

Technology Fact Sheet for Mitigation

V. Non-motorized Transport ⁱ

Introduction

Non-motorized transport includes as walking, cycling and its variants such cycle rickshaws, skates, push scooters to and from transit stations. Since non-motorized transport does not make use of motorized vehicles, it prevents the combustion of fossil fuels and results in no GHG emissions. Well designed non-motorised transport systems can also help foil nuisance related to traffic congestions, noise pollution, extra cost on maintenance of roads etc.

Technology Characteristics

Some of the common ways to incorporate non-motorised transport include the following:

- Improved sidewalks, crosswalks, paths, bicycle lanes and networks.
- Public bicycle systems
- Pedestrian oriented land use and building design
- Increased road and path connectivity, with special non-motorized shortcuts
- Traffic calming, streetscape improvements, traffic speed reductions, vehicle restrictions
- Safety education
- Bicycle parking and integration in transit systems

Country specific applicability and potential

Bhutan being dominated by mountain peaks in the north, characterised by perpetual snow, accompanied by blizzards during the winter, make walking or cycling a not so pleasant or safe option. However, the central and southern regions; and the valleys of Bhutan present a good case for developing walkways. They have more or less pleasant climatic conditions all year round, along with suitable topographic conditions. To counteract the problem of sometimes severe precipitation, covered walkways, cycle routes can be constructed.

Status of technology in country

Walking has been traditionally a common practice in Bhutan. However over the past decade there has been a steady rise in motorized transport. This has resulted in increased traffic congestion, as well as a rise in consumption of fossil flues and GHG emissions in Bhutan. Realizing this fact, walking and cycling are seriously being considered as sustainable and viable modes of transport. Bhutan's Tenth Five-Year Plan (2008–2013) has stated the government's intention to "encourage non-motorized transport such as cycling and walking".

Benefits to economic, social and environmental development

Economic benefits

Walking and cycling provide an inexpensive mode of transport for the common people, helping them save money (and time due to lesser congestions) that they can direct towards other necessities.

Cost of building walkways and cycling routes require merely require a small portion of the total cost of building infrastructure for motorised transport, helping the nation save its gross expenditure.

Shifting to non-motorized mode of transit helps countries shed their dependence on foreign oil, thus giving them a political and economic edge.

Social benefits

Walking and cycling are healthy practices and can help combat multiple disorders like obesity, diabetes, cardiovascular disorders, asthma and other respiratory problems.

It provides a safe mode of transport, leading to fewer road accidents and resulting deaths.

Environmental benefits

Since non-motorized transport does not make use of motorized vehicles, it prevents the combustion of fossil fuels and results in no GHG emissions.

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.

Non-motorised transport helps reduce noise pollution.

Climate change mitigation benefits

A two kilometer walk or bicycle trip saves 419 grams of CO₂e if it replaces a car trip. However, these estimates don't take into account the emissions generated in the production and distribution of bicycles, or for building the infrastructure.

Financial requirements and costs

Non-motorized transport policies and investments have a positive benefits-cost ratio. The cost of bicycle paths, including construction, maintenance and awareness campaigns, has been estimated at being USD 200,000 per km.

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/>