

Centre of Science for Environment
Climate Change and REDD-plus

New Delhi, 25 November 2010

Jagdish Kishwan

**Additional Director General (Wildlife), MoEF
Former PCCF and HoFF, Jammu and Kashmir
Former DG, ICFRE**

also

**Member, Core Negotiating Group for UNFCCC
Member, Expert Group on Low Carbon Strategy for Inclusive
Growth**

Structure of Presentation

- Emissions and forestry sector- Indian scenario
- Current and potential role of forests in climate change mitigation
- Potential mitigation service by forests: quantum and costs
- Critical issues related to people, local communities
- Challenges of REDD+ in South Asia
- Policy and institutional issues in context of REDD+ with focus on people

India Emissions (GtCO₂ eq) (NATCOM-2004)

- **Total** **1.23**
- **LULUCF** **1.16%**

How to reduce emissions?

Sector	Key mitigation technologies and practices currently commercially available.
Industry	More efficient electrical equipment; heat and power recovery; material recycling; control of non-CO ₂ gas emissions;
Agriculture	increase soil carbon storage; restoration degraded lands; improved rice cultivation techniques; improved nitrogen fertilizer application; dedicated energy crops;
Forests	Afforestation; reforestation; forest management; reduced deforestation; use of forestry products for bioenergy
Waste	Landfill methane recovery; waste incineration with energy recovery; composting; recycling and waste minimization

Positive role of
forests globally
recognized in
“Climate change
mitigation”

“A culture is no
better than its
woods”

-W. H. Auden

Climate Change: Approach for South Asia- Indian Scenario

- **Reference case**
 - **Power**
 - **Emissions intensive industries**
 - **Habitats (rural/urban residences, commercial buildings, appliances)**
 - **Agriculture**
 - **Forestry**
- **Abatement case**

Source: Environmental and Energy Sustainability: An Approach for India: McKinsey & Company, August 2009

Climate Change: Approach for South Asia- Indian Scenario

- **Abatement case**
 - Clean power
 - Energy-efficient industry
 - Green transportation
 - Sustainable habitats
 - Sustainable agriculture and **forestry**
- **2030 (7.5% GDP growth, 1.47 b population): GHG emissions reduced from 5.7 (ref case) to 3.1 bt CO₂e- 45% reduction**

Source: Environmental and Energy Sustainability: An Approach for India: McKinsey & Company, August 2009

Mitigation Service

Example- India's Forests

- 1995 : 6245 mt C (43%b)
- 2005 : 6622 mt C (43%b)

**37.7 mt C=138 mt CO₂e
neutralized every year**

Source: Kishwan, et al. 2009 (ICFRE Technical Paper)

Forest Mitigation Options

✓ Add forest carbon

- Increase FTC
- Create forest in FFVs
- Improve forest cover

✓ Save forest carbon

- Use improved wood-burning cookstoves
- HWPs to replace part building hardware made of cement and metals
- Part replacement of plastic and metal furniture

Add Forest Carbon

- Increase FTC – 1 mha every year (remote forests+nfl in 400,000 villages)
- Create forest in FFVs- 100 ha forest in each of 170,000 FFVs (forest+nfl)- 2 mha every year
- Improve forest cover- 1 mha of open forest to MDF and 1 mha MDF to VDF every year

Save Forest Carbon

- Improved wood-burning cookstoves- 11 m every year to cover 11 m families
- HWPs to replace part use of cement and metals- 1 m cub m every year
- Replacement of plastic and metal furniture- 50% replaced= 1.5 m cub m every year with wood

Cost of Actions

- ✓ Addition of FTC+forest in FFVs+ improvement in FC= Rs. 11,000 crores every year
- ✓ Improved cookstoves+wood products as substitutes= Rs. 630 crores every year

Total= Rs. 11,630 crores every year

Value of Mitigation Service

2020 onwards

Rs. 12,102 crores every year

Resource Mobilization

✓ Principle of 'Emitter Pays'

- Private sector = Rs. 8,350 crores
- Government = Rs. 3,280 crores
- REDD+ funds = ??

Quantum of Mitigation

- ✓ Expand and improve forest and tree cover= 32.3 mt CO₂eq
 - ✓ Promote more efficient use of fuelwood, and gradual replacement of energy intensive metal and plastic products= 31.4 mt CO₂eq
- Total= 63.7 mt CO₂eq every year (+46%)**

Impact on Emission Intensity (Kg CO₂ per USD of GDP)

5.2 % Reduction 2020 onwards

South Asia

Critical issues: Points of debate

- REDD+ and perceived implications
- Expansion of forest as land use to realize mitigation potential
- Involvement of private sector in large scale mitigation actions
- Increased restrictions on non-forestry use affecting development
- Restrictions on rights and privileges of local communities

COP 13: December 2007

Understanding REDD+

Bali Action Plan: “...Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries...” [Para 1b (iii) of BAP]

COP 15 Copenhagen

➤ **Considered a failure**

- No legal agreement only political statement (Copenhagen Accord)
- No commitment of Annex 1 beyond CP1
- Intent to kill KP and renegotiate UNFCCC

➤ **Positive elements**

- AWG-LCA and AWG-KP continue
- **REDD+ neared completion**

➤ **Way forward**

- Legal agreement in COP 16 Mexico
- **Copenhagen Accord not to predetermine Mexico outcome**

South Asia

REDD+: perceived implications- myths and realities

- Conversion of natural forests into plantations- degradation of ecosystem, loss of biodiversity- **adequate safeguards in negotiating text**
- Parceling of forest land to private sector for large scale mitigation actions- **not true in South Asian context**
- Restrictions on rights and privileges of local communities- **adequate safeguards, governed by national law, regulations**

South Asia

Expansion of forest land use

- Expansion of forest as land use at cost of other land uses like agriculture impacting food security- **highly unlikely in South Asian context with highly subsidized agriculture sector much more remunerative than tree cropping**
- Involvement of private sector in plantation on forest land- generally **not permitted under extant policy and legal regimes**

South Asia

Private sector in afforestation

- Large CDM A&R projects- **not permitted on forest land, even on non-forest land usually accepted as co-benefit or additional bonus**
- Plantations on forest land- **not permitted by extant policies and laws**

South Asia

Increased restrictions on diversion of forest land affecting development

- In pursuit of mitigation, government forests may become repository of forest carbon stocks- **Indian example: even with present trend of diversion of forest land and withdrawals of goods and services, forests still continue to be increasing carbon sinks (38 mt C=138 mt CO₂ e annually)**

South Asia

Restrictions on forest rights and privileges of local communities

Apprehensions

- Forests if conserved as Carbon sink may restrict access of local communities
- Participation of private sector in forest mitigation to displace local inhabitants
- No benefit of carbon service flowing to local inhabitants

South Asia

Restrictions on forest rights and privileges of local communities

Addressing Apprehensions

- **Role of local communities central to all mitigation policy development, formulation and implementation**
- **Make participation of local community essential in planning, managing, assessing and monitoring of mitigation actions including REDD+**
- **Introduce/reiterate policy of no role for private companies**
- **No change in existing regime of rights and concessions of local communities**

South Asia

Challenges REDD+

- Developing and adopting a cost effective statistically acceptable methodology for estimation of forest carbon stocks (FCS)
- Institutionalization of national accounting of FCS
- Fixing of frequency of estimation of FCS at national level
- Fixing of a reference level
- Apportioning of REDD+ incentives amongst stakeholders including local communities

South Asia

Issues relevant to community participation in REDD+

- Safeguard legal and traditional rights of local communities (examples- JFM, CFM, FRA)
- No specific changes in FM for REDD+
- REDD+ incentives bonus in addition to traditional goods and services to local community from forests
- **Policy statement endorsing 100% share of REDD+ to local community and no involvement of private cos**
- Participation of local community in assessment and monitoring of forest C stocks
- Capacity building

Whose Responsibility?

- **Government**
 - Federal- policy, laws, regulations and monitoring
 - Provincial/State- implementation and monitoring
- **Civil society**
 - Awareness, capacity building
- **Foresters**
- **Media**

“Woods of a nation are
as good as its culture”

~~W. H. Auden~~

**Thanks for your
attention**

CDM Statistics

- **Projects registered** =2,472
- **A/R Projects registered** =17
- **A/R Methodologies registered** =17
- **A/R Projects registered: India** =03
- **A/R Projects submitted to EB** =11

India: CDM A/R Projects Registered

- Small scale afforestation activity on private lands affected by shifting sand dunes, Sirsa, Haryana (11,596 t CO₂e)
- Reforestation of degraded lands under ITC social forestry initiative in Khammam, A.P. (57,792 t CO₂e)
- TIST (International Small Group and Tree Planting Programme), TN (3,000 t CO₂e)

KP: Possible Additional LULUCF Activities in 2 CP

- Revegetation
- Forest management
- Cropland management
- Grazing land management
- Wetland management
- Soil carbon management in agriculture
- Sustainable land management activities
 - Other: REDD+

Role of Local Community in Forest Mitigation

- Central to all policy development, formulation and implementation
- Participation of local community essential in planning, managing, assessment and monitoring of mitigation actions **including REDD+**
- **No role for private companies**
- No compromise with existing rights and concessions of communities over forests

Points of Concern

- **Clarity on REDD/REDD-plus- **main or a co-benefit?****
 - State managed forests- main benefit
 - Community/jointly managed forests- co-benefit (bonus with other goods and services)
- **Biodiversity conservation (**safeguards against conversion of natural forests into plantations**)**
- **Safeguarding rights of local people and benefit sharing (UNFCCC- indigenous peoples and local communities)**
- **Three phase approach related to REDD/REDD+ (Delay!)**
 - Preparatory (policy, capacity etc), learning (pilots), implementation (full country level participation)- **why countries should wait?**

Preparation for REDD+

Participation- Challenges, India

- **Policy**
- **Institutional**
- **Technical**

Preparation for REDD+

Participation- Challenges, India

Policy

- Acceptance of REDD+
- Accounting level (**national**) and responsibility
- Responsibility sharing
 - Centre + States + Community
- Benefit sharing
 - Government and Community

Preparation for REDD+ Participation- Challenges, India

Institutional

- **REDD+ Cell in MoEF**
- **REDD+ NCA- National Coordination Authority**
- **REDD+ SNA- State Nodal Authority**
- **Accounting agency**

Preparation for REDD+

Participation- Challenges, India

Technical

- **Fixing of reference level for REDD+ accounting**
- **Modalities of REDD+ accounting**
 - **Guidelines**
 - **Modalities**
 - **Rules**
 - **Procedures**
- **Capacity building**

Preparation for REDD+ Participation- India

- **Responsibility of Centre,
States and Society**
 - **MoEF**
 - **State Forest Department**
 - **Civil Society**

Responsibility/Actions MoEF/SFDs/CS

- **Initiate regular estimation and monitoring of forest carbon stocks**
 - **Biomass carbon**
 - **Soil organic carbon**
- **Supplement by regular estimation of 'tree cover' biomass carbon stocks**
- **Involve local community**

Responsibility/Actions MoEF/SFDs/CS

- **Document changes in**
 - **Climatic parameters: temperature, rainfall**
 - **Vegetation**
 - **Growth parameters of vegetation**
 - **Hydrology**
 - **Pest incidence**
 - **Uncommon natural phenomenon**

Responsibility/Actions MoEF/SFDs/CS

- **Institutionalize**
 - forest carbon accounting (FSI/SFDs)
 - observed changes/shifts (ICFRE and SFDs/SFRIs)
- **Benefit sharing with local community (MoEF/SFDs)**
- **Capacity building (SFDs/CS)**

To incorporate data in working plan in a special chapter on Climate Change

India's GHG Emissions, 1994

Source: NATCOM, MoEF (2004)

(Gg per year)

Sources	CO ₂ Emissions	CO ₂ Removals	CH ₄ Emissions	N ₂ O	CO ₂ e
All Energy (industry, commercial, transport, residential)	679,470		2,896	11.4	743,820 (60.5)
Industrial Processes (industry, commercial, transport, residential)	99,878		2.0	9.0	102,710 (8.4)
Agriculture (animal husbandry, rice cultivation, soil emissions)			14,175	151	344,485 (28.0)
LULUCF	37,675	23,533	6.5	0.04	14,292(1.2)
Waste			1,003	7.0	23,233(1.9)
Total	817,023	23,533	18,083	178	1,228,540

Mitigation- Whose Responsibility

Government

Policy, laws, regulations

Industry

Energy efficiency, switch to green fuel

Society

Awareness, public transport

Individual

Lifestyle frugal, use of CFL/LED, smart lights,
no plastics, use energy saving devices

Main Issue: Climate Change

- **Development v/s emissions**
- **Energy and environmental sustainability**
- **Challenges**
 - **Finance**
 - **Regulation**
 - **Technology**
 - **Capacity**
 - **Market imperfections**

Source: Environmental and Energy Sustainability: An Approach for India: McKinsey & Company, August 2009

Policy Options and Accounting Approach

National Accounting

1. Whole area under CN, SMF, A&R *or*
2. Whole area under RD *or*
3. Whole area divided into mutually exclusive zones- i) CN, SMF, A&R, ii) RD

Sub-national Accounting

1. Reported area under 1, 2 or 3???
2. What about changes in C stocks in remaining area? (Leakage?)

Active Agenda Item with AWG-LCA (BAP) and SBSTA (REDD)

Avoided Deforestation

Compensated Reduction

**Reducing Emissions from Deforestation in
Developing Countries (RED)**

**Reducing Emissions from Deforestation and **Forest
Degradation** in Developing Countries (REDD)**

**REDD+Conservation+SMF+Enhancement of Forest
Carbon Stocks = REDD-plus or REDD+**

Compensated Conservation?

Table 1: Summary of Expected Effects in IPCC 2007 Report

Phenomenon and Direction of Trend	21st Century Likelihood
Over most land areas, warmer and fewer cold days and nights, warmer and more frequent hot days and nights	Virtually certain
Warm spells/heat waves. Frequency increases over most land areas	Very likely
Heavy precipitation events. Frequency increases over most areas	Very likely
Area affected by drought increases	Likely
Intense tropical cyclone activity increases	Likely
Increased incidence of extreme high sea level (excluding tsunamis)	Likely

Sources: IPCC Interim Working Group Report 1, April 2007; IPCC Synthesis Report, November 2007.



Predictions of global energy use suggest a continued increase in carbon emissions and rising concentrations of carbon dioxide (CO₂) unless major changes are made in the way we produce and use energy—in particular, how we manage carbon.



Threat to security and prosperity of Nations...

- Conflict over resources
- Reduction of arable land, widespread shortage of water, diminishing food stocks, increased flooding and prolonged droughts
- Economic damage, and risk to coastal cities and critical infrastructure



IPCC 4th Assessment Report

Share of different sectors in total anthropogenic GHG emissions in 2004 in terms of CO₂ equivalent

• Energy Supply	25.9%
• Industry	19.4%
• Forestry	17.4%
• Agriculture	13.5%
• Residential and Commercial building	7.9%
• Waste and Wastewater	2.8%