Promotion of Sustainable Forest Management under Climate Change Regime

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Outline

- Harmonization of SFM and mitigation of GW
- Qualification of forests under KP
- Conclusions/Issues to be tackled
Average annual budget of CO$_2$ for 1989 to 1998

Storage in atmosphere (3.3 ± 0.2)

- SFM: 2.3 ± 1.3
- LUC: 1.6 ± 0.8
- Fossil fuel Cement prod.: 2.3 ± 0.8
- Ocean: 6.3 ± 0.6

Terrestrial

Historical Anthropogenic CO$_2$ Production

Integrated CO$_2$ production as of 1980:
- Fossil fuel CO$_2$: 170 Gt
- Forest and soil CO$_2$: 265 Gt
- Total: 435 Gt

Deforestation
Forest area changes 1990 - 2000
(Unit : million hectares)

Tropical areas

Natural forest
1990: 1,945
2000: 1,803

Forest plantations
1990: 48
2000: 68

Other land Use classes
1990: 2,819
2000: 2,943

Non-tropical areas

Natural forest
1990: 1,863
2000: 1,879

Other land Use classes
1990: 6,280
2000: 6,252

Forest plantations
1990: 107
2000: 119

Source: Global Forest Resources Assessment 2000
Carbon sinks for developing countries

- **High growth rate and high potentiality**
- **Stimulate to protect forest degradation and deforestation**
- **Transfer biodiversity to the future generation**

Negative direction of land use changes
Growth potentiality of EU and Japan

Annual carbon sequestration of forests biomass (tC/ha/year)

EU
- Pine
- Spruce
- Oak

Japan
- Cypress
- Cedar

Peak of age distribution

High Growth Rate

Age
40 50 60 70 80 90 100 110 120
0 1 2 3 4 5 6

Age
15 20 25 30 35 40 45 50 55 60 65
0 1 2 3 4 5 6
Age distribution of forest resources
(Even-aged forest available for wood supply)

Source: Temperate and Boreal Forest Resource Assessment (2000)
Capacity of Forests as Carbon Sinks assessed by IPCC TAR

100Gt of carbon could be sequested by biological sinks over 100 years.

Forest ecosystem has various functions and services.
Carbon balance of gross annual growth and harvesting
- Harvesting volume under different scenarios
- Projected carbon storage under different scenarios

Carbon sequestration of plantation and natural forests
Carbon balance of gross annual growth and harvesting

Source: Global Forest Resources Assessment (2000)
Harvesting volume under different scenarios in Japan

- Carbon Sink
- Timber Production

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Projected carbon storage in forest biomass under different scenarios in Japan

- Carbon Sink
- Timber Production

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- 1st CP
- Stabilizing Policy
- Moderate Promotion of Domestic Supply
- Positive Promotion of Domestic Supply
- Long Rotation Policy
Capacity of Forests as Carbon Sinks

- Capacity of carbon sequestration is higher in planted forest than natural forest.
Focus on carbon sequestration

Planted forests
Mixed forests
Natural forests

Ct/ha/Year
Age

Carbon Sink
Biodiversity
Focus on biodiversity

- Carbon Sink
- Biodiversity

Evaluate the avoidance of emission

- Planted forests
- Mixed forests
- Natural forests

Ct/ha/Year vs Age
The case of harmonizing carbon sequestration and biodiversity

Old growth with plenty of biodiversity

Forests with high carbon stock

Decrease the rate of carbon sequestration for short term evaluation
Forest contribution to global carbon cycles

Accounting system to satisfy multiple benefits of forests

- Maintenance of forest health and vitality
- Conservation of soil and water resources
- Maintenance of productive capacity of forest ecosystem
- Maintenance of socio-economic benefits
- Conservation of biodiversity

SFM

Harmonizing all criteria

Compatible
Not compatible
Sustainable Forest Management is...

Desirable Harmonized area achieving multiple forest functions

Other functions of forests

Carbon sequestration
Sustainable forest management is essential to achieving sustainable development as well as significantly reduce deforestation, halt the loss of forest biodiversity and land and resource degradation and improve food security and access to safe drinking water and affordable energy; in addition, it highlights the multiple benefits of both natural and planted forests and trees and contributes to the well-being of the planet and humanity.
Recent Discussions on SFM

- **UNFF5 (2005)**
  - Reviewed progress and consideration on future actions
    - Para 12. The challenges of the alarming rate of deforestation and forest degradation remain serious. … **Further action is needed to promote sustainable forest management**, clarifying the positive role of forests for socio-economic development of countries, especially for forest dependent people. …

- **UNFF6 (2006)**
  - Agreed on four shared Global Objectives on Forests, focusing sharply on the timely and urgent priorities for the practical implementation of sustainable forest management (SFM).

- UNFCCC, a member of Collaborative Partnership on Forests (CPF), needs to work to support the work of the UNFF and to foster increased cooperation and coordination on forests.
Framework of 1st Commitment Period

- **UNFCCC**
  - All Parties...shall...promote sustainable management...of sinks and reservoirs of all greenhouse gases...including biomass, forests....(Article 4)

- **Kyoto Protocol**
  - Each Party included in Annex I ... shall ... implement and/or further elaborate policies and measures..., such as:....; promotion of sustainable forest management practices.... (Article 2)
Does the framework address quality of sinks?

**MARRAKESH ACCORDS**

- For the first commitment period, the additions to and subtraction from the assigned amount shall be equal to anthropogenic GHG emissions by sources and removals by sinks resulting from afforestation, reforestation and forest management. (11/CP.7)

- 1st Commitment Period primarily concerns mass/flow of GHG (no test on Sustainability of Forest Management)
Sustainable forest management for climate change mitigation

- In international discussions about forest, an accomplishment of Sustainable Forest Management (SFM) is the key in relation with issues, such as:
  - Tackling illegal logging (G8 Gleneagles 2005, Gleneagles Plan of Action)
  - Forest certification
  - Criteria, indicator and certification in forest

- It is necessary to substantially reconsider forest sinks and reservoirs framework in collaboration with SFM.
  - A system that recognizes the degree of effort for SFM is necessary.
Harmonization of SFM and mitigation of Global Warming

Sustainable Development
Geographical coverage of nine criteria and indicator processes

Source: FRA2000
Qualification of forests under KP

- National Level
  - Criteria and Indicator Processes
  - Kyoto Protocol
  - Certification for Sustainable Forest Management

- Local Level
  - Incentives

SFM
Practical Certification for SFM
-A case study from Japanese experience-

State of planted forest is always transforming;
Which means forestry activities are fundamental to maintain “appropriate” state for SFM.
“appropriate” state : fulfills multiple functions of forest

How the appropriate state should be taken into account?
The forest state could not always be maintained appropriately, even if a certain forest activity had been taken at a certain time in the past.
Introduction of indicator to detect appropriate forest state for multiple functions, and Activities to maintain the state

Indicator A (e.g. Biodiversity)

Range of appropriate state = eligible forest for KP
Conclusions

- Forest ecosystem has various functions and services.
- Sustainable forest management is essential to achieving sustainable development.
- Appropriate and timely forest management activities are necessary to maintain forest functions and services.
- Forest carbon sinks under KP must be designed to keep up multiple benefits derived from forests simultaneously.
- Present KP does not always fully work to provide incentive towards SFM.
- Need introduction of concept to evaluate forest C stocks as sinks/reservoirs.
Issues to be tackled

- Development of simple indices to evaluate forest management efforts for both forest C sinks/reservoirs and SFM
  - Policies and measures
  - Target based on criterion and indices of carbon sinks and SFM
  - Others
Thank you for your attention

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