Developing Clean and Efficient Vehicle and Fuel Policy for Nepal

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Introduction

CEN is an independent, non-profit service oriented, policy, research and implementation organization focusing on research based education and advocacy campaigns with policy inputs and implementation on issues related to sustainable energy use and environmental conservation.

Vision: Towards Clean and Sustainable Environment for All

CEN's missions are:
- To educate and aware people on issues related to climate change, energy and other environmental issues.
- To work for reducing air pollution and global warming impacts to natural and human system.

The objectives of CEN are:
- Investigate issues relevant to energy, environment and climate change
- Facilitate discussions, information sharing and knowledge management among key stakeholders
- Educate the public on the importance of these issues and what they can do about it
- Advocate for change
- Initiate and conduct projects that benefits most vulnerable section of society
Environment Performance Index (EPI) Ranking for Nepal’s Air Quality

- **2014**: 177/178 Countries
- **2016**: 177/180 Countries
- **2018**: 180/180 Countries
Air Pollution in Nepal

• Annual average PM2.5 concentration:
  • 49 micrograms per cubic meter (µg/m³) (NHRC, 2013)

• In contrast:
  • Ambient air quality standards:
    • WHO Annual: 10 µg/m³,
    • WHO 24 hour: 25 µg/m³
    • Nepal government 24 hour: 40 µg/m³

• Estimated economic costs of urban air pollution in Nepal - USD 21 million, or 0.29% of Nepal’s GDP (CEN, 2012)

• Leading environmental risk factor
  • Deaths
    • 740 - acute lower respiratory infection
    • 1,770 - Chronic obstructive pulmonary disorder
    • 932 - Lung cancer
    • 3,328 - Ischemic heart disease
    • 3,183 - Stroke

(WHO, 2016)
Sectoral Energy Demand

![Sectoral Energy Demand Chart]

- Residential
- Industrial
- Transport
- Commercial
- Agriculture
- Others

Years:
- 2001/02
- 2002/03
- 2003/04
- 2004/05
- 2005/06
- 2006/07
- 2007/08
- 2008/09
- 2009/10
- 2011/12

Values:
- 2001/02: 282.12
- 2002/03: 298.04
- 2003/04: 308.11
- 2004/05: 325.9
- 2005/06: 351.51
- 2006/07: 377.93
- 2007/08: 352.79
- 2008/09: 538.58
- 2009/10: 700.09
- 2011/12: 628.79
Trend of Vehicles Registration in Nepal

Exponential Growth - More than 3 millions by FY 2017/18

Source: DoTM, 2018
Trend of Vehicle Registration in Nepal

Source: DoTM, 2018
More than 64% of the LDVs registered in Nepal

Source: DoTM, 2018
Objective

Develop clean and efficient vehicle policies in developing appropriate policies to encourage more efficient vehicles

- Fiscal policies
- Electric vehicles
- Vehicle Labelling Schemes
## Obtain Vehicle Registration Data

<table>
<thead>
<tr>
<th>Registration No.</th>
<th>Vehicle Type</th>
<th>Model</th>
<th>Production Year</th>
<th>Company</th>
<th>No. of cylinders</th>
<th>Capacity (c.c)</th>
<th>No. of Seats</th>
<th>Fuel Type</th>
<th>Vehicle Registration Date (B.S.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ba 14 Cha 34</td>
<td>Pick Up</td>
<td></td>
<td>2009</td>
<td>Mahindra and Mahindra</td>
<td>4</td>
<td>2523</td>
<td>2</td>
<td>Diesel</td>
<td>9/14/2072</td>
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<td>Omni</td>
<td>2010</td>
<td>Maruti Suzuki</td>
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<td>796</td>
<td>8</td>
<td>Diesel</td>
<td>9/14/2072</td>
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<tr>
<td>Ba 14 Cha 36</td>
<td>Van</td>
<td>Ace Magic</td>
<td>2015</td>
<td>Tata Motors</td>
<td>2</td>
<td>702</td>
<td>8</td>
<td>Diesel</td>
<td>9/19/2072</td>
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<tr>
<td>Ba 14 Cha 37</td>
<td>Van</td>
<td>Ace Magic</td>
<td>2015</td>
<td>Tata Motors</td>
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<td>702</td>
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<td>8</td>
<td>Diesel</td>
<td>9/19/2072</td>
</tr>
<tr>
<td>Ba 14 Cha 40</td>
<td>Jeep</td>
<td>Sumo Gold GX</td>
<td>2015</td>
<td>Tata Motors</td>
<td>4</td>
<td>2956</td>
<td>9</td>
<td>Diesel</td>
<td>9/26/2072</td>
</tr>
<tr>
<td>Ba 14 Cha 41</td>
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<td>Hilux</td>
<td>2015</td>
<td>Toyota Motors</td>
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<td>5</td>
<td>Diesel</td>
<td>10/24/2072</td>
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<tr>
<td>Ba 14 Cha 42</td>
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<td>EcoSport</td>
<td>2015</td>
<td>Ford</td>
<td>4</td>
<td>1499</td>
<td>5</td>
<td>Petrol</td>
<td>9/17/2072</td>
</tr>
<tr>
<td>Ba 14 Cha 43</td>
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<td>EcoSport</td>
<td>2015</td>
<td>Ford</td>
<td>4</td>
<td>1499</td>
<td>5</td>
<td>Petrol</td>
<td>9/17/2072</td>
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<td>1499</td>
<td>5</td>
<td>Petrol</td>
<td>9/17/2072</td>
</tr>
<tr>
<td>Ba 14 Cha 48</td>
<td>Car</td>
<td>Figo Aspire</td>
<td>2015</td>
<td>Ford</td>
<td>4</td>
<td>1196</td>
<td>5</td>
<td>Petrol</td>
<td>9/17/2072</td>
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<td>Ba 14 Cha 49</td>
<td>Car</td>
<td>Figo Aspire</td>
<td>2015</td>
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<td>4</td>
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</table>
## Structuring the data

### Fuel Economy Data by Vehicle Make/Model

<table>
<thead>
<tr>
<th>Vehicle Make</th>
<th>Vehicle Model</th>
<th>Vehicle Category/Market Segment</th>
<th>Year of Manufacture</th>
<th>No. of Cylinders</th>
<th>Fuel Type</th>
<th>Engine Capacity (CC)</th>
<th>Engine Power (kW)</th>
<th>Original Data</th>
<th>Fuel Economy on NEDC (l/100 km)</th>
<th>Driving Cycle</th>
<th>Fuel Economy (l/100 km)</th>
<th>Emissions Co2/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAIHATSU</td>
<td>Terios</td>
<td>Compact Off-road/SUV</td>
<td>2006-present</td>
<td>4</td>
<td>P</td>
<td>1495</td>
<td>77</td>
<td>NEDC</td>
<td>7.7</td>
<td></td>
<td>176.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sirion</td>
<td>Hatchback</td>
<td>2008-2015</td>
<td>4</td>
<td>P</td>
<td>1298</td>
<td>68</td>
<td>NEDC</td>
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<td></td>
<td>137.0</td>
<td></td>
</tr>
<tr>
<td>Ashok Leyland</td>
<td>Dost LS</td>
<td>PickUp</td>
<td>2014</td>
<td>3</td>
<td>D</td>
<td>1478</td>
<td>42.51</td>
<td>ARAI</td>
<td>17.6 kmpl</td>
<td></td>
<td>BS III</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avventura 1.4 Active</td>
<td>SUV</td>
<td>2015</td>
<td>4</td>
<td>P</td>
<td>1368</td>
<td>89 bhp @ 6000 rpm</td>
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### Structuring the data
Vehicles Import in Nepal (By Countries)

Source: Trade and Export Promotion Center, 2018
Preliminary Results

Number of LDVs registered (By Make)
Preliminary Results

Number of LDVs registered (By Fuel Type)
Sales of Petroleum Products (FY 2005/06 - 2017/18)

Source: NOC, 2018
Next Step: Data-Based Decision Making

- Establish the baseline fuel economy
- Assessment of Clean and Efficient Vehicle Policy in Nepal
- Develop Appropriate Fiscal Policies for Nepal
- Develop Auto Fuel Economy Labelling Schemes for Nepal
Policies and Regulations

- **National Transport Policy,**
- **Environment Friendly Vehicle and Transport Policy**
  - 20% of total vehicle will be environment friendly by 2020, at least 10 charging station will be established around the ring road
- **Nationally Determined Contribution (NDC)**
  - NDC Target 10: By 2050, Nepal will decrease its dependency on fossils in the transport sector by 50% through effective mass public transport means while promoting energy efficient and electrical vehicles
- **50 paisa pollution tax per liter of petrol and diesel from 2007**
- **National Vehicle Mass Emission Standard (2012)- Euro 3**
- **Fuel standard- Euro 4 or BS IV**
- **Vehicle Fitness Testing Centre**
  - Green stickers (Vehicle Emission Testing system for in-use vehicles)
Policies and Regulations

**In Drafts**

- National Sustainable Transport Strategy 2015-2040
- National Pollution Control Strategy and Action Plan
- National Low Carbon Economic Development Strategy
- Air Quality Management Action Plan for Kathmandu Valley, 2017
  - Promote Zero Emission and Cleaner Vehicles through minimum possible duties on zero emission vehicles, economic incentives for hybrid vehicles and developing bus terminals with charging system to encourage zero emission public transport buses by 2020
- National Action Plan for Electric Mobility, 2018
  - Establishing a Unit for Electric Mobility
  - Launching a National Program for Electric Mobility
  - Establishing and capitalizing a National Financing Vehicle
Major Challenges

- Inadequate baseline information and lack of data sharing mechanism
- Inadequate knowledge and technical challenges
- Weak institutional capacity
- Effective implementation of existing plans and policies
Thank You

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