



# chapter four

## Environment and Natural Resources



## Environment and

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### Agriculture and Land use

The Central Statistics Office released in 2008 new land use figures as at the year 2005. The last land use census dates back to 1995 and between those two dates, one can note the significant drop in land area occupied by agriculture, from a total of 86,500 hectares to only 80,674 in 2005. More importantly, for the first time, a category named 'Abandoned cane fields' displays a figure of 4,726 hectares.

**Table 18: Land use, Island of Mauritius, 1995 and 2005**

Land Use Distribution	2005 <sup>1</sup>		1995		Change	
	Ha	%	Ha	%	Ha	%
Agriculture	80,674	43.3	86,500	46.4	-5,826	-3.1
- Sugar cane plantations (Source SIFB)	72,000	38.6	76,840	41.2	-4,840	-6.3
- Tea plantations (Source Tea Board)	674	0.4	3,660	1.9	-2,986	-81.6
- Other agricultural activities	8,000	4.3	6,000	3.2	2,000	33.3
Forests, shrubs and grazing lands	47,200	25.3	57,000	30.6	-9,800	-17.2
Infrastructure	4,500	2.3	4,000	2.1	500	12.5
Inland water resource systems	2,900	1.6	2,600	1.4	300	11.5
Built-up areas	46,500	24.9	36,400	19.5	10,100	27.7
Abandoned cane fields	4,726	2.5	...	...	...	...
<b>Total</b>	<b>186,500</b>	<b>100</b>	<b>186,500</b>	<b>100</b>		

<sup>1</sup>Estimate

(Source: Central Statistics Office)

### Water Resources

In July 2007, the Ministry of Public Utilities circulated a draft document entitled 'Mauritius National Water Policy'. This document was published following consultations held among government bodies and parastatal organisations involved in the water sector.

The main strategies depicted in the document are supported by a widely accepted policy of making water accessible in the best and most efficient way to the various user sectors, including domestic consumers. It also highlights potential conflicts which may arise as a result of the proposed implementation of a new water policy. It proposes, in order to resolve such expected problems, that compensation be paid to those who might be penalised.

Following the circulation of this document, the Chamber decided to set up a committee in order to study its contents and make proposals on the way forward. As such, the Chamber proposed that the new water policy devotes adequate attention to the following supply-side priority objectives:

- (i) The efficient management of water resources (maximisation of rainwater collection and optimisation of streaming and channeling networks, protection and preservation of both surface and groundwater resources, adequately centralised water filtration capacities, etc.);
- (ii) The adequate metering of consumption (upgrading or replacement of metering equipment, combat against fraud and theft, proper attention to water carriers, etc.)
- (iii) The elimination of waste (the replacement of major sections of the national distribution system, adequate monitoring of users and their respective categories, implementation of more effective repair and maintenance resources, etc.).

On the demand side, the Chamber proposes that national priorities be set according to well-established policies and that these take into account the specific nature of agricultural activities and their set objectives, as described in the Multi Annual Adaptation Strategy (MAAS) 2006-15 for our sugar cane industry.

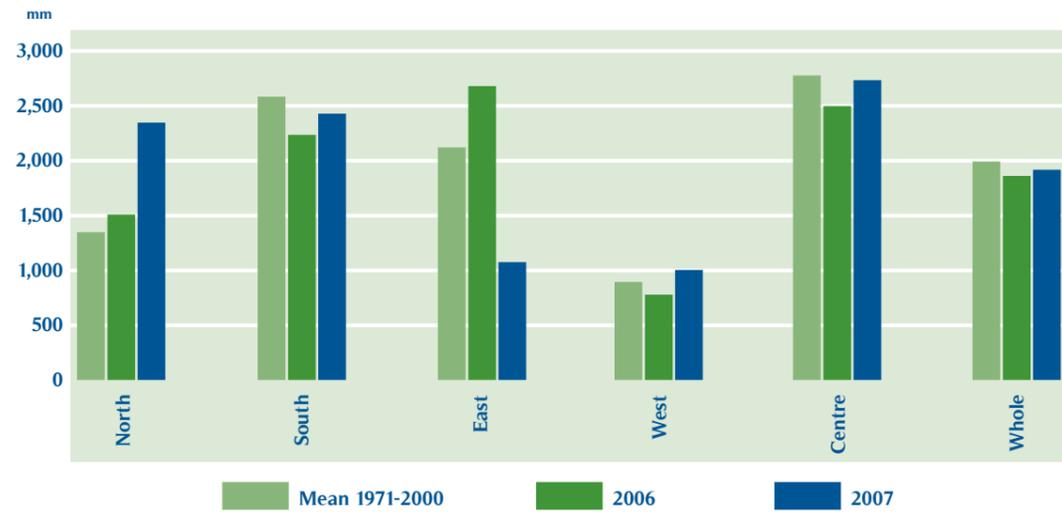
At the time of writing, no development had taken place following the submission of the Chamber's proposals to the Ministry of Public Utilities.

## Water Resources Management

### Rainfall and Water Balance

Mean annual rainfall for 2007 was slightly higher than in 2006 for the whole island of Mauritius, at 1,954 mm against 1,914 mm previously. The 2007 mean was however at only 97 per cent of the long term mean (1971 - 2000). It can be further noted that in 2007, the North had excessive rainfall whilst the East was particularly deficient. The other sectors registered close to normal rainfall.

Figure 8: Mean Annual Rainfall, 2006 and 2007 (mm)



In 2007, Mauritius received 3,644 million cubic metres of precipitation compared to only 3,571 Mm<sup>3</sup> in 2006. Surface runoff was of 60 per cent, whilst ground water recharge accounted for 30 per cent.

### Area under irrigation

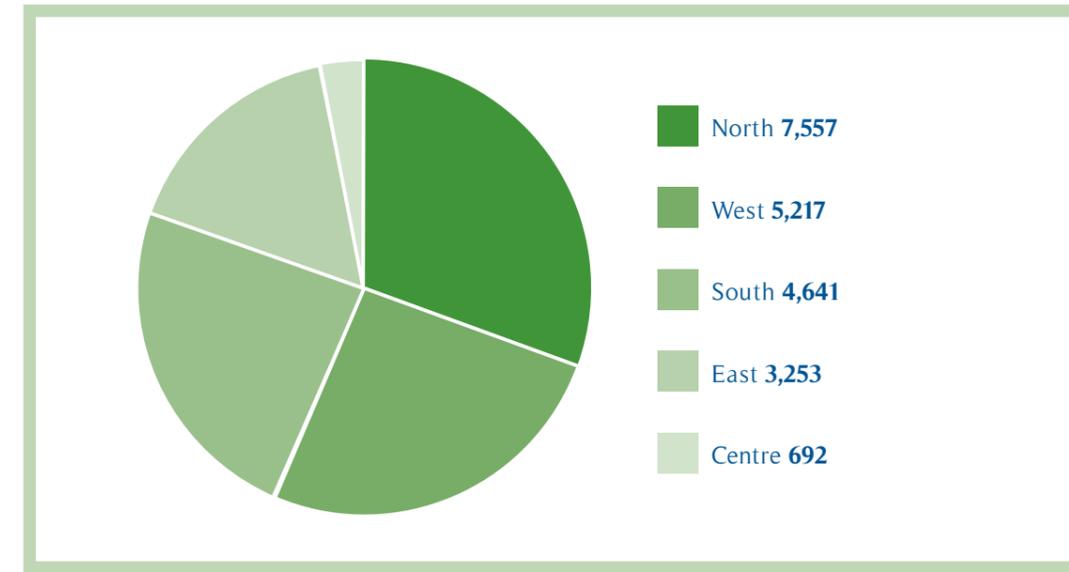
According to the Irrigation Authority, the area under irrigation totalled 21,360 hectares in 2007, representing a slight decrease (0.3 per cent) over the 2006 figure of 21,422 hectares. Figure 9 below shows the evolution of the area under irrigation for the period 2003 to 2007.

Figure 9: Evolution of the total area under Irrigation, 2003 – 2007 (Ha)



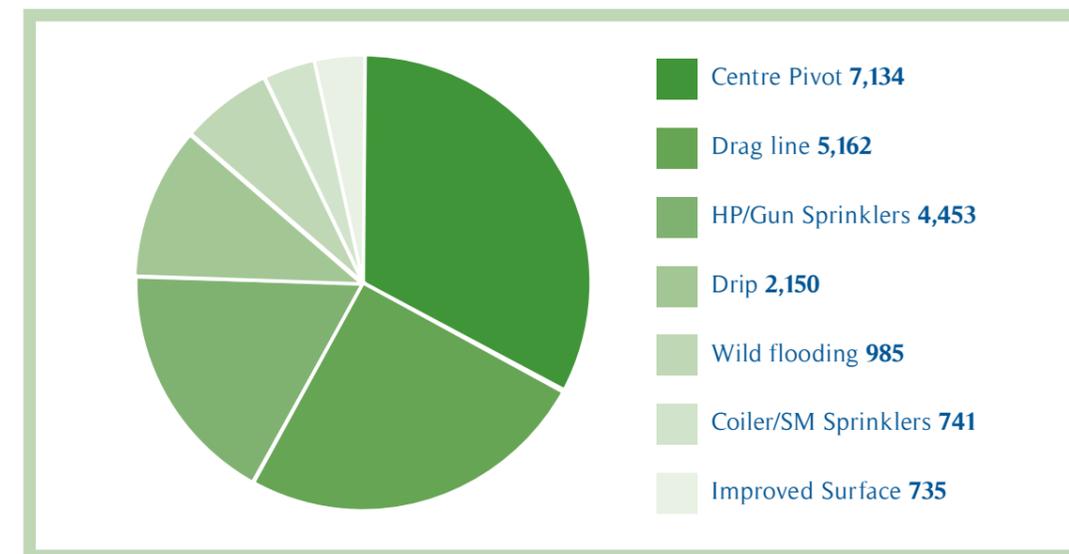
The acreage under irrigation, region wise, is shown in Figure 10 below.

Figure 10: Total area under Irrigation - Region wise, 2007 (Ha)



The area under the different irrigation systems is shown hereafter.

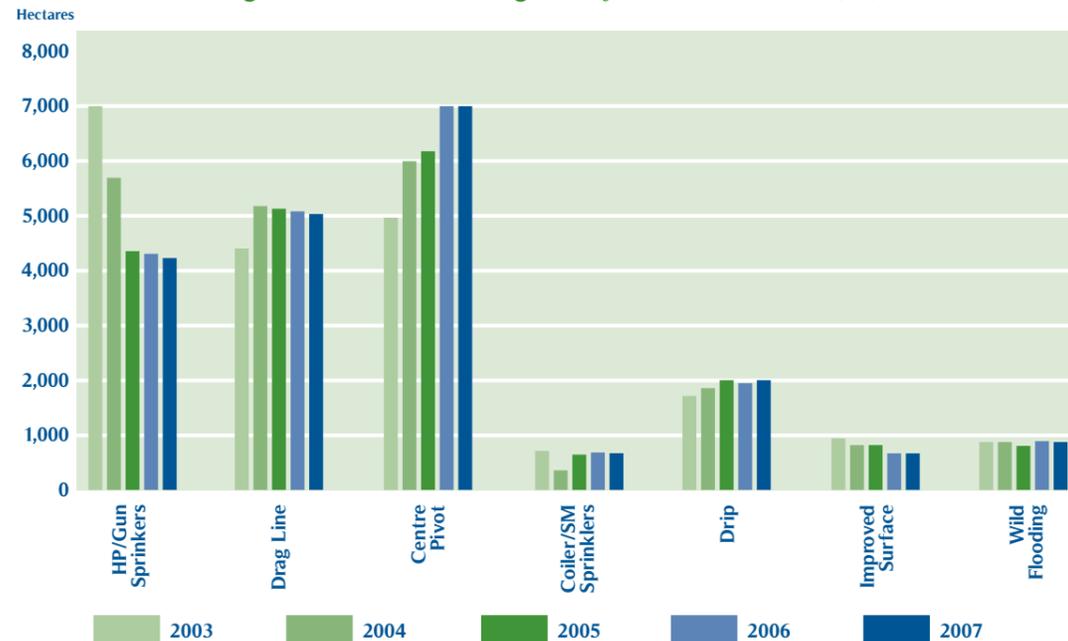
Figure 11: Total area under Irrigation - By irrigation system, 2007 (Ha)



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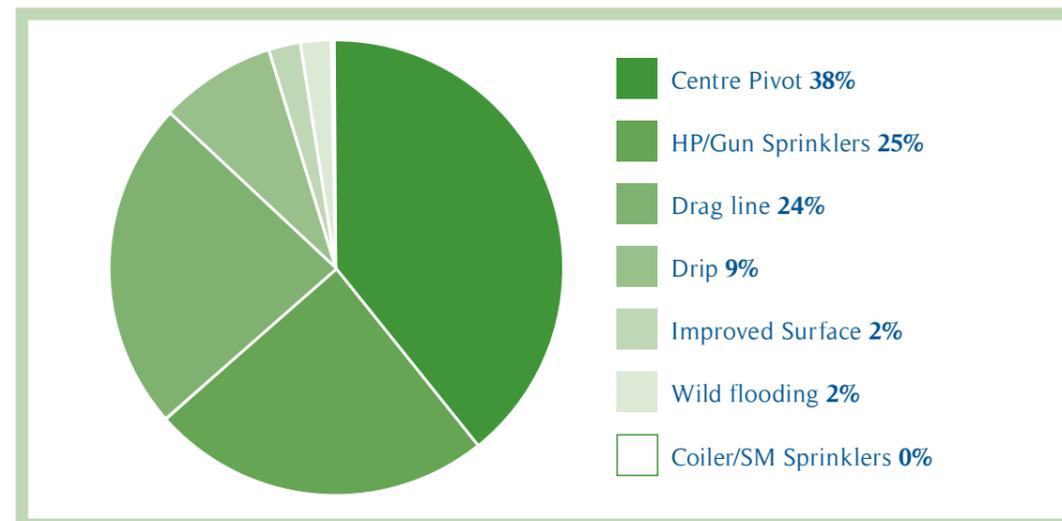
The following figure shows the evolution of the different irrigation systems (conventional v/s modern system) over the period 2003 to 2007.

Figure 12: Evolution of irrigation systems, 2003 – 2007 (Ha)



A survey carried out by the Chamber among its members, shows that the total acreage of sugar estates' and large planters' lands under irrigation, in 2007, amounted to 15,975 hectares, representing a mere increase of 76 hectares (0.5 per cent) compared to the 2006 figure of 15,899 hectares. It is to be noted that in 2006 and 2007, the acreage of sugar estates' and large planters' lands under irrigation accounted for 74 per cent of the island's total irrigated area. Figure 13 below shows the share of the different irrigation systems on sugar estates' and large planters' lands in 2007.

Figure 13: Share of irrigation systems on sugar estates' and large planters' lands, 2007 (%)



### Abolition of the subsidy on electricity for irrigation

Following the abolition of subsidy on electricity granted to sugar cane planters for irrigation purposes, as from 1 January 2007, the Chamber expressed its concern on the repercussions of this decision and proposed the reintroduction of the subsidy, over a five-year span, targeting exclusively irrigation undertaken through High Power Guns instead of tapping indistinctly all irrigation systems as was formerly the case. However, in November 2007, the Chamber was informed that its counter-proposal had been rejected by the authorities.

### THE MAURICE ILE DURABLE FUND

In 2008, Mauritius also seized the opportunity to boost its sustainable development agenda by engaging in the Maurice Ile Durable concept together with Prof. Joel de Rosnay, Special Adviser to the Prime Minister. The Chamber, together with the JEC, also participated in May 2008 in a ministerial mission to Réunion Island led by the DPM and Minister of Finance and Economic Development, Rama Sithanen. The mission's objective was to gauge progress achieved in Réunion with respect to energy conservation, electricity efficiency and new sources of energy.

The Maurice Ile Durable Fund (MIDF) was set up on the 19<sup>th</sup> June 2008 under the Finance and Audit (Maurice Ile Durable Fund) Regulations 2008. The objects of the Fund, as per the Regulations, are to finance:

- schemes for the preservation of local natural resources with a view to achieving sustainable development and adapting to climate change;
- projects to explore and harness all potential for local sources of renewable energy and to reduce dependency on imported fossil fuels;
- the promotion of energy savings through MDE (Maîtrise de la Demande en Energie);
- programmes to reduce consumption of fossil fuels, achieve greater efficiency in the use of energy in enterprises, offices, homes, public sector, transportation sector and hotels;
- schemes to encourage innovation by households as well as by business to produce their own energy requirements and for the sale of any surplus at a premium;
- the provision of:
  - outright grants of 10,000 rupees for every solar water heater purchased by 31 December 2009, through the solar water heater loan scheme operated by the Development Bank of Mauritius;
  - an initial grant of up to 20 million rupees for CEB to provide compact fluorescent lamps at half the cost price; and
  - a grant of the Bus Modernisation Programme to enable all bus operators to renew their fleet, at no extra cost, with new generation buses which are environmentally friendly with reduced emissions, more comfortable and with low floors to speed and facilitate boarding;
- projects and programmes to support efforts to protect the environment through recycling of waste, to encourage more efficient use of energy and to increase reliance on renewable energy;
- programmes for research and analysis pertaining to the development of renewable source of energy and consumption trends and to ensure environmental sustainability;
- energy management programmes through networking with local and international partners;
- awareness campaigns on energy saving and the use of renewable energy sources; and
- such other projects incidental to or conducive to the attainment of any of the above objects.

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The Maurice Ile Durable concept itself is still in its early stages, and yet to develop fully over its expected 20-year timeframe. The Maurice Ile Durable Fund set up under the aegis of the Ministry of Renewable Energy and Public Utilities represents the operating arm to support the policy concept. For the 2008-09 financial year, a total budget of Rs 1.3 billion is at the disposal of the Fund. Additional funding from Government in the forthcoming years is expected from the special tax on imported fossil fuel consumption and the Road Tax.

As per the Regulations, the Fund is administered and managed by a Committee chaired by the Permanent Secretary of the Ministry responsible for the subject of public utilities. Ten persons either representing various relevant Ministries and institutions or nominated by the Minister of Finance, after consultation with the Minister responsible for the subject of public utilities, constitute the other Committee members. The General Secretary of the Chamber is currently the Vice-Chairperson of this Committee.

### NATIONAL ENERGY POLICY

Following the publication of the Outline of Energy Policy 2007-25 in April 2007, consultations were held with stakeholders together with the international team of consultants (Kantor) in October and December 2007. Kantor was expected, through its study, to assist Government in establishing the national policy regarding energy requirements and electricity production and distribution up to the year 2025.

Draft submissions of the consultants' report were made in 2008 but were not circulated for comments by stakeholders. At the time of writing, among other things, government's policy stance on two unsolicited projects – one exclusively coal power plant by foreign promoters and one waste-to-energy plant - was still unclear.

In the Maurice Ile Durable project however, the objective of doubling the share of renewable sources of energy in national electricity production to around 40 per cent within the next decade, that is, by 2018, is clearly enunciated. In 2007, that share was 17.8 per cent (16.7 per cent from bagasse) and the above target will have to be reached through the combination of both a reduction in demand growth, currently at 5 per cent annually, and an increase in the commercial viability of both existing renewable sources and forthcoming ones.

The hydroelectric potential of the Island of Mauritius is already almost fully tapped. The predominant renewable in Mauritius is the cane biomass and its potential can still be furthered through the tapping of cane field residue and the increased use of high pressure boilers to optimise the existing amount of bagasse. Wind and solar energy projects are still under study and the biofuels project is currently shelved.

It is finally noted that in the absence of an independent Utility Regulatory Authority, the proclamation of the URA Bill by September 2008 having been delayed anew, independent power producers of diverse origin or scope are not in a position to submit proposals to the Government in the best conditions.

As regards CTSAV, the Savannah Thermal Plant, which came into operation in 2007, a Power Purchase Agreement was signed with the CEB for the supply of 74 MW during the intercrop season and 65.5 MW in the crop period. Total installed capacity for Mauritius has now reached 753.3 MW against 710.7 MW in 2006. Peak demand was of the order of 367.6 MW for the island of Mauritius in 2007, marginally higher than the corresponding peak in 2006 (367.3 MW)

### NATIONAL ENVIRONMENT POLICY

On 20 February 2008, Cabinet approved the National Environment Policy (NEP) 2007.

The NEP is based on a review of key environmental issues, challenges and opportunities that are specific to the national context and sets a policy framework which should guide environmental considerations in all development programmes and projects. Moreover, it serves as a tool for decision-making and action for both environmental management and economic development.

The goal of the NEP is therefore two-fold: it has to help in the management of the ecosystems which support the economic growth of the country and it has to contribute to the improvement of the quality of life of the Mauritian population.

The NEP will be implemented mainly through the revised National Environment Strategy and Action Plan.

The National Programme on Sustainable Consumption and Production (SCP) was approved by Cabinet on 22 August 2008.

SCP can be broadly defined as a holistic approach to minimising negative environmental impacts from production and consumption in society. It can be considered as a practical implementation strategy to achieve sustainable development. The reason for developing a National SCP Programme is the necessity to tackle the issue of SCP in a systematic and active way. As such, Mauritius has been selected as one of the pilot countries by UNEP to develop a National Programme on Sustainable Consumption and Production (SCP). A Memorandum of Understanding was signed between UNEP and the Ministry of Environment and NDU in May 2007 for the elaboration of the programme by July 2008.

Based on a scoping exercise, the following strategic priorities form the focus of the SCP programme framework for Mauritius:

- Resources Use Efficiency with a Focus on Energy, Water and Sustainable Buildings and Construction
- Education and Communication for Sustainable Lifestyles
- Integrated Solid Waste Management and Recycling
- Sustainable Public Service Practices
- Increase Market Supply and Demand for Sustainable Products

The Ministry of Environment and National Development Unit also issued a number of fact sheets during the period under review. At the time of writing, the following individual fact sheets were available on the Ministry's website <http://environment.gov.mu>

#### Fact Sheet No 1 (Published in 2007)

- Climate Change
- Energy and Environment
- Solid Waste Management
- Biodiversity
- Sustainable Development

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### Fact Sheet No. 2 (Published in 2008)

- Stratospheric Ozone Depletion
- Environmental Pollution
- Water Resources
- Coastal Zone
- Wetlands
- Tourism and Environment

### Fact Sheet No. 3 (Published in 2007)

- Composting
- Recycling
- Land Use, Agriculture and Environment
- Desertification/Land Degradation
- Transport and Environment

## CLIMATE CHANGE

In April 2008, the Mauritius Meteorological Services issued a study report entitled, **Climate Change – Impacts on Mauritius**.

The report namely observed that a definite warming trend was affecting Mauritius and its outer islands since the mid-seventies. Analysis of temperatures at Vacoas for the period 1950 – 2007 also showed an increase in the annual number of hot days and warm nights. During the last ten years, summer maximum temperatures (therefore daytime temperatures) became warmer by an average of 1.0°C. Long-term time series of rainfall amount over the past century (1905 to 2007) further showed a decreasing trend in annual rainfall over Mauritius, of 8 per cent currently when compared to the 1950s.

Projected climatic changes in Mauritius through model simulation for the Indian Ocean gives a temperature increase in the range of 0.51 to 3.77°C and sea level rise between 18 and 59 cm by 2100. Mauritius is expected to experience the same effect with resulting increased risk of flash floods, more frequent heat waves in summer, increase in the number of intense tropical cyclones, increase in duration of dry spells and increased events of high energy waves (tidal surge) impacting the shores of the island.

For agricultural and fish production in particular, the consequences of the impacts of climate change in Mauritius can be significant as our marine ecosystem falls prey to rising temperatures, coastal areas are exposed to increasing risks of coastal erosion due to sea-level rise, traditional and present crop varieties will suffer, and there will be an increased incidence of disease proliferation.

It is therefore becoming urgent that a more rational management of our water resources and a revision of related policies be secured. Research into new crop varieties has to be accelerated. And, most importantly, the absence of a legal framework (climate change issues are not explicitly included in current sustainable development policies) requires rectification.

## chapter five

## Trade, Development and Cooperation

