



Manual for Forest Accounting: Policy Applications and Compilation

Background and rationale:

Wealth Accounting and the Valuation of Ecosystem Services (WAVES) is a World Bank-facilitated global partnership that aims to promote sustainable development by mainstreaming Natural Capital Accounting (NCA) in country's development planning and national accounting systems. NCA is an important tool to inform policy decision making, to foster transitions towards inclusive and green growth models¹. One of WAVES goals is to work with partners to develop scientifically credible methodologies for NCA. To address this objective, the Policy and Technical Experts Committee (PTEC) was established under WAVES, to identify opportunities to contribute to policy and mainstreaming, and ensure cohesion, consistency and scalability among the country studies. PTEC provides technical expertise to improve methodologies, make training materials available to a broader community, provide advice on policy implementation, and implement plans to improve strategic engagement and outreach globally.

For many countries forests play a key role in providing incomes and livelihoods, while contributing to climate change mitigation and other important ecosystem services. Thus, taking forest into account in development planning and policy-making is important. This document describes the rationale and purpose to develop an updated version of the [Manual for environmental and economic accounts for forestry](#), published in 2004 by FAO. By developing this manual, the WAVES-PTEC addresses the need for training material for compiling, implementing, and demonstrating policy applications of forest accounting. The Forest Accounting Manual will respond to the increasing demand for harmonization across countries in the creation and implementation of forest accounts and will be especially useful for countries that have begun to compile forest accounts.

The manual will provide detailed methodological guidance on how to compile forest accounts incorporating the structure, concepts, and classifications of the [SEEA 2012](#) standard methodology. More importantly, it will focus on practical tools to aid data management and compilation according to statistical standards. Special attention will be given to show how remote sensing, spatial modeling, and statistical analysis can provide in-depth information and

¹ The manual will fit into the overall goals of the WAVES Partnership, which aligns with programmatic goals of the World Bank Group of helping to achieve poverty eradication and shared prosperity in a sustainable manner.

data to compile the accounts. An additional contribution of this update will be to tackle aspects related to the measurement and valuation of forest ecosystem services.

By using specific examples from countries and reviewing multiple case studies, the manual will make the case for the importance and the usefulness of forest accounts for policy planning and review. It will outline relevant policy questions and how they can be addressed through indicators provided by the accounts, as well as illustrating analytical extensions (e.g. input-output analysis or general equilibrium modeling). Furthermore, the guide can serve as a link to the NCA community of practitioners around the world by providing the context and lessons learned from existing case studies.

The primary target audience includes policy makers and analysts from government agencies and ministries, as well as statistical agencies. Secondary audiences include the broader research network of academics, NGOs, and local stakeholders. It is envisioned that the manual can serve as a bridge to enhance communication between various government ministries, economists, foresters, statisticians, and social scientists.

Objective:

The manual is meant to be user-friendly and therefore strike a balance between technical aspects of forest accounting and how it can be used to inform different stakeholders, especially policy makers. In conjunction with the manual, various presentations and training material will be developed. The main objectives of the manual are to:

1. Raise awareness of the importance of forest accounting for policy planning and review and the policy questions that can be addressed with the accounts
2. Increase understanding of how forest accounts can help to address policy questions by describing and illustrating policy applications of forest accounts (including the use of indicators and modeling applications of the accounts)
3. Provide guidelines for the compilation of forest accounts in line with the structure, concepts and classifications to SEEA standard methodology
4. Provide insights into the new methods and tools for the physical measurement and valuation of relevant forest ecosystem services

Proposed outline:

The structure of the manual is quite similar to the original document, but incorporates new case studies and the most recent developments in forest ecosystems measurement and valuation. The manual will be divided into two main sections and a brief introduction and conclusion. After an introduction to set the stage and serve as a background on forest accounting in the context of

NCA, the first section will focus on the policy applications. The policy application will demonstrate the relevant questions, provide context through case studies, and demonstrate the usefulness of the accounts to address the policy questions. The second section will focus on how to compile the accounts, including data compilation, measurement of forest assets and flows and their valuation, including forest ecosystem services. A conclusion will end the manual and detail challenges and opportunities for further research.

Setting the stage

This part of the manual will provide context and a background to natural capital accounting and its relevance for policy. This will serve as an introduction to the forest accounts by demonstrating forests' role in green growth as a means to promote sustainable development. This part will introduce the SEEA as a standard methodological approach and explain how the methodology will create a harmonious and consistent platform for establishing forestry accounts globally. This brief introduction will provide guidance to the reader for how to use the manual.

Part I: Policy applications of forest accounts

Part I will focus on the policy applications of forest accounting. *The first chapter* will demonstrate the economic contribution of forests. In addition, it will detail why forests are not properly accounted for in policy planning and review. To provide deeper contextual understanding of the reasons to establish forest accounts, a comprehensive review of concepts related to low-carbon development, integrated landscape approaches, and other such initiatives will be explored. This chapter will illustrate the economy-wide contribution of forests to growth and sustainable development. It will highlight the various benefits that countries receive from forest ecosystems, as well as explore the distribution of those benefits to various sectors of society. In addition, the aim of the chapter is to enhance the understanding of relevant policy questions that accounts can help to answer.

The second chapter will discuss addressing policy questions with forest accounts. This will demonstrate the linkages between the accounts to policy applications through case studies and other examples from the field. These specific case studies will provide context and evidence of policy applications and models of forest accounts. In addition, the second chapter will explain potential economy-wide indicators for sustainable development. In addition, it will explore the various extensions of the accounts. This chapter will include various case studies to provide context and practical field tested applications of the accounts.

The third chapter will bring forest accounting into the context of the SEEA and demonstrate how these accounts have been adopted. This chapter will have a survey of the countries that are currently implementing forest accounts. In addition, the chapter will

review the concepts, standard methodologies, and drivers for natural capital accounting and forest accounting compilation.

Part II: How to compile forest accounts

Part II will focus on guidance on how to structure forest accounts. *Chapter 1* will introduce the accounting framework by illustrating the differences between SNA and SEEA methodology. The chapter will also provide an explanation of the basic structure and common classifications in forest accounts.

Chapter 2 will provide a detailed section on structuring and compiling the physical accounts. By reviewing methodologies of generating data for the accounts including stand inventories and remote sensing technologies, the chapter will provide users with descriptions of how to compile stock and flow accounts. These accounts will include data for wooded land and standing timber as well as data for the array of goods and ecosystem services forests provide. This section will also address challenges to compiling the physical accounts.

Chapter 3 will detail the structure and compiling of the monetary accounts. This chapter will review the common and practical methodologies for the valuation of forest ecosystems. Furthermore, it will provide information on how to value both stocks (timber and wooded land) and ecosystem services and non-timber forestry products. A discussion of challenges and future trends will be included.

Conclusion and further opportunities

The final part of the manual will summarize the benefits and applications of forest accounts. In addition, it will explain some of the limitations, challenges, and opportunities for future research. Following Part IV will be various annexes that will provide the basic tables for structuring the accounts, the common indicators and classifications, and a guide to implement forest accounts. A comprehensive glossary will also be included to develop common language among implementers and the research community.

Organization of the work:

Each chapter will have a lead author. A group of peer reviewers will be invited to read the intermediate drafts and provide feedback and comments. The reviewers will provide feedback and comments on making the manual as comprehensive as possible. Glenn-Marie Lange will provide inputs and guidance during the whole process. Juan Pablo Castaneda will serve as the general coordinator. Additionally, other contributors from the World Bank will provide inputs on specific sections. This is detailed in Annex 2.

Annex 1: Proposed Outline

Part and Section	Structure	Content/Aim
Introduction to the manual		
	<ul style="list-style-type: none"> Context: Forests and Natural Capital Accounting Objectives of this manual Outline of this manual 	→ Provide guidance for the reader of how to use the manual
Part I. Why to do forest accounting? The policy relevance of forest accounts		
Chapter 1. The importance of forests in policy-making	<ol style="list-style-type: none"> Forests and its role in policy-making The economic contribution of forests Why forests are not properly accounted for in policy planning and review What are some key policy questions regarding forest planning and use? 	<p>→ Make the case for forest accounting</p> <ul style="list-style-type: none"> - outline of the wider policy context with relevance to forests : low-carbon development, REDD+, integrated landscape approaches and green growth, - highlight the economic importance of forests - explain why forests are not properly accounted for in land use decisions and economic measures such as GDP -outline central policy questions that can be addressed from forest accounts
Chapter 2. Addressing policy questions with forest accounts	<ol style="list-style-type: none"> Economy-wide evaluation Ecosystem assessment and valuation Distributional analysis Land use and spatial –planning Indicators and information from forest accounts Extensions of forest accounts 	<p>→ Increase understanding of how forest accounts can be used for policy applications</p> <p>→ Link the accounts to policy applications by showing how accounts can be used to address the policy questions</p> <ul style="list-style-type: none"> - run through potential policy applications (e.g. cost-benefit analyses of forest projects, ecosystem-service pricing, scenario modeling, cost-effectiveness of climate change mitigation options, and spatial planning) - review (where possible) of case studies - outline information/indicators from forest accounts of relevance for policy decisions - review of extensions of forest accounts (e.g. input-output analysis, social accounting matrices, general equilibrium models, and spatial economic modelling)

Chapter 3. Adopting forest accounting	<ol style="list-style-type: none"> 1. Natural Capital Accounting and the SEEA Framework methodological approach 2. Survey of countries implementing forest accounts 	<p>➔ Bring forest accounting into context of the SEEA and show in how far they have been adopted already</p> <ul style="list-style-type: none"> - Review of the concepts, standard methodologies and drivers for natural capital accounting and forest accounting compilation. - Survey of countries compiling accounts and policy uses.
Part II. How to do forest accounting: Guidance on forest accounts compilation		
Chapter 1. Introduction: structuring forest accounts.	<ol style="list-style-type: none"> 1. The accounting framework 2. SNA/SEEA 3. Basic tables <ol style="list-style-type: none"> 3.1 Structure 3.2 Classifications 4. Spatial and temporal issues <ol style="list-style-type: none"> 4.1 Spatial dimension 4.2 Temporal dimension 	- Description of the basic structure and classifications
Chapter 2. The physical accounts	<ol style="list-style-type: none"> 1. Tools that aid data collection to compile stock accounts <ol style="list-style-type: none"> 1.1 Wooded land 1.2 Standing timber 2. Tools that aid data collection to compile flow accounts <ol style="list-style-type: none"> 2.1 Forest goods 2.2 Forest ecosystem services 3. Challenges 	Review of conventional and alternative methodologies to generate the data for the accounts (forest inventories, modeling and remote sensing).
Chapter 3. The monetary accounts	<ol style="list-style-type: none"> 1. Valuation of forest stocks: <ol style="list-style-type: none"> 1.1 Wooded land 1.2 Standing timber 2. Valuation of forest ecosystem services: <ol style="list-style-type: none"> 2.1 Non-timber forest products 2.2 Forest ecosystem services 3. Challenges 	Review of methods and practical approaches for monetary valuation.
Concluding comments		
	<ul style="list-style-type: none"> • Summary of limitations and challenges • Research agenda 	
Annex		
1. Standard tables		
2. Indicators		
3. Classifications		
4. Guide for implementation		
5. Glossary		