Nepalese Experience on Management of Motor Vehicles

Regional Consultation on
Vehicle Import Policy Road Map for Clean Air
May 31, 2018
Zanzibar, United Republic of Tanzania

(Center for Science and Environment, India)

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Department of Transport Management
## A Brief Country Profile

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>147,181 km²</td>
</tr>
<tr>
<td>Population (2016)</td>
<td>28.331 million</td>
</tr>
<tr>
<td>Species of Fauna</td>
<td>4395</td>
</tr>
<tr>
<td>Species of Flora</td>
<td>10,091</td>
</tr>
<tr>
<td>Number of rivers</td>
<td>6000</td>
</tr>
<tr>
<td>total annual average surface run-off in rivers</td>
<td>225 Billion Cubic Meter</td>
</tr>
<tr>
<td>Human Development Index</td>
<td>Score 0.548 (2014)</td>
</tr>
<tr>
<td>Share in global GHG emission</td>
<td>0.027%</td>
</tr>
<tr>
<td>GDP (Producers’ Price) (2017/18)</td>
<td>US $ 30 Billion (estimated)</td>
</tr>
<tr>
<td>Share of Agriculture in GDP (2017/18)</td>
<td>27.6%</td>
</tr>
<tr>
<td>GDP growth rate (2017/18)</td>
<td>5.9% (estimated)</td>
</tr>
<tr>
<td>GDP per Capita (2017/18)</td>
<td>US$ 1004</td>
</tr>
<tr>
<td>Literacy (15-24 Years)</td>
<td>88.6%</td>
</tr>
</tbody>
</table>
Nepalese Experience on Management of Motor Vehicles

**GDP Growth %**

**Agriculture Sector Growth %**

**Service Sector Growth**

**Industrial Sector Growth %**

Regional Consultation on Vehicle Import Policy and Road Map for Clean Air: Zanzibar: 31 May 2018
Structure of Economy (2016/17)

Agricultural: 56%
Manufacturing: 14%
Service: 30%

labour Force Across Sectors (2014)

Agricultural: 69%
Manufacturing: 12%
Service: 19%
Constitutional, Policy and Legal Arrangements:

- National Transport Policy (2001)
- Climate Change Policy (2011)
- Environment Friendly Vehicle and Transport Policy (2014)
- Environment Protection Act (1997)
- Ozone Depleting Substances Consumption (Control) rules (2001)
- Motor Vehicle and Transport Management Act (MVTA) (1993)
- Emission Standard for In-Use Vehicles (1998)
Issues on Transport Sector & Environment

- Lack of Exact Data: no specific study carried out so far
- Infrastructure: poor condition of roads, no railway, water way not being used, intermodal transport in primitive stage, difficult terrain
- Inefficient and Polluting Vehicles
- Weak Enforcement Capacity / Poor Compliance
- Lack of Awareness and Motivation among Vehicle Users and Transport Service Providers
- Market: fragmented service provider – organizations, no incentives from government to support technology upgradation, lack of access to low cost finance and technology
- Failure to harness hydro-electric Potential as source of energy for Transport
Opportunities and Way Forward:

- Systematic Study of Exact Situation for Reliable Data
- Strict Enforcement of Prevailing Standards
- Education and Training for Stakeholders
- Better Traffic Management (Vehicles, Routes, Time)
- Technological Intervention: use of better tires, roof deflectors, catalytic converters, promotion of preventive maintenance
- Access to Technical Assistance and Low Cost Finance
- New and Updated Standards for Vehicles
- Infrastructure Building: better, strategic roads, railway, dry ports, petroleum pipelines
- Transforming the Energy Mix: increasing electricity production, substitution of petroleum products
Number of Motor Vehicles

Total Number of Motor Vehicles Registered up to 2016/17
(2,783,428)

- Motorcycles: 79%
- Others: 21%
Number of Motor Vehicles

Number of Vehicles Registered up to 2016/17 except Motorcycles) (594,329)

- Car/Van: 36%
- Pickup: 8%
- Micro bus: 1%
- 3 Wheeler (Tempo): 5%
- Tractor: 22%
- Ericksaw: 2%
- Minibus/Mini trucks: 4%
- Trucks and Heavy Vehicles: 13%
- Bus: 9%
Number of Motor Vehicles

Rate of Increase of Stock of Motor Vehicles

2013 2014 2015 2016

20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00

12.73
13.65
17.23
18.99

Nepalese Experience on Management of Motor Vehicles
Institutional Framework for Transport Regulation

Ministry of Physical Infrastructure and Transport

Department of Transport Management

Transport Management Offices (14)

Vehicle Fitness Test Center (1)
Under Plan (8)

Transport Management Service Offices (16)
Mass Emission Provision for New Vehicles to be Imported

- No Pre-shipment Inspection

- No measurement of Mass Emission in Chassis Dynamometer or Engine Dynamometer

- Import permitted upon submission of Type Approval and Conformity of Production certificates issued by competent authority in Manufacturing Country
Biannual Road Test for Public Vehicles

Rule 39(2) of MVTMR: Details to be examined during a Road Test

- Vehicle body
- windows,
- Seats
- Windscreen
- headlights, sidelights, back lights and other lights
- starting, pick-up and general tuning of engine
- steering
- Brakes
- Gears,
- Tires
- Wheels
- Springs
- Tie-rod
- Noise and Emission
Regulation Trail (Pursuing Greener Transport)

30 Aug 1999 (Nepal Gazette Part 49 Supplement 21 (A+1))

- Registration of new 2 Stroke Engine Vehicles Banned

- Registration and Transfer of Title of Diesel powered 3 Wheelers Banned

- 99% custom duty and 100% Value Added Tax waived for the entrepreneurs who would import gasoline powered 10-14 seater bus by displacing diesel 3 wheelers
Regulation Trail (Pursuing Greener Transport) Contd..

23 Dec 1999 Nepal Gazette Part 49 Pre-Supplement 38 (A+3)

- Introduction and Enforcement of Nepal Vehicle Mass Emission Standard 1999 (Equivalent to Euro I)
  - Except for tractors, power tiller, dozer, loader, dumper, crane, roller and excavator

11 Aug 2000: Government Notification

- Restriction on import of used items including machineries and their parts, engine pumps & piston heads
Regulation Trail (Pursuing Greener Transport) Contd..

23 Oct 2000

- In-use Vehicle Emission Standard (Green Sticker Standard)

10 Nov 2000 (Nepal Gazette Part 50 Supplement 41)

- Ban on operation of all types of vehicles made prior to 1980 with effect from 16 Nov 2001

- Ban on operation of 2 Stroke engine based vehicle and petrol or diesel fueled 3 wheelers inside Kathmandu valley with effect from 16 Nov 2001

- Ban on operation of Diesel 3 Wheelers all over Nepal
Regulation Trail (Pursuing Greener Transport) Contd..

13 Aug 2012

- Nepal Vehicle Mass Emission Standard 2012 (Equivalent to Euro III)

14 March 2016

- Strategic Work Plan for Development of Road, Rail and Transport for Prosperous Nepal (2016-21)
  - All public vehicles to be scrapped within deadline of 2 years i.e. 14 March 2018
  - 20% out of all vehicles plying in the country will be converted into environment friendly vehicle

22 February 2018

- Revision of In-Use Vehicle Emission Standard with effect from August 2018
Provisions on Import of Vehicles (Finance Act -temporal)

- Only an authorized dealer can import motor vehicles from the country of manufacture or from authorized dealer in another country
  - If a vehicle is not being imported directly from the manufacturer the importer should furnish a tripartite agreement between the manufacturer, exporting dealer and the importer.

- Reconditioned or used vehicles or vehicles not complying to Nepal Vehicle Mass Emission Standard 2012 cannot be imported
  Exceptions: Following persons are allowed to bring used vehicles
    - Foreign service employee working at Nepalese Diplomatic Mission abroad
    - A foreign diplomatic staff- member working in Nepal
Steps to Encourage Environment Friendly Vehicles and Transport

Value Added Tax Exempted in import of following items used in:

- Electric 3 Wheelers
- Deep Cycle Lead Acid Battery
- Electric Motor
- Chassis

Full Custom Duty Exempted for

- Components and parts required for converting a fossil fuel 3 Wheeler to electric 3 Wheeler
- catalytic converters
- magnetizers
- machines and equipment for battery recycling plant

Partial Custom Duty Exempted

- Hybrid motor vehicles (25% exempted)
- Large buses with >40 seats (95%)
- Components or parts for use in manufacturing of Electric Rickshaw
Fuel Quality

Fuel quality dependent on the fuel quality prevalent in India

- April 2017: Nepal Oil Corporation (NOC) is supplying Euro IV grade fuel
- From 2020 onward NOC may supply Euro VI grade fuel
Environment Friendly Vehicles and Transport Policy 2014

Goals

- Promoting the national production
- Infrastructure for such vehicles and services
- Promoting the industry, trade and technology
- Converting the fossil fuel vehicles to environment friendly vehicles
- Emission reduction and environment protection
Environment Friendly Vehicles and Transport Policy 2014

Strategic Programs

- Encouraging, enabling and promoting national industry in this field
- Government or government owned entities to buy such vehicles giving priority to national product, making at least 20% of all vehicles to be environment friendly by 2020
- Provision of exemptions on Finance Act, Income Tax, Custom, VAT, Excise Duty, rebates
- Separate facilitated regulation, test, registration and operation
- Priority sector for bank credit
- Tourism area such means
Environment Friendly Vehicles and Transport Policy 2014

Strategic Programs (Contd..)

• Cooperation between Public, private and cooperatives for building
  ➢ Green mode of transport like Rope-Ways
  ➢ Charging Stations for Electric Vehicles
  ➢ Parking lots with solar powered charging facilities for electric vehicles

• Promotion of Battery recycling industry

• Pollution tax on battery

• Separate lanes for cycles

• Conversion old vehicles into to electric vehicles before they are auctioned

• Separate route and identity for such vehicles used in public transportation
Scenario: Random Road Side Test of 114 Petrol Vehicles (Jan 2018) (In Kathmandu)

Max. Permissible level of CO 3%

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Pass (number)</td>
<td>72 (63%)</td>
</tr>
<tr>
<td>Fail (number)</td>
<td>42 (37%)</td>
</tr>
<tr>
<td>Average CO</td>
<td>2.54</td>
</tr>
<tr>
<td>St.Dev CO</td>
<td>2.84</td>
</tr>
<tr>
<td>Average (Pass)</td>
<td>0.61</td>
</tr>
<tr>
<td>St.Dev (Pass)</td>
<td>0.76</td>
</tr>
<tr>
<td>Average (Fail)</td>
<td>5.85</td>
</tr>
<tr>
<td>Stdev (Fail)</td>
<td>1.88</td>
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</table>
Scenario: Random Road Side Test of 99 Petrol Vehicles (Jan 2018) (In Kathmandu)

Max. Permissible level of HC 1000

<table>
<thead>
<tr>
<th>Pass (number)</th>
<th>94 (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fail (number)</td>
<td>5 (5%)</td>
</tr>
<tr>
<td>Average</td>
<td>340.62</td>
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<tr>
<td>St.Dev</td>
<td>487.13</td>
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<tr>
<td>Average (Pass)</td>
<td>255.82</td>
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<tr>
<td>St.Dev (Pass)</td>
<td>271.45</td>
</tr>
<tr>
<td>Average (Fail)</td>
<td>1934.8</td>
</tr>
<tr>
<td>Stdev (Fail)</td>
<td>868.73</td>
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</table>
### Scenario: Random Road Side Test of 81 Diesel Vehicles (Jan 2018) (In Kathmandu)

<table>
<thead>
<tr>
<th>Smoke Opacity (%)</th>
<th>Frequency</th>
</tr>
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<tbody>
<tr>
<td>0 to 5</td>
<td>7</td>
</tr>
<tr>
<td>5 to 15</td>
<td>3</td>
</tr>
<tr>
<td>15 to 25</td>
<td>3</td>
</tr>
<tr>
<td>25 to 35</td>
<td>1</td>
</tr>
<tr>
<td>35 to 45</td>
<td>3</td>
</tr>
<tr>
<td>45 to 55</td>
<td>6</td>
</tr>
<tr>
<td>55 to 65</td>
<td>11</td>
</tr>
<tr>
<td>65 to 75</td>
<td>7</td>
</tr>
<tr>
<td>75 to 85</td>
<td>7</td>
</tr>
<tr>
<td>85 to 95</td>
<td></td>
</tr>
<tr>
<td>95 to 100</td>
<td></td>
</tr>
</tbody>
</table>

#### Max. Permissible Opacity 65%

<table>
<thead>
<tr>
<th>Test Result</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
<td>30</td>
<td>37%</td>
</tr>
<tr>
<td>Fail</td>
<td>51</td>
<td>63%</td>
</tr>
<tr>
<td>Average</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>St.Dev</td>
<td>32.4</td>
<td></td>
</tr>
<tr>
<td>Average (Pass)</td>
<td>32.3</td>
<td></td>
</tr>
<tr>
<td>St.Dev (Pass)</td>
<td>23.2</td>
<td></td>
</tr>
<tr>
<td>Average (Fail)</td>
<td>89.7</td>
<td></td>
</tr>
<tr>
<td>Stdev (Fail)</td>
<td>11.3</td>
<td></td>
</tr>
</tbody>
</table>
Lessons:

- Only making good policy and legislation is not enough for making motor vehicles and transport sector environment friendly

- Physical infrastructure, dedicated human resource and commitment by all stakeholders are required for effective implementation and monitoring of existing standards.

- Policies and standard formulation, implementation and monitoring should be based more on empirical realities (evidence)

- Systematic study is required to find out how vehicles of different age, make and model are contributing in emission.

- Introduction of vehicles of better technology requires investment of resources and also awareness and motivation among users
Next Steps:

- Establishment of **Mass Emission Lab** to conduct tests on random sample of imported vehicles.

- Setting Up of Central Data Base connected **Emission Testing Centers** throughout the country.

- Setting up of 7 **Vehicle Fitness Test Centers** across the country.

- **Awareness raising** programs for transport entrepreneurs and general public.

- Extensive **study of emission pattern** based on type, make and age of vehicles.

- Incentives in terms of tax and custom duty exemption or subsidy for conversion technology and for emission control devices.

- More incentives and promotional steps for import or production of electric vehicles and simplification of the testing and registration of such vehicles.
Thank You