



Maximising the Social Development Outcomes of Roads and Transport Projects

Guidance Note for the Chartered Institution of Highways and Transportation

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OVERVIEW

This guidance note considers opportunities to maximise the contribution of roads and transportation projects to social development and poverty reduction. The main focus is on developing countries; however, many of the issues and recommendations are also applicable in a developed country context. The guidance note is structured in three parts:

- **PART 1** – An **introduction** to the importance of transportation services to development, highlighting the ‘business case’ for transport industry professionals to consider social issues in detail in project design and implementation.
- **PART 2** – An overview of **ten key social and developmental dimensions** of transportation projects. These are: national economic development; rural transport; urban transport; road safety; health; mobility for disadvantaged groups; employment and livelihood opportunities; operation and maintenance; corruption and accountability; climate change and environment.
- **PART 3** – **Three key strategies** to ensure social issues are appropriately addressed in project design and implementation, plus a list of further useful resources. The key strategies are: effective stakeholder identification, engagement and participation; comprehensive social impact assessment; monitoring and evaluation through the entire project lifecycle.

The target audience for this guidance note are Chartered Institution of Highways and Transportation (CIHT) Members and other sector professionals who have an interest in development issues or need to consider these issues in their professional practice. The day-to-day responsibilities of many transport professionals focus on addressing the technical challenges associated with transport projects, and ensuring projects meet time, cost and quality deliverables. However, many of the ‘technical’ decisions made in the design and implementation process have significant social impacts – both positive and negative – which have an important bearing on the success of the project. This guidance note seeks to provide an overview of these issues and to make recommendations on how best to address them.

PART ONE INTRODUCTION

The Importance of Transportation Services to Social Development

Transportation plays a critical role in development. Effective transport systems enable people to access vital services, such as healthcare and education, to travel for employment, to transport and sell goods, to access social networks, and to make their voices heard in the political arena.¹ Ultimately, effective transport leads to improved social development and economic

growth.² As demonstrated in *Table 1*, improved mobility has a major positive impact on the four dimensions of poverty as defined by the World Bank.³

The ‘business case’ for in-depth consideration of social issues

Detailed and systematic consideration of social issues in transport appraisal maximises the opportunities for positive outcomes and reduces or mitigates the risks and negative impacts of construction activity. For larger projects, social analysis is also important to mitigate the possible impacts on institutions and national policy.⁵

Dimension of Poverty	Expression of Poverty	Impact of improved transport
Opportunity	Lack of access to: labour markets, employment opportunities and productive resources Constraints on mobility Time burdens, especially for women	Improved access to markets and resources Efficient transport networks save time that can be used for productive activity
Capability	Lack of access to public services such as education and health	Provides a means of access to public services
Security	Vulnerability to economic risks and civil and domestic violence	Reduces insecurity due to isolation However, can also be a source of vulnerability as creates a location and environment for harassment
Empowerment	Being without voice and without power at the household, community, and national levels to influence decisions that affect one’s livelihood	Enables participation in social and political gatherings and networks

Table 1 - The four dimensions of poverty, and the impact of improved transport ⁴

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Failure to understand and manage social issues can have enormous economic costs, cause significant damage to the reputations of organisations involved and even put entire investments at risk. Some of the common social risks that can impact on project outcomes are summarised in *Table 2* and a recent case study is presented in *Box 1*.

In contrast, establishing good relationships with stakeholders and focusing on their concerns can generate significant positive opportunities for the project and the organisations involved (also highlighted in *Table 2*). Stakeholder participation is fundamental to effectively addressing social issues in the design process. It has great potential to deliver better project outcomes⁶ and is key in identifying issues that might constitute risks to the project.

Project social risks	Project social opportunities
<ul style="list-style-type: none"> ■ Project delays or abandonment ■ Reputational damage ■ Lack of user acceptance ■ Decreased operational revenues ■ Consumer boycotts ■ Major modifications due to stakeholder pressure ■ Exposure to legal action ■ Security problems 	<ul style="list-style-type: none"> ■ Better project outcomes through stakeholder input ■ Streamlined approval processes ■ Government and regulatory support ■ Timely project completion ■ Easier access to project finance ■ Improved operational revenues through customer support ■ Increased likelihood of support for subsequent projects or future expansions ■ Value creation for proponent organisation ■ Enhanced contribution to sustainable development

Table 2 – Transport Project Social Risks and Opportunities

Box 1: Southern Transport Development Project in Sri Lanka⁷

The Southern Transport Development Project in Sri Lanka demonstrates how a lack of public consultation with project-affected people during the planning phase can lead to delays and social conflict. The 128-km highway scheme between Colombo and Matara was jointly financed by the Asian Development Bank (ADB), the Japan Bank for International Cooperation (JBIC) and the Sri Lankan government. Opposition and protests against a planned highway started during the project planning phase with the focus on an illegal change to the final route of the highway. The project was challenged in the Sri Lankan courts, culminating in January 2004 in a Supreme Court ruling that the affected people had a right to be heard. The Supreme Court ruled that compensation should be paid to the affected people. In June 2004, the Joint Organisation of the Affected Communities on Colombo-Matara Highway submitted a complaint to the ADB Special Project Facilitator (SPF). The complaint raised a number of issues, many of which focused on a lack of communication between the client, funders and the project-affected people. The SPF stated that the opportunity for the affected people to participate in planning and implementing the project had been limited and this had caused many of the project's difficulties.

**PART TWO
THE SOCIAL AND
DEVELOPMENTAL DIMENSIONS
OF TRANSPORTATION PROJECTS**

This section provides an overview of ten key social and developmental dimensions of transportation developments. It aims to assist readers in understanding the breadth of ways that transport can contribute to, or inhibit, social development.

National economic development

Poor countries experience rapid economic growth only when they are able to trade in international markets, and transport

networks are fundamental in providing this access. Air and sea transportation infrastructure is required for exports, while internal transport systems including roads, railways and waterways enable the transport of goods from inside the country to ports and airports. Good national transport networks are necessary if the whole population is to benefit from access to foreign markets, rather than a lucky few who have easy access to the international distribution points. Landlocked countries face additional barriers to entering international markets, making good internal and transit transport (i.e. through neighbouring countries) networks central to their development strategies. This is the case for several countries in Sub-Saharan Africa that have struggled to grow

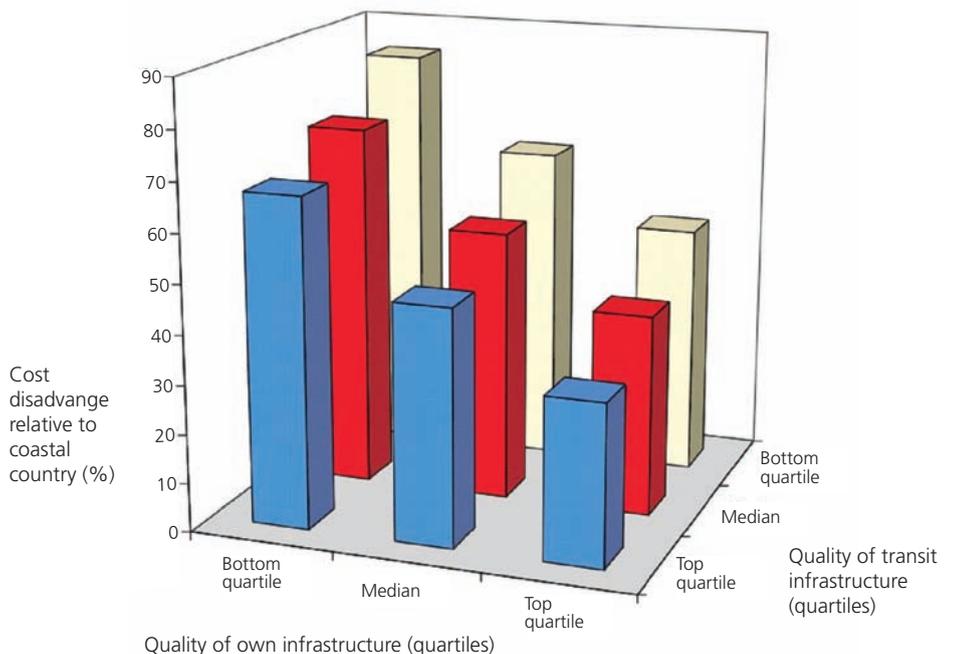


Figure 1. Transport Costs for Exports in Landlocked Countries



economically since the 1980s. One extensive study finds that landlocked countries with poor national and transit infrastructure pay 84 per cent more to export their goods than a coastal country, but this can be reduced to 33 per cent where good transport infrastructure is available – refer to the chart in *Figure 1*.⁸ The Democratic Republic of Congo (DRC) is an example of a country in which development is held back by poor road coverage, as described in *Box 2*.

As an enabler of economic growth, transport accounts for around one sixth of all national government, donor and development bank spend in low income countries.

Low-income countries often lack basic transport networks, but middle-income countries also stand to make significant economic gains by improving their transport infrastructure. Increased international trade volumes require improved ports and airports; faster road and rail networks increase the

Box 2: Democratic Republic of Congo: The impacts of a poor road network⁹

DRC is a country the size of Western Europe, but has less than 2,000 kilometres of paved roads, compared with 398,000 km in the UK. This severely hampers development and has been stated as a reason why the country is so poor – 45 million of DRC's 60 million citizens live on less than 50p a day. Lack of transportation prevents travel for healthcare, education and employment, and prevents DRC engaging in international trade which could boost its economic growth. DRC is heavily reliant on imports, even of items which it grows or supplies from within its own borders, because exports can be brought in more cheaply.

An improved road network would enable small-scale farmers to get their produce to market before it spoils, bring down prices by encouraging competition between traders, and allow police and soldiers better access to keep law and order. Better access to healthcare would improve the DRC's infant and maternal mortality rates – at present one in seven Congolese children die before their fifth birthday, and nearly 100 mothers die in childbirth every day.

efficiency of freight and open up new opportunities for business. Improving transport networks in rural and isolated regions can increase the proportion of the population engaged in economic production, and reduce politically-distabilising inequality.¹⁰

Rural transport

Rural transport infrastructure and services are necessary for both economic and social development. Roads enable rural people to travel to schools, health centres and markets, particularly in the rainy season. The World Bank estimates that around 900 million rural dwellers, mainly in the poorest developing countries, are without reliable transport access.¹¹ Only 34 per cent of the rural population in Sub-Saharan Africa and 57 per cent in South Asia have access to the transport system. Many rural communities do not have year-round access to motorized transport services because of the low density of demand and / or high costs. Loads are transported by foot or on bicycle, putting a burden on rural households in terms of time used and physical energy. Further, transport and load-carrying responsibilities are usually assigned to women and children,¹² reducing both groups' opportunities for access to education, and women's opportunities to earn income. Rural roads change lives, as demonstrated by the case study in *Box 3*.

New roads together with transport improvements are often key enabling factors in moving from subsistence to commercial agriculture. Better roads and motorised transport services enable farmers to sell more of what they produce. For example, in Guinea, in areas where rural roads had been provided, the land-area sown with crops doubled compared with other areas, and output sold to market for cash almost quadrupled. In other areas, no change was seen, and people remained locked in subsistence agriculture.¹³

Urban transport

Between 2007 and 2050, the population living in urban areas is projected to increase

Box 3: Village roads in Sri Lanka¹⁴

A development priority for rural women in Sri Lanka is better village roads. Women can spend 49 hours per week travelling, yet most of this is within 10 kilometres of home – collecting water and firewood, and going to local markets, for example. The 69,000 kilometres of Sri Lanka's roads used by rural people are 'unclassified', and therefore have minimal maintenance budgets.

Working with Practical Action and its partner, GIDES, women from 80 families in Mulberigama built a better road. They learned new technical skills as well as community organisation. Working in groups of six while their children were at school, the women built 1.2 kilometres of road, largely by hand. Each woman received a small wage, donating some to a community fund to pay for road maintenance, and to make loans to families for seeds, tools and fertiliser. With new roads being built between communities, a life-changing network of possibilities is being created – one that connects previously isolated people to schools, clinics and markets. Practical Action is using the success of the project to convince the government to make participatory rural road-building part of its national transport strategy.

from 3.3 billion to 6.4 billion.¹⁵ Rapid urbanisation creates massive transport challenges including: travel distances, affordability of public transport fares, limited choice of transport services, high traffic accident risks and increasing degradation of the urban environment through traffic related air and noise pollution. In urban areas security, particularly for women, is also a concern.



Rural transport, Kenya.
Curt Carnemark / World Bank.



Urban mobility is crucial to the economic growth of cities and towns and the quality of life of their residents. Yet many low-income settlements, especially those on the periphery of cities, are poorly served by public transport. The urban poor tend to rely on informal transport services and non-motorised forms of transport such as cycle rickshaws, cycling and walking. The capacity of urban transport systems will need to increase dramatically in the coming years, but in such a way as to minimise congestion, air pollution, traffic-related accidents and environmental costs. A key factor in achieving this will be innovative and accountable institutions able to coordinate transport and regional development, mobilise stakeholder support, and set overall priorities for transport systems.¹⁶



Urban travel, Vietnam
Tran Thi Hoa / World Bank

Road Safety

Road accidents kill 1.3 million people a year and injure 50 million worldwide.¹⁸ More than 85 per cent of those killed and injured

are from developing countries,¹⁹ where road deaths are on the scale of fatalities due to malaria or tuberculosis. With increasing density of traffic, faster vehicles and urbanisation, the number of road traffic accidents is rising steeply in developing countries. On present trends, the numbers may double by 2020, while decreasing by 30 per cent in high income countries.²⁰ Injuries often result in life-long disabilities.

Road accidents tend to disproportionately affect the poor. For example in the UK, the Commons Transport Committee heard that the poorest children were 21 times more likely to be killed as pedestrians hit by cars than those from the richest families.²¹ Less well-off drivers and passengers were also at greater risk of death than the more affluent.²²

Approximately 70 per cent of those killed on the road are men, but the loss of earnings and the care for victims of traffic accidents disproportionately affects women and girls, pushing households into poverty. Children are also directly vulnerable to road accidents, with 260,000 deaths a year and a million seriously injured.²³ Globally, vehicle accidents are the number one killer of people aged between 10 and 25.

Africa has the world's most dangerous road network with a fatality rate of 28 deaths per 100,000 population per year, compared with 4.3 per 100,000 in Britain. The economic costs are huge: for Africa alone the cost of road accidents totals around \$10 billion per year. In Kenya more than 75 per cent of road traffic casualties are amongst economically active young adults.²⁴ Pedestrian accident rates are high, and increasing with urbanisation, yet simple, low cost interventions have been found to have a significant impact on their safety. Examples include: pedestrian segregation; improved footpath facilities; improved crossing facilities; speed controlling devices e.g. humps and road 'pinches'; improved street

Box 5: Toolkits for Road Safety²⁶

The International Road Assessment Programme (iRAP) has developed a toolkit that rates roads according to criteria for safety design, maps fatalities and serious injuries across the road network, and makes cost/benefit calculations for fatality reductions based on implementation of proposed countermeasures. It then applies tailored solutions. The iRAP methodology provides:

- 'Star Rating' tables and maps showing the safety of roads for car occupants, motorcyclists, bicyclists and pedestrians
- a road inventory database with 30 inspected attributes describing the network
- an estimate of the numbers being killed and seriously injured on each inspected road
- a recommended network-wide countermeasure programme for consideration by local stakeholders and funding bodies.

It has estimated that in Malaysia an investment of US \$180 million in road design improvements could deliver US \$3bn in benefits and prevent over 30,000 deaths and serious injuries over 20 years. IRAP has pilot projects in Chile, Costa Rica, Malaysia & South Africa showing positive cost benefit ratios. Positive economic outcomes combined with the alleviation of human suffering make investment in safer roads a developmental priority.

lighting.²⁵ Thus there is a compelling social and economic case for investing substantial efforts and funds in addressing road safety (see Box 5).

Box 4: Urban Transport in China¹⁷

Mobility played a key role in the development of urban areas in China, yet these rapidly growing areas are now facing significant transport challenges. With Shanghai as its hub, the Yangtze Delta Region in Eastern China is home to over 80 million people and 16 dynamic cities. Massive investment of both capital and political will into transport infrastructure has been instrumental to the region's economic growth and reduced poverty levels in recent years. However, demand for both passenger and freight transport is rising faster than capacity, putting the path of future development in peril. Getting urban transport right is an important challenge for China, where over the next 25 years the urban population is expected to double, the urban economy to quadruple, and the motor vehicle fleet to grow by a factor of six.

Box 6: International initiatives on road safety

- The World Bank's Transport Business Strategy 2008-2015 highlights road safety issues and calls for a more systematic approach.²⁷ The World Bank also supports the Global Road Safety Facility to promote this outcome.
- 1st Ministerial Conference on Global Road Safety (19-20 November 2009) hosted by the Russian Federation in Moscow. This is a milestone in a programme initiated by the Commission for Global Road Safety.
- Proposal for a 10 year Road Safety Plan of Action (Make Roads Safe) to be launched by the UN this year (2010), with the goal of reducing the forecast level of road deaths in 2020 by 50 per cent. This would stabilise the projected death rate rise, saving 5 million lives.
- The Global Road Safety Facility and the Make Roads Safe Campaign are both pressing for 10 per cent of the global roads budget to be spent on road safety measures.



Health

Higher density transport can have both positive and negative impacts on health. On the positive side, good transport enables people to access healthcare services, both in emergencies and for primary care (see Box 7).

Improvements to transport networks can also have negative impacts on health. The two most significant are: the spread of disease, particularly HIV/AIDS; increased air and noise pollution.

Studies of the spread of HIV/AIDS reveal evidence that the transport sector is a major vector of the disease. New transport routes encourage migration between areas of low and high HIV prevalence, for example from urban areas to rural areas, and between countries and regions. Further, truck drivers are vulnerable to contracting the disease, and to passing it to others, due their high-risk behaviour at truck stops and in border towns.³⁰ In some parts of Africa transport service operators have AIDS infection rates as high as 30 per cent.³¹ In addition, the construction of transport infrastructure creates a high-risk environment: studies of road construction in Malawi showed an increase in STIs, including HIV, in the population surrounding workers' camps.³²

Increased traffic density in urban areas compromises city residents' health. Air pollution causes long-term illnesses, particularly respiratory disease; noise pollution impacts children's ability to study; the combined effect generates stress and reduces quality of life.³³ The World Health Organization estimates that urban air pollution (from transport and non-transport sources) causes 800,000 premature deaths each year in the most heavily polluted cities, such as Bangkok, Kuala Lumpur and Jakarta.³⁴ Meeting transport needs without unacceptably compromising health and quality of life will be one of the great challenges of the coming decades.

Mobility for Disadvantaged Groups

Disadvantaged groups, including the poor, women, elderly, disabled people and children stand to gain important social benefits from improved transport networks, as improved access and mobility reduce isolation, vulnerability, and dependency. However, transport networks will need to cater to their particular needs if they are to access the benefits. Many poverty studies cite transport as a key factor associated with deprivation.³⁵ Even if the transport system is functioning well, it may be priced out of the range of the poor. It may be difficult for some people to travel alone due to poor security, or the transport service may be physically inaccessible for the elderly or disabled. The

needs of disadvantaged groups as pedestrians should be considered; challenges in crossing roads or navigating congested pavements discourage vulnerable people from leaving home.

Pricing strategies on public transport merit careful consideration to ensure that the poor have access. Subsidised fares can be

Box 7: Maternal Health and Transport

The majority of poor rural women give birth at home, facing elevated risk of maternal and neonatal mortality, partly due to the lack of transport or adequate roads by which a health facility can be reached. If they do seek care, most women will walk (availability of bicycles and improvised stretchers to be used in emergencies is often localised and ad-hoc) – which delays arrival at the point of care.

In a region of rural Zimbabwe (Masvingo) access to transport was an implicating factor in 28 per cent of maternal deaths, as opposed to 3 per cent in urban Harare.²⁸ In a recent study of maternal mortality in a rural area of Gambia, where maternal mortality rates are among the highest in the country, specific cases are cited where poor roads and inability to access transport from home to health centre or from health centre to hospital were implicated in the subsequent death of the patient.²⁹

effective, but they should be targeted to ensure that they reach the poor rather than benefiting all customers and reducing government revenues.³⁶ Security is a top priority to enable transport use by women and children. Possible interventions include: provision and improvements of feeder roads close to low-income residential areas, provision of safe and secure bus stops.³⁷ Transport services should be designed to be accessible by the elderly and disabled, as described in Box 8.

Employment and livelihood opportunities during construction, operation and maintenance

Labour-intensive construction and maintenance methods have been found to generate significant positive outcomes in road construction in developing countries (see Box 9). The use of labour-based methods of construction can also facilitate improved maintenance outcomes (see next section).



Box 8: Transport for People with Disabilities (PWD)³⁸

According to WHO estimates, there are at least 400 million disabled people living in developing countries, and they are among the poorest of the poor. If a transport system is inaccessible to people with disabilities, particularly for those living in rural areas, this restricts their access to education, employment and social interactions. Thus inaccessible transport plays a key role in perpetuating poverty.

Wheelchair users require wider doors and ramps to enter public transport. Pedestrian crossings are particularly challenging for those with disabilities. Where there is no infrastructure – such as signage or zebra crossings – to help people with visual, speech and hearing impairment they may need to travel with an escort, usually a family member. The alternative of hiring private transport is often out of the price range of disabled people.

Some recent examples of good practice to address these issues include:

- In Delhi a local NGO has worked with transport authorities to make metro stations barrier-free; to include safety features and tactile guideways on platforms; and to ensure carriages have adequate space for wheelchair users.
- South Africa has adopted an integrated national disability strategy committed to developing accessible and affordable public transport.
- In Mexico City a forum bringing together a disabled people's advocacy group with a wide range of transport stakeholders has led to thousands of kerb ramps on major streets and the introduction of accessible buses and trolley buses.



Operation and maintenance

A sound operation and maintenance (O&M) framework is at the heart of realising the potential of transport infrastructure projects. O&M presents particular challenges in the developing world due to weak institutional arrangements, political imperatives to construct new infrastructure rather than maintain old, and challenges from the physical environment. O&M spending is clearly a good investment; a £1 million increase in road network maintenance typically results in £3 million reduction in vehicle operating costs.⁴³ The institutional arrangements behind an O&M programme are the key factor in its success or failure. An increasingly popular approach, which has been shown to have the potential dual benefits of well-maintained roads and generating income for the poor, is handing responsibility for O&M to local communities. The constraints of such an approach must be considered; the local community must be willing to carry out the maintenance, and the required knowledge, materials, tools and capacity must be available. An approach

Box 10:

Cooperative micro-enterprises for road maintenance in Latin America⁴⁵

Contracting out of road maintenance became obligatory in many countries of Latin America in the early 1990s. Colombia pioneered the formation of both private and cooperative micro-enterprises for road maintenance, in the process creating jobs for people with little education or training living alongside the roads. The cooperatives generally produced a better quality of work than the private micro-enterprises and this was attributed to equality among members, good training and the fact that the members were drawn from the area close to the road and developed a sense of ownership of 'their' road. Cooperative micro-enterprises had between 11 and 15 members and were contracted directly with each given a yearly contract to manage an average of 40 kms of paved roads. Cooperatives are now increasingly being remunerated on a performance basis. The contract lists the maintenance activities together with the performance indicators for each activity. Payment is in the form of a fixed fee, which is paid in monthly instalments. Penalties for non-compliance (if necessary) are deducted from monthly payment. Contracts are for one year and they are usually extended if performance is satisfactory.

Box 9: Labour-based approaches to road construction

Gravel roads often constitute the majority of the public road network in developing countries, and regular gravel road maintenance tasks are well-suited to labour-based approaches, combined with the occasional use of machinery such as graders.³⁹ Gravel roads employ local materials and low cost technology and, if the institutional framework is designed to support labour-based approaches, their maintenance creates regular off-farm employment in the area. A review of experience with labour-based techniques for gravel road construction in a large number of low-income and low-wage economies found the labour-based option to be 25 to 30 per cent cheaper than the capital intensive alternative, while creating up to five times the employment for the same investment. The employment effects of shifting to locally produced materials were also found to be considerable.⁴⁰

Another example of road construction technologies suited to a labour-based approach is the use of concrete pavers. An urban road construction project in Mozambique shunned the conventional asphalt approach recommended by international engineers in favour of concrete pavers. The concrete solution took longer to build, but used more labour inputs and only local materials (sand and cement). It required minimal maintenance and hence proved to be the most appropriate technology in the local context.⁴¹

Contracting organisations are sometimes reluctant to adopt labour-based approaches due to concerns over managing a large number of small contractors. However, a case study of a rural roads programme in Zambia found an effective way to overcome this by contracting a Zambian intermediate agent organisation to manage the contractors.⁴²

adopted in several African countries is to establish road funds and boards with independent representation to help to ensure that revenue generated from assets goes to maintaining those assets.⁴⁴



Poorly maintained road, Kenya.
Curt Carnemark / World Bank.

corruption risks. The immediate impacts of corruption in the sector are poor-quality projects, where the funds used to pay bribes are taken from finance intended for the works, and / or more expensive projects where the cost of bribes is incorporated into tenders. The broader societal impacts can be severe with reduced quality of transportation services and trust in government undermined. Corruption in the transport sector requires a comprehensive response which combines a number of integrated measures. Box 11 describes two recent anti-corruption initiatives.

Climate change & the Environment

Climate Change

Climate change is likely to affect transport infrastructure in three main ways: firstly, an ever stronger emphasis on reducing greenhouse gas (GHG) emissions from transportation will change the way transport developments are planned and implemented; secondly, there will be an increasing emphasis on adopting low-carbon construction materials and methods; finally, climate change will present new challenges for robust design, operation and maintenance, as weather patterns alter, temperatures increase and sea levels rise.

Transport density will continue to increase in the developing world for the foreseeable future, as countries develop economically and increase their engagement with international markets. The transport sector currently generates around 15 per cent of global GHG emissions; the developing country share of this is predicted to increase

Corruption and accountability

Transport projects are susceptible to corruption due to the high value of many contracts, the high number of organisations involved and transactions made, and the wide geographical distribution of project locations; all of which increase the difficulty of introducing effective monitoring and accountability mechanisms. Corruption may occur in the form of bribery, extortion, fraud or collusion. It can take place during any phase of a project, from identification through to operation and maintenance. The tender process is particularly sensitive to



from 32 per cent at present to 46 per cent by 2030, and to continue rising.⁴⁸ Improved transport infrastructure will play an important role in reducing vehicle emissions, for example: quality infrastructure for public transport such as metros, trams, and bus lanes helps to reduce private car journeys; freight railways are far more efficient than freight trucks; better roads improve the fuel efficiency of vehicles; more direct routes reduce fuel use. Happily, these initiatives also have positive developmental outcomes, including a better business environment, and reduced air pollution and congestion.

The transport infrastructure sector will increasingly be encouraged to adopt less carbon-intensive methods of construction. How this goal is achieved will depend on the country context, but some approaches clearly align with developmental goals. For example, sourcing materials locally rather than importing reduces carbon footprint and encourages the development of local industry. Supporting manufacturing plants in developing countries that use clean technology provides a locally-available supply of green materials and supports the country to adopt a low-carbon path to economic growth.

Requirements for robust design, as well as the operation and maintenance of transport infrastructure will alter with climate change. Infrastructure design and O&M budgets and plans will need to take account of unpredictable rainfall, increased incidence of storms, higher temperatures and rising sea levels.

This will present challenges in developed as well as developing countries, as described in *Box 12*.

Box 12: Roads and Climate Change Adaptation in Scotland⁴⁹

Transport Scotland are preparing for the impact of climate change on Scotland's trunk road network. Following a number of landslides in summer 2004, two studies were commissioned to assess how climate change will impact on Scotland's roads.

The research was undertaken in two phases and considered two issues:

- how to identify areas most at risk of landslides and how to manage that risk;
- analysing the potential future trends in climate change in Scotland and the implications for the operation and management of the road networks.

The general conclusion was that the climatic changes expected in Scotland by the 2020's are relatively small but that even these small changes may be sufficiently significant to impact on the design and management of the trunk roads network. A strategy is being developed to manage the risk of landslides as far as possible and to minimise the danger to trunk road users.

Environment

Improved transport networks can lead to other types of environmental degradation, particularly where access is provided to previously inaccessible areas. Road construction has been found to be a major contributor to the destruction of the Amazon rain forest,⁵⁰ and can result in damage to other delicate ecosystems such as wetlands, lakes and rivers, either through direct pollution or by enabling access. Detailed Environmental Impact Assessments are essential to avoid and mitigate environmental damage from the construction of transport infrastructure.

Increased transportation density also generates air and noise pollution, as detailed in the 'Urban Transport' and 'Health' sections of this note.

PART THREE INTEGRATING SOCIAL ISSUES INTO PROJECT DESIGN AND IMPLEMENTATION

Overview

This guidance note has highlighted some of the complex social and developmental issues that arise in transport infrastructure projects. It is not possible to provide detailed guidance on how to manage each of these issues in this note. However, this section focuses on three critical components of project design and implementation that can greatly increase the likelihood that a transport project will achieve positive social outcomes and mitigate project risks:

- Effective stakeholder identification, engagement & participation
- Comprehensive social impact assessment
- Monitoring & evaluation through the entire project life cycle

For a more comprehensive treatment, *Box 16* provides a list of publications and web resources that draw on in-depth research to provide detailed guidance on managing these issues.

Effective stakeholder identification, engagement & participation⁵¹

A stakeholder is any individual, community, group or organisation with an interest in the outcome of a project. This may either be as

"Conducting social analysis and consulting with affected people upstream in the project cycle provides crucial inputs into the project design"

The World Bank⁵²

Box 11: Anti-Corruption Initiatives

The Project Anti-Corruption System (PACS)

PACS is an integrated and comprehensive system designed by Transparency International (TI) that identifies anti-corruption measures and provides practical guidance and materials for implementation. PACS comprises: The PACS Standards: which recommend and describe anti-corruption measures which should be integrated into the management of construction projects. Example PACS standards are: independent assessment; fair and transparent procurement procedures; project, funder and government anti-corruption commitments; audit; enforcement. The PACS Templates: model agreements and tools which parties can use to assist them in implementing anti-corruption measures on projects. For more information please see: http://www.transparency.org/tools/contracting/construction_projects

The Construction Sector Transparency Initiative (CoST)

CoST is an international multi-stakeholder initiative designed to increase transparency and accountability in public-sector construction projects, supported by the UK Department for International Development (DFID) and the World Bank. CoST provides a framework for the disclosure and analysis of information about the cost and quality of infrastructure projects (for example specification, project cost, contractor and completion dates), and justification for differences between pre-implementation and post-implementation information. It aims to enhance the accountability of procuring bodies and construction companies involved in public-sector work. CoST is currently being piloted in seven countries. For more information, please see: <http://www.constructiontransparency.org/>.



a result of being affected by the project (positively or negatively) or by being able to influence the project in a positive or negative way. Stakeholders may be individuals, interest groups, government agencies, or corporate organisations. They may also include politicians, commercial and industrial enterprises, labour unions, academics, community groups, social and environmental groups and the media.⁵³

The social impacts and benefits of a project are inherently related to the project's stakeholders. An understanding of stakeholders, their interests, their perceptions of the project, and how the project can affect them are crucial for identifying and quantifying impacts and benefits. There is now an established body of knowledge on stakeholder identification, engagement and participation. *Box 13* lists two recommended publicly available references that project proponents could use as a resource to design their own process.

In many circumstances, stakeholder issues will be managed by social and community assessment specialists. However, it is important that all personnel involved in design and delivery have an understanding of stakeholder management and how their own personal responsibilities interface with stakeholder management processes. For this reason, some of the key elements of good practice in stakeholder management are summarised in the following sections.

Stakeholder identification and engagement

For transportation projects stakeholder engagement can be a complex process. By their nature transportation projects often have a significant number of direct and indirect stakeholders with a range of competing interests and perspectives. In addition, many of the poorest stakeholders have little voice in formal decision making processes, so special measures may need to be taken to ensure these groups are identified and their views heard.

Box 13: Stakeholder Engagement References

- *The Stakeholder Engagement Manual Volume 2: The Practitioner's Handbook on Stakeholder Engagement* (AccountAbility, the United Nations Environment Programme, and Stakeholder Research Associates)⁵⁴
- *Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets* (International Finance Corporation)⁵⁵

Projects will often be occurring in a dynamic context, with established histories and cultures, and complex political, social and economic relations between stakeholder groups that can be thrown into flux by the project and its impacts. Stakeholder engagement, when handled badly, can become "politicised and complicated, and can lead to and exacerbate conflicts and other unanticipated outcomes".⁵⁶

However, in many respects the drivers of success are quite simple. Project-affected stakeholders and communities often feel strongly that they have a right to participate in decision-making that affects their lives and livelihoods, whether or not this is reflected in law. Appropriate stakeholder engagement should respect these basic rights, create an environment in which all people's views can be heard, and respond appropriately to legitimate concerns. It is about building relationships in the same way relationships are built in other spheres – through trust, respect, honesty and communication. Investing in relationships will almost certainly be worth the effort, particularly for large projects with long operational lives.

The key elements of stakeholder engagement good practice are:

- **Quality** - It is not sufficient simply to have a process in place; the quality and timing of the process are critical. In fact, the quality may be more important to the success of stakeholder engagement than the quantity of financial resources allocated to it. *Box 14* provides an overview of the key principles of effective engagement which can be used to judge the quality of the process.

- **Early engagement** – Early engagement provides a valuable opportunity to influence public perception and set a positive tone with stakeholders.⁵⁷ It is also important to note that building sound relationships takes time.
- **Integration with design processes** – The sustainability and appropriateness of the project and programme design will be enhanced through consultation with external stakeholders. It is important to integrate stakeholder engagement into project planning and scheduling from inception (discussed further below).
- **Disadvantaged and vulnerable groups** – The poor, women, the disabled and ethnic minorities, for example, may be difficult to reach but can often be the stakeholders with the most to gain or lose from a transport development. Negative impacts on these groups (even if unintentional) can generate severe negative publicity over and above the human costs.
- **Addressing key issues** – Where communities have issues or concerns that are important to them it is critical that these are addressed in the engagement process – even if these issues are difficult for the proponent. Failure to address serious concerns will compromise the stakeholder engagement process and cement negative perceptions of the project.
- **Management systems** – Like other business functions, stakeholder engagement needs to be managed. It should be driven by a well-defined strategy and have a clear set of objectives, timetable, budget, and allocation of

Box 14: Key Principles of Effective Engagement⁵⁹

- Provide **meaningful information** in a format and language that is readily understandable and tailored to the needs of project stakeholder group(s)
- Provide information **in advance** of consultation activities and decision-making
- Disseminate information in ways and locations that **make it easy for stakeholders to access it**
- Show respect for **local traditions, languages, timeframes, and decision-making processes**
- Allow **two-way dialogue** that gives both sides the opportunity to exchange views and information, to listen, and to have their views heard and addressed
- Ensure inclusiveness in representation of views including **women, the vulnerable and/or minority groups**
- Ensure processes are free of **intimidation or coercion**
- Ensure clear mechanisms exist for responding to people's **concerns, suggestions and grievances**
- Ensure that the project representatives managing the engagement process have, or can access, **the right skills, experience and attitudes for the job**



responsibilities. All project staff should be made aware of the programme and helped to understand why it is being undertaken and what implications it might have for project outcomes.⁵⁸

- **Managing expectations** – While it may appear attractive to gain favour by promising positive benefits from a development, failure to deliver these benefits can generate significant dissatisfaction. It is important that nothing is promised which cannot be realistically delivered and that all promises are recorded.
- **Entire project life cycle** – Stakeholder engagement processes need to be in place for the entire project life cycle, not just for the planning and construction phases.

Stakeholder participation in design

Stakeholder participation is a prerequisite to effectively identifying and addressing social risks and opportunities in the design process,⁶⁰ as well as building trust and respect with stakeholders. The degree of participation that is necessary will vary depending on the project context. While there can be challenges with involving external parties in early design processes (e.g. commercial sensitivities), the earlier this participation occurs the more likely it is to secure positive outcomes. As shown in Figure 2, the level of opportunities for positive influence decline over time and the cost of changes increases.

This approach should be properly integrated into the overall design process:

- **Sufficient time & resources** – Participatory processes require appropriate allocation of time and resources if they are to achieve their objectives. Duration and resource requirements may increase with the size and complexity of the project.
- **Sequencing** –The outputs from the engagement process will inform the development of solutions, so the engagement activities must precede solution development in project scheduling.
- **Feedback & dialogue** – For planning processes to be genuinely participatory, the project programme should be designed to allow information from stakeholder consultations to be integrated into the planning process, and for stakeholders to participate in the development and evaluation of proposed solutions.

Comprehensive Social Impact Assessment

Transport projects typically undergo environmental impact assessments (EIAs) yet the application of social impact assessments (SIAs) is relatively less advanced. As highlighted in Part 2, transportation projects can have a wide range of social impacts and benefits. The full range of social impacts and benefits should be identified and their magnitude assessed in detail through a formal SIA process. SIA is not just about obtaining regulatory approvals and permits; it should be a core component of the design process as it should inform the final option selection and design. SIA should therefore involve detailed engagement with stakeholders as discussed in the previous section.

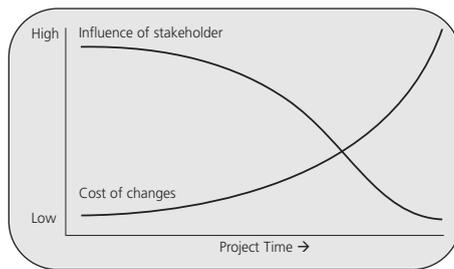


Figure 2 – The influence of stakeholders and the cost of changes over the project life cycle

Box 15: ASPIRE

Engineers Against Poverty (in partnership with the engineering consulting firm Arup) have developed ASPIRE (A Sustainability Poverty and Infrastructure Routine for Evaluation) as a tool for assisting integration of social issues into infrastructure developments. ASPIRE is a software tool for assessing the sustainability of infrastructure projects which recognises poverty reduction as an overarching objective.

The ASPIRE framework examines the social, environmental, economic and institutional dimensions of sustainability, helping those funding, commissioning and implementing infrastructure projects to understand and evaluate the implications of infrastructure provision and its contribution to sustainable development throughout the project cycle.

While not a substitute for a detailed SIA, it is designed to be a useful tool to assist designers to consider a wide range of social issues in the design process. ASPIRE can be downloaded through the Engineers Against Poverty website: www.engineersagainstpoverty.org

ENGINEERS AGAINST POVERTY ASPIRE

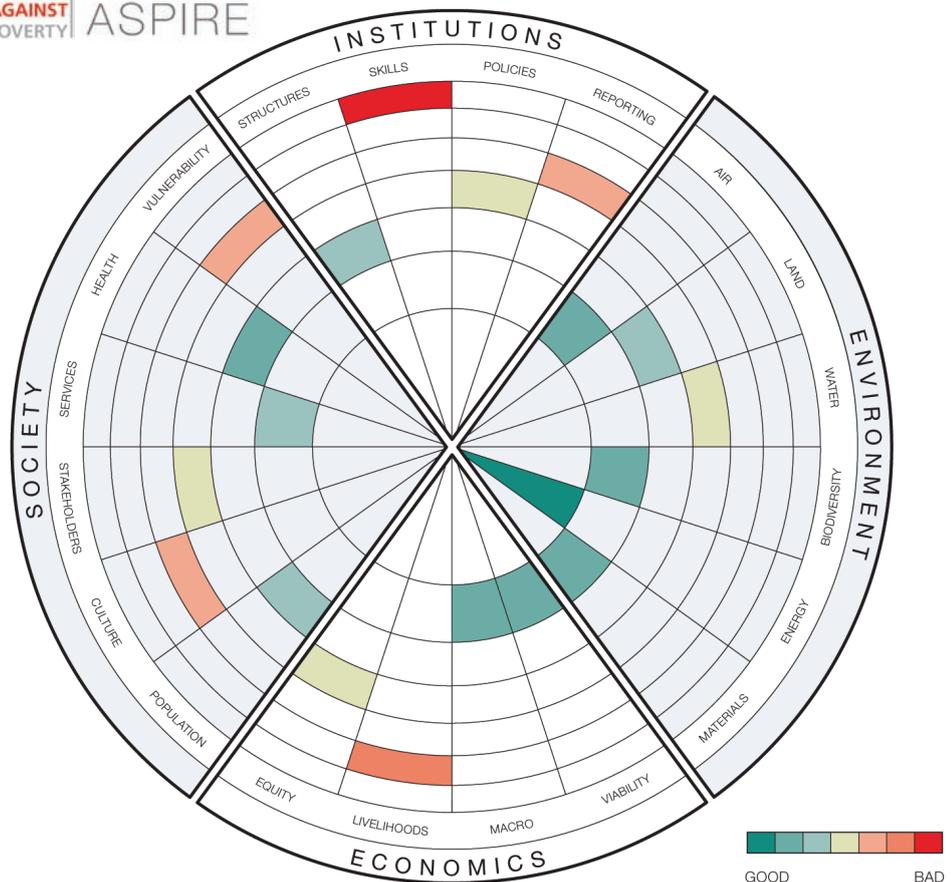


Figure 3 – The ASPIRE Framework



Monitoring & evaluation

Consideration of social issues should not be a one-time event in the life of a project.⁶¹ Analysis should be repeated at intervals during project implementation to monitor the progress of social issues and to verify whether the project continues to be responsive to the issues identified during the project planning phase.⁶² Carrying out regular Social Impact Assessments and / or using ASPIRE or a similar tool at several stages during the project life cycle is one way to manage this.

Identifying appropriate indicators for monitoring and evaluation of social dimensions can be challenging, but tools and templates are available. For example the World Bank (2006) report listed in *Box 16* gives sample indicators for review during implementation, at mid-term and on completion, and tools such as ASPIRE provide sample indicators for use at any stage.

Further Resources

Box 16: Where to find out more: Useful publications and web resources

Publications

World Bank (2006)

*Social Analysis in Transport Projects: Guidelines for Incorporating Social Dimensions into Bank-Supported Projects.*⁶³

World Business Council for Sustainable Development (2009)

*Mobility for Development.*⁶⁴

World Health Organization (WHO) (2004)

World Report on Road Traffic Injury Prevention.

Web Resources

International Road Safety Assessment programme (iRAP):

<http://www.irap.org/>

Global Road Safety Partnership:

<http://www.grsproadsafety.org/>

World Road Association (PIARC):

<http://www.piarc.org/en/>

The UK Transport Research Laboratory (TRL) produced the Overseas Roadnotes series:

<http://www.trl.co.uk/>

global Transport Knowledge Partnership (gTKP):

<http://www.gtkp.com/>

World Health Organization:

<http://www.who.int/roadsafety/>

The International Forum for Rural Transport and Development (IFRTD):

<http://www.ifrtd.org/new/index.htm>

Commission for Global Road Safety:

<http://www.fiafoundation.org/commissionforglobalroadsafety/>

United States Transportation Research Board:

<http://www.trb.org/Main/Home.aspx>

Access Exchange International

(an NGO promoting accessible public transport for persons with disabilities):

<http://www.globalride-sf.org/>

CONCLUSION

Integrating social dimensions throughout transport projects' life cycle enhances their potential to bring life-changing benefits to the end users, while reducing the risk of negative social outcomes. The additional effort invested in social analysis will almost certainly bring disproportionate returns: a project which is more appropriate and sustainable; engages the local population; is safe and high quality; and which enhances the reputation of the implementing organisation.

This note has provided an overview of some of the key social and developmental dimensions of transportation projects, guidance on three of the most important strategies to integrate social analysis into the project life cycle, and references to a broad range of further resources. It has aimed to provide organisations with an understanding of the importance of social dimensions in transport interventions, and with the knowledge and resources to integrate these concerns into the project life cycle.



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