TECHNOLOGY FACTSHEET

MODAL SHIFT IN 5% OF FREIGHT TRANSPORT [1]

1. **Sector:** Transport

2. **Introduction:** Transport sector is a major greenhouse gas (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 land 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:** Shift of ~5% of transportation of freight from roads to rail

4. **Technology characteristics:** Currently ~ 1% of freight transport is done using railways. Due to congestion and higher energy consumption and GHG emission in road transportation of freight, it is quite beneficial to move at least 5 percent of freight transportation to the railway system. Using rail for freight transport emits only 23 grams of CO_2 per ton-km traveled, while road transportation of freight emits 61 grams of CO_2 per ton-km traveled (ADB, 2010).

5. **Country specific/ applicability:** This is an achievable goal, especially through public private partnerships with the government Railways and relevant stakeholders from the private sector. Building new infrastructure for loading unloading purposes and any new development in the tracks involves an initial high cost, and proper planning is needed prior to establishing increased freight transportation through rail within the country, to avoid it being a loss.

6. **Status of the technology in the country and its future market potential:** The railway network in Sri Lanka was initially built and used only for transporting goods (i.e. plantation products), when the country was under British rule. The first railroad was built between Colombo and Kandy. Transporting such goods continued for many years, and over time with increasing population and traffic needs, rail transport became more passenger oriented. Sri Lanka had 32 percent of freight transportation through the railway system in 1979, and it has declined drastically since then (Ministry of Transport, 2008). The civil war during the last three decades severely affected the rail transport to more northerly areas. The draft national

[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/

transport policy promotes increased use of rail for freight transport. With proper infrastructure development, it could attract more private sector partners for the use of railways for transportation, mostly for the transportation of export goods and containers needing more than 200 km domestic freight transportation.

7. **Barriers:** In Sri Lanka, freight transportation has drawn less attention compared to passenger transportation, even at policy level. There is limited availability of space and facilities for loading and unloading goods and parking of the container trucks close to the relevant railway stations. One important financial barrier for modal shift is the high investment required for infrastructure and intermodal facilities (as rail transport of freight still requires pre- and post-haulage by truck).

8. **Benefits**
    a. Socioeconomic:
        - Lower fuel consumption and higher energy efficiency.
        - Reduced congestion, especially in more populated areas and during peak hours.
        - Avoiding the traffic delay due to freight transporting trucks also causes a smoother flow of other vehicles and less idle time on the road
    b. Environmental
        - Lower fuel consumption and higher energy efficiency lead to lower GHG emissions.

9. **Operations: -**

10. **Costs:** Modal shift from roads to rail requires high initial investment on developing infrastructure and intermodal facilities. However, the long term benefits are higher.

11. **References**

- ADB 2010. Reducing Carbon Emissions from Transport Projects
- 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
- Ministry of Transport. 2008. Draft national policy on transport in Sri Lanka. National Transport Commission.