Technology Fact Sheet for Mitigation

VI. Mass transit [i]

Introduction

Mass transit is one of the main components in a sustainable, low-carbon transport future and covers modes of public transport such as light rail (or trams), bus rapid transit, electric trolley buses and trains including long haul trains, metro and conventional suburban trains. Since mass transit moves more people at less cost, it leads to reduced private vehicle use, thereby causing reductions in greenhouse gas emissions and traffic congestion.

The mass transit system is usually accompanied by non-motorized transport such as walking, cycling and its variants such cycle rickshaws, skates, push scooters to and from transit stations.

Technology Characteristics

Some characteristics that a successful mass transit system should include are the following –

Dedicated lanes should in order to have an efficient mass transit system.

Priority traffic signals are required to achieve speed advantage.

Making private vehicle travel more expensive would encourage people to switch from private to public transport.

Educating and making people aware of the benefits of the transit is also one of the key requirements for its success

Country specific applicability and potential

Mass transit can prove to be a genuine solution for Bhutan to reduce the number of cars running on its roads and provide for a better, more consistent transportation system that can boast of reliability, safety as well as comfort.

Electric trolley buses with motors powered by electricity from overhead wires and rubber-tyres have potential in certain areas of Bhutan. Also, the cheap hydropower in Bhutan is an advantage for this type of transport. In addition, LRT as urban rail transit can either run along the streets or share space with road traffic or along their own right-of-way separated from road traffic. However, it may not be feasible in Bhutan due to high infrastructure costs and limited space for dedicated lines. Among other mass transit options, BRT is the most viable and flexible option. These buses running on dedicated lanes or by providing priority on roads could be powered by electricity and the need to create an electric bus trolley line will not be necessary.

Status of technology in country

As per the SNC, options for mass transit such as electric trolley buses and light rail transit are being explored through the Bhutan Urban Transport Systems Project as alternative transport systems.

Benefits to economic, social and environmental development

Economic benefits

Mass transit can move large numbers of people at less cost to the individual and society.

It has been observed that cities and countries that have high rates of mass transit use spend much less on transport overall than others.

Mass transit also makes it easier for people who can't afford private vehicles, or can't drive them.

Mass transit moves large numbers of people in a smaller space, thus saving space and allowing greater urban density and a denser city's infrastructure costs less per resident.

Social benefits

A good mass transit system provides services that are frequent, fast, punctual, safe, comfortable, clean and affordable.

Mass transit and non-motorized transport lead to greater equality and social inclusion as more people can use it to meet their needs, that is, to get to health and other services, social connections, work etc.

Environmental benefits

Mass transit and non-motorized transport use lesser energy and emit less GHG leading to energy savings. Thus, these are low carbon and sustainable modes of transport.

These create less pollution, fewer traffic accidents, lesser congestion and noise.

These also help in improving general air quality by reduced emissions of air pollutants.

Climate change mitigation benefits

Mass transit leads to reduced traffic congestion, which leads to GHG reductions for individual vehicles, as they can travel more efficiently. Also, if efficient, it can reduce private vehicle use at the same time leading to substantial GHG reductions.

Financial requirements and costs

When assessing the benefits and costs of mass transit, many factors need to be taken into account. These factors include an assessment of travel time savings, reductions in fuel, pollution and accidents, and space saved.

Transit systems can be financed and managed through public-private-partnerships, with private partners building the system, operating it, or both.

Public funds may also be available through the World Bank, regional development banks or bilateral development cooperation arrangements. In addition, climate change funding mechanisms may fund transit projects. Transit operating costs can of course be at least partially covered by passenger fares.

Almost all modern public transit systems are subsidized by government, and each city or locality must decide the amount of subsidy it can afford to provide. Higher capacity systems cost more to put in, but offer much more potential reduction in total transport costs and GHG emissions.

[i] **This fact sheet has been extracted from TNA Report – Technology Needs Assessment and Technology Action Plans For Climate Change Mitigation– Bhutan. You can access the complete report from the TNA project website http://tech-action.org/**