TECHNOLOGY FACTSHEET

IMPROVED PUBLIC TRANSPORTATION, ESPECIALLY IN COLOMBO AREA: INTRODUCTION OF A BUS RAPID TRANSIT (BRT) SYSTEM[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 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:** Improved public transportation, especially in Colombo area: Introduction of a bus rapid transit (BRT) system

4. **Technology characteristics:** BRT is another mass transit system that provides a faster journey compared to regular buses, as BRT runs mostly on bus-only, exclusively right of way lanes. Modal integration at stations, rapid boarding and alighting, real-time information displays are also common features. The travel time is less in these sophisticated, low cost buses, and due to high fuel efficiency, the GHG emissions are reduced. Mass transit modes are in general 50-80% more efficient compared to personal cars. Some BRT systems have been approved by the United Nations to generate and sell carbon credits.

5. **Country specific/ applicability:** BRT systems are already operating in other developing countries in the region, and can be applied in Sri Lanka, as well, especially in city areas with heavy traffic and congestion due to too many low occupancy personal vehicles on the road. The possibility of using any existing road sectors, as well, needs to be considered in minimizing the costs associated with introducing this 'new' mass transport mode in the country.

6. **Status of the technology in the country and its future market potential:** Currently, state- and privately owned buses are the principal mode of public transport. So far there is no BRT

[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/

operating in the country. The ministry of transport has plans to have 3 BRT routes around Colombo.

7. **Barriers:** Space requirement for developing infrastructure (bus lines, stations, and terminals), and at some places there might not be the possibility to expand the existing road space.

8. **Benefits**
    a. Socioeconomic:
        - BRT in city center areas is one of the cheapest public transport options compared to metro or trains.
        - Low investment costs. Although the initial costs are relatively high, in the long term, benefits are much higher.
        - BRT systems help enhance the efficiency of public transportation and reduce air pollution.
        - These systems can transport a larger volume of passengers per day compared to the existing public bus service, in a cost-effective, high quality manner, enhancing the sustainability of the urban transport systems.
        - Reduced congestion and travel times.
        - Increased road safety
    b. Environmental
        - Reduced air pollution.
        - BRT causes lower GHG emissions per passenger km, and are highly efficient with optimal performance. E.g. BRT TransMilenio of Colombia, as a CDM project, has a CO2 reduction of ~200,000 tonnes CO_2 yr^1 (Grütter, 2007).

9. **Operations: -**

10. **Costs:** According to IPCC (2007), the cost of BRT systems could be US $ 1-15 million per km. For Sri Lanka a cost of US $3-6 million per km has been estimated

11. **References**

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