TECHNOLOGY FACTSHEET

PROMOTE AND FACILITATE THE IMPORT OF LOW GHG EMITTING HYBRID VEHICLES[1]

1. **Sector:** Transport

2. **Introduction:** Transport sector is a major GHG emitting sector in Sri Lanka. About 60% of the air pollution (especially in Colombo City) comes from this sector (AirMAC, 2009). The main way of transportation is through the road network, which is supplemented by rail, air, and water transport means. Out of passenger transport, buses carry about 50% and railways carry about 4% of the passengers, while the rest of the passengers are carried by the other modes (Jayaweera, 2011). Road transport accounts for about 96% of passenger transportation and 99% of freight transportation (Jayaweera, 2011). Currently, the transport sector in Sri Lanka utilizes petroleum-based fossil fuels, leading to significant amounts of CO_2 and other GHG emissions (e.g. N2O, CH4) considered under the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol. Technology transfer, defined as the flow of experience, know-how and equipment between and within countries, is one of the priorities under the United nations Framework Convention on Climate Change (UNFCCC). Technology needs assessment (TNA) is a key element of the technology transfer, and is carried out with the intention of moving towards cleaner, less GHG emitting technologies.

3. **Technology name:** Promote and facilitate the import of low GHG emitting hybrid vehicles

4. **Technology characteristics:** Hybrid electric vehicles have an internal combustion engine and one or more electric motors. These vehicles are most feasible for use in urban traffic, where there is a frequent need for braking. The hybrid vehicles have substantial tailpipe CO_2 emission reductions only at relatively low speeds (i.e. speeds below ~50 km/h). In full hybrid cars such as Toyota Prius, the vehicle can be propelled fully electric at low speeds and use the internal combustion engine at higher speeds or when the electric energy stored in the car battery is low.

5. **Country specific/ applicability:** Given the higher fuel efficiency, hybrid cars are especially attractive and suitable for crowded city areas in Sri Lanka.

6. **Status of the technology in the country and its future market potential:** Hybrid cars (e.g. Toyota Prius and Honda Insight) are already in use at a smaller scale in the country. However, the import of hybrid vehicles has remarkably increased lately. During the early half of the current year (from January to May), a total of 10,025 hybrid vehicles were imported in Sri Lanka; 70 percent of the new cars added to the vehicle fleet were hybrids, and motor cars using petrol were only 30 percent (Jayaweera, 2011). Reduced import taxes

[1] **This fact sheet has been extracted from TNA Report – Mitigation for Sri Lanka. You can access the complete report from the TNA project website** http://tech-action.org/

could induce further movement towards Hybrids, causing better market, cleaner air and lower emissions.

7. **Barriers: -**

8. **Benefits**
    a. Socioeconomic:
        - Higher fuel efficiency and more beneficial in city areas with higher traffic and lower speeds.
    b. Environmental
        - Reduced CO_2 emissions without additional infrastructure requirements. A full hybrid vehicle driven mostly in urban areas could have CO_2 emission reductions up to 25% (Passier et al, 2007)

9. **Operations: -**

10. **Costs:** The original cost of hybrid cars could range from US $23000 to $48000 depending on the type and brand of car and the features of the car.

11. **References**

- AirMAC 2009. Clean Air 2015. Air Resource Management Center. Ministry of Environment & Natural Resources, Sri Lanka
- Jayaweera, D.S. 2011. Analysis on effectiveness of fiscal strategies introduced on hybrid vehicles and market response- policy reforms on clean air. Presentation at the Center for Science and Environment Conference, India, held on September 28-29,2011
- Passier, G., F.V. Conte, S. Smets, F. Badin, A. Brouwer, M. Alaküla, D. Santini (2007). Status Overview of Hybrid and Electrical Vehicle Technology 2007; Final report of Phase III, Annex VII, IEA. TNO, Delft, The Netherlands