Chapter 2: Implications of Different Definitions and Generic Issues

EXECUTIVE SUMMARY

2.1. Introduction

2.2. Definitions of Terms Used in the Convention and Protocol

2.2.1. Land Use, Land-Use Change, and Forestry

2.2.1.1. Land Use
2.2.1.2. Forestry

2.2.2. Definitions of Forests

2.2.2.1. Types of Forest Definitions

2.2.3. Afforestation, Reforestation, and Deforestation

2.2.3.1. Afforestation
2.2.3.2. Reforestation
2.2.3.3. Deforestation
2.2.3.4. Forest Degradation
2.2.3.5. Forest Aggradation

2.2.4. A Schemata for Forest Definitions
2.2.5. Land Cover, Land Use, and Agriculture-Related Definitions

2.2.5.1. Land
2.2.5.2. Agricultural Lands
2.2.5.3. Carbon Pools
2.2.5.4. Forest Soils and Agricultural Soils
2.2.5.5. Soil Organic Matter and its Carbon
2.2.5.6. Degradation and Aggradation of Agricultural Lands
2.2.5.7. Lateral Fluxes of Carbon

2.2.6. Ecologic-Economic Zoning and Globally Consistent Databases on Land Resources

2.3. Accounting and Reporting Issues

2.3.1. Objectives of an Accounting System
2.3.2. Protocol-Specific Accounting Framework

2.3.2.1. Activities to Which the Accounting System Applies
2.3.2.2. Land-Based versus Activity-Based Accounting
2.3.2.3. Illustrative Accounting Rules for the Protocol
2.3.2.4. Activities and Projects
2.3.2.5. Accounting Under the Kyoto Protocol Compared to Full Carbon Accounting
2.3.2.6. Timing of Commitment Periods
2.3.2.7. Greenhouse Gases Other than CO2

2.3.3. Effect of Human-Induced LULUCF Activities versus Other Influences on Carbon Stocks

2.3.3.1. Natural versus Human-Induced
2.3.3.2. Direct versus Indirect

2.3.4. Baselines

2.3.4.1. Human-Induced
2.3.4.2. Business-as-Usual
2.3.4.3. Since 1990

2.3.5. System Boundaries

2.3.5.1. Carbon Pools
2.3.5.2. Leakage

2.3.6. Timing Issues

2.3.6.1. Emissions versus Removals
2.3.6.2. Duration of Sequestration
2.3.6.3. Equivalence Time and Ton-Years
2.3.6.4. Time Preferences and Discounting

2.3.7. Accounting for Uncertainty

2.4. Methods

2.4.1. Introduction

2.4.1.1. Uncertainty, Precision, Accuracy, and Costs
2.4.2. Measurement of Stocks

2.4.2.1. Vegetation Inventory

2.4.2.1.1. Inventory techniques for stemwood volume
2.4.2.1.2. Total tree biomass

2.4.2.2. Wood Products
2.4.2.3. Soil and Litter

2.4.2.3.1. Woody debris
2.4.2.3.2. Litter
2.4.2.3.3. Mineral soil horizons
2.4.2.3.4. Sampling strategy
2.4.2.3.5. Sampling depth
2.4.2.3.6. Analytical methods

2.4.3. Measurement of Flux

2.4.3.1. Local Scales (Less than 1 km²)
2.4.3.2. Landscape or Regional Scales
2.4.3.3. Continental Scales
2.4.3.4. Horizontal Fluxes of Carbon

2.4.4. Measurements Using Remote Sensing

2.4.4.1. Determining Initial Conditions
2.4.4.2. Determining Rates, Extent, and Locations of Forest Clearing and Regrowth
2.4.4.3. Determining the Extent, Rates, and Location of Other Activities
2.4.4.4. Determining the Extent and Degree of Natural Variability and Change
2.4.4.5. Future Remote-Sensing Systems

2.4.5. Models
2.4.6. Preparations for and Operational Strategy during the First Commitment Period

2.5. Sustainable Development Considerations

2.5.1. LULUCF Activities and Sustainable Development

2.5.1.1. Potential Environmental Impacts of LULUCF Activities and Projects

2.5.1.1.1. Biodiversity
2.5.1.1.2. Soil quality and organic carbon storage
2.5.1.1.3. Soil erosion
2.5.1.1.4. Water quality and water use
2.5.1.1.5. Acidification
2.5.1.1.6. Climate feedbacks

2.5.1.2. Potential Socioeconomic Impacts of LULUCF Activities and Projects
2.5.1.2. Wood products and biofuels
2.5.1.2. Agriculture, employment, and poverty
2.5.1.2.3. Aesthetic, spiritual, and recreational values

2.5.2. Options for Assessing and Strengthening the Sustainable Development Contributions of LULUCF Climate Mitigation Measures

2.5.2.1. Compatibility with Internationally Recognized Principles and Indicators of Sustainable Development
2.5.2.2. Consistency with Goals and Objectives of Other Multilateral Environmental Agreements
2.5.2.3. Consistency with Nationally Defined Sustainable Development and/or National Development Goals and Objectives
2.5.2.4. Consistency with Internationally Recognized Criteria and Indicators for Sustainable Forest Management and Sustainable Agriculture
2.5.2.4.1. Sustainable forest management
2.5.2.4.2. Sustainable agriculture
2.5.2.5. Consistency with International and National Environmental Impacts Standards and Guidelines

References

Ian Noble (Australia), Michael Apps (Canada), Richard Houghton (USA), Daniel Lashof (USA), Willy Makundi (Tanzania), Daniel Murdiyarso (Indonesia), Brian Murray (USA), Wim Sombroek (Netherlands), and Riccardo Valentini (Italy)

Lead Authors:
M. Amano (Japan), P.M. Fearnside (Brazil), J. Frangi (Argentina), P. Frumhoff (USA), D. Goldberg (USA), N. Higuchi (Brazil), A. Janetos (USA), M. Kirschbaum (Australia), R. Lasco (Philippines), G.J. Nabuurs (The Netherlands), R. Persson (Sweden), W. Schlesinger (USA), A. Shvidenko (Russia), D. Skole (USA), P. Smith (UK) Contributors: M. Cannell (UK), C. Cerri (Brazil), D. Goetze (Canada), H. Janzen (Canada), J. Kimble (USA), R. Lal (USA), P. Moura-Costa (Brazil), M. O’Brien (Australia), P. Sanchez (Kenya), T. Singh (India), R. Scholes (South Africa)

Review Editors:
K. MacDicken (USA) and M. Manning (New Zealand)