

Sustainable Development in Mauritius: Main Achievements and Progress Made

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1. MANAGEMENT OF LAND SUSTAINABILITY

Recommendation of agenda 21: "Land resources are used for a variety of purposes which interact and may compete with one another; therefore, it is desirable to plan and manage all uses in an integrated manner. Integration should take place at two levels, considering, on the one hand, all environmental, social and economic factors (including, for example, impacts of the various economic and social sectors on the environment and natural resources) and, on the other, all environmental and resource components together (i.e. air, water, biota, land, geological and natural resources)."

MAIN ACHIEVEMENTS:

- ♦ ***The Environment Protection Act 2002 (EPA)*** – the EPA provides for the protection and management of the environmental assets of Mauritius so that their capacity to sustain the society and its development remains unimpaired. The Ministry of Environment is responsible, among others, for coastal and maritime zone management. It also provides for vigorous control over land use planning and development.
- ♦ ***The National Physical Development Plan (NPDP)*** – the NPDP was one of the most important projects under the Environmental Investment Program (EIP1) and is used as the main guide for national spatial planning. However, with the passage of time, some of the basic concepts of the NPDP need reviewing. And this is being carried out under EIP2.
- ♦ ***Planning Schemes*** – the NPDP is implemented through a series of operational plans, like Outline Schemes, which are enforced by the local authorities. These are used to guide the detailed development of land within Local Authorities boundaries.
- ♦ ***Environmental Impact Assessment (EIA)*** – the EIA is proactive in nature and encourages product promoters to take into consideration environmental issues at the stage of conception and planning. It enables the best possible options having least environmental impacts to be retained. This approach also requires close monitoring after project implementation
- ♦ ***National Environmental Strategies (NES)*** – the NES provides options to meet the challenges of the growing economy through action plans that assess the pressures on the environment, the impacts of these pressures and provide policy changes and environmental improvement programs.

2. PROTECTION OF THE ATMOSPHERE

Recommendation of Agenda 21: "Concern about climate change and climate variability, air pollution and ozone depletion has created new demands for scientific economic and social information to reduce the remaining uncertainties in these fields. Better understanding and prediction of the various properties of the atmosphere and of the affected ecosystems, a well as health impacts and their interactions with socio-economic factors, are needed."

MAIN ACHIEVEMENTS:

- ♦ ***Ambient Air Quality Monitoring*** – the Ministry of Environment has acquired ambient air quality monitoring stations (mobile and fixed). The mobile monitoring station is used to carry out surveys throughout the countries in regions where poor quality of air is suspected. The data from the fixed station (placed near our main motorway to monitor the impact of vehicle emissions) have shown that the levels of pollutants are lower than the standards in force.
- ♦ ***Introduction of Unleaded Petrol (ULP)*** – ULP was introduced in September 2002 and an ambient air quality monitoring data have shown that the lead content in our ambient air has decreased from 0.1 ppb to 0.01 ppb.

- ◆ ***Environmental Management of Industrial Estates (Valentina Study)*** – this project was implemented by the Ministry of Environment in collaboration with UNDP/UNIDO to analyse the impacts of pollution caused by industrial estates on their surrounding environment and make recommendations. This pilot project will be used as a reference for the environmental management of other industrial estates in Mauritius.
- ◆ ***The Road Traffic (control of vehicle emissions) Regulations 2002*** – this regulation was promulgated in September 2003 to regulate emissions from vehicle exhausts and impose the use of catalytic converters on certain types of vehicles.

3. PROTECTION AND MANAGEMENT OF FRESH WATER

Recommendation of Agenda 21: "Water demands are increasing rapidly, with 70-80 percent required for irrigation, less than 20 percent for industry and mere 6 percent for domestic consumption. The holistic management of freshwater as a finite and vulnerable resource and the integration of sectoral water plans and programmes within the framework of national economic and social policy, are of paramount importance for action in the 1990s and beyond."

MAIN ACHIEVEMENTS:

During the past ten years, the Central Water Authority has undertaken major works for mobilisation of water resources to improve access to potable water:

- The Rivière du Poste Water Supply Project: abstraction and conveyance of 15,000 m³ per day of water from Rivière du Poste and Rivière Citron.
- The Mont Blanc project: construction of a rapid gravity filter plant of 5,000 m³ for improvement of water supply in the south western coastal villages.
- Rehabilitation of Northern Districts Water Supply Projects: construction of 125 km of trunk and distribution pipelines to service northern villages.
- La Nicolière New Treatment Plant and Downstream Works: construction of a new treatment plant of 66,000 m³ per day and the associated downstream pipeline works to eliminate water supply problems in the northern districts.
- -La Marie Water Supply Project: rehabilitation of the existing La Marie treatment plant to improve water supply in the Mare Aux Vacoas system that caters a population of about 350,000.

The Midlands Dam Project– this project was completed in December 2002 with the storage capacity of 25.5 Mm³. It will meet 100% municipal water requirement of the north and it will also satisfy the total requirement of the Northern Plains Irrigation Project Phase 1 covering about 1900 ha.

4. SUSTAINABLE MANAGEMENT OF OCEANS AND COASTS

Recommendation of Agenda 21: "The coastal area contains diverse and productive habitats important for human settlements, development and local subsistence. More than half the world's population lives within 60 km of the shoreline and this could rise to three quarters by the year 2020. Many of the world's poor are crowded in coastal areas. Coastal resources are vital for many local communities and indigenous people. The exclusive economic zone (EEZ) is also an important marine area where the States manage the development and conservation of natural resources for the benefit of their people. For small island States or countries, these are the areas most available for development activities."

MAIN ACHIEVEMENTS:

- ◆ **Environment Impact Assessment** – many coastal activities like construction of hotels, dredging, building of walls or other structures are regulated and classified as scheduled activities under the EPA 2002 requiring EIA licenses.
- ◆ **Protection from Anchor Damage and Zoning of Lagoons** – a pilot project has been started to protect dive sites from anchor damage through the installation of permanent mooring buoys. Furthermore, a few snorkelling zones have been identified and zoned. Consultants will soon work to identify potential sites for eco-tourism activities.
- ◆ **National Oil Spill Contingency Planning** – the NOSCP provides the framework for oil spill response and is activated in the event of a spill occurring in the territorial zone of Mauritius. In order to combat oil spill effectively, Mauritius has ratified four international conventions developed by the International Maritime Organisation.
- ◆ **Regional Plan** – the 'Commission de l'Océan Indien' (COI) through its regional oil spill contingency planning project funded under the GEF is putting in place a Regional Contingency Plan for ongoing collaboration among participating nations in case of major spills.
- ◆ **ICZM Division** – this division of the department of environment is responsible for the planning and management of the coastal areas through the development of an ICZM plan. Several projects concerning beach erosion, creation of marinas, ski lanes, bathing areas, protection of wetlands and islets are underway.
- ◆ **Islets** – the National Parks and Conservation Service and the Mauritius Wildlife Foundations have undertaken a vigorous conservation program on several important islets where a deterioration of biodiversity has been noticed. A task force was also set up to make recommendations on immediate measures to stop environmental degradations, to advise on the creation of an Islet National Park and on a comprehensive long term planning and management of the islets.
- ◆ **Alternative Fisheries** – in order to reduce fishing pressure in the lagoon and to allow the fish habitat to recuperate, a management strategy was developed in 1996 to reduce the number of net in operation. Off-lagoon fishing is being encouraged through incentives such as 'soft loans' for purchase of offshore boats, training and technical assistance on new methods of fishing and waivers of import duties on equipment.
- ◆ **Sand Extraction** – Government of Mauritius has decided to ban lagoonal sand mining as from October 2001 as this was having adverse and irreversible effects on the marine environment. Compensation was paid to those engaged in the sand mining business.
- ◆ **Environment Standards and Guideline"** – the Ministry of Environment promulgated the following standards and guidelines: Standards for Effluent Discharge into the Ocean and Guidelines on Coastal Water Quality.
- ◆ **Marine Park" and Coastal Resource Inventory** – two marine parts have been established and a long term monitoring program is underway for these parts. Other marine protected areas are presently being identified. Additionally, a coral reef monitoring program is being undertaken.
- ◆ **Lagoon Monitoring** – the water quality is regularly monitored at eleven sites around the island and at selected beaches by the technical arm of the Ministry of Fisheries.
- ◆ **The Marine Environment** – Mauritius has full rights on its Exclusive Economic Zone (EEZ) of 200 nautical miles distant from the baseline. There are proposals for collaboration with India and other Indian Ocean countries for the surveillance of its national waters. The Mauritius Oceanography Institute was established in January 2000 to monitor the marine environment around Mauritius and to devise policies that will maintain the health of these coastal and oceanic waters. The MOI has initiated the following projects:
 - Lagoon and reef watch movement
 - Territorial sea baseline review

- Collection of tidal data
- Inventory of scleractinian corals in Mauritius
- Coral population dynamics studies.

The Albion Fisheries Research Centre is responsible to carry out research, surveys and studies, and advise policy makers on matters related to the management and development of marine resources and the conservation of the marine environment.

- ◆ **Marine Resources** – a total of 290 marine families comprising 1656 species have been recorded from Mauritius. The large coral diversity is the most obvious attraction to visitors. Corals are confined up to the 50m isobath and are protected by law. In fact, any activity having a potential detrimental effect on a marine habitat has to be approved by the Ministry of Environment.

5. CONSERVATION OF BIOLOGICAL DIVERSITY

Recommendation of Agenda 21: “Biological resources constitute a capital asset with great potential for yielding sustainable benefits. Urgent and decisive action is needed to conserve and maintain genes, species and ecosystems, with a view to the sustainable management and the use of biological resources. Capacities for the assessment, study and systematic observation and evaluation of biodiversity need to be reinforced at national and international levels.”

MAIN ACHIEVEMENTS:

- ◆ **National Biodiversity Strategy and Action Plan** – This action plan covers the following areas:
 - socio-economic factors affecting and benefiting biodiversity
 - forest biodiversity
 - terrestrial biodiversity
 - agricultural biodiversity
 - biotechnology and biosafety
 - coastal resources, aquatic and marine biodiversity
 - sustainable tourism development in Mauritius.
- ◆ **Plant Conservation Projects:**
 - 'Restoration of highly degraded and threatened native forests in Mauritius' funded by UNDP/GEF to halt the degradation of the native forests.
 - 'Diversity & conservation of wild population of Mascarene Coffee species'.
 - 'Mauritius Rare Fern Project' to develop horticultural facilities for propagating rare ferns in Mauritius.
 - 'The Regional Coral Reef Monitoring Programme' to establish local and regional networks for collection of data on coral reefs.
 - 'Inventory and Study of the Medicinal and Aromatic Plants of the States of the Indian Ocean'.
 - 'Southern African Development Community (SADC) Forestry Sector Project' aims at strengthening and improving the forestry colleges in the SADC region.
 - 'SADC Tree Seed Centre Network' aimed at producing good quality seeds for re-forestation programs.
 - 'Management of Offshore Islets' to implement restoration programs on some islets.
 - 'Biodiversity in Small Island States' initiated by the Commonwealth Science Council to promote sustainable use of biodiversity.

- 'Proclamation of the Black River Gorges National Park'.
- 'Vegetation survey of Mauritius to identify priority rainforest areas for conservation management'

6. PROMOTION OF SUSTAINABLE AGRICULTURE

Recommendation of Agenda 21: "There is a need to integrate sustainable development considerations with agricultural policy analysis and planning in all countries, particularly in developing countries."

MAIN ACHIEVEMENTS:

- ◆ The promotion of sustainable agriculture is coordinated by the Ministry of Agriculture with the collaboration of the Agricultural Research and Extension Unit (AREU), the Food and Agricultural Research Council (FARC) and the Mauritius Sugar Industry Research Institute (MSIRI).
- ◆ The Agricultural Chemistry Division of the ministry is involved in the detection and measurement of pesticide residues in agricultural commodities and also issues licenses for the sale chemical fertilisers.
- ◆ The Entomology Division of the ministry is involved in the implementation of pest control programs using environment friendly control methods with reduced insecticide usage, minimum risk to non-target organisms and aims at zero pesticide residues in consumable parts.
- ◆ The objective of AREU is to serve the farming community in cost effective high quality research and extension. Major thrust areas include: optimal land and water use, organic waste recycling, organic agriculture, integrated pest management and integrated plant nutrient management systems.
- ◆ With a view of reducing the dependence on chemical pesticides, research is undertaken at AREU in order to develop integrated pest management packages involving field sanitation, physical control methods, and biological agents.
- ◆ The fate of fertilisers is also being studied in cooperation with the International Atomic Energy Agency in areas under intensive vegetable cultivation.

7. MANAGEMENT OF WASTE

Recommendation of Agenda 21: "Unsustainable patterns of production and consumption are increasing the quantities and variety of environmentally persistent wastes at unprecedented rates. The trend could significantly increase the quantities of waste produced by the end of the century and increase quantities four to fivefold by the year 2025. A preventive waste management approach focused on changes in lifestyles and in production and consumption patterns offers the best chance for reversing current trends."

MAIN ACHIEVEMENTS:

- ◆ **Solid waste** – a National Solid Waste Management Plan has been prepared for Mauritius. This plan recommends the following:
 - construction of two sanitary land fields
 - construction of seven transfer stations
 - issue of bins to some 240,000 households
 - modernisation of collection vehicles and reorganisation of collection labour force in local authorities
 - review of legislation, standards and regulations
 - identification of recycling possibilities and
 - setting up of a pilot composting plant

The above plant has been partly implemented and has been reviewed.

- ◆ **Composting** – composting is part of the national strategy for waste minimization. Government has recently carried out a compost market study for part of the island and the results revealed that there exists a sizeable market for compost in the region.
- ◆ **Plastic** – Government has promulgated the Environment Protection (polyethylene terephthalate (PET) bottled permit) Regulations in 2001 to develop 'product responsibility' in the bottlers for the proper management of the bottles after they have been sold.
- ◆ **Paper** – only one company is involved in paper recycling in Mauritius. The major problem in increasing the capacity of paper recycling is the collection of the waste paper. Wastewater -the St Martin Sewage Treatment Plant has been upgraded to accommodate for the overload in the present flow and to treat effluent which could be used for irrigation. Other projects include: the Grand Baie Sewerage Project, the Baie du Tombeau Sewerage Project and the Montagne Jacquot Sewerage Project The Environment Protection (Effluent Discharge, Standards of Effluent for Use in Irrigation, Standards for Effluent Discharge into the Ocean and Effluent Discharge Permit) Regulations 2003 were promulgated in September 2003 by the Ministry of Environment
- ◆ **Used oil** – a Technical Advisory Committee was set up to make recommendations on the storage, collection, transportation, recycling and disposal of used oil. Two companies have already been granted EIA licenses for the collection and treatment of used oil in Mauritius.