

**EIGHTH CONFERENCE OF PARTIES TO
THE NAIROBI CONVENTION (COP8)**

SAVOY HOTEL
MAHE, SEYCHELLES
17 – 24 JUNE, 2015

**MAURITIUS NATURAL CAPITAL
ACCOUNTING**

**PAPER PRESENTED BY
MR. NAZIR SOOBRAITY
DEPUTY PERMANENT SECRETARY**

**MINISTRY OF OCEAN ECONOMY, MARINE
RESOURCES, FISHERIES, SHIPPING &
OUTER ISLANDS**

1.0. FACT AND FIGURES ON THE REPUBLIC OF MAURITIUS

1.1. Geography/Demographics

- Small Island Developing State (SIDS);
- Main Land, Mauritius and a group of outlying islands, namely:
 - Rodrigues;
 - Agalega;
 - St. Brandon;
 - Tromelin and
 - Chagos Archipelago.
- Location in the Indian Ocean: Latitudes 19⁰50', and 20⁰32' South and

Longitudes, 57°18' and 57°46' East, about 2000 km of the South East Coast of Africa.

- Total land area of Mauritius: 2040 km.
- Exclusive Economic Zone: Nearly 2 million km² together with an additional area of 396,000 km of seabed which is co-managed with the Seychelles.
- Population: 1.3 M.
- Population Density: 654 persons/km²
- Ageing Population: around 10% of ageing population.

1.2. Challenges as a SIDS

- Low resource base

- Highly vulnerable to climate change and natural disasters
- Highly dependent on external markets- import 83% fossil fuels , import 77% food
- Escalating fuel and food price
- Euro –zone crisis – affect tourism and textile
- Ageing population – place heavy burden on government welfare facilities

1.3. Strengths and weaknesses

Strengths

- Strong political will and commitment
- Good governance
- Strong participative approach

Weaknesses

- Population below relative poverty line has increased from 7.9% in 2007 to 9.4% in 2012 (The threshold has been increased)
- Gini coefficient has increased from 0.388 in 2007 to 0.413 in 2012
- High ecological footprint of 4.3 hectares per capita

2.0. EMERGING CHALLENGES

- New Economic Order;
- Green Economy/Blue Economy;
- Green growth;
- Moving away from GDP as the only measure of growth;

- Comprehensive measure of growth:
Inclusion of Natural Capital in National
Accounts.

These challenges/global trends need to be captured in an integrated framework of sustainable development.

3.0. MAUTITIAN FRAMEWORK OF SUSTAINABLE DEVELOPMENT

3.1. The economic development model of the Republic of Mauritius is guided by the broad principles of sustainable development comprising the following:

5 E

- Energy
- Economy

- Environment
- Education
- Equity

4 Components

- Energy
- Cleaner/Greener and pollution free
- Green Economy
- Ocean Economy

4.0. RATIONALE OF NATURAL CAPITAL ACCOUNTING

4.1. The System of Environmental Economic Accounts v/s Gross Domestic Product

Today, as never before, the world realizes that it can no longer based itself on solely Gross Domestic Product to measure the wealth of a country but the way the natural resources are being exploited gives a better such indication.

The GDP as a measure of progress emerged during an era when natural resources seemed or was believed to be unlimited and the quality of life meant high economic standards. However, the recognition that GDP alone could not be a sufficient measure of progress towards sustainable development arises before the Earth Summit 1992.

Nowadays, we are all aware that natural resources are limited and the various factors such as Ecosystems decline, Energy transition, ageing population, Economic Challenges, climate Change and Natural disasters could affect our natural resources. Hence, the economic growth of a country could collapse if the natural resources of this country are not properly managed, that is, if the development has not been effected in a sustainable manner.

As a result the consequence of unsustainable development is visible as testified by ecosystems deterioration worldwide, and with them, the alteration

in the capacity to support human wellbeing and sustainable economic growth.

To sum up, GDP can give misleading signals about the economic performance and well-being of a country. Hence, a system which will consider the involvement of the natural resources of a country in its economic development was timely as the world is in a period of ecosystems management and biodiversity awareness.

The concept of accounting of Natural Capital which is different from GDP has been around for more than thirty years

now and a major step towards achieving the vision of such concept came with the adoption by the UN statistical Commission for Environment and Economic Accounts (SEEA) in 2012.

This brings an internationally agreed method to account for material resources like minerals, timber and fisheries.

Natural Capital Accounts can provide detailed statistics for better management of the economy, like accounts for the sectoral inputs of water and energy, and outputs of pollution that are needed to model green growth scenarios. Land and water accounts can help countries interested in increasing

hydro-power capacity to assess the value of competing land uses and the optimal way to meet this goal.

Natural Capital Accounts can help countries rich in biodiversity design a management strategy that maximizes the contribution to economic growth while balancing tradeoffs among ecotourism, agriculture, subsistence livelihoods and other ecosystem services like flood protection and groundwater recharge.

One of the reasons behind the United Nations Statistical Commission's (UNSC's) decision to endorse the

System of Environmental-Economic Accounting is to meet the recurrent demand for accounts of natural capital and ecosystem services, which have been reiterated in recent years in global initiatives such as:

- (i) The Economics of Ecosystems and Biodiversity (TEEB), launched by the G8 in Potsdam 2008 and taken up by UNEP;
- (ii) the World Bank's Wealth Accounting and Valuation of Ecosystem Services (WAVES); and
- (iii) last but not least, the 2010 Aichi-Nagoya Strategy adopted by the Parties of the Convention on Biological Diversity (CBD), which

states that ecosystem and 'biodiversity values should be incorporated in national accounts' by 2020.

4.2. Countries implementing the System of Environmental Economic Accounts

To date, more than 30 countries and many middle-income countries have already started to implement the SEEA. Now, many countries want to take Natural Capital Accounts (NCA) beyond the SEEA-approved material resources like timber to include ecosystem services and other natural resources that are not traded or marketed, and so

are harder to measure. That includes the "regulating" services of ecosystems like forests for sediment control and wetlands for reducing the impacts of floods.

In order to advance the adoption of natural capital accounting, the World Bank initiated the Wealth Accounting and Valuation of Ecosystem Services (WAVES) partnership which aims to promote sustainable development was launched at the 2010 Convention on Biological Diversity.

5.0. NATURAL CAPITAL OF THE REPUBLIC OF MAURITIUS

5.1. Sea Level Rise

Mauritius is one of the Western Indian Ocean states being impacted by global climate change. Mauritius has experienced a very slow fall in sea level (- 0.10 mm/yr) from 1986 to 2003. The continuing sea level rise is expected to worsen the problem of coastal erosion which is being accelerated due to ill-planned and ill-designed coastal development. Hard engineering approaches (e.g. construction of sea walls and groynes) for controlling

coastal erosion have not been successful in Mauritius.

5.2. Diurnal Tides

Mauritius experiences semi diurnal tides with an average tidal range of 0.50 m during spring tides and 0.20m during neap tides. However, during annual spring tides (March and September) the tidal range is as high as 0.85 m. The wave climate is determined by the prevailing South East trade winds which generate waves of different magnitude and frequency all year round. Deep low pressure systems in the high latitudes travel regularly towards the southern

part of Mauritius generating high waves. The main ocean current influencing Mauritius is the South Equatorial Current that brings warm nutrient poor water from the east.

5.3. Major River Basins

The Island of Mauritius is divided into 25 major river basins and 21 minor ones with catchment areas varying from 3.9 to 173 km². Almost all major rivers are perennial with most of the streams having their sources in the central plateau. Flows in streams and rivers vary from a few litres per second to more than 500 m³/s during floods.

Except in the vicinity of Agalega Island where the enhancement of phytoplankton biomass is associated with an upwelling process, most of the regions in the EEZ of Mauritius have a low productivity.

5.4. Ecosystems

The main critical ecosystems include mangroves, seagrass beds and coral reefs. Two species of mangrove, *Rhizophora mucronata* and *Bruguiera gymnorhiza* grow around Mauritius. Over the years, the extent of mangrove cover around the islands has significantly decreased from 20 km² in

1987 to only 14 km² in 1994 due to harvesting for firewood, construction purposes and clearing to provide for boat passage.

The coral reefs consist of a total 159 species of Scleractinian corals (hard corals) and 1,656 species and 290 families of marine species. The algal flora is rich with over 160 genera of marine algae. Over 36 species of seaweeds have been identified in Mauritian waters.

5.5. Benthic Fauna

The distribution of benthic fauna in waters around Mauritius has not been extensively studied. However, several species of crabs, shrimps, lobsters, mollusks, octopus and sea cucumbers are abundant and are of commercial value.

5.6. Fishery Resources

Fishery resources have been traditionally exploited in lagoons and offshore areas around Mauritius, Rodrigues, St. Brandon, Chagos Archipelago and other outer islands. There are four main types of fisheries

in Mauritius namely: (i) artisanal fishery; (ii) sport fishery; (iii) banks fishery: and (iv) tuna fisheries. Artisanal fishing provides employment and livelihood to some 2,200 fishermen and their families. Total production in the artisanal fishery fluctuates around 900 tonnes annually.

The total catch of this fishery is estimated at 400 tonnes per year, consisting mainly of bill-fishes and tunas. The banks fishery consisting of mainly Lethrinids (90%) catches around 3,000 tonnes annually. A deep-water snapper fishery has recently been developed on the slopes of the banks

of the Mascarene Plateau. Landings from the deep-water slope fishery in 2009 were around 500 tonnes.

The tuna fishery is split into the coastal tuna fishery and the offshore industrial tuna fishery. Tuna and tuna-like species are caught by local fishermen near the coast and around Fish Aggregation Devices (FADs). The total landings from FADs and sport fishermen are estimated at around 650 tonnes annually.

Other fisheries resources include the deep water shrimp with an estimated Mean Sustainable Yield (MSY) of 200 tonnes. The potential for aquaculture is

estimated to be 29,000 tonnes of fish in the medium term and about 39,000 tonnes of fish in the long term, on annual basis.

5.7. Fisheries Sector and National Economy

The entire fisheries sector in Mauritius employs an estimated 11,000 people and contributes 1.5% to GDP. The main constraints in the sector include weaknesses in capacity, lack of finance, lack of logistics and human resources for law enforcement, , poor level of education, low earnings and revenue, as well as difficulties of accessing capital. In addition several interacting factors such as coastal

development and environmental degradation contribute in making the livelihood of fishers complex. However, new fishing policies and new institutions have been developed in order to mainstream the fishing sector in the economy.

5.8. Tourism

Tourism is also a strong sector of the Mauritius economy having grown at a rate of 9% annually between 1985 and 2005. While tourism development has been less steady since 2005, growth is still apparent, with investment in hotel and restaurant sector increasing.

5.9. Agriculture

Agriculture is an important sector in Mauritius. However, between 1995 and 2005, the land area occupied by agriculture dropped from a total of 86,500 hectares to 80,674 hectares. From 2001 to 2009, the cumulative loss amounted to 12,355 hectares. In the case of food crop production, the area harvested reduced by 9% while the dependency on imports to meet the food requirements is increasing. The Government has developed a three-year (2008-2011) strategy and implementation plan on how to increase food production both locally

and within the countries of the region such as Mozambique and Madagascar.

5.10. Renewable Energy

The country does have a significant amount of renewable energy resources, including hydroelectricity, bagasse from the sugarcane industry, as well as woody biomass, wind energy and solar energy. The primary energy needs of the country increased in 2010 by 1.5%. Since 2007 the government has developed new policy frameworks in order to address the issue of energy. The Government vision 'Maurice Ile Durable' (MID) developed in 2008 aims at realising 65% of energy autonomy by

2028. The energy autonomy is based on a mixed renewable energy package including among others, wind, solar, ethanol and biogas. However, the success of the energy strategy lies on the political will and capacity to implement the 'MID Strategy and Plan of Action'.

5.11. Mining Activity

There is little mining activity in Mauritius. Coral sand mining was traditionally practiced in lagoon areas in the coastal region. However, due to the destruction of adjacent marine habitats as well as coastal erosion, the

government banned sand mining in 2002.

5.12 Coastal Management

Strong coastal zone protection regulations are also prevalent in the Integrated Coastal Zone Management (ICZM) Framework and the Ministry of Environment and Sustainable Development has set up an ICZM division, which guarantees the institutional sustainability and highlights the government's commitment to protecting the country's coastal environment. However, the management of coastal resources and protection of the marine ecosystem

faced a challenge of weak inter-institutional coordination amongst the governmental institutions. In addition, the local authorities suffer from lack of capacity for integrated coastal management.

5.13 Natural Disasters

Mauritius is frequently subjected to natural disasters associated with tropical cyclones, torrential rains, storm surges, flash floods, wave surges, landslides, tsunamis, oil spills, and health-related issues, among others. National disasters management is under the responsibility of the National Disaster Committee set-up under the

aegis of the Prime Minister's Office. The Ministry of Health and Quality of Life and the Ministry of Environment and Sustainable Development plays different roles related to the mitigation of disasters, in addition to other government agencies.

6.0. NATURAL CAPITAL ACCOUNTING: THE REPUBLIC OF MAURITIUS

A. Experimental Natural Capital Accounting

6.1. Need for Proper Statistics

In Mauritius, the need for and use of proper statistics and accounts have

been clearly felt in studies carried out such as:

- (i) The National Self Capacity Assessment for Environment (2005);
- (ii) The National Assessment Report on the Mauritius Strategy for Implementation of Sustainable Development in SIDS (2010); and
- (iii) The Mauritius Environment Outlook Report (2011).

Those studies showed that ecosystem resilience is a central component of sustainable development and adaptability to climate change.

6.2. Scope of the Mauritian Case Study on Natural Capital Accounting

In Mauritius, we do not have a proper Natural Capital Accounting. We have a case study entitled “Experimental Ecosystem Natural Capital Accounts” (Experimental ENCA).

The Mauritius case study aimed at checking the feasibility of ecosystems/natural capital accounting systems using data currently available in Mauritius and assessing initial outcomes in terms of statistical quality and policy relevance. The study covered a set of accounts which

included carbon/biomass, land cover and water and landscape integrity/biodiversity for 2010, with a retrospective view on 2000 whenever possible.

6.3. Use of Sectoral Datas

The accounts combine data on nature and socio-economic statistics on population, housing, agriculture, and fisheries, amongst others. Because of the duration of the project, emphasis was put on the production of physical accounts, as recommended in the SEEA. The valuation of economic benefits in terms of money and costs

has been left out for future developments.

I will not go in the detail of the outcomes of the study which is highly technical. However, I will arrange for each of the participant to have access to one copy of the study conducted jointly by the Indian Ocean Commission (IOC) and Statistics Mauritius.

6.4. Specific Purchase of the Experimental ENCA

As said previously, specifically the purpose of the Experimental Ecosystem Natural Capital Accounts (Experimental ENCA), Mauritius Case

Study was to test the relevance of the principles of SEEA on 'Experimental Ecosystem Accounts', and to look at the feasibility, at the island scale, of the implementation of a practical framework such as that implemented in Europe by the Experimental Ecosystem Accounts (EEA).

6.5. Objectives of the Experimental ENCA

The objectives relate to the proof of concept of the methodology through the delivery of short-term results with existing and available data, in order to demonstrate policy relevance within the context of the strategy for the

sustainable development of small island developing states.

6.6. Results of the Experimental ENCA

Initial results presented in the final report confirm that such accounts can be undertaken and will provide useful information in the future for framing the development of policies and monitoring & evaluation in order to build the resilience of island states/SIDS against shocks within the broader context of sustainable development.

6.7. Sources of Data for the Experimental ENCA

Detailed accounts have been produced based on information notably from river basins and socio-ecological units. These accounts form the basis for the reporting of various geographical breakdowns (e.g. inland coastal zones). The inclusion of coastal ecosystems in this application meets repeated policy requests and opens the way for enhanced ecosystems based on integrated coastal zone management.

6.8. Caveat

However, we are mindful that these accounts are provisional and should be used carefully. We are also conscious that more work should still be done to validate or invalidate the results obtained so far. A few gaps need to be filled in, in particular regarding the systematic land cover monitoring needed to frame the accounts. However, more data can be obtained from existing programmes in Mauritius in the context of a partnership for ecosystems/natural capital accounting and ongoing projects at national and regional level.

B. **“Water Account” of Republic of Mauritius**

However, it should be noted that Mauritius has come up with a National Water Account of 2011 & 2013 issued in June 2015.

The Water Accounts are based on the UN System of Environmental-Economic Accounting of Water (SEEA-Water), the System of Environmental-Economic Accounting – Central Framework of 2012 (SEEA-CF) and the International Recommendation for Water Statistics (IRWS).

The report on Water Accounts shows the stock and flow of water in physical terms for the Island of Mauritius. The accounts include rainfall, water abstractions (i.e. withdrawals from reservoirs, rivers and boreholes), water uses, and wastewater, among others.

I am also arranging for a copy of the Water Account to be made available to each participant.

7.0. CONCLUSION

In conclusion, I would say that the Natural Capital Accounting gives a more comprehensive idea of the wealth of

nations and should be incorporated in the National Accounts.

However, elaborating and implementing National Capital Accounting system is a highly technical and costly task. It is felt that unassisted, countries in Sub-Saharan Africa will not be able to meet the target of the Aichi-Nagaya Strategy which states that ecosystem and “biodiversity values should be incorporated in national accounts” by 2020.

There is an urgent need for the international community to technically and financially assist in meeting challenging goal by 2020.

Thank you for your attention.