### Division 44 Environment and Infrastructure Sector project "Transport Policy Advisory Service"



# **Why Transport Matters**

Contributions of the Transport Sector towards Achieving the Millennium Development Goals



Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH

commissioned by:



Federal Ministry for Economic Cooperation and Development

## **Why Transport Matters**

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### 1. Introduction

In September 2000, more than 150 Heads of State gathered in New York to adopt the UN Millennium Declaration. The Declaration was translated into a framework for the commitment to development progress, captured by the Millennium Development Goals (MDG).<sup>1</sup>

The German government explicitly endorses the UN Millennium Declaration by implementing its Program of Action 2015, Germany's contribution towards halving extreme poverty worldwide.

However, five years after the UN Millennium Declaration the results are not satisfactory: More than one billion people in the world live on less than one dollar a day. Another 2.7 billion struggle to survive on less than two dollars per day. Every year eleven million children die—most under the age of five and more than six million from completely preventable causes like malaria, diarrhoea and pneumonia.<sup>2</sup>

While the MDGs can only be achieved through a coherent multi-sector approach, ranging from improvement in education and health facilities to political and economic reforms, the role of transport is prominent. Sound transport infrastructure is the precondition for measures in any other sector to be effective. For example, ameliorating a region's health service provision or school system will only be beneficial for the targeted population if they are accessible, *i.e.*, if means of transportation are available at affordable prices.

However, the transport sector itself faces tremendous challenges: along with economic growth and increasing urbanisation the demand for transportation has risen at a pace that existing transport systems cannot keep up with. The consequences are congested and dangerous roads, polluted air, unsufficient parks, walkways and public spaces, and hence less liveable cities. Moreover, transport systems in developing countries are systematically subject to an anti-poor bias since investments in poor rural areas are sparse and urban transport systems are predominantly tailored to expensive motorized means of transportation.

### Box 1: The Millennium Development Goals (MDG)

The Millennium Development Goals are the world's time-bound and quantified targets for addressing extreme poverty in its many dimensions—income poverty, hunger, disease, lack of adequate shelter, and exclusion—while promoting gender equality, education, and environmental sustainability. They are also basic human rights-the rights of each person on the planet to health, education, shelter, and security.

Source: The United Nations



Transport infrastructure is increasingly shifted into the spotlight, as becomes apparent from its prominent role in this year's Report to the UN Secretary-General "Investing in Development" ("Sachs Report")<sup>3</sup>. Furthermore, its importance is strongly emphasized in the European Union Strategy for Africa (2005) (http://www.europa. eu.int/comm/development) and the World Bank Infrastructure Action Plan (2003) (http://www. worldbank.org/infrastructure).

In order to achieve the Millennium Development Goals, transport must be an engine rather than an obstacle of development.

This paper elaborates the nature of transport both as a complement to other sectors relevant to achieving the MDGs, such as health, education and environment, and as a stimulant for economic growth and poverty reduction in its own right.

Fig. 1 *Transport is an important contributor to the Millennium Development Goals* Photo by Bernd Brunnengräber

<sup>&</sup>lt;sup>1</sup> For a detailed list of the Millennium Development Goals und Targets please refer to Chapter 4, Appendix

<sup>&</sup>lt;sup>2</sup> http://www.unmillenniumproject.org/facts/index. htm

<sup>&</sup>lt;sup>3</sup> http://www.unmillenniumproject.org/reports/

### 2. The role of transport

The focus of this chapter is to examine the various channels through which improvements in transport infrastructure impact economic and social life in developing countries.

### 2.1 Eradication of extreme poverty and hunger, MDG 1

Economic growth is a precondition for development. However, growth itself is by no means a guarantee for poverty reduction. In fact, its benefits are only internalised by poor households if they are able to participate in the increased economic and social opportunity that is associated with it, *i.e.*, if economic growth is pro-poor (see Box 2).

Hence, in order to capture the qualitative impact of transport infrastructure design on poverty alleviation, two aspects need to be addressed: first, its contribution to aggregate economic growth and second its influence on the distribution of growth between different socio-economic groups.

# Sound transport infrastructure is a crucial determinant of economic development

A main mechanism by which improvements in transport infrastructure impact the economy is a *reduction of the costs of moving goods and services*, beside other important factors such as speed, reliability and transport security. As a result, assembly of intermediate inputs for production, such as raw materials, labour and information, is less costly thus increasing profitability of firms, the overall output level and income in the economy. Especially in the agricultural sector this aspect weighs heavily since up to half of the consumer prices can be attributed to transport.<sup>4</sup>

Moreover, transport infrastructure links economies to global markets and enhances their ability to compete for export markets and foreign direct investment by reducing costs of international trade logistics and removing physical bottlenecks for trade. Hence, developing countries will have the opportunity to establish industrial relations, increase employment by

### Box 2: What is pro-poor growth and how is it achieved?

Pro-poor growth is achieved by a dynamic process of growth involving and benefiting poor women and men. It requires growth in economic sectors with high income potential for the poor, in addition to opportunities to improve their human capital (education, health, nutrition). It means increasing the productivity and income of the poor, particularly through improved skills and affordable access to productive resources and services. Strengthening the ability of the poor to be productive is one of the main goals, through tackling malnutrition, illness and insecurity, and (particularly for women) reducing the burden of tasks such as obtaining water, fuel and food. This can be obtained by empowerment of the poor and equitable access to resources are also essential.

Source: Development Assistance Committee (http://www.oecd.org/dac)

attracting foreign firms and unlock inaccessible sites for development (*e.g.*, through tourism).

As the costs of distributing goods and services to geographically dispersed marketplaces decline, single regions as well as whole countries will have the chance to capitalize on their comparative advantage. At sufficiently low transport costs more costs-efficient producers will be able to compete even on remote markets since the reduction in consumer prices through higher efficiency in production may overcompensate the increase in consumer prices caused through transport. That potentially leads to a more efficient allocation of physical and human capital in the economy which in turn implies higher growth rates.

# Transport design influences the distribution of growth

Sound transport infrastructure serves as a link between aggregate economic growth and weak groups in society through various channels:

#### Transport links rural areas to aggregate growth

In developing countries the *rural workforce* is almost entirely concentrated in the agricultural sector. Expanding the road network and improving road maintenance in rural areas will

<sup>&</sup>lt;sup>4</sup> Beenhakker (1987)

### Box 3: Case study: Rural roads and markets in Bangladesh

For the poor rural population in Bangladesh access to regional markets is critical. However, only 13% of rural roads can be used throughout the year. During the rainy season most of the rural population is cut off from markets and social services such as schools and health facilities.

German Financial and Technical Cooperation has helped to change that situation since 1991 by improving the rural road network in Tangail district north of Dhaka and ensuring that roads can be used throughout the year. In addition to the improved transport infrastructure, selected market places were improved in order to allow better access, sales floors, water supply, sanitation and administration. Job opportunities were created for poor people in building and maintaining roads and markets. Women were especially encouraged to take part in the building activities, and women's corners were included in each rehabilitated market.

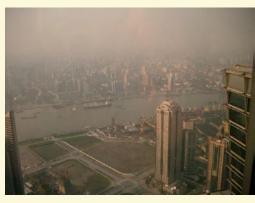
Socio-economic monitoring and evaluation conducted from 1993 to 2002 shows a substantial reduction in transport charges (for both passengers and goods) and travel time; increased market activities (average number of auctions, market visitors and shops); increased agricultural production and changes in the production patterns, improved nutritional status, school attendance, use of health institutions, investment, income opportunities, and incomes.

directly translate into lower transport costs for inputs (such as fertilizer) and market outputs since it reduces travel times and the frequency of damages to means of transportation (such as vehicles). Moreover, improved access to markets implies that farmers face a higher demand. Both lower transport costs and higher demand raises the margin between sales prices and production costs (including transport) which results in higher incomes and welfare improvements for the rural population (see Box 3).

In addition to these positive effects on farmers' incomes, the urban population will also benefit from improved rural transport infrastructure: on the one hand, prices for agricultural products will fall on urban markets (for the reasons named above). On the other hand, increased

### Box 4: The pace of urbanisation in developing countries

The future of developing cities crucially depends on whether transport infrastructure will be able to master the challenges of rapid urbanisation.



"Today more than 40% of the population in developing countries live in cities. In 1975 it was less than one third. About half of the urban citizens (800 million people) live in informal dwellings or in inner-city slums at the periphery. There are 39 Megacities (more than 5 million inhabitants) in the world, 28 are situated in developing countries.

Although these cities continue to grow, the pace of growth has decreased during the last century. On average it is 2.4% yearly and is expected to follow a negative trend. About the half of the growth is traced to immigration the other to natural growth."

Source: Berlin-Institut für Weltbevölkerung und globale Entwicklung Online Handbuch (http://www.berlin-institut.org/)

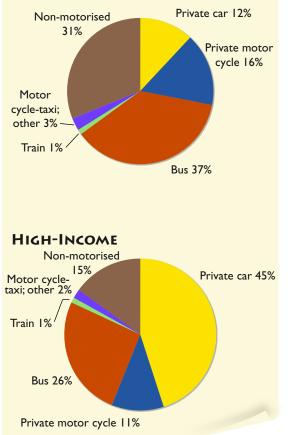
income in the agricultural sector presents an incentive for households to remain in rural areas instead of migrating to a city which is an enormous advantage in the light of the disastrous effects of urbanization in most developing countries (see Box 4).

# Sound transport infrastructure is a precondition for workforce participation of poor households in urban areas

Geographic remoteness of poor households from centres of economic activity is by no means limited to rural regions. In *urban areas* the majority of poor households lives in informal dwellings and slums (see Box 4) where lack of Fig. 2 Smog over Shanghai on a normal day. Photo by Manfred Breithaupt employment prevents job seekers from joining the workforce and lack of purchasing power and economic infrastructure discourages them from starting an own small-scale enterprise. Thus, they are forced to commute in order



#### **MID-INCOME**







*Especially for low-income groups, the transport sector provides opportunities for employment.* Photo by Lloyd Wright

to participate in economic activity. However, public transport very often proves to be too costly in relation to potential labour income, so that the option of commuting is limited. A well planned public transport system integrating non-motorized transport is capable of reducing both financial and opportunity costs. The consequence will be increased workforce participation and higher incomes for poor households.

Box 5 illustrates how the demand for different means of transportation varies with socio-economic backgrounds. Thus, in order to design a transport infrastructure that targets poor households a large emphasis must be placed on non-motorized transport.

# Investment in transport infrastructure creates new jobs

Last but not least, the transport sector per se is a very important *source of income*. First of all, a lot of poor people are employed in the informal service sector, *e.g.*, as rickshaw drivers. Second, construction and maintenance of roads in developing countries is highly labour intensive thus providing job opportunities for poor and unschooled households.

# 2.2 Universal primary education and gender equality, MDGs 2+3

In addition to its intrinsic value for the social landscape of a county, primary education is the single largest contributor to growth.<sup>5</sup> By improving the ability to learn in changing environments, it increases the productivity of the workforce, an aspect that was strongly emphasised in this year's "Sachs Report".

On the household level however, there is a twoway causality in the accumulation of human capital (through education) and income: there is a significant positive correlation between education and future income. According to the World Bank, private returns on investment in primary education exceed 40% in some developing countries. However, in spite of the long-term benefits there are two types of costs associated with sending children to school. First, for reasons noted above the available means of transport are too expensive. Second, many households live below or close to the minimum subsistence level so that they depend on their children as wage earners. Hence, their absence from the field or workplace implies opportunity costs. As a consequence, a vicious cycle is being unleashed: poor households are unable to send their children to school which prevents them from earning an income in the future that will be high enough to allow their children to go to school.

# Lower transport costs lead to higher enrolment rates

Although enrolment rates depend on various other socio-economic factors, the quality of transport infrastructure can make an important contribution since it reduces both financial costs (lower fares in public transport and facilitation of non-motorised transport) and the opportunity costs by lessening the average time needed to cover the distance to school. Empirical evidence from Morocco suggests that this effect will be particularly strong for female pupils.<sup>6</sup> Here, construction of rural roads leads to a doubling in school attendance of boys and a tripling of school attendance of girls, thus triggering an increase in gender equality.

<sup>5</sup> World Bank (1993)



# Lower transport costs will improve the quality of education

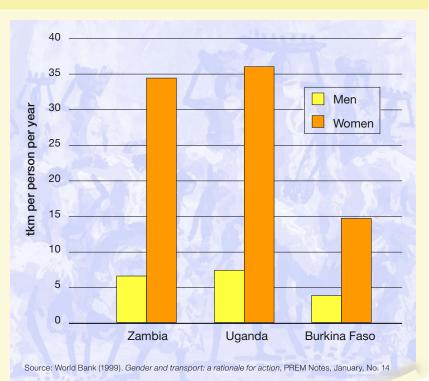
The positive impact of reducing transport costs on the quality of education can be attributed to two factors: on the one hand, recruiting of teachers will be more efficient, since schools are not restricted to teachers from the same village if commuting is facilitated. More importantly however, monitoring the teachers' performance will be considerably easier. Especially teacher absenteeism is a major drawback to the quality of education in developing countries (for

#### Fig. 4 Improvements in transport infrastructure will facilitate a rise in attendance of both, students and teachers. Photo by Joachim Gaube



Fig. 5 Women shoulder a much heavier transport burden than do men. Photo by Jürgen Heyen-Perschon

<sup>&</sup>lt;sup>6</sup> Khandker, Lavy, and Filmer (1994)



### Box 6: Gender-specific comparison of transport services in Africa

example in Ethiopia 45% of teachers are absent at least one day in the week).<sup>7</sup> Fundamental institutional and social reform is needed in order to eliminate that nuisance, *e.g.*, by strengthening governmental control departments and giving more voice to the pupils and parents who are affected. However, reducing the mere costs of surprise visits through improved transport infrastructure would already boost the effectiveness and geographical scope of controls significantly.

# Improved transport infrastructure reduces the burden of physical labour on women

In many developing countries *domestic transport for household needs* such as gathering firewood or getting water from the well is almost exclusively performed by women.

For example in rural Africa, women transport more than three times as much as men (see Box 6) which takes up 20–25% of their time. While there is urgent need for a shift in gender roles so that the burden of physical labour performed by female household members is being reduced, better access to farms, wood lots, water supply points, and markets is an important first step to reduce the weight on the women's shoulders. The consequence will be twofold: on the one hand, women will not suffer from the enormous physical pain of this kind of work. On the other hand, they will be able to use their time more efficiently which might also have a positive influence on enrolment rates and female education.

### 2.3 Reduce child mortality, improve maternal health, combat HIV/AIDS, malaria and other diseases, and reduce road accident rates, MDGs 4, 5, and 6

Transport plays an important role in raising the effectiveness of the health sector. Mobility means better access to health facilities. In the case of emergency, oftentimes a few minutes' delay in treatment can make the difference between life and death. However, especially in rural regions the condition of roads and tracks does not allow quick response to emergencies. Moreover, very similar to school attendance, the propensity to go to a doctor or hospital will rise if less time and money needs to be invested in the transfer to a health facility. As a consequence, diseases will be detected and treated earlier. In addition, health facilities will be better equipped since medical supply and personnel can be more easily established.

# Especially, maternal and children's health depends on the quality of transport infrastructure

Women need access to a broad range of services during pregnancy and childbirth, including emergency obstetrical care, such as treatment of infections, hypertension, and obstructed labour. Although the presence of a midwife, or doctor at every delivery is highly important, in developing countries only about half of deliveries are supervised by professional health staff. Although in some cases cultural constraints prevent women from consulting a gynaecologist, improving the quality of transportation was frequently found to reduce maternal mortality due to obstetric complication.<sup>8</sup>

<sup>&</sup>lt;sup>7</sup> Source: EFA Global Monitoring Report 2005

<sup>&</sup>lt;sup>8</sup> DFID Transport Newsletter, May 2000

Child mortality significantly decreases if basic supply with clean water and basic nutrition are assured.<sup>9</sup> By reducing the costs of delivering these goods will alleviate the scourge of child mortality even in a context where improvements in health facilities are not feasible.

Transport's role in the prevention and treatment of malaria and tuberculosis is in line with its general complementary function in the health sector. In order to eradicate tuberculosis from patients, therapy must be upheld for at least six months thus visits to the doctor must be made affordable and timely delivery of key medications must be ensured. Moreover, prophylactic measures, such as impregnated bed nets that are necessary to protect people against infection with malaria, can be provided over a broader geographical range. On the other hand, treatment of cerebral malaria requires immediate transport to a hospital, otherwise the fatality rate increases dramatically.<sup>10</sup> Thus, efficient transport infrastructure both facilitates rapid response to emergencies and reduces the costs of regular visits to health facilities as well as delivery of medical services.

# Inherent challenges of the transport sector have to be addressed urgently

Unfortunately, in addition to its supportive role to health sector interventions, transport itself is associated with two prominent health-related hazards in developing countries. First, *road accidents* have become one of the leading causes of death in developing countries and, second, the transport sector is a key vector for *the spread of HIV/AIDS*.

About 85% of all road accidents take place in developing and transition countries. While in industrialized countries, only about 15–20% of fatalities involve pedestrians, non-motorized vehicles and motorcycles, in developing and transition countries, the figure is close to 50%. Moreover, road accident rates per 10,000 vehicles in developing countries tend to be 10 to 20 times higher than in industrialized countries. All in all, among young people in developing countries traffic accidents are the second leading



cause of death.<sup>11</sup> The vast majority of victims are pedestrians and cyclists. Poor households are much more exposed to this threat since they use non-motorized means of transportation more frequently than the wealthier and cover larger distances. Thus, the poor are over represented among those who have to carry the social, economic and psychological burden of traffic accidents. Moreover, the loss of income from the victim and/or high medical or funeral costs frequently cause severe financial difficulties. Thus, road accidents themselves lead to an increase in the number of poor households in developing countries (see Box 7). Fig. 6 Road accidents are one of the leading causes of death in developing countries. Photo by Manfred Breithaupt

11 http://www.who.int/topics/injuries\_traffic/en/

### **Box 7:**

Road accidents directly translate into higher poverty rates

The burden from road crashes tips many households into poverty. Below are figures for poor households that were not poor before the crash (fatal/seriously injured).

Fatal	Urban	Rural	Serious Inj.	Urban	Rural	
Bangalore	71%	53%	Bangalore	17%	25%	
Bangladesh	33%	49%	Bangladesh	21%	37%	
Source: Global Road Safety Partnership						

7

<sup>9</sup> http://www.measuredhs.com/

<sup>&</sup>lt;sup>10</sup> Source: Transport and the Millennium Development Goals in Africa, Africa Union (2005)

# Sound transport infrastructure reduces the number of road fatalities

The suffering, as well as the economic disaster implied in these numbers, can be considerabely reduced: Through thorough urban planning that takes into account the specific vulnerability of non-motorized traffic participants, perilous hotspots can be removed; through sound institutional settings, standards and regulations for car safety roadworthiness can be improved and traffic education as well as efficiency of rescue can be increased, and by implementing public financing schemes state revenues can be generated that allow to spend more money on maintenance and construction of roads.

All this will directly translate into a reduction in the number of fatal accidents. In order to achieve this however, traffic safety has to become a top priority for decision makers in developing countries.

# The impact of transport on the HIV/AIDS epidemic has to be shifted to the centre of attention

The second health-related hazard of the transport sector is its role in *spreading HIV/AIDS*.

According to international studies the transport sector has become the predominant vector for the spread of the disease for two reasons: First, new traffic routes and improved access to transportation increases mobility between different regions or countries thus leading to a high geographic dispersion of the virus. As a consequence, the problem of high infection rates easily spills over from areas with high HIV/AIDS prevalence to areas with low prevalence.

Second, transport sector workers are often associated with high-risk behaviour. For example, truck drivers and migrant workers who are employed in the construction of roads (which often implies spending several weeks from home) tend to engage in relations with sex workers who belong to a high risk group, so that the probability of infection is exceptionally high. For example, studies found that in 1996 HIV prevalence on Dar-Es-Salaam highway was 28% for truck drivers and 56% for sex workers.<sup>12</sup> In Mozambique, HIV prevalence rates among the general population range from 11–14%, but rise to 21% among populations residing along the main road to Zimbabwe and Malawi.<sup>13</sup>

In order to get a grip on this problem, *close cooperation between the health and the transport sector* is crucial. Extra health measures must be taken in major transit corridors so that health agencies can cope with the great number of travellers, and health agencies must be concentrated in the areas where construction projects are underway thus increasing awareness for the particular health hazards.

# 2.4 Ensure environmental sustainability, MDG 7

By far the greatest environmental concern over the transport sector relates to *air pollution*. Traffic is a large contributor to the most harmful types of fine particulate emissions, it is responsible for up to 90% of atmospheric lead in cities where leaded gasoline is still used. Moreover, it causes a large part of SO<sub>2</sub> and CO<sub>2</sub> emissions, and significantly contributes to the formation of ground-level ozone.<sup>14</sup> It is estimated that over 2 million people die annually due to the harmful effects of air pollution. Since the 1980s, there is a growing body of evidence that humankind is changing the global climate. This is caused mainly by increased emissions of carbon dioxide (CO<sub>2</sub>), a greenhouse gas released

 <sup>13</sup> T. Judah, BBC World News Hunger and AIDS Stalk, Mozambique, June, 2002
<sup>14</sup> Faiz and Gautam 1994



#### Fig. 7

*The transport sector is a primary cause of the observed decline in urban air quality.* Photo courtesy of CAP-Swisscontact

<sup>&</sup>lt;sup>12</sup> Source: Africa Technical Transport Sector Unit, World Bank (2003)

when fossil fuels are burnt. Transport contributes to 25% of all  $CO_2$  emissions, and this share is increasing. The concentration of  $CO_2$ in the atmosphere is now at the highest level since about 400,000 years, and is well above the level previous to the industrial revolution. If this development continues, the global mean temperature as well as sea levels will rise significantly leading to flooded coastal zones, spreading deserts and melting glaciers. Even today, we can observe an increase of extreme weather events such as torrential rain and cyclones, but also more frequent and longer droughts.

### Poor households are most vulnerable to these adverse environmental impacts for various reasons

In mega cities the poor predominantly live in the most heavily affected areas in immediate proximity to main roads and airports. Moreover, they make up a significant proportion of the urban workforce employed in the transport sector, *e.g.*, as road-side workers or rickshaw drivers who are highly exposed to emissions. Last but not least, natural disasters will hit the poor over-proportionally hard, first since they often can not afford evacuation in the case of an emergency and second since a majority of poor households earn their living in the agricultural sector where natural disasters directly translate into huge income losses.

Environmental protection must therefore be seen as an essential part of the task of improving the quality of life for the poor, and not as a luxury to be purchased at the expense of their



mobility. An understanding of the environmental significance of alternative transport policies and actions may reduce these adverse impacts and particularly enable developing countries to adjust to the new challenges presented by a rapidly growing demand for motorized transport. Special focus must be directed towards the development and implementation of sustainable urban transport policies (see Chapter 3).

#### Fig. 8

Sustainable Urban Transport Systems serve to mitigate adverse environmental impacts of excessive car use. Photo by Lloyd Wright

### 3. Our approach

The Deutsche Gesellschaft für Technische Zusammenarbeit GmbH—German Technical Cooperation (GTZ)—offers on behalf of the German Federal Ministry of Economic Cooperation and Development transport-related advice to decision makers in state agencies and ministries, cities, non-governmental organizations and to the private sector. When designing and implementing its broad range of services, we emphasize the following objectives:

### **Rural roads and markets**

In co-operation with the German financial assistance agency—KfW Entwicklungsbank— we make a positive contribution to the socio-economic landscape in developing countries by improving rural road networks ensuring all-season access to schools, health facilities, and markets and creating jobs in construction and maintenance of roads.

These investments in infrastructure are complemented through a number of interventions aiming at various aspects of economic and social life. Local administrations are provided with policy tools to warrant an efficient maintenance of rural roads. New markets are established and existing markets are revitalized boosting economic activity along the respective roads.

Last but not least, our involvement include initiatives for the empowerment of women, such as the creation of women-specific job opportunities and women advocacy groups.

# Implementation of institutional reforms and economic instruments

Transport policy can only be implemented effectively with a sound institutional framework. We offer numerous concepts to enable local and national administrations to shape their country's transport system, according to local preferences.

This includes financing schemes for construction and maintenance of rural and urban roads (*e.g.*, road funds), adequate regulatory frameworks, and recommendations for private sector participation in tansport infrastructure provision. Moreover, we assist in implementing economic instruments, such as vehicle taxes and road pricing, that can be used to influence travel behaviour.

Since 1998, we provide extensive data on fuel taxation in developing countries in order to advance public discourse on this topic. Thus, decision-makers in partner countries have access to relevant information on pricing within a regional context and on the potential benefits of fuel taxation. The International Fuel Price Studies are available online (http://www.gtz. de/fuelprices).

# Promotion of sustainable urban mobility

Due to the disastrous effects of growing demand for motorized transport in developing cities, we offer advice on the promotion and implementation of sustainable means of transportation in urban areas.

An integral part of our transport policy is the support of public transportation systems. For example, we provide advice on the establishment of urban Bus Rapid Transit (BRT) systems. In addition, we support Transport Demand Management Systems which contain a wide range of tools to policy-makers in order to facilitate a more efficient use of existing infrastructure. Moreover, it contributes towards integrated traffic-, land use-, and urban planning.

Another important aspect through which we promote sustainable urban mobility is the encouragement of Non-Motorized Transport (NMT). We offer advice on NMT-related planning processes and on strategies to increase public awareness for the importance of efficient, NMT-friendly transport infrastructure.

Extensive information on these topics as well as a broad range of ressources for policy-makers is available at http://www.sutp.org.

### Air quality management

In order to improve air quality, we assist policy makers to determine the best measures to abate air pollution. This includes advice on developing legally enforceable air quality standards and the implementation of clean air action plans. It also integrates inspection and maintenance systems that enforce a certain maximum level of emissions per vehicle. Aditionally, we support policy makers through detailed evaluation of cleaner fuels and vehicle technologies. (http://www.gtz. de/cleanair)

### Improvement of road safety

We offer advice on enhancing road safety. This includes measures to improve road user behaviour, promotion of inspection and maintenance schemes, creation of a safer road environment, campaigns to raise public awareness, and road safety education as well as assistance to road crash victims.

### 4. Appendix

#### Millennium Development Goals and Targets

## GOAL 1: ERADICATE EXTREME POVERTY AND HUNGER

- TARGET 1: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day
- TARGET 2: Halve, between 1990 and 2015, the proportion of people who suffer from hunger

#### GOAL 2: ACHIEVE UNIVERSAL PRIMARY EDUCATION

TARGET 3: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling

#### GOAL 3: PROMOTE GENDER EQUALITY AND EMPOWER WOMEN

TARGET 4: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015

#### GOAL 4: REDUCE CHILD MORTALITY

TARGET 5: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

### GOAL 5: IMPROVE MATERNAL HEALTH

TARGET 6: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

#### GOAL 6: COMBAT HIV/AIDS, MALARIA, AND OTHER DISEASES

- TARGET 7: Have halted by 2015 and begun to reverse the spread of HIV/AIDS
- TARGET 8: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

### GOAL 7: ENSURE ENVIRONMENTAL SUSTAINABILITY

- TARGET 9: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources
- TARGET 10: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation
- TARGET 11: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers

#### GOAL 8: DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT

- TARGET 12: Develop further an open, rule-based, predictable, non-discriminatory trading and Financial system Include a commitment to good governance, development and poverty reduction—both nationally and internationally
- TARGET 13: Address the special needs of the least developed countries Includes: tariff and quota free access for the least developed countries' exports; enhanced programme of debt relief for heavily indebted poor countries (HIPC) and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction
- TARGET 14: Address the special needs of landlocked countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly)
- TARGET 15: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term
- TARGET 16: In cooperation with developing countries, develop and implement strategies for decent and productive work for youth
- TARGET 17: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries
- TARGET 18: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications

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