

Ministère de l'Environnement,  
de la Gestion des déchets et  
du Changement climatique

## LA GESTION DES DECHETS



Les Assises de  
**l'Environnement**

CAUDAN ARTS CENTRE / 16 -17 DECEMBRE 2019

## BACKGROUND

Waste is defined as “any substance or object which the holder discards or intends or is required to discard” (Directive 2008/98/EC). Solid wastes emanate from domestic, commercial and industrial activities and may either be hazardous or non-hazardous. Solid wastes generation is a major issue worldwide, with over 2 billion tons of municipal solid wastes (MSW) generated in 2016 while this is anticipated to increase to 3.4 billion tons in 2050 (World Bank Group, 2018: What a Waste 2.0). In 2018, about 543,196 tons of wastes were landfilled and coupled with economic development and an improvement in standards of living the amount of waste generated has been increasing at an average annual rate of 3.1% over the past 10 years.

Mismanagement of wastes can exacerbate propagation of vector-borne diseases. Additionally, putrefying wastes can cause surface and ground water pollution, nuisances such as odour, fire and proliferation of rodents as well as harmful greenhouse gases that contribute to global warming and climate change. Thus, effective solid waste management plays an important role in creating sustainable and low-carbon habitats and promotes the well-being of the population, thereby minimising the negative impacts caused to public health and the environment.

Mauritius has a structured solid waste management framework where Local Authorities are mandated for waste collection whilst transfer and disposal of wastes rest with the Solid Waste Management Division. Currently, only about 5% of the MSW generated are recycled and the total annual cost of waste collection, transfer and disposal is about Rs. 1.5 billion, i.e. about Rs 2,700 per tonne of waste. The cost of waste collection only is Rs. 1 billion and this is considered to be high and the collection system needs to be reviewed.

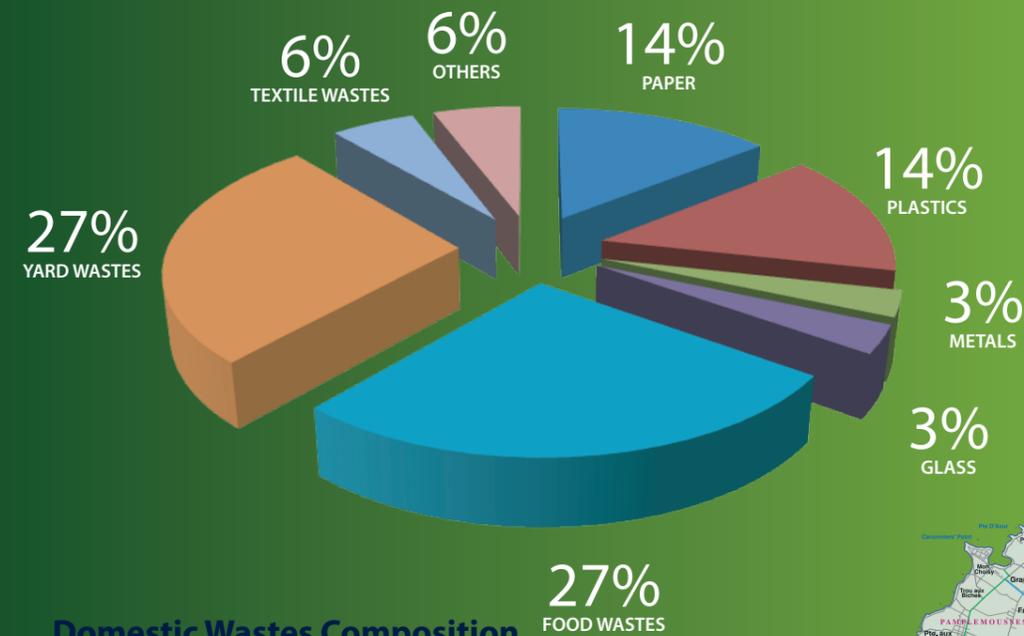
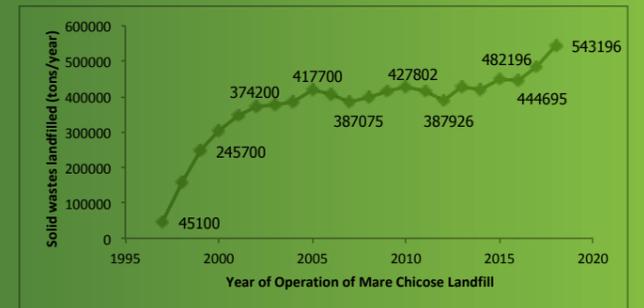
## VISION/TARGETS

To ensure an efficient and sustainable management of solid waste for the present and future generations in line with targets 12.4 and 12.5 of the UN Sustainable Development Goal 12. Environmentally safe and sound management of solid wastes must be at the core of sustainable development where waste is viewed as a resource, prioritising the need to shift from a linear approach (use and throw) to a circular economy whereby resource recovery and recycling are optimised.

“..Solid waste management plays an important role in creating sustainable and low-carbon habitats and promotes the well-being of the population..”

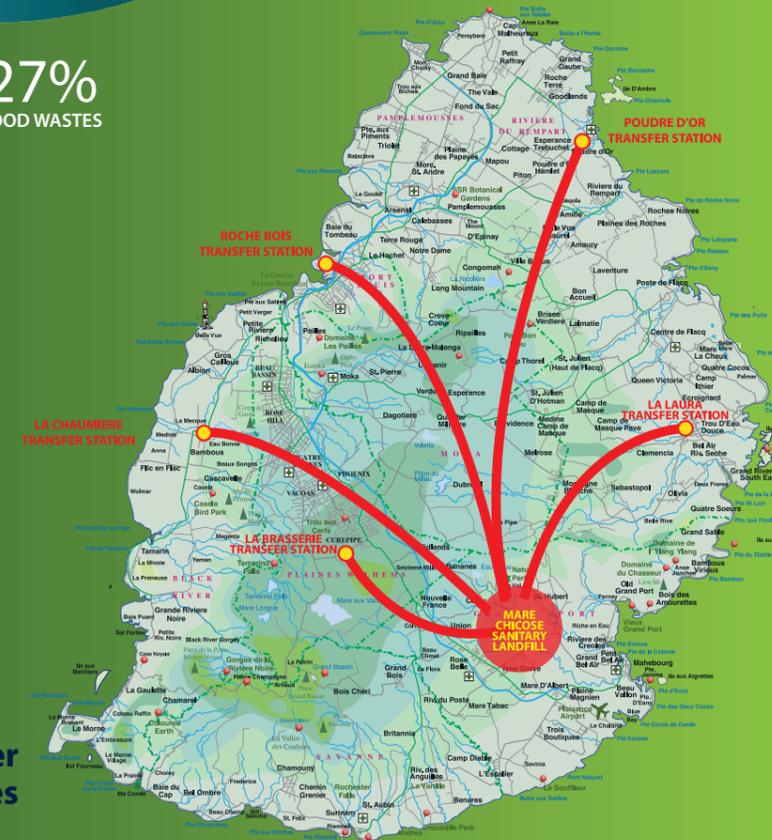
## CURRENT STATUS OF SOLID WASTE MANAGEMENT IN MAURITIUS SOLID WASTE COMPOSITION AND GENERATION

543,196 tons of wastes were landfilled in 2018 and this represents about 1,488 tons/day or 1.18 kg/person /day. A solid waste characterization study carried out in 2013/2014 revealed that solid wastes comprise domestic, commercial and industrial wastes with the following compositions:



## SOLID WASTE COLLECTION AND TRANSFER

Solid wastes are collected at least once weekly by the Local Authorities. The collected MSW transits through the five strategically located transfer stations prior to final disposal at the sole sanitary landfill at Mare Chicose. Only wastes from the southern part of the island are directly disposed at the landfill.



Location of solid waste transfer and disposal sites

## SOLID WASTE DISPOSAL – MARE CHICOSE LANDFILL

The Mare Chicose sanitary landfill started operation in 1997 and has received over 8 Million tons of wastes as at 2018. The Mare Chicose landfill is an engineered facility over 46 Ha, equipped with a double liner system, efficient leachate and landfill gas (LFG) collection systems to minimise any adverse impacts of solid wastes disposal on the environment. LFG (methane) is abstracted through a network of horizontal and vertical gas wells and directed to a LFG-to-energy plant (3x 1.15 MW) for the production of electricity. Since 2011, over 140 GWh of electricity has been generated from LFG and sent to the National Grid.



## SOLID WASTE RECYCLING

All the collected waste is basically landfilled and the level of recycling is very low. The relatively small quantities of recyclables sorted at national level, high transportation costs, the distance to international markets, and the lack of economic and legal instruments to encourage landfill diversion limits recycling initiatives. It is estimated that 5% of the total solid wastes generated are currently recycled. There are 36 registered recyclers/exporters in Mauritius contributing to recycling and resource recovery (List available at: <http://environment.govmu.org/English/Documents/SWMD/list%20of%20recyclers.pdf>). To further increase the recycling rate in Mauritius, the following budgetary measures have been announced:

- A tipping fee of Rs. 300 per ton of wastes taken from transfer stations to be recycled.
- The provision of Rs. 2000 for each ton of used tyres recycled or exported for recycling.
- Increase in the incentive for PET bottle recycling from Rs. 5 to Rs. 15/kg of PET bottles.



## HAZARDOUS WASTE MANAGEMENT

To provide for the environmentally safe and sound management of hazardous wastes, an interim hazardous waste storage facility was set-up at La Chaumiere, Bambous and is operational since 2017. This state-of-the-art facility ensures that hazardous chemical wastes such as acids, alkalis, heavy metal wastes, obsolete pesticides, sludges and pharmaceutical wastes generated on the island are properly characterised, collected, repackaged, stored and exported to licensed recovery and disposal facilities, thereby minimising the risks to the environment and public health. So far, 225 tons of hazardous chemical wastes have been collected and stored at the IHWSF for exportation and treatment.



### Wastes accepted at the IHWSF

- Inorganic solid and liquid chemical wastes
- Organic chemical wastes
- Mixed inorganic/organic liquid and solid wastes
- Pharmaceutical wastes
- Waste aerosols
- Compressed gases

## ISSUES OF CONCERN

The major issues of concern are:

- Saturation of the Mare Chicose landfill by May 2020 and land scarcity for siting of waste disposal infrastructure and need for land planning policies.
- Need for a National Integrated Waste Management Strategy and Action plan with clear targets.
- Devising policies (regulations and economic incentives) to divert wastes from landfill
- Perception of public with respect to collection and disposal of waste as a free service.
- Implementation of waste segregation at source - MSW or for industrial wastes-which means waste are contaminated and have little/no economic value.
- Setting-up of civic amenity centres for the disposal of bulky wastes, E-wastes and unwanted materials
- Organic wastes (about 60% of waste entering Mare Chicose) are compostable but are insufficiently recovered.
- Economic instruments to promote recycling (EPR, charges, taxes, deposit refund schemes, subsidies).
- Public irresponsibility/civic sense and lack of continuous awareness-raising to change mentality and perception about solid wastes.
- Concern on enforcement and littering and dumping, including illegal disposal of bulky waste on road side / bare lands/ river side.
- Hazardous waste collection for disposal
- harmonisation of laws and regulations with respect to enforcement on both solid and hazardous regulations and compliance
- Management of Construction and Demolition (C & D) wastes
- Management of end-of-life vehicles

## EXISTING POLICIES AND STRATEGIES

### Waste disposal

- Actions have been initiated to extend the Mare Chicose landfill vertically on its current footprint.

### New Solid Waste Management Strategy

- A new strategy is being considered with focus on resource recovery and recycling

### Technical Committee

A Technical Committee has been set up by Government to assist an Inter-ministerial Committee under the Chair of the Honourable Prime Minister to set the way forward for a sustainable solid waste management.

## EXISTING LAWS AND REGULATIONS

- Environment Protection (Waste Oil) Regulations 2006
- Local Government (Dumping and Waste Carriers) Regulations 2003
- Local Government (Registration of Recycler and Exporter) Regulations 2013
- Local Government (Registration of Scavenging Contractors) Regulations 2004
- Environment Protection (Standards for hazardous wastes) Regulations 2001
- Environmentally sound management of electrical and electronic wastes (Being Drafted)



## ACTIONS TAKEN/ONGOING

### DISPOSAL/RECYCLING OF WASTE

To prevent a waste disposal crisis post May 2020, initiatives have already been taken to increase the disposal capacity of the Mare Chicose landfill through vertical expansion. A consultancy team has already been recruited and has already submitted its detailed design of the vertical expansion. It is expected that the Works contract will be awarded by April 2020.

- A national household E-waste collection campaign was carried out in 2019: 62,000 E-waste items have been collected for exportation/recycling.
- With regards to dismantling of ex-CHA houses and disposal of cemented asbestos sheets, the Government has made necessary provisions in the Budget 2019/2020.
- Used batteries and waste oils are being collected by Contractors for recycling.
- Empty pesticide containers are being collected after triple-rinsing under the responsibility of the Ministry of Agro-Industry and Food Security and sent to recyclers.

### RESOURCE RECOVERY AND RECYCLING

A solid waste strategy and action plan is under preparation with focus on resource recovery and recycling. There is a need to review the design of the existing 5 transfer stations to consider setting facilities where appropriate. The involvement of recyclers and NGOs in upcycling of wastes has to be considered.

## PROPOSED ISSUES FOR DISCUSSIONS (NON-EXHAUSTIVE)

- Waste disposal sites and infrastructure development – landfill, waste-to-energy
- Solid Waste Management Strategy and Action Plan-
  - source separation of waste in pilot areas
  - Setting-up of a material recovery facility
  - Composting of green and organic waste including home composting
  - Civic amenity centres in urban and rural areas
- Waste-to-Energy (WTE)
  - Different types: Anaerobic digestion, Incineration, Gasification and Pyrolysis
  - Suitability: Moisture content of MSW, Calorific Value
- Legislation pertaining to WTE: Proper treatment of flue gas
- Need for a feasibility study: Siting, Sizing, Investment and Operating Costs
- The issue of illegal dumping and littering – review of regulations and enforcement
- National E-waste management system
- Hazardous waste collection and management
- Sensitization and literacy campaigns
- Harmonisation of laws and regulations with respect to enforcement and compliance
- Construction and demolition wastes management and disposal of end-of-life vehicles

## PROJECTS IMPLEMENTED/ BEING IMPLEMENTED

### VERTICAL EXPANSION OF THE MARE CHICOSE LANDFILL

Tender documents are being finalised and tender will be launched in early 2020.

### RESOURCE RECOVERY AND RECYCLING

- Awaiting recommendations of the Technical and Inter-ministerial Committees.
- Construction of facility for storage of C&D waste La Chaumiere transfer station.
- Consultancy services for the management of end of life vehicles being procured.
- Consideration of restart of operation of compost plant at La Chaumiere (under receivership).



## DISCUSSIONS WITH PARTICIPANTS

A brief situational analysis will be effected for the participants to understand the current solid waste management landscape and the challenges in the sector.

### Where we are

- Landfill saturation by May 2020 - Vertical extension of landfill
- Waste characterisation and opportunities for Recycling of waste -Low Recycling rates
- Waste diversion from landfill - Possibilities for Industrial Symbiosis, composting plant at La Chaumiere
- Actions taken on development of a New Strategy and Action Plan - source separation, material recycling facility, composting, civic amenity centres
- Hazardous waste management - Actions taken so far

### Where we need to go?

In view to ensuring a sustainable waste management system, there is a need to adopt the waste management hierarchy. The new solid waste management strategy recommends 5 strategic areas based on the waste management hierarchy as follows:

- 5 Strategic Areas – New Solid Waste Management Strategy
- In line with the Strategic Areas, the following represents the way forward for the Solid Waste sector:
  - Safe long term disposal of waste
  - Source separation of waste and development of infrastructures
  - Increased waste recovery and recycling
  - Composting of green and kitchen waste
  - National E-waste collection and recycling
  - Collection and management of hazardous wastes

### How to reach there?

- Reinforcement of institutional set up
- Capacity building and training of staff
- Education and sensitisation – outreach
- Transfer of technology
- Funding for capital projects
- Further studies required





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