Policy Brief # 2
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Walking and Cycling

A policy brief on non-motorized transport (NMT) system in Kathmandu Valley

Introduction

Walking and cycling provide basic mobility for people all around the world. In most developing cities, a large number of people walk daily for their livelihood, as well as social and recreational activities. In Chinese cities for example, walking and cycling combine for 65 % of the modal share. Similarly, in India 7-15% of the trips in large cities and 13-21% of the trips in medium and small cities are on bicycles. Modal share in some cities around the world is shown in Table below.

Urban transportation systems are often planned and built in a way that promote usage of private vehicles and increase vehicle speed. Growing motorization combined with unsafe and inconvenient pedestrian and cycling infrastructures impede the mobility of the people, particularly the urban poor, who depend more on these modes of transport. This has also led to dramatic increase in the road fatalities, traffic congestion, energy demand, greenhouse gas emissions and deteriorating air quality.

Non-motorized transport (NMT) system (walking and cycling) has overarching socio-economic, environmental and health benefits. Making a city more walkable and cyclable contributes to sustainable urban development, and eventually leads to more humane and healthy society.

Benefits of NMT

- Promotes road safety
- Efficient and eco-friendly
- Generates no air pollution, greenhouse gas emission and noise pollution
- Reduces dependency on imported fossil fuels
- Improves mobility of the poor and promotes social cohesion
- Provides wider economic and health benefits
- Reduces traffic congestion

State of NMT System in Kathmandu Valley

As Kathmandu is relatively a small city, most of its distance can be easily reached on foot or by bicycle. According to study by JICA/GoN (2012), 90% of the trip by walking and bicycle finishes within 30 minutes, and similar is the trip length by cars and motorbikes. Streets in the core city areas are ideally designed for pedestrians rather than for vehicular movement.

Despite the lack of proper pedestrian infrastructures and decreasing road safety, NMT still dominates the urban transport modes. Walking covers 40.7% of total travel share. While NMT share is still high compared to other transport modes, the study shows that it has declined significantly since 1991 (Fig 1). Large

"A city is more civilized not when it has more highways but when a child on a tricycle is able to move about everywhere with ease & safety"

- Enrique Penalosa
Former Mayor, Bogota

Table : Modal Split in Cities around the World (%)

City	Walk	Cycle	Public transport	Private vehicle	Year
New York City	10	1	55	29	2009
Los Angeles	3	1	11	78	2009
London	21	2	41	36	2010
Copenhagen	6	36	29	26	2004
Vienna	28	6	37	29	2011
Bogota	15	6	62	15	2008
Delhi	21	12	43	19	2007/08
Beijing	21	32	23	20	2011
Kathmandu	**40.7**	**1.5**	**27.6**	**30.2**	**2011**

Source: Ministry of Urban Development, Govt. of India (2008); LTA Academy, Land Transport Authority, Singapore (2011); JICA/ Government of Nepal (2012); http://en.wikipedia.org/wiki/Modal_share.

part of walking and cycling is being replaced by motorcycle. The travel mode share of motorcycle has increased by almost three times, while bicycling has decreased to less than one fourth of what it was.

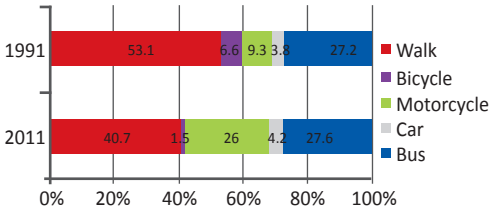

Fig 1. Travel Mode Share of Kathmandu Valley in 1991 and 2011 (JICA/GoN, 2012)

A survey carried out by Clean Energy Nepal/ Clean Air Network Nepal (CEN/CANN) in Lainchour, Naagpokhari and Putalisadak, where the sidewalks were demolished during road widening campaign, showed that the flow of pedestrians were high. The average number of pedestrian movement per hour was 2010 in Lainchour, 882 in Naagpokhari and 690 in Putalisadak (Fig 2).

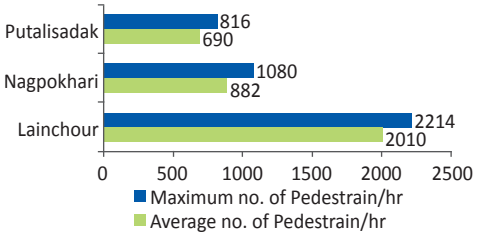

Fig 2. Pedestrian Movement per Hour (CEN/CANN, 2011)

NMT users are the most vulnerable amongst the road users. They are largest group to be killed in road accidents. According to KVMP (2001), pedestrians and cycle users account for 54% of total fatalities in road accidents.

How Walkable is Our City?

"Kathmandu is one of the least walkable cities in Asia, apparently catagorised as 'Not walkable'."

A walkability study (assessment of pedestrians infrastructures and services) done by CEN/ CANN with support from CAI-Asia and partner organizations in three cities (Kathmandu, Bhaktapur and Pokhara) revealed that the Kathmandu is least walkable compared to other two cities. Kathmandu is categorized 'not walkable' city and received one of the lowest walkability ratings among the Asian Cities (Fig 3).

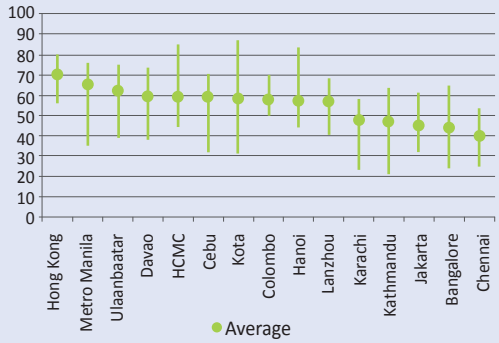

Fig 3. Walkability Ratings of Asian Cities (CAI Asia, 2010)

78% of the respondents in Kathmandu rated pedestrian facilities either bad or worst. Ground crossings are preferred over overhead bridge and underground crossings. 39% of respondents in Kathmandu are planning to shift from walking to private vehicles if pedestrian infrastructures were not improved (Fig 4).

Wider, leveled and cleaner sidewalks, streetlights, reduced or slow traffic, and disabled friendly infrastructures are the top priorities identified for improving pedestrian facilities.

Photo by: Prashanta Khanal

94% of all Surveyed Road Stretches in Kathmandu have no Existing Facilities for Persons with Disabilities.

Ironically, commercial and public transport areas, which have highest pedestrian movement, are found to be less walkable compared to residential and educational areas.

The major barriers identified for improvement of pedestrian facilities are inadequate policies/ regulations and budget allocation, poor urbanization plan, lack of coordination and weak implementation agencies.

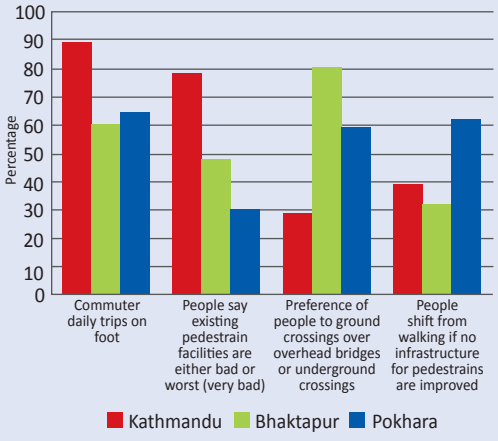

Fig 4. Comparison of Three Cities by Variables (CEN/CANN)

Cost of Motorization

Out of 570,145 vehicles that have been registered in Bagmati zone between 2001 and 2010, 93% were private vehicles, largely motobikes.[1] Though the person trip in 2011 indicates number of trips has doubled since 1991, there has been no improvement in public transport and NMT system.

The rapid growth of private motor vehicles has huge environmental, economic and health cost. Increasing motorization has led to traffic congestion and deteriorated air quality. Traffic congestion has considerably added to increased stress levels and loss of productivity.

Vehicular emission is the major contributor to air pollution. Transport activities contribute to 63% of particulates matter (PM_{10}) in Kathmandu Valley.[2] The PM_{10} and $PM_{2.5}$ levels were found exceeding WHO guidelines by 10-13 times and 5-8 times respectively in urban core areas.[3]

PM_{10} and $PM_{2.5}$ are the major health concern, exposure to them leads to respiratory infections, damage to lung tissue, cancer, heart diseases and premature death.

The Ministry of Environment, Science and Technology in 2005 estimated that Kathmandu Valley's air pollution results into 1,600 premature deaths per year. A study by CEN/CANN in 2003 showed that reducing the annual average PM_{10} level in Kathmandu to international standards (50 µg/m^3) will avoid over 2,000 hospital admissions, 40,000 emergency room visits, 135,000 cases of acute bronchitis in children, 4,000 cases of chronic bronchitis and half a million asthma attacks.

A study by World Bank in 2008 showed the annual health cost of Nepal attributed to urban air pollution is US$ 21 million, equivalent to 0.29% of GDP. Records from the major hospitals in Kathmandu Valley have shown that the Chronic Obstruction Pulmonary Disease (COPD) has been increased significantly over the past 10 years.

Increasing motorization has also resulted to decreasing road safety, increased expenses in road infrastructures, revenue loss in oil import, declining NMT users and public transport ridership.

Initiatives on Walking and Cycling

Photo by: Prashanta Khanal

Photo by: Basudev Lamichhane

Vechicle Free Zone in Basantapur and Bhaktapur Durbar Square

Basantapur and Bhaktapur Durbar Square restrict entry of motor vehicles to promote tourism activities and heritage conservation. This has created a tranquil place for tourists and local communities, and for different social activities. Kathmandu Metropolitan City (KMC) has envisioned developing historical urban core areas as vehicle free zone.

Photo by: Prashanta Khanal

Cycle Track and Pedestrian Way in Tilganga-Sinamagal

Although KMC designed cycle lanes as part of the Kathmandu Valley Mapping Programme in 2001, it was never implemented. The first and only cycle track in Kathmandu runs from Tilganga to Sinamagal and is 1.2 km long, which is accompanied by exclusive pedestrian way. Its exclusive track provides safer mobility for cycle users and lessens the exposure to roadside dust pollution. However, lack of integrated and continuous cycle lanes, the usage is minimal.

"There are already noble initiatives in promoting non-motorized transport system in Kathmandu Valley such as vehicle restricted zone in Bhaktapur and Basantapur Durbar Square, and cycle track. We just need to upscale these initiatives beyond the pilot projects… so that people can feel the real change."

1 Department of Transport Management (2011);
2 Gautam C. (2006), An Action Program on Air Quality Management of Kathmandu Valley;
3 Schwela D. (2009), An Strategic for Air Pollution Reduction in Kathmandu Valley, Stockholm Environment Institute.

Besides, the cycle track lacks basic amenities such as signposts, smoothness, prioritized intersections, regular maintenance, and obstruction with trees and potholes, which need to be addressed for convenience and safety of cycle users.

The Department of Roads is planning to build cycle lanes while expanding the Ring Road and in some other expanded roads in the city. It has also included sidewalks in some of the expanded roads.

Pedestrianization in Thamel

Several plans/initiatives (including the first Physical Development Plan for Kathmandu Valley prepared in 1969) have suggested pedestrianization of city core areas. Kathmandu Sustainable Urban Transport Project (2009) has identified historic core areas of Kathmandu for pedestrian infrastructure improvement and restriction of vehicular movement.

Thamel, located within the core city and a popular hub for tourists in Kathmandu, is facing serious traffic related problems, such as congestion, safety, noise and air pollution in recent years. Pedestrianization of Thamel will yield wide array of benefits from increased economic and tourism activities to improvement of air quality and developing culture of sustainable urban mobility.

A study by CIUD in 2004 recorded 27,094 non-motorized transport (pedestrians, bicycle, and rickshaw) movements in 12 hours, while that of vehicles were found to be 44,925, largely motorbikes. The study has proposed to restrict entry of vehicles for certain hours and recommended to provide parking facilities, entry of emergency vehicles and run few electric vehicles to facilitate the mobility for weaker strata of the community.

According to a survey carried out by CEN/CANN in Thamel on 2012, 98% of tourists use non-motorized modes of transport largely walking (87%). 85% of the tourists preferred Thamel to be vehicle-restricted area to promote tourism activities. 54% rated the air quality of Thamel either fairly bad or very bad and 45% of surveyed tourists rated walking condition of Thamel either fairly unsafe or very unsafe.

"If Thamel was made vehicle free zone, I would have enjoyed spending time here instead of dreading it" - Respodent (USA).

"As safety is a prime concern for pedestrians and cyclists, separate lanes for cyclists and pedestrians will be very beneficial for promoting NMT."

Photo by: Institute of Urban Development, Bogota

Cycle Lane and Pedestrian Way in Median Strips of Arterial Road in Bogota

Construction of network of cycling paths in Bogota has resulted in an increase of cycling from 0.5% (1998) of daily trips to 4% in only 3 years. Dramatic improvement in cycling and walking facilities in Bogota has dropped the road fatalities. Cites like Copenhagen and Amsterdam have adopted cycle inclusive policies and invested in building cycle lane networks and improving cycling facilities throughout the city. They are one of the most bicycle friendly cities in the world. Over 60% of trips in inner city and 38% of overall in the greater city of Amsterdam are made by bicycle. Similarly, in Copenhagen, one of the world's most livable cities, bicycle makes 36% of daily trips.

Recommendations

Improving walking and cycling environment is important in ensuring the equitable access to mobility as well sustainable urban transportation for the future generations. This requires policies and programmes that actively support the development and promotion of NMT systems. In this context, the following recommendations are suggested for promoting improved mobility and environment through NMT in Kathmandu:

- Devise comprehensive guidelines/standards for sidewalks and cycle lane designs (integrated, continuous unobstructed, safer and minimum width of 2 m).
- All streets should adopt road safety audit and be designed with complete street concept.
- Develop core city areas as vehicle free zone as recommended by many plans/projects.
- Invest pollution tax on improving NMT infrastructures and services.
- Prepare a comprehensive Transport Master Plan for Kathmandu Valley integrating with land use planning and priortizing pedestrian and cycling facilities.
- Public awareness campaigns on importance and benefits of NMT system.

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