



# PLANNING AND DESIGN FOR SUSTAINABLE URBAN MOBILITY

GLOBAL REPORT ON HUMAN SETTLEMENTS 2013



**UN HABITAT**  
FOR A BETTER URBAN FUTURE



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United Nations Human Settlements Programme

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# FOREWORD

For more than half a century, most countries have experienced rapid urban growth and increased use of motor vehicles. This has led to urban sprawl and even higher demand for motorized travel with a range of environmental, social and economic consequences.

Urban transport is a significant source of greenhouse gas emissions and a cause of ill-health due to air and noise pollution. The traffic congestion created by unsustainable transportation systems is responsible for significant economic and productivity costs for commuters and goods transporters.

These challenges are most pronounced in developing country cities. It is here that approximately 90 per cent of global population growth will occur in the coming decades. These cities are already struggling to meet increasing demand for investment in transportation. That is why my Five-year Action Agenda, launched in January 2012, highlights urban transport – with a focus on pollution and congestion – as a core area for advancing sustainable development.

This year's edition of the UN-Habitat *Global Report on Human Settlements* provides guidance on developing sustainable urban transportation systems. The report outlines trends and conditions and reviews a range of responses to urban transport challenges worldwide. The report also analyses the relationship between urban form and mobility, and calls for a future with more compact and efficient cities. It highlights the role of urban planning in developing sustainable cities where non-motorized travel and public transport are the preferred modes of transport.

I commend this report to all involved in developing sustainable cities and urban transport systems. Success in this area is essential for creating more equitable, healthy and productive urban living environments that benefit both people and the planet.



Ban Ki-moon  
*Secretary-General*  
United Nations





# INTRODUCTION

Urban transport systems worldwide are faced by a multitude of challenges. In most cities, the economic dimensions of such challenges tend to receive most attention. The traffic gridlocks experienced on city roads and highways have been the basis for the development of most urban transportation strategies and policies. The solution prescribed in most of these has been to build more infrastructures for cars, with a limited number of cities improving public transport systems in a sustainable manner.

However, the transportation sector is also responsible for a number of other challenges that do not necessarily get solved by the construction of new infrastructure. It is, for example, responsible for a large proportion of the greenhouse gas emissions that lead to climate change. Furthermore, road traffic accidents are among the main causes of premature deaths in most countries and cities. Likewise, the health effects of noise and air pollution caused by motorized vehicles are a major cause for concern. In some cities, the physical separation of residential areas from places of employment, markets, schools and health services force many urban residents to spend increasing amounts of time, and as much as a third (and sometimes even more) of their income, on public transport.

While those among the urban populace that have access to a private car, or can afford to make regular use of public transport, see traffic jams and congestion as a major concern; this is a marginal issue for people living in 'transport poverty'. Their only affordable option for urban transportation is their own feet. Persons with low household incomes – but also others, including many women, and vulnerable groups such as the young, the elderly, the disabled, and ethnic and other minorities – form the bulk of those characterized as living in transport poverty.

Thus, when the Secretary-General of the United Nations launched his '5-year action agenda' in January 2012, he identified sustainable transportation as one of the major building blocks of sustainable development. In particular, he stressed the need for urgent action to develop more sustainable urban 'transport systems that can address rising congestion and pollution'. He noted that action was required by a range of actors, including 'aviation, marine, ferry, rail, road and urban public transport providers, along with Governments and investors'.

*Planning and Design for Sustainable Urban Mobility: Global Report on Human Settlements 2013* seeks to highlight the transportation challenges experienced in cities all over the world, and identifies examples of good practice from specific cities of how to address such challenges. The report also provides recommendations on how national, provincial and local governments and other stakeholders can develop more sustainable urban futures through improved planning and design of urban transport systems.

The report argues that the development of sustainable urban transport systems requires a conceptual leap. The purpose of 'transportation' and 'mobility' is to gain access to destinations, activities, services and goods. Thus, **access** is the ultimate objective of all transportation (save a small portion of recreational mobility). The construction of more roads for low-income cities and countries is paramount to create the conditions to design effective transport solutions. However, urban planning and design for these cities and others in the medium and high income brackets is crucial to reduce distances and increase accessibility to enhancing sustainable urban transport solutions. If city residents can achieve access without having to travel at all (for instance through telecommuting), through more efficient travel (online shopping or car-sharing), or by travelling shorter distances, this will contribute to reducing some of the challenges currently posed by urban transport. Thus, urban planning and design should focus on how to bring people and places together, by creating cities that focus on accessibility, rather than simply increasing the length of urban transport infrastructure or increasing the movement of people or goods.

The issue of urban form and functionality of the city is therefore a major focus of this report. Not only should urban planning focus on increased population densities; cities should also encourage the development of mixed-use areas. This implies a shift away from strict zoning regulations that have led to a physical separation of activities and functions, and thus an increased need for travel. Instead, cities should be built around the concept of 'streets',

which can serve as the focus for building liveable communities. Cities should therefore encourage mixed land-use, both in terms of functions (i.e. residential, commercial, manufacturing, service functions and recreational) and in terms of social composition (i.e. with neighbourhoods containing a mixture of different income and social groups).

Such developments also have the potential to make better use of existing transport infrastructure. Most of today's cities have been built as 'zoned' cities, which tends to make rather inefficient use of their infrastructure; as 'everyone' is travelling in the same direction at the same time. In such cities, each morning is characterized by (often severe) traffic jams on roads and congestion on public transport services leading from residential areas to places of work. At the same time, however, the roads, buses and trains going in the opposite direction are empty. In the afternoon the situation is the opposite. Thus, the infrastructure in such cities is operating at half capacity only, despite congestion. In contrast, in cities characterized by 'mixed land-use' (such as Stockholm, Sweden), traffic flows are multidirectional – thus making more efficient use of the infrastructure – as residential areas and places of work are more evenly distributed across the urban landscape.

Furthermore, the report argues with strong empirical information that increased sustainability of urban passenger transport systems can be achieved through modal shifts – by increasing the modal share of public transport and non-motorized transport modes (walking and bicycling), and by reducing private motorized transport. Again, an enhanced focus on urban planning and design is required, to ensure that cities are built to encourage environmentally sustainable transportation modes. While encouraging a shift to non-motorized transport modes, however, the report acknowledges that such modes are best suited for local travel and that motorized transport (in particular public transport) has an important role while travelling longer distances. However, in many (if not most) countries there is a considerable stigma against public transport. The private car is often seen as the most desirable travel option. There is thus a need to enhance the *acceptability* of public transport systems. More needs to be done to increase reliability and efficiency of public transport services and to make these services more secure and safe.

The report also notes that most trips involve a combination of several modes of transport. Thus, modal integration is stressed as a major component of any urban mobility strategy. For example, the construction of a high-capacity public transport system needs to be integrated with other forms of public transport, as well as with other modes. Such integration with various 'feeder services' is crucial to ensure that metros, light rail and bus rapid transit (BRT) systems can fully utilize their potential as a 'high-capacity' public transport modes. It is therefore essential that planners take into account how users (or goods) travel the 'last (or first) mile' of any trip. By way of an example, it is not much use to live 'within walking distance' of a metro (or BRT) station, if this implies crossing a busy eight-lane highway without a pedestrian crossing, or if one is unable to walk to the station (due to disability, or lack of personal security). Likewise, it is unlikely that urban residents will make use of metros (and BRTs), if the nearest station is located beyond walking distance, and there is no public transport 'feeder' services providing access to these stations or no secure parking options for private vehicles near the stations.

Yet, it is important to note that considerable investments are still required in urban transportation infrastructure in most cities, and particularly in developing countries. City authorities should ensure that such investments are made where they are most needed. They should also make sure that they are commensurate with their financial, institutional and technical capacities. In many cities of developing countries, large proportions of the population cannot afford to pay the fare required to use public transport, or to buy a bicycle. Others may find these modes of transport affordable, but choose not to use them as they find the safety and security of public transport to be inadequate (due to sexual harassment or other forms of criminal behaviour), and/or the roads to be unsafe for bicycle use or walking (due to lack of appropriate infrastructure). Investment in infrastructure for non-motorized transport or affordable (and acceptable) public transport systems is a more equitable (and sustainable) use of scarce funds.

However, many cities and metropolitan areas, all around the world, experience considerable institutional, regulatory and governance problems when trying to address urban mobility challenges. In many cases national, regional and local institutions may be missing or their responsibilities may be overlapping, and even in conflict with each other. To address such concerns, the report notes that it is essential that all stakeholders in urban transport – including all levels of government, transport providers and operators, the private sector, and civil society (including transport users) – are engaged in the governance and development of urban mobility systems.

To ensure effective integration of transportation and urban development policies, it is essential that urban transportation and land-use policies are fully integrated. Such integration is required at all geographic scales. At the micro level, much is to be gained from advancing the model of 'complete streets'; an acknowledgement that streets serve numerous purposes, not just moving cars and trucks. At the macro level, there is considerable scope for cross-subsidies between different parts of the urban mobility system, including through value-capture mechanisms which ensure that increased land and property values (generated by the development of high-capacity public transport systems) benefits the city at large, and the wider metropolitan region, rather than private sector actors alone.

*Planning and Design for Sustainable Urban Mobility: Global Report on Human Settlements 2013* is released at a time when the challenges of urban transportation demands are greater than ever. This is particularly

the case in developing countries where populations (and the number of motorized vehicles) are growing at rates where urban infrastructure investments are unable to keep pace. I believe this report will serve as a starting point to guide local authorities and other stakeholders to address the challenges faced by urban transportation systems all over the world. The report provides some thought-provoking insights on how to build the cities of the future in such a manner that the ultimate goal of urban transport – namely enhanced access to destinations, activities, services and goods – takes precedence over ever-increasing calls for increased urban mobility.



Dr Joan Clos  
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- 1 The HS-Net Advisory Board consists of experienced researchers in the human settlements field, selected to represent the various geographical regions of the world. The primary role of the Advisory Board is to advise UN-Habitat on the substantive content and organization of the Global Report on Human Settlements.



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# LIST OF ACRONYMS AND ABBREVIATIONS

£	Sterling pound
€	Euro
ADB	Asian Development Bank
BRT	bus rapid transit
CBD	central business district
CO <sub>2</sub>	carbon dioxide
CNG	compressed natural gas
dB(A)	decibel
EU	European Union
GDP	gross domestic product
HIV/AIDS	human immunodeficiency virus infection/acquired immunodeficiency syndrome
km <sup>2</sup>	square kilometre
MTA	Metropolitan Transportation Authority (New York, US)
MTRC	Mass Transit Railway Corporation (Hong Kong, China)
NGO	non-governmental organization
NIMBY	not-in-my-backyard
NMT	non-motorized transport
NO <sub>x</sub>	Nitrogen oxides
OECD	Organisation for Economic Co-operation and Development
PPP	purchasing power parity
RMB	Chinese renminbi (yuan)
SAR	Special administrative region (of China; used about Hong Kong and Macao)
SUV	sports utility vehicle
TfL	Transport for London (UK)
TOD	transit-oriented development
UITP	International Association of Public Transport
UK	United Kingdom of Great Britain and Northern Ireland
UNDP	United Nations Development Programme
US	United States of America
US\$	US dollar
VKT	vehicle-kilometres travelled
WHO	World Health Organization

