

# Infrastructure Notes



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## Strategic Planning for Non-motorized Mobility

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*Setting explicit policy goals and strategies for non-motorized transport modes is vital for ensuring that the benefits which they can bring to the transport scene are realized. This paper sets out the issues which need to be considered in developing strategies for non-motorized transport, particularly at different organization levels, and stresses the importance of solid financial backing.*

### INTRODUCTION

Bicycles, as well as other forms of non-motorized transport can bring significant economic, social and environmental benefits (see Infrastructure Note UT-4, February 1994). Despite this they are often marginalized in transport system planning. Non-motorized road users do not come into the reckoning until motorized road-users' needs are constrained because of inadequate road space on shared right-of-ways. The provision of facilities for non-motorized transport (NMT) is then of an improvised rather than planned character. This arises partly because in most developing countries central Governments have an agenda for the role of transport in economic development based on motorization as a yardstick of modernization. But it also reflects the weak political empowerment of non-motorized transport users, who mainly represent the poorer segments of the population.

This failure to plan for NMT can be very damaging. For example, China has a history of nearly a hundred years in bicycle use. In the late 1970s, bicycle policies focused on financial incentives to both the purchase and use of bicycles. As a result, bicycle ownership more than quadrupled in the 1980s. The policy was successful in many ways, but the lack of an integrated system approach caused problems for other transport modes: public transport was confronted with a dramatic loss in ridership and the massive flow of bicycles caused congestion, impeded public transport and accounted for a

high share of traffic accidents. At present, the rather draconian responses of some city managers focus on severe bicycle restrictions and even outright bans. The creation of adequate segregated facilities for bicycles and public transport modes, as well as their integration ('bike-and-ride' facilities), could have alleviated many of the current problems.

An explicit NMT strategy is thus an important instrument for developing the potential of non-motorized based mobility. An NMT strategy must include long term objectives, steps to be taken to reach the objectives and guidelines for elaborating interventions.

### DEVELOPMENT OF NMT STRATEGY AND POLICIES IN INDUSTRIALIZED COUNTRIES

Confronted with severe congestion and the negative environmental effects of increasing car traffic, many industrialized countries (including Japan, Germany, Denmark, Canada, Netherlands, and the UK) are now giving more attention to the potential benefits and complementary role of non-motorized transport. The full benefits of integrated transport systems are best seen in The Netherlands which has actively pursued a pro-NMT strategy over the last decade.

In The Netherlands the bicycle accounts for over 30 percent of total daily trips, which places it second, right after the private car. The full potential of NMT is best

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achieved through the development of comprehensive strategies and policies that involve all relevant levels of government with participation from all stakeholders in NMT.

At the national level, the bicycle was returned to the mainstream of government transport policy in the debate on environment and mobility during the 1980s. As part of an integrated traffic and transport approach a Master Bicycle Plan has been developed, based on a policy statement that was approved by Parliament. The main objectives of the Plan are to: (i) get more people onto bicycles: 3.5 billion more bike kilometers in 2010 than in 1986 (an increase of 30 percent); and (ii) attract more people to public transport by improving the public transport-bicycle chain: at least 1.5 billion more kilometers by train in 2010, an increase of 15 percent over 1990 levels, by facilitating cycling to and from railway stations.

At the regional and local planning levels it is recognized that adequate NMT provisions improve accessibility to centers of economic and social activity and can widen the range of personal mobility options. Proposals for NMT are being formulated as important components of comprehensive traffic and transport plans alongside car restraint measures and promotion of public transport. Integrating facilities for bicycles and pedestrians with mass transit systems can enhance public transport ridership by enlarging catchment areas (resulting in fewer public transport stops, reduced vehicle operating costs and energy use) and reducing door-to-door travel times. In the privatization process of the Dutch railways, bicycle parking provisions are considered to be part of the infrastructure, just like tracks and platforms, which will remain under the financial responsibility of Central Government.

#### **PLANNING FOR NMT IN DEVELOPING COUNTRIES**

Although NMT promotion begins at the national level with appropriate policies and incentives, the state and local governments are primarily responsible for development and implementation of plans. Guidelines for each level of government (assuming there to be three) are provided below.

##### ***National NMT Policy***

To be fully effective, NMT strategies should fall within the framework of a national NMT policy. It should include broad NMT strategies that address all aspects of NMT as well as the organization of horizontal (inter-departmental; inter-district/municipal) and vertical (several administrative levels; public-private)

institutional responsibilities. The national policy provides a framework and direction for the development and coordination of programs in the different sectors and at all levels of government. Furthermore, a national strategy constitutes government's commitment to various initiatives and actions. It is an instrument for public debate, as there will be conflicting interests between stakeholders, and brings out the interfaces between NMT and other transport subsectors/other sectors. It thus facilitates the integration of NMT within planning and design activities, such as land development plans, traffic management schemes, road design, road maintenance and traffic safety programs.

The National NMT policy must recognize the particular role and complementarity of non-motorized transport in comprehensive transportation systems. It appreciates the benefits of NMT with respect to, for example, traffic congestion, air and noise pollution, consumption of non-renewable energy sources, improved public health and poverty alleviation. It also recognizes the deficiencies of NMT, such as its limited radius, and addresses those with targeted interventions, such as good compatibility with public transport.

The objectives of a National Bicycle Policy can include, inter alia:

- ◆ integration of NMT into the transport system and into infrastructure and land use planning;
- ◆ endorsing and facilitating the use of non-motorized transport modes, stand alone, or combined with other modes;
- ◆ facilitation of research and new initiatives to improve NMT performance;
- ◆ development of road design and maintenance standards that recognize NMT as a traffic component;
- ◆ reduction of the number of traffic fatalities/injuries of vulnerable non-motorized road users; and
- ◆ development of traffic legislation that takes account of NMT as a fully-fledged transport mode.

##### ***State or Regional NMT Policy***

State or regional NMT policies provide guidance and a framework within which responsible agencies can plan and work. They specify important strategic action areas and nominate responsible 'lead agencies'. The objectives of a state-wide/regional NMT policy must be clearly

defined to facilitate evaluation and may include, but are not limited to:

- ◆ integrated planning for NMT within state/regional transport and land use planning;
- ◆ prioritization of areas with high demand for NMT facilities;
- ◆ development of road safety programs that focus on the most vulnerable road users, in close collaboration with national authorities;
- ◆ development of by-laws regarding non-motorized transport; and
- ◆ monitoring of non-motorized transport.

#### *Local Strategic NMT Plans*

Local, urban, or rural strategic bicycle plans can be developed on a municipal basis or a regional basis when, for example, a number of municipalities share resources or when there is a lot of NMT traffic between municipalities. These plans translate many of the objectives of higher level NMT policies into practical programs and projects tailored to the specific situation.

#### **NMT PLANNING IN LIMA, PERU**

In 1990, the Municipality of Lima approved a 'Programa de Transporte Popular de Vehiculos No Motorizados'. The program was developed in harmony with the city's Transport and Infrastructure, and Urban Development Plans. The main objectives of the program are to:

- 1) increase bicycle use as a complementary or alternative means of transport;
- 2) reduce transport costs for low income groups by facilitating access to bicycles;
- 3) reduce automotive environmental pollution and improve health; and
- 4) provide safe, convenient and direct NMT infrastructure.

Supported by a World Bank loan, current activities include construction of bicycle lanes, provision of credit facilities for bicycle purchase by the poor, reviews of traffic regulations to include NMT, and bicycle promotion and educational campaigns for all road users. Local institutional capacity has been strengthened and the city's NMT office is developing a Bikeway Design Manual meeting country-specific requirements.

The basic aims of local plans usually include the following:

- ◆ survey the extent and nature of various forms of NMT within the area;
- ◆ determine the specific needs of the community with participation of all stakeholders;
- ◆ indicate constraints for NMT;
- ◆ identify practical NMT infrastructure interventions;
- ◆ design engineering measures that address problems including estimated costs and an implementation plan;
- ◆ identify local road safety problems and develop tailored road safety campaigns;
- ◆ develop promotional campaigns for sustainability-conscious modal choice;
- ◆ involve employers, shopkeepers, etc., in provision of NMT facilities, such as bicycle parking areas; and
- ◆ review local by-laws in regard to NMT and ensure adequate law-enforcement.

#### *Organizational Aspects*

The organizational structure depends on the size of the plans and the activities that arise from them. For example, at the local level assigning a NMT coordinator, who supervises, guides and coordinates NMT activities in close cooperation with city planners, engineers, etc., and who is permanently approachable, is compulsory. The coordinator is also responsible for organizing community participation in project preparation and implementation. Establishing user platforms, representing all stakeholders in NMT, has proven to be a valuable tool; the practical and local knowledge of the daily users of the infrastructure is indispensable in mapping out all the problems. User participation in the planning process may vary from an uncommitted exchange of thoughts with interested parties to a form of joint management in which the demands of the interested parties are decisive. A rule of thumb is that the more the consequences of decisions have an impact on the interested parties, the more serious their comments must be considered. After each round of public comment there is a decision-forming phase which is recorded in a written document.

### *Financing Bicycle Plans*

In considering various options for the development of sustainable transport systems, financial arrangements for the necessary investments play an important role. Since most NMT facilities have a local function, the effective and efficient planning and implementation of these facilities can be done best by local authorities. This will often require institutional and legal reforms, such as assignment of responsibilities and allocation of financial resources to local authorities. However, even with such reforms financial resources of local authorities do not grow in line with their obligations. Whereas large, stand alone, infrastructure projects, such as highways, bridges, tunnels and rail systems, can be suitable for private financing, other projects, such as the development of NMT networks, which are not stand alone and which cannot sensibly impose user charges must be financed with the cities' own funds or through money borrowed from the international lending agencies. An important role for authorities, however, is to make sure that all infrastructure projects, large and small, long-term and short-term, work towards achieving stated transport objectives that are in the public interest. In the longer term, this will require a more creative use of available financial resources. Privately financed projects will have to meet design standards that include appropriate NMT facilities and a portion of road user charges must be used for general improvement of mobility and accessibility (through multi-modal Urban Transport Funds instead of Road Funds, for example).

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### *TO LEARN MORE*

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*Austroroads. 1993. Guide to Traffic Engineering Practice: Bicycles. Publication AP-11.14/93.*

*Vélo Québec. 1992. Technical Handbook of Bikeway Design. In collaboration with Ministère des Transports du Québec and CIDA.*

*CROW. 1993. Sign up for the Bike: Design Manual for a Cycle-friendly Infrastructure. In collaboration with the Ministry of Transport, The Netherlands.*

*For additional information visit TWUTD's Non-Motorized Transport Website (forthcoming) or contact Paul Guitink, x33948.*

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