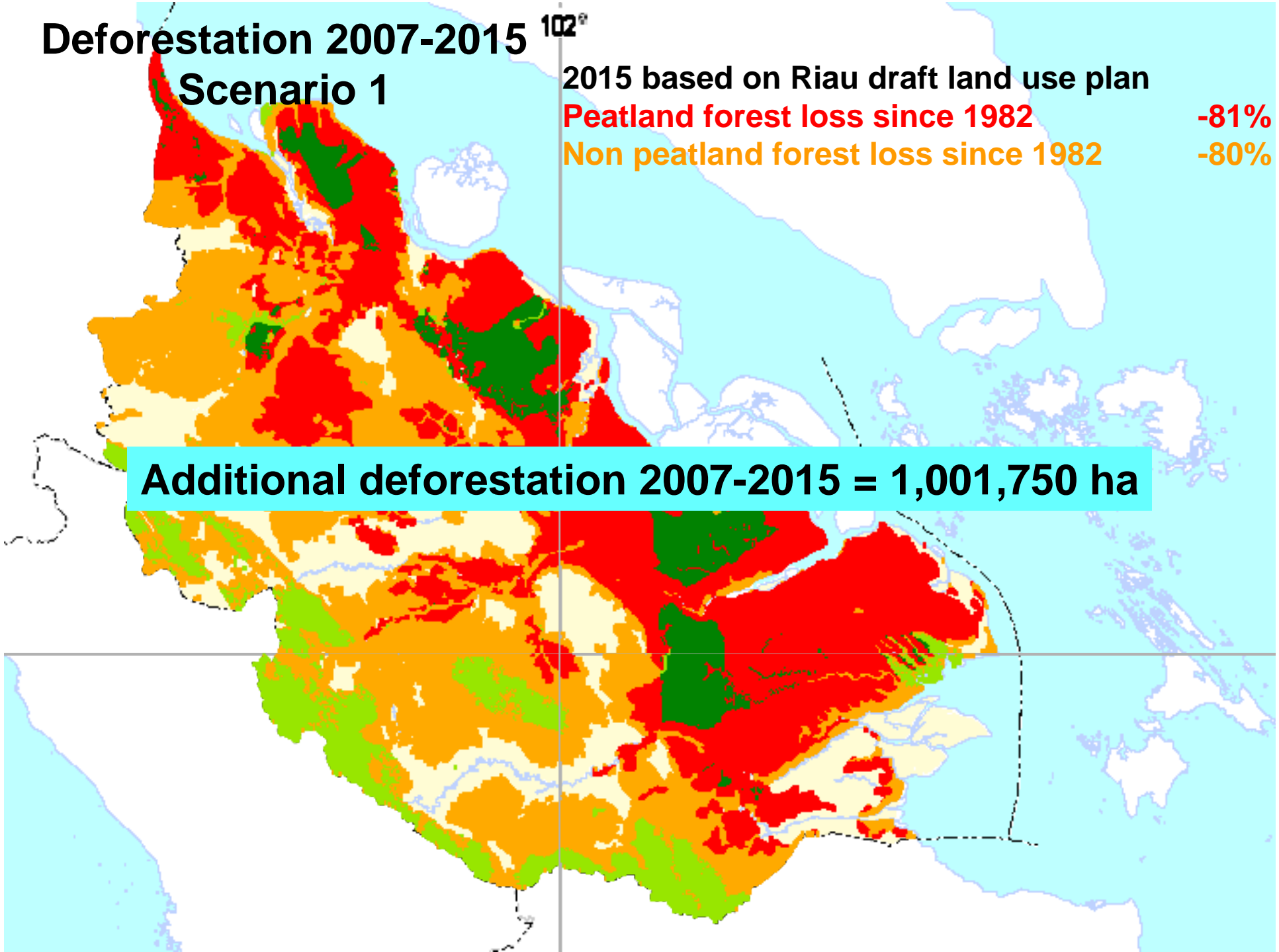
Deforestation 2007-2015 Scenario 1

2015 based on Riau draft land use plan

Peatland forest loss since 1982 **-81%**

Non peatland forest loss since 1982 **-80%**

Additional deforestation 2007-2015 = 1,001,750 ha



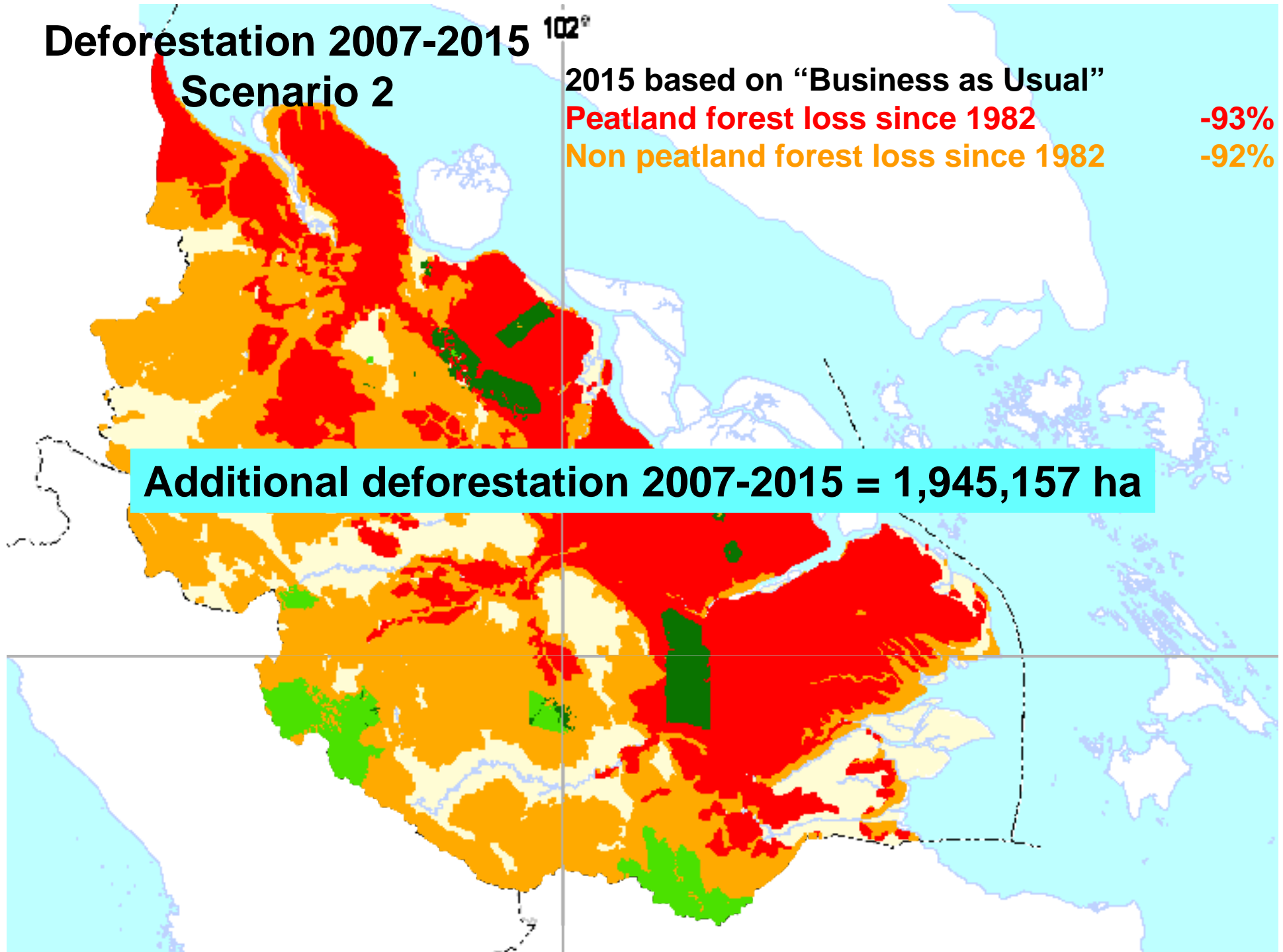
Deforestation 2007-2015 Scenario 2

2015 based on "Business as Usual"

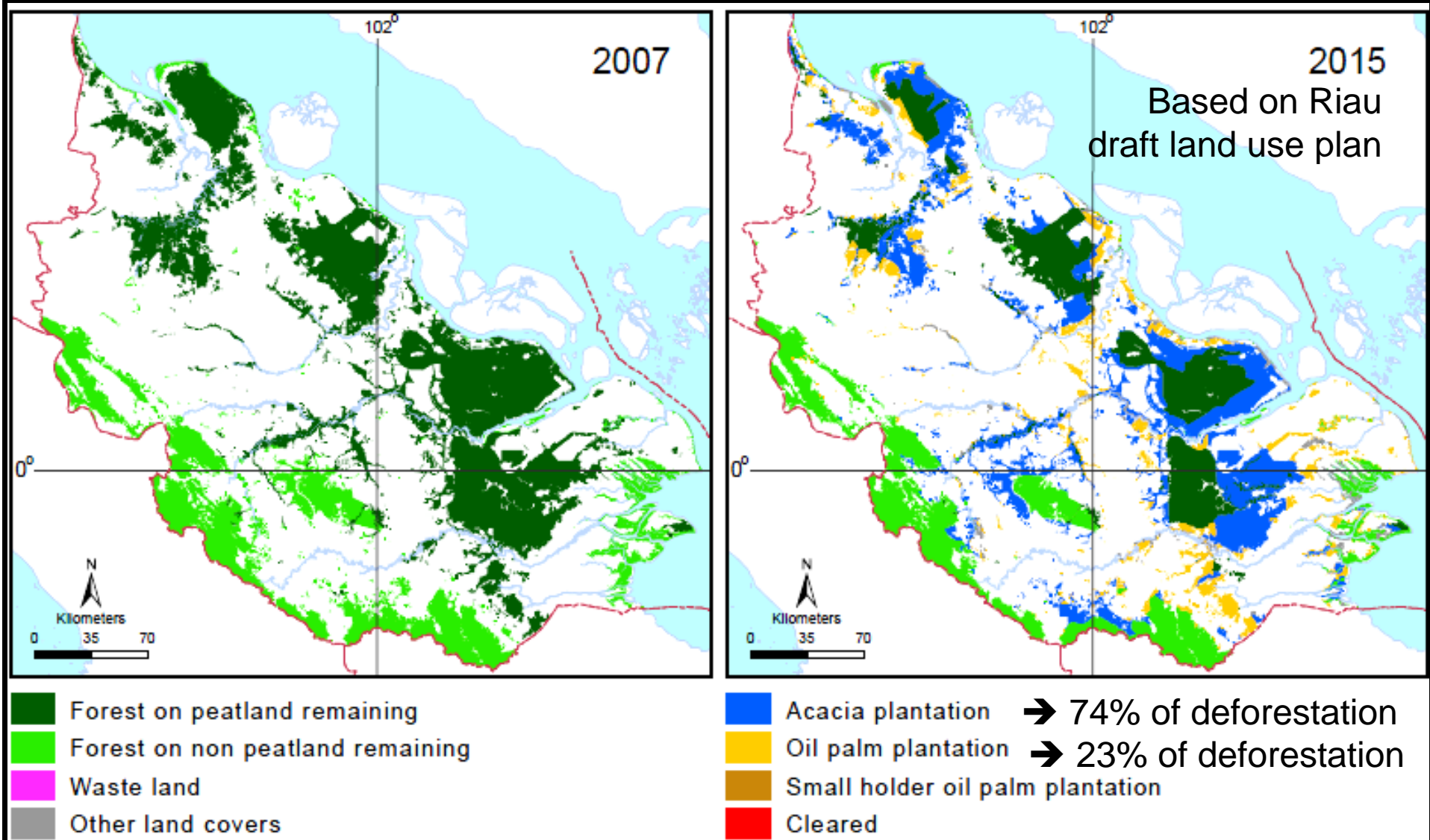
Peatland forest loss since 1982 -93%

Non peatland forest loss since 1982 -92%

Additional deforestation 2007-2015 = 1,945,157 ha



What would replace natural forests? 2007-2015



CO₂ emissions from Riau 2007-2015 from Deforestation only

