

Sustainable Bicycle Routes in Kathmandu

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Abstract

SUSTAINABLE BICYCLE ROUTES IN KATHMANDU

The air quality in the urban areas of Kathmandu is deteriorating and is higher than the proposed national standard. Transportation is the major source of air pollution in urbanized Kathmandu where more than 200000 vehicles are driven each day. There are uncountable reasons behind the air pollution in Kathmandu. The increased air pollution is a consequence of rapid growth of number of vehicles, transportation mismanagement and bad roads, inferior quality of automobile engine, adulterated fuel product and polluting industries in the valley. Research estimation indicates the pollutants released by motor vehicles are harmful to human health and environment.

It is recommended that non-motorised transport (NMT) facilities for clean environment i.e. footpath for pedestrians and safe space for cycling are particularly useful in Kathmandu. Cycling is generally useful for the poorer parts of the population those that can not afford to own and use motorized vehicles and those pedestrians that can not even afford the daily expenses of public transport fares. Currently, there are two main problems behind the bicycle routes promotion in Kathmandu

- Finding the spaces for network of cycle routes
- Safety provision for cyclist

However there is cycling tradition and speed differences between the various vehicle on access and local collector roads are not so large. So that at least the general conditions in Kathmandu seem to be conducive enough for cycling. Similarly it has come to know from interview survey that cycling should be supported and promoted particularly for socio-economic arguments (home to home trips and social-personal trip purposes) notably for the poorer part of society that have reached an economic status of being able to afford bicycle ownership.

Though Kathmandu is a small city in comparison to other big south Asian cities, we are facing environmental degradation in mammoth scale in most of the sectors and areas. As the population of cities in the developing world has grown dramatically, the need for public transportation and goods delivery has increased. As more and more rural people are moving to the urban areas on per day basis, water supply/ sanitation, housing, garbage disposal, traffic/transportation industrial pollution problems and the rest are becoming more severe day by day in urban areas of Kathmandu. The population of Kathmandu is now over 1.2 million, more than double that of ten years ago.

PROBLEM ANALYSIS

The number of motor vehicles has quadrupled with a rapid increase in the number of highly polluting three-wheelers for public transportation and the number of two-stroke motorcycles for personal transportation. While the larger number of vehicles cause air pollution increasingly, there are other factors which play an important role in polluting Kathmandu. In most cases the vehicles are poorly maintained. In addition, the quality of fuel is often extremely low. Since the price of petrol is so much higher than subsidized diesel and subsidized kerosene, petrol is often to be diluted with the cheaper fuels to the detriment of both the vehicle and the environment.

Transportation is the major source of air pollution in urbanized Kathmandu, where more than 200,000 vehicles are driven each day. Similarly there are uncountable reasons behind air pollution in Kathmandu. The increased air pollution is a consequence of rapid growth of number of vehicles, transportation mismanagement and bad roads, adulterated fuel products, and polluting industries in the valley. Here, the problems related to rapid urban growth, haphazard development and lack of planning in the past have been apparent.

Both topographic conditions of nature of Kathmandu valley and activities of its residents are responsible for increased air pollution. Bowl shaped topographic structure has heightened the air pollution problems by trapping the polluted air. Due to population explosion, rapid industrialization and urbanization amounts of pollutants are increasing each moment. Research estimates indicate the pollutants released by vehicles are harmful to human health and environment.

Urbanization in Kathmandu has given rise to road extension even in the congested and unplanned areas, as a result vehicular pollution has increased. Moreover, the poor condition of roads has played a pivotal role in determining vehicle's condition. While a decade ago average speed of vehicles in Kathmandu ranged between 25 and 30 km per hour; today it has reduced to 4-5 km per hour. It is as sure as a gun that increases in number of vehicle increases the traffic congestion in congested roads and decreases speed. According to statistics, the high levels of sulphur in diesel fuel and lead in petrol have been increasing air pollution through vehicles. Traffic also generates dust from many vehicle fumes and wear of tires mainly on dust-covered roads. These all have negative impacts on local environments.

PLANNING AND POLICY

While this is the case of the urban environment of Kathmandu, it is the high time to control air pollution. Therefore, efficient programmes are needed to improve this situation. Among them clean transportation facilities may be good example for clean environment. It is recommended that non-motorized transport (NMT) facilities i.e. footpaths for pedestrians and safe space for cycling are particularly useful in Kathmandu. According to a study, it has been observed that cycling is ideal for Kathmandu because of the following reasons:

- Travel distances are normally short. (the total distance from one end of the city to another is only about 10 Km.)
- The city has many narrow lanes which are not appropriate for vehicles.
- Vehicles are not affordable for many people, whereas the bicycle is much cheaper to buy and operate.
- Because of traffic jams and narrow streets, bicycles are often faster than vehicles.
- Bicycling is healthy.
- Most tourists love cycling,
- Bicycles do not cause any pollution, which is especially important for a city like Kathmandu where air pollution level is about three times higher than WHO guidelines and the number of vehicles is increasing at a rate of 21 per cent per year, which is five times higher than the rate of population growth. Furthermore, as cycling normally replaces short distance vehicle travel, its environmental benefit is even higher.

Realizing above mentioned facts, the government is planning to expand and improve the existing 14 radial roads with bicycle lanes of the Kathmandu Valley, which link to its outskirts, in a bid to ease the worsening traffic congestion. Beside the expansion, the government has plans to develop town planning within 250 metres of either side of proposed 65 km long outer ring road with bicycle track, allowing new cities to evolve away from the core urban areas.

In 2002, Kathmandu Metropolitan City (KMC)'s Kathmandu Valley Mapping Programme (KVMP) presented the final design of the demonstration bicycle track between Tinkune and Maitighar, which will be 2.5 km long and 3 meters wide. KMC has proposed to construct cycle tracks on either side of the 27 km long Ring Road in the fiscal year 2005/2006. Government has approved the KMC's plan to construct a 44 km cycle track on either side of the Ring Road. Recently KMC and the Velo Mondial, global organization which support the use of bicycle by governments, signed the Velo Mondial charter and Action plan for bicycle friendly communities. By signing the charter, KMC has expressed its willingness to encourage cyclists and recognizes a policy initiative that addresses the challenges and contributes to many of the solutions necessary to improve the quality of life in cities.

CHALLENGES AND OPPORTUNITIES

Kathmandu has an excellent setting for both challenges and opportunities for promotion of bicycle routes.

Cycling is particularly useful in Kathmandu for the poorer parts of the population those that cannot afford to own and use motorized vehicles (e.g. motorcycle) and those pedestrian that cannot even afford the daily expenses of public transport fares. The promotion of cycling is not only for the benefit of poorer part of the population that can afford to own a bicycle but also to attract current users of motorized modes of transport (motorcycles, passenger cars, buses and tempos) to take up cycling particularly for trips to say about 8 km distance in order to reduce air pollution as well as motorized traffic congestion.

Cycling in Kathmandu seems more dangerous than other modes of transport. Safety for a cyclist is greatly enhanced by physical separation of the cycle way from the road space used by the faster motor vehicles. There must be a network of bicycle routes. The network should have no gaps and be linked to the main points where cyclists begin or end their trips. Special provision for cyclists will be needed in the form of waiting space and traffic signal control at intersections. Comfortable bicycle movement implies hindrance by other road users including other cyclists, i.e. a capacity of the cycle way large enough to avoid bicycle congestion, and a reasonable smooth and hard pavement and manageable gradients. An attractive cycling environment around bicycle routes should be such where possible incorporate plantation that provide shade, cleanliness, kiosks and shops along the routes but not encroaching the cycle path, small public parks serving as a resting place, and no close exposure to traffic exhaust gases.

Considering the present Kathmandu road network situation, it will be far from easy to comply with all of these requirements. The overall quality of a cycle route from its origin to its destination is often determined by worst part of the route. One or two trouble spot can spoil an entire route. There are main two problems behind the bicycle route promotion in Kathmandu.

- Finding of creating the spaces to create a genuine network of cycle routes and
- Establishing the needed safety provisions for cyclists at major junctions and/or terminal points of cycle ways.

However, there is cycling tradition and due to the narrow streets and bad quality of the pavement, speed difference between the various vehicles on access and local collector road are not so large. According to a study done in 2000, there are approximately 55,000 bicycles in Kathmandu Valley.

It is recommended that a serious attempt of bicycle network promotion should aim at a bicycle network covering at least 25% of the total road length. Preliminary places of such possible bicycle network in Kathmandu are both sides of ring road, Bagmati, Bishnumati and Dhobikhola corridor, New Baneshor-Maitighar-Bhadrakali-Bhimisen tower routes.

A CONCEPTUAL BICYCLE NETWORK

The four necessary elements of a possible Kathmandu and Lalitpur bicycle network would be:

- Most of the Trunk roads (14 m. width) cannot be significantly widened in order to accommodate (physically) separated cycle ways. Alongside this main roads category with significant pedestrian volumes as well priority might be given to sufficiently wide sidewalks of good pavement quality for the pedestrians. A safe alternative for cycle would then have to be found elsewhere i.e. (i) on the existing road cross-section usually a 14 m wide carriageway that would have to be redesigned or (ii) on a nearby usually narrow parallel street.
- The collector-distributor road with widths mostly in the range of 4.5-6.0 m hardly offer any realistic opportunity to provide separated cycle facilities. Only on roads where the width between fixed objects (buildings, walls, etc.) is in the range of 8-9.5 m, there would be opportunities to consider either separated cycle track lanes, or alternatively, the provision of raised, combined footpath and cycle paths.
- The category of narrow roads say 2.5 to 4m width available between structure probably offer good opportunities to supplement the bicycle network, both at the origin or destination end of bicycle trips and more or less parallel to the network of trunk roads.
- All intersections within the envisaged bicycle networks need to be assessed, and re-designed if necessary, in respect of safe passage of the prevailing bicycle flows.

STRATEGIES

The goal of building bicycle routes and its facilities in Kathmandu are to improve urban environment and access. In order to improve air quality, control environmental pollution, however, it is urgently necessary to promote non-polluting or non-motorized Vehicles in Kathmandu. There are various approaches that have been developed to control pollution from transport sector. Some of these prevention and mitigation strategies should be implemented urgently in Kathmandu. The following ideas can be incorporated into comprehensive land use, transportation and non-motorized plans to enhance safety, proximity and access.

- Direct land use and transportation development, through the permit process, to issue equal or better access by foot or bicycle to education, recreation, retail, commercial office and other appropriate types of development.
- Design and locate retail, office and public service buildings to be convenient for pedestrian, bicycle and transit users.
- Restrict development of neighborhood commercial areas to a pedestrian scale and design.
- Coordinate land use decisions with existing and planned public transportation services and the needs for non-motorized access.
- Reduce congestion and increase access with strategies to reduce vehicle volume, not increase capacity.

- Establish a comprehensive pedestrian/bicycle program to coordinate engineering, education, enforcement, encouragement, and environmental programs for improving non-motorized transportation.
- Design new roadway and roadway improvement projects to accommodate bicycles and pedestrians as an integral part of the project, unless otherwise determined.
- Create traffic calm neighborhoods to provide a pedestrian- and bicycle- friendly travel environment. Discourage through traffic in residential, school, park and commercial areas.
- Design and construct a safe, secure and convenient system for pedestrians and bicyclists which provide direct non-motorized access, linkages and through-cuts between common origins and destinations (residential areas, retail areas, schools, libraries, employment, parks and recreation facilities, significant environmental areas, local historic and cultural landmarks, transit and other public facilities).
- Review every planning and public works project for pedestrian and bicycle character to determine whether or not there is a non-motorized element or impact.
- Evaluate the impact on pedestrians and bicyclists when designing, engineering, rehabilitating, signalizing, striping, upgrading, or modifying a roadway.
- Adopt street design standards (i.e. intersection design, signal phasing, roadway width) that give priority to and enhance the safety of pedestrians and minimize conflicts with motorists. Priority for installation or reconstruction should be given to those routes that are used by school children, senior citizens, physically challenged persons and/or commuters.
- Construct pedestrian and bicycle facilities with appropriate amenities (i.e. restrooms, drinking fountains, benches, bicycle parking) to encourage and support use.
- Design pedestrian and bicycle facilities for easy maintenance.

At present transport management is going on as a basis of traditional urban planning process. In order to improve urban environmental planning and management through problem identification finding out of potentials and effective way of working in Kathmandu, the strategic planning approaches should be considered as an essential approach from policy making level. This approach will integrate with all issues, which will seek a common goal of safety improvement, energy conservation, reduction in the cost of transportation, and various infrastructure services.

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