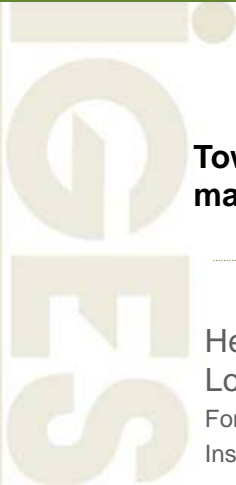


# Institute for Global Environmental Strategies

Forest Conservation, Livelihoods and Rights Project



## Towards a low carbon society: Forest management and utilisation

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# Institute for Global Environmental Strategies

Reducing emissions from deforestation and forest degradation

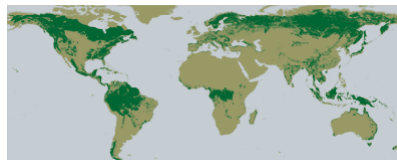


## Forest realities

- Almost half of Earth's original forest cover gone, much of it destroyed within past three decades (WRI 1997)
- "deforestation continues at an alarming rate" (FAO 2005): 2000–2005, +/-13 million hectares lost each year (**over one 3<sup>rd</sup> of land area of Japan**)
- In Asia Pacific, only 15% of production forest and 7.2% of protection forests sustainably managed (ITTO 2006)



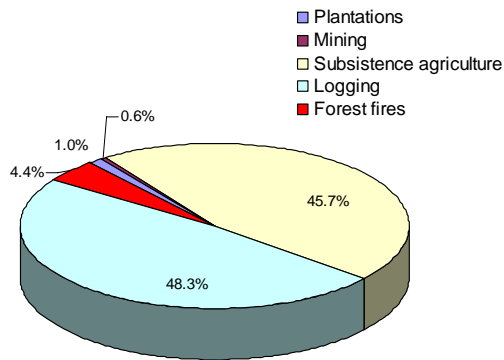
Original forest cover



Remaining frontier forest (WRI 1997)

## Drivers of deforestation and forest degradation

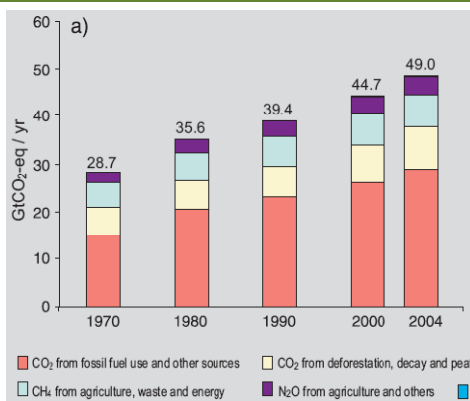
Relative importance of the drivers of forest change in PNG, 1972-2002



Shearman et al. (2008)

**Illegal oil palm plantation development is primary cause of permanent rainforest loss in Indonesia and Malaysia (Nellemann et al. 2007)**

## Impacts on climate change

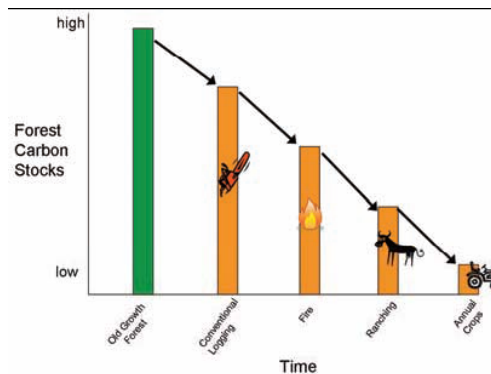


IPCC Climate Change 2007: Synthesis Report

- Deforestation 2nd largest anthropogenic source of CO<sub>2</sub> (20% of emissions); mostly in the tropics
- Deforestation could release 87 - 130 billion tons of carbon by 2100: > amount of carbon released by 13 years of global fossil fuel combustion
- Conclusion: Cannot move towards LCS without addressing deforestation in the tropics

## Climate change and forest degradation

- Degradation = 30% forest sector emissions
- Unsustainable logging opens up canopy = greater vulnerability to pests, invasive species and drying = less resilient to climate change



TNC, June 2009 "Don't forget the second 'D'"

## Climate change impacts on forests (1)

- CC "very likely" increased size & no. of fires, insect outbreaks and overall tree die-offs in the forests of the West, Southwest and Alaska (U.S. Dept. of Agriculture, 2008)
- **Storm damage:** Trees killed by Hurricanes Katrina and Rita will, as they decompose, release nearly 115.7 million tons of carbon into the atmosphere (U.S. Climate Change Science Program, 2009.)
- **Pests and Invasive species:** Many cases where CC has affected and/or will affect forest insect species range and abundance

Outbreak of mountain pine beetles in British Columbia

affected about 33 million acres; climate change has contributed; cumulative impact of the beetle outbreak in the affected region during 2000–2020 will be 270 megatonnes (Mt) carbon (of carbon on average over 374,000 square km, equivalent to five times the annual emissions from the transportation sector in Canada (Kurz et al., 2008, Nature)

## Climate change impact on forests (2)

- Temperature increases and forest fires

### Latin America

By mid-century, increases in temperature and associated decreases in soil water are projected to lead to gradual replacement of tropical forest by savanna in eastern Amazonia. Semiarid vegetation will tend to be replaced by arid-land vegetation. (IPCC)

- Species extinction
- Carbon fertilization

## Towards a low carbon society: Transforming consumption of wood-based products

- Refuse to use wood-based products from unsustainable sources
  - Policy examples: US Lacey Act, EU Due Diligence Legislation
- Only use wood from verified sustainable (certified sources), and use lots of it
  - Policy example: Japan's Green Purchasing Law
- Recycle waste wood (Japan's "Mottainai" spirit)
  - 10 million tonnes of waste wood produced in the UK each year
  - recovering energy from 2 million tonnes of waste = 2600GWh electricity = save 1.15 million tonnes CO<sub>2</sub> equivalent emissions (Waste Energy Strategy for England 2007)
- Don't buy non-wood based products associated with forest destruction

Material	Embodied energy (MJ/kg)
Air dried sawn hardwood	0.5
Kiln dried sawn hardwood	2.0
Kiln dried sawn softwood	3.4
Particleboard	8.0
Plywood	10.4
Glued-laminated timber	11.0
Laminated veneer timber	11.0
Medium Density Fibreboard (MDF)	11.3
Glass	12.7
Mild steel	34.0
Galvanised mild steel	38.0
Zinc	51.0
Acrylic Paint	61.5
PVC	80.0
Plastics (general)	90.0
Copper	100.0
Aluminium	170.0

Process energy requirements (PER) for some common building materials.

Source: Lawson R (1996) Building materials energy and the environment. Towards ecologically sustainable development. The Royal Australian Institute of Architects.

### Low Carbon Societies: Learning from forest communities



*Develop and use local food economies*



*Use renewable materials*



*Use carbon neutral transport*



**THANK YOU!**