Technology Fact Sheet

Bus Rapid Transit systems[i] /http://climatetechwiki.org/technology/brt/

General description

A bus rapid transit system (BRT) is a high-capacity transport system with its own right of way, which can be implemented against relatively low cost. It is a key technology in cities in developing countries, which can change the trend of modal shifts towards public transportation, thereby bringing about a range of benefits, including reduced congestion, air pollution and greenhouse gases and better service to poor people. Its main drawback compared to other urban transport systems is its demand for urban space. A BRT system can take in one direction approximately 10-20 thousand passengers per hour and can reach levels up to 40 thousand passengers. This is a much higher value than for conventional buses - 5000 passengers per hour in one direction. A BRT system can run at an average speed of 20 km/hour (Source: climatetechwiki.org).

Implementation

It is assumed that by 2030, BRT systems will be one of the main factors of sustainable urban transport, capturing a share of 25% of all transport needs. This shift to BRT is expected to come from the buses (20%) and cars (80%). It is assumed that the new BRT buses will be powered by diesel engines.

Implementation barriers

- lack of investments;
- need for urban space.

GHG emissions reduction megatons CO_2 equivalent) – 320 thousand tons CO_2 in 2030.

Impact on development priorities:

a) social

- Social equality and poverty reduction by providing affordable high-quality transport

- Reducing the number of accidents – the modal split towards more use of public transport for 25% of passengers would reduce the number of accidents by 20%.

b) *economic*

- Increase in energy supply security, due to reduction for imported oil
- Economic prosperity by reducing travel times and congestion
- Improving the balance of payments by reducing imports of fossil fuels.
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c) Environmental

- Reducing air pollution, because if taking into account the number of passengers, buses are less pollutant. A significant reduction of pollution is determined by a 20% reduction in the number of cars
- Biodiversity conservation.
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d) other

Investments

Estimates for investment cost for BRT systems vary widely depending on the required capacity, length of roads to be constructed, the number of stations, type of buses, control systems etc. In case of minor changes in the roads system, the investments range from $1.35 up to $ 3.5 million / km, or can increase to $4.8 - 8.2 million / km. Taking into account the needs of Chisinau, construction of about 50 km of road is needed what will require an investment of $ 2 million / km, or a total of $ 100 million. Taking into account that by 2030 the BRT system will take over 3.8 billion passenger-km, the investment per passenger-km will be $ 0.65 / one thousand passenger-km. Considering the technology lifetime of 40 years, and the required investment, the annual cost of investment is $ 2.5 million.

Operation and maintenance costs

Operation and maintenance costs include fuel consumption and increased management costs. It is assumed that costs will be 20-50% of the annual cost of investment (source: Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007). Accordingly, the costs will be $ 500,000 / year or $ 0.13 / one thousand passenger-km.

GHG reduction costs - Taking into account the annual cost of $ 2.5 million investment + annual maintenance costs of 0.5 million in 2030 annual cost will be $ 3.0 million, reduction of 320 tons by 2030 with the cost of GHG reduction of $ 9.37 USD / ton CO2.

Technology lifetime – 40 years.

Other

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[i] This fact sheet has been extracted from TNA Report - Technology Needs Assessment for climate change mitigation - Republic of Moldova. You can access the complete report from the TNA project website **http://tech-action.org/**