Regional Policy Dialogue on Fuel Economy in Asia

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Bangladesh
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Bangladesh

- Major arterial Road: 21,462 Km
- Rural Road: 97,180 Km
- Urban Road: 4,245 Km
- Rail track: 2,877 Km
- Stations: 444 nos.
- Seaports: 3
  - Inland river ports: 33
  - Length of waterway: 24,000Km (Navigable 5968km)
- International Airports: 3
- Domestic airports: 7

- Area: 147,570 km²
- Population density: 953/km²
- Per Capita income: USD 1610
Transport Sector in Bangladesh

- Car ownership (1000): Bangladesh - 1.8
  Dhaka - 15

- Motorcycle ownership (1000): Bangladesh - 11.87

Source: BRTA 2017
Transport Sector in Bangladesh

Sector wise Consumption of petroleum from 2012 to 2017

Source: BPC 2017
Developing Clean and Efficient Vehicle policy to reduce emissions and energy use from the road transport sector in Bangladesh.
1. Conducted an inventory of newly registered vehicle (locally manufactured and/or imported new and second-hand)
   - Data from 2005 to 2017, following the GFEI (Global Fuel Economy Initiative) baseline methodology.

2. Estimated the average auto fuel economy baseline and trends for Bangladesh
   - For Light Duty Vehicle (LDV) (Car, Microbus, Jeep and Pickup)

3. Suggested Clean and efficient vehicle policy and development
   - Reviewed national legislation and policies, including taxation related to vehicle fuel economy issues and EVs; identified stakeholders and potential barriers
   - Arranged workshop to present results and gather policy suggestions
Data Collection

- Vehicle make and model
- Year of first registration
- Model production year
- Engine displacement
- Engine power
- Fuel type
- No of Cylinder
- Test cycle (NEDC, US EPA, JC08)

- Rated fuel economy (L/100km, and CO₂ emission, gCO₂/km)
- Fuel economy and CO₂ emission data were collected as per GFEI guideline. Mostly from relevant manufactures and other online published data
Car Make

No. of Cars

Toyota: 183046
Nissan: 4397
Suzuki: 3310
Mitsubishi: 3294
Honda: 1416
Hyundai: 1151
Tata: 1009
Mazda: 692
Mercedes Benz: 570
Perusahaan Otomobil: 476
BMW: 469
Kia: 311
M.M.C. Japan: 301
Ford: 285
Chery: 208
Audi: 115
Others: 1307

No. of Cars

Displacement Range (CC)

≥3000: 103
2501-3000: 230
2001-2500: 892
1501-2000: 4809
1001-1500: 190940
≤1000: 5382

New vs. Used

2015:
- Old Car: 19449 (92%)
- New Car: 1599 (8%)

2016:
- Old Car: 19113 (94%)
- New Car: 1129 (6%)

2017:
- Old Car: 17482 (96%)
- New Car: 812 (4%)

Year

New Car

Old Car

No. of Cars

Car
Findings Summary

Dhaka has 193,276 number of registered LDVs from the year 2005-2017

In car category

• comprises 74.77% of total LDVs
• 63 different models from 30 different companies
• 90% of those cars are from Toyota.
• 1001-1500 cc is the common displacement range

In Microbus category

• 2nd largest share in LDV
• 46 different makes where 14 of them are dominating
• 79.17% share comes from Toyota
• 1501-200 cc is the common displacement range
Finding Summary

In Jeep category

- 3rd largest share in LDV
- 33 makes and 33 common models since 2005
- 37% Jeep is from Toyota
- 1501-2000 cc is the most common displacement range
- 20% are new Jeep

In Pickup category

- least share in LDV
- 34 makes since 2005 but only 12 models are common
- 2001-2500 is the dominating displacement range
- 30% new Pickup import which is the highest in LDV category
# Fuel Economy and CO₂ Emission in Bangladesh

<table>
<thead>
<tr>
<th>Year</th>
<th>Fuel Economy</th>
<th>CO₂ Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>8.98</td>
<td>217.33</td>
</tr>
<tr>
<td>2008</td>
<td>8.01</td>
<td>189.08</td>
</tr>
<tr>
<td>2010</td>
<td>7.04</td>
<td>165.9</td>
</tr>
<tr>
<td>2012</td>
<td>7.43</td>
<td>176.85</td>
</tr>
<tr>
<td>2014</td>
<td>7.5</td>
<td>179.46</td>
</tr>
<tr>
<td>2015</td>
<td>7.07</td>
<td>171.19</td>
</tr>
<tr>
<td>2016</td>
<td>6.99</td>
<td>169.06</td>
</tr>
<tr>
<td>2017</td>
<td>6.9</td>
<td>166.35</td>
</tr>
</tbody>
</table>
Fuel Economy and CO$_2$ Emission in Bangladesh

Fuel Economy of Bangladesh

Yearly CO2 Emission
# Fuel Economy and CO\textsubscript{2} Emission in Bangladesh

<table>
<thead>
<tr>
<th>Year</th>
<th>Car</th>
<th>Jeep</th>
<th>Microbus</th>
<th>Pickup</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>5.85</td>
<td>9.59</td>
<td>8.56</td>
<td>9.76</td>
</tr>
<tr>
<td>2015</td>
<td>5.75</td>
<td>8.15</td>
<td>8.4</td>
<td>9.29</td>
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<tr>
<td>2016</td>
<td>5.81</td>
<td>7.37</td>
<td>8.39</td>
<td>9.5</td>
</tr>
<tr>
<td>2017</td>
<td>5.8</td>
<td>7.26</td>
<td>8.62</td>
<td>9.35</td>
</tr>
</tbody>
</table>

**IMPROVEMENT IN FUEL ECONOMY**

- Car: Blue line
- Jeep: Orange line
- Microbus: Gray line
- Pickup: Yellow line

### FUEL ECONOMY, L/100KM

![Graph showing fuel economy improvements from 2014 to 2017 for Car, Jeep, Microbus, and Pickup.](image-url)
## Where Bangladesh Stands?

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-OECD Average</th>
<th>Global Average</th>
<th>Bangladesh Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>8.5</td>
<td>8.8</td>
<td>8.98</td>
</tr>
<tr>
<td>2008</td>
<td>8.5</td>
<td>8.3</td>
<td>8.01</td>
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<tr>
<td>2010</td>
<td>8.4</td>
<td>8.1</td>
<td>7.04</td>
</tr>
<tr>
<td>2012</td>
<td>8.2</td>
<td>7.8</td>
<td>7.43</td>
</tr>
<tr>
<td>2014</td>
<td>8</td>
<td>7.6</td>
<td>7.5</td>
</tr>
<tr>
<td>2015</td>
<td>7.9</td>
<td>7.6</td>
<td>7.07</td>
</tr>
</tbody>
</table>
Summary of the Study

I. From year 2005 to 2017, improvement in fuel economy was 23.16% and reduction in CO2 emission was 24.46%.

II. In recent years car import has increased in the LDV category which is one of the main reasons for higher fuel economy value along with the advanced technology of the imported vehicles.

III. Bangladesh has improved average fuel economy value compared with Non-OECD country average and global average. In the year 2015, non-OECD and global average fuel economy was 7.9 l/100km and 7.6l/100km where in it was 7.07 l/100km.

IV. Not more 5 years old can be imported

V. More Presence of lower CC vehicle
Stakeholder Consultation meeting at BRTA

Stakeholder Consultation meeting with Auto mobile Club at BUET
Policies on Electric Vehicle

I. The government does not have any taxation policy for electric four-wheeled vehicles yet.

II. BRTA also does not have any ‘Type’ classification for EV/ Hybrid.

III. Therefore, current taxation policy is restricted to the two and three-wheeled electric vehicles only.

IV. Government recently promoting Hybrid Vehicle by giving tax incentive
<table>
<thead>
<tr>
<th>Electric Vehicles</th>
<th>SD %</th>
<th>VAT %</th>
<th>AIT %</th>
<th>RD %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Battery-operated 3-wheelers</td>
<td>20 (25)</td>
<td>15</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Electric Battery-operated 2-wheelers</td>
<td>20 (25)</td>
<td>15</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td><strong>Hybrid Vehicles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 1600 cc - Reconditioned and New</td>
<td>25 (45)</td>
<td>15</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>1601 to 2000 cc- Reconditioned and New</td>
<td>45 (100)</td>
<td>15</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>2001 to 3000 cc- Reconditioned and New</td>
<td>60 (200)</td>
<td>15</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>3001 to 4000 cc- Reconditioned and New</td>
<td>100 (350)</td>
<td>15</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>4001 cc and above- Reconditioned and New</td>
<td>300 (500)</td>
<td>15</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>
E-Mobility in Bangladesh (Journey started in 2002)

- First import in 2002-2003
- Sales picked up from 2017 due to tax incentive and Recon Hybrid

**Popular hybrid brand**
- Car: Toyota prius/AQUA, BMW (PHEV)
- SUV: Nissan X-Trialis, Honda vesel
- Microbus: Toyota Esquire

**Issues with Hybrid Vehicle:**
- Recon. Hybrid: Battery life
- Lack Maintenance facilities

Source: NBR 2017
E-Mobility in Bangladesh (Journey started in 2007)

- 6 lac easy bike (1000-1200 watt)
- 5 lac auto rickshaw
- Price – 1.5-1.75 lac
- Charging time: 6-8 hours (100-120 km)
- Battery (pb-acid), imported and locally made, Battery life only 1 year

**Issues with Easy bike:**
- Comfortable for short distance travel
- Creation of new job/business
- No restriction on numbers
- Longer time for charging
- Battery disposal and recycle
Action to promote E-Mobility in Bangladesh within 1 year

- Amend / modify existing regulation to facilitate EV / Hybrid vehicle registration
- Setting a target on EV/ Hybrid and formulate policy, regulations
- Government should install some charging station at some important location to show commitment for greener transport
- Initially E-vehicle for Dhaka and Chittagong with limited numbers
- Awareness campaign (price, range, battery, ... )
Action to promote E-Mobility in Bangladesh within 3 year

- Additional tax reduction of 25-30% for vehicle less than 1600 cc
- Fiscal incentive and supportive policy measures for the import of Li-ion batteries or production locally.
- E taxi (reduce tax for taxi)
- Charging stations on PPP basis at existing fuel/CNG stations
- Mandatory Procurement of large EV’s fleet fully or at a certain ration by the government (BRTC and staff buses, specialized vehicles such as police cars, vehicles for utility services, and sedan cars/microbuses/SUVs for government officials)
- Government can give soft loan (dedicated fund) to operator buy E-bus
Action to promote E-Mobility in Bangladesh within 5 year

- Renewable energy source for EV (solar/wind)
- Vehicle labelling sticker (fuel economy and CO2 emission)
- CO2-based vehicle taxation system
- Incentive for local EV/Hybrid manufacturers
THANK YOU.

QUESTIONS/SUGGESTIONS?