Analysing the pedestrians' environment with regard to Pedestrian Quality Needs

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Abstract

A large variety of stakeholders are involved in policies with an impact on the pedestrians' urban environment, at the European, national, regional and local levels. Such policies range from urban and land-use planning to detailed road and street design through transport and traffic management, traffic safety, health promotion, reduction of CO2 emissions or even regulatory policies on the prevention of terrorism and violence. Policies are rarely coordinated with regard to their impact on walking and on walking conditions although some of their components do interact. With such a complex decision-making system, analysing how current pedestrians' environments satisfy pedestrian quality needs requires a systems approach covering all relevant policy components.

There has been so far no system-based assessment of the quality of pedestrians' environments. However, analysing the current situation at the European, national or local level is needed for two purposes: raising the awareness of the public and the relevant groups of policy-makers that some progress has to be made; identifying the priority problems to be treated. An inventory of the relevant areas to investigate is proposed here with a view to facilitate the analysis of the level of satisfaction of pedestrian quality needs provided. The pedestrian's environment is considered in a broad sense as it includes the social context, the physical urban environment, mobility and traffic, and the policy areas that make changing or improving the environment possible or easier.

The areas to investigate are of interest for stakeholders at two levels: for decision-makers at the national level, the focus is on legislation and policy-making as a framework (or pre-condition) to practical interventions on the walking environment; for local authorities, analysis of the design of the urban public space and of the implementation of changes is most important; moreover, national actors may also want to get a global analysis of what is going on in urban areas countrywide in application of national policies or through local initiatives.

Any of the stakeholders involved at the national or the local level may take up the analysis task. It is hoped that the methodological tools provided in more details in the PQN full report will encourage them in taking up the issue of pedestrian quality needs and will help them identify the areas for progress.

Brief biography of the author

Nicole Muhlrad originally trained as a Civil Engineer and Urban Planner. She has been a road safety researcher in the French National Research Institute for Transport and Safety, INRETS, since the early 1970s. Her main areas of research and expertise include pedestrian safety, safety in urban areas and inter-sectoral road safety management processes. Beyond working in the European context, she has managed research programmes for developing and emerging countries and has been Head of the WHO Collaboration for road crash and injury prevention since 1999.

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Introduction

The paper summarizes the reflections of PQN (Pedestrian Quality Needs) working group 4 on the development of practical methodologies for the analysis of the pedestrians' systems in Europe [PQN, 2010]. It addresses two target audiences: first, the public stakeholders who perform research and who are the managers of the physical and legal environment of pedestrians, and second, the pedestrians themselves or the organisations representing them. The public stakeholders need to know where they are in order to be able to progress; the pedestrians need to pinpoint their unsatisfied needs in order to put pressure on decision-makers and push forward policies to improve their situation. In European countries, these two groups of stakeholders operate at three levels: international (the European Community), national, and local (city authorities and community based actors).

The diversity of relevant stakeholders makes it difficult to assess the level of accomplishment reached by European countries in satisfying Pedestrian Quality Needs. In practice, a large part of the measures and policies addressing walking are in the hands of local authorities and local stakeholders who may act on their own initiative and independently from national governments. This means that there is no centralized knowledge of the pedestrians' physical environment in urban areas, which is a real problem as the policies adopted for pedestrians by local authorities are far from being homogeneous. As to the legal environment, the current situation has seldom been analysed from the viewpoint of pedestrians. A methodological approach to problem identification and analysis is thus needed.

In the following paper, we will provide an overview of the actors who may be involved in pedestrian-related policy issues as well as an overview of the policy-areas which may affect the pedestrians' systems and therefore have to be explored in a comprehensive analysis. Based on this information, the development of an investigation checklist has been undertaken in PQN and the principles will be briefly described.

Any of the stakeholders identified may be interested in promoting walking and sojourning in an adequate urban environment. In the near future, attention to walking as a transport mode is bound to increase along with petrol prices [PQN, 201, "Trends and Visions"]. Policies towards the slowing down of Global Warming also call for increased mobility through non polluting means such as walking and cycling. These are windows of opportunities for improving the satisfaction of Pedestrian Quality Needs. The will to act, or to convince better empowered actors to act, is indeed a pre-condition to undertake a systems' analysis. We hope that our methodological approach will not only be a useful tool, but will also contribute to focussing attention to pedestrians and mobilizing some of the relevant stakeholders.

The stakeholders

Stakeholders at the European and international level

The European Commission is a leading actor in promoting action aimed at improving pedestrian safety and mobility, based on the knowledge produced by its own research projects such as PROMISING, WALCyng, etc. (an intellectual investment not to be wasted!). In the past the European Parliament voiced the rights of pedestrians (European Charter of Pedestrian Rights) and asked the European countries to support and execute the charter. Direct co-operations also take place between Regions of European countries: there is definitely a potential for action there.

The active stakeholders also include international organisations which collect and organize available knowledge (OECD, private organisations specialized in traffic safety such as ETSC). One should add the lobby groups who do or may push the Pedestrian Quality Needs issue such as the Federation of Pedestrians Associations (FEPA), the European Federation of Pedestrians, the Federation of Road Accident Victims, and other associations or organisation acting, for example, for child safety (like Childstreet or the European Child Alliance).

Stakeholders involvement in policy-making at the national level

At the national level, involvement of the Parliament in mobility and safety issues is to be expected, although the nature of this involvement varies according to countries from policy-making to a marginal advisory role. In a number of European countries, procedures have been set up for the Parliament to monitor policy implementation and programme achievement (for example in Denmark or Germany). As a matter of course, the Parliament ultimately votes the laws prepared by other national actors in planning, transport or traffic safety.

At national government level, the Ministries in charge of Transport and/or Environment and/or Public Works shape the pedestrians' environment through land use and planning laws or policy papers which contribute to determining the needs for mobility. In the last decades, specific laws (voted in Parliament) or regulations (such as Government's decrees) have also been enacted to develop sustainable transport, mostly with a view to reducing petrol consumption and CO2 emissions and to improving safety; these laws and regulations open opportunities to develop walking as a full-fledged transport mode and improve walking conditions (for example: in France, the Law on Air, 1993; in Italy, the Guidelines for Urban Traffic Plans, 1995).

As for traffic, the same governmental actors are responsible for the Highway Code, the standards and guidelines to design streets and roads, and a national driver training programme. They may also implement temporary or experimental incentive programmes, either to encourage local authorities to act on the opportunities opened by national framework laws, or to develop their own initiatives and innovations with regard to pedestrians' mobility and/or safety. Such programmes may produce examples of "good practice" and serve as demonstration projects, and thus lead to the development of new legal frameworks.

Traffic education programmes addressing school pupils may be initiated by the Ministry of Health or Transport in cooperation with the Ministry of Education although, in some countries, these activities take place at the regional level. School education programmes may include lectures by visiting staff from the Police or the Health sector. A pre-condition for the implementation of traffic education teachers or lecturers are offered appropriate training, so that the trainers in charge are essential stakeholders.

The Ministry of Interior is often, if not always, responsible for the orderly use of public space and thus of the regulations on occupation of streets and parks which may in some instances conflict with the right of pedestrians to sojourn. Road safety may be under the responsibility of the Ministry of Transport or, more rarely in Europe, Health or Interior and there is usually a road safety institution to coordinate the management of inter-sectoral road safety programmes and policies. Road safety policies may diversely affect pedestrians according to whether they take into account pedestrian mobility needs on an equal basis as the mobility needs of other road users [OECD, 1998].

Besides national governments, other stakeholders are involved in road safety and mobility policies, either from the private sector (vehicle manufacturers, insurance companies, etc.) or from the civil society (NGOs representing parents of road accident victims, parents of school children, road safety or health associations, pedestrian associations, environmental groups, etc.). Among these, only health groups or organisations, some mutual insurance organisations, and the NGOs specifically representing pedestrians or "vulnerable" road users such as children, elderly people, or mobility impaired persons, are inclined to promote walking and safe walking environments. Other groups have other, sometimes adverse, priorities [Muhlrad, 2009].

Stakeholders' involvement in policy-making at the local level

In urban areas, actors' involvement in policy-making follows a similar pattern as at country level, although the role of elected representatives is usually stronger: local councils are fully responsible for local roads, mobility and traffic safety while their various "technical services" (or local government Departments) develop and implement the programmes directly or indirectly affecting Pedestrians Quality Needs (urban, transport and infrastructure planning, design and equipment of streets and roads, speed management, information and education programmes, child health and safety, etc.). Moreover, the Health sector is involved in promoting walking as a factor of better health for the population, and in "tertiary" safety (emergency care and treatment of injuries).

As communication and agreements between local governments and other local actors are relatively easy to establish, various non-institutional stakeholders (residents associations or community groups, parents of school children, road safety associations, health or other professional organisations, etc.) may participate actively in management and operational tasks: data gathering, planning and decision-making, the design of measures or local schemes, or the implementation of particular interventions (education, communication, etc.). On the negative side, local counter-lobbies such as, for example, automobile associations may oppose interventions centred on the promotion of walking; other interests (such as prevention of begging or sleeping on the streets or counter-terrorism activities) may be adverse to the rights of pedestrians to sojourn in public space.

Awareness of the importance of walking and of sojourning for urban life and community relationships is usually more vivid at the local level than it is for national actors. Establishing a state-of-the-art of PQN in the urban environment is one way for the stakeholders wishing to promote walking and Pedestrian Quality Needs to strengthen their standpoint against adverse influences.

Analysing the state-of-the-art in terms of PQN at the national level

At the national level, the interventions which may contribute to the statisfaction of Pedestrian Quality Needs are mostly related to tactical level facilities and services (traffic and enforcement, network characteristics, vehicle regulations, etc.) and to pre-conditions empowering actors, usually at the local level, to perform interventions on the pedestrian environment. An overview of the areas of intervention is provided here, a more detailed description of the potential for intervention can be found in the full PQN report [PQN, 2010, Part B].

Framework regulations

Many of the laws, regulations or directives enacted at the national level may have an impact, positive or negative, on pedestrians and on walking and sojourning conditions, even if they address other issues. The following categories of laws and legal documents need to be examined:

a) Urban and transport planning laws or directives which provide some rules to plan extensions to existing cities, rehabilitate city centres or old quarters of urban areas, and link urban developments with infrastructure and transport planning; such documents may include pre-conditions for the promotion of walking (dense areas with short distances to travel, for example) as well as provisions for walking and cycling networks.

b) Legislation and policy notes on sustainable transport or on clean environments, primarily aimed at reducing pollution, congestion, noise, CO2 emissions, etc.; such documents may include pre-conditions for developing non-polluting transport modes such as walking and cycling, as full-fledged transport modes or as a support to public transport systems.

c) Framework laws or guidelines on transport and traffic planning which provide directives for organising mixed transport systems on the existing urban infrastructure and adapting road design to the new traffic and transport conditions; such laws and guidelines may refer to some Pedestrian Quality Needs on the tactical level.

d) Road safety policy laws or directives, aiming at improving road safety in the long term through radical changes brought to the environment as well as to transport practice (Sustainable Safety, Vision Zero, etc.); the implementation of such laws or directives involves large amounts of research to find new solutions, followed by specific mobility or safety laws to ensure the new solutions are applied by the relevant actors.

e) Specific road traffic and safety framework laws or regulations which empower the local authorities in implementing national policies or improving pedestrian mobility or safety through interventions which may be unpopular with other road users (speed reduction or traffic calming schemes, restrictions on private car use, etc.).

f) Traffic laws or regulations which aim at defining the desired behaviour of road users, and thus have an impact on the way roads and urban streets are designed to meet both legal and ergonomic requirements; according to their content, such laws, usually gathered in a Highway Code, may make pedestrian life difficult or easy.

g) Civil rights laws or Constitutional Rights which guarantee equal access to public space to all, or equal rights to mobility.

h) Security and order laws, decrees or decisions which regulate the conditions for sojourning in the public space; they may restrict the right of people to sojourn for security reasons (prevention of terrorism, prevention of urban violence) or introduce personal surveillance as a deterrent to unlawful or otherwise suspect behaviour.

i) Specific laws or directives ensuring equal rights to mobility or practical access to key services for physically challenged persons; such documents set requirements for the provision of adapted public transport and for accessibility (“first order” and “second order” requirements for the local authorities that implement them).

Categories (a) to (e) as well as (i) address local authorities while categories (f) to (h) apply to individual road users or are meant for all citizens. European countries’ legal systems include most of these categories of laws and regulations.

Education and training

Education addresses both the road users all along their life and the designers and managers of the urban, infrastructure and transport systems, the "craftsmen" shaping the pedestrians' environment. How pedestrian-related issues are considered has thus to be examined in a large variety of education or training programmes and activities, including those which specifically address drivers. This includes:

a) Education programmes aimed at shaping road user behaviour from a young age, which are dispensed in schools, sometimes even in kindergardens and are graduated according to age.

b) Training programmes aimed at improving behaviour and facilitating the acquisition of abilities to ride a bicycle, a moped, a motorcycle, a car, a lorry or a bus. According to the transport mode considered, such programmes may be provided in secondary schools, but culminate in formal driver training preparing for the licensing exam.

c) Training programmes addressing elderly road users and aimed at helping them retain their abilities to drive, ride and walk as long as possible and adapt their travelling decisions at the strategic and tactical levels and their operational behaviour if need be.

d) Additional training programmes addressing young drivers a short time after their licensing exam to check their experience and strengthen their knowledge of key issues, and specific re-training programmes for multi-offending drivers, which may be mandatory or taken on a voluntary basis and are usually meant to help avoid withdrawal of the driving licence.

e) General communication programmes aimed at informing the road users of critical issues for mobility and safety, for example to enhance the acceptability of some measures or public space design, or geared at improving behaviour (complying with regulations, managing typical hazardous situations).

f) Specific modules on mobility and safety in the initial training courses leading to professions linked to the design and management of mobility and the physical environment, especially urban planners and engineers.

g) Specific modules on mobility and behaviour in the traffic environment in the initial training courses for education or health professionals and driver instructors.

h) Continuing education programmes focussing on mobility and safety and addressing professionals already in post, such as planners, engineers, teachers, health workers, driving instructors or inspectors, etc.

i) Documents or programmes addressing the decision makers and policy makers with a view to sensitizing them to issues related to vulnerable road users.

Road and vehicle standards

a) Standards or guidelines for urban road networks may include specifications for pedestrians addressing capacity, comfort of walking and safety; they provide a reference for "good practice", encourage consistency in the design of road features and help prevent the implementation of dangerous items (as, for instance, too steep speed humps). However, these documents may preclude the experimentation of new principles or designs unless special provisions are introduced to allow demonstration projects (with adequate precautions).

b) New safety standards or guidelines have been established by countries with a long-term vision of road safety policies such as the Netherlands ("Sustainable Safety"), Sweden ("Vision Zero"), etc. Criteria to classify urban roads according to the mix of traffic modes (including the non-motorized ones) have been developed; a set of standards defines the design of each category of roads in relation to an appropriate speed level, itself determined by the traffic mix. While the detailed design of the road categories with high pedestrian flows can be expected to satisfy at least the major Pedestrian Quality Needs, it is not clear how much constraints are imposed to pedestrians on the other categories of urban roads.

c) Vehicle standards are now mostly decided upon at the European level and therefore are common to European countries. The two important elements for the pedestrians from a safety point of view are the degree of shock absorption provided by the vehicles in the occurrence of a crash against a pedestrian and the speed management functions applied to urban roads. Countries where there are no vehicle manufacturers may get appropriate standards applicable to imported vehicles

Availability of data on pedestrian activities and needs

Knowledge-based policy making is supported by data and by the technical tools to access knowledge and treat data. Conversely, the activities and measures implemented, especially when there are adequately monitored, produce a feedback of information and data. Although data availability is a pre-condition for action, we have chosen to place the data issue at the end of our overview as what policy-makers and other stakeholders actually do is what really matters to pedestrians.

The state-of-the art of data may be the best known element of the pedestrians' system, thanks to a number of European projects (in particular SafetyNET, culminating in ERSO, the European Road Safety Observatory) and to other co-operations (OECD, ECMT, etc.). We will only mention a few of the most important aspects here.

a) *Pedestrian safety*: Accident data is collected by the police Forces under procedures which structurally underestimate the number and severity of injuries, sometimes even of fatalities, particularly as regards vulnerable road users; in particular, single pedestrian accidents (falls) occurring in the public space are not reported as the identification of a traffic accident is based on the involvement of at least one moving vehicle. Thus, hospital and health data on road traffic injuries should also be used in order to get the full picture.

We can nevertheless doubt that reported accidents are an adequate indicator of pedestrian safety as potential pedestrians are swift to switch to any other transport mode available (most often cars) when walking is felt to be tedious, uncomfortable or hazardous. Systematic surveys of the citizens' assessment of the safety of their walking environment and, more specifically, of the amount of walking and sojourning performed would be useful to detect such problems.

b) *Pedestrian mobility*: National travel surveys aimed at measuring mobility and modal split usually define a trip through its main transport mode, even if some walking is required as at the beginning or the end: the amount of walking performed to and from other modes needs to be more generally recognised. Moreover, very short trips may be ignored in some countries' surveys (for example, in Great Britain, only trips over 300 metres are counted). As to sojourning, it is almost never measured.

While a steep increase of petrol prices can be anticipated in the near future, a reasonable assumption is that there will be a sharp increase of walking, especially on longer-distance trips [PQN, 2010, Part B, "Trends ad Visions"]. A monitoring system of walking trips (volumes,

frequencies, length, main locations, connections with other modes) has yet been set up to check this assumption.

Analysing the state-of-the-art in terms of PQN at the local level

The interventions that local authorities can perform directly affect the choice of mode and routes for urban trips and the quality of the walking environment. These interventions are guided by the national framework of laws, policy notes, standards or other directives. However, the national framework cannot be assumed to cover all opportunities of action to satisfy Pedestrian Quality Needs as some countries promote local initiative and experimentation as a way to increase interest and involvement of local stakeholders, stimulate imagination, and design new solutions in response to PQN requirements.

The analysis has a dual purpose:

a) To enable the stakeholders involved in pedestrian issues at the national level to get a comprehensive picture of the pedestrians' local environment in their country: we suggest to develop national observation systems (NOS) of local practice on Pedestrian Quality Needs (which can of course be integrated in a larger observatory dealing with issues such as multimodal mobility). In preparing the NOS, the performances should be considered both through a top down approach (how much and how effectively do local authorities implement the national directives or comply with the framework laws?) and a bottom-up approach (what are the main activities initiated by the local authorities to assess and improve PQN on their territories?).

b) To help the local authorities and other major local stakeholders perform an in-depth analysis of the system they manage as a basis to define new interventions and develop communication with the public: we suggest to establish local urban monitoring systems (UMS) of Pedestrian Quality Needs which should enable cities and towns to monitor their progress and compare themselves to each other.

In order to design a NOS or UMSs, it is again necessary to get an overview of the relevant areas of urban management.

Urban planning: providing for pedestrian mobility

European cities continue to grow, so that urban planning remains a key issue for the future of walking. The level of attention given to walking as a transport mode in tomorrow's cities may be supported by the national policy but may also be raised by local authorities themselves. The practices of local authorities vary even in the same country, in particular according to the size of the city or town. The planning documents may be checked, at least *a posteriori,* by the national agencies in charge of following up the implementation of framework laws, but any check there is usually focuses on procedures and on the compliance with some concrete legal specifications rather than on the full content of the urban plan.

In a national observation system (NOS), compliance of urban plans with the national policies and framework laws relating to pedestrians and PQN is to be assessed both in the planning documents and their outcome; the analysis of the' goals stated in cities' planning documents should indicate the level of priority given to walking in general and to PQN in particular. In the urban monitoring systems (UMSs), it may be useful to compare the goals of all planning documents in order to check consistency with regard to Pedestrian Quality Needs.

Area planning and network design

New areas for residences and work are still being built, especially on the outskirts of cities and towns. However, rehabilitation of existing neighbourhoods for renewal, densification or improvement of safety and environmental amenities may be the most frequent on-going activities and therefore the most important for progress regarding Pedestrian Quality Needs.

In the national observation system (NOS), it is important to check how national policy notes, guidelines or standards are followed at the local level. This includes both, surveying which of the local authorities are actively implementing the directives and, assessing the quality of implementation with regard to the satisfaction of PQN. In parallel to this top-down approach, it is also important to identify the new local initiatives and to describe them so as to be able to compare similar experimentations. Particular attention is to be given to the compatibility of the top-down and bottom up processes as both contribute to developing the pedestrian system.

In a local UMS, an analysis can be made of each implementation scheme and local initiative by using a checklist designed in PQN to assess the physical environment of pedestrians [PQN, 2010, Part B]. Indicators should be added to describe the social environment.

Urban transport plans or traffic plans

Urban transport or traffic plans are usually designed to optimize the use of public space which is shaped by urban planning and rehabilitation. However, planning and organising transport and mobility in cities are major keys to PQN as these activities determine the amount of walking that will be performed as well as the traffic and physical environment for walking and sojourning.

In a NOS, it is useful to determine how the policy documents enacted at the national level are used by local authorities and how their orientations with regard to walking as a transport mode are actually implemented. In a UMS, what is important is to figure out which elements of the current or planned transport plan do encourage walking and whether any deterrents can be detected; at the operational level, the details of public space allocation and design need to be analysed with respect to the satisfaction of pedestrian quality needs; a checklist for “second order” requirements has been designed to this purpose [PQN, 2010, Part B].

Urban road classification and design, traffic calming

Road classification re-design and equipment according to standards and guidelines is a heavy endeavour and has not yet been fully implemented, even in countries promoting this systematic approach. The detailed design of each class of roads or streets includes a combination of components aimed at controlling speeds or separating flows of road users. Traffic calming schemes which are particularly directed at pedestrian safety and mobility are now well established and include several options, from “urban yards” to “30 km zones”.

More generally, in a UMS, an analysis of all the details of the local road system with regard to PQN needs to be performed. Attention is to be given to walking amenities (continuity, capacity, comfort), crossing facilities and provisions for sojourning (resting facilities, design of open spaces, etc.). The checklist developed in PQN to analyse the pedestrian environment at the operational level is one of the tools available for this analysis.

The social environment of walking and sojourning

Walking and sojourning may be comfortable and easy only if both the physical environment and the social environment are adequate. The social environment includes two key components: the attitude and behaviour towards pedestrians of other traffic participants, and the local

manifestations of the principles of governmental or local authorities with regard to usage of the public space.

a) Drivers and riders attitudes towards pedestrians are influenced by education and training activities and the physical environment. They are also motivated by deeper social concerns such as "class" differences (pedestrians may be considered as the poorer elements in society and thus easily ignored) or by simple competition for space between motorized road users and walkers. To include these issues in UMSs, indicators have to be developed to describe the interactions of drivers or riders with pedestrians crossing their paths, whether at dedicated places or elsewhere. Recording interactions of pedestrians and cyclists, where they share the same space or where pedestrians are crossing is also of interest.

b) In terms of usage of the public space, a certain amount of restrictions can be imposed on walking and sojourning. As seen earlier, there may be laws or regulations at the national level governing the use of urban space, usually enacted for security purposes. In a NOS, the implementation of these requirements by local authorities is to be checked. Local authorities may themselves restrict the use of public space for stated reasons ranging from security to calm and peace for the residents. The activities forbidden may include begging, playing music, playing ball, etc. Some cities have attempted to impose a curfew for young residents. Parks or green areas are often closed to the public at night. Resting facilities (benches) may be eliminated in order to deter homeless people from sleeping on the street. Finally, surveillance cameras tend to multiply, which may enhance the security feeling of some of the pedestrian population, which may be a problem for particularly vulnerable groups (for example, immigrants from different continents, whether legal or illegal). In UMSs, at least an overview of the restraints on walking and sojourning is needed. The actual effects on pedestrian freedom and tactical choices of all the restraints imposed nationally or locally may be difficult to assess: the issue requires further research.

Specific measures addressing the less able pedestrians

The national framework laws addressing access, mobility and safety rights of the less able citizens, in particular as pedestrians, may be implemented differently by local authorities, if only because existing facilities in the public space cannot be changed all at once. It is therefore interesting to investigate the state-of-the art of implementation in a NOS.

Local authorities may also take initiatives to facilitate walking and sojourning for their senior citizens or for their residents suffering from disabilities. These may range from facilitating devices for walking or crossing streets to the provision of walking aids, adapted slow vehicles or public transport services. Such technologies are not yet fully developed, but such initiatives are under way. An inventory of local initiatives and indicators of their outcome (frequency of implementation, numbers of users, etc.) may be integrated in UMSs. Composite indicators may be developed for the NOS.

Availability of data on pedestrians' activities and needs

Data on mobility, safety, sojourning, etc. may be available at the local level even if it is not at the national level. An analysis checklist of the availability of local data, derived from the one used at the national level, may be included in UMSs. A summary of the findings should provide an input for the NOS.

Conclusion and needs for further research

The description of the policy elements to examine in order to analyse the current state of the pedestrians' environment underlines the complexity of the systems at the national and the local

levels and the multiple nature of the analysis. None of the stakeholders who may be interested in performing the analysis can be expected to master the whole picture. In practice, they may choose to analyse only the elements which are more directly linked to the system they are responsible for or on which they are working. In order to get a complete state-of-the-art and to build NOSs or UMSs, the contribution of a number of different stakeholders will thus be required.

Based on the overview of relevant policy and intervention areas, checklists have been designed by the PQN Working Group 4 as guidelines to facilitate investigations. These can be found in the PQN report [PQN, 2010, Part B]. The current checklists are not comprehensive as more time and research is needed to develop relevant indicators to describe the most complex areas. Integrating the checklists into a unified tool fitting the three levels of investigation (national policy, NOS, UMSs) also requires some more research.

The analysis which has been suggested is neither an assessment not an evaluation of the pedestrians' environment with regard to Pedestrian Quality Needs. To evaluate, one would have to use a priority ranking of needs, leading to a ranking of requirements, and to develop a composite indicator or indicators of achievement in terms of satisfaction of PQNs. Designing an evaluation methodology is a different exercise for which further research would be needed.

The method of analysis as proposed here is nevertheless a useful tool to progress on issues of importance for walking: its application should pinpoint the areas or policy items where the situation is unsatisfactory or where too little is known of the items of concern for pedestrians. This will be where useful action can be taken.

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