Fuel Economy of Passenger Cars in the Global South;

Is the glass half empty or half full?

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Shifting to Efficient and Zero Emissions Vehicles in the Global South
13–15 June 2022, UNEP Headquarters, Nairobi, Kenya
Countries considered in the Analysis

- Cumulative sample size of ~30 million vehicles from 70 low- and middle-income countries
  ~ baseline & impact assessment

- 42 additional countries published by the GFEI consortium (IEA, ICCT)
  ~ benchmarking
The average fuel economy varied from 4.7 to 13 Lge/100 km, reflecting almost a factor of three between the most efficient and least efficient markets.

Source: UNEP, IEA - Global Fuel Economy Initiative 2021
General hypothesis that emerging countries’ fleets are less fuel-efficient than advanced economies is false.

The annual fuel economy improvement rate between 2005 & 2019 = 1.2%

Improvement is significantly lower than the 2.7% annual fuel economy improvements over 2005-2030 needed to meet the GFEI target.

Source: UNEP, IEA - Global Fuel Economy Initiative 2021
LDV Fuel Economy Improvement Rate

<table>
<thead>
<tr>
<th>Period</th>
<th>112 Countries</th>
<th>High income</th>
<th>Middle &amp; Low Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-2010</td>
<td>-1.1%</td>
<td>-1.6%</td>
<td>-1.5%</td>
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<tr>
<td>2010-2015</td>
<td>-1.6%</td>
<td>-1.2%</td>
<td>-1.9%</td>
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<tr>
<td>2015-2019</td>
<td>-2.2%</td>
<td>-2.0%</td>
<td>-1.5%</td>
</tr>
</tbody>
</table>

-3% -2% -1% 0% 1% 2% 3%

-3% -2% -1% 0% 1% 2% 3%

Source: UNEP, IEA - Global Fuel Economy Initiative 2021

high-income countries ~ highest progress but stagnating,
global south ~ intensifying over time

improvement is significantly lower than the 2.7% annual fuel economy improvements over 2005-2030 needed to meet the GFEI target.
LDV Sales Annual Growth (2005-2019)

- Shift in sales market share from countries with more energy-intensive cars to less energy-intensive cars

Source: UNEP, IEA - Global Fuel Economy Initiative 2021
Fuel Economy Drivers - Engine Displacement

Engine Downsizing trend in Pacific Islands and some Latin American countries (marginal)

Source: UNEP, IEA- Global Fuel Economy Initiative 2021
Fuel Economy Drivers – Kerb Weight & Power

- Since 2005, the average sales-weighted kerb weight in the 70 sampled countries increased from 1200 to 1400 Kg
- Since 2010, the power rating of light-duty cars has increased by 40% in the global south

an increase in kerb weight in the global south is being countered by the increasing share of cars sold in the global south and their lighter average net weight compared with the more advanced economies

Source: UNEP, IEA- Global Fuel Economy Initiative 2021
Fuel Economy Drivers

Global South (70 Countries), AAGR, 2005-2019

- Sales: -1.2%
- FE (Lge/100km): 8.7%
- Average Power (kW): 3.3%
- Kerb Weight (Kg): 1.3%
- Engine Displacement (cc): -0.1%
Half of the countries surveyed (38 out of 70) have 'weak' or 'very weak' policies to regulate the import of used cars.

Majority of Imports from Japan and the EU which have comparatively more efficient fleet ~ FE standards.
Out of the 70 sampled countries, 50% of countries prioritize "improving fuel economy", and 71% of countries prioritize "electric vehicles".

Growing consensus for better fuel economy in the policy documents of the global south.

Not many good examples of regulatory standards for fuel consumption or CO2 emissions.

Source: Analysis of GIZ, Slocat NDC Tracker, Asian Transport Outlook – Policy database.
Can we reach the 2030 GFEI Target?

Close to 80% of countries need an annual improvement of above 3%.
Can we reach the 2030 GFEI Target?

"If no improvement after 2010" (pre-GFEI)

"Continuing existing trend" (post-GFEI)

GFEI, 2030 target

IEA Net Zero Pathway

~ 113 Million cumulative LDVs registered for the first time in 70 countries over 2005-2022

~ 67 Million cumulative LDVs to be registered for the first time in 70 countries over 2023-2030

Source: UNEP, GFEI, IEA - Net Zero Emissions by 2050 Scenario
Impact of Fuel Economy Improvements

Cumulative Impact

pre-GFEI vs Post GFEI
482 million tonnes of CO2 Emissions
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With GFEI target, 344 million tonnes of CO2 from 2022 to 2030

Cumulative Impact

pre-GFEI vs Post GFEI
482 million tonnes of CO2 Emissions

With GFEI target, 344 million tonnes of CO2 from 2022 to 2030

A cumulative reduction of ~ 826 million tonnes or 350 billion litres (Lge)

What if countries had aggressively pursued 2030 goals starting in 2010

~ saving of 1.2 Gt of CO2
Fuel Economy in Global South: Is the glass half empty or half full?

“Only two cheers for fuel economy and not three cheers”

- It is wrong to assume that all emerging countries’ fleets are less fuel-efficient than advanced economies
- The rate of improvement in the global south is intensifying
- Fuel economy policies and technological advancements had a measurable impact.
- Increase in car size, weight, and power is a big risk
- Continuing incremental improvements will not yield the “necessary” reductions

- “fuel economy is about doing more with less”
Thank you

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