



**GROUP 3**  
**DESIGNING INSPECTION AND**  
**MAINTENANCE POLICIES**  
**FOR GOODS VEHICLES**  
**(LIGHT, MEDIUM AND HEAVY DUTY)**

# ENGINE RATING

- LIGHT:  $\leq 2$  T
- MEDIUM
- HEAVY  $\geq 10$  T

# FUEL

- LIGHT: GASOLINE, DIESEL
- MEDIUM: DIESEL
- HEAVY: DIESEL
- Fuel quality should be monitored at source and at station (adulteration & composition)
- Sulfur content should be reduced until 50 ppm.

# OPERATING AREA

- Light: mostly in urban areas
- Medium: Intra and Intercity
- Heavy: Intercity, long haul

# POLLUTION PROFILE

- No substantial difference (L, M, H)
- Diesel more black smoke (soot)
- No NO<sub>x</sub> Control

# USAGE

- Used intensively
- Engine goes through many overhauls
- Driving cycle: urban vs intercity
- Fuel quality variable

# OWNERSHIP

- Fleet ownership
- Owner operated

# STANDARDS

- Emission:
  - Gasoline: CO, HC, NO<sub>x</sub>, Pb
  - Diesel: Opacity, NO<sub>x</sub>
- Engine capacity
- Driving cycle

# I & M SYSTEM

- For all: minimum free acceleration
- Loaded transient test:
- Need to upgrade test equipment:
  - Most likely to be realized in centralized system
  - Skilled staff
  - Regular Calibration
  - Access to spare parts
  - High operating cost

# ROAD SIDE TESTING

- Visual inspection:
  - To be carried out at night time
- Free acceleration
- Remote sensing
- Fuel quality
- To compliment maintenance

# ROAD WORTHINESS

- Specific test of axles, brakes, steering, suspension, bearings, tires and emission to load can be carried out
- Visual smoke test
- Develop instruments for predictive testing (NDT)

# TEST FREQUENCY

- Emission: every six months
- Road worthiness: annual
- Both after overhaul

# EMISSION CONTROL

- Existing vehicles
  - NO<sub>x</sub> control: no retrofit
  - PM: for future engine

# AGE BAN

- Engine age not same as vehicle age
- Engine is overhauled or replaced
- Age ban is not a good idea