SOCIAL DETERMINANTS OF HEALTH SECTORAL BRIEFING SERIES 3

TRANSPORT (ROAD TRANSPORT): SHARED INTERESTS IN SUSTAINABLE OUTCOMES

World Health Organization

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PREFACE

Public health is built on effective interventions in two broad domains: the biomedical domain that addresses diseases; and the social, economic and political domain that addresses the structural determinants of health. Effective health policy needs to tackle both domains. However, less rigorous and systematic attention has been paid to health issues in social, economic and political domains in recent decades.

Increasingly complex social, economic and political factors are affecting health and health policy-making. One area of complexity relates to health inequities. As emphasized by the WHO Commission on Social Determinants of Health, the social gradient in health is driven by policies in other sectors. Hence, looking at population well-being from the perspective of health and health equity rather than disease demands a new approach to intersectoral collaboration and an imperative to participate earlier in policy processes. Some of the new responsibilities for public health include:

- understanding the political agendas and administrative imperatives of other sectors;
- creating regular platforms for dialogue and problem solving with other sectors;
- working with other arms of government to achieve their goals and, in so doing, advancing health and well-being[1].

By providing information on other sectors' agendas and policy approaches, and their health impacts, and by illustrating areas for potential collaboration, the *Social Determinants of Health Sectoral Briefing Series* aims to encourage more systematic dialogue and problem solving, and more collaboration with other areas of government.

Examples of intersectoral action for health – current and historical – reveal that health practitioners are frequently perceived as ignoring other sectors' goals and challenges. This creates barriers to intersectoral work, limiting its sustainability and expansion. In order to avoid this perception, instead of starting from the goals of the health system (e.g. health, health equity, responsiveness, fairness in financial contributions), the *Social Determinants of Health Sectoral Briefing Series* focuses on the goals of other sectors. Rather than concentrating on traditional public health interventions (e.g. treatment, prevention, protection), the series use the goals of other sectors to orient its analyses and explore areas of mutual interest.

The target audience for the series is public health officers, who are not experts on determinants of health, but who have responsibilities for dealing with a broad range of development issues and partners. Each briefing will focus on a specific policy area, summarizing and synthesizing knowledge from key informants in health and other areas, as well as from the literature. They will present arguments, and highlight evidence of impacts and interventions, with special emphasis on health equity. They will make the case to health authorities for more proactive and systematic engagement with other sectors to ensure more responsive and cohesive governments that will meet broader societal aspirations for health, equity and human development.

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1 WHO and Government of South Australia. *Adelaide Statement on Health in All Policies.* Adelaide, 2010.

THE TRANSPORT SECTOR (ROAD TRANSPORT)

Mutually reinforcing interests

Transport plays a critical role in societies; it facilitates the movement of people, goods and services, and contributes to economic and human development. There are different categorizations of transport modes, the most commonly identifiable in the literature are: road, rail, pipeline, inland waterway, sea and air. Of these, motorized road transport plays a critical role in the majority of countries, especially, private motor vehicles [2].

Motorized vehicles have provided and continue to provide enormous benefits to communities and countries around the world. One of the primary documented benefits associated with the growth in motorization is economic growth, which is associated with improved living standards (Banister, 2005). For many people, private motor vehicle transport is preferred to other options for reasons of convenience and comfort, in particular where public transport is unavailable or unreliable.

Yet the rising number of private motor vehicles is contributing to transport system inefficiencies and leading to decreased investments in public transport and non-motorized transport. The increased numbers of private motor vehicles on the roads is associated with several negative impacts (also known as 'external costs'), such as congestion, air and noise pollution, greenhouse gas (GHG) emissions, injuries and psychosocial impacts (Liu, 2005). While more concentrated in urban areas, these 'external costs' are also important for rural areas. They impact not only on population health but on the very sustainability of transport systems (Banister, 2005; Vasconcellos, 2001; Tiwari, 2005).

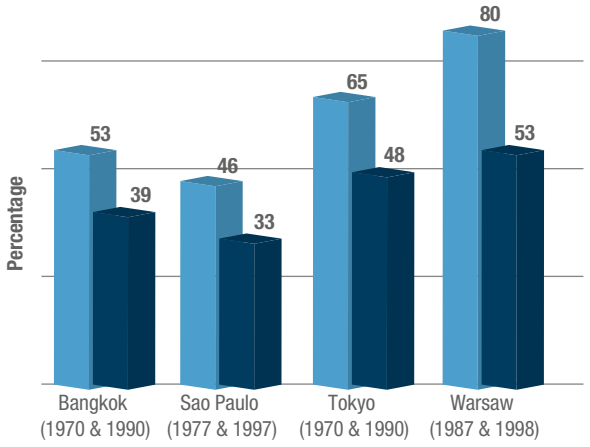
Thus, alternative patterns of development for transport systems are needed. Transport systems that are less reliant on motor vehicles, are designed to enhance public transport systems and take into account the needs of non-motorized users – with infrastructure for bicycles and pedestrians – are more sustainable. They improve health and promote economic and human development.

Global road transport trends

Since 1960, the global motor vehicle fleet has doubled every 15 years to reach 800 million in 2010. Currently, 70 per cent of the global fleet is in high-income countries (Schafer et al., 2009).

Yet, it is estimated that the total stock of vehicles will grow to at least 2 billion by 2050 and possibly much higher, depending especially on ownership trends in countries such as India and the People's Republic of China (IEA, 2009). Indeed, it is expected that the number of vehicles in these countries will surpass the number of vehicles in high-income countries by 2030 (Wright & Fulton, 2005). Vehicle usage is increasing while, in much of the world, public transit is decreasing. Figure 1 shows trends in the share of modes of public transport in four cities. The bars show baseline year values and comparative values for a specific point in time. The general trend in these cities is a loss in the share of modes of public transport. It is estimated that public transport is relinquishing a 0.2–1.4 per cent share annually (Wright & Fulton, 2005).

Figure 1. Trends in public transport mode share across four selected major cities



Source: Wright & Fulton (2005).

READER'S GUIDE

This briefing describes challenges facing transport policy-makers and authorities, how they address them, and areas for potential collaboration between health and transport. There are three sections.

1. Transport Sector Overview. This covers mutual public policy interests of transport and health; global trends in road transport; transport policy challenges from the perspective of the transport sector characterized as overarching 'goals' and situates these goals within a broad policy, economic, and stakeholder context.

2. Goals 1 to 5. The second part of the briefing allocates two to three pages to each goal, covering a more detailed description of policy approaches; health impacts and pathways; and examples of areas for joint work between health and transport.

3. Summary Messages. The briefing has been structured to permit those with limited time to obtain a well-rounded perspective of the topic by reading only sections one and three.

2 Private motor vehicles referred in this paper do not include two-wheelers, nor motor vehicles used to transport passengers (e.g. busses, taxis, etc). They are also referred to as Light-Duty Vehicles (LDV).

In low- and middle-income countries, where motorization is a relatively recent phenomenon, motorized transport is rapidly replacing traditional non-motorized transport modes such as walking and cycling. In spite of this, low- and middle-income countries' investments in road infrastructure have generally not kept up with the pace of motorization and do not usually take into account the needs of non-motorized transport users (e.g. pedestrians, cyclists). This trend is associated with high rates of road fatalities that are particularly harsh for low-income and vulnerable populations (WHO 2004; 2011a). Children are particularly affected. Indeed, globally road injuries are the second largest cause of mortality for the 5–14 age group, with 70 per cent of fatalities in low-income countries (WHO, 2009). It is estimated that the cost of traffic accidents amounts to US$ 518 billion, and represents between 1 per cent and 1.5 per cent of GDP in low- and middle-income countries, and 2 per cent of GDP in high-income countries (Jacobs et al., 2000; UNEP, 2011).

Overall, urban areas around the world are experiencing increasing congestion. This is causing higher transport costs and longer travel times, which often affect low-income groups the most. Congestion robs the European Union (EU) of 1 per cent of its entire gross domestic product (GDP). Across Europe, it is estimated that 2500 lives could be saved each year if emergency vehicles were not delayed on congested roads (TBC & IBM, 2009). In the United States, the cost of the time wasted on congested roads and extra fuel consumption is estimated at 0.7 per cent of GDP or around US$ 675 billion (FHWA, 2000). In Lima, Peru, it is estimated that on average a person spends four hours a day on congested roads resulting in lost productivity of around US$ 6.2 billion a year – equivalent to 10 per cent of the country's GDP (UNESCAP, UN-ECLAC & Urban Design Lab, 2010).

The expansion of road infrastructure to cope with the increased use of motorized vehicles is also affecting land availability and usage. Frequently, large tracts of land are divided into smaller plots limiting movement across formerly contiguous areas, affecting community life, social cohesion, ecosystems and health. Moreover, road infrastructure expansion impacts on land use affecting agricultural productivity and farming activities (Hunter, Farrington & Walton, 2001). Road expansion also favours infrastructure enlargement and overlooks the needs of low-income groups who are more likely to be short-distance commuters living in informal settlements (Dora & Philips M, 2000; Tiwari, 2003). Road expansion coupled with low density urban sprawl makes mobility dependent on cars, further limiting options for low-income, less-motorized communities.

Transport is also having an impact on climate change. While other sectors are progressing in reducing their contribution to green house gas emissions (e.g. housing, agriculture), the growth in motorization has increased emissions in the transport sector so that it is now the largest contributor to CO2 emissions (World Bank, 2010). Approximately 27 per cent of total emissions in member countries of the Organisation for Economic Co-operation and Development (OECD) come from transport and, of this, road transport accounts for approximately 80 per cent (OECD, 2002). Unfortunately, gains in cleaner vehicle technologies are offset by increasing numbers of vehicles (Banister, 2007; Schafer et al., 2009). At a local level, road networks also contribute to 'heat island effects' created by the absorption of radiation by asphalt pavements that warm cities. This is linked to fatalities among vulnerable groups such as elderly people and those with chronic conditions during extreme weather events like heat waves (O'Neill, Zanobetti & Schwartz, 2005).

In recent years, growing awareness of these negative impacts has galvanized some countries into adopting innovative approaches that examine the needs of all transport users (motorized and non-motorized) to improve coordination between transport, urban planning and housing policies. This reorientation has permitted the expansion of public transport systems (e.g. bus rapid transit) coupled with active transport options such as cycling and walking (e.g. Brazil, Canada, Chile, China, Colombia, Mexico and Nigeria). However, policy-makers acknowledge that more needs to be done in order to address the negative effects of transport and its sustainability. Taking into consideration these trends, the transport sector commonly identifies with the five policy goals listed in Table 1.

Table 1. A set of policy goals commonly addressed in the transport sector

	GOAL	DESCRIPTION
1	Economic development. Sustainable transport systems enhance economic development, while minimizing potential negative impacts.	Transport should support the efficient movement of people, goods and services to contribute to economic development and minimize the negative impacts associated in particular with congestion.
2	Safety. Sustainable transport systems improve safety.	Transport systems should be safe throughout the entire network, including roads, pedestrian zones and vehicles, and should be designed to avoid and reduce injuries and fatalities, and contribute to the health of local populations.
3	Accessibility. Transport systems ensure everyone can access transport services and facilities without barriers.	Transport systems should be designed to serve the needs of all people, addressing the barriers that prevent mobility, especially for disadvantaged groups.
4	Environmental sustainability. Transport systems promote environmentally sustainable transport options.	Transport should ensure mobility by adopting environmentally sound systems and modes.
5	Liveable communities and livelihoods. Sustainable transport systems promote mobility conducive to livelihood security and liveable communities.	Transport systems should contribute to social cohesion by addressing congestion; improving public transport systems and policies aimed at reducing car use; developing infrastructure for pedestrians and cyclists; and by encouraging social interaction and livelihood security.

Transport goals: towards sustainable mobility

A core assumption of emerging best practice in transport is that transport systems need to have long-run sustainability. For policy-makers, this means placing an increasing emphasis on the following three overarching principles:

(i) During planning and decision-making processes, policy-makers should adopt an equity approach and consider the needs of disadvantaged and vulnerable groups in societies, which are often overlooked.

(ii) Although motorized vehicles (including private motor vehicles) are not negative per se, it is essential to explore potential alternative transport technologies that could cater to the needs of different users (e.g. provide transport alternatives for short-distance trips in both urban and rural areas).

(iii) Integrated policy-making processes need to consider the mandates, goals and interests of the different policy stakeholders beyond transport, including health, urban planning and environment in order to develop more sustainable transport systems.

Policy perspectives

The economic perspective. Transport systems contribute to economic activity and economic development. While different economies have different levels of mobility, in general, enhanced mobility means more opportunities for further economic development.

At the macro level, the transport sector's contribution to the economy can be measured in different terms: (i) how the provision of transport facilitates the movement of goods and services to markets, and the process of industrialization and economic growth; (ii) the direct valuation of the transport of goods and services; (iii) the direct contribution of industry to employment; and (iv) how patterns of investment are influenced across sectors.

(i) Industrialization and economic growth. Historically, economic growth measured by growth in GDP has been coupled with growth in demand for freight and passenger traffic (Banister, 2005). Due to external costs, including congestion and pollution, which have simultaneously arisen, the debate among transport policy-makers now is how to de-couple economic growth and transport intensity and reduce the 'transport intensity' of economic activities. For example, European

(iii) Employment. In the United States in 2002, the transport and related sector's jobs' share of the total labour force was 15.6 per cent. In the United States alone, the automotive industry contributes 3.3 per cent to GDP and provides work, directly or indirectly, to 10 per cent of the labour force (McAliden et al., 2003).

(iv) Investment patterns. The transport sector is also a key driver of investment decisions in other sectors. For example, transport infrastructure investments need to be spatially synchronized with investments in other sectors such as regional development, agriculture, tourism and housing. Energy prospecting is also driven by predictions of transport trends.

At the micro-level, transport is a cost borne by many businesses and households. Transport costs can increase or decrease business competitiveness or even threaten their viability. Experts estimate transport expenditure accounts for around 4 per cent of unit output costs in manufacturing, with this figure being greater for some service industries, such as tourism (Rodrigue, 2008). Transport costs have a considerable impact on households' disposable incomes. High transport costs for disadvantaged groups can adversely affect their access to schools, social and health services, and prevent their full participation in society. On average, transport costs account for between 10 per cent and 15 per cent of household expenditure and these averages are often higher for lower income groups (Lipman 2006; Rice 2004; STPP 2003). In Lima, Peru (population 10 million), it was recently estimated that transport costs for the poorest households accounted for around 40 per cent of the household expenditure (Bielich, 2010).

Stakeholders in the transport sector. Governments set strategic directions for the development of transport systems, raise taxes from vehicle licence fees, fund transport infrastructure projects, and promote and regulate the sector with regard to safety standards and specific transport options (e.g. motor vehicles, public transport and non-motorized active transport). Local governments and their urban planning departments are key actors. They are involved in the implementation of national policies and regulations, and in identifying the need for new road networks and road maintenance, as well as in the development of other public transport options. Police authorities at national and local levels play an important role in implementing legislation aimed at traffic calming[3] or regular vehicle maintenance (e.g. road worthiness tests). Regulations related to vehicle and emissions standards, or licensing of drivers or vehicles may empower