

# THE MOUNTING PROBLEMS WITH MANAGING WASTES IN RAPIDLY DEVELOPING ISLANDS: THE MAURITIUS CASE

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# Introduction

- In Africa:
  - less than half of the SW produced is collected, and
  - 95% of that amount is neither contained nor
  - expenditure for MWM service usually amounts from 20% to 50% of total municipal expenditure
- The composition of waste has changed from basically biodegradable to non-degradable materials or substances.
- For small island states such as Mauritius, the SWM is a critical issue for various reasons such as:
  - high population density,
  - competition between land uses,
  - limited domestic markets and
  - high tourist numbers.
  - Limited land areas make the option of landfill disposal unsustainable in the long term.
  - Incineration, while reducing the volume of wastes is prohibitive in terms of cost and still requires disposal of ash containing potential hazardous substances in high concentrations.

A satellite-style map of the African continent is the background of the slide. The text is overlaid on the map in red and black colors.

# Overall goals of the Action Plan up to year 2013

- Establish an Integrated Waste Management System in all Municipalities and District Councils in the next 2-3 years.
- Increase the recycling of industrial and commercial waste with a focus on **cardboards, plastics and paper** by at least **25%** over the next 5 years compared to 2007.
- Increase the amount of waste going for composting from the hotel and domestic sector by at least 25% and 10% respectively over the next 5 years compared to 2007.
- Devise an action plan for implementing the Extended Producer Responsibility concept in Mauritius by 2010.

# Waste Management Sector in Mauritius



Roche Bois Transfer Station

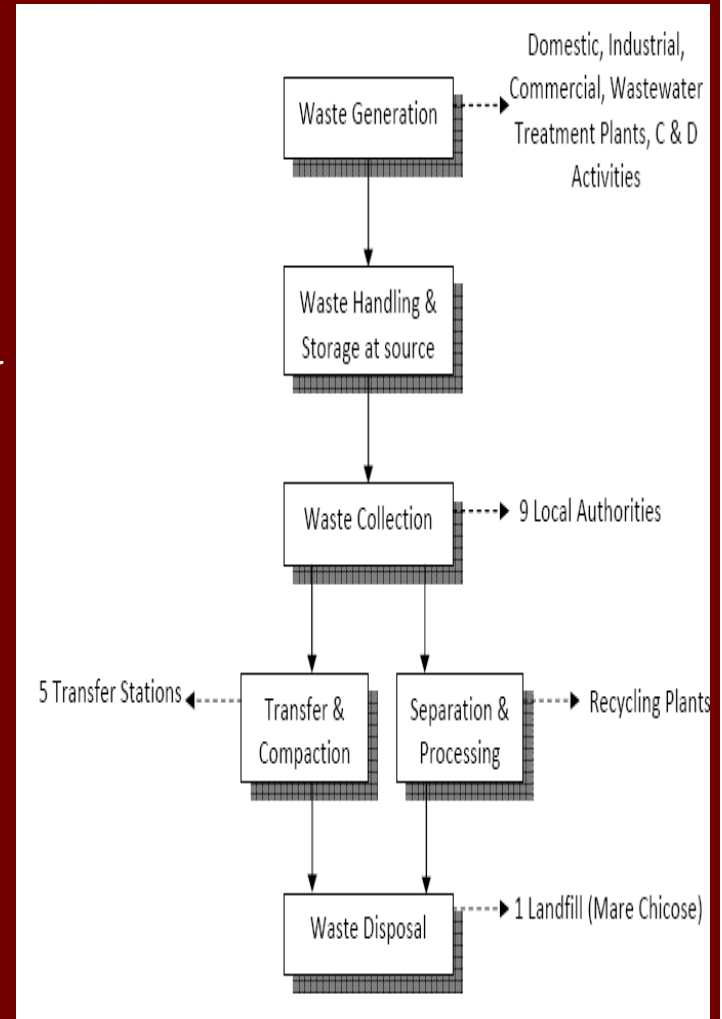
St. Martin Transfer Station

La Brasserie Transfer Station

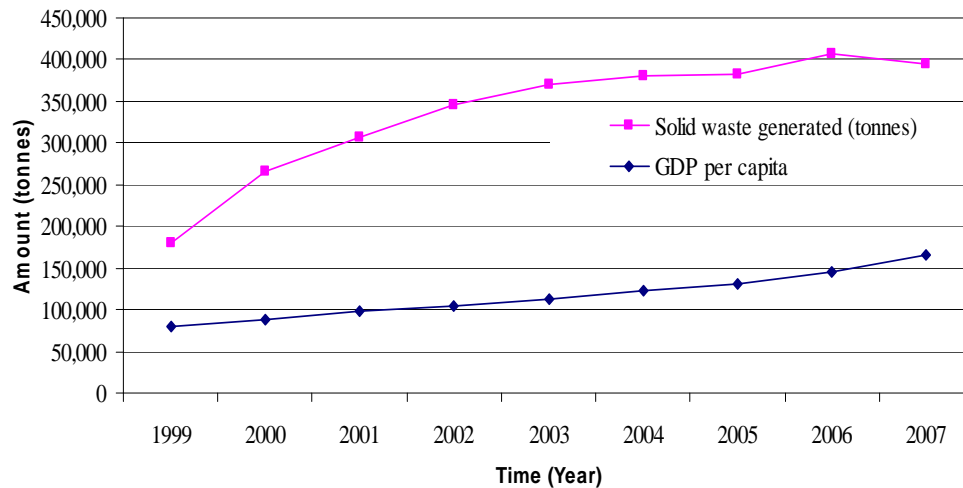
Poudre d'Or Transfer Station

La Laura Transfer Station

Mare Chicose Landfill



# Solid Waste Generated



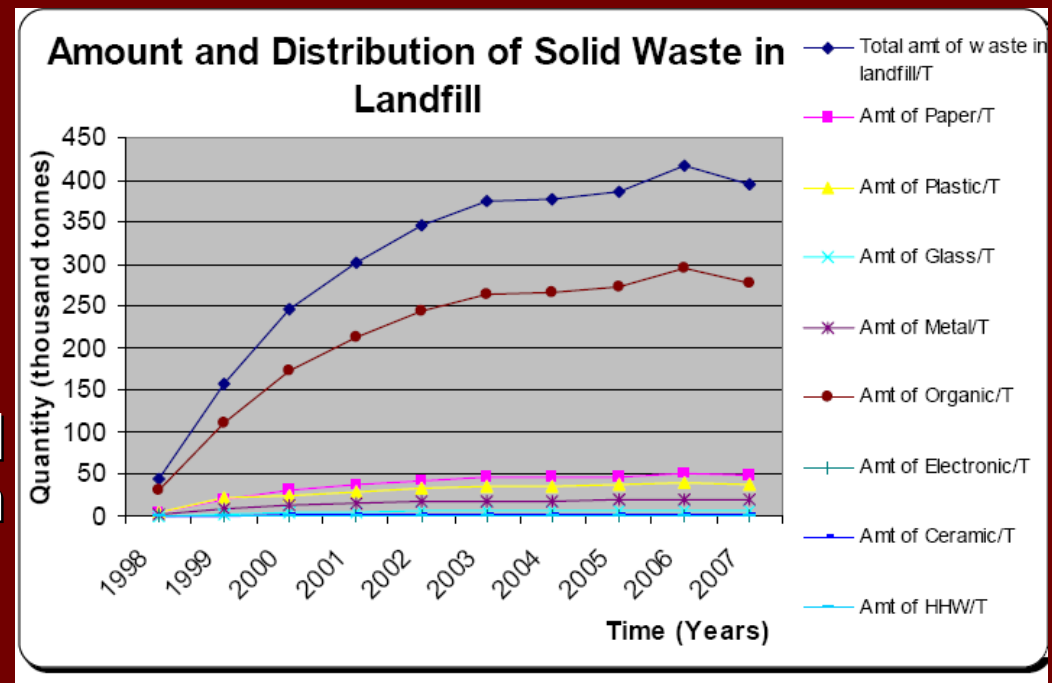
Composition- 1999		composition (on a weight basis)- 2002	
<b>Total Municipal Waste</b>	70%	<b>Food Waste</b>	25%
<b>Industrial Non-Hazardous Waste</b>	15%	<b>Yard Waste</b>	43%
<b>Construction &amp; Demolition Waste</b>	11%	<b>Plastics</b>	13%
<b>Hazardous Waste</b>	5%	<b>Paper</b>	12%
<b>Health Care Waste</b>	0.2%	<b>Textiles</b>	3%
<b>Sludge</b>	0.08%	<b>Metals</b>	1%



# Landfilling

- The last dump site in Mauritius was closed in 2001
- Landfill: lifespan was 19 years at a waste generation rate of 300 t/day
- the amount of wastes generated per year in Mauritius increased each year and in 2006, there was a peak of 417,729 t
- 500 m<sup>3</sup> leachate per day on average, which is carted away by trucks and is treated at the St. Martin Treatment Plant

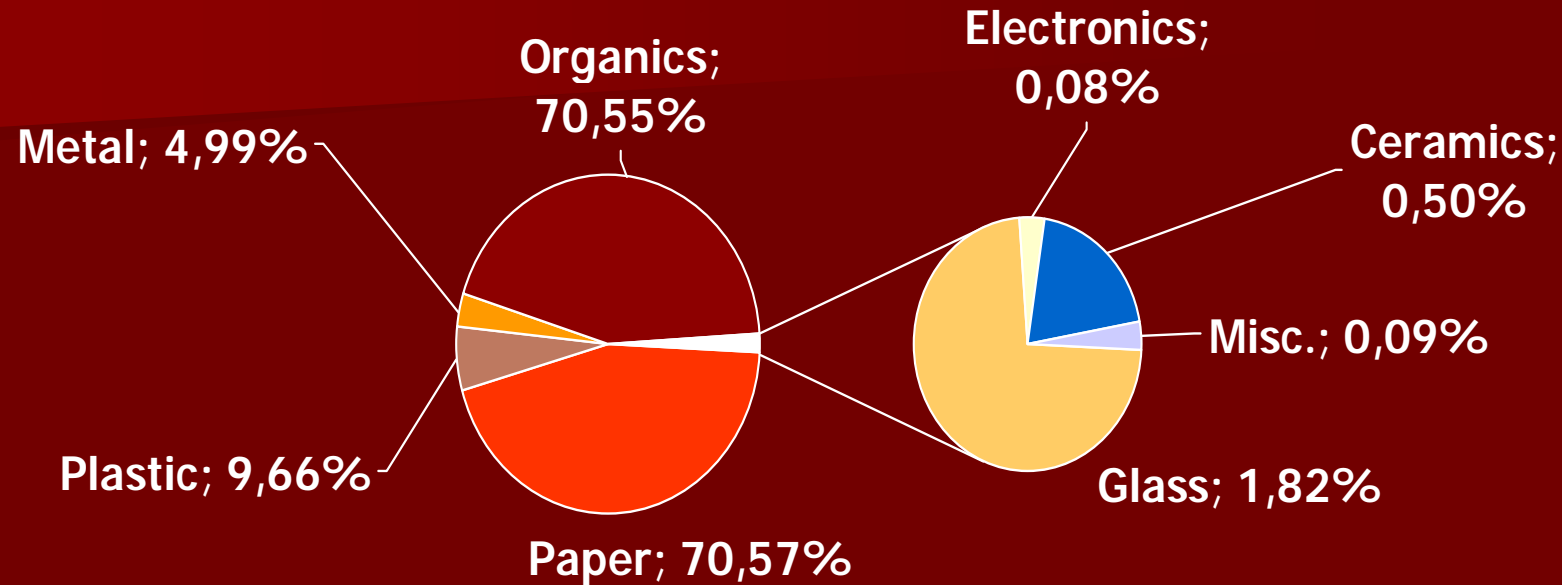
*the amount of wastes generated per year in Mauritius increased each year and in 2006, there was a peak of 417,729 t*



# Recycling Plants

- about 9% of paper, 3% of plastics and 31% of textiles are recycled. Some reused kitchen oils is being recycled for use but to a much lesser extent, and this is yet to be commercialised.
- Those involved in the recycling of PET bottles have to organise their own collection system at their own cost. The price they pay for the used bottles are quite low but these companies face some competition with other similar companies. The final products are exported for further use.
- In case of the recycling of paper and textile waste, much help is obtained from companies involved in production. However the transportation costs is still high compared to the volume of waste that is being recycled.
- Currently most of the waste produced goes to the landfill and there is not much segregation of waste at domestic level


# Composting



- more than 60% of the waste disposed in the island are of organic in nature, setting up of a national composting plant has been proposed
- The facility is intended to process 300 tonnes of unsegregated solid waste per day, that is, 100,000 tonnes per year-  $\frac{1}{4}$  of the total amount of waste being disposed at the landfill site.



# Future Potentials: Waste-to-Energy

A vibrant green parrot with a red beak is shown in flight, its wings spread wide. The background is a soft, out-of-focus natural setting with green foliage and a light sky.

- A Waste-to-Energy (WTE) Plant has been proposed with a capacity of 300,000 tonnes of solid wastes per year over 25 years of its operational life. The proposed project site is at La Chaumière, near the composting plant. The investment costs will be approximately MUR 6 billion.
- The ash (bottom and fly) produced from the combustion process is intended to be stored in a Residue Storage Facility which will be adjacent to the WTE facility.
- The slag or furnace bottom ash produced from combustion of MSW had been proposed to be re-used in the construction industry as sub-base material, structural fill and aggregate in asphalt (subject to environmental approvals).
- Source of tax revenue and a private sector investment that will preserve Government financial capital for other essential services and also, there will be a net reduction in greenhouse gas emissions associated with climate change.

# Conclusions

- The waste management system of Mauritius is not a fully integrated one.
- Waste generation rate is increasing year after year while the sole landfill of the country will be filled in a very near future.
- There is a wide scope of composting due to the high organic content (more than 60%) and an appropriate moisture content of around 50%.
- A composting plant and a waste-to-energy plant, which both will process the annual generation of 400,000 tonnes of waste producing compost and electrical energy respectively.
- DC like Mauritius should acquire an explicit picture of necessary balances and compromises between
  - economic growth and environmental protection,
  - the well targeted environmental policies, models and motives with the healthy imposition mechanisms, and
  - the active public participation with environmental awareness

# MAURITIUS 2011 - INTERNATIONAL CONFERENCE

## IMPORTANT DATES

Abstract submission	January 15, 2011
Reply to authors for abstract acceptance	February 15, 2011
Full paper submission	March 31, 2011
Reply to authors with reviewers' comments	May 15, 2011
Final paper submission	June 15, 2011

## CALL FOR PAPERS

International Conference on Waste Management  
in Developing Countries and Transient Economies

*MAURITIUS, AFRICA, 5-9 September 2011*



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