Toward LCS-Indonesia Focusing on Peat Fire Management

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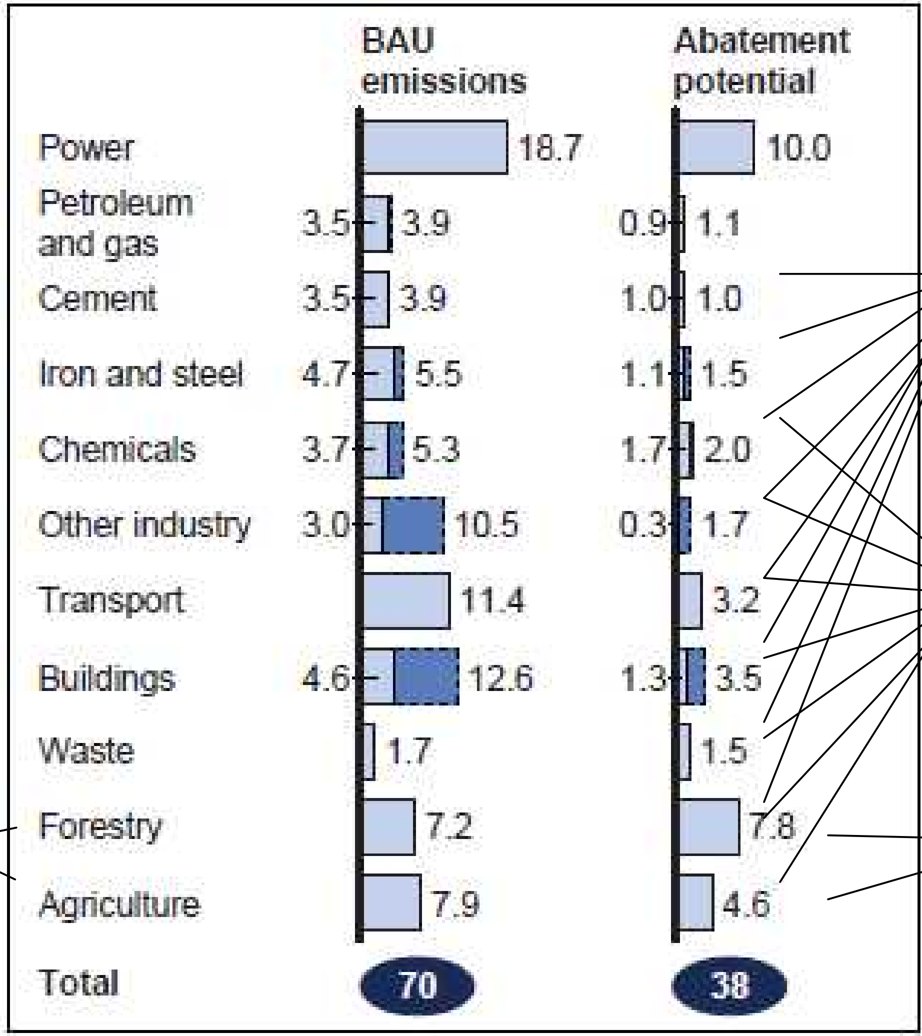
LCS Scenarios-Indonesia

- Under Technology Needs Assessment Study, Indonesia is now assessing the strategies toward LCS which will be completed by the end oif February.
- Projection of emission from all sector under BAU and policy scenarios have been developed
- This presentation will focus on strategy for reducing emission from peat fire

Abatement Potential 2030



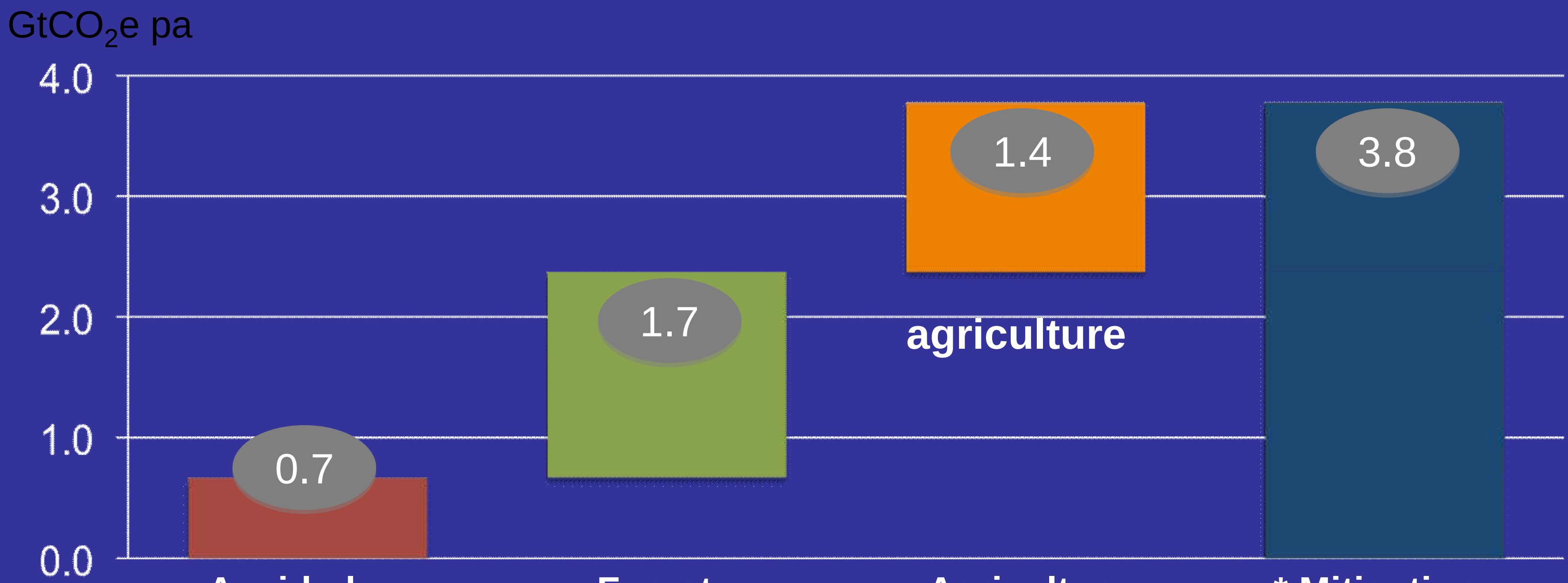
Emission: Forestry and Agriculture 15.1 Gt CO_2/y

Energy Efficiency 14 Gt CO_2/y

Low Carbon Energy Supply 12 Gt CO_2/y

Abatement Potential: Forestry and Agriculture 12.4 Gt CO_2/y

What is GHG Mitigation Potential from Land Use (South & South East Asian) *



Avoided Deforestation

Reduced Deforestation from Slash & Burn Agriculture

Reduced Forest Conversion to Pasture and Intensive Agriculture

Reduced Timber Harvesting

Forest Sequestration

Pastureland Afforestation

Cropland Afforestation

Degraded Forest Reforestation

Forest Management

Agriculture

Tillage and residues management

Grassland management

Organic soils restoration

Degraded lands restoration

*** Mitigation Opportunity**

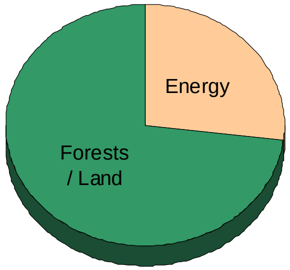
•2030 - Forest carbon; agricultural sequestration; and avoidance of N_2O and CH_4 emissions, mainly from livestock (< 0.1 Gt).

Source: Smith et al., 2007 (Figure 8.5: Total technical mitigation potentials (all practices, all GHGs: MtCO2-eq/yr) for each region by 2030, showing mean estimates); Nabuurs et al, 2007 (Table 9.3: Potential of mitigation measures of global forestry activities. Global model results indicate annual amount sequestered or emissions avoided, above business as usual, in 2030 for carbon prices 100 US$/tCO2 and less); both from Climate Change 2007: Mitigation. Contribution of working group III to the 4th assessment report of the IPCCC

Indonesia's GHG Emissions: What's Big, What's Growing

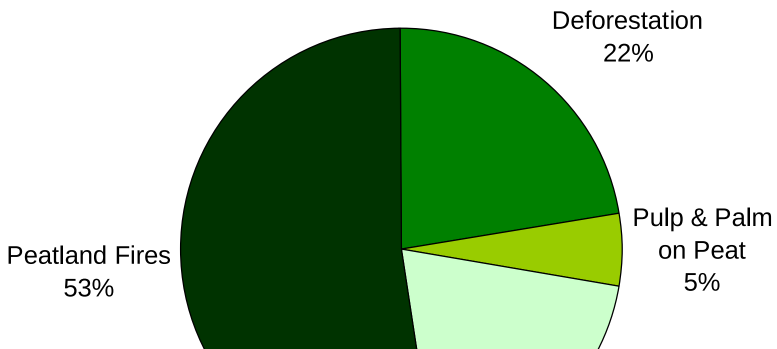
Forests / Land Use
May Be Stable Or Declining

Annual Emissions: Deforestation & Peat Los
(MtCO2e 2,398, Averaged Over Time)



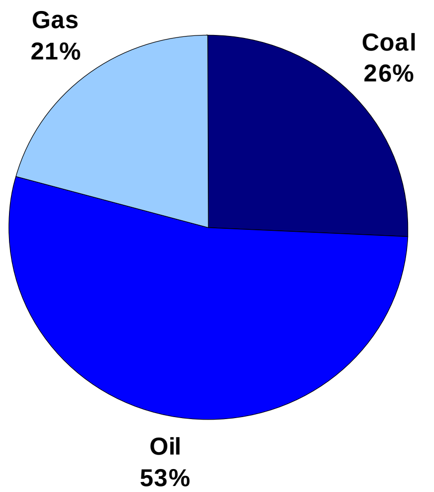
Fossil Fuels
Growing at 6%/yr
Data Source: IEA 2004

Annual Emissions from Fossil Fuel Use
(MtCO2e 336)



HIGH UNCERTAINTY
11 year average
ranges from 360 to 3778 Mt)

Source: From World Bank Office Indonesia, 2008. From Low Carbon Project-Phase 1



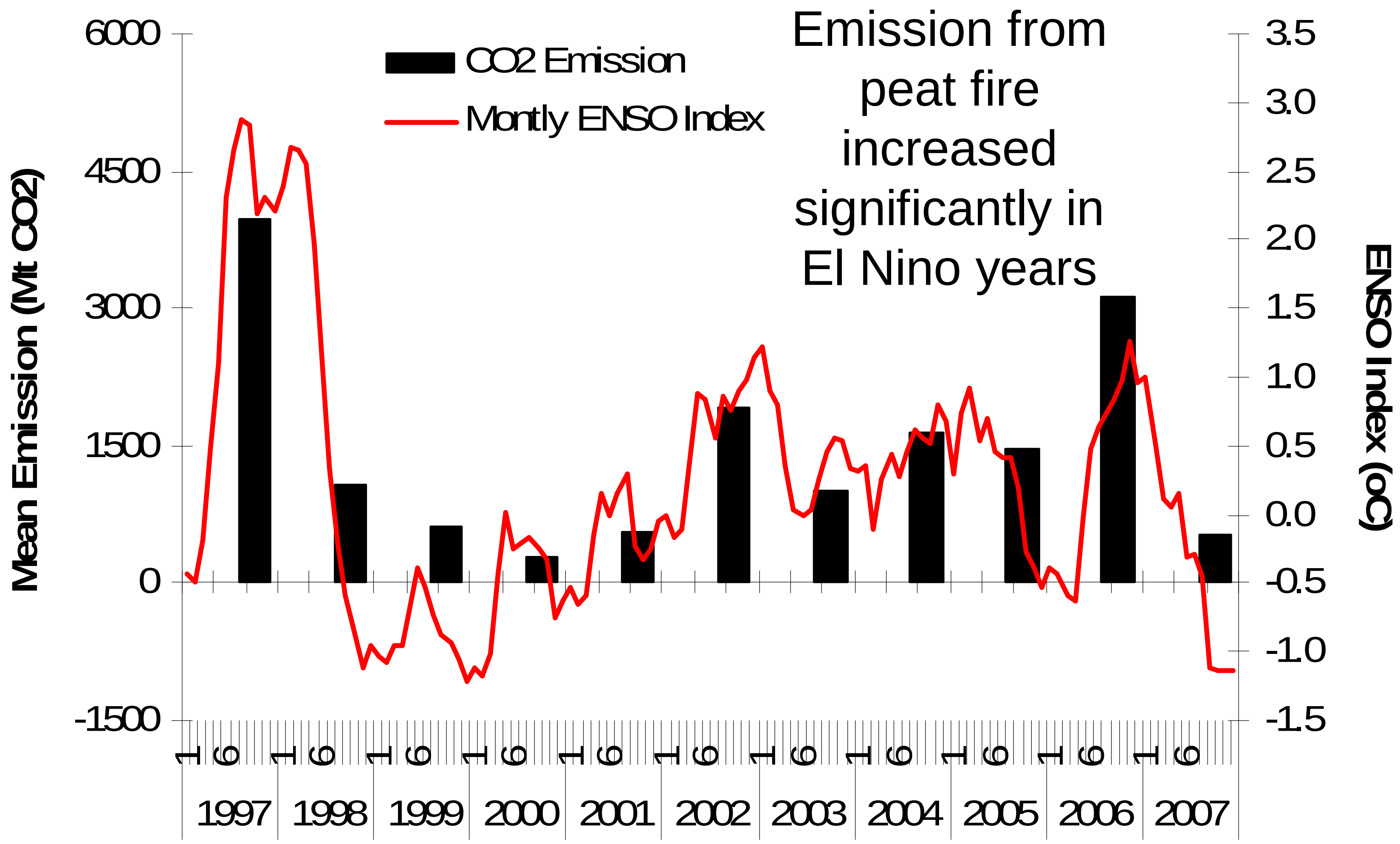
All figures in MtCO2e. Forest data are compiled from various years

- Forests dominate emissions now, but no reason to expect major increase over time; As forests depleted, or controls installed, emissions will decline.
- GHG Emissions from fossil fuel use are low relative to forests, but growing faster than GDP
- By 2030, situation could change substantially depending on BAU, changes, land use allocations, biofuels

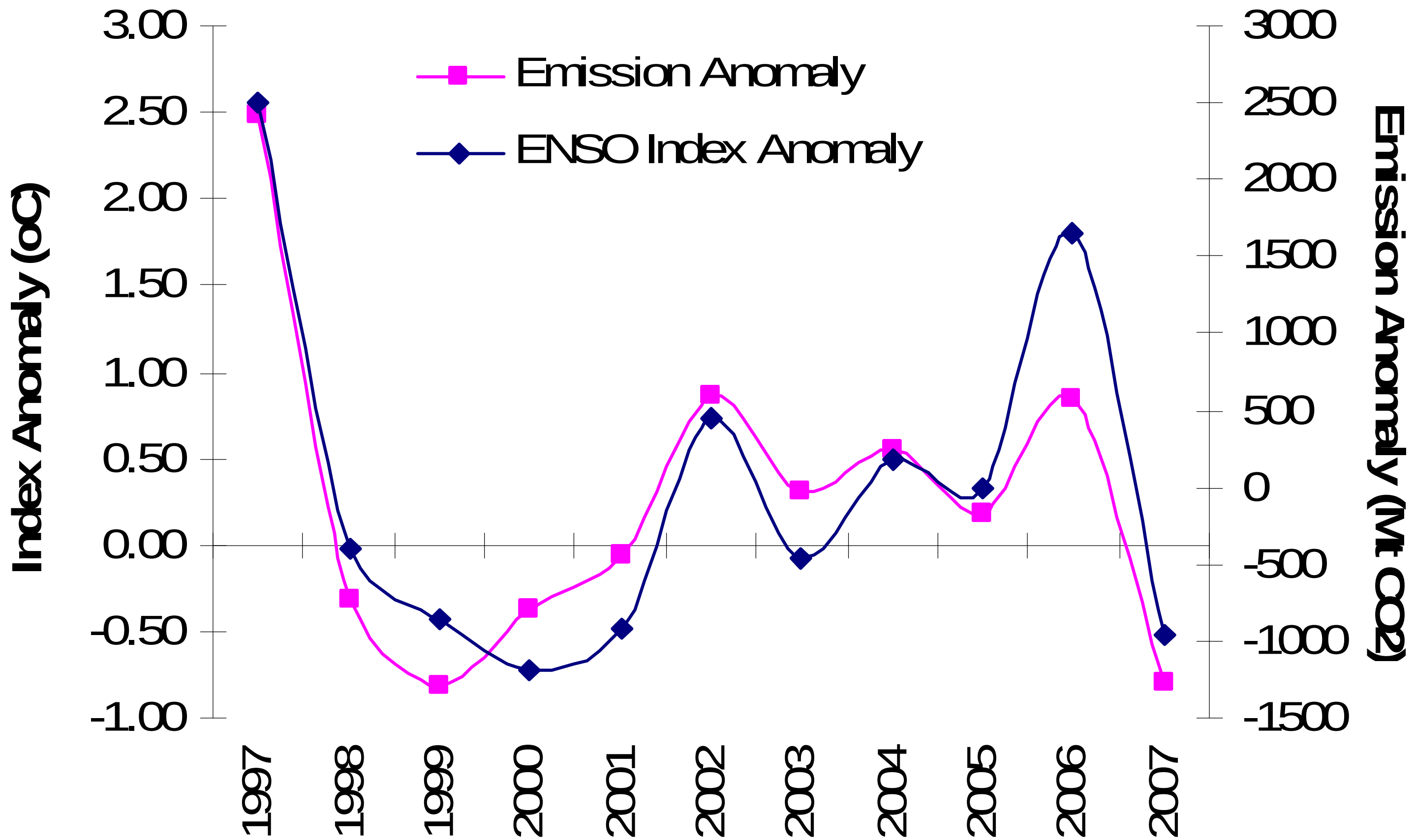
Emission from Peat Fire

Year	Heil et al. 2007	Levine 1999	Page *et al.*, 2002		Duncan 2003	van der Werf *et al.* (2008)
			Lowest	Highest		
1997	4026	898	2970	9423	2567	-
1998	1082	242	799	2534	689	-
1999	623	139	458	1459	396	-
2000	304	66	224	711	194	172±106
2001	645	143	477	1511	411	194±181
2002	2204	491	1624	5155	1404	678±246
2003	1188	264	876	2783	759	246±121
2004	1907	425	1408	4462	1217	440±180
2005	1694	378	1250	3960	1078	451±264
2006	3560	796	2625	8334	2270	1111±433
2007	524	117	385	1225	334	
Mean	1614	360	1191	3778	1029	469±187

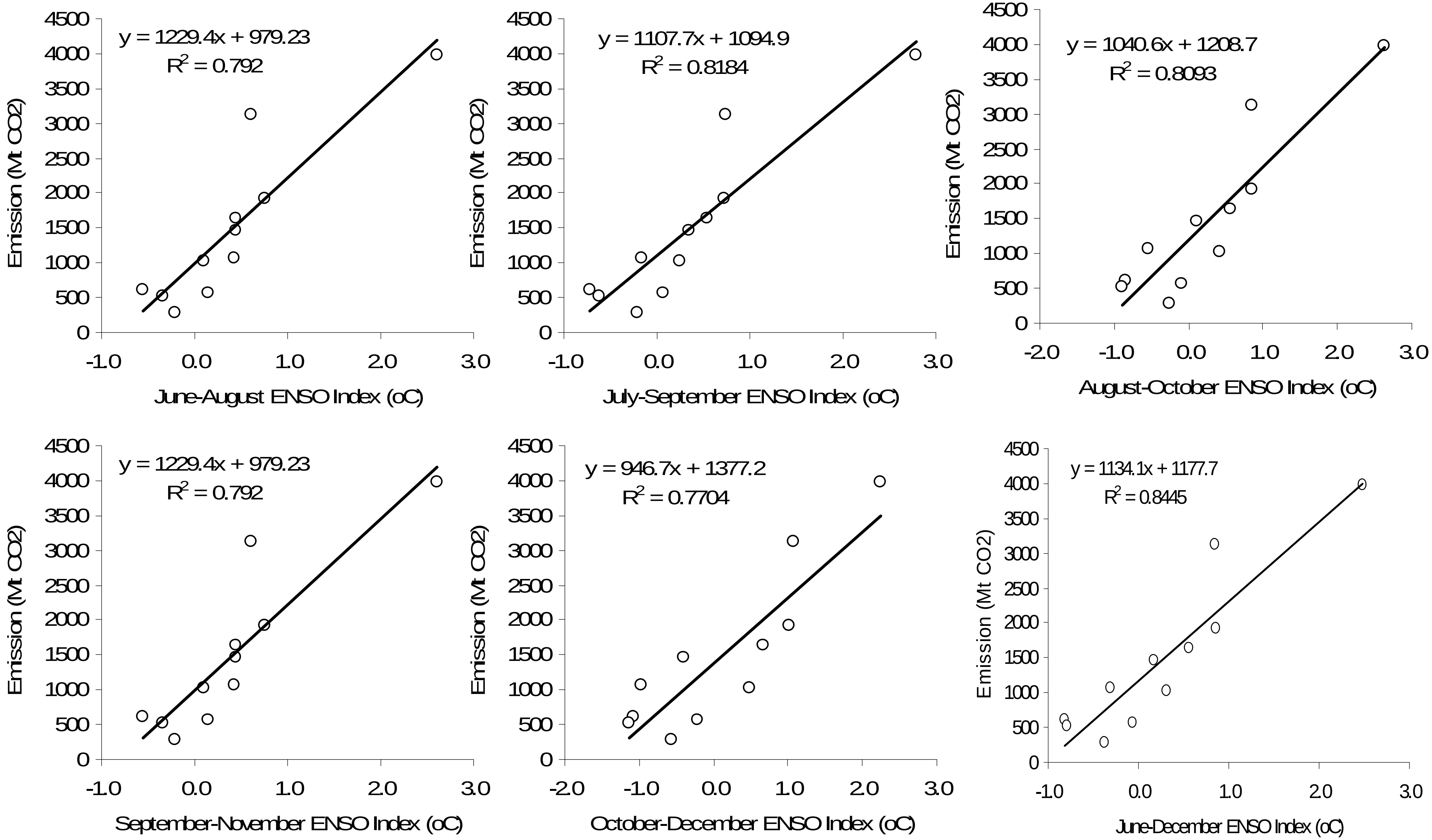
Monthly ENSO Index and Average of Emission from Peat Fire from the Five Studies



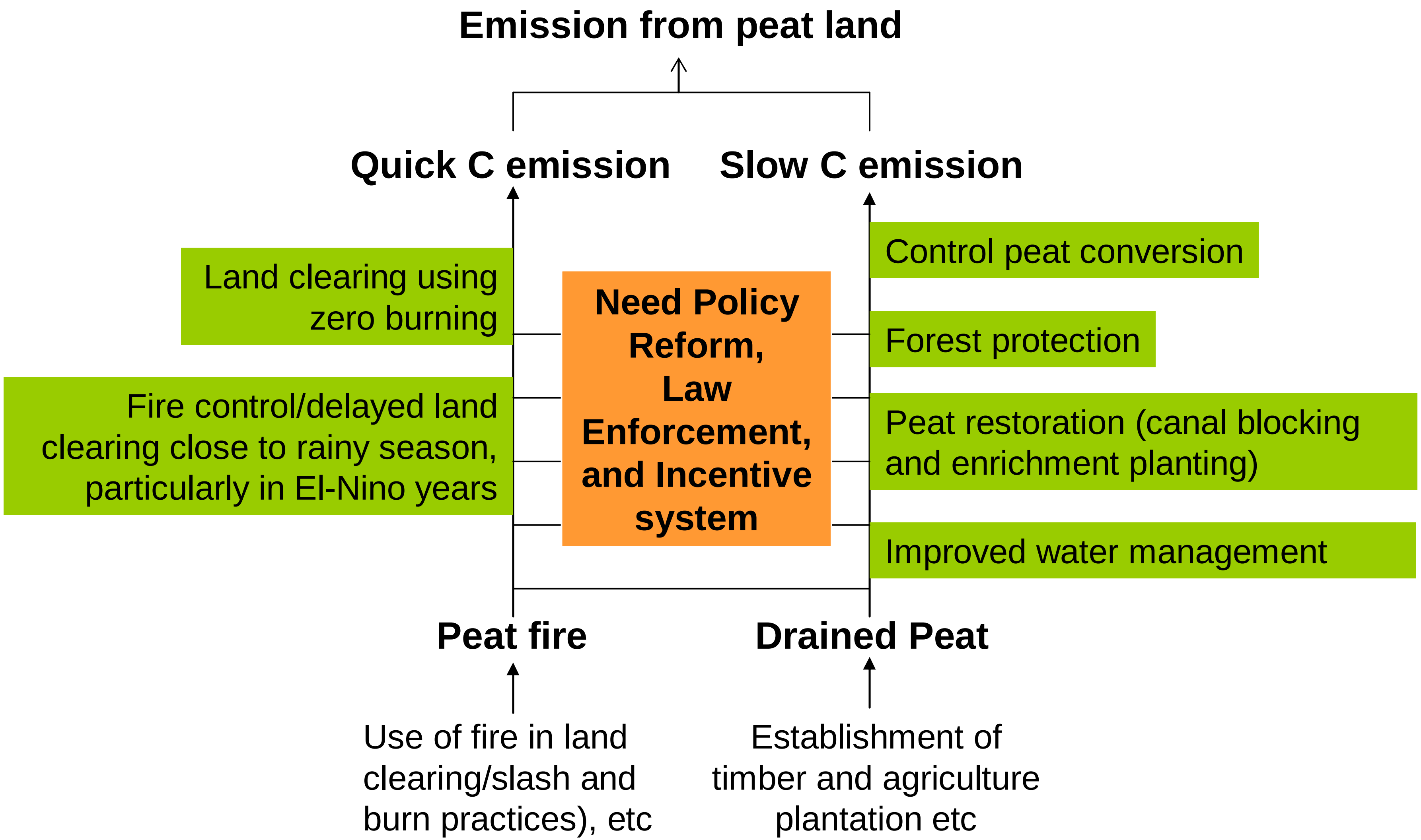
Relationship between ENSO Index Anomaly (Jun-Dec) and Emission Anomaly



Relationship between Seasonal ENSO Index and CO2 emission from peat fire



Emission from Peat

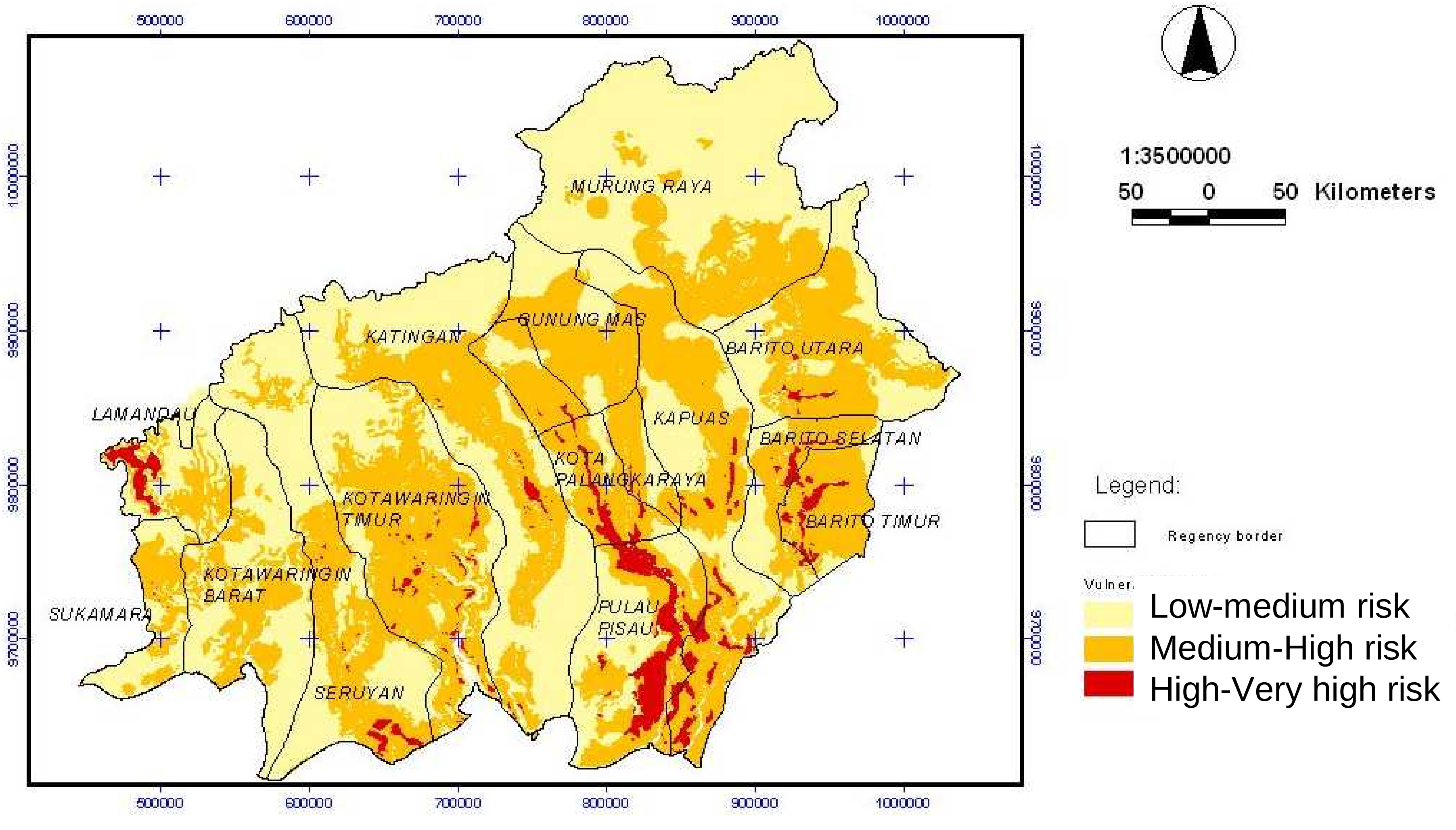


On-going initiatives

- Development of FEWS based on ENSO Index (http://iridl.ldeo.columbia.edu/maproom/.Fire/)
- Development of fire prone map based on hot spot number and fire driving factors (distance to main road/river/resettlement, soil types, soil cover etc).
- Establishing effective dissemination system for fire alert
- Enhancing community based peat fire management
- Facilitating local government to develop regulation on fire management
- Creating incentive mechanism (insurance, carbon based payment etc.) who successfully avoid or reduce fire area in extreme drought year as informed by ENSO index
- Creating fair payment distribution system

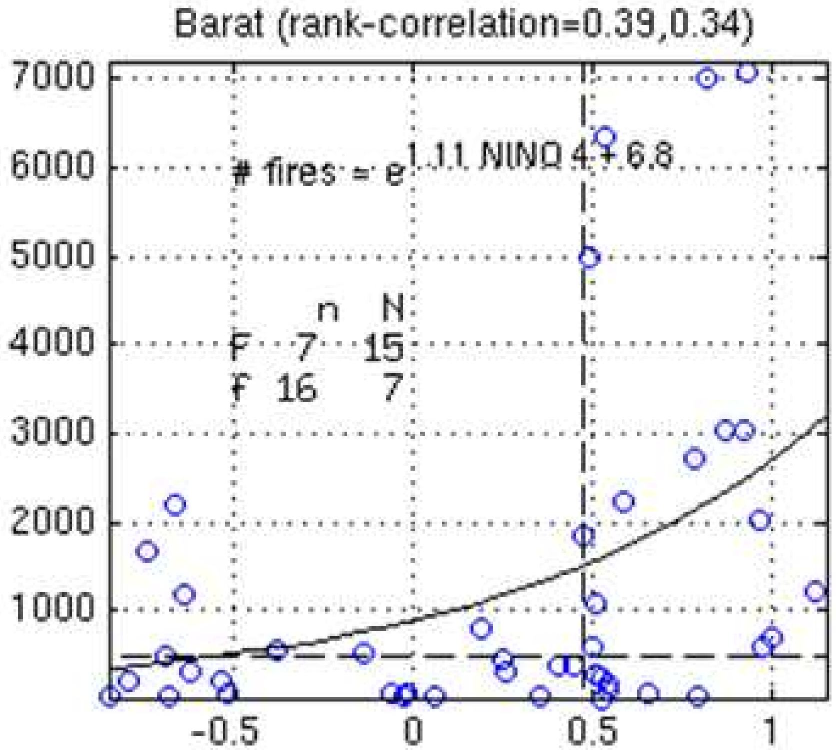
Fire Prone Map of Kalimantan

It was developed based on proximity from village centre, distance from road/river, land cover and soil types (Jaya and Boer, 2008)



Fire Risk Forecast 1 or 2 month lead time

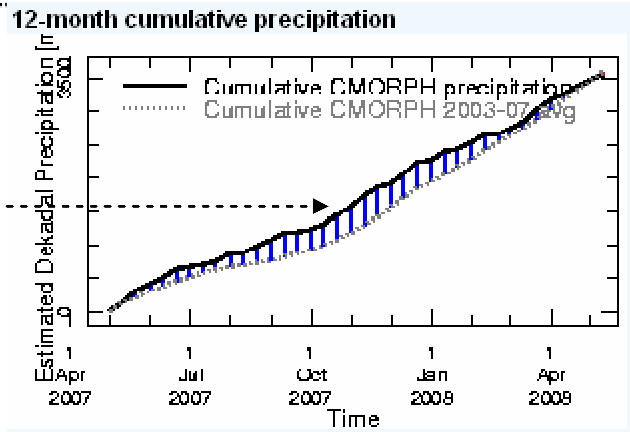
Hot spot number

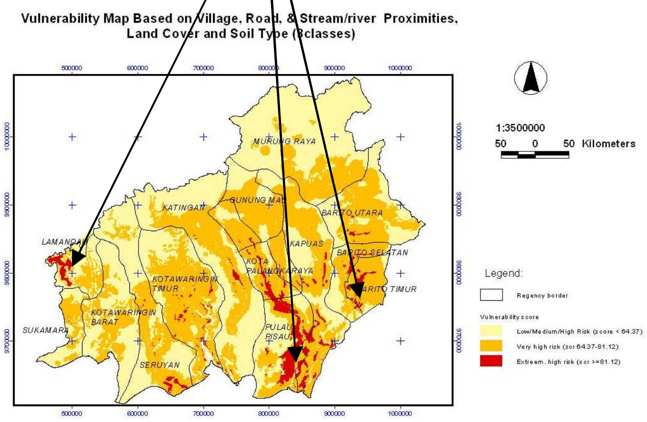


ENSO Index

- Hot Spot = exp(1.1*EI+6.8)
- ENSO Index (EI) = 1.5
- Hot Spot = exp(1.1*1.5+6.8)
- Hot Spot = 4678 > Median
- Cumulative rainfall is still negative
- Risk of fire is high, need to intensify fire control and call for implementing measures, particularly in high fire risk area)

Cumulative rainfall (real time and long term mean)





Decision process for fire management

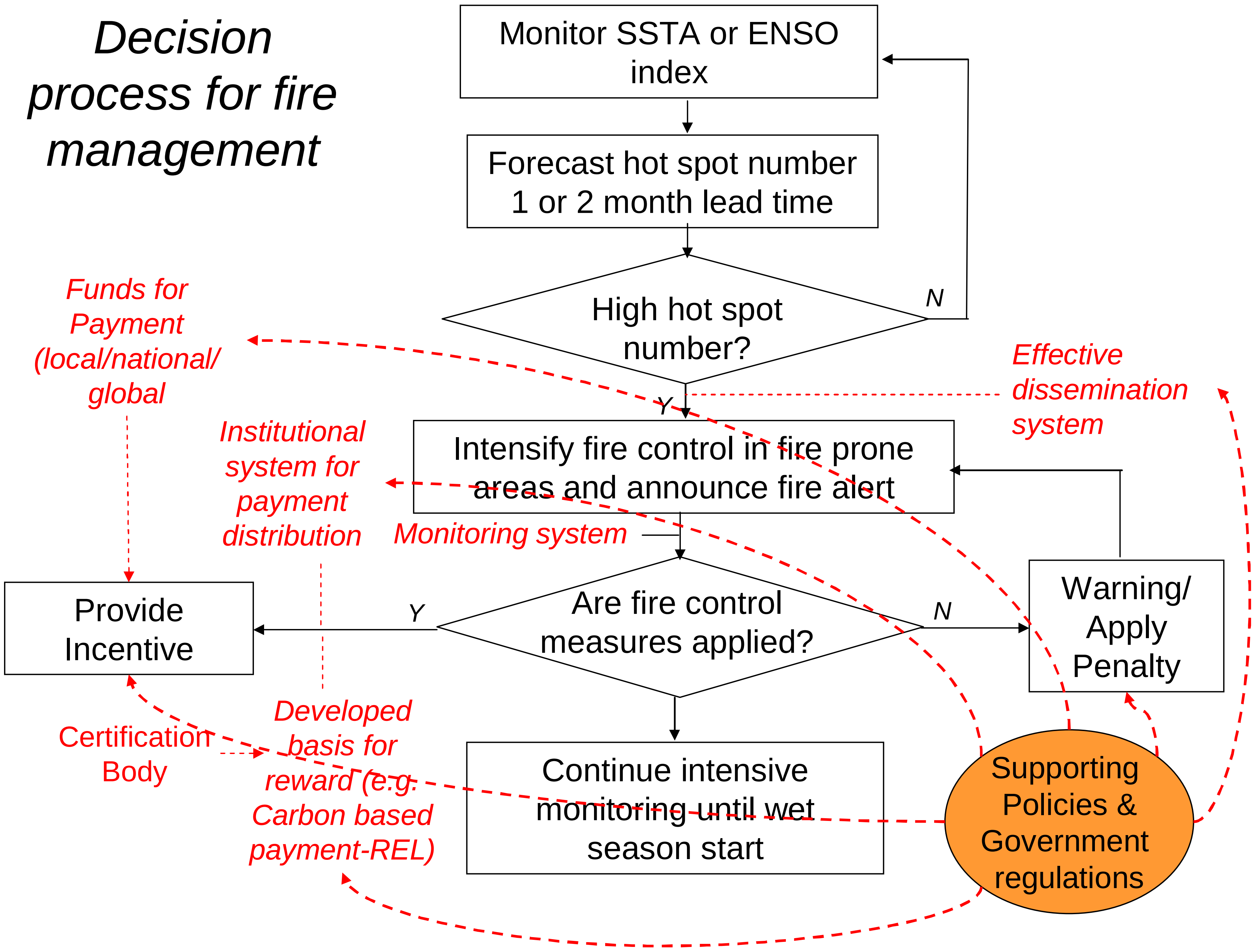
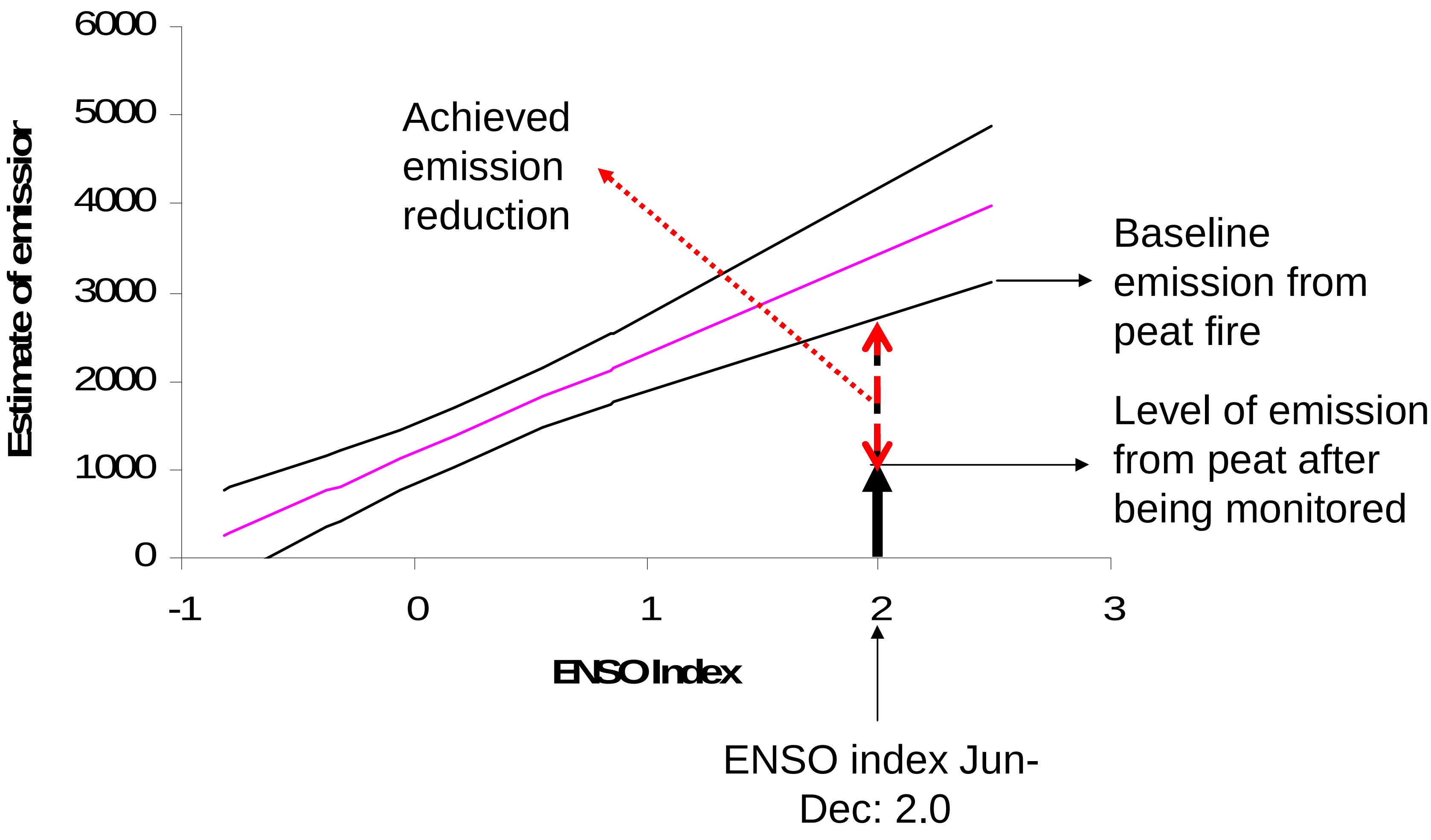


Illustration of C-based Payment



THANK YOU