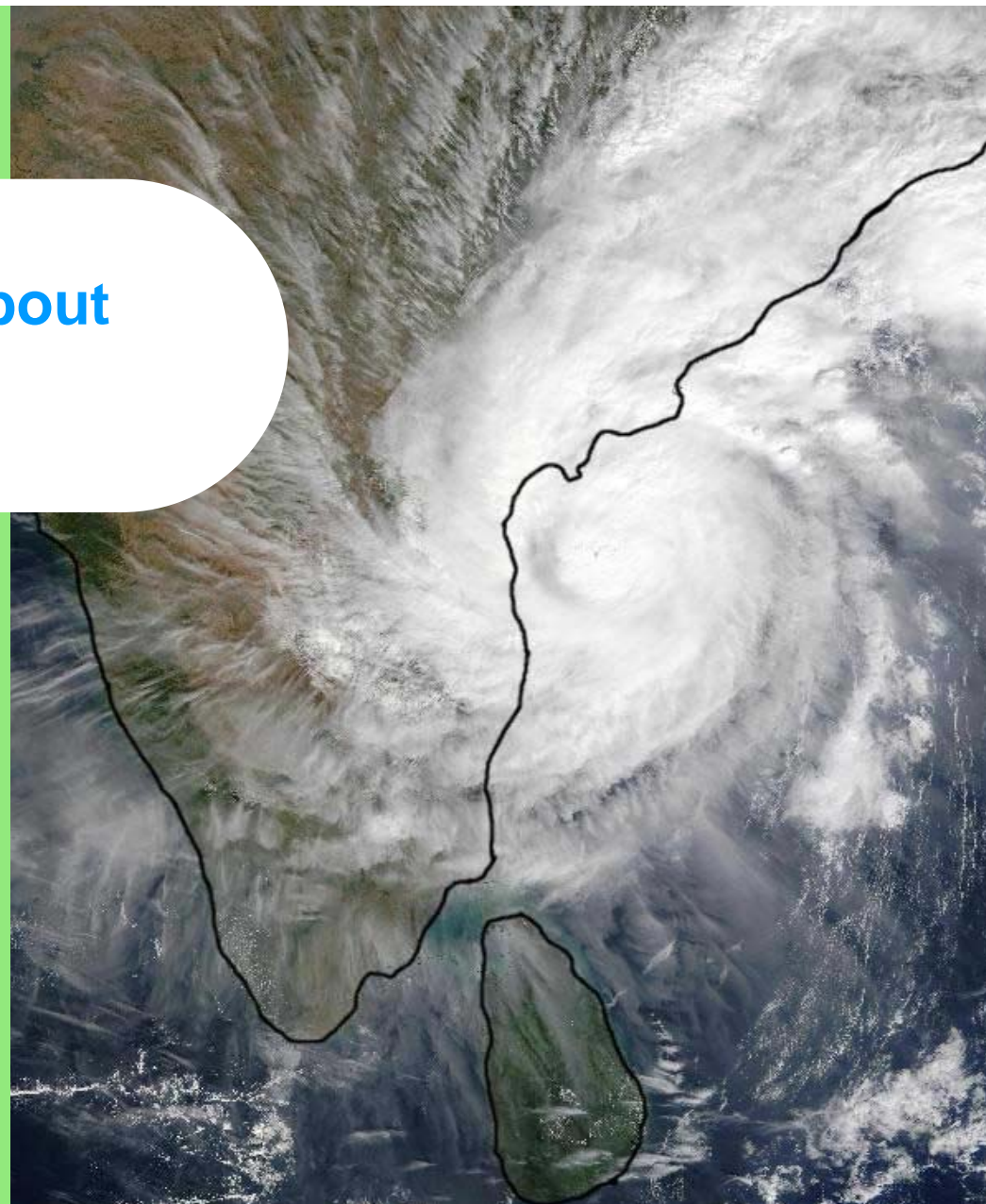


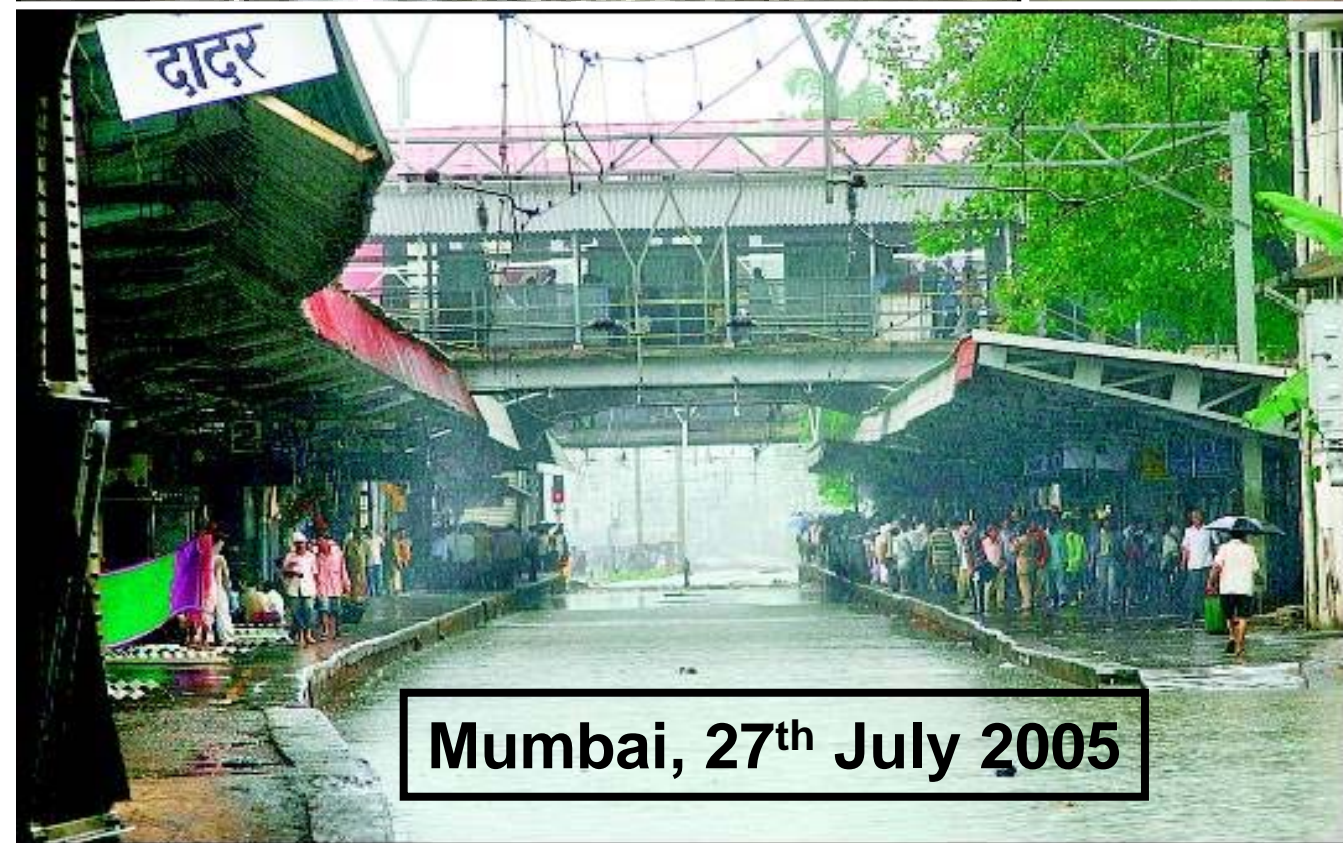
Inconvenient Truths about India's Environment

Pavan Sukhdev
Sanjeev Sanyal
Rajiv Sinha



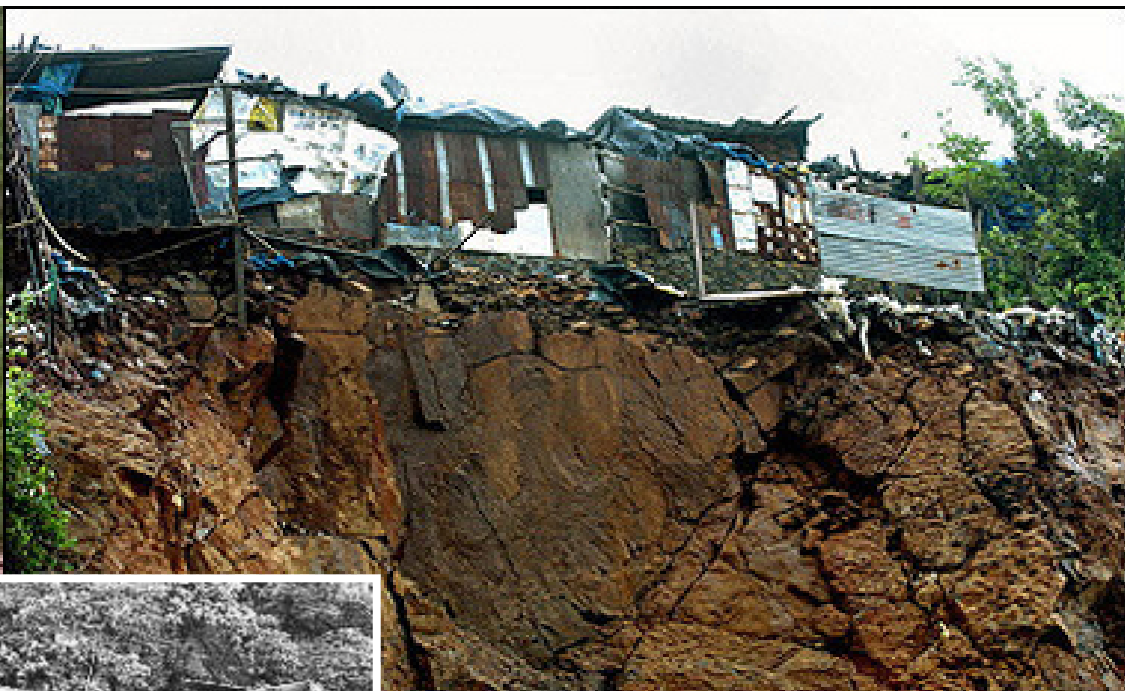
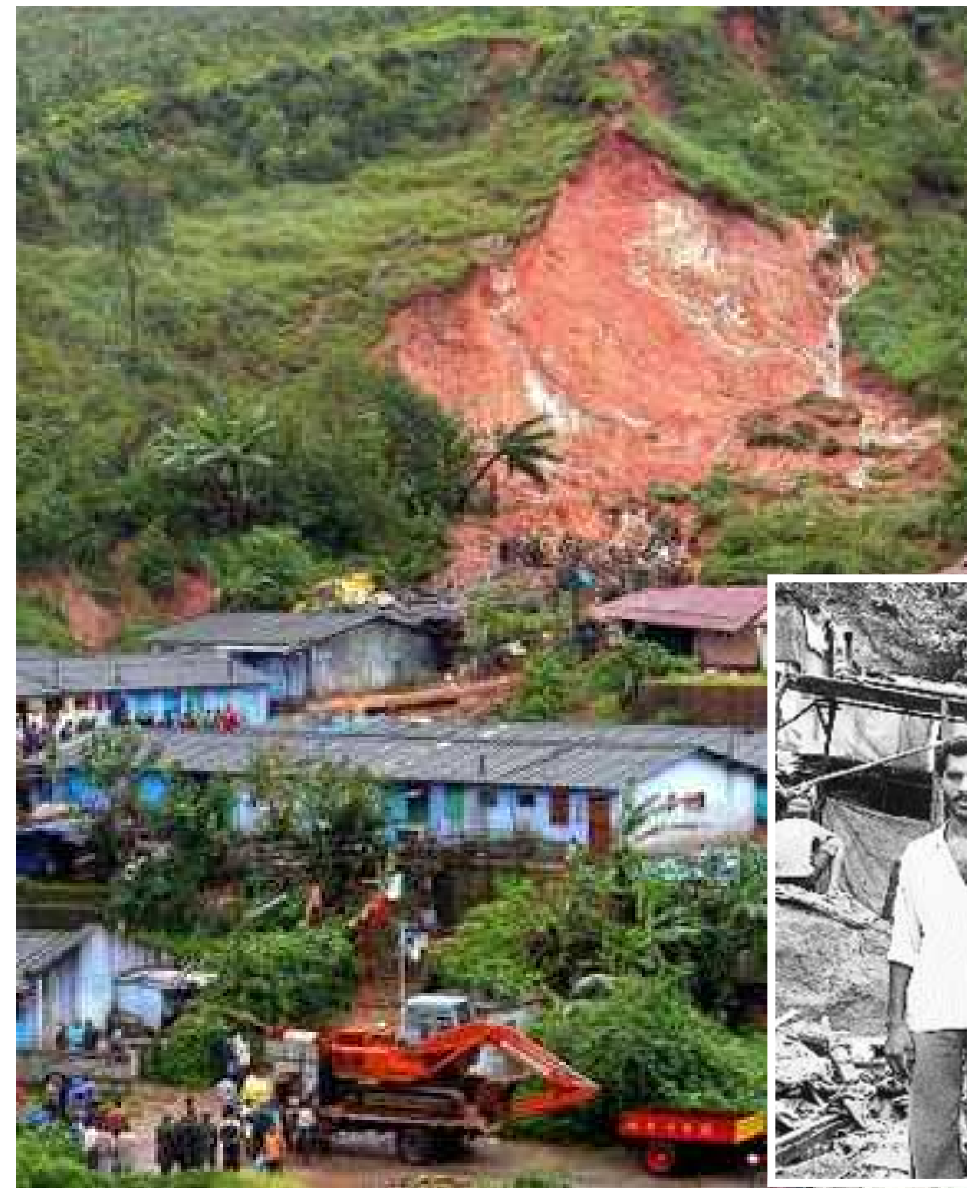


Mumbai, 27th July 2005



Mumbai, 27th July 2005





**Landslides on quarried land cost
300 lives in Powai (Mumbai)**

Inconvenient Truths ... about India's Growth

India's "9% GDP Growth" hype evaporates after posting adjustments for its huge Natural Capital losses...

(Adjusted % of Gross State Domestic Product ; "Floor Values" ; 2002-03)

STATE	Freshwater Quality	Forests : Timber, Fuelwood, Carbon	Forests : Bio- diversity	Forests : Ecological Services	Total
Andhra Pradesh	- 1.0 %	- 0.6 %	- 0.7 %	- 0.7 %	- 3.0 %
Bihar	- 5.4 %	- 4.7 %	- 0.0 %	- 0.4 %	- 10.5 %
Himachal Pradesh	- 9.7 %	- 2.0 %	- 21.8 %	- 7.4 %	- 40.9 %
Karnataka	- 1.7 %	+ 0.1 %	- 8.2 %	- 2.6 %	- 12.4 %
Uttar Pradesh	- 17.5 %	- 0.1 %	- 8.7 %	- 1.8 %	- 28.1 %
West Bengal	- 17.2 %	- 0.8 %	+ 2.1 %	- 0.1 %	- 16.0 %

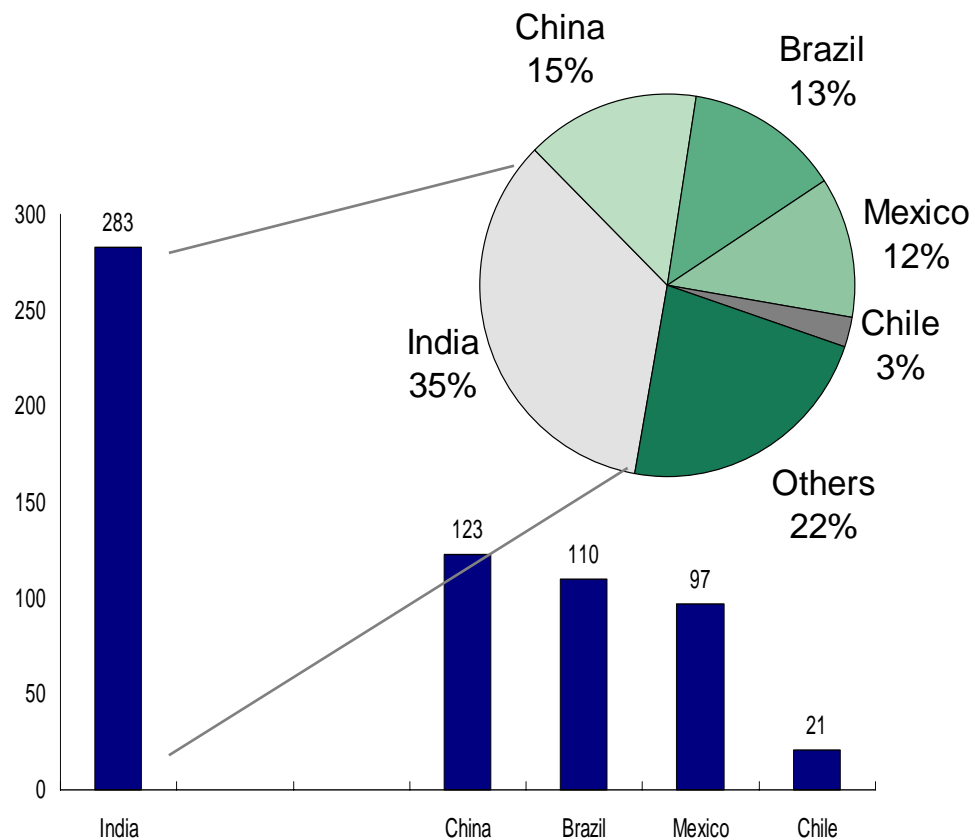
Source : GIST's "Green Accounting for Indian States Project" (GAISP) Monographs # 1, 4, 7 & 8

Note : for forest services, these are **net** 2002/03 GSDP adjustments, i.e. **after positive adjustments** for unaccounted service flows... i.e. stock losses from deforestation (**net** of re-growth) exceed flows

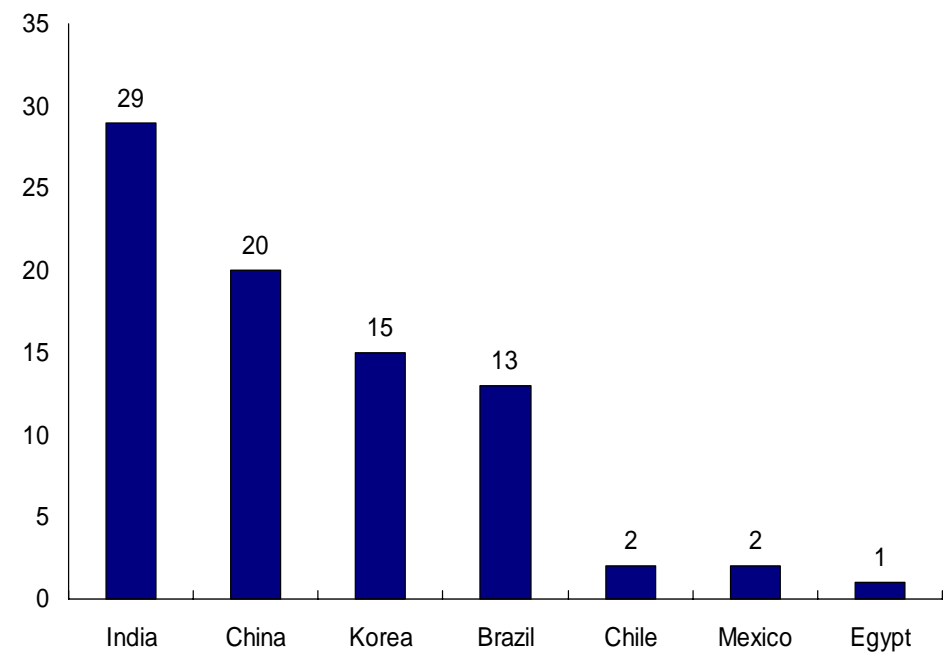
Inconvenient Truths .. about India's CDM CER's

“CDM” is an Indian Success Story : India Leads the Pack

CDM has 824 registered projects, of which India 283, China 123

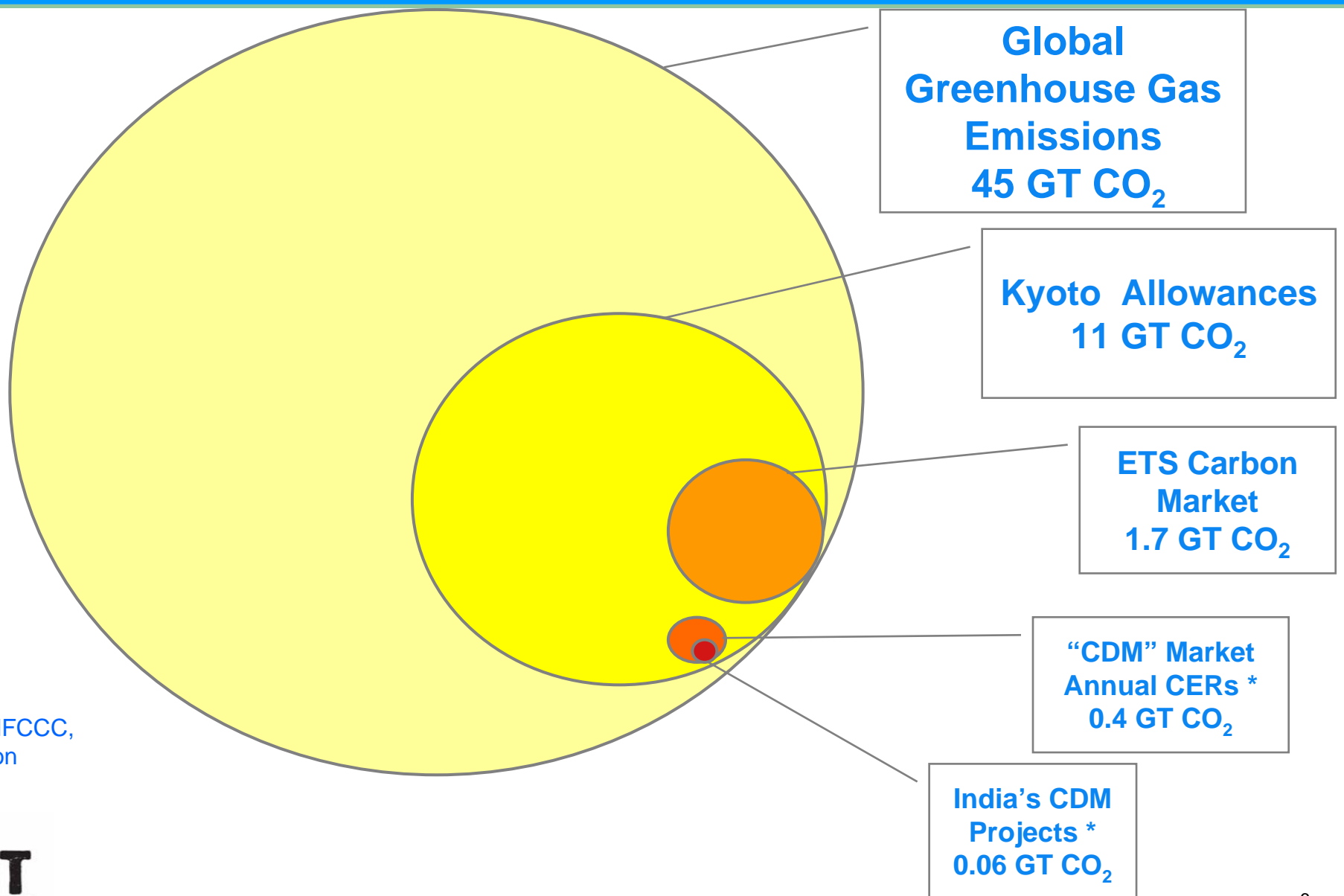


India's 29M CERs issued till date, followed by China at 20M



Source: UNFCCC; Update October 16, 2007

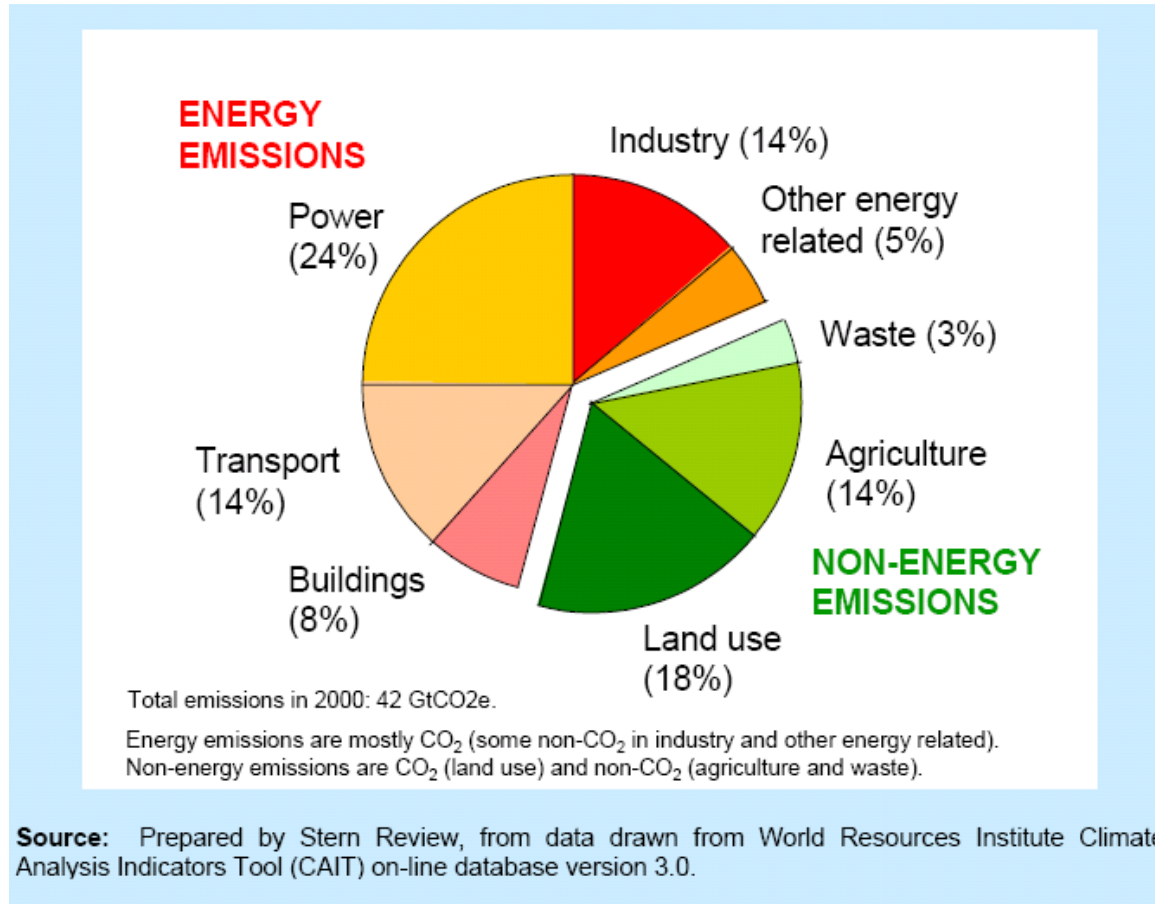
Inconvenient Truths.. About India's CDM CER's ... but just how *material* are India's "CDM" projects ?



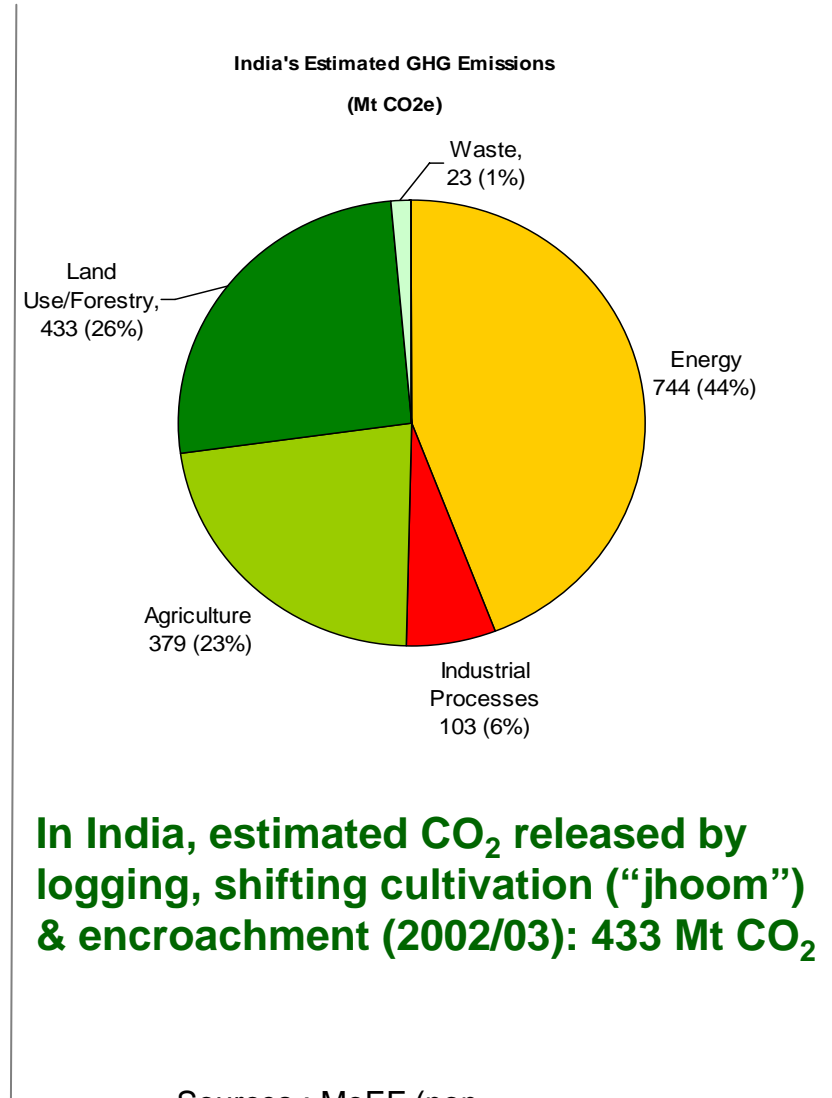
Source: UNFCCC,
Point Carbon

Inconvenient Truths...about Deforestation in India

Deforestation in India is proportionally a higher fraction of CO₂ emissions in India (26%) than the global average (18%)...



Around 18% of global emissions are from deforestation

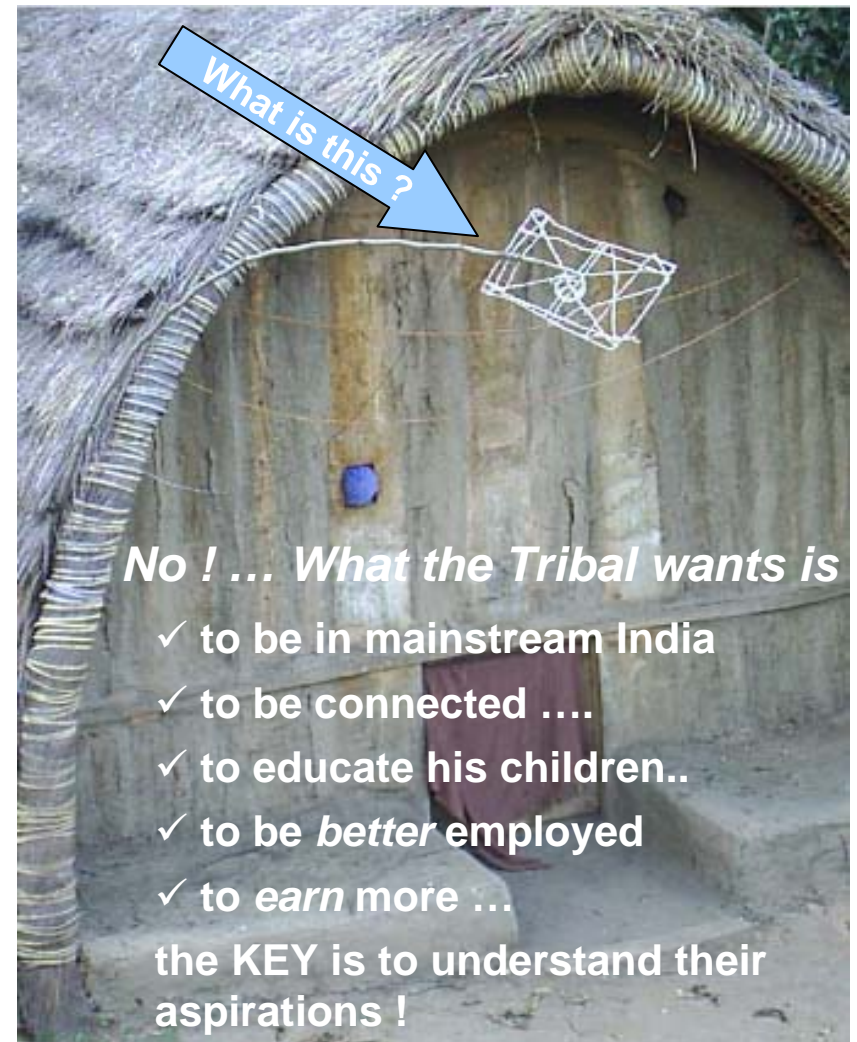
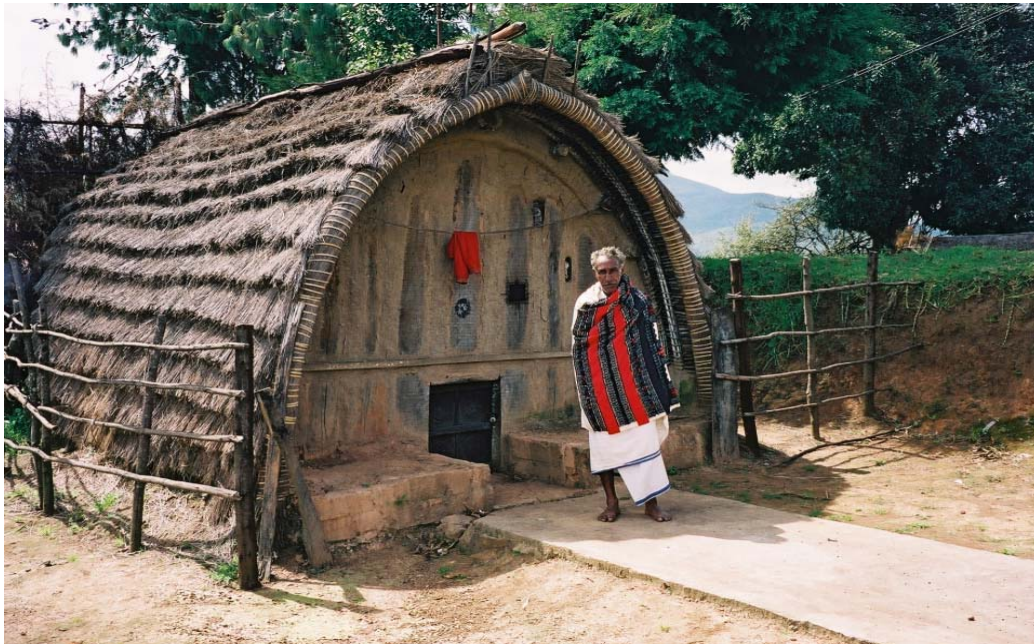


In India, estimated CO₂ released by logging, shifting cultivation (“jhoom”) & encroachment (2002/03): 433 Mt CO₂

Sources : MoEF (non-Forestry), GIST (Forestry)

Inconvenient Truth... about the Aspirations of India's Tribal Poor Govt of India are out of touch with Tribal Aspirations

Gov't of India / CPI (M) Vision : Forest-dwelling, 4-hectare owning, subsistence farmer / poor pastoralist, isolated from India's mainstream, poverty- trapped for generations to come *Is this what the Tribal wants for his children ??*



Desire for Connectivity : Photograph of a makeshift radio antenna crafted by a poor *Toda* tribal from metal wire coat-hangers

Inconvenient Truth about India's Forests

Tribals do not “Protect” Forests, especially if they Own Forest Land

1. Official Data shows material forest losses in Tribal areas :-

LOSS IN DENSE FOREST COVER IN TRIBAL DISTRICTS 2001 – 2003 (sq.km.)

State and (# of Tribal Districts)	FSI 2001 report	FSI 2003 report	Loss in Dense Forest Cover (%)
Assam (16)	7,233	5,302	1,931 (26.7%)
Madhya Pradesh (18)	27,833	24,372	3,511 (12.6%)
Jharkhand (8)	7,826	7,368	458 (5.8%)
Andhra Pradesh (8)	17,062	16,370	692 (4%)
All States/UTs (187)	257,048	246,858	10,190 (4%)

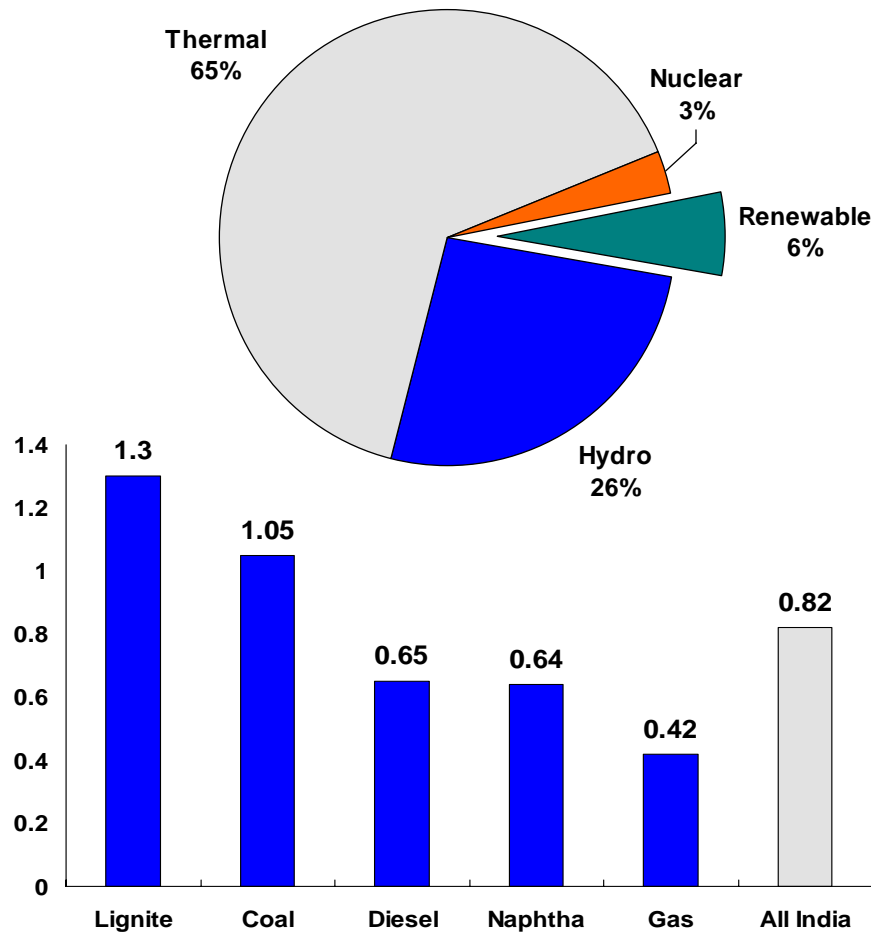
Source: State of Forest Report, 2001; State of Forest Report, 2003, Dehra Dun, FSI.

2. History says that Tribal land grants lead to Deforestation :-

West Nimar and Jhabua, Madhya Pradesh, from the 1950's, were given to the local Bhil tribals for settlement.... The result was deforestation and drought in a land which earlier had high rainfall.... Yet another example of the “vicious cycle” of poverty and environmental degradation at work....

Inconvenient Truth about India's Power Sector

India's Power Sector was, is, and is *planned* to remain largely Coal-based ...



Power Plant Emission Rates

(tCO2/ MWh)

- ❑ 132 GW capacity / 576 TWh generation
- ❑ 471 MtCO2 annual emissions
- ❑ New & Renewables provide only 9 GW (6.5 % of installed capacity)
- ❑ The sector remains largely thermal generation (65%) , followed by hydropower 14.5 GW Renewables Capacity will be added over the next “5-Year Plan” (avoiding at most 30 Mt CO2 p.a.)
- ❑ Planning Commission’s Power supply forecast for 30years till 2033 showed 36%-58% dependence on Coal (currently 52%)
- ❑ *The vast majority of energy use will continue to come from burning MORE Fossil Fuels... especially COAL*

Sources:- TERI,
Central Electricity Authority,
Point Carbon

Inconvenient Truth ... about India's Renewables Potential

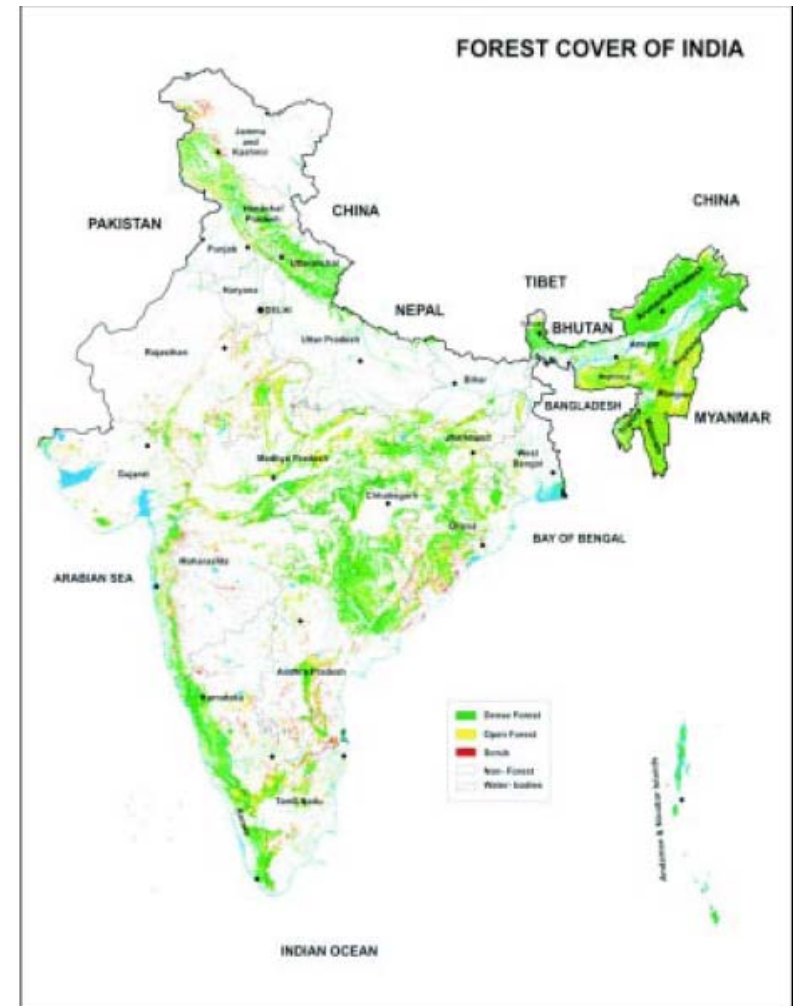
Renewable Energy : India's Potential is Substantial ... and Unexploited

RES	Potential ³⁰	Existing Installed Capacity*
Wind	45000 MW	~ 6190 ³¹ MW
Small Hydro (upto 25 MW)	15000 MW	~ 1850 MW
Biomass power /cogeneration	19500 MW	~ 950 MW
Solar Photo Voltaic Power	50,000 MW (20 MW/sq.km)	~ 30 MW Very low exploitation.
Solar Water Heating	140 million sq. m collector area	1.5 million sq. m collector area
Urban and Industrial Waste-based power	70000 MW	~ 34.95 MW.
Biogas plants	12 million	3.8 million
Improved Biomass <i>Chulhas</i> (Cook-Stoves)	120 million	35.2 million

Sources : KPMG
 MNES Website
 Renewable Energy Working Group, 11th 5-year Plan

India's Environment is a veritable Library of "Inconvenient Truths"

- ❑ India's "9% GDP Growth" hype evaporates after posting adjustments for its huge Natural Capital losses
- ❑ India leads the pack in "CDM" ... but India's "CDM" CER's are a tiny fraction of India's CO₂ emissions, & an *immaterial* part of global emissions
- ❑ Deforestation is a higher fraction of emissions for India (26%) than it is on average for the world (18%)
- ❑ India's Power Sector was, is, and is *planned* to remain largely Coal-based
- ❑ Govt of India has enacted law which will preserve Tribal poverty & eliminate India's Forests, instead of the other way round
- ❑ Water crisis in the North by 2035 as ALL Himalayan glaciers are forecasted to have melted
- ❑ Water crisis in the South perhaps sooner, as forest cover losses escalate due to Forest Rights Act, 2006 & commercial pressures
- ❑ Climate Change will seriously impact India, and its first effects are already visible



Source: FSI (2001)

... and India's Risks from Climate Change are many...

- ❑ **Agriculture** : Temperature and rainfall pattern changes may affect agricultural capacity & productivity very seriously – some evidence of this is visible already
- ❑ **Health** : Disease distribution can change for the worse (dengue, malaria, etc) due to increased floods & cyclones, higher temperatures
- ❑ **Coastline** : Melting of half the ice in Greenland and Western Antarctica would increase sea levels by 20 feet, which would devastate our populous coastal communities
- ❑ **Deltas** : Low lying river deltas (mainly in Bay of Bengal) could be entirely submerged
- ❑ **Politics** : Refugee crises & political unrest as Bangladesh faces extensive submergence
- ❑ **Water** : North India relies on water from rivers that originate in Himalayan glaciers for ... 2035 may see the end of the Himalayan glaciers

India does not have the infrastructure to deal with extreme weather events, rising sea levels, desertification, agricultural crises, water crises.... and Gov't of India still behaves as if Climate Change is just a distant worry....

December 2003
Intensity 3b
Winds 75mph

A Distant Worry ??
No...this is recent history ! Not
as strong as Katrina, but ...

*... is the Indian
Ocean safe?*

