

### Green Accounting Practicing Countries

SEEA is practiced by Australia, Botswana, Canada, Costa Rica, Chile, India, Netherland, Namibia, Norway, Papua New Guinea, Philippines, Republic of Korea, Scandinavian countries, Thailand, United States of America, etc...

However, no country has yet developed a complete set of green accounts.

### Milestones on Implementing Green Accounting in Sri Lanka

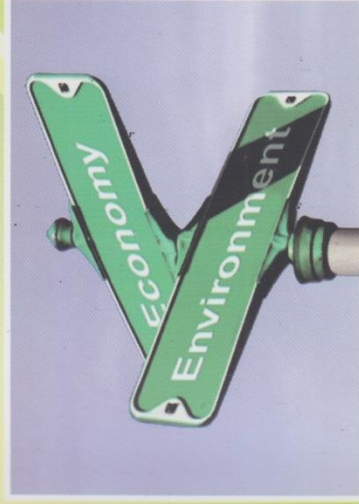
- Green Accounting concept was started discussing in 2007 and had brain storming sessions of experts and several round table discussions in the Ministry of Environment.
- The first study "Assessment of current situation and develop the proposal for the establishment of Green Accounting Mechanism for Sri Lanka" was conducted in 2008 by the Ministry of Environment with technical assistance of the Institute of Policy Studies (IPS).
- Five Resources have been identified as priority resources to be accounted, such as Water Resources, Land Resources, Forest Resources, Fisheries Resources and Mineral Resources in the above study.
- Establishment of the National Steering Committee for implementing the Green Accounting Mechanism in Sri Lanka in 2010.
- Valued the Forestry sector contribution to the System of National Accounts of the country.
- Established working groups in 2013 for:
  - Land sector
  - Water sector
  - Fisheries sector
  - Mineral sector
  - Waste sector
- Conducted 5 training Programs in 2012 / 13 & 2014 for the officers of Department of census and statistics, Central Bank of Sri Lanka and Ministry officials.

## Green Accounting

"To be a partner of Greener Future"



- Conducted awareness programs for the public sector, academic staff, NGOs, Research Institutes and stake holders for Green Accounting mechanism in Sri Lanka.
- Published an article on Green Accounting in the Central Bank Annual Report in 2010, Soba Magazine in 2013 etc.



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### What is Green Accounting?

Green Accounting is a sustainable development tool in the decision making process of a country which could provide a systematic way to incorporate the value of environmental contribution.

It is a systematic presentation of data on environmentally important stocks and flows (e.g. stocks of life-sustaining natural resources, flows of pollutants), accompanying conventional economic accounts (e.g. measures of gross domestic product) with the ultimate objective of providing a comprehensive measure of the environmental consequences of economic activity.

Green accounts provide data which highlight both the contribution of natural resources to economic well-being and the costs imposed by pollution or resource degradation.

### Why Green Accounting is more significant?

Green Accounting is an important tool for understanding the role played by the natural environment in the economy.

Natural environment plays a number of important roles in the economy. It:

- provides air and water for the life support systems
- supplies raw materials for production of goods
- serves as a sink for assimilation of waste and pollutants
- offers various amenities for human welfare
- provides aesthetic beauty and cultural values

As a result of rapid economic growth, the countries face a set of complex environmental issues that include various forms of land degradation, deforestation, loss of biodiversity, indoor and outdoor air pollution, pollution of water sources and mismanagement of solid waste and over-exploitation of biological resources.

Direct and indirect contributions of the environment to the economy as well as losses/damages caused by economic activities to the stock of natural capital have strong implications over the sustainable development of a country.

The System of National Accounts (SNA) pertaining today in Sri Lanka has not included the full economic value of environmental resources or the role which they play in productive capacity. Some of the elements missing in the current accounting system are as follows;

- Expenditure of restoring the damage to the environment or cost of damage preventing
- Health cost induced environmental-pollution
- Replacement cost of properties destroyed by environmental disasters
- The environment provides many goods which are not sold, but which are nevertheless of value; eg. fuel wood and building materials gathered in forests, meat and fish captured for consumption and medicinal plants collected etc.
- The environment provides unsold services, such as watershed protection, water and air purification, aesthetic beauty etc.

As a result of the Conventional System of National Accounts does not consider the role of natural capital of the country it has led to neglect the environmental services by the decision makers, and thereby it has been resulted for further degradation of environmental and natural resources.

Therefore, United Nations Department of Statistics (UNSD) in collaboration with a number of other international agencies introduced the System of Environmental and Economic Accounting (SEEA), which is popularly known as Green Accounting today.

SEEA is a systems approach to the organization of environmental and economic information which covers, as completely as possible, the stocks and flows that are relevant to the analysis of environmental and economic issues.

The integration of information concerning the economy and the environment requires a multi-disciplinary approach. The SEEA thus brings together, in a single framework, information on water, minerals, energy, timber, fish, soil, land and ecosystems, pollution and waste, production, consumption and investment. Each of these areas has specific and detailed measurement approaches that are integrated in the SEEA to provide a comprehensive view.

The broad and integrated makes it a relevant frame work for the analysis of a wide range of current environmental policy issues from the management of individual natural resources, to the consideration of the prospects for decoupling economic growth from adverse environmental impacts.



SEEA provides the internationally moderated framework for reversing the historical approach to statistics and for providing indicators that directly respond to the demand of integrated policy-making. Indicators related to initiatives such as "beyond GDP", "Green Economy", "Green Growth", "measuring progress of societies" and "better life" all fit under the umbrella of sustainable development.

Examples;

Indicators derived from the accounts provide the measures for the following policy question: Who benefits from natural resource use? What are the impacts on the state of the environment and on other sectors of the economy? How does depletion of natural resources affect measures of the real income of a nation? Are the depletion costs recovered by the government? What is the composition of the wealth of a nation? Are current trends in production and consumption of resources sustainable? What economic instruments are in place? And what is the impact of new instruments? etc...

### The main objectives of SEEA

- To segregate all environment-related flows and stocks of traditional national accounts and to present separately environmental protection expenditures;
- To establish linkages between physical accounts and monetary accounts of natural resources (non-produced natural assets in the SEEA);
- To expand the SNA by assigning monetary value to the depletion and environmental degradation of natural resources due to economic activities (i.e., imputed environmental costs); and,
- To estimate environmentally adjusted macro-economic indicators, such as Green GDP and environmentally adjusted capital formation.

At the national level, considering many institutions that either produce or use environmental information, it is important to create appropriate institutional arrangements for coordination purposes. Usually, the national statistical offices or other agencies that compile national economic accounts are important coordinators in the compilation of the SEEA.

Implementation of the SEEA can take a step-wise approach and each individual country will need to establish its own priorities for measurement. But the first step is to build a commitment in countries in support of the SEEA implementation to help meet their sustainable development monitoring needs.





# Green Accounting

$$s = \sqrt{\frac{1}{n} \sum_{j=1}^n x_j^2 - \left( \frac{1}{n} \sum_{j=1}^n x_j \right)^2}$$



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Green Accounts provide data which highlight both the contribution of natural resources to economic well-being and the costs imposed by pollution or resource degradation.

## Why Green Accounting?

The era of Millennium Development Goals (MDGs) is coming to the closure and the world is approaching the Sustainable Development Goals (SDGs). The SDGs envision strengthening the global commitment towards a greener world. Sri Lanka has already embraced the concept by launching the *Haritha Lanka* Program, the national initiative for green economy. Despite growing commitment towards the green economy, however, the GDP growth still remains the most widely used indicator of economic progress. Does it provide a reliable guide towards a green economy?



## Is the 'GDP Growth' Right Indicator to Measure the Green Economy?

Despite the growing commitment towards green economy, the GDP growth still remains the most widely used indicator of economic progress in many countries. Can GDP growth measure the progress towards green economy accurately? Does it provide necessary information to take right decisions that can guide us towards a green economy? These are some questions raised by academics, researchers and policy makers around the world.

GDP is a measure introduced by the System of National Accounts (SNA). The SNA is an integrated set of macroeconomic accounts based on internationally agreed concepts, definitions, classifications and accounting rules. Currently, the SNA is the primary source of information available to measure the economic performances in any country. SNA promotes GDP growth as the primary target to be achieved by the economic policy of a country. The growth of GDP is perceived as the key strategy for raising the living standards of people, overcoming the poverty and unemployment problems and improving the conditions of education, health and nutrition.

While there are some positive associations observed between GDP growth and the above parameters of human welfare, SNA has also been criticised for its limitations. Among others limitations in the following areas received wide attention.

- Failure to ensure equitable distribution of economic welfare among all members of the society
- Failure to take welfare gains/costs generated outside the market system into account
- Poor representation of the contribution made by ecosystem services to the human welfare
- Ignorance of damages to the environment and ecosystems associated with the growth of economic activities

Where as the first two are viewed as limitations of the SNA, the third and fourth aspects could actually lead to a distorted picture about the economic welfare situation in a country. Hence, it can mislead the policy decisions in favour of unsustainable activities, damaging the prospects for achieving the goal of green economy. According to some critics it can lead us to a point of 'uneconomic growth' causing irreversible damages to the finite stock of natural capital. As such, over reliance on the GDP growth as the major goal of economic policy has the potential to block the prospects of economic welfare of present as well as future generations to come.

03

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## Green Accounting for Measuring Green Growth

Considering the gaps observed in the SNA and limitations of GDP growth as a measure of human welfare, the UN Statistics Department of (UNSD) introduced the 'System of Environmental and Economic Accounting (SEEA)'. The SEEA is widely known as Green Accounting (GA). It is an integrated system of accounts designed to provide a systematic way to incorporate environmental benefits and costs in economic policy decisions. It has been designed as a satellite system of accounts that goes together with the SNA. It is expected to facilitate the analysis of the performance of an economy with its implications on the environment. It can be applied at the national as well as sector level decisions of the economic policy.

The SEEA provides an operational framework to incorporate the natural capital (environmental assets) as an important part of the national wealth in addition to the produced capital. It also attempts to account the use of environmental resources by economic activities while helping to identify the impacts of economic activities over the environment and ecosystems. Therefore, GA can guide integrated management of economy and environment leading to better allocation of environmental/natural resources than present.

As a complementary satellite accounting system, GA extends the scope of the SNA by introducing new flows, stocks and transactions, which are not available in the existing system. There are four main modules in the SEEA, namely:

- Flow Accounts (Physical and hybrid flows accounts)
- Asset Accounts
- Accounting of economic activities relating to environmental products and environmental protection measures
- Environmentally-adjusted aggregates



04

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### Trace of Development of Green Accounting

Green accounting is still an evolving subject. Starting from the framework introduced in 1993, updated versions were developed in 2003 and 2012. Development of SEEA is overseen by the UN Committee on Environmental Economics Accounting (UNCEEA). The process is technically assisted by the London Group on Environmental Accounting (LGEA), an informal group of voluntary experts primarily from national statistical agencies and international organizations. The LGEA has played an important role in advancing the methodologies of SEEA.

Given the variations in circumstances concerning environment and natural resources in different countries, the SEEA also leaves a margin of flexibility to adapt the respective accounting approaches so that they match the requirements of local conditions. Hence, knowledge efforts by national stakeholders also are essential for successful adaptation of SEEA framework for individual countries.



**Flow accounts:** Deals with physical flows of materials and energy either purely in physical terms (physical flow) or combined with monetary terms (hybrid). Hence, they extend the structure of SNA to introduce the physical flows of material and energy associated with environment and natural resources. These accounts provide the basis for physical supply and use tables (and input-output tables) for material flow analysis. They also can provide indicators to identify threats to sustainability based on physical data.

**Asset accounts:** Accounts prepared to measure environmental assets in physical and monetary terms. They record opening and closing stock balances and related changes that took place during a given period of accounting. They follow the same definitions of asset in the SNA but expand the assets boundary of the SNA to include natural resource stocks and ecosystem assets also in addition to man-made assets. Hence, they attempt to measure the wealth of natural capital while examining how natural resources contribute to the national income.

**Accounting of economic activities relating to environmental products, and environmental protection measures:** Examines the whole system of SNA to locate, disaggregate and reorganize information on products, income and taxes relating to the environment and expenditure on environmental protection. It depends on information already available in the SNA.

**Environmentally-adjusted aggregates:** Attempts to produce an alternative set of macro-indicators that help to reflect depletion and degradation of natural resources. These aggregates can be used as indicators to measure the sustainable development and are useful in policy analysis and strategic planning. Environmentally-adjusted aggregates should be consistent with principles, definitions, concepts and classifications of the SNA but with necessary modifications, elaborations and extensions to them.

## Establishing a Green Accounting System for Sri Lanka

Adopting a green accounting framework provides a systematic approach to harmonize the economic development policies with environmental conservation goals of the nation thereby paving the path towards the green economy. Considering this situation, the Ministry of Mahaweli Development & Environment (MoM&DE) has taken steps to initiate a green accounting framework for Sri Lanka with the collaboration of relevant stakeholders.

As a first step towards achieving this goal, the Ministry has appointed a National Steering Committee for Green Accounting System for Sri Lanka in 2010. Since then the committee has taken the following steps to introduce a green accounting system for Sri Lanka.

- A feasibility assessment for GA framework for Sri Lanka was undertaken. It has recommended a stepwise approach for implementation of GA for selected sectors on a priority basis.
- Key stakeholder agencies were identified and their nominees were appointed to the national committee.
- Based on the recommendations of the feasibility assessment, a pilot study on forestry sector was completed.
- Priority sectors for GA have been identified and subcommittees have been formed to develop sector specific GA frameworks.
- Sub-committee level discussions on sector wise GA frameworks have been initiated and are currently ongoing.



07

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## Challenges for Establishing a Green Accounting (GA) System

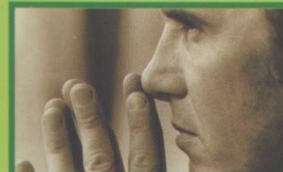
GA systems are currently being experimented in several countries around the world. It is being used for policy decision making purposes at various levels. International experts and national stakeholders in individual countries are continuously striving to improve the system. There are key challenges faced commonly by many national as well as international stakeholders. Among others, the following seem to be the most important.

**Problems of data availability:** Developing a GA requires significant volume of data on stocks and flows of environmental resources, physical use of environmental resources, residual flows associated with resource uses and economic values of resources and their uses. In many countries, availability of such data is limited. Even the existing data is scattered.

**Quality of available data:** Quality of even the existing data is problematic. Many countries have found that further improvements in existing data gathering and processing systems are necessary.

**Lack of competent human resources:** Developing GA systems require inputs of experts and competent technical staffs. Besides scarcity and poor quality of data, lack of skilled human by many countries that attempt to introduce GA systems.

**Lack of financial resources and other facilities:** Overcoming data and human resource needs as well as organizing them into a functional system of GA requires significant financial resources and institutional facilities. In many countries, especially in the developing world, lack of financial resources is a major constraint for introducing GA even when the necessity is identified by policy makers.



08

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### The Way Forward

Establishing a green accounting system for Sri Lanka is an important undertaking that needs resources, technical knowledge and skills, institutional cooperation and political patronage. To develop a successful system of GA and to gain the policy recognition for it, careful preparation is necessary. Credibility of the information generated by the system is of utmost importance. It depends largely on the success of the following steps of implementation.

- Establish an institutional mechanism for ensuring regular supply and systematic compilation of data, rigorous analysis, timely preparation of accounts and periodical publication of them
- Undertake training for development of necessary technical skills of stakeholders involved in the implementation of the systems
- Create awareness among policy makers, government and other stakeholders and general public
- Fulfill the necessary logistical support such as research support facilities, data management facilities and office and other logistical facilities

Cooperation among key stakeholders is highly important. This is essential for successful mobilization of resources (data and expertise) scattered in several agencies and for making use the information generated by GA to achieve the sustainable development goals of the country. Further, developing an advanced system of GA requires scientific analysis of data, research and development and regular system improvements. Therefore, engaging academics and experts from research institutes and universities is also essential.

Sri Lanka has no prior experience in implementing a GA system. However, UN based framework is already in place and it is gaining international recognition gradually. Several countries in the world have adopted it with varied levels of enthusiasm. Learning from the experience of countries already launched GA, especially in developing nations in Asia, is quite useful to identify the best practices and to avoid unnecessary pitfalls. Besides, advantages of expertise and resources available from the UN system should be harnessed for the maximum gain. Hence, not only the cooperation among national stakeholders but regional and international support also is mandatory for developing a successful GA system for Sri Lanka.

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