

# Forestry sector contribution to the System of National Accounts in Sri Lanka

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[This article was prepared based on the study findings of the “Integration of Forestry sector contribution to the System of National Accounts of Sri Lanka” conducted by the Sustainable Development Division, Ministry of Environment and Renewable Energy]

Green Accounting is a sustainable development tool that can be used for estimating the environmental contribution to the System of National Accounts of the country. It plays an outstanding role in promoting greening of economic activities of the country integrating the environmental costs in to the market system. It envisages the contribution of natural resources to the economic well-being and the costs imposed by environmental pollution and resource degradation. The country now faces a complex set of environmental issues that include various forms of land degradation, deforestation, loss of bio diversity, indoor and outdoor air pollution, pollution of water sources, and mismanagement of solid waste, and over-exploitation of biological resources. Therefore, achieving the sustainable development goals of the nation demands formulation and implementation of wise policies that can positively contribute to the economy as well as the environment of the country. With the way the world is moving toward a more environmentally sound future, is it time for accountants to go green as well.

The natural environment plays a number of important roles in the economy, the conventional System of National Accounts (SNA), which plays a key role in formulating economic policies, has a tendency to underestimate the contribution of the environment as well as the damages losses and benefit inflicted by economic activities on the environment. Failure to incorporate the role of natural capital in SNA has led to neglect environmental resources by policy makers, thereby resulting in further degradation of environmental and natural resources.

Presently, a little coordination can be observed between macro- economic policies and environmental management policies in the economy. Therefore, the Ministry of Environment and Renewable Energy has initiated to establish a green accounting mechanism in Sri Lanka. Following System of Environmental Economic Accounts (SEEA) guidelines, the Ministry has proposed to estimate the real value of the forestry sector contribution to the System of National Accounts of the Country.

The main objective of this study was to develop a methodology to estimate the Total Economic Value of the forestry sector contribution and a mechanism to incorporate green accounting data to the System of National Accounts in Sri Lanka.

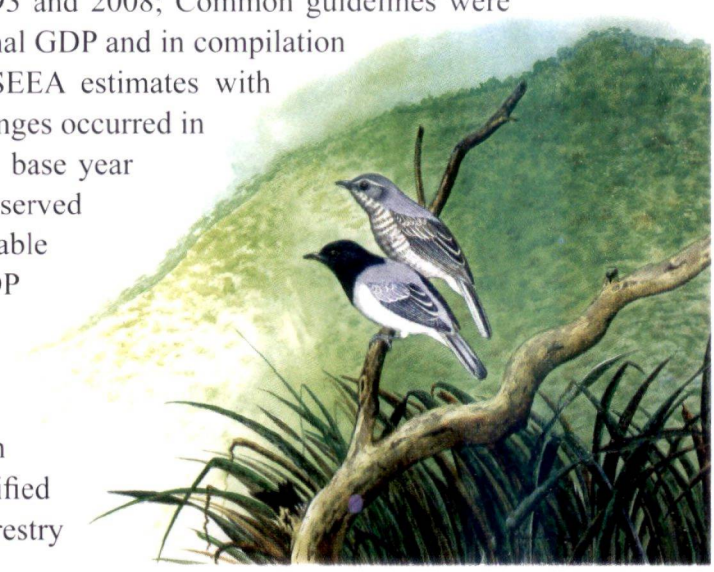
Values of natural resource are only partially accounted in the UN System of National Accounts 1993 (UN-SNA 93) due to various limitations. Therefore a System of Environmental Economic Accounts 2003 (UN- SEEA 2003), has been developed which incorporates environmental concerns including natural resource depletion, environmental quality degradation and environmental protection into national economic accounts by means of a system of integrated environmental and economic accounting. The main objective of integrated economic accounting

was to support integrated social, economic and environmental policy by means of environmentally adjusted indicators of national wealth, net domestic product, consumption and capital formation.

The Ministry of Environment and Renewable Energy initiated and developed a “green accounting” mechanism to estimate the real value of the forestry resources of the country as a first step towards evaluating the contribution of different sectors to the national economy. Under the present conventional system of national accounts, forestry sector incorporates only few benefits, such as timber and a limited amount of forest products. It is proposed to identify all benefits under the concept of Total Economic Value (TEV) under the framework of UN SEEA2003 and to develop a mechanism to incorporate green accounting data to the UN SNA93 in Sri Lanka. This exercise also included training of relevant staff to implement the new system with compilation of SEEA accounts. The overall approach was to initially collect data on current coverage of forestry sector values in the Gross Domestic Product (GDP) and data pertaining to various types of values including environmental values of forestry sector. For the identified data gaps, specific valuation studies were carried out. The valuation and accounting system was discussed with agencies such as the Central Bank of Sri Lanka and Department of Census and Statistics, Forest Department, State Timber Corporation in order to facilitate and incorporate the full value of the forestry sector in the present National Accounting System and to familiarize the compilation of environmental economic accounts.

Sri Lanka has a varied climate and topography which has resulted in a rich forest resource distributed within a wide range of ecosystems. Among the terrestrial ecosystems are forests varying from wet evergreen forest (both lowland and montane) to dry zone forests; grasslands; and a complex network of rivers, wetlands and freshwater bodies. These, together with the coastal and marine ecosystems such as sea-grass beds, coral reefs, estuaries and lagoons, and associated mangrove swamps, constitute the natural ecosystems in the country. The high diversity of ecosystems has provided habitats for rich species diversity among the plants and animals. The charismatic mega fauna such as leopards and elephants have attracted many tourists both locally and internationally, Man made ecosystems such as perennial crop plantations and home gardens are also part of the forestry sector which provides many ecological services while sustaining livelihoods of many communities in the country.

Historically, conventional GDP has been expanded with guidelines given in UN-SNA handbooks for the years 1953, 1968, 1993 and 2008; Common guidelines were selected for the compilation of conventional GDP and in compilation of SEEA estimates and integration of SEEA estimates with conventional GDP. To incorporate the changes occurred in the economy, it is required to change the base year from 2002 to a new base year. It was observed that the year 2010 might be a most suitable base year for this new conventional GDP data series of Sri Lanka. Accordingly a decision was taken to compile green accounting estimates for the years 2002 to 2010 by allowing to integrate green accounting data and to incorporate identified data gaps of conventional estimates of forestry sector to conventional GDP.



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Work on the design of environmental accounts has been underway since the 1970s. This led to the publication by UN STAT of a draft "Handbook for Integrated Economic and Environmental Accounting," and UN STAT, with UNEP and other experts have prepared a practical manual or workbook for implementing the UN SEEA-2003. The UN SEEA - 2003 was tested in Canada, Colombia, Ghana, Indonesia, Japan, Mexico, Papua New Guinea, the Philippines, the Republic of Korea, Thailand and the USA. At present, many countries in the world have compiled SEEA accounts.

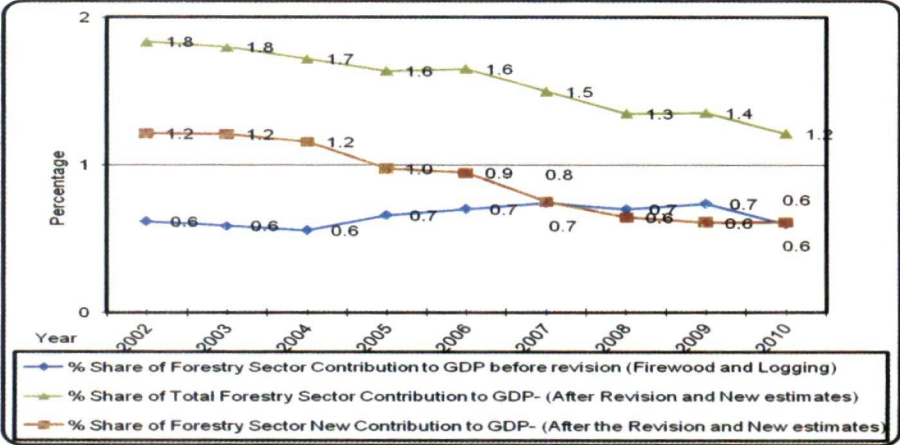
Data sources for the revision and introduction of new green estimates under sub sector of forestry were mainly from various forestry and environment related institutions and from the available environmental valuation studies. Similarly special attempts were made to collect data from administrative records on relevant fields. New valuation studies were undertaken to fulfil the data gaps. Considering the available time and other resources, some of the estimates were limited to the districts/locations. However, estimates were compiled for all the highlighted sub sectors of the forestry sector.

The green accounting valuation of relevant sub items of forestry sector contribution to the economy was undertaken using the guide lines of UN SEEA - 2003 and guidelines given in UN SNA- 93 and these guidelines were also used for the integration of two sets of output values.

Fourteen new flow accounting estimates and one asset accounting estimates/balance sheet for stocks were compiled for forestry sector. Some of these sub headings are Indirect use values of Mangroves, Forestry recreation value, Carbon value of entire forest area of the country, Watershed protection value of rain forests, Value of pollination, Existence values of Sinharaja forest, Dry zone forests, Yala protected area, Elephants and Leopards, Option values of pharmaceuticals from forest, , Deforestation/Loss of forest, Value for grazing. All the sub components indicated for the forestry sector under UN SEEA - 2003 were covered in these estimates. These environmental economic accounting estimates for forestry sector were integrated with conventional existing GDP, UN-SNA1993.

The percentage share of forestry sector to agriculture, livestock, forestry and fisheries sector has been increased to 9.5% to 14.6% after the revision of conventional accounts of forestry sector and prior to the revision it was 4.3% to 6.4% for the period 2002 to 2010. The per capita GDP of conventional accounts has increased additionally from Rs. 1,043 to 1,663 for the period 2002 to 2010 as a result of these revisions of existing conventional estimates (UN SNA93).

Figure-1- Percentage share of forestry sector contribution from conventional estimates to GDP -2002 to 2010



The percentage shares of gross and adjusted/net green accounting to agriculture, livestock, forestry and fisheries sector are 41% to 25.7% and 26% to 16% respectively for the period 2002 to 2010. Even though this percentage shares to agriculture, livestock, forestry and fisheries sector have shown decreases, the absolute values for the year 2010 shows significant increases by indicating more than double of the value for the year 2002, See Figure-3. This percentage share decreases mainly due to the comparatively larger increases in total agriculture sector and total GDP.

Figure-2- Percentage share of forestry sector contribution from Green Accounting to agriculture, livestock, forestry and fisheries -2002 to 2010

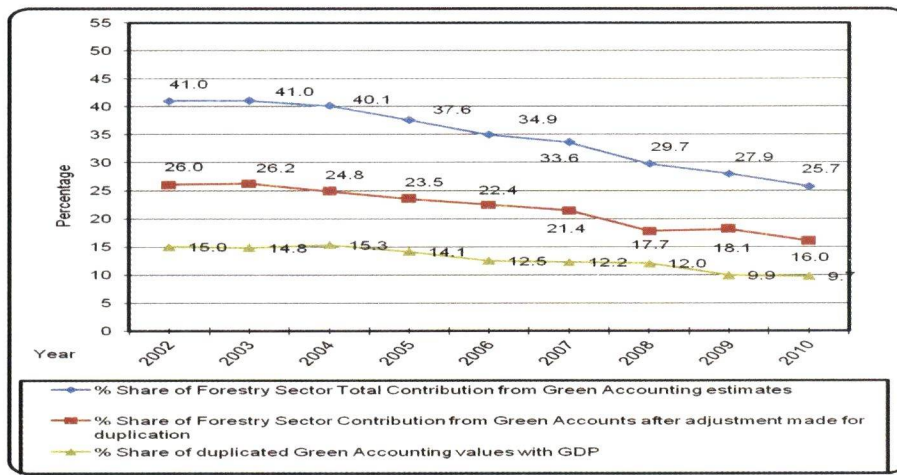
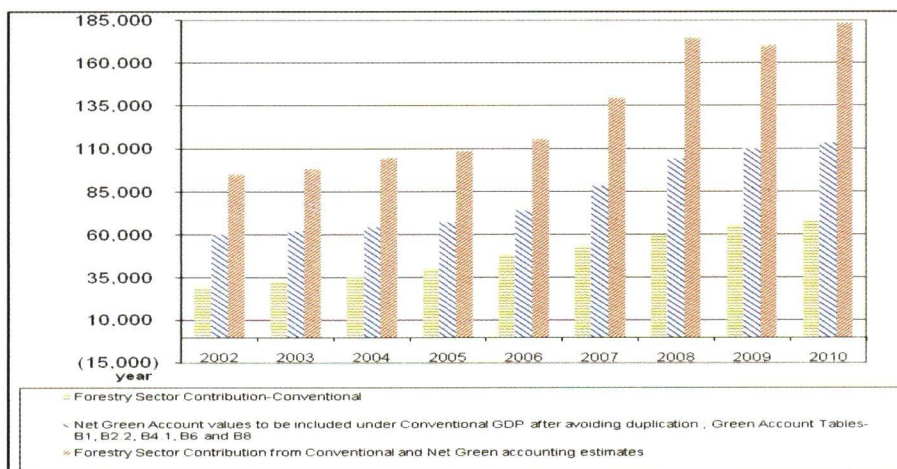
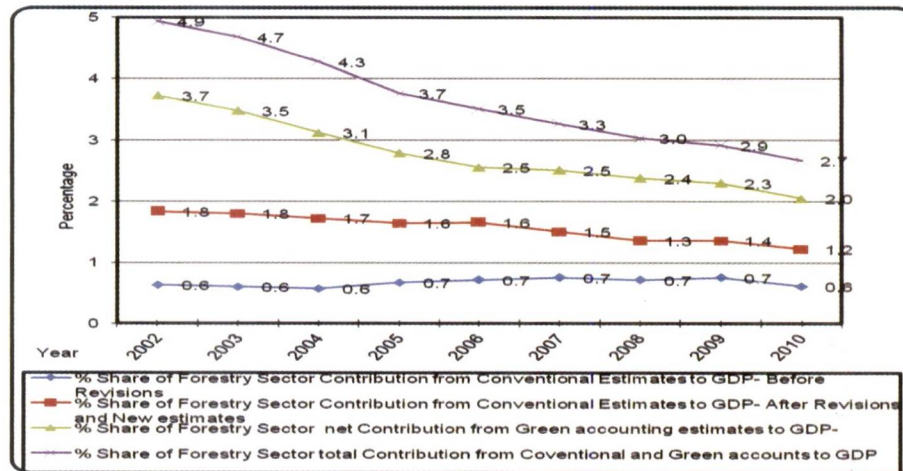


Figure-3 Forestry sector contribution from conventional and Green Accounting estimates at Current Producers' Prices 2002 to 2010- Values in Rs. Mn.



The percentage share of adjusted/net share of forestry sector to GDP sector is 4.9% to 2.7% after the revision and green accounting estimates and prior to the revision it was around 0.6 for the period 2002 to 2010 and this is shown by Figure-4.

Figure -4 Percentage share of forestry sector contribution from Green Accounting to GDP -2002 to 2010



Monetary green accounts could perform several functions; to serve as i) wealth measurement, ii) indicator of sustainability, iii) decision support for Environmental purposes. Currently, many policymakers lack information required to understand the potential environmental impacts of their decisions, and the economic implications of changes from those decisions on environment and natural resources. Results of this study will provide guidance for similar studies for other sub sectors of the economy to compile environmental economic accounts. It will also make path to manage natural resources properly and introduce policy tools to encourage environmental friendly economic production.

A draft mechanism has been developed to incorporate the forestry sector contribution to the GDP/SNA through SEEA/Green accounting in Sri Lanka with a mechanism to collection of necessary data required for continuation of this task and further improvements.

Implementation of compilation of green accounting is proposed with the establishment of separate unit under the Ministry of Environment and Renewable Energy or any other suitable government institute who are willing to undertake and continue to compile full set of green accounting. An advisory committee should be appointed at the initial phase of implementation of this task. It is expected to publish a green GDP after complete all the sectors; Fisheries, Water, Land, Minerals and Residuals and every 5 years to be updated.