DEVELOPMENT OF FUEL ECONOMY POLICIES – THE CASE OF MAURITIUS

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Structure of Presentation

- Statistics on the transport sector;

- Present and forecasted fuel consumption levels;

- Some findings of the study on the socio-economic impact of policies on low and no-emission vehicles;

- Development of GFEI Policies and Strategies
  - Approach and process to GFEI implementation;
  - Addressing the problem tree;
  - Strategies and recommendations; and

- Way forward
Link between demography and vehicle ownership

Evolution of the population size and number of vehicles for the island of Mauritius (2005-2016)

Source: Statistics Mauritius (2017)
Between 2006 and 2016 (over a decade)

- Overall fleet increase from 319,440 to 507,676 (59% increase)
- Cars increased from 91,911 to 202,696 (120% increase)
- Buses increased from 2,612 to 3,107 (19% increase)
- Two-wheelers increased from 138,174 to 199,388 (44% increase)
Present and forecasted fuel consumption levels

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected petrol consumption (million litres)</th>
<th>Projected diesel consumption (million litres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>240.4</td>
<td>276.7</td>
</tr>
<tr>
<td>2030</td>
<td>355.6</td>
<td>401.8</td>
</tr>
<tr>
<td>2050</td>
<td>778.0</td>
<td>920.4</td>
</tr>
</tbody>
</table>
Greenhouse gas emissions from the land transport sector (2000 - 2016)
Broad Findings

• Motor Vehicle Renewal Licence (yearly) and Registration Fees are 50% lower for all hybrid motor cars as from 30 July 2016.

• The difference in Excise Duty between conventional vehicles as compared to hybrid vehicles ranges between 20% to 30% depending on engine capacity.

• Between 2010 and 2017, the number of hybrid vehicles rose from 118 to 6406; a rise of more than 50-fold.

• Expected loss in public sector revenue in 2017 would be MUR 218.1 M (US$ 1 = MUR 35) in case of an annual increase of 130% in the number of hybrid vehicles.
Empirical Findings

- Respondents were found to be aware of hybrid and electric vehicles, but do not have much information on their characteristics with greater precision.

- Respondents were found to be aware of the fiscal incentives provided, but not necessarily aware of their significance.

- Respondents were willing to purchase fuel-efficient vehicles, with some degree of apprehension for electric vehicles.

- The purpose of having hybrid and electric vehicles may be defeated if the demand for fossil fuel remain the same.

- The Light Rail Transit project was viewed as a breakthrough to make the transport more efficient.
On-going Government Policies and Measures

- Mostly infrastructural works and better public transport.
- But not targeting fuel economy and greenhouse gas emissions specifically.

Two-pronged approach

- GFEI Phase I (2013 to 2014)
- GFEI Phase II (2015 – 2018)

GFEI Phase I

- Benefits obtained
  - Data collection (vehicle inventory);
  - Further enhance stakeholder networks;
  - Generate policy interest in the topic;
  - Develop interim policy options based on cost-benefit analyses;
  - Contribute to public sensitization; and
  - Capacity building of local stakeholders.

- This phase laid down the foundation for further analysis, discussion and development of a detailed vehicle strategy.
GFEI Phase II

APPRAOCH

- Based on the framework formulated during the Experts Conference on Sustainable Transport in Africa held on 28-30 October 2014, Nairobi (ASTF).

- Building on lessons learnt from Phase 1:
  - Incomplete data capture for the vehicle inventory.

PROCESS

- Engage key line Ministries to drive/pilot Working Groups
  - 6 Working Groups
  - Reporting to a Steering Committee
  - Realistic policy formulations
  - Ownership of project results
  - Require close coordination, dedication, as well as value stakeholder inputs

- Over 80 consultative meetings
  - Held between 2015 and 2017
  - With Ministries, para-statal bodies, academia, and the private sector
Objectives

- Share findings and
- Learn from other countries’ experiences
Steering Committee

GFEI Project Team

Working Group 1
Motor Car Labelling Regulations and Consumer Awareness Programme

Working Group 2
Ultra-Low Sulphur Fuels and Enforcement

Working Group 3
Socio-economic impact of policies on low and no-emission vehicles including two wheelers and introduction of cleaner fuels

Working Group 4
Vehicle Inventory and Data Entry Tool

Working Group 5
Traffic Management Measures

Working Group 6
Financial Incentives
Rising emissions and increased fuel consumption from the road transport in Mauritius

Increasing use of conventional vehicles

- Restricted market availability for vehicles with state-of-the-art emission control technologies
- Current sulphur content in fuel restricts the importation of efficient conventional vehicles

Consumer preference for existing conventional vehicles

- Consumers trust existing (carbon-intensive) technologies available on the local market
- Lack of incentives to purchase alternatives (hybrid/electric)
- Public procurement procedures favour conventional vehicles

Lack of awareness on cleaner alternatives

Lack of perceived capacity to maintain alternative cleaner vehicles

Increased traffic congestion

- Sub-optimal traffic control
- Lack of enforcement of traffic regulations

- Carrying capacity of current road infrastructure exceeded

- Preference for private means of transport for mobility

- Inadequate planning
- Restricted ability to expand road infrastructure
- Ineffective public transportation

Competing use of road space

Inadequate and ineffective legislative framework to control emissions from vehicles

- Lack of capacity: equipment, human resource, technical know-how
- Penalties are not deterrent enough
- Regulations controlling vehicular emissions are still equivalent to the outdated EURO 1/I emissions standards
Key Strategies

- 5 overarching strategies:
  - Introduction of ultra-low sulphur fuels and alternative clean fuels;
  - Promotion of energy efficient vehicles;
  - Improvement in traffic management;
  - Enhancing monitoring and enforcement;
  - Bringing behavioural change through education and sensitisation programmes.
Key recommendations

- Introduction of petrol and diesel with 10 ppm Sulphur in the short term.
  - Other constituents in fuels to be aligned with international norms

- Fiscal and non-fiscal measures will have to be put in place to increase the market share of hybrid and electric vehicles, e.g:
  - Provision of soft loan facilities for the public to purchase hybrid and electric vehicles;
  - Provide incentives for bus operators to purchase hybrid and electric buses;
  - Government and parastatal bodies to lead by example by including the purchase of hybrid and electric vehicles within their procurement exercise;
A wide array of measures has been recommended to optimise traffic flow, including:

- Traffic control measures such as grade separated junctions, centralised area wide traffic control systems and road infrastructural improvements;
- Promotion of mass transport (LRT);
- Introduction of bus priority lanes along the main traffic corridors;
- NMT;

Reinforce capacity to monitor both roadside tailpipe vehicular emissions and ambient air quality;

Importation of more efficient vehicles that abide by at least EURO 4/IV emission standards;
To encourage behavioural change amongst vehicle buyers and drivers:

- A motor car labelling scheme be implemented to provide consumers with information on fuel consumption and carbon dioxide emission on new cars;
- Sensitisation campaigns be conducted to ventilate the financial and environmental advantages of shifting to hybrid and electric vehicles.
## Current Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>Fuel Economy for LDVs</th>
<th>Fuel Economy for HDVs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Fuel Consumption (l/100km)</td>
<td>Average CO₂ Emissions (g/km)</td>
</tr>
<tr>
<td>2005</td>
<td>7.0</td>
<td>186</td>
</tr>
<tr>
<td>2013</td>
<td>6.6</td>
<td>169</td>
</tr>
<tr>
<td>2014</td>
<td>5.8</td>
<td>145</td>
</tr>
<tr>
<td>2015</td>
<td>5.9</td>
<td>146</td>
</tr>
</tbody>
</table>

N/A: Not available

(Figures obtained under the GFEI project through Vehicle Inventory carried out by the National Transport Authority)
# The Impact of Fiscal Incentives

## Excise Duty Rates for Motor Cars

<table>
<thead>
<tr>
<th>Type of Motor Car and cylinder capacity (c.c.)</th>
<th>Rates of Excise Duty prior to 2016-17 Budget</th>
<th>Rates of Excise Duty after 2016-17 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional Motor Cars:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 550 c.c.</td>
<td>15%</td>
<td>0%</td>
</tr>
<tr>
<td>551 - 1,000 c.c.</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>1,001 - 1,600 c.c.</td>
<td>55%</td>
<td>50%</td>
</tr>
<tr>
<td>1,601 - 2,000 c.c.</td>
<td>75%</td>
<td>75% (no change)</td>
</tr>
<tr>
<td>Above 2,000 c.c.</td>
<td>100%</td>
<td>100% (no change)</td>
</tr>
<tr>
<td>Hybrid Motor Cars:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 1,600 c.c.</td>
<td>55%</td>
<td>25%</td>
</tr>
<tr>
<td>1,600 - 2,000 c.c.</td>
<td>75%</td>
<td>45%</td>
</tr>
<tr>
<td>Above 2,000 c.c.</td>
<td>100%</td>
<td>70%</td>
</tr>
<tr>
<td>Electric Cars:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 180 kW</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>Above 180 kW</td>
<td>25%</td>
<td>25% (no change)</td>
</tr>
</tbody>
</table>

## Cumulative Number of Electric Vehicles

![Graph showing cumulative number of electric vehicles](image)

## Cumulative Number of Hybrid Vehicles

![Graph showing cumulative number of hybrid vehicles](image)
Activities undertaken - over and above original PCA requirements

- Specific Working Group on Fuel Quality
- Specific Working Group on Financial Implications
- Devising a Consolidated Report
  - Develop a theory of change (via a problem tree connecting the dots)
Identify cross-cutting elements within six Working Group Reports delivered;

Ensure synergies and harmonisation of recommendations between the Working Groups;

Easier to ensure formal buy-in of Government through one document.
The Way Forward

- Get formal high-level Government approval for implementation of the plan of action formulated in the Consolidated Report:
  - By appraising Cabinet of Ministers; and
  - Ensuring the sustainability of GFEI recommendations
    - via the institutionalisation of a committee to oversee the implementation of its recommendations in the long-run.

- Proceed with sensitisation of public;

- Promulgate motorcar labelling regulations.
Thank you for your attention