

**ASIAN DEVELOPMENT BANK**

**A Transport Strategy for  
Sustainable Development**

Rural Accessibility in the Asia  
and Pacific Region

---

Final

**January 2007**

---



I.T. Transport Limited  
The Old Power Station  
Ardington, U.K.

## Table of Contents

Abbreviations	
EXECUTIVE SUMMARY	i
<b><u>PART A: SITUATIONAL ANALYSIS</u></b>	
1. APPROACH TO THE PREPARATION OF THE PAPER	1
1.1 The Need for an ADB Transport Sector Policy	1
1.2 The Purpose of this Paper	2
1.3 The Preparation of the Paper	3
1.4 The Structure of the Paper	4
2. RURAL ACCESSIBILITY, RURAL TRANSPORT AND RURAL ROADS	5
2.1 Rural Accessibility	5
<i>Why “Rural Accessibility”?</i>	5
<i>The Rural Accessibility Approach</i>	6
2.2 The Rural Transport System	7
<i>Definition of Rural Transport</i>	8
<i>Definition of The Rural Transport System</i>	9
<i>Definition of the Rural Road Network</i>	10
<i>The Importance of Connective Road Networks</i>	10
2.3 Implications for Management of the Rural Accessibility Sub-Sector	11
3. THE ASIAN DEVELOPMENT BANK CONTEXT	12
3.1 Poverty Reduction and Economic Growth	12
<i>The Over-arching Objective of Poverty Reduction</i>	12
<i>The Strategic Agenda</i>	13
3.2 Core Areas of ADB Intervention	14
<i>Pro-poor, Sustainable Economic Growth</i>	14
<i>Inclusive Social Development</i>	15
<i>Good Governance</i>	17
3.3 Cross-cutting Areas for ADB Support	19
<i>The Role of the Private Sector in Development</i>	19
<i>Fostering Regional and Sub-regional Cooperation and Integration</i>	22
<i>Addressing Environmental Sustainability</i>	22
<i>Promoting Gender Equality</i>	23
<i>Developing Capacity</i>	24
3.4 Operationalising the Strategic Agenda	24
<i>Re-organization of the ADB</i>	24
<i>The Country-Level Focus</i>	25
<i>Long-term Approaches to Poverty Reduction</i>	27
<i>Coordination and Partnership among Funding Agencies</i>	29
<i>Development Impact</i>	31
3.5 Relevant ADB Policies and Procedures	32
<i>Policies</i>	32
<i>Operational Procedures</i>	35
3.6 ADB Financing Modalities	36
<i>Loan Financing</i>	36

	<i>Technical Assistance</i>	37
	<i>Policy Dialogue</i>	38
	<i>New Financing Modalities</i>	38
3.7	Overview of ADB Rural Transport Operations	39
	<i>Transport Sector Operations</i>	39
	<i>Agriculture and Rural Development Sector Operations</i>	41
	<i>Rural Roads, Rural Transport and Rural Access</i>	42
	<i>Issues, and Lesson Learnt</i>	43
	<i>Implications for Future Operations</i>	46
4.	THE DEVELOPING MEMBER COUNTRY CONTEXT	47
4.1	The Developing Member Countries	47
	<i>Rural Population</i>	47
4.2	Characteristics of the DMCs	49
	<i>Geography and Climate</i>	50
	<i>Population Density</i>	50
	<i>Economic Conditions</i>	51
	<i>Social Conditions</i>	52
	<i>Institutional Structures</i>	53
4.3	Rural Roads, Rural Transport and Rural Accessibility	54
	<i>Road Networks and Rural Roads</i>	54
	<i>Rural Means of Transport and Transport Services</i>	58
	<i>Rural Waterway Transport</i>	62
	<i>Road Safety</i>	63
	<i>Rural Accessibility</i>	64
4.4	Rural Poverty in the DMCs	66
	<i>Extent and Distribution of Rural Poverty</i>	67
	<i>Other Characteristics of Rural Poverty</i>	70
 <b><u>PART B: NEEDS, ISSUES AND STRATEGY</u></b>		
5.	RURAL ACCESS NEEDS, ISSUES AND CONSTRAINTS	72
5.1	Rural Accessibility – the Missing Issue in Poverty Reduction	72
5.2	The Link between Rural Accessibility and Poverty	73
	<i>Recent ADB Findings</i>	73
	<i>Other Relevant Studies</i>	75
	<i>Conclusion</i>	75
5.3	Improved Rural Accessibility – The Means to Reduce Isolation	75
	<i>Transport Infrastructure at all Levels</i>	76
	<i>The Frequency, Reliability and Affordability of Transport</i>	77
	<i>The Planning and Location of Services</i>	78
	<i>The Availability of Communications</i>	80
5.4	Rural Access and Poverty in the DMCs	81
	<i>Variations in the Rural Access and Poverty Situation</i>	81
	<i>Rural Access Environments</i>	83
	<i>Conclusion</i>	86
5.5	The Enabling Framework	86
	<i>National Policy and Strategy</i>	86
	<i>Development with Equity</i>	87
	<i>Participation and Ownership</i>	88
	<i>Devolution and Fiscal Decentralisation</i>	90

	<i>Governance and Corruption</i>	91
	<i>The Role of the Private Sector</i>	92
	<i>The Role of Development Assistance Agencies</i>	94
5.6	The Provision of Improved Access	95
	<i>Classification of Rural Transport Infrastructure</i>	95
	<i>Design Standards for Rural Roads</i>	96
	<i>Maintenance of Rural Roads</i>	98
	<i>Lower-Level Transport Infrastructure</i>	99
	<i>Labour-based Methods</i>	100
	<i>Knowledge Gaps</i>	101
	<i>Risks</i>	103
6.	A RURAL ACCESSIBILITY STRATEGY FOR THE ADB	104
6.1	Rural Accessibility in an ADB Transport Sector Strategy	104
	<i>ADB's Objective, Strategy and Approach</i>	104
	<i>ADB Transport Sector Strategy</i>	105
6.2	Improving Rural Access – Principles and Strategic Considerations	107
	<i>Principles</i>	107
	<i>Strategic Considerations</i>	108
6.3	ADB Rural Accessibility Strategy – Key Elements and Issues	109
	<i>Country-level Focus</i>	109
	<i>Planning for Rural Accessibility</i>	110
	<i>Infrastructure Development and Maintenance</i>	111
	<i>Labour-based Methods</i>	113
	<i>Means of Transport</i>	115
	<i>Participation and Community-driven Development</i>	116
	<i>Remote Areas with Intransigent Poverty</i>	117
	<i>Governance</i>	117
6.4	ADB Rural Accessibility Strategy – Addressing the Cross-cutting Themes	119
	<i>Capacity Development</i>	119
	<i>The Role of the Private Sector</i>	120
	<i>Gender Equality</i>	121
	<i>Environmental Sustainability</i>	122
	<i>Regional Cooperation</i>	123
6.5	Organisational Implications for the ADB	124
	<i>Divisional Responsibilities</i>	124
	<i>Developing Expertise</i>	125
	<i>The Role of the Country Offices</i>	125
6.6	The Process of Operationalising the Strategy	126
	<i>The Approach</i>	126
	<i>Building Awareness</i>	126
	<i>Generating Experience</i>	127
	<i>Evaluation and Knowledge Building</i>	128
6.7	Specific Operational Measures	128
	<i>Policy Reform and Capacity Development in DMCs</i>	128
	<i>Financing Modalities</i>	129
	<i>Project Design</i>	130
	<i>Project Implementation</i>	131
	<i>Monitoring and Evaluation</i>	131
6.8	Action Plan	132

REFERENCES

133

- APPENDIX 1: ADB Transport Sector Policy: Outline of Board Policy Paper
- APPENDIX 2: Terms of Reference for Rural Accessibility Specialist
- APPENDIX 3: Relevant Data on Developing Member Countries
- APPENDIX 4: Evidence of the Impact of Improved Access on Reducing Poverty

## Abbreviations

ADB:	Asian Development Bank
ADF:	Asian Development Fund
AIDS:	Acquired Immune Deficiency Syndrome
AOTA:	Advisory and Operational Technical Assistance
BME:	Benefit Monitoring and Evaluation
China (PRC):	Peoples' Republic of China
CSP:	Country Strategy and Programme
CWA:	Central and West Asia
DFID:	Department for International Development, UK
DMC:	Developing Member Country (of the ADB)
EA:	East Asia
EA:	Executing Agency
EC:	European Commission
EIRR:	Economic Internal Rate of Return
ESCAP:	United Nations Economic and Social Commission for Asia and the Pacific
FP	Focal Point
FRB:	Feeder Road Type B
GDP:	Gross Domestic Product
GIS	Geographical Information Systems
GNP:	Gross National Product
HDI:	Human Development Index
HIV:	Human Immune Virus
HMGN:	His Majesty's Government of Nepal
ICB:	International Competitive Bidding
IFRTD	International Forum for Rural Transport & Development
IMT:	Intermediate Means of Transport
IRAP:	Integrated Rural Accessibility Planning
JFPR:	Japan Fund for Poverty Reduction
Km	kilometre
Lao PDR:	Peoples' Democratic Republic of Laos
LBAT:	Labour-based Appropriate Technology
LCB:	Local Competitive Bidding
LTSF:	Long-Term Strategic Framework (of the ADB, 2001 to 2015)
MDG:	Millennium Development Goals
M&E:	Monitoring and Evaluation
na:	Not available
NGO:	Non-Governmental Organisation
NPRS:	National Poverty Reduction Strategy
O&M:	Operation and Maintenance
Pac:	Pacific
p.c.:	per capita
PPA:	Poverty Partnership Agreement
PPMS:	Project Performance Monitoring System
PPTA:	Project Preparation Technical Assistance
PRS:	Poverty Reduction Strategy
RETA:	Regional Technical Assistance
RM:	Resident Mission

SA:	South Asia
SDF:	Social Development Fund
SDP:	Sector Development Program
SEA:	South-east Asia
TA:	Technical Assistance
TOR	Terms of Reference
UK:	United Kingdom
UNDP:	United Nations Development Programme
VOC:	Vehicle Operating Cost
vpd:	vehicles per day

## EXECUTIVE SUMMARY

To make a useful and meaningful contribution to its Transport Sector Strategy, future ADB support to the rural accessibility sub-sector must be based on considerations of economic, social and environmental sustainability and improved governance. This paper sets out the dimensions of the challenge facing the DMCs in reducing the isolation that is a fundamental cause of rural poverty and of the growing inequality between urban and rural areas in Asia and the Pacific Regions. Based on this, the elements that would comprise a holistic approach to improving rural accessibility, as part of an ADB transport sector strategy, are outlined. The measures that ADB should adopt in order to support its DMCs in improving rural accessibility, together with a suggested short-term action plan, are presented.

### A. Rural Accessibility

Rural accessibility is the “missing issue” in poverty reduction. Improvements to rural accessibility have been found to have a significant positive impact on poverty reduction. They lower transport costs, reduce ‘economic distance’, and bring pro-poor economic growth to rural areas. Social development is promoted by improved access to services such as health and education, which particularly benefits the poor. They contribute to good governance at local level through empowering rural communities and strengthening local government structures. However, to achieve a significant impact on the rural poor, particularly the very poor, they need to be accompanied by other, complementary development inputs.

Reducing isolation by improving rural accessibility is a transport sector issue, but also a component of the rural development process. The core problem to be addressed is not the limited extent, low standard, poor condition, or lack of maintenance of rural roads. Nor is it this plus the high cost, limited availability and unreliability of rural services. The core problem is the isolation, or lack of access, of the rural poor.

Rural accessibility is therefore broader than rural roads. Infrastructure, means of transport and the provision of services are all important components of improving access in rural areas. Infrastructure includes that used by: (a) rural people to access markets, services and resources; and (b) the public and private sectors to deliver goods and services to and from rural areas. It comprises the tertiary public road system together with the unclassified roads, tracks and paths that connect many rural villages. In some areas it includes waterways and the associated wharves. Rural accessibility encompasses the means of transport, both public and private. An important aspect of this is the extensive use of walking and various forms of intermediate means of transport (IMT) such as bicycles, rickshaws, motor tricycles, small diesel-engined vehicles, bullock carts and donkeys. Rural accessibility includes the planning and location of public facilities that need to be accessed by rural people, and the mobile delivery of private and public sector services. All this is in the context of the ongoing communications revolution which will over time impact on the pattern of rural access needs.

Improving rural accessibility is a local-level issue, and requires a change towards a people-centred approach to identifying problems and solutions. However, the higher levels of the transport network are relevant in that they provide the connectivity by which goods, services and people move into and out of rural areas. Thus, improved rural access depends on a well-functioning transport system from top to bottom in order to reduce economic distance. Higher levels of the transport system can function adequately (if with less impact) without good rural

accessibility but not vice versa. Because of this, opportunities for improvements to rural accessibility have tended to be neglected in transport infrastructure development in the past.

## **B. ADB Policy Context**

ADB has significant experience in the transport sector in DMCs. The majority of this has been in major highway development and sector reforms which have achieved a significant economic impact. The recent trend is towards more involvement in the improvement of secondary and tertiary road systems. This trend looks set to continue, as does the importance of the transport sector in ADB activities. Attention to adopting a holistic, people-centred approach to rural accessibility is highly relevant to future ADB activities.

About 70% of the poor in Asia, over 600 million people, live in rural areas. The good progress with poverty reduction in the past decade has largely by-passed rural areas in many DMCs. Despite rapid urbanisation, poverty in the Asia and Pacific region will remain primarily a rural problem for the foreseeable future. Thus, improvements to rural accessibility have the potential directly to impact on ADB's overarching objective of poverty reduction by reducing isolation and improving connections between the many rural poor and social and economic services. Due to the lack of strategic attention to rural accessibility, this potential remains untapped and the role of the transport sector in development is perceived predominantly as one of facilitating economic growth. However, isolation is a major contributor to rural poverty. Lack of access to goods, resources, facilities and information are characteristics of the rural poor. Measures to reach them with public services and economic opportunities are costly. It is isolation that fundamentally distinguishes the rural from the urban poor and is one of the causes of inequitable economic growth. This isolation generates multiple constraints leading to a poverty trap from which it is difficult to escape. The extent of rural poverty and its intransigence, even in DMCs with relatively high levels of economic growth, are the main motives for addressing rural accessibility in ADB's transport sector strategy.

The broad, multi-sectoral nature of interventions to improve rural accessibility means that they impinge significantly on all three pillars of ADB's Strategic Agenda for poverty reduction - pro-poor sustainable growth, inclusive social development and good governance. ADB's cross-cutting themes are all relevant to the rural accessibility sub-sector (discussed further below). Adopting a holistic approach to improving rural accessibility will be an important contribution to achieving ADB's objective.

ADB support to its DMCs must be in the context of their widely differing rural access circumstances. A number of factors influence the variations in the nature of the rural access problems and needs among (and within) DMCs, and of the challenges in addressing these: geography, terrain and climate; demographic and social patterns including population density, cultural conditions and presence of ethnic minorities; and resource base and level of economic development and stability. However, DMCs face a number of common issues and constraints. There is insufficient understanding of the need for, and benefits of, a holistic approach to improving rural accessibility, and hence a lack of coherent national policies and strategies. There are significant institutional constraints including the limited capacity of central agencies, the weakness of local government, and governance and corruption issues. DMCs face significant resource constraints, and have to address the dilemma of the high cost of integrating the most remote and poorest areas into their national economies. Finally, there is a lack of technical knowledge and experience in more innovative approaches.

### **C. Guiding Principles for an ADB Rural Accessibility Strategy**

For rural accessibility to be a useful and meaningful component of ADB's Transport Sector Strategy it has to have a clear direction guided by certain principles and strategic considerations. Future ADB support to the rural accessibility sub-sector should be aimed at an effective contribution to poverty reduction and more equitable growth, and be based on considerations of economic, social and environmental sustainability and improved governance. The ADB should play a leading role in innovation, policy dialogue and national sector programme development. It should provide nationally appropriate mixes of policy-making, capacity-building and financing support to DMCs. It should exploit the opportunities for additionality - applying the harmonization and alignment concepts and within the framework of the new Financing Partnership Strategy - through co-operation with other international agencies and adoption of innovative funding modalities at sub-sector, country and regional levels. Achieving the changes in thinking and institutional priorities that are needed to address rural accessibility from the perspective of the poor will be a major challenge.

### **D. Key Elements of an ADB Rural Accessibility Strategy**

#### *Country-level Focus*

Given the variations in circumstances among DMC, the focus of ADB support should be at country-level. Improved rural accessibility should form part of broader, poverty-targeted, national transport and rural development sector policies and strategies. ADB is well-placed to take the lead in country-level analysis and policy dialogue. The ADB strategy should be to support the integration of rural accessibility improvements into transport and rural development programmes in DMCs. Wherever possible, this should be in the context of joint support with other donors involved in the sector. Where ADB support is provided for discrete infrastructure improvements such as ports and highways, opportunities to enhance the poverty reduction impacts by integrating rural accessibility aspects should be explored.

#### *Planning for Rural Accessibility*

Effective participation is fundamental to achieving a well-designed programme of assistance to improve rural accessibility. ADB's strategy should be to: (a) institutionally, focus on working through the local government system, with appropriate capacity-building support where necessary; (b) promote bottom-up planning in a community-led approach for local improvements to paths, tracks and other local-level infrastructure for which the communities will have ownership and responsibility; (c) use a consultative process in the framework of an overall local development plan and network management system for improvements to district and feeder roads; and (d) consider non-transport solutions for reducing access constraints, most importantly the location of services closer to the users, adopting an integrated local development planning approach using tools such as Integrated Rural Accessibility Planning (IRAP) and Geographical Information Systems (GIS).

#### *Infrastructure Development and Maintenance*

The ADB strategy for infrastructure development and maintenance should focus on meeting four key requirements: (1) connective development of the transport infrastructure network to reduce the economic distance between rural areas and major centres, (2) coordinated management that adequately addresses the transport infrastructure network at all levels, based on a clear functional classification of different categories of road; (3) appropriate design standards that are sufficient for the purpose but avoid costly over-design (the whole-life cost approach), and make provision for the operation of slow-moving IMT; (4) facilitation of community-driven development of the lowest levels of transport infrastructure that are crucially important for poor people. The

resources and institutional arrangements for future maintenance of infrastructure need particular attention, and adequate arrangements to sustain improvements in access should be a pre-condition for ADB financing.

### *Labour-based Methods*

Labour-intensive growth is a powerful pro-poor measure. Labour-based construction methods are particularly suited to the technically simple but fragmented nature of rural access improvements. To establish these methods in DMCs will require a long-term commitment from ADB actively to promote their adoption as the standard means of construction for rural access infrastructure. This needs attention at the national policy and strategic level, institutional and capacity-building support, and revisions to contracting regulations and procedures. It also requires critical review of the extent to which ADB's own operational procedures and biases inhibit the expanded use of labour-based methods over the longer term.

### *Means of Transport*

The ADB should give more attention to the provision of rural transport, not just infrastructure, in the programmes that it supports. It should assist DMCs in making the sector reforms needed to promote the rights and responsibilities of operation of IMT and to establish local regulatory frameworks for the free market, but safe, delivery of demand-responsive and competitive rural transport services by the private sector. The analysis of the existing supply of rural transport should be an explicit requirement as part of the preparation of rural accessibility investment programmes. Where the need is identified to increase this supply, ADB's role (in partnership with other agencies) should be to facilitate: (a) the removal of local regulatory constraints; (b) the introduction of more efficient IMT (and boats); and (c) the establishment of appropriate credit financing mechanisms.

### *Participation and Community-driven Development*

A community-led approach is needed for development and management of lower-level transport infrastructure. Equally, communities have much to contribute to the consultative process for planning the location of services and connective development of the road network. The key to a community-led approach is full, effective but manageable participation. This must be fully inclusive in order to take account of the priorities of women, minorities and other socially excluded groups. Utilising the expertise available within the organisation, ADB should develop guidelines on 'stakeholder participation in rural transport infrastructure management'. It should also build capacity in local government institutions to manage community participation. The 'process approach' to project implementation facilitates this, and also creates a longer, more manageable time-frame for participatory work.

### *Remote Areas with Intransigent Poverty*

Poverty, often among ethnic minorities, can be particularly deep and pervasive in remote and sparsely-populated rural areas with difficult terrain. This is a 'special case' worthy of particular attention. Infrastructure costs are high and quantifiable economic benefits low, but a "basic needs" approach to access can be justified. Further analysis is required to specify the circumstances in which ADB should invest in 'non-economic' rural transport infrastructure in these areas. It is likely that improved access alone will be inadequate and an array of complementary measures should also be specified.

## **E. Addressing the Cross-cutting Thematic Priorities**

### *Capacity Development and Governance*

Strengthening local structures and establishing increased accountability are essential inputs to the sustainable improvement of rural accessibility. A holistic approach must be implemented through the local government system. ADB should work through local structures and support the development of effective, decentralised local government. Capacity building in the public and private sector and communities at the local level should be features of ADB's strategic support to improved rural accessibility. The ADB should take a pro-active role in the establishment of fair, transparent and accountable planning systems and contracting practices in order to mitigate the risk of corruption. The use of ADB funding for locally-managed contracts provides it with an entry point, and powerful leverage, for the adoption of such systems. Establishing openness in contracting procedures and supporting the enforcement of regulations should be features of these systems. ADB should take a leading role in testing innovative procedures to curb corruption.

### *The Role of the Private Sector*

Developing the role of the private sector is an important input to the provision of improved access. Small-scale (preferably labour-based) contractors and local consultants, with adequate training and support, can provide the capacity to carry out improvement and maintenance works. ADB should give the long-term benefits of building capacity in the local private sector for rural infrastructure development and maintenance priority over concerns about speed of construction or length of roads improved. Private sector transport operators should be encouraged to expand their services in rural areas with improved infrastructure through the creation of an appropriate enabling framework. ADB should also promote the management and operation by the private sector of public facilities in rural areas, for example transport terminals and rural markets.

### *Gender Equality*

Improvements in accessibility can benefit rural women significantly through reducing the time and effort spent on local transport activities. Two-thirds of the poor in DMCs are women. Their needs for improved accessibility are often overlooked in development programmes due to their lack of voice. The strategy should be to apply ADB's existing knowledge on gender issues to ensure that women participate fully in the identification, planning, implementation and maintenance of improvements to rural access, starting with understanding their needs.

### *Environmental Sustainability*

The strategy for improving rural accessibility should be that any development of physical infrastructure will take due account of the often fragile nature of the local environment in many areas. This will require careful consideration of interruption to the natural water flow; increased risk of erosion and landslides and the need for the clearing of trees. Opening up rural areas can encourage the over-exploitation of natural resources through both legal and illegal operations. These risks should be studied before embarking on any interventions. Road safety, particularly for pedestrians, can be a serious issue, in rural areas. ADB should ensure high standards for measures such as the provision of road signs and traffic calming. Non-physical measures such as local road safety campaigns should also be applied. The design standards used for rural transport infrastructure should exploit opportunities for enhancing the environment through measures such as the provision of erosion protection and tree planting.

### *Regional Cooperation*

The ADB should exploit opportunities to benefit from regional cooperation in the sharing of research, information, experience, and lessons learnt on rural accessibility issues. There should be coordination of efforts to improve rural access in border areas including considering measures to reduce the smuggling of goods and movement of drugs; and to establish consistent strategies where countries in a sub-region have a common interest, e.g. the promotion of pro-poor water-borne rural tourism in the Mekong River Basin.

## **F. Organisational Implications for the ADB**

ADB's needs a clear internal allocation of responsibilities for rural accessibility issues. Coordination between the key Divisions of Infrastructure (Transport) and Agriculture, Environment and Natural Resources will be necessary to draw on their respective strengths, develop a consistent approach to the transport sector and to disseminate new knowledge and experience. Similarly, it will be important to define the respective responsibilities of ADB's country offices and its headquarters divisions. The effective incorporation of a holistic and comprehensive rural accessibility approach into ADB's Transport Sector Strategy will depend on coordination in tapping into in-house knowledge and experience, and require many of its staff to expand their expertise and develop new competencies.

## **G. Operational Measures to Improve Rural Access**

There are three steps in the process of establishing rural accessibility aspects in ADB's work: building awareness; generating experience; and evaluation and knowledge-building. These will require a range of measures including dissemination of research findings, in-service training, and the preparation of guidelines and manuals that will form part of rural accessibility operational procedures. ADB should develop implementation experience through the incorporation of rural accessibility into existing and new transport, rural infrastructure and rural development investment programmes. Specific attention is needed to: (a) policy reform and capacity building in the DMCs; (b) applying the holistic approach to the design of investment programmes; (c) effective management and supervision of these relatively complex programmes; and (d) defining a meaningful and replicable methodology for benefit monitoring and evaluation of rural accessibility improvements that generates practical lessons for the future.

A **short-term, 18-24 month action plan** should be agreed and implemented by ADB to give momentum to the introduction of rural accessibility issues into its transport and rural development work (see end of Chapter 6). An initial proposal for such an action plan is given at the end of Chapter 6 of this report. This plan includes: (a) development a 'road map' for supporting DMCs through the whole process from policy formulation to implementation of rural accessibility investment programmes; and (b) preparation of a first draft set of ADB guidelines on incorporating rural accessibility issues into the project identification, preparation, appraisal and approval process. It is proposed that the action plan should be coordinated and monitored in ADB by a nominated focal point for rural accessibility issues, possibly located in the Transport Community of Practice. Moreover, it is recommended that rural accessibility focal points should be identified in ADB Country Offices.

\*\*\*\*\*

## **PART A – SITUATIONAL ANALYSIS**

### **1. APPROACH TO THE PREPARATION OF THE PAPER**

*This Chapter explains the context in which this paper was prepared and describes the overall structure of the paper.*

#### **1.1 The Need for an ADB Transport Sector Strategy**

The Asian Development Bank (ADB) has been involved in transport sector operations in the developing member countries (DMC) ever since its establishment in 1966. The provision of transport infrastructure is important for economic and social development, and this has been reflected in the scale of ADB lending and grant-funded technical assistance (TA). The Bank has provided assistance to the transport sector in all DMCs except for some of the Pacific island countries. The major part of the ADB transport lending has been for roads, including rural roads.

Improvements in transport networks and services in DMCs in the last 35 years have contributed significantly to economic development, income growth and job creation. More efficient and extensive transport systems have improved the linkages of people to both domestic and international markets. This has been instrumental in increasing the efficiency of domestic industries and the competitiveness of export industries, key engines of the economic growth that has lifted many hundreds of millions out of poverty in the Asia and Pacific Region. The ADB has played a significant role in this development.

However, much remains to be done in a Region where most of the world's poor live. The need for investment in transport will remain high as DMCs continue to demand better quality, and more extensive, transport infrastructure and services to support economic growth and social development. Transport is expected to remain a major sector for ADB operations. National transport strategies will play an important role in achieving the development objectives of DMCs. They will directly influence economic growth, income-levels, poverty reduction, the quality of people's lives, the structure and hierarchy of human settlements, and the environment.

Assistance to the transport sector has in the past been based on informal sector policies and practices in accordance with the ADB's Medium-Term Strategic Framework. However, there has been a major evolution and fundamental re-focussing of overall ADB policy through:

- i) the adoption in 1999 of poverty reduction as its over-arching objective;
- ii) the definition of the Long-Term Strategic Framework (LTSF), for the period 2001 to 2015, to achieve this objective;
- iii) the enhancement of the poverty reduction strategy in 2004, based on five years experience, including endorsement of the Millennium Development Goals (MDG).

The LTSF aims to address poverty reduction in DMCs by focussing ADB interventions on:

- pro-poor, sustainable economic growth
- inclusive social development
- good governance

and by giving to cross-cutting support to:

- promoting the role of the private sector in development

- fostering regional co-operation and integration
- addressing environmental sustainability
- promoting gender equality
- capacity development.

The LTSF strategic agenda has important implications for the development needs that the transport sector must contribute to satisfying, for priorities within the sector, and hence for the requirements of ADB lending and other support to its DMCs. A formal transport sector strategy will provide guidance and direction for the ADB's future activities in order to optimise their contribution to achieving the LTSF aims<sup>1</sup>. Specifically, the transport sector strategy should:

- ensure that ADB transport sector operations address the over-arching objective of poverty reduction whilst also supporting economic growth. Lending, institutional development, policy dialogue and research activities should be targeted effectively towards this end;
- reflect the ADB's focus on pro-poor sustainable economic growth, inclusive social development and good governance; and address the LTSF's targets for cross-cutting support;
- Support the achievement of the internationally agreed Millennium Development Goals, and
- respond to the emerging challenges faced by the sector; in order that
- future ADB assistance efficiently meets the changing needs of DMCs.

A key issue in formulating the strategy is that the ADB is under pressure both to deepen its work in specific sectors and at the same time to broaden its activities. This will place more competing demands on the allocation of scarce resources, and hard choices will have to be made. It is, therefore, important that the strategy contributes to providing an understanding of the means by, the extent to, and the efficiency with which, different possible activities in the transport sector will contribute to the strategic agenda.

The tentatively titled **ADB Transport Strategy for Sustainable Development** is being formulated through a process of analysis; consultation with the DMCs, non-government organizations (NGOs) and the private sector; and review. At an early stage an outline of the proposed output was prepared (*Appendix 1*). According to this, the aim of ADB's operational transport strategy should be:

**To help clients achieve sustainable increases in welfare by enhancing access to market opportunities, social services, goods and information through transport infrastructure and services in a market-oriented manner.**

## 1.2 The Purpose of this Paper

This Paper on Rural Accessibility in the Asia and Pacific Region is one of a series of analyses on different subjects produced as inputs to formulating the ADB Transport Strategy for Sustainable Development. Its purpose is to set out:

- i) the dimensions of the rural accessibility challenge facing DMCs, including specific issues in different sub-regions;

---

<sup>1</sup> For more information about initial thinking on the need for, and objectives of, the transport sector strategy see Reference 1.

- ii) the policy and institutional approaches which would enhance the social, economic and financial sustainability of rural transport in client countries, particularly with respect to the poor; and
- iii) options which the ADB should consider in defining its own role in the rural accessibility sub-sector.

The analysis and findings presented in this Paper are relevant to ADB's broader support to rural development as well as to its transport sector operations. Rural accessibility issues cut across the transport and rural development sectors - the sub-sector can be characterised as 'having one foot in each sector'. This is evidenced by the fact that both Transport and Communications and Agriculture, Rural Development and Natural Resources operational divisions of the ADB have been formulating and managing rural accessibility operations<sup>2</sup>. This has important implications for the analysis of ADB operations to date, and for the recommendations presented in this Paper.

### 1.3 The Preparation of the Paper

The Paper has been prepared in accordance with the original Terms of Reference (*Appendix 2*). It draws upon:

- i) analysis of ADB statistical data and documentation – project reports, evaluations, and strategy and policy papers;
- ii) discussions with ADB officials in Manila and in the field;
- iii) review of materials, lessons and experiences from non-ADB sources.

While the Paper includes analysis of ADB statistical data and operational documentation, this is given only limited emphasis. This is in part because of the nature of relevant ADB lending operations. But it is also deliberate because, in evolving strategic recommendations on rural accessibility, there is much to be learnt from other institutions and financing agencies that have been active in relevant research and analysis, policy and strategy formulation, and monitoring and evaluation of rural infrastructure and rural development financing operations. The main focus has been on learning from experience in the Asia and Pacific Region, but relevant lessons from innovative programmes in Africa and Latin America have been included.

The coverage of the Central Asian Republics is more limited than for DMCs in other parts of the Asia and Pacific Region. Less information is available on rural transport in the Central Asian Republics, and the ADB has relatively limited experience of rural transport and rural development lending there.

The completion of this Paper has been a rather drawn-out process, during which time the focus has shifted from the original intention of formulating an ADB transport **policy** paper to developing a **strategy**. The draft Paper was circulated for comment in early 2006, and this revised version addresses the comprehensive and constructive responses received.

---

<sup>2</sup> In the Central and West Asia, and Southeast Asia, Departments of the ADB 'Transport and Communications' and 'Energy' operations are combined within their Infrastructure Divisions.

## 1.4 The Structure of the Paper

The Paper is structured as follows:

PART A: provides a situational analysis and elaborates the context for the strategy. It comprises three chapters:

Chapter 2 explains the rationale for addressing rural accessibility, rather than 'rural roads' or 'rural transport' issues, and presents the definition of Rural Accessibility.

Chapter 3 examines the ADB context for the analysis of rural accessibility needs and issues and the derivation of related strategic recommendations.

To set alongside this, Chapter 4 analyses the relevant DMC context.

PART B: identifies the key needs and issues in relation to rural accessibility. Based on this, the relevant rural accessibility aspects of a transport sector strategy are proposed together with recommendations on how ADB could put such a strategy into operation. It comprises two chapters:

Chapter 5 examines the needs for, and key trends in the provision of, improved rural access to contribute to rural poverty reduction. It analyses the issues and constraints facing DMCs, and reviews the relevant lessons from recent experience.

Chapter 6 presents the findings and recommendations on rural accessibility aspects of an ADB Transport Strategy for Sustainable Development. It sets out proposals on practical measures that ADB can adopt to operationalise the recommended strategy.

References are listed at the end of the main text. These are presented in the text as numbers in square brackets, [1], [2], etc. More detailed information to support the analysis in the main text is presented in the Appendices.

## 2. RURAL ACCESSIBILITY, RURAL TRANSPORT AND RURAL ROADS

*This Chapter explains the rationale for addressing rural accessibility, rather than ‘rural roads’ or ‘rural transport’, issues in the proposed strategy; presents the definition of ‘Rural Accessibility’ that is applied to the analysis in the remainder of the Paper; and highlights distinctive features of the rural accessibility sub-sector.*

### 2.1 Rural Accessibility

#### **Why “Rural Accessibility”?**

The Terms of Reference specifically define the subject of this Paper as “rural accessibility”, not “rural roads” or even “rural transport”. This reflects the evolution of thinking in recent years. It is now increasingly recognised that the core problem to be addressed is not the limited extent, low standard, poor condition, or lack of maintenance of many rural road networks. Nor is it the high cost, limited availability, unreliability or irregularity of rural transport services in many areas. Rather the core problem is that many rural people in the Asia and Pacific Region, and particularly the rural poor, still have inadequate access to the goods, resources, and economic and social facilities, services and opportunities – including credit, technology, communications and information - that they could utilise and exploit to improve their livelihoods. Many rural people remain ‘isolated’ or ‘remote’ because this access is physically difficult, slow, time-consuming, expensive and/or unreliable.

The implication of this definition of the core problem is that the rural component of ADB’s investment, policy-making and institutional development support to its DMCs in the transport sector should be concerned with “rural accessibility”. It should not focus solely on rural road systems, or even on rural roads plus complementary attention to transport services. Rather, ADB’s support should be directed at improving and sustaining the levels of access enjoyed by rural people, and particularly the rural poor, to goods, resources, facilities, services and opportunities. “Level of access” is defined as follows:

**The lower the cost to rural people - in terms of the monetary cost, physical effort involved and time spent – of travelling and moving their goods to and from the physical facilities, services, resources and opportunities that they need to use, the higher the level of access that they have.**

Addressing the core issue of rural accessibility is consistent with ADB’s aim that its operations should be directed at, and that their performance should be monitored in relation to, contributing to achieving the Millennium Development Goals (MDG):

Goal 1: Eradicate extreme hunger and poverty: Better access to resources and markets is one necessary requirement for rural people to improve their subsistence and economic livelihoods.

Goal 2: Achieve universal primary education: Better access to schools in rural areas, for pupils and for the public agencies responsible for their administration and management, is one input to achieving this.

- Goal 3:** Promote gender equality and empower women: The rural accessibility approach directly focuses attention on addressing the access needs of different groups, including women.
- Goals 4, 5 and 6:** The three 'health' goals: Better access to health care services at different levels, for rural people and for the public agencies responsible for their administration and management, is one input to achieving the targets.
- Goal 7:** Ensure environmental sustainability: Integrating the principles of sustainable development into policies and programmes for the development of rural transport infrastructure is an important target under this goal.
- Goal 8:** Develop a global partnership for development: transport in general is a facilitator for promoting trade and integrating the rural and urban economies. Under this goal attention is also directed to the special needs of landlocked developing countries and small island developing states, which have specific transport issues.

### ***The Rural Accessibility Approach***

Fundamental to the rural accessibility approach is the recognition that there are two complementary components to improving and sustaining the levels of access enjoyed by rural people:

1. To improve the service provided by rural transport systems through: (a) the provision and better maintenance of more extensive, higher standard rural transport infrastructure; and (b) the increased availability in rural areas of appropriate means of transport and efficient, low-cost transport services. This will:
  - i) increase the mobility of rural people by making the movement of themselves and their goods cheaper, faster, more reliable, and less of a physical burden;
  - ii) facilitate the more widespread delivery of goods and services into rural areas by public agencies and the private sector.
2. To reduce the distances that rural people have to travel and move their goods through the more extensive provision of better quality rural facilities and services - for example by construction and operation of more schools and additional classrooms, by development of more rural public markets, or by improved service delivery at rural health centres.

There are certain important characteristics of the core problem of inadequate rural access that are taken into account in the accessibility approach:

- Access needs within the community are important, particularly for priority household activities such as collection of water and cooking fuel, and harvesting of produce. If these are unduly time-consuming and burdensome, usually for women, this can act as a serious constraint to wider mobility to and from places outside the community.
- In any particular rural area the level of access enjoyed varies among different groups in the population, as does their response to the opportunities offered by, for example, improved rural roads:
  - some households own their own means of transport – from a bicycle or donkey to a pick-up truck - which gives them greater mobility;
  - available transport services are more affordable to some than to others;
  - it is the poor who are least likely to be able to afford either to own their own means of transport or to make regular use of available transport services.

- The poor may only be prepared to spend scarce cash on using a transport service for a particularly important or demanding trip. They, therefore, remain the most dependent on travel, and movement of their goods, on foot which is time-consuming and physically strenuous. Particularly disadvantaged sub-groups of the poor tend to be the least mobile. The obvious example is the limited travel by poor women. This may be constrained by cultural restrictions (e.g. in Islamic societies), by lack of control over household cash, or by the demands of their wide array of family responsibilities, which mean they are simply too busy to have much time left to travel outside the community.
- The implication of this is that the roles of improved transport systems in facilitating the more efficient delivery of goods and services into rural areas, and of the more extensive provision of better physical facilities and social services, will be important in achieving an impact on poverty reduction.
- There are practical and operational constraints upon the extent to which physical facilities and social services can be distributed more widely in rural areas. There must be a certain minimum level of demand, in terms of the number of people to be served, by a new school, health centre, or market place for the investment to be worthwhile. And sufficient recurrent resources must be available to staff to be able to supply and operate the additional facilities.
- Achieving the full impact of providing more extensive facilities and services will often also require attention to the rural transport system. Two examples:
  - i) a new primary school will be under-utilised if barriers remain to easy physical access from parts of the area it is intended to serve;
  - ii) delivery of better quality social services in rural areas requires efficient access from outside – to bring in supplies, and for effective administration and management.

To summarise, the rural accessibility approach integrates the ‘transport system’ and ‘provision of facilities and services’ components of improving access. It recognises that applying resources efficiently to improve rural access for the poor involves much more than investment in the construction, rehabilitation and upgrading of rural roads for use by conventional motor vehicles (though investment in roads is likely to remain the major call upon resources). The Integrated Rural Accessibility Planning (IRAP) process, discussed in more detail later in this Paper, has been developed as a practical mechanism to apply the rural accessibility approach. Key distinctive features of IRAP are that:

- i) it takes a holistic view of rural access problems, needs and priorities for improvement in order to identify the most effective mix of transport and non-transport interventions to address priority access constraints in a rural area;
- ii) it includes consideration of the internal access problems and needs within rural communities.

The rural accessibility approach fits well with the Livelihoods Framework for managing efforts to reduce poverty [2]. In this context, it can be seen as an approach which identifies the priorities for increasing, and sustaining existing, physical capital in order to give rural communities opportunities to increase their financial, human and social capital.

## 2.2 The Rural Transport System

As part of the rural accessibility approach, it is important to establish a definition of the “rural transport system”. This helps to: (a) highlight that rural accessibility is essentially a local-level issue, while emphasising that it cannot be managed and improved effectively in isolation from

higher levels of the national transport and administration systems; and (b) indicates its distinctive features as a sub-sector of the transport sector.

### **Definition of Rural Transport**

For the purposes of this Paper “rural transport” is broadly defined, to reflect the patterns of rural life and economic activity, as:

**The movement of rural people and their goods within and among rural communities and to and from local economic and/or administrative centres and the strategic road network; and the delivery of inputs and services into rural areas from outside.**

This could be summarised as the movement of people and goods within ‘local administrative areas and villages’, which requires some explanation. Typically, a DMC has a hierarchy of administrative levels. At the top is central government, at the bottom are the villages or communities - the places where rural people live and do their farming. These may have a concentrated or dispersed structure. A village is not necessarily a formal administrative level, though it can be assumed to have some structure of authority, often a traditional system. Associated with the administrative hierarchy is the structure of local government bodies and de-concentrated offices of central government agencies. Some examples of administrative structures from DMCs are given in Table 2.1.

**Table 2.1: Administrative Structures and Local Government Bodies**

	<b>Bangladesh</b>	<b>Nepal</b>	<b>Philippines</b>	<b>Vietnam</b>
Administrative Structure (below National level):	<ul style="list-style-type: none"> <li>• Region</li> <li>• District (Zilla)</li> <li>• Thana (Upazilla)</li> <li>• Union</li> <li>• Village</li> </ul>	<ul style="list-style-type: none"> <li>• Development Region</li> <li>• District</li> <li>• Village</li> <li>• Ward</li> </ul>	<ul style="list-style-type: none"> <li>• Region</li> <li>• Province</li> <li>• Municipality</li> <li>• Barangay (Village)</li> </ul>	<ul style="list-style-type: none"> <li>• Region</li> <li>• Province</li> <li>• District</li> <li>• Commune</li> <li>• Village or Hamlet</li> </ul>
Local Government Bodies	<ul style="list-style-type: none"> <li>• District (or Zilla) Council</li> <li>• Thana (or Upazilla) Council</li> <li>• Union Council</li> </ul>	<ul style="list-style-type: none"> <li>• District Council and Development Committee</li> <li>• Village Development Committee</li> </ul>	<ul style="list-style-type: none"> <li>• Provincial Government</li> <li>• Municipality Council</li> <li>• Barangay Council</li> </ul>	<ul style="list-style-type: none"> <li>• Provincial People's Committee</li> <li>• District People's Committee</li> <li>• Commune People's Committee</li> </ul>

Thus, in Bangladesh, rural transport would be defined as the movement of people and goods within the Thana (Upazilla) and villages, in Nepal within the District and Villages, in the Philippines within the Municipality and Barangays, and in Vietnam within the District and Communes. This definition:

- Focuses attention on the importance of:
  - the local-level movement of people and goods; and
  - improving access within, as well as to and from, rural communities.
- Highlights the priority to integrate rural areas into the wider economy. The local administrative headquarters (e.g. Thana, District, Municipality) are key locations in making the necessary linkages. They tend to be:
  - i) focal points for the delivery of public services into rural areas, for rural commercial activities and for the operation of civil society organisations;

- ii) the ‘points of entry’ for people from rural areas into higher levels of the transport system and to services available at higher administrative and economic levels; and
- iii) the ‘points of distribution’ into rural areas of inputs delivered from larger urban centres.

Rural travel patterns do not of course follow administrative boundaries, they are determined more by geography, but this definition serves the generic purpose across the diversity of circumstances in DMCs, and illustrates the scale of rural transport systems.

**Definition of the Rural Transport System**

The “rural transport system” is defined as comprising the infrastructure, the means of transport, and the users. It is summarised in Figure 2.1.

**Figure 2.1: Characteristics of the Rural Transport System**

<b>THE RURAL TRANSPORT SYSTEM</b>		
<p><b>Infrastructure</b></p> <ul style="list-style-type: none"> <li>• <u>Rural Road Network</u>: The different classes of Tertiary Road and their bridges and culverts; ferry crossings. (+ Strategic Roads<sup>3</sup>)</li> <li>• <u>Local Inland Waterways</u> and landing facilities.</li> <li>• “<u>Lower-level Transport Infrastructure</u>”: tracks, paths and foot bridges that are not fully motorable but used by pedestrians and bicycles, motorcycles, carts, mules, etc.</li> </ul>	<p><b>Means of Transport</b></p> <ul style="list-style-type: none"> <li>• Vehicles <u>owned by rural people</u>, operated for their own use, including non-motorised and intermediate vehicles, and boats.</li> <li>• <u>Travel on foot</u>.</li> <li>• ‘<u>For-hire</u>’ rural transport services on roads and waterways.</li> <li>• Vehicles used to <u>deliver economic and social services</u> in rural areas – e.g. by traders and public officials.</li> </ul>	<p><b>Users</b></p> <ul style="list-style-type: none"> <li>• <u>Rural people</u>, the target beneficiaries of an improved rural transport system.</li> <li>• <u>Operators</u> of ‘for-hire’ transport services.</li> <li>• <u>Public sector officials</u> working in rural areas.</li> <li>• <u>Representatives of civil society organisations</u> operating in rural areas.</li> <li>• <u>Commercial enterprises</u> operating in rural areas, including buyers of farm produce.</li> </ul>
<b>FEATURES</b>		
<ul style="list-style-type: none"> <li>• Rural transport is the movement of rural people and their goods <u>and</u> the delivery of inputs and services to rural areas</li> <li>• Rural transport infrastructure includes tracks and paths, and rural waterways, as well as the motorable rural road system</li> <li>• Local government bodies and village authorities have direct responsibilities for management of the rural transport system</li> <li>• The responsibility of public agencies is to provide and maintain the infrastructure, and to set the regulatory framework for transport operations, so that the system meets the needs of users</li> </ul>		

<sup>3</sup> The term “Strategic Roads” is discussed under “The Importance of Connective Road Networks” below.

The important features of rural transport systems are as follows:

- The **infrastructure** comprises motorable rural roads; plus in some areas navigable rural inland waterways and their associated landing facilities<sup>4</sup>; and the tracks and paths used for local movements and, in more mountainous and remote areas, for longer-distance travel.
- The rural **means of transport** include conventional motor vehicles such as trucks and buses; plus a range of what are variously called ‘intermediate’, ‘non-motorised’ or ‘slow moving’ means of transport<sup>5</sup>; boats; and travel on foot – in some mountainous areas commercial porters provide ‘for-hire’ service to transport goods on foot.
- There is a range of **users**, because rural transport is not just the movement of rural people and their goods. It is also the delivery of inputs and support services to rural areas by the public and private sectors.
- Different categories of user may benefit in different ways from improvements in the rural transport system, but the **target beneficiaries** are usually the rural people. They comprise different groups who will have different transport needs and priorities – e.g. commercial and subsistence farmers, entrepreneurs, and particular disadvantaged sub-groups such as women, ethnic minorities and the landless.

### ***Definition of the Rural Road Network***

In Figure 2.1 the rural transport infrastructure is defined as including the Tertiary Road network. This is consistent with the international practice of categorising a national road system as comprising Primary (the National Highways), Secondary (e.g. Provincial or Regional Roads as they are called in several countries) and Tertiary, or rural, roads. Focussing on the Tertiary network is consistent with the definition of rural transport, and with the fact that responsibilities for management of these roads are usually decentralised to the lower-level local government bodies.

The Tertiary network is typically itself classified into a hierarchy of links, often reflecting the local administrative structure – e.g. in Bangladesh, Feeder Road type B and Rural Roads type 1, 2 and 3; in Nepal, District and Village Roads; in the Philippines, Municipality and Barangay Roads; in Vietnam, District and Commune Roads. Responsibilities for different classes of Tertiary Road may be given to different levels of local government.

### ***The Importance of Connective Road Networks***

In Figure 2.1 “Strategic Roads”, i.e. certain Secondary and Primary Roads, are included in parentheses as part of the rural transport infrastructure. For rural areas to be fully integrated into the national economy, the rural transport system needs to be managed as part of a co-ordinated process of developing an efficient transport system throughout the country. The movement of people and goods on rural roads within the local administrative area, with its headquarters as one focus of travel, is critical to economic and social activities in rural areas. However, there are two other considerations:

- Goods and people move on transport networks, not on individual links. The road networks within many local administrative areas include sections of Secondary Road and/or National Highway as well as Tertiary Road links, particularly as part of the connections between communities and local headquarters.

<sup>4</sup> For small, island communities the routes used for transport by boat to and from the mainland or to other islands, and the associated landing facilities, should also be included.

<sup>5</sup> Discussed in more detail in Chapter 4.

- The connections upwards from local headquarters, to higher-level administrative centres, into the Primary Road system, and to major urban and economic centres are important:
  - i) to facilitate access to urban and international markets for rural products;
  - ii) for efficient delivery of raw materials and manufactured inputs for productive activities, and of household goods, to rural areas;
  - iii) for effective provision by the public and private sectors of economic and social services in rural areas;
  - iv) for longer-distance travel by rural people for employment, administrative and social purposes.

The need is, therefore, for:

- i) co-ordinated management of the development and maintenance of different classes of link in a rural road network, in order progressively to extend an improved and sustained connective rural road system more widely into rural areas, even though different links may fall under the responsibilities of different bodies;
- ii) the integrated, connective development of more efficient national transport networks (Primary and Secondary, as well as Tertiary Roads). It is this that will reduce the 'economic distance' between more remote rural areas and major centres, and facilitate the wider distribution of the benefits from national economic growth to those areas.

### 2.3 Implications for Management of the Rural Accessibility Sub-Sector

The analysis of the rural accessibility sub-sector indicates that it has very distinctive characteristics – in terms of investment priorities and institutional and management arrangements - different from other transport sub-sectors. These distinctive characteristics, together with its importance for growth and poverty reduction, emphasise the need for specific attention to ADB support for the more effective management of the rural accessibility sub-sector in its DMCs as part of an ADB Transport Strategy for Sustainable Development.

The analysis also highlights that effective management of the rural accessibility sub-sector is quite complex and multi-dimensional, perhaps more so than for other transport sub-sectors. It is a critical input to the rural development process<sup>6</sup>, has important social dimensions, and involves addressing financing, institutional and governance issues, particularly at the local level, that cut across different sectors.

---

<sup>6</sup> And the implementation of complementary measures, to assist the poor to exploit the opportunities offered by the provision of improved access, is likely to be important in increasing the impact on poverty reduction.

### 3. THE ASIAN DEVELOPMENT BANK CONTEXT

*This Chapter presents the ADB context for the analysis of rural accessibility issues and their implications for transport sector strategy. It examines the poverty reduction objective, the Long-Term Strategic Framework and the related restructuring of the ADB organisation and operations; assesses other ADB policies and strategies relevant to rural accessibility and summarises relevant aspects of ADB operational modalities and procedures; and provides an overview of the history of ADB transport sector operations.*

#### 3.1 Poverty Reduction and Economic Growth

##### ***The Over-arching Objective of Poverty Reduction***

In 1999 the ADB set poverty reduction as its over-arching objective, and announced its Poverty Reduction Strategy (PRS) [3]:

**The vision of ADB** is an Asia and Pacific region free of poverty.  
**ADB's mission** is to help its borrowing members improve the living conditions and the quality of life of people with poverty reduction being accorded the highest priority.

ADB has long been concerned with the issue of, and has achieved considerable success in, poverty reduction in the Asia and Pacific region. But the fundamental shift made in 1999 was that poverty reduction was no longer just one of five strategic objectives<sup>7</sup> - it became the over-arching objective. This fundamental change has affected all aspects and levels of ADB's operations, and other earlier strategic objectives are now pursued in ways that contribute most effectively to poverty reduction.

A comprehensive review of ADB's PRS was completed in mid-2004 and its findings reflected in an updated document "Enhancing the Fight against Poverty in Asia and the Pacific" [4]. The review confirmed that the strategic focus on poverty reduction has retained its relevance, and has had a perceptible impact on the ADB's operations. The review re-emphasised that **rapid, broad-based economic growth is the single most important factor in sustaining poverty reduction.**

The review recommended that the ADB's country support be more closely aligned with national poverty reduction strategies, and that more comprehensive approaches to monitoring be adopted. Furthermore, the focus of ADB performance monitoring should be shifted to results in DMCs related to the Millennium Development Goals (MDG) – the original ADB strategy statement had not set quantitative poverty reduction targets. The seven MDG goals and targets which are monitorable at DMC level are summarised below (the eighth goal is concerned with global partnership):

<sup>7</sup> Previously, ADB's five strategic objectives were promoting economic growth, supporting human development, reducing poverty, improving the status of women, and managing natural resources and the environment soundly.

- Goal 1:        Eradicate extreme poverty and hunger  
Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day.  
Halve, between 1990 and 2015, the proportion of people who suffer from hunger.
- Goal 2:        Achieve universal primary education  
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  
Eliminate gender disparity in primary and secondary education, preferably by 2005; in all levels of education, no later than 2015.
- Goal 4:        Reduce child mortality  
Reduce by two-thirds, between 1990 and 2015, the under-5 mortality rate.
- Goal 5:        Improve maternal health  
Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio.
- Goal 6:        Combat HIV/AIDS, malaria and other diseases  
Have halted by 2015 and begun to reverse the spread of HIV/AIDS.  
Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.
- Goal 7:        Ensure environmental sustainability  
Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources.

These targets highlight: (a) the need to give special attention to improving the livelihoods of the 'poorest of the poor'; (b) the multiple economic and social dimensions of poverty that must be addressed; and (c) that the poor are particularly vulnerable to the effects of environmental degradation because their livelihoods tend to be dependent on the natural resource base.

### ***The Strategic Agenda***

ADB's Long-term Strategic Framework (LTSF) [5] sets out the agenda for ADB's interventions and support to DMCs up to the year 2015 in pursuit of the over-arching objective of poverty reduction. It defines the three core strategic areas, or pillars, on which ADB interventions will focus, five areas of cross-cutting support or thematic priorities, and the assistance that ADB will provide in each of these areas (Figure 3.1). Two of the five cross-cutting areas for support – promoting gender equality and capacity development - were added to the original list of three as a result of the review completed in 2004.

Figure 3.1: The ADB Strategic Agenda

Core Areas of ADB Intervention	Cross-cutting Areas for Support
1. Pro-poor, Sustainable Economic Growth 2. Inclusive Social Development 3. Good Governance	A. Promoting the Role of the Private Sector in Development B. Fostering Regional Cooperation and Integration C. Addressing Environmental Sustainability D. Promoting Gender Equality E. Developing Capacity
In each of these areas, the ADB will: <ul style="list-style-type: none"> <li>• Provide <b>investment</b></li> <li>• Support <b>policy reform</b></li> <li>• Assist in <b>institution and capacity building</b></li> </ul>	

### 3.2 Core Areas of ADB Intervention

#### *Pro-poor, Sustainable Economic Growth*

The first core area for intervention recognises the importance of rapid economic growth as the engine for poverty reduction. This has been proven in several East and South-East Asian countries. It is not simply that economic growth is necessary to pay for poverty reduction measures. Economic growth increases the demand for labour, expands economic opportunities, and raises worker productivity and wages. It can bring large numbers of women into the labour force, with important consequences for poverty reduction – not just from the increase in women’s incomes but also by leading to improved education of women and lower fertility rates. Finally, it increases the national public revenues available for investment in infrastructure, basic education, health care and other poverty reduction interventions.

However, economic growth alone is not enough. **The challenge is to maintain rapid economic growth and spread its benefits more widely to the poor.** This requires investments, mainly in infrastructure, to create employment and income-generating opportunities in poor areas, as well as measures that allow the poor to benefit from these investments. One of the lessons from the East Asian experience is that policies that promote labour-intensive economic growth are highly effective in reducing poverty.

The implications for the rural accessibility sub-sector of this core area for intervention are as follows:

1. The need for integrated, connective development of more efficient national transport networks is a key issue. The role of improved accessibility in creating employment and stimulating economic opportunities in rural areas is to enable the more efficient flow, at lower costs, of production inputs, outputs, services, information and people between rural areas and the hierarchy of economic centres. This reduction of ‘economic distance’ requires continuing investment in more efficient primary and secondary, as well as rural, transport networks.

2. Some rural areas, particularly poorer and more remote places with more limited resource endowments, and the more disadvantaged groups, are at risk of being left behind and benefiting only marginally from the economic growth process. Vietnam provides a good example of this. A report published in 2000 [6] concluded that, while there had been impressive progress in reducing the proportion of rural people living in poverty:
  - i) there was increasing disparity between urban and rural income growth rates;
  - ii) while poverty had decreased in all regions, there were major variations in the rate of reduction, and it remained an intransigent problem in the more remote, isolated areas;
  - iii) the level of poverty remained persistently high among many ethnic minority groups in rural areas.

The rural benefits of market-driven national economic growth accrue mainly to the richer, more accessible areas with better resource endowments where infrastructure and human capital are likely already to be more developed. Poorer rural areas are more dependent on public sector investment in the provision of infrastructure, economic services and creation of employment opportunities. This raises the critical issue of how to allocate scarce resources for investment in improved rural access between the more advantaged areas with greater economic potential and poorer, less well-endowed areas. What is clear is that while poorer and more remote areas remain isolated and lack basic access, it will be difficult for them to participate in the potential benefits from national economic growth.
3. Investment in improving rural access facilitates, but is not normally of itself sufficient to achieve the full potential for, the creation of rural employment and economic opportunities. It tends to have greater impact if it is linked to interventions that provide other critical inputs – e.g. agricultural extension, training and credit provision.
4. Appropriately designed investments in improving rural accessibility can create labour-intensive employment (including self-employment) targeted at the poor in the construction and maintenance of infrastructure and in the operation of local transport services.

### ***Inclusive Social Development***

The second core area for intervention recognises the critical need to address the social dimensions of poverty. Economic growth can effectively reduce poverty only when accompanied by a comprehensive and targeted programme of social development and investment in social services. The ADB believes [3 & 4] that action is required in five areas:

- Human capital development: human capital is the major asset of the poor: better access to basic education, primary health care and other essential services will allow the poor to improve their economic status and participate more fully in society.
- Social capital development: Social capital influences the rate of economic progress and the distribution of its benefits. Strengthening the social capital of the poor means increasing their participation in society, reducing social exclusion, and fostering a sense of empowerment.
- Gender and development: Two-thirds of the poor in the Asia and Pacific region are women, who are often excluded from access to essential assets. Improving the status of women will reduce fertility and maternal/infant mortality rates. Promoting their full participation will make an important contribution to the overall development of society.
- Reducing population growth: Large family sizes tend to perpetuate poverty. Reducing population growth requires a major effort, including achieving universal education for girls, providing accessible reproductive health services, and increasing economic opportunities.

- Social protection: The need is to reduce the vulnerability of households and communities to illness and death, natural disasters, economic crises, and other unpredictable events; and to assist people to manage risks and ensure economic security. This includes assisting the large numbers of ‘vulnerable non-poor’ – people living just above the poverty line who are at risk of falling into (or back into) poverty as result of a sudden change in family circumstances, an economic shock or a natural disaster.

Improved rural accessibility, and the manner in which it is achieved, has an important role to play in addressing this core area for intervention:

1. Improving rural access is not concerned solely with creating employment and economic opportunities. A key aim is to provide easier access for rural people to (better) education and health care by increasing personal mobility, extending the rural distribution of social facilities, and improving the delivery and operation of social services in rural areas.
2. This in itself is not necessarily sufficient to achieve the desired level of utilisation of social services. Other constraints such as the cost of the services, traditional cultural practices, and other demands on household time may restrict utilisation of better and more easily accessible education and health services, particularly by the poor. This again emphasises the need for better coordination of investments in improved rural accessibility with other, related rural development initiatives.
3. Although some aspects have to be dealt with at national or regional level, improving rural accessibility is primarily a local issue. It is amenable to participation by the target beneficiaries and other local stakeholders in planning, implementation, management and operation. The corollary is that achieving effective participation is a key input to ensure that investment resources are applied to address priority local needs, and to create the sense of ‘local ownership’ of infrastructure and services that is required for their sustainable maintenance and operation. Achieving effective participation is a considerable challenge:
  - i) it may be necessary to overcome resistance from local leaders and elites who see their decision-making authority and influence threatened by beneficiary participation;
  - ii) the process must include effective participation by the poor and disadvantaged. These are the most difficult target groups to reach, and require a special effort. Some, such as ethnic minorities, lower castes and women, are often excluded from community decision-making processes; they may lack the confidence to make their voices heard; and other ‘survival strategy’ priorities may make it difficult for them to find time to attend meetings and discussions;
  - iii) participatory processes are time-consuming, and require quite intensive inputs by skilled staff. In terms of the design and implementation of investment programmes these requirements can run counter to, for example:
    - the demand to achieve visible physical outputs as quickly as possible;
    - the desire of many DMC governments to restrict the use of loan funds for ‘hard’ infrastructure investments, not to finance ‘soft’ developmental processes.
  - iv) the scope of participation is often misunderstood. It is sometimes perceived as essentially an input to planning, whereas it should extend to implementation, monitoring, operation and maintenance. Another common misunderstanding is that participation by beneficiaries in rural infrastructure development is concerned solely with their voluntary contributions or their paid employment on construction works.
4. Poverty is particularly acute for many women living in rural areas of the Asia and Pacific region. It is very important that women, including those from ethnic minorities and female

heads of households, should participate in the planning and implementation of rural transport infrastructure investments. Because of their responsibilities for management of the household and care of the family, the access priorities of rural women may be significantly different from those of men. And rural women and girls are likely to benefit in particular from access improvements that reduce the time and effort they devote to household and family tasks. The views of women need to be fully incorporated into the participatory identification of priorities for investment in improved access. It is also important: (a) that women are given equal opportunity with men to take up paid employment on unskilled infrastructure construction and maintenance works; and (b) to consider complementary measures targeted at assisting women to exploit the employment and income-earning opportunities that are created by the provision of improved rural access<sup>8</sup>.

5. Many rural areas of DMCs are prone to natural disasters, with many examples in recent years. Appropriate planning and technical design of rural transport infrastructure can contribute to mitigating the adverse impacts of these disasters on rural people:
  - i) careful attention at the design stage can reduce the damage caused, e.g. protective measures in hilly areas to minimise the risk of landslides, and provision of sufficient drainage capacity to minimise water congestion during heavy flooding;
  - ii) an efficient rural transport infrastructure network will make it easier for people to reach a place of safety when a natural disaster occurs<sup>9</sup>, and also facilitates the rapid delivery of relief services to areas affected by natural disasters.

For relief purposes, it is important that the responsible authorities are able to respond promptly in dealing with damage to rural transport infrastructure caused by natural disasters.

### **Good Governance**

The third core area for intervention recognises the need to improve the quality of governance to achieve more effective policies and institutions. Good governance facilitates participatory, pro-poor policies and sound macro-economic management, ensures the transparent use of public funds, encourages private sector growth, promotes effective delivery of public services, and helps establish the rule of law. Since the effective delivery of basic services by the public sector matters most to the poor, weak governance hurts them disproportionately. Public sector inefficiency, corruption and waste divert resources away from provision of the required level and quality of public services, and from investment in targeted anti-poverty programmes. But denial of services to the poor is often also the result of institutional structures that lack accountability, where corruption is widespread, and which are dominated by local elites with vested interests in sustaining entrenched practices of culturally determined inequality and lack of participation. It is a challenging task to bring about significant changes to such institutional structures.

A policy paper on governance and sound development management was submitted to and adopted by the Board of the ADB as long ago as 1995. This defined governance as having to do with the institutional environment in which citizens interact among themselves and with government agencies and officials; and argued that the ADB focus should be on the ingredients

<sup>8</sup> One relevant source of further information is The World Bank's Gender and Transport Resource Guide (<http://www4.worldbank.org/afr/ssatp/Resources/HTML/Gender-RG/index.html>).

<sup>9</sup> Bangladesh provides two examples. The construction of cyclone shelters in coastal areas, planned in coordination with the development of the rural road network, now provides a system to protect rural people from death or injury during severe cyclones. In some areas rural roads, built on elevated embankments, provide places where people can shelter in safety during flash floods.

of good governance for effective development management, irrespective of the economic policies of a particular country [7]. The paper defined four basic elements of good governance:

Accountability: building public sector and public financial management capacity, and public enterprise and civil service reform.

Participation: adopting participatory development processes, decentralisation of public service delivery functions to empower local governments; and cooperation with NGOs.

Predictability: of legal frameworks, including those for private sector development.

Transparency: openness of information.

In late 2000, a medium-term agenda and action plan to promote good governance was presented to the ADB Board [8]. This noted that the 1995 decision had influenced ADB policies, raised the profile of good governance on the development agenda, and initiated the difficult process of changing attitudes and behaviour. The paper proposed that the ADB should develop a consensus on codes of conduct and best practices, and enhance the quality of governance in individual DMCs, while recognising that models that have worked in developed countries are not necessarily successful when transferred uncritically to different political, cultural and government environments. The ADB should address key governance issues in DMCs in a systematic manner, and demonstrate the costs of corruption and the value of eliminating it.

Improving the quality of local governance is an important input to the more effective and efficient delivery of improved rural access that benefits the poor:

1. Many responsibilities for management of rural transport infrastructure, and sometimes also for regulation of local transport operations and delivery of social services, have been devolved to local government institutions and there are strong arguments in favour of this. While inefficiency and corruption exist at all levels of government, local bodies typically:
  - i) have very weak capacity, and limited staff and operational resources;
  - ii) have poor or undeveloped mechanisms for accountability;
  - iii) have limited access to, and control over, the use of investment resources;
  - iv) are prone to capture by local political factions, elites and other vested interests who may perceive the implementation of a large, donor-financed investment project as an attractive opportunity to divert resources for their personal gain; and
  - v) are often more motivated to satisfy the interests of their staff and the local elites than to operate as effective service providers to the people that they serve.

The development of better resourced, and more competent, transparent and accountable local government institutions will contribute to more effective planning and management of the use of financial resources to deliver more efficient rural transport systems and basic services. This requires a major and long-term effort to strengthen institutional capacities and to motivate local government bodies to operate as accountable service providers.

2. Achieving more effective participation is one input to improving the quality of local governance. The empowerment of local stakeholders, combined with public dissemination of information on the activities of local government bodies, provides the basis for greater transparency and hence for the adoption of oversight mechanisms to increase accountability. A diversified range of local stakeholders is involved, including civil society and the private sector as well as beneficiaries. NGOs are now extensively engaged in rural development, and many of these effectively represent the interests of the poor. The ADB sees an important role for NGOs in achieving more effective participation and contributing to improving the quality of local governance. It will actively seek cooperation with NGOs in planning, implementing and monitoring investment programmes. However, operational

procedures must be in place to: (a) ensure the selection of genuine, well-motivated, capable and efficient NGOs to cooperate in such programmes; (b) monitor their activities; and (c) maintain the proper ultimate accountability of public sector bodies that have legal responsibility for the delivery of public services.

3. Local government bodies function within the framework of national policies, strategies and regulations. They are subject to a combination of direction, monitoring, control and support from central government agencies. But much remains to be done to achieve the appropriate balance of roles and responsibilities between the decentralised bodies and the central government agencies. This requires measures to improve the quality of governance of the central government agencies through: (a) the formulation of appropriate national policies and strategies for the rural accessibility sub-sector; (b) clear and unambiguous definition of the respective roles and responsibilities of the central and local institutions<sup>10</sup>; and (c) development of the required institutional capacities in the central agencies.

### 3.3 Cross-cutting Areas for ADB Support

#### *The Role of the Private Sector in Development*

Promoting the role of the private sector is an integral part of the ADB poverty reduction strategy. Developing a strong and dynamic private sector is seen as crucial to long-term, rapid economic growth. When properly regulated and operating under competitive market conditions, the private sector will generally use resources more efficiently than the public sector. It will deliver goods and services to meet growing demands, and create job opportunities in the process. Public sector involvement in the productive sectors is often unsustainable, and can divert public resources from the social sectors where they are really needed. However, governments have to develop a strong capacity to create and sustain the legal and market institutions needed to enable and regulate private sector activities. Altering the role of government from owner-producer to facilitator-regulator is a major challenge for DMCs which will require continuing and intensified support.

The ADB has always supported private sector development by indirect financing of private enterprises through government-guaranteed loans, and by policy dialogue, TA and loans aimed at helping to create a conducive environment. The key lessons have been applied to define a comprehensive ADB private sector development strategy [9]. This sets out a systematic and coherent framework for ADB's efforts, through both its public and private sector operations and lending windows, to promote the private sector. It comprises three strategic thrusts (Figure 3.2). The ADB will:

- Support DMC governments, through its public sector operations, in creating enabling conditions for private sector business activities.
- Generate private sector business opportunities in public sector projects that it finances.

<sup>10</sup> Two common problems currently exist in DMCs: (i) conflicts among different national regulations that create confusion over the legitimate functions and authorities of local government bodies; and (ii) insufficient authority being delegated to the local bodies to meet the responsibilities they have been given (in particular insufficient authority for the management of financial resources).

- Through its private sector operations, catalyse private investments using direct financing, credit enhancement and risk mitigation instruments<sup>11</sup>.

**Figure 3.2: The ADB Private Sector Development Strategy**

Strategic Thrusts	Public Sector Operations		Private Sector Operations
	Creating enabling conditions	Generating business opportunities	Catalysing private investments
<b>Targeted Outcomes</b>	<ul style="list-style-type: none"> <li>• Sound macro-economic policy</li> <li>• Appropriate competition policy</li> <li>• Sound social and environmental standards</li> <li>• Reform of infrastructure and other sectors</li> <li>• Good physical, social and technological infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Private sector participation in ADB-financed public sector projects through contracts for:                             <ul style="list-style-type: none"> <li>– supply,</li> <li>– construction,</li> <li>– management,</li> <li>– concession, and</li> <li>– leasing</li> </ul> </li> <li>• ADB-designed model build-operate-transfer and other projects with poverty reduction impacts</li> <li>• ADB-supported privatisation programmes</li> </ul>	<ul style="list-style-type: none"> <li>• Priority to be given to infrastructure facilities</li> </ul>

The strategy emphasises the importance of providing good physical infrastructure as part of the enabling environment for private sector activities. Clearly, the provision of an efficient rural transport infrastructure will facilitate the operation of private businesses in rural areas. The prospects of attracting private sector investment in rural transport infrastructure are minimal, and realistically this will remain a public sector responsibility. The exceptions are at micro-level where a private sector entity needs access into a rural area for its own operations – e.g. a hydro-power generating scheme, a mine or an agricultural estate – and constructs roads which are also open to public use, benefiting the people living within their influence area. There are however opportunities, again at micro-level, for:

- i) private sector transport operators to contribute resources for the maintenance of rural roads;
- ii) private sector investment in other rural infrastructure which improves access, e.g. in the construction and operation of rural markets and crop buying and storage centres.

There are significant opportunities to promote private sector involvement in the provision and management of rural access infrastructure and services, both through ADB support to create the required enabling conditions and by generating private sector business activities through loan-financed public sector projects:

1. Development of a competitive, local, small-scale, contracting industry. The construction and maintenance of rural roads, small bridges other rural infrastructure is well suited to execution by local small-scale contractors – indeed, the scale of works is often too small and too far

<sup>11</sup> The ADB strategy for private sector operations was approved in 2001 [10]. The ADB has also prepared a series of guidelines on developing best practices for promoting private sector investment in infrastructure, including one for Roads [11].

from main urban centres to attract larger national or international contractors<sup>12</sup>. A particular area for attention is the development of small-scale contractors able to implement rural road construction and maintenance works using labour-based methods. Labour-based methods generate the additional poverty reduction impact of creating employment which, if appropriate targeting methods are applied, particularly benefits the local poor. Implementing such works through private contractors rather than by force account is more efficient, and more appropriate for local government agencies with limited capacities<sup>13</sup>. The impact of using labour-based contractors to implement works on an ADB-financed project in a particular DMC will be enhanced if the lessons learned are applied to institutionalise their use nationwide.

2. The concept of labour-based contracting can be extended to grass-roots level by mobilising and contracting directly with labour groups – formed from people living in the local communities - to carry out unskilled construction works on rural infrastructure schemes. This type of employment opportunity particularly attracts the rural poor. The approach requires intensive social mobilisation, training and site supervision inputs, but offers a mechanism to maximise the paid employment created directly for the poor in areas where the local contracting industry is under-developed. The same approach can be applied to routine maintenance activities.
3. Relatively little attention has been given to developing local consulting industries. In many DMCs there is a need for increased capacity, and a more competent, professional and accountable approach, in the domestic consulting industry. Local consultants can potentially provide the specialist technical, economic and social services for rural infrastructure planning, development and management. There is a particular need to develop local consulting industries capable to provide high quality professional services to local government bodies. These bodies have limited capacities and resources, and the aim should be that they develop into modern, public sector agencies contracting-out but managing the provision of specialised services. Most DMCs already have emerging domestic consulting industries but: (a) they tend to be concentrated in the main cities; (b) there are often concerns about the quality, professionalism and level of governance of their operations; and (c) they often lack specialised expertise in the technical, economic, and in particular social and maintenance, aspects of the development and management of rural infrastructure.
4. Private sector rural transport services already operate extensively in DMCs. An important role is often played by ‘informal’ – i.e. unlicensed and unregulated - operations and by services using intermediate or low-cost means of transport. The aim should be to exploit the potential of the private sector to provide competitive goods and passenger services that are responsive to local conditions and movement demands in rural areas. In conjunction with the provision and maintenance of improved transport infrastructure this will increase the mobility of rural people, including the poor, and facilitate the delivery of services into rural

<sup>12</sup> Packaging a number of small-scale works into one larger contract in an effort to attract larger and more able contractors has had mixed success. In particular, site supervision remains a problem and the contractors are often reluctant to re-mobilise in remote areas to fix defects that emerge after the initial construction has been completed.

<sup>13</sup> The ADB already has experience of this, for example in Cambodia: see loan projects 1385-CAM(SF) *Rural Infrastructure Improvement Project* and 1824-CAM(SF) *Emergency Flood Rehabilitation Project* (Rural Infrastructure Component). Both applied what is termed the “Labour-Based Appropriate Technology” (LBAT) approach to road construction and maintenance.

areas. It will also generate some employment for the poor in the transport operations. The need is to create the enabling regulatory environment that allows private sector rural transport services to flourish in a demand-responsive manner. This argues for focusing regulation on: (a) ensuring that essential minimum safety and labour protection standards are met; and (b) generating revenue for local government bodies from the services, e.g. from annual licensing fees, that can be applied to maintaining the transport infrastructure.

5. There is potential to involve the private sector in the operation of rural public facilities, for example transport terminals and markets. In rural Bangladesh the operation and management of markets and of ghats<sup>14</sup> is leased out by the local government bodies on an annual basis through a bidding process. The procedures for such leasing should of course be competitive and transparent. Private sector operation of public facilities is consistent with the limited management capacities of local government bodies, and offers an efficient means for them to generate and collect revenue.

### ***Fostering Regional and Sub-regional Cooperation and Integration***

The ADB perceives regional and sub-regional cooperation and integration as a means to accelerate economic growth. It offers larger markets, economies of scale, and opportunities for more efficient division of labour. Such cooperation can be especially beneficial for small countries with limited development options. It also has a role to play in the fight against diseases such as HIV/AIDS, tuberculosis and malaria, and in the sharing of ideas. Cooperation may work best at the sub-regional level, for example in the Greater Mekong, the growth triangles pioneered by the ADB, and the Central Asian Republics.

ADB's cross-cutting support for regional and sub-regional cooperation is of limited relevance to rural accessibility because of its local-level nature. However, DMCs would benefit from the sharing of ideas, experience and lessons on matters related to improving rural accessibility. And there are specific issues related to improving rural access in **border areas**:

- i) it may encourage illegal logging – e.g. concern has been expressed that the construction of rural roads in border areas of Vietnam may lead to increased extraction of timber from adjacent areas of the Lao PDR;
- ii) it may facilitate the movement of drugs across borders;
- iii) it may result in increased illegal cross-border migration and smuggling.

The counter argument is that a well developed rural road network in border areas can assist in policing these areas. India is one example of a country that has constructed a large network of border roads for such a purpose.

Apart from security issues, improved rural access in border areas can be particularly important for some of the poorest and most disadvantaged groups, who often inhabit remote mountainous borders. The particular issues of border areas need to be addressed through measures agreed by the neighbouring governments.

### ***Addressing Environmental Sustainability***

Environmental sustainability, including natural resource management, is key to achieving sustainable economic growth. Significant environmental damage has been caused in the past

---

<sup>14</sup> Landing places for inland passenger and cargo boats operating in rural areas.

by vested interests. But the pressures of poverty and population growth compound the risk of further damage through deforestation, over-cultivation, over-grazing and over-fishing. The rural poor often live on fragile lands that require sensitive management to avoid further degradation of their natural resource endowment. The ADB approach is that poverty reduction strategies must be accompanied by policies and actions that enhance the quality and productivity of the environment and natural resources.

Sustaining the environment and the natural resource endowment is a particular issue, at the local level, in the provision of rural transport infrastructure:

1. In many DMCs there is a significant risk that, unless carefully managed, interventions to construct roads and other rural transport infrastructure could cause environmental damage that would have a particularly adverse impact on the poor. The specific risks include:
  - i) interruption to the natural water flow and creation of water congestion;
  - ii) increased erosion including loss of productive agricultural soil;
  - iii) loss of trees – including facilitating logging activities in natural and protected forest areas by opening up access;
  - iv) damage to cultural heritage; and
  - v) damage to areas of scientific and biological interest.

Air pollution is much less of an issue than in congested urban areas, though there is concern about the dust hazard from the provision of unsealed roads. And there is a significant risk of an increase in injuries and deaths from traffic accidents in rural areas as road improvement lead to greater flows of faster-moving traffic.

2. Well-designed ADB assistance and support to DMCs to improve rural accessibility can have a positive impact on sustaining and enhancing the rural environment at two levels:
  - Support to increase environmental management capacity at central and, more importantly, local government and community levels will create increased understanding of the issues and provide the tools and procedures for assessment of the environmental risks of proposed infrastructure schemes, for definition of appropriate mitigation measures and for monitoring.
  - At the micro-level well planned, designed, constructed and maintained rural transport infrastructure schemes will both protect the environment and offer opportunities for enhancement, for example by improving soil stability and maintaining free water flow<sup>15</sup>.

### ***Promoting Gender Equality***

Promoting gender equality has long been part of the ADB's agenda, but has been given even higher priority and emphasis following the 2004 Review of the poverty reduction strategy. Gender and development issues related to improving rural accessibility have been considered earlier in the Chapter. But it is worth emphasising again that improving the status of women is central to ADB's strategy to reduce poverty in the Asia and Pacific Region – the core consideration being that they comprise two-thirds of the poor. This is a cross-cutting priority in that it requires policy changes and investments in women across all sectors.

<sup>15</sup> Bangladesh offers an example of using rural road construction or upgrading as an opportunity for environmental enhancement. It is now established practice to plant timber and fruit trees along the shoulders of rural road embankments. This also provides temporary employment for poor women in the care of the young trees and, in the longer-term, an additional source of income.

The ADB has stated that investments that provide women with access to social services, employment and financial services will constitute a substantial part of its interventions for poverty reduction [3]. These interventions will continue to be necessary as long as structural constraints and barriers restrict women's involvement in the development process, particularly where women require special assistance to enable their full participation in economic and social activities. Gender issues must be given specific attention in all aspects of the planning and implementation of investments to improve rural access.

### ***Developing Capacity***

Developing Capacity in DMC institutions has long been part of ADB's work. Assistance in institution and capacity building is one of the three forms of support that ADB provides. But the review of the poverty reduction strategy has identified the specific need to enhance DMC capacities: (a) to formulate and implement the policies, reforms and investments needed to achieve inclusive growth; and (b) to manage poverty reduction strategies. ADB will develop and share new knowledge, review capacity constraints in DMCs, and provide demand-driven advisory services. It will aim to assist in "building institutions and organisations that are fully accountable, effective, efficient, and responsive to the needs of the poor" [4].

Lack of capacity is one of the key constraints to the effective management of the rural accessibility sub-sector in DMCs. The need for institutional development and building of capabilities will be a recurring theme in the remainder of this Paper, linked to the issue of good governance. There is a need to develop capacities at national level to formulate rural accessibility policies and strategies, and to provide overall management of the sub-sector. But a key need will be for assistance in developing the planning and management capacities of local government bodies and community organisations.

## **3.4 Operationalising the Strategic Agenda**

In operationalising its strategic agenda, the ADB is applying apply four principles: strong country leadership and ownership of the development agenda; long-term approaches; strategic alliances and partnerships; and development impact.

### ***Re-organization of the ADB***

The ADB operational structure was re-organized with effect from the beginning of 2002 to improve its effectiveness in reducing poverty. The relevant features of the re-organization are as follows:

- The broad division of the ADB structure into East and West Regions was replaced by five Regional Departments: Central and West Asia, East Asia, South Asia, Southeast Asia, and Pacific. Creating more departments, each concerned with fewer countries, was intended to facilitate a greater country-level focus and to promote sub-regional cooperation.
- The structure and responsibilities of national Resident Missions (RM), of which there are now 19, are determined on a country-by-country basis to take account of individual DMC needs. Within this framework RMs have taken on progressively greater responsibilities, in order to strengthen the country-level focus.
- A new Regional and Sustainable Development Department now provides sectoral and thematic expertise to support the other Departments. It fosters knowledge management,

develops policies and guidelines, and monitors their implementation in order to ensure consistency with the poverty reduction objective across ADB operations.

- The Private Sector Group was upgraded to an Operations Department, reflecting the increased emphasis that the ADB places on private sector development.
- The Economic and Development Resource Centre was upgraded to an Economic and Research Department, because of the ADB's growing need for knowledge management.
- A new division was established to promote good practice in the involvement of NGOs in projects.

One relevant initiative following the re-organization of the ADB has been the creation of **Communities of Practice**. These have been formed for priority sectors and themes. They act as “think tanks” and provide advice on:

- Strategic directions and issues in the sector or thematic area.
- Sector and thematic annual reports.
- Rationalisation of knowledge products and services.
- Special studies.

Formal Communities of Practice are now operating for the Transport, Education, Health and Water sectors, and for the Governance and Gender and Development themes. Some additional ‘informal’ groups have been formed. In terms of rural accessibility, the Communities of Practice would seem to offer a valuable mechanism: (a) for knowledge sharing, particularly on lessons learned from experience and innovative approaches and methodologies; and (b) to take a key role in implementing within ADB a revised strategic direction for the sub-sector as part of the operationalisation of the Transport Sector Strategy.

### ***The Country-Level Focus***

The ADB has moved towards a greater country-level focus. The Country Strategy and Programme (CSP) document has become a key planning tool, emphasising a holistic, national approach to development for each DMC. Following the adoption of the poverty reduction strategy in 1999, the ADB began conducting **a participatory poverty analysis** for each DMC. This was used as the starting point for operationalising the poverty reduction strategy at DMC level. Each country-level analysis was discussed at a high-level forum - led by the government but with participation from civil society, the private sector and other donors – to reach a common understanding of the key requirements of a national strategy to reduce poverty. This provided the basis to formulate the ADB country-level operational strategy, setting out the areas of focus including policy reforms and sectoral and geographic priorities.

This strategy was then endorsed in a Poverty Partnership Agreement (PPA) between the government and the ADB that also defined agreed mechanisms and indicators to review performance. The ADB Country Assistance Plan translated this agreement into specific activities to identify, formulate, process and implement poverty-focussed loan and technical assistance projects. Box 1 illustrates the linkage between the findings from poverty analysis and the contents of a PPA for one country, Nepal, where poverty is predominantly rural and lack of access is a key issue [12 & 13].

### Box 1: The Country-level Poverty Analysis and PRPA Process – The Example of Nepal

#### ADB Poverty Analysis for Nepal

- Poverty incidence in Nepal was estimated at 42% in 1996.
- There is no conclusive evidence of a reduction in the incidence of poverty during the past two decades; indeed it appears to have increased, despite substantial development assistance.
- Poverty is primarily rural. 88% of the population, 44% of them poor, live in rural areas. Any increase in poverty has been largely in rural areas. The remote, mountain areas are poorest.
- The share of national income of the poorest 40% of the population declined from 23% in 1985 to 11% in 1996.
- Poverty in Nepal is exacerbated by deep-rooted cultural practices that have historically isolated and excluded women and other disadvantaged groups such as lower castes and some ethnic minorities.
- The causal factors underlying poverty in Nepal include:
  - slow overall economic growth in the face of relatively rapid population growth
  - weak Government institutional capacity
  - non-agricultural growth without adequate spill-over effects on the rural poor
  - low productivity and slow growth of output in the agricultural sector
  - weak social and economic infrastructure (education, health, water, transport and energy).

#### Poverty Reduction Partnership Agreement

The PRPA between His Majesty's Government of Nepal (HMGN) and the ADB signed on 21<sup>st</sup> October 2001 sets out a shared vision for reducing poverty and priorities for joint development cooperation. It reflects HMGN's poverty reduction goals and is consistent with the findings of ADB's Poverty Analysis and the outputs from the High-Level Poverty Forum. The PRPA recognises the vital and complementary assistance provided by other aid agencies, and the need for effective partnership among aid agencies.

- HMGN's paramount goal is to reduce poverty incidence to 10% by 2017. This is ambitious.
- Accelerated economic growth coupled with continued reduction in population growth and the expansion of opportunities for the poor are essential to reducing poverty.
- To reduce poverty to 10%, per capita income should grow at a rate of 6% until 2017. High economic growth needs to be more broadly-based. Government functions should focus on core areas of competence and permit the private sector to become the engine of growth. Sustainable poverty reduction also requires diversifying economic activities within agriculture and to other sectors.
- Development performance and sustainable poverty reduction hinge on socio-political stability and support from civil society. Initiatives will be designed to improve equity between the poor and the better off, rural and urban populations, and for women and other vulnerable groups.
- The medium-term poverty reduction strategy will focus on:
  - generation of employment opportunities and increased incomes through more rapid growth
  - improvements in basic social services to enhance human development
  - creation of an enabling environment for competitive private sector development
  - good governance, by improving efficiency, predictability, accountability and transparency.
- To implement this strategy, ADB's operational priorities are:
  - rural development
  - improvements in basic social services and infrastructure
  - women's empowerment
  - private sector development and corporate and financial sector reforms
  - governance reforms in the public sector

The PRPA then goes on to define the short-term plans for ADB loan and technical assistance to Nepal in different sectors: agriculture and rural development; transport; energy; finance; education; water supply, sanitation and urban development; and environment. The PRPA ends by setting out monitoring and evaluation arrangements and agreed poverty reduction indicators and targets.

Some 24 PPAs have been concluded. But following the 2004 review of the poverty reduction strategy, the emphasis has now shifted from PPAs to **National Poverty Reduction Strategies** (NPRS) as the basis for the ADB to plan and manage its activities at DMC level. The ADB recognises that the prospects for poverty reduction are greatest when each DMC leads the preparation of its NPRS and commits fully to its implementation. ADB will assist in developing capacities for the preparation of NPRS and participate in consultations on their content. CSPs now link the identified constraints to poverty reduction with proposed programmes and expected outcomes. They include quantified indicators for each relevant core area of intervention, sector, and cross-cutting area for support as a tool for managing for development impact.

The ADB will continue to offer a mix of support to each DMC depending on the specific causes and characteristics of poverty, the country's own poverty reduction programme, the activities of other donors, and the ADB's comparative advantage in providing assistance. For example [3]:

- i) in countries where poverty reduction performance has been weak and inequality is rising despite economic growth, the ADB may well emphasise assistance on governance and social development;
- ii) for countries that have experienced only low levels of economic growth, ADB may focus on assistance in improving economic performance as well as in social development;
- iii) the ADB may give greater emphasis to pro-poor investment in projects such as infrastructure in countries that continue to experience growth with equity.

This strengthened country-level focus will enhance the effectiveness of future ADB support to the rural access sub-sector, for the following reasons:

- i) the wide variations in the physical, demographic, social, economic, institutional and political conditions of different DMCs and in their rural poverty characteristics (see Chapter 4). National strategies and ADB priorities for improving rural accessibility must reflect these conditions and circumstances;
- ii) the facilitating role of improved rural accessibility in the rural development process. It is highly desirable that the approach to, and priorities for improving access should be part of broader, poverty-targeted, national transport and rural development strategies;
- iii) the fact that many of the key issues in the rural accessibility sub-sector are cross-cutting, equally relevant to other rural development priorities – decentralisation policy, the capacity and governance of local government bodies, participation and the empowerment of women, are obvious examples. Initiatives to address these issues in the context of rural accessibility will be much more effective if they are consistent with, and form part of, coherent multi-sectoral national approaches;
- iv) the desirability of co-ordinated and consistent approaches to improving rural accessibility among different external financing agencies, e.g. for matters such as access planning methodologies, technical standards for rural roads, rural road maintenance funding, and institutional capacity building. This is most likely to be achieved through government-led and co-ordinated efforts at national level.

### ***Long-term Approaches to Poverty Reduction***

One of ADB's principles is to apply a long-term approach to poverty reduction. This is certainly appropriate to the rural accessibility sub-sector. The ADB has defined a matrix of the types of assistance, for the three core areas of intervention, that are likely to be most effective over the long-term in contributing to poverty reduction and economic growth. This matrix is shown in

Figure 3.3 below. We have highlighted in **bold** the sectors and types of assistance that should be considered as part of all ADB support to improving rural accessibility. Those that may need to be considered, depending on the circumstances of the DMC, are shown in *italics*.

**Figure 3.3: Matrix for Poverty Reduction**

Core Areas for Intervention	Interventions		
	Short-Term	Medium-Term	Long-Term
Pro-poor, Sustainable Economic Growth		<i>Private Sector Development</i>	
		Regional Cooperation	
Good Governance	<b>Agriculture and Rural Development</b>		
	<b>Environment and Natural Resource Management</b>		
	<b>Transport, Communications, Energy and Finance</b>		
		Public Expenditure Management and Administration	
Social Development		<b>Decentralization (Devolution)</b>	
	<b>Stakeholders' Participation</b>		
		<i>Health and Education</i>	
		<i>Water Supply and Urban Development</i>	

The following quotes from the original poverty reduction strategy document [3] are sufficient to demonstrate the central relevance of improving rural accessibility to the ADB's long-term sectoral priorities for poverty reduction:

*Infrastructure Sector:*

"...poverty in the region is concentrated in rural areas..."

"...give priority to projects impacting directly on the poor. These include rural roads..."

"...attention will be paid to job creation in the design, implementation and operation of projects."

"The focus in transport and communications will be on reducing costs of transport to and from rural areas and between growth centres, and increasing access of the poor to markets, education, health care, and employment."

"Preference will be given to locating projects in poorer parts of countries or those that connect poor and isolated areas to the economic mainstream."

*Agriculture and Rural Development Sector:*

"...generally low levels of investment in rural development..."

"...compelling reason for ADB to reverse its recent drift away from the rural sector."

*Social Sector:*

“...help ensure that the poor, especially women, have access to.....quality basic education and primary health care.”

“Focus on health issues that disproportionately affect the poor”.

The relevance of improving rural accessibility to the ADB’s long-term priorities is reflected in:

- i) the facilitating role of improved access in achieving the sectoral MDGs for education and health;
- ii) the fact that, in the Livelihoods Framework concept, improved rural access will provide the physical capital that is needed as one input to achieving increased agricultural productivity, better education, improved health and greater social inclusion.

The ADB has identified that, where the poor are “trapped” by geographical, cultural or social circumstances, targeted interventions are required to ensure equal opportunities to overcome those disadvantages and to participate in mainstream development [4]. Projects will be classified as targeted interventions if they focus on households, specific geographic areas, or on sectors/sub-sectors directly supporting achievement of MDGs relating to non-income poverty. Given their relevance to the social MDGs and the Livelihoods approach, rural accessibility interventions in more remote or isolated areas, or aimed primarily at achieving social impacts, would qualify as targeted interventions. In the former case they are likely to be essential inputs in delivering support services to the people, reducing their isolation, and initiating their inclusion in the wider society and economy.

Alongside its long-term priorities ADB is increasingly being called upon to finance interventions to deal with the consequences of natural disasters. ADB support typically involves emergency re-construction of rural infrastructure. The use of labour-based methods is particularly appropriate in these circumstances. They can be relatively quickly mobilised and provide an immediate source of income to disaster-affected rural people - helping them to re-establish their livelihoods.

### ***Coordination and Partnership among Funding Agencies***

While recognising that it is the DMC governments that should direct the co-ordination of external funding the ADB will, in its analytical and programming activities, aim to integrate its efforts closely with those of other development agencies, as part of its obligation to use scarce resources with maximum efficiency and impact. The need for such integration is illustrated below by two negative examples of past practice, both taken from personal experience:

- In the late 1990s, one Province in Vietnam was implementing four rural roads programmes financed by different donors. Three were executed through three different Ministries, the fourth by an international NGO. Each worked, to a greater or lesser extent, through the local government bodies at provincial and district level but each programme:
  - i) applied different, and project-specific, rural road planning and selection criteria;
  - ii) used different, and project-specific, technical standards;
  - iii) had different, and project specific, procurement and implementation procedures; and
  - iv) proposed different arrangements for the sustainable financing and management of maintenance of the roads.

Each of the four programmes was designed with the best intentions of delivering cost-effective and technically sound roads, and of sustaining the benefits that they provided. But together they: (a) created major management confusion for the implementing authorities in

the Province (who at the same time were also building rural roads, under different arrangements, using national resources); (b) acted counter to coherent and connective development of an efficient rural road network; and (c) were certainly not an effective way of building institutional capability. The four programmes constituted the antithesis of national leadership of the sector.

- In Nepal, several donor-financed rural road and infrastructure development programmes have been executed through a single, admittedly weak, central government agency. Each includes central and local level capacity-building support alongside physical investment. But again, each programme has specific implementation arrangements and requirements. And each has been introducing its own operational procedures as the 'model' for Nepal. Further, some of the programmes have in practice been executed by their consultants on behalf of the central agency rather than by Government with support from consultants. Each programme was designed with the best developmental intentions, and to achieve accountability to the foreign sources of the financing. But their efforts to build national and local capacities can be characterised as project-led and often conflicting rather than contributing to a coherent institutional development initiative.

The above examples are not intended to be unduly critical but they do illustrate the real practical difficulties to be addressed in achieving greater, government-led, co-ordination of donor support:

- i) every funding agency has its own operational procedures, and harmonising these towards co-ordinated support to a sector involves significant compromise;
- ii) government sectoral institutions tend to be motivated to a substantial degree by, and their performance may be measured partly in terms of, obtaining external financing. It requires strong management to give compliance with nationally-defined requirements precedence over compromises to obtain additional external funds;
- iii) where national partner institutions are weak, foreign financing agencies will understandably place some priority on exercising the degree of external authority needed to ensure proper and accountable use of their funds;

Central and local government institutions with responsibilities for rural infrastructure and rural development tend to be weak, and lack both well-defined national sector and sub-sector strategies, and the procedures and staff capacity and capability to apply these. Improved coordination and partnership among funding agencies is critically important in increasing the long-term effectiveness of efforts to improve rural accessibility and two points should be emphasised:

- The importance of country-level support for policy-making, development of strategies and procedures, and building of more effective national and local institutions. This will provide the framework within which external funding agencies can feel more confident to provide increased, sector-wide financing support.
- The need for agreements and understandings among funding agencies, not at the project level but at the country and agency levels, on operational modalities for co-ordinated support to given sectors and in given countries.

In the Paris Declaration on Aid Effectiveness of March 2005 the ADB and many other donors committed themselves to the principle of moving towards greater **harmonisation** of support and **alignment** with government systems and procedures. 'Harmonisation' means that donors organise their multiple activities in ways that maximise their collective efficiency. 'Alignment' requires that donors base their overall support on the national development strategies, systems and procedures of the partner countries.

One element of ADB's strategy is to seek innovative forms of co-financing. It will, for example, look to collaborate with bilateral agencies where they are already involved in supporting 'soft' aspects of poverty reduction (e.g. community participation, local organisations, extension systems) and ADB can finance the associated investment in physical infrastructure. This approach is very relevant to improving rural accessibility, where 'soft' inputs are often critically important but governments may be reluctant or unwilling to finance them from loan funds.

The ADB has made progress towards establishing co-financing mechanisms with bilateral donors, including DFID and the Government of Japan. The Japan Fund for Poverty Reduction (JFPR) [14] is a source of grant-funding for innovative poverty reduction and related social development activities that add value to ADB loans in DMCs adversely affected by the Asian financial crisis of the late 1990s. It is used to finance activities that are directly aimed at, and provide demonstrative impacts on, poverty reduction. Typical activities financed by the JFPR fall into four categories:

1. Provision of basic community-level economic and social services: e.g. community water supplies and sanitation, rural clinics, small markets, and skill training centres.
2. Supporting Social Development Funds (SDF) targeted to benefit the poor and communities that otherwise are excluded from employment and essential social and economic infrastructure.
3. Supporting NGO activities for poverty reduction and social development: including facilitating community participation, capacity-building at grass-roots level, monitoring, and increasing the accountability of public sector agencies.
4. Project support activities such as capacity-building for local government and community-based institutions, and the testing of pilot activities that might be replicated on a larger scale in future ADB-financed projects.

The potential for grant co-financing initiatives to reinforce the impact of ADB investments in improving rural access is clear.

### ***Development Impact***

ADB monitoring and evaluation (M&E) procedures have evolved in stages. In 1999 the Benefit Monitoring and Evaluation (BME) procedure was replaced by the more comprehensive Project Performance Management System (PPMS) [15]. The Bank was aware that poverty reduction strategies would be more effective if outcomes were monitored and the results fed back to improve performance. But impacts on poverty reduction take time to achieve, and there was therefore a need to develop indicators that provided early information on progress in approaching the desired outcomes. The ADB has helped borrowing countries to improve their capacity to develop indicators that are comprehensible and easily used, and to generate timely and reliable data. ADB has also become more accountable in its own work, and evaluation focuses increasingly on impact assessment. To complement more rigorous evaluation processes, greater use has been made of faster, more qualitative measures, especially those in which the poor are direct participants.

The 2004 review of the poverty reduction strategy emphasises the importance of **Managing for Development Results**. It defines that M&E, focussing on development results, will be established at four levels – project, sector and thematic, country, and institutional. At the institutional level, poverty reduction will be monitored using the MDG targets and indicators. As

noted above, CSPs now include quantified monitoring indicators as a tool for managing for development results. The RMs will play an increasingly important role in monitoring.

### 3.5 Relevant ADB Policies and Procedures

#### *Policies*

The ADB has an array of internal policies, for different sectors and on cross-cutting issues. It is important that relevant policies are cross-referenced in formulating the rural accessibility aspects of an ADB transport strategy. And it is desirable that there should be internal coherence and consistency on cross-sectoral issues among ADB sector policies and strategies. Reference has already been made in Section 3.1 to some key cross-cutting policies – on good governance, private sector development and gender.

The **Anti-corruption** policy, set out in 1998 [16] is of direct relevance to rural accessibility. Corruption is defined as “the misuse of public or private office for personal gain”. It is found in all governments, in the private sector and in the interaction between the two. The effects of corruption are complex and varied, but they clearly exert a negative effect on development. ADB policy is to reduce the burden that widespread, systematic corruption exacts upon governments and economies. It has three objectives:

1. Supporting competitive markets, and efficient, effective, accountable and transparent public administration as part of the ADB’s broader work on governance and capacity building.
2. Supporting promising anti-corruption efforts on a case-by-case basis and improving the quality of the dialogue with the DMCs on corruption.
3. Ensuring that the ADB’s projects and staff adhere to the highest ethical standards.

The policy has resulted in new clauses being added to the ADB procurement procedures and loan regulations to give strict criteria under which portions of loans may be cancelled if fraudulent or corrupt practices are detected. The application of the anti-corruption policy is now linked directly to the ADB’s thematic priority of good governance. The ADB supports initiatives aimed at civil service reform and better governance that will help to reduce corruption. Procedures to improve accountability and transparency should be expanded in detail in the design of individual loan projects.

There is a significant risk that some of the “costs” of corruption will be encountered in programmes to improve rural accessibility, reducing the efficiency of the resources invested in improving access, unless specific counter-measures are incorporated:

- ‘Allowing’ corruption to enhance inadequate public service remuneration in local government can be a short-term solution that detracts from the overall performance of the system and its efficiency. It undermines the merit system and compromises service professionalism.
- The use of corruption in streamlining local government transactions obscures the fact that the public sector is failing to perform effectively.
- Corruption distorts the allocation of social resources away from the poor and towards the rich, the powerful and the politically well-connected.
- Corruption can encourage people to avoid applying sound regulations and practices, e.g. a contractor who bribes an overseer to approve poor quality civil works.
- Corruption tends to favour inefficient producers and can close off markets to emerging contractors.

- Corruption leads to the unfair, and inefficient, distribution of scarce public resources and to the leakage of funds from government coffers into private hands.
- Intensified ethnic divisions may occur as a result of favouritism within certain powerful groups.
- The practice of corruption causes loss of confidence in local government.

The ADB policy on cooperation with **Non-governmental Organisations**, adopted in 1998 [17], recognises that NGOs can often contribute to projects through assisting the active participation of the beneficiaries in design and implementation. Operationalisation of this policy includes the promotion of best practices in the use of NGOs, analysis at country-level of the availability and capacities of NGOs, creation of national data-bases on NGOs, and strengthening of RMs to manage the use of NGO services. NGOs clearly have an important role to play in ADB-financed programmes to improve rural access.

The ADB has not developed a specific policy on the **HIV and AIDS** pandemic. However its 1999 Policy for the Health Sector [18] takes into account the prediction that the burden of diseases attributable to HIV/AIDS will increase dramatically over the next two decades, and it has endorsed the MDG goal to halt and begin to reverse the spread of the infection by 2015. It is self-evident that the continuing spread of HIV/AIDS could have a major adverse impact on poverty reduction efforts.

There is a risk that the provision of improved rural access could contribute to the transmission of the HIV virus by increasing mobility. A European Commission (EC) study [19] found strong evidence from many countries that infrastructure provision and increased mobility are linked to the spread of HIV, and that it is, therefore, necessary to take this issue into account in project design. The potential problems identified were:

- Construction using migrant workers means that they are separated from their families. There is also a relatively high level of income among this labour force. Both factors contribute to an increase in the number of sexual partners.
- Transport service operators are a highly mobile group likely to have increased exposure to HIV/AIDS.
- Professional and skilled cadres, responsible for planning and managing transport infrastructure and services and working in the field, also experience HIV-related mortality and morbidity.
- Better transport increases people's mobility for trade, employment and leisure. People who travel away from their families and home are more likely to have multiple sexual partners.

Some of these problems are of greater significance at the strategic transport system level. However, they may also arise at the rural access level, particularly given the aim of inter-connectivity of different levels of the transport system to reduce 'economic distance'. They emphasise: (a) the desirability of employing local people, rather than bringing in outside labour, for construction of rural infrastructure; and (b) the importance of awareness-raising and education on the HIV/AIDS risk for vulnerable groups living in rural areas and/or involved in the provision of improved rural mobility.

The ADB defined a "**Water for All**" Policy in early 2001 [20]. This sector is of relevance to strategies for improving rural access. The policy is based on the premise that there is an urgent need to formulate and implement integrated, cross-sectoral approaches to water management and development. It argues for promoting the concept that water is a socially vital economic tool

that needs increasingly careful management to sustain equitable economic growth and reduce poverty. A participatory approach to the management of water resources underpins the policy.

Certain principal elements of the policy have direct parallels with what appears to be required in the rural accessibility sub-sector:

- Promoting a national focus on water sector policy and reform.
- Fostering the integrated management of water resources.
- Improving and expanding the delivery of water services.
- Fostering the conservation of water and increased system efficiencies.
- Facilitating the exchange of water sector information and experiences.
- Improving governance of the water sector

Each of these statements would become relevant elements of an ADB transport strategy simply by replacing the word 'water' with the words 'rural access'.

An ADB **Rural Development Policy** was under formulation in early 2001. Although there is no reference on the ADB website to the policy ever being formally adopted, the new thinking reflected in the incomplete draft reviewed [21] is significant. This is relevant given that rural accessibility has 'one foot' in the rural development sector. The draft paper notes the need for improvements in inter-sectoral linkages, in the flexibility of lending arrangements, and in donor coordination. It sets out certain proposed principles for ADB support to the sector that are equally relevant to rural accessibility issues:

- To support the prioritisation of expenditure of available resources to maximise their impact on poverty reduction.
- To improve the effectiveness of legal and fiscal policies relevant to the sector.
- To facilitate core government functions, while promoting links with the private sector for service delivery.
- To support institutional reform and wider civil society involvement.
- To exploit the potential benefits of globalisation and new information technologies.
- To prioritise assistance towards meeting basic human needs and building social capital.
- To empower the poor through measures to increase incomes, with special recognition of the needs of the asset-less poor.
- To ensure the social equitability of rural economic growth within the constraints of environmental sustainability.

The draft proposal for a rural development policy required a paradigm shift that would certainly have implications for future ADB operations in the rural accessibility sub-sector. This is summarised in Figure 3.4.

**Figure 3.4: Significant Changes in Rural Development Policy**

<b>ADB Approach, 1970s to 1990s</b>	<b>Proposed ADB Approach, 2001 Onwards</b>
Economic growth as a major focus.	The focus is broadened to include linkages between poverty reduction, economic growth and environmental improvement in a multi-objective framework.
Rural development efforts largely confined to the agricultural sector.	Rural development focuses equally on the rural farm and non-farm economies and their linkages.
Agriculture investment programmes frequently concentrated on particular crop or livestock regimes.	Focus ensures that farmers have access to competitive input and output markets, necessary market information, appropriate technologies and financial services.
Investments in rural infrastructure prioritised centrally.	Prioritisation, planning and implementation are by local governments in consultation with the rural population.
Centralised planning.	Participatory planning processes, with decentralised responsibility.
Delivery of services by the public sector.	Public sector focus on providing an appropriate regulatory and policy framework, with limited provision of public goods. The split between the roles of the financier and the provider clarified. Public-private partnerships encouraged.
Majority of focus at farm level.	Farm, agri-business and other rural enterprises given equal focus.

### ***Operational Procedures***

Relevant ADB policies that have been operationalised through the publication of procedures and guidelines are those on:

- The social dimensions of development [22 & 23] including:
  - Gender and Development Policy, which recognises that all loans have a gender impact but do not automatically benefit men and women equally, so that a gender analysis is required.
  - Policy on Indigenous Peoples, which recognises that some community groups are vulnerable, and may be socially excluded simply because of their cultural identity.
  - Framework for Mainstreaming Participatory Practices into Bank Operations, which seeks to ensure that the design of loans reflects the actual need of the clients and enhances ownership and sustainability.
- The Policy on Involuntary Resettlement which aims to ensure that no persons are adversely affected through loss of land, other assets or income as a result of compulsory acquisition for ADB-financed infrastructure investments [24 & 25].
- The Environment: ADB aims to protect, and where possible enhance, the physical, biological and human environment [26 & 27].

Other areas where the ADB has defined detailed operational procedures of relevance to rural accessibility are Economic Analysis [28], and Procurement [29 & 30].

This wide array of procedures clearly facilitates consistency of approach and operational compliance with ADB policies. However there are concerns. The number of procedures to be applied, particularly in project formulation, has expanded over the years, making the loan preparation process more complex. But with the pressures and competing demands on the time of ADB staff and Project Preparation Technical Assistance (PPTA), resources there is a risk that

some important issues may be addressed only superficially. This argues the need for some flexibility, perhaps through an initial ‘scoping’ exercise, to identify the procedures and issues that are critical in formulating a particular project and ensure that priority in allocating scarce resources is given to these.

Experience in the rural accessibility sub-sector raises two key questions which should be addressed in the transport strategy, illustrated below by examples:

1. Is there a need for greater flexibility in the application of some operational procedures? The ADB quite rightly has a strict policy on Resettlement. The defined procedure for meeting this policy must be applied to any type of infrastructure project ranging, in the case of the transport sector, from a national highway scheme to a programme to rehabilitate a large number of short rural roads over a wide geographic area working through local authorities. The latter will typically require the acquisition of smaller amounts of assets, but from much larger numbers of people, than the former, a process to be implemented through institutions with very limited capacities and resources. In the latter case, strict compliance with ADB procedures may make implementation unmanageably complicated. The need is for flexibility to apply a practical approach appropriate to the characteristics of a particular project, but always in compliance with the principles of the ADB policy.
2. Is there a need to update some of the operational procedures to reflect the changes in the ADB's objectives and lending priorities, and in the design of its loans? For example the guidelines on civil works procurement focus predominantly on International and Local Competitive Bidding (ICB and LCB) of relatively large contracts. Yet for rural infrastructure the trend is to implement large numbers of small sub-projects through small contracts let with local and petty contractors or to communities. The procedures for these are defined only very briefly in the ADB documentation, and with a lack of guidance on best practices, yet they must represent an increasingly significant proportion of total ADB financing.

### 3.6 ADB Financing Modalities

The ADB provides to its DMCs:

- Investment, though loan financing.
- Technical assistance (TA) grant funding in institutional development and capacity building.
- Support for policy reform.

#### ***Loan Financing***

**Project Loans** are the most common form of investment financing. Under the Asian Development Fund (ADF) financing window for poorer countries, a grant element has now been introduced. This provides the flexibility for ADB to provide a combination of loan and grant financing for projects in ADF countries, as an alternative to seeking grant funding support from a bilateral donor.

**Sector loans** were introduced to assist DMCs to achieve economic and social progress in a sector or sub-sector through investments in a geographic area and/or over a period of time, based on sectoral policy and strategic considerations. They account for about 15% of overall ADB lending [31]. Reviews have concluded that sector loans are effective. However, there is a need for more attention to sector and institutional analyses to locate sector loans in the right

context. Sector loans are intended for well-established executing agencies (EA) with experience in project implementation. The EA is responsible for identifying, formulating, appraising and implementing the sub-project investments, within agreed criteria. ADB involvement in processing of sub-projects is limited to appraisal of a small sample, and approval of those exceeding a defined physical or financial size. The criteria for using the sector loan modality are:

- i) the borrowing DMC has a comprehensive plan to meet the priority needs of the sector;
- ii) the DMC has the institutional capacity to implement the sector development plan; and
- iii) if so required, the policies applicable to the sector can be improved if the above criteria are not adequately met.

Sector loans are consistent with the ADB's strategic concern for development impact rather than specific outputs or outcomes. They contribute to strengthening national leadership of the development process, creating effective institutions and improving strategic planning. Sector loans are also consistent with the concept of 'alignment'. They can also be seen as a mechanism towards greater donor 'harmonisation'. They have the advantage of reducing the intensity of ADB loan supervision and administration.

The principles that underlie the sector lending modality are clearly applicable to the rural accessibility sub-sector. However, several of the DMCs where the rural access problems are greatest still lack the sound policies, clearly defined strategic plans, central and local institutional capacities, and widely-endorsed implementation procedures for implementation, to qualify for sector lending to improve rural accessibility. The need is for ADB policy dialogue and TA support, in co-ordination with other donor agencies, to bring these DMCs to this stage.

**Program loans** were introduced more than 25 years ago, since when there have been significant changes to the lending modality. The focus is now towards improving the policy environment. Program lending is used: (a) to stimulate policy reform; and (b) in unanticipated crisis situations, to address structural causes of the crisis and to mitigate the resulting conditions. Program loans are not linked to specific project activities but to implementation of policy reform and are relatively quick-disbursing. In 1996 Sector Development Program (SDP) loans were introduced, recognising that an effective programme may require both substantive policy reform and large-scale investment. A review [32] recommended the introduction of a programme cluster approach where the resolution of policy problems is complex, the incidence of adjustment costs is spread out over time, and implementation capacity needs to be built up.

ADB program loans do not appear to be applicable specifically for the rural accessibility sub-sector. More likely is the feasibility of incorporating rural access policy reform issues, and investment financing, into program or SDP loans dealing with the transport, agriculture and rural development, or local government sectors.

### ***Technical Assistance***

The ADB has three types of grant-financed TA:

- Project Preparation Technical Assistance (PPTA) for formulation of new loans.
- Advisory and Operational Technical Assistance (AOTA).
- Regional Technical Assistance (RETA) to address issues that encompass a group of countries or the whole of the Asia and Pacific Region.

AOTA is the main mechanism for supporting institutional development and capacity building. This support may be applied to formulating policies and strategies; to assist in the creation of a new institution to meet specific development requirements; to reform a public institution; to improve the management structure, financing arrangements, skill levels and operational modalities of a government institution; or to define operational procedures in a particular sector or sub-sector. AOTA may be “piggy-backed” on to an ADB loan, when its role is to reinforce and broaden the impact of project-specific institutional strengthening and capacity building activities to the sectoral or national level. RETA may be applied to institutional development and capacity building where there are lessons to be learnt, or experiences to be shared, among a coherent group of DMCs.

There is clearly a major need for institutional development and capacity building support from ADB in the rural accessibility sub-sector, particularly in some of the poorest countries and for devolved government institutions. This may need to start with the definition or revision of sub-sectoral policies and strategies. AOTA projects are typically short-term (one to two years duration) which is sufficient when they are used to address specific institutional constraints. But substantive institutional development, which involves attitudinal change, is a longer-term process. The implication is that a series of AOTA projects may be required to support a DMC through the process of defining a rural accessibility policy and strategy, developing the central and local institutions to implement the strategy, and preparing the operational procedures.

### ***Policy Dialogue***

Policy dialogue is a crucial aspect of the ADB’s work as a broad-based development institution. Policy changes and the formulation of coherent national strategies are often a pre-requisite for achieving an efficient impact on poverty reduction and economic growth. The mechanisms for policy dialogue include country-level work coordinated through the RM, the formulation of sector and program loans, analysis by the ADB, and AOTA for policy and strategic advice. In addition, the formulation procedure for ADB loans requires that key related areas for policy dialogue with government be identified.

Many examples can be cited of ADB efforts contributing to significant policy changes in DMCs. However, there have been concerns about the effectiveness of policy dialogue in the past: (a) a lack of government ownership of the outputs; (b) a lack of follow through from the identification of key policy issues to the implementation of substantive policy changes, a relatively long-term process; and (c) insufficient coordination among donors to present a ‘common front’ in promoting policy change. The expanded role for the RMs and the increased focus on the country level can be expected to have a positive impact on the ADB’s effectiveness in facilitating policy change. For the rural accessibility sub-sector the country-level focus of policy dialogue is crucial because so many of the key issues are not sub-sector specific.

### ***New Financing Modalities***

The ADB recognises that, to increase its effectiveness in reducing poverty, new financing instruments, or new ways of using existing ones, may be needed:

- Investments in the social sector are most likely to be effective when preceded by policy and institutional reform. This can be supported through longer-term SDPs.
- Slow disbursing, policy-based lending to national poverty reduction programmes would facilitate learning from experience to ensure that the investments are well-targeted and effective.

- Pilot loans might be needed to test innovative approaches in circumstances where there is no experience from bilateral, grant-financed initiatives to draw upon.
- For some types of project, the most effective financing package might be to combine loan funding from the ADB with grant funding from other donors.

Such innovative financing modalities would, in certain circumstances, be relevant to the rural accessibility sub-sector.

Two new ADB financing instruments are currently under pilot testing:

- **Multi-tranche funding** where programme lending commitments are spread over a number of phases, with the recipient government paying the commitment fee only on the activated tranche(s) of the loan. This could be relevant for financing a programme comprising many small investments in rural access infrastructure schemes e.g. the PMSGY programme in India.
- **Sub-sovereign lending** allows the ADB to loan funds directly to a local government institution. This clearly has potential for application to the rural accessibility sub-sector, given that so much of the responsibility is now devolved to local level, particularly in the larger countries such as India and China with strong state or provincial government structures.

The ADB published its financing partnership strategy in June 2006. This will move ADB from being reactive to pro-active. In the past it has tended to seek co-financing to fill financing gaps or resolve administrative arrangements, often late in the project cycle. It will now aim to bring to its DMCs financing solutions that add value by sharing knowledge and resources. ADB will seek grant and concessional financing partnerships, and commercial resource mobilisation [33].

### 3.7 Overview of ADB Rural Transport Operations

This section provides an overview of the evolution of ADB rural transport operations. Further analysis of some specific ADB investments in rural transport is presented in Chapter 5. The term 'rural transport' is used deliberately for this section rather than 'rural accessibility' since ADB financing has predominantly been directed at rural roads.

#### ***Transport Sector Operations***

Since the first loan was made in 1968 the Transport Sector has been of progressively increasing importance in the ADB's operations: its share of annual lending rising from 15% in the 1970s to 25% by the turn of the century. In economic terms the Transport portfolio is, with Energy, the highest performing sector in the ADB. Within the Transport Sector, roads have accounted for about 70% of all lending. In addition to its loan financing, the ADB has provided considerable technical assistance and policy support to its DMCs on transport issues. The addition of new DMCs to the ranks of the ADB's active borrowers has had, and will continue to have, a significant impact on the extent and distribution of its Transport operations. The membership of China (PRC) has had a particular impact, accounting for nearly 40% of ADB lending for roads in the 1990s. More recently Afghanistan has become an ADB member and will require substantial transport sector investment, first to re-establish the primary network connections but also to extend reliable access into rural areas, many in difficult terrain.

A proportion of ADB's Transport Sector loan financing for roads - albeit a minor share - has been for rural roads. No attempt has been made at quantitative analysis of this financing of rural roads - because of the way in which the financing has been delivered it is difficult to disaggregate data down to sub-sector level. Road financing has focussed on highways. There have been only a few loan projects concerned specifically with secondary and tertiary roads, for example in Bangladesh, India, Indonesia, Lao PDR, Pakistan, the Philippines and Sri Lanka [34]. More commonly, highway projects have included an 'ancillary' component for financing of secondary and tertiary roads within the vicinity of the main highway investment. These 'ancillary' components have been seen as a means to extend the impact of, and increase the economic rate of return from, the highway investment.

The ADB's Transport Sector operations were characterised in the late 1990s [35] as having gone through three stages, reflecting changing DMC needs and the evolution of Bank thinking:

1. Investments to develop national transport networks, particularly highways and international ports, in order to stimulate economic development. Physical construction was the priority. Limited attention was paid to operational and institutional issues. The efficiency of services was sometimes limited and maintenance often neglected.
2. Rehabilitating and upgrading national networks, and improving the efficiency of transport operations and management. In parallel with investments, policy and institutional reforms were promoted to encourage efficient, commercial operations and to improve maintenance.
3. Increasing the development impact of the national networks by supporting secondary and feeder systems, particularly roads, thereby increasing access. The objective has been to broaden the national economic base and encourage regional development.

Stage 3 clearly implies a greater emphasis on investment in rural roads. The ADB can now be said to have moved on to stage 4, where the emphasis is on: (a) maximising the poverty impact from transport investments, including through their role in stimulating economic growth; and (b) promoting greater private sector involvement in the provision of transport systems.

Much of the TA support to DMCs delivered through Transport Sector operations has focussed on management of the national road system, but it has often been of relevance to rural roads, for example: (a) the specification of road design standards; (b) the definition of contracting procedures; (c) developing road maintenance management capacity; and (d) the establishment and operation of Road Funds, from which a proportion of the revenue goes to rural roads.

There have been major improvements in transport networks and services in DMCs in the last 35 years, to which ADB has made a significant contribution. These improvements have stimulated economic development and better social conditions, and have reduced 'economic distances'. In the rural context, isolation remains a major problem in many areas, but nevertheless the achievements are impressive. In certain countries, such as Bangladesh and Nepal, there has been a fundamental transformation in the extent of transport systems in rural areas. Audit and evaluation studies have demonstrated good overall performance of road project loans. There have been certain exceptions, mainly related to:

- i) over-design of secondary and tertiary roads on some projects;
- ii) significant cost over-runs on particular highway schemes.

The first point highlights an important issue that we return to later in this Paper – appropriate design standards for rural roads.

### ***Agriculture and Rural Development Sector Operations***

Loans through the ADB's Agriculture and Rural Development Sector operations have contributed significantly to financing rural roads in many DMCs. These investments in rural roads can be characterised as having been delivered in two ways:

- i) as one component of agricultural development projects where the provision of improved rural roads has been intended to facilitate more efficient supply of inputs and marketing of produce, complementing other project components such as the introduction of new crops or improved varieties, agricultural extension and provision of agricultural credit;
- ii) as one category of investment under rural infrastructure projects which have also included, according to the specific project design, financing of irrigation schemes, school buildings and health facilities, rural water supply and sanitation.

In the first case, the investment in rural roads has often been a significant part of the total project cost. In the second case, rural roads have typically constituted the major part of the investment. This was certainly true for the Cambodia Rural Infrastructure Improvement Project, Loan No. 1385-CAM (SF). The project rehabilitated tertiary roads to gravel-surfaced standard of tertiary roads. But it also financed rural markets and what were termed 'critical small-scale civil works' - school and community buildings, water supply and sanitation, and small cross-drainage and water control structures. These other infrastructure investments were intended to reinforce the impact on improved access of the rehabilitated roads, and as a mechanism to strengthen local-level and community participation.

There is, in principle, no reason why the ADB should not finance rural roads through both its Transport Sector and its Agriculture and Rural Development Sector operations. As noted earlier, rural accessibility has one foot in each sector. There may be advantages in operating in this way. The Transport and Communications (or Infrastructure) Divisions take a 'transport sector' approach and are well-placed to support the rational development of connective national networks of primary, secondary and tertiary roads. However, the Agriculture, Environment and Natural Resources Divisions may have a better understanding of the implementation issues of improving rural access in a particular geographic area, taking account of social requirements and developmental aspects such as community participation. As something of an oversimplification, Transport Sector operations can be characterised as applying an 'engineering and economic' approach whereas ADB staff working in rural development are more 'socially and developmentally' oriented.

There does seem to be a need for more clear-cut guidance on the allocation of rural transport between the two ADB sectoral operations. The starting point might be in terms of classes of road and government institutional responsibilities for different levels of the network. There also appears to be a need for more formal coordination procedures to bring the respective strengths of the two sectors to bear on the design of investment programmes. Experience indicates the need for coordination on:

- i) consistent design standards for different classes of roads in a DMC;
- ii) a common approach to establishing rural road maintenance capacity in a DMC;
- iii) appropriate institutional arrangements for the implementation of a project, to reflect national government structures and implementation capacities. There have been

examples in the past of: (a) rural development projects, including their roads components, being implemented through agricultural ministries when a different government agency is formally responsible for rural roads; and (b) highway projects with rural road components being implemented solely through national ministries responsible for the strategic network in countries where rural roads are under local government authority.

Ideally DMC governments should lead this coordination process. ADB's move towards a country-level focus, and its re-organised structure of Regional Departments, will facilitate this, but does not obviate the need for improved coordination across its sectoral operations

### ***Rural Roads, Rural Transport and Rural Access***

ADB financing has been primarily focused on rural roads, not on broader aspects of improving rural accessibility. In addition, there are some isolated instances, under the ports and shipping sub-sector, of financing for the development of rural inland waterways and inter-island transport. However, a progressive trend towards a more comprehensive approach for improving accessibility in rural areas can be discerned. A 'family' of ADB loan projects prepared and implemented in the 1990s were concerned with rural infrastructure, with titles such as "Rural Infrastructure Project" or "Rural Infrastructure Development Project". These were essentially rural road projects with the major part of the financing allocated in each case to road construction, rehabilitation and upgrading. But these project also:

- i) financed other rural infrastructure. This can be seen as recognition that the provision of these other types of rural infrastructure:
  - contributes to improving, and reducing the time and effort spent on, access by rural people to facilities and services;
  - reinforces the impact on rural people's lives of, and can be expected to increase the economic return from, investment in rural roads;
- ii) in some cases recognised the need for provision of rural transport infrastructure other than motorable roads;
- iii) adopted a more integrated, or coordinated, approach to rural infrastructure planning;
- iv) incorporated measures to strengthen the capacity of local government bodies responsible for rural infrastructure management.

Examples of this family of projects include:

- The Rural Infrastructure Improvement Project in Cambodia referred to earlier (which also had a substantial component of institutional strengthening for rural infrastructure management).
- The Third Rural Infrastructure Project in Bangladesh which, to complement the investment in Feeder Roads Type B (FRB), included construction of: (a) rural markets at Growth Centres; and (b) landing and loading facilities for boats operating on the inland waterways, to link them into the improved network of roads and markets. The project also provided capacity strengthening support for the lowest level of elected rural councils, the Union Parishads.
- The Rural Infrastructure Development Project in Nepal that included construction of community buildings within the vicinity of the improved roads.

The design of some more recent ADB rural infrastructure and rural development loans provides evidence of a further broadening of the approach to improving accessibility. This is being operationalised in a number of ways, illustrated by project examples:

- The major investment under the Decentralized Rural Infrastructure and Livelihoods Project in Nepal (NEP 30232-01) is in rural transport infrastructure in hill areas, including walking trails and trail bridges as well as motorable roads. Complementary funds are provided for small infrastructure schemes at village level. These are selected based on the priorities of the communities, to reinforce the impact of improved physical access. The project also strengthens community and local government planning capacity in order to target other development activities (such as agricultural extension, training, and savings and credit schemes) at areas with improved access [36].
- The Northwest Rural Development Project in Cambodia, investing in rural roads and in other rural infrastructure, applies the IRAP procedure for the selection of sub-projects, and includes provision of micro-credit to the poor in areas where access is improved [37].
- The Central Region Transport Network Project in Vietnam included a study of the operation of rural transport services in the project area and the access needs of the poor. The aim is develop rural transport services that are accessible to the poor.
- The Infrastructure for Rural Productivity Enhancement Sector Project in the Philippines combines improvement of rural infrastructure (roads, irrigation and water supply) with the construction of boat landing facilities, cable footbridges and cableways. It uses IRAP to select the sub-projects [38].
- All these projects include support for effective community participation in planning, monitoring, and operation and maintenance (O&M); and to strengthen local government institutional capacities, with some emphasis on maintenance of rural transport infrastructure.

The designs of these projects are very different, but together they demonstrate recognition by the ADB of the value of a more comprehensive approach to improving rural accessibility which, in addition to the road network, gives attention to:

- needs for other types of rural transport infrastructure;
- needs to develop more extensive and accessible rural transport services;
- a more integrated approach to the planning of improved access;
- the provision of additional rural physical facilities to reduce travel distances;
- the implementation of other development activities that reinforce the opportunities created for rural people by improving physical access;
- the importance of effective maintenance of rural transport infrastructure;
- promoting effective community participation and strengthening local government bodies.

### ***Issues, and Lessons Learnt***

Because of the time-lag between the design of a loan and the availability of findings on its impacts, successes and failures it is too early critically to assess the more recent and innovative ADB initiatives described above. However, there are issues than can be identified, and lessons to be learnt, from the ADB's more than thirty years of transport lending experience.

In 1999 the ADB synthesised the findings from evaluation of its loans to Nepal [39]. The findings are generalised, and in part reflect the reality of ADB resource constraints, but they are probably applicable to most DMCs and are certainly relevant to the rural accessibility sub-sector:

- i) projects must be better prepared at the design stage;
- ii) local communities must be involved in project preparation from the outset;
- iii) project formulation must consider operation and maintenance requirements;

- iv) the institutional capacity of executing agencies must be carefully assessed during project preparation;
- v) project design should include effective monitoring and evaluation systems;
- vi) to maximise impacts on poverty alleviation the project design must specifically include measures to target the poor; and
- vii) greater staff resources are needed for ADB review missions to ensure adequate supervision of project implementation, particularly in remote areas.

A sector synthesis of post-evaluation findings in the roads and road transport sector was prepared by the ADB in 1996 [40]. It reviewed 31 projects between 1969 and 1992. Although it is very dated, two findings remain particularly relevant:

- The main concern was the inadequacy of maintenance after road construction. The ADB has made considerable efforts to help countries with this problem, promoting management reforms for more assured financing and more efficient use of funds. Some progress has been made in a few countries, and promising early steps have been completed in others, but lack of adequate maintenance of rural roads remains a critical concern in many DMCs.
- The main socio-economic benefits from the road investments were Vehicle Operating Cost (VOC) savings and increased producer surplus in the areas served. In the case of feeder road projects, benefits included: (a) improved access to schools, health care clinics, community centres and other public services; (b) lower transport charges; (c) reduced travel times and greater comfort; and (d) increased mobility and commercial activity. The improved secondary and tertiary roads provided by the Vientiane Plain Road Improvement Project in the Lao PDR “contributed to making Vientiane a year-long major market center” – evidence of the importance of the inter-connective development of a national road network.

The evaluation of ADB assistance to the roads sector in Nepal provides a valuable analysis of the sum of support to the sector in one country [41]. The assistance comprised five road projects and nine agricultural and urban development projects with significant road components, plus three advisory and operational TA grants for institutional strengthening in the roads sector. The loan financing was for upgrading and periodic maintenance of the East-West highway, upgrading of two access routes into the hills, plus improvement of a number of rural roads. The relevant findings are:

- The upgrading of the East-West highway resulted in increased traffic volumes and speeds and lower VOCs, and some of the benefit was passed on to the general population. The EIRR was 17%, and the improved road has contributed significantly to national integration.
- Periodic maintenance works on the East-West Highway were very successful in improving transport efficiencies, and generated high EIRRs where traffic exceeded 300vpd – a good example of the economic efficiency of effective road maintenance.
- Most of the hill road works involved upgrading earth tracks to sealed all-weather standard. The re-estimated EIRRs for the sealed links were low, 5% or less, reflecting low traffic volumes, and implying that a lower-cost standard should have been used. One new hill road was constructed to gravel standard and, despite poor maintenance, generated a higher EIRR of 16%. These findings argue the case, in more difficult and less economically developed areas to provide at minimum cost the basic level of sustainable access that allows motorised transport to replace high cost portering and use of pack animals.
- The TA institutional strengthening effort was relatively limited, partly because of major initiatives by other agencies. The TAs were useful, but ADB’s contributed to road sector planning was ad hoc and missed opportunities to take a more comprehensive approach.

- The study concluded that there should be greater emphasis on asset preservation as the least-cost way of ensuring a minimum level of serviceability of access into rural areas, accompanied by progressive upgrading in accordance with growth in traffic volumes.

The Project Performance Audit Report of the Farm-to-Market Roads Project in Pakistan, although slightly dated, provides a rare case study of ADB financing of rural roads [42]:

- The project financed the rehabilitation from earth tracks, and construction, of 800km of roads. Construction standards were generally acceptable. There was a cost overrun, and the project was completed behind schedule. The formulation of physical targets should have been more realistic and addressed the capacity limitations of the implementing agencies.
- Rural communities benefited from the new roads. Employment increased through the development of small-scale and cottage industries, roadside stalls and shops in the villages. Women benefited from increased household incomes and improved quality of life.
- Post-evaluation revealed that the improved roads comprised two types. Some had developed into relatively high traffic volume routes; the remainder were typical rural farm-to-market roads serving the communities, with little or no motorised traffic. Both types had generated satisfactory economic benefits, but the former were under-engineered for the traffic they were carrying and were deteriorating, exacerbated by lack of maintenance.

A common lesson emerges from the Pakistan and Nepal studies. They present a strong case for first providing **basic access at minimum-cost**; adopting effective maintenance practices immediately after the completion of construction; and then upgrading selected links according to the types and volumes of traffic that they carry. This is basically the approach described in World Bank Technical Paper No 496 [58]. It should also be noted that in the Pakistan study the sub-projects were economically viable even for roads that carried largely non-motorised traffic.

Two key and related issues emerge from the above analysis:

- The persistent problem of lack of effective rural road maintenance. This is as much an attitudinal, management, and financing, as a technical issue. It should be self-evident, but perhaps bears re-stating that sustaining the benefits from provision of improved access is dependent upon maintaining the transport infrastructure in good condition.
- The issue of appropriate design standards for rural roads. The adoption of unnecessarily high standards reduces economic efficiency, and also reduces the extent of improved access that can be provided in an area or a country – the higher the cost per km of road, the fewer km of road that will be constructed. Adopting a higher construction standard does of course reduce, though it does not eliminate, the need for maintenance. It is of course essentially to avoid specifying too low a road standard – such roads will deteriorate rapidly under the action of traffic, even with effective maintenance, and may result in environmental damage. Other considerations include the natural preference of engineers and road users for smooth sealed roads rather than rougher, gravelled surfaces, and concern about the dust hazard from gravelled roads.

• These two issues, and their policy implications, are central to the rural accessibility component of ADB's transport strategy.

### **Implications for Future Operations**

The main requirement for public sector transport funding in the future, and hence for ADB financing, will be for roads. There remain many unfulfilled needs for provision of rural access. And continuing economic growth will create a need to upgrade existing levels of access in rural areas, particularly those with higher economic potential. ADB can, therefore, expect a continuing, arguably an increasing, demand from DMCs for financing of rural roads, rural transport and other rural access interventions. There will also be a continuing need for ADB TA support to strengthen weak central and local government institutions, to facilitate their transformation into modern public sector agencies, to establish efficient operational practices and procedures, and to reinforce the participation of communities, civil society, and the private sector. This should be under-pinned by influence from the ADB through policy dialogue.

The foregoing analysis indicates the significant ongoing changes and evolution in the way that the ADB operates. Two additional themes are relevant:

- Project design has been giving increasing attention to identifying better the target groups and to involving the poor and the vulnerable in project decisions. Considerable progress has been made towards representation of target groups and prioritisation of works that reflect local needs. Efforts in this direction should continue. One need is to improve the inter-action between community initiatives and the relevant government technical agencies who are responsible to incorporate local priorities into broader network and area-based plans, and who will remain accountable for subsequent maintenance.
- Efforts to improve monitoring and evaluation systems, should continue, in particular to ensure that the findings: (a) identify changes in levels of access for target beneficiaries and the benefits that result; and (b) are used to provide lessons and guidance that will increase the effectiveness of future support to the improvement of rural access.

To conclude, future ADB support to the rural accessibility sub-sector should be aimed at an effective contribution to poverty reduction and economic growth, based on considerations of economic, social and environmental sustainability. The ADB should play a leading role in policy dialogue, and provide policy-making, capacity-building and financing support. It should exploit the increasing opportunities for additionality through partnership with other international financing agencies, at sub-sector, country and regional levels.

## 4. THE DEVELOPING MEMBER COUNTRY CONTEXT

*This Chapter complements Chapter 3 by presenting the DMC context for the analysis of rural accessibility issues and their implications for transport sector strategy. It examines the relevant characteristics of the DMCs and significant variations in conditions; reviews their rural accessibility status and rural transport systems; and provides an overview of rural poverty in the DMCs.*

### 4.1 The Developing Member Countries

The ADB has 43 Asia and Pacific Region members, including five that have more developed, urbanised economies and are no longer active borrowers from international development finance institutions – these are excluded from further analysis here<sup>16</sup>. The newest DMCs are the Democratic Republic of East Timor<sup>17</sup>, Afghanistan, Palau and, the most recent, Armenia. ADB support to the DMCs is now managed by five regional departments – East Asia, Central and West Asia, South Asia, South-east Asia, and Pacific. Table 4.1 presents basic data on the DMCs, by ADB regional department, extracted from the more detailed data base presented in *Appendix 3*. The main source is data from the ADB website as of November 2006, complemented by information from the World Bank World Development Indicators report of March 2005 [43].

#### ***Rural Population***

Excluding the five more developed countries referred to above, and Armenia which only joined the ADB in September 2005, the population of the Asia and Pacific DMCs is about 3.34 billion, of which 2.15 billion, or 65%, live in rural areas. With the continuing urbanisation process, the proportion of the total population living in rural areas is declining. However, with continuing population growth, the numbers of people living in rural areas will not decrease at the same rate. Furthermore, urbanisation can be expected to proceed at very different rates in different DMCs. Thus, the reduction of rural poverty will remain a major priority for the ADB in the medium term.

There are 15 DMCs with populations of less than 1 million. Of these, 12 have been categorised in Table 4.1 as “Small Countries”. These are island nations, 11 in the Pacific plus the Maldives, with a total rural population of only 1.2 million. They have GNPs per capita in excess (in many cases well in excess) of the threshold for Low Income countries of \$765 per annum, and many of them have very small land areas so that physical remoteness is not a major issue. While there may be some rural accessibility problems in these countries, they are limited in scale. They are, therefore, of marginal relevance to an ADB poverty-targeted rural accessibility strategy and have been excluded from the analysis that follows. Three countries with populations of less than one million are worthy of further consideration:

- Bhutan: land-locked, and known to be very poor.
- East Timor: poor, newly independent, only beginning the long-term process of recovery from political turmoil, and therefore highly dependent upon support from the international development agencies.
- Solomon Islands: predominantly rural, and defined as ‘Low Income’.

<sup>16</sup> Hong Kong, China; Malaysia; the Republic of Korea; Singapore; Taipei, China.

<sup>17</sup> Also referred to as Timor Leste.

Table 4.1: Base Data for DMCs

	Population Million	Land Area '000 sq.km	Pop. Dens. per sq.km	Rural Population		GNP per Capita (\$)	% GDP Growth
				%	million		
<b>East Asia</b>							
China (PRC)	1,299.9	9,327	139	58	756.5	1,100	9.5
Mongolia	2.5	1,567	2	41	1.0	480	10.6
<b>Sub-Total</b>	<b>1,302.4</b>	<b>10,894</b>	<b>120</b>	<b>58</b>	<b>757.6</b>		
<b>Central &amp; West Asia</b>							
Afghanistan	23.2	652	36	80	18.5	200	8.3
Azerbaijan	8.3	87	95	49	4.0	820	19.4
Kazakhstan	15.0	2,702	6	43	6.5	1,780	9.4
Kyrgyz Republic	5.1	192	27	65	3.3	340	7.2
Pakistan	148.7	771	193	67	98.9	520	6.0
Tajikistan	6.7	141	48	74	4.9	210	10.6
Turkmenistan	6.2	470	13	55	3.4	1,120	21
Uzbekistan	28.0	414	63	64	16.6	420	7.7
<b>Sub-total</b>	<b>239.2</b>	<b>5,429</b>	<b>44</b>	<b>65</b>	<b>156.1</b>		
<b>South Asia</b>							
Bangladesh	135.2	130	1,040	76	102.5	400	6.3
Bhutan	0.8	47	17	79	0.6	630	8.7
India	1,086.0	2,973	365	72	776.5	540	6.9
Nepal	24.7	143	173	85	21.0	240	3.4
Sri Lanka	19.5	65	300	79	15.4	930	5.4
<b>Sub-Total</b>	<b>1,266.2</b>	<b>3,358</b>	<b>377</b>	<b>72</b>	<b>916.0</b>		
<b>South-east Asia</b>							
Cambodia	13.5	177	76	84	11.3	300	6.0
Indonesia	216.4	1,905	114	54	117.7	810	5.1
Lao PDR	5.8	231	25	79	4.6	340	5.8
Myanmar	54.3	658	83	71	38.4	1,170	10.0
Philippines	83.5	298	280	49	41.2	1,080	7.1
Thailand	64.2	511	126	68	43.5	2,190	6.1
Vietnam, Soc. Rep	82.0	326	252	74	60.5	480	7.7
<b>Sub-total</b>	<b>219.8</b>	<b>4,106</b>	<b>127</b>	<b>61</b>	<b>317.4</b>		
<b>Pacific</b>							
East Timor, D.R. of	0.9	15	62	92	0.9	460	1.0
Papua New Guinea	5.8	453	13	87	5.0	500	2.6
Solomon Islands	0.5	28	19	84	0.4	560	5.5
<b>Sub-total</b>	<b>7.3</b>	<b>496</b>	<b>15</b>	<b>87</b>	<b>6.3</b>		
<b>Small Countries</b>							
Cook Islands	0.02	0.3	69	30	0.01	7,550	3.1
Fiji Islands	0.84	18.3	46	48	0.41	2,240	4.1
Kiribati	0.09	0.7	129	53	0.05	860	3.5
Maldives	0.30	0.3	1,000	71	0.21	2,350	8.8
Marshall Islands	0.06	0.2	305	34	0.02	2,710	-1.5
Micronesia, F.S. of	0.11	0.7	154	77	0.08	2,070	-3.3
Nauru	0.01	0.0	559	0	0.00	3,740	2.5
Palau	0.02	0.5	40	31	0.01	5,740	2.0
Samoa	0.18	2.8	65	78	0.14	1,440	3.9
Tonga	0.10	0.7	143	67	0.07	1,490	1.6
Tuvalu	0.01	0.0	343	45	0.00	1,350	3.0
Vanuatu	0.21	12.2	18	77	0.16	1,180	2.9
<b>Sub-total</b>	<b>1.95</b>	<b>36.6</b>	<b>53</b>	<b>59</b>	<b>1.16</b>		
<b>TOTAL</b>	<b>3,336.7</b>	<b>24,320</b>	<b>137</b>	<b>65</b>	<b>2,154.6</b>		

The countries where rural accessibility issues are of significance (i.e. excluding the 12 'small countries') are mostly classified as Low Income, or are at the bottom of the Lower Middle Income range (\$765-\$2,995 GNP per capita per annum). Kazakhstan and Thailand have per capita GNPs significantly higher than the Low Income threshold, and the former is relatively

highly urbanised, but there is poverty on a significant scale in some rural areas of these countries.

Over 70% of the total rural population of the Asia and Pacific Region live in two countries, China PRC (760 million) and India (780 million). It is helpful to classify the other countries by the size of the rural population (large, medium, small) as follows:

<b>Large Rural Population</b> (> 20 million people excluding China PRC & India)	<b>Medium Rural Population</b> (5-20 million people)	<b>Small Rural Population</b> (<5 million people)
Bangladesh	Kazakhstan	Azerbaijan
Nepal	Uzbekistan	Kyrgyz Republic
Pakistan	Afghanistan	Mongolia
Myanmar	Sri Lanka	Tajikistan
Thailand	Cambodia	Turkmenistan
Vietnam	Papua New Guinea	Bhutan
Indonesia		Lao PDR
Philippines		East Timor
		Solomon Islands

Total Rural Pop: 524 million

Total Rural Pop: 73 million

Total Rural Pop: 28 million

Apart from China PRC and Pakistan, the countries with large rural populations are located in the South Asia and South-east Asia regions. Those with smaller rural populations are primarily in Central and West Asia (including the Central Asian Republics) and the Pacific. This distribution of rural population in the region – two countries account for over 70%, eight more for a further 25%, give one indication of where rural development resources should be targeted.

In certain countries rural poverty has been exacerbated, economic growth has been damaged, and the measures needed to address these problems are influenced, by recent civil disorder. Afghanistan and East Timor have both recently emerged from major conflicts and require special international assistance efforts for their nation re-building. There are two other current cases:

Nepal: where Maoist insurgency activities have caused damage to infrastructure, disrupted civil administration, and inhibited the delivery of economic and social services in many rural areas.

Sri Lanka: where the Tamil breakaway movement has had a similar impact in the north of the country.

Political instabilities within the region suggest that, over the time-frame of the ADB Strategic Agenda, civil conflicts that impact adversely on rural poverty are likely to continue to be a feature in some DMCs.

## 4.2 Characteristics of the DMCs

The DMCs encompass a very wide range of conditions that influence the nature of the rural accessibility problems and needs. The relevant characteristics and the challenges that they present are discussed below.

## Geography and Climate

As Table 4.1 shows, the physical size of DMCs ranges from several million square kilometres in the case of China PRC and India, down to less than 100,000 square kilometres. The key variations in geography and climate are:

- The terrain ranges from steep, mountainous and hill areas, which are often geologically fragile (e.g. parts of China and Nepal) to flat, deltaic flood plains (e.g. Bangladesh and the Mekong), and arid plateaus (e.g. parts of Central Asia). Large archipelagos such as Indonesia and the Philippines include numerous small island communities for whom access by boat is crucially important in linking them into the local and national economies.
- Much of the Asia and Pacific region experiences high temperatures and heavy seasonal rainfall. This monsoon rain can generate very high surface water flows<sup>18</sup>. In some countries, notably Bangladesh, seasonal flooding is normal (and important in maintaining soil fertility). At the other extreme: (a) parts of the region are arid; and (b) in those areas that experience very low temperatures, access to heating fuel, including wood, is an important priority.
- The region is prone to natural disasters: severe flooding, cyclones, major landslides in mountainous areas, and earthquakes.

The combination of terrain and climatic conditions, and the high risk of natural disasters, result in a generally hostile and technically challenging environment for the provision and maintenance of rural transport infrastructure. But the nature of the technical challenge varies significantly from area to area.

## Population Density

There is huge variation in population densities in the Asia and Pacific region, ranging from over 1,000 persons per square kilometres in Bangladesh down to less than 2 per square kilometres in Mongolia. National level data on population density must be treated with some caution, since it can conceal significant variations within each country. At one extreme, the whole of Bangladesh (and also the large island of Java in Indonesia), is densely populated. Some countries (e.g. Vietnam) have major variations in population density in different areas. This is often related to terrain and natural resource endowment. At the other extreme, some sparsely populated countries comprise concentrations of population separated by largely uninhabited areas.

Population density is a key factor in determining the nature of the rural accessibility challenge:

1. Higher rural population densities create a more spatially intensive demand for mobility and services, but facilitate their delivery. As a general principle, the density of rural transport infrastructure that is needed to provide basic access relates to the population density of a rural area as follows:
  - the length of rural road per unit of land area increases with increasing population density; but
  - the length of rural road per unit of population decreases with increasing population density.

<sup>18</sup> Two examples: (i) in much of Vietnam, which is narrow and bounded in the west by mountains and in the east by the sea, the water flow gradient is very steep; and (ii) in Bangladesh, the major cause of the high seasonal water flow is the annual snow melt in the Himalayas, not the rain that falls on the country.

2. Other things being equal, the volumes of goods and people flowing on rural transport infrastructure will be higher in areas with higher population density. This means that:
  - i) the economic efficiency of rural roads is robust in more densely populated rural areas (which also tend to have a higher resource endowment and to be more productive), and it is feasible to provide higher standard, more costly, roads;
  - ii) it is more difficult to make the economic justification for rural roads in less densely populated rural areas (which also tend to be less productive, and to be in more difficult terrain which increases construction costs), particularly when the settlement pattern is scattered. In these areas, greater attention must be given to the provision of basic access roads built to the minimum-cost sustainable standard, complemented by “lower-level” transport infrastructure such as walking trails and footpaths.
3. The types of low-cost rural road that are economically viable in poorer, less densely populated areas require relatively intensive routine and periodic maintenance. But it is precisely in these areas, with their limited resource endowments, that it is most difficult to generate revenue from local sources to finance maintenance.
4. Very high rural population density imposes pressure on land use and other natural resources such as water supply, even if only localised. This influences sustainable rural development policies. It is one of the main causes of the risk of environmental degradation from investment in rural infrastructure and the economic activity that results.
5. Situations where concentrations of population are separated by largely uninhabited areas represent a different challenge. Relatively expensive, strategic road links are needed to integrate the populated areas into the national economy, complemented by local rural transport networks within the populated areas.

### ***Economic Conditions***

Most DMCs have recently experienced strong national economic growth. 18 of the 26 countries listed in Table 4.1 (excluding ‘small countries’) have annual GDP growth rates of 6% or higher. However, an important feature of many of these DMCs is that poverty is primarily a rural phenomenon. The majority of the poor, and the deepest poverty, are both found in rural areas. A specific concern is the widening gap between rural and urban economic growth and income levels, reflecting the continuing isolation of some areas. One of the consequences of this is increased migration to cities and towns, bringing with it the threat of a rapid future increase in the levels of urban poverty. Some countries (e.g. Vietnam) have made significant progress in reducing rural poverty, while in others (such as Nepal) the proportion of rural poor remains virtually unchanged or is even increasing. Even in those countries that have made good progress, the problem remains most intransigent in those areas where poverty is most pervasive and deepest, and where levels of physical access are very low.

The pattern of rural economic activities varies significantly among DMCs and between different areas in a country. In the poorer countries there is typically a common emphasis on crop production in rural economic activity, producing staple foods and cash crops complemented by livestock, forestry and aquaculture. The only exceptions are coastal areas where fishing is the major activity, and specific locations where the traditional nomadic care of livestock still exists. In areas that remain primarily producers for subsistence, there is a demand for improved access to inputs and to markets as one of the pre-requisites for increasing agricultural productivity. The

rural economy of Bangladesh provides an interesting case. Because it is productive, but densely populated, large numbers of efficient, commercial small-scale farmers co-exist with a high proportion of landless who are unable to produce sufficient food for subsistence. The former require efficient rural transport as part of their input-intensive, and market-oriented, production system. The landless require mobility in order to find work as agricultural labourers, to seek other sources of employment, or to engage in small-scale income-generating activities – unless they do this they cannot survive.

The nature and extent of opportunities for economic development other than increased agricultural production in rural areas of DMCs vary according to location, climate and natural resource endowment but include: agro-processing, sustainable processing of local natural resources; secondary industrial activities (typically small-scale); and service industries including transport, construction and, in some places, tourism. But in many of the poorest areas labour migration, seasonal and longer-term and primarily by younger males, is likely to remain an important source of income. The nature and extent of the opportunities – agricultural and non-agricultural – clearly influence the needs for improved access in a particular rural area.

### **Social Conditions**

The region encompasses a rich variety of cultural traditions and social practices, but some common themes and variations relevant to poverty reduction can be identified:

1. Gender inequity remains prevalent, but with major variations in the extent and nature of the inequality. DMCs with a socialist history have officially eliminated gender prejudices and have made genuine efforts to mainstream gender issues, although inequalities still exist in the work-load imposed on rural women, control of resources, access to adequate health care for mothers and children, and representation of women on elected bodies. Gender equalities are much deeper and pervasive in some rural areas because of deep-seated religious or cultural traditions, resulting in women and young girls being socially excluded. Bangladesh is one example where there are severe restrictions on the roles that Muslim women can play in household, economic and social activities and decision-making, and on the education of girls. The success of efforts such as those of the Grameen Bank demonstrate that change is possible, but not without institutional resistance from some quarters. Gender inequalities also exist among many ethnic minorities, primarily because of the strength of traditional cultures. The design of programmes to improve rural accessibility have the potential to exploit opportunities to reduce gender inequalities, including those faced by the most disadvantaged women, by: (a) taking women's access needs into account; (b) involving women in investment decision-making processes; and (c) exploiting opportunities to provide paid employment for women on infrastructure works and incorporating measures that allow poor women to benefit from improved access.
2. Many ethnic minorities and indigenous peoples are disadvantaged and vulnerable:
  - i) they often live in remote and inaccessible hill and mountain areas where the natural resource endowment is poor, economic opportunities are limited, and delivery of developmental services is problematic;
  - ii) they tend to have very strong cultural traditions and are resistant to change;
  - iii) Government service delivery systems may be insensitive to the local culture and traditions. Typically: officials are reluctant to live and work in these areas; very few of them, even local government officials, are from the minority group concerned, and may not be able to speak the local language; and the central Government may try to impose 'standard' procedures and systems which are locally unacceptable – e.g.

- health care procedures for women, or education in the national rather than the local language;
- iv) pressures on natural resources may be threatening the sustainability of their traditional livelihoods and traditional systems of land and resource ownership, including communal ownership, may be vulnerable to outside exploitation.

Even in DMCs where Government has strong policies, and makes specific efforts, to support the development and integration of ethnic minorities they remain disadvantaged. Certain ethnic groups may choose to accept a slower pace of socio-economic development and integration as the price for preserving their traditional culture. However, the provision of improved rural access to reduce the isolation of ethnic minority groups is one pre-requisite for facilitating their economic and social development. Investment programmes to improve access in ethnic minority areas should be sensitive to the local culture, and give special attention to the needs of women.

3. Other disadvantaged groups found in rural areas of DMCs include:
- households that are headed by women due to the death or departure of the male adult;
  - households that are managed by women because the male adult has migrated in search of work and does not remit funds;
  - the disabled;
  - members of lower caste groups, who are socially excluded - women members of these groups can be regarded as doubly disadvantaged;
  - those suffering from 'socially unacceptable' illnesses such as HIV/AIDS.

The design of area-based rural access programmes should involve processes to identify local disadvantaged groups, understand their needs and incorporate measures to respond to those needs.

### ***Institutional Structures***

The Asia and Pacific region DMCs encompass a variety of political systems which influence the institutional structures and procedures within which efforts to improve rural accessibility are designed and implemented. These range from authoritarian, through semi-authoritarian, to 'freewheeling' democratic systems. Three key themes can be identified:

- While the current trend is to promote greater democracy, it is the need to improve governance, not the system within which this is achieved, that is the priority concern. The level of governance – in central and local government and in the private sector – has a significant impact on the effectiveness of efforts to improve rural access, and in particular to target benefits towards the poor. Within the framework of broader national initiatives for improved governance, the design and implementation of programmes to improve rural access should give emphasis to accountability, transparency and effective monitoring.
- There is a trend towards decentralisation of government responsibilities. The design of the decentralised institutional structure, the stage reached and the pace of the process all vary among countries. The most common trend is towards devolution of responsibilities, including for rural infrastructure management, to elected local government bodies which have some degree of autonomy. It can be assumed that, in the future, rural access will be managed within the framework of devolved local government institutions, which will typically remain weak for some time to come. The ADB should support these devolved structures and contribute to their strengthening, but must recognise that the design of rural access programmes will have to take account of their institutional weaknesses.

- A characteristic of many DMCs is the powerful role that patronage and the influence of the elites play in decision-making and the allocation of resources. Particularly at local level, this can distort the implementation of policies and strategies, and divert resources that are intended to improve access for the rural poor. Vested interests are entrenched, and change is not easy. Initiatives to improve governance and to strengthen accountable local government institutions are key to the process of change. ADB programmes to finance access improvements should include measures to control and limit the influence of elites through, for example, performance incentives, effective monitoring and strong supervision.

### 4.3 Rural Roads, Rural Transport and Rural Accessibility

#### **Road Networks and Rural Roads**

An overall analysis has been made of the extent of road networks in the DMCs. This is derived from the analysis in the paper prepared by the Highways Specialist contributing to the preparation of the ADB Transport Strategy, Mr. Clell Harral, in 2001 [44]. He assembled the data from a variety of different sources. The analysis has been updated, and information on the proportion of paved roads added, using data from the World Bank's 2006 World Development Indicators Report [45]<sup>19</sup>. It must be noted first that there are certain limitations on this type of analysis:

- The data provides information only on the extent of each network, not its distribution within the country.
- The data does not define the standard to which roads have been constructed (apart from whether or not they are paved), their present condition (which would reflect levels of use and maintenance), or whether there are problems, particularly on rural roads, with, for example, missing cross-drainage structures. These are important factors in determining the level of passability and trafficability, i.e. the degree and efficiency of vehicular access that the networks provide.
- While useful comparisons can be drawn among DMCs, the data are not fully comparable. It is not clear whether the data always includes urban roads, there are some variations in how far down the hierarchy of the national road systems (Primary, Secondary, and Tertiary) the data reach, and there are differences among DMCs in how a 'rural road' is defined. Therefore, no attempt has been made to sub-divide the data by country into primary, secondary and tertiary roads. (The issues of data on tertiary/rural roads are discussed later.)

The results from the analysis are presented in Table 4.2. Data were not available for Bhutan, East Timor or the Solomon Islands. The DMCs are listed in the Table in declining order of population density.

---

<sup>19</sup> The detailed analysis is in Part 2 of *Appendix 3*.

Table 4.2: The Road Networks of DMCs

	Sub-region	Population Density per sq.km	Length of Road Network '000 km	% Paved Roads	Density, km per '000 people	Density, km per '000 sq.km
Bangladesh	SA	1,040	239	10	1.8	1,840
India	SA	365	3,851	63	3.5	1,295
Sri Lanka	SA	300	97	81	5.0	1,497
Philippines	SEA	280	200	10	2.4	671
Vietnam, Soc. Rep. Of	SEA	252	215	25	2.6	661
Pakistan	CWA	193	254	60	1.7	330
Nepal	SA	173	16	54	<b>0.6</b>	<b>111</b>
China (PRC)	EA	139	1,810	80	<b>1.4</b>	<b>194</b>
Thailand	SEA	126	213	99	3.3	416
Indonesia	SEA	114	368	58	<b>1.7</b>	<b>193</b>
Azerbaijan	CWA	95	27	47	3.3	311
Myanmar	SEA	83	28	58	<b>0.5</b>	<b>43</b>
Cambodia	SEA	76	12	16	<b>0.9</b>	<b>70</b>
Uzbekistan	CWA	63	82	87	3.1	197
Tajikistan	CWA	48	28	83	4.1	197
Afghanistan	CWA	36	35	24	<b>1.5</b>	<b>53</b>
Kyrgyz Republic	CWA	27	19	91	3.6	96
Lao PDR	SEA	25	33	14	5.6	141
Papua New Guinea	Pac	13	52	4	8.9	114
Turkmenistan	CWA	13	24	81	<b>3.9</b>	<b>51</b>
Kazakhstan	CWA	6	258	96	17.2	95
Mongolia	EA	2	49	4	19.7	31
<b>Total/Average</b>		<b>138</b>	<b>7,816</b>	<b>64</b>	<b>2.3</b>	<b>323</b>

Notes: na – data not available.

CWA – Central and West Asia; EA – East Asia; SA – South Asia; SEA – South-East Asia;

Pac – Pacific.

In the last two columns, figures are presented in **bold** for countries that are below the expected trend, and in *italics* for those that are above.

The median value for population density is Azerbaijan, 95 persons per square kilometres.

The median value for density of roads by population is Thailand and Azerbaijan, 3.3km per 1,000 people.

The median value for the spatial density of roads is China PRC, 194km per 1,000 square kilometres.

Although there are some reservations about the data, useful findings can be derived:

1. There are nearly 8 million km of roads in the Asia and Pacific region. The majority of these roads are rural roads - typically, the length of Primary roads in the network is smaller than the length of Secondary roads, which in turn is smaller than the length of Tertiary roads. This stock of roads is a substantial inventory and a valuable asset. However, the road networks of the DMCs represent a major investment challenge, and an even greater challenge to maintain them in sound condition:
  - i) a major investment challenge because of the resources required: (a) to rehabilitate those roads that have deteriorated; (b) to upgrade roads to provide the needed levels of access and to cope with higher volumes of traffic; and (c) in some countries to

- invest in significant expansion of the extent of the road network. This applies both to the rural road networks, and to the strategic Primary and Secondary roads;
- ii) it is widely recognised that, more or less throughout the Asia and Pacific region, road maintenance is neglected, under-resourced and badly managed, and that the situation is worse for the extensive length of rural roads than for strategic network. This results in the unnecessarily rapid loss of valuable assets, and means that many of the benefits of providing improved road access for rural areas are not sustained.
2. China PRC (about 1.8 million km) and India (about 3.8 million km) together account for over 70% of the total length of roads in the region, and for the majority of the length of rural roads. It is useful to summarise the assessment by Harral [44] of the adequacy of their road networks:
- China PRC is assessed as having one of the least developed road networks in the world in relation to population, land area, and economic and social demands. High economic growth since 1990 has led to increasing congestion and accelerated deterioration of road pavements that were mostly not designed for the traffic levels they are now carrying. Responding to this problem, China has dramatically increased funding for highway investments since 1998. But Class I and Class II highways still make up less than 11% of the network, the remaining 90% being medium to low-grade paved and gravel roads. The implication is that both the extent and the standard of the road network are substantially under-developed, even though the proportion of paved roads is quite high.
  - India's road network is the second most extensive in the world (after the USA), and its spatial density is second highest. However:
    - i) the standards of the roads are “woefully inadequate” for the demands being placed upon them, including the fact that about 40% of the 660,000 villages are not connected by all-weather roads (a fact being addressed by the ongoing PMGSY programme that aims to provide all areas of at least 500 persons with an all-weather road);
    - ii) maintenance is poor, over 50% of national and state highways are in bad condition, and the proportion of lower road classes in poor condition is higher.

This assessment of the two largest road networks in the region reinforces the conclusion about the scale of the road network investment and maintenance challenge.

3. In the Asia and Pacific region, about 64% of the roads are paved<sup>20</sup>. This data: (a) provides only one indicator of the standard of the roads, it does not give any information about their geometric design or pavement strength; and (b) does not give any indication of the condition of the roads – whether they have been well-maintained, allowed to deteriorate into a state of disrepair, or need upgrading to cope with higher traffic levels. However, analysis of the distribution of this average figure among the DMCs, and noting that the majority of the total length of roads in the networks are rural roads, indicates that there are substantial variations within the region in the standards to which rural roads have been constructed:
- In most Central and West Asian countries more than 80% of the roads are paved, suggesting that compared with other DMCs, their rural road networks have been

<sup>20</sup> The data source used defines paved roads as “those surfaced with crushed stone (macadam) and hydrocarbon binder or bituminous agents, with concrete or with cobblestones”.

constructed to a relatively high standard. The figure is lower for Pakistan, implying that only a minority of its rural roads are paved.

- Thailand has a very high proportion (99%) of paved roads, again indicating that its existing rural road network is built to a relatively high standard. Less than 60% of the roads in Indonesia and Myanmar are paved, implying that a minority of rural roads are paved.
  - The four other DMCs in the South-east Asia sub-region have only a small minority of paved roads - Vietnam 25%, Cambodia 16%<sup>21</sup>, Lao PDR 14%, Philippines 10%. This implies that the rural road networks in these countries are predominantly unpaved. The figure for the Philippines is perhaps surprisingly low but reflects the common practice in the past of surfacing many rural roads with uncrushed river gravel, which does not meet the definition of 'paved'.
  - In the South Asia sub-region, apart from Sri Lanka whose rural roads appear to have been constructed to relatively high standard, 63% of roads are paved in India and 54% in Nepal, again implying that only a minority of the rural roads are paved and that the overall standards of the rural networks are low<sup>22</sup>. In Bangladesh, only 10% of roads are paved, but this figure may be distorted by the definition of the rural road network, discussed below.
  - Papua New Guinea has an extensive road network but few of the links are paved.
4. The last two columns of Table 4.2 show the densities of the road networks, by population and by land area. As noted earlier, in terms of provision of access, the density of roads per unit of population would be expected to decrease with increasing population density, but the density of roads per unit of land area to increase. Examination of Table 4.2 indicates that these trends broadly apply. However, there are some exceptions which provide insights into variations in the priorities for rural road investment among DMCs:

- By both measures of road density, the following countries are below the expected trend and appear to have insufficient length of roads to provide adequate access – Nepal, China PRC (as concluded by Herral), Indonesia, Myanmar, Cambodia, Afghanistan and Turkmenistan. The implication is that, in these countries, there remains a need for substantial investment in the construction of new road links. Since rural roads account for the majority of the total lengths of their networks, this conclusion also applies to their rural networks. In the case of Nepal, there is a particular need to invest in the provision of new road access (strategic and rural) into the less accessible hill and mountain areas.
- Several countries broadly comply with the expected road density trend – Bangladesh (see below for further analysis), India, Philippines, Vietnam, Pakistan, Thailand, Azerbaijan, Tajikistan, Kyrgyz Republic, Lao PDR, Kazakhstan and Mongolia. This implies that in these countries the major investment need is for rehabilitation and upgrading of existing routes, and again this conclusion applies to rural roads as well as to the total network. In some of these countries, e.g. Vietnam, some investment in new rural road links is still required to connect more remote areas into the system.

<sup>21</sup> The standard currently being applied to construction and rehabilitation of rural roads in Cambodia is gravel surfacing, which does not meet the definition of 'paved' given earlier. However there are now concerns about: (a) the adequacy of supplies of natural gravel; and (b) the high cost of maintaining the more highly-trafficked gravel rural roads.

<sup>22</sup> For India, the fact that 40% of villages lack all-weather access reinforces the conclusion that the overall standard of its rural road network is low. (But see the earlier note on the PMGSY programme.)

- Two countries stand out as having high densities of roads, by both measures – Sri Lanka and Papua New and there may be a third – the latest data shows a 40% decrease in the length of Uzbekistan’s road network, compared with Harral’s analysis. These countries fall into two categories. Firstly, Sri Lanka and Uzbekistan also have very high proportions of paved roads, implying that they are further advanced towards the development of effective strategic and rural road networks – note that this is a comparative assessment. It is not intended to suggest that the rural road networks of these two countries are already of adequate standard or condition. These DMCs can be more focussed on: (a) selective investment in overcoming inadequacies in the present rural road network, giving particular attention to disadvantaged areas; and (b) effective planned maintenance of the rural road network. Secondly, Papua New Guinea has a very extensive rural road network, but apparently of low standard and much of it in poor condition.

The above analysis has been used to attempt a summary typology of rural road network development needs. This can only be a preliminary overview – a more discriminating classification would require detailed information on the distribution of, and level of service provided by, the existing networks. And it is overlaid by the priority need in all DMCs to address maintenance issues:

- i) apply an effective planned maintenance regime to those rural roads links that are currently in maintainable condition;
- ii) allocate some recurrent resources to the repair of other rural road links to keep them open to traffic until such time that they can be brought into maintainable condition through rehabilitation or upgrading;
- iii) extend the planned maintenance regime to additional rural road links as they are brought into maintainable condition; and
- iv) ensure that rural road investment decisions - construction, rehabilitation, upgrading - take into consideration the likely future availability of recurrent maintenance resources.

The preliminary typology of rural road network development needs, which divides the DMCs into three broad categories, is presented in *Box 2*<sup>23</sup>

Reference has been made to difficulties in defining the extent of rural networks, and in obtaining reliable data on the classification, condition and standard of rural roads. This is illustrated by the case studies of three DMCs in *Box 3*. They compare data from field studies [46 & 47] with that presented by Harral [44], and highlight the lack of, and some practical difficulties in obtaining, reliable and comparable data<sup>24</sup>. In all three cases, the total lengths of the rural road networks are higher than Harral’s estimates. The main difference is that his analysis excludes the lowest levels of the networks, ‘village roads’. Data on the length of these lowest classes of roads are generally unreliable, and often include links that are not motorable and, therefore, arguably not part of the road network.

<sup>23</sup> For completeness of the typology an informed but subjective assessment has been made in categorising the three countries for which data are not available – Bhutan, East Timor and the Solomon Islands.

<sup>24</sup> They also highlight that, in Vietnam, national data is collected and monitored on *isolated* communities – those that currently lack any road access.

**Box 2: Preliminary Typology of Rural Road Network Development Needs in DMCs****DMCs that need to extend their rural road network as well as make major investments in developing their existing rural roads**

The DMCs which still have:

- i) a significant requirement to invest in the construction of new rural road links in order to provide a sufficient density and distribution of connections of rural communities into the road system, including those living in remote areas; combined with
- ii) a major need for investment in the rehabilitation and upgrading of the rural road network which is currently of low standard and in poor condition.

China PRC  
Afghanistan  
Bhutan

Nepal  
Cambodia  
Indonesia

Myanmar  
East Timor

**DMCs which need to make major investments in developing their existing rural road network**

The DMCs which essentially already have a sufficiently extensive rural road network, but have:

- i) a major need for investment in the rehabilitation and upgrading of the existing rural road network which is currently of low standard and in poor condition; complemented in some cases by
- ii) a need for selective investment in new rural road links to connect the most remote and inaccessible rural communities into the system.

Mongolia  
Pakistan  
Bangladesh

India  
Lao PDR  
Philippines

Vietnam  
Papua New Guinea  
Solomon Islands

**DMCs that have progressed further towards creating effective rural road networks**

This is a relative assessment. These DMCs essentially already have a sufficiently extensive rural road network, of relatively higher standard than other countries, and can focus on:

- i) selective, planned investment in overcoming inadequacies in the present rural road network and responding to increased demand, through rehabilitation and upgrading, giving particular attention to disadvantaged areas; and
- ii) effective planned maintenance of the rural road network.

Azerbaijan  
Kazakhstan  
Kyrgyz Republic

Tajikistan  
Turkmenistan  
Uzbekistan

Sri Lanka  
Thailand

Further problems arise due to confusion over the classification of rural roads. There are often discrepancies about whether the roads are classified by function (as they should be), by their current standard, or in terms of who is currently taking care of them. In the more difficult, remote areas where road planning is least developed and resources are most constrained, there is often a lack of reliable basic road maps, and the engineers responsible may not have visited, or even know the location of, all their roads. In some situations there may be a temptation for the local authorities to inflate the data on their rural road networks in order to attract additional central government funds.

### Box 3: Case Studies of Rural Road Networks in DMCs

#### Bangladesh

The road system of Bangladesh is classified into:

- National Highways, Regional Roads and Feeder Roads Type A, the strategic road network, managed by the Roads and Highways Department.
- Feeder Roads Type B, Rural Roads Types 1, 2 and 3 (R1, R2, R3), the rural road network, managed by the Local Government Engineering Department and the local government councils.

Harral [44] quotes figures of 21,000km of strategic road, and 15,000km of rural road. The figure for rural roads excludes the lowest classes, R2 and R3. These have been included in the updated data in Table 4.2. But many of these roads, particularly R3 (roads within villages), are footpaths usable only by pedestrians and bicycles. Should these be classified as 'roads'? In fact they are lower-level transport infrastructure with the potential to become motorable when upgraded to the target standard.

There is a clear definition of different classes of road (by economic and administrative function), and defined standards for each class, which many of the links do not yet meet. Those working in the road sector sometimes classify roads by current standard, not by function. So data on R2 and R3 is unreliable.

The need is for reliable mapping of the location and length of the network by classification (function) combined with condition inventories that, inter alia, would identify which links are currently motorable. This would give good data on the motorable rural road network and on lower-level transport infrastructure.

#### Nepal

The road system of Nepal is classified into:

- National Highways and Feeder Roads, the strategic road network, managed by the Roads and Highways Department.
- District Roads and Village Roads, the rural road network, managed by the Department of Local Infrastructure Development and Agricultural Roads and the local government councils.
- Non-motorable Main Trails and Village Trails are also classified.

Confusingly, there is also a category of "Agricultural Road" that includes some District and Village Roads.

District and Village Roads are defined by function, but this is not applied. In practice rural roads are classified at local level by who is currently managing them (often different from the defined responsibilities), their standard or their perceived importance. This contributes to the unreliability of data.

Harral estimated 9,500km of road in Nepal. Recent field work in Nepal reveals a consensus that there are about 4,800km of strategic road, and about 6,600km currently classified as District Roads, some non-motorable. There are various estimates of up to 7,400km of Village Roads, but nobody really knows! Some exist only on maps and certainly many are not motorable; some District Engineers have never visited all their roads; and figures may be inflated in the hope of securing additional central Government funds.

#### Socialist Republic of Vietnam

Vietnam has relatively good data on the extent of its rural road network. Harral quoted a total of 124,500km of National, Provincial, District and Commune roads, which accords with findings from detailed field studies. There is a further category of Village Road (roads within communes), unreliably estimated at about 90,000km. Some of these links are motorable, others are walking tracks. But in communes that comprise widely scattered communities they are very important in providing the first level of access into the rural road network.

Vietnam collects specific data on isolated communities. It has comprehensive data on the number of communes (primarily in the mountains and in the Mekong Delta) that have no road access, together with the lengths and costs of roads needed to reach them. This is monitored annually as part of a national programme to link all communes into the road network. What is lacking, however, is data on the level of vehicular access provided by the roads serving communes that are already connected to the network.

The difficulties in defining rural road networks create problems for international institutions that wish to make comparisons across countries for policy-making and planning purposes. But they represent a much more serious problem for individual DMCs. Reliable data, to a consistent format over the country, on the extent, location, standard and level of service provided by the rural road network is a pre-requisite for:

- i) realistic analysis of investment needs;
- ii) the definition of effective policies, strategies, and resource allocation for the rural road sub-sector, to make efficient use of resources in addressing economic growth and poverty reduction objectives;
- iii) coherent, inter-connective development of different levels of the national road system;
- iv) effective national management of, and resource allocation for, rural road maintenance.

Many DMCs will require TA support to develop the reliable data-bases that are needed for effective national management of the rural road sub-sector.

### ***Rural Means of Transport and Transport Services***

No attempt has been made at a quantitative analysis of rural motor vehicle fleets in DMCs, because of the lack of adequate data. It is more useful to focus on the distinctive characteristics of rural means of transport and transport services in the Asia and Pacific region.

Some characteristics of 'conventional' motor vehicle operations can be defined. These give insights into the types of conventional motor vehicle services that are likely to develop after rural road improvement:

- Trucks, often old, transferred from operation on major routes and typically of relative low payload capacity operate in rural areas. They may be public sector vehicles delivering supplies into, or evacuating produce from, rural areas, or operated for hire-on-demand by the private sector. The availability of truck services is likely to increase after road improvement. On rural roads which are of low standard and/or in poor condition, and particularly in the wet season, the likelihood of trucks operating is determined as much by the owner's perception of the risk of incurring damage, or becoming stuck, as by the objective state of the road at the time. As well as their formal goods-carrying role, trucks provide for informal, 'opportunity' travel – e.g. a truck passing through a village offers an opportunity for someone to negotiate a ride, perhaps carrying some personal possessions, to the local town; or to arrange for a written message to be delivered.
- Buses, again often old, in deteriorated condition and handed down from major routes, operate in rural areas. Rural bus services, typically carrying significant quantities of goods as well as passengers, are increasingly operated by the private sector. They operate fixed route services, but often with timetable flexibility – e.g. it is common that a bus does not leave its origin until it has a certain number of passengers. The practice for operation on low standard and/or poor condition rural roads is essentially the same as for trucks. Because of the relatively large passenger payload capacity of buses, private sector services will only operate on rural routes where there is sufficient demand to generate a profit – the general rule that is widely applicable in densely-populated Bangladesh is that bus services can be expected to start up operations after a rural road is improved to all-weather standard if the route is more than 6km long. Like trucks, bus services also provide for opportunity travel (e.g. on the roof), and a means for delivery of messages.
- What is generically referred to as the 'jeep', in various two and four-wheel-drive forms, is found in many DMCs. In some countries it is a formal category of motor vehicle for registration and the compilation of vehicle statistics. Jeeps are used by public officials

working in rural areas; by private owners for their own use; by private operators to provide fixed-route but flexible-timing passenger and accompanying goods transport services; and in some cases primarily as goods carriers. They can operate commercially viable transport services, normally overloaded, on routes with lower levels of demand than are feasible for buses, because of their smaller capacity. And because of their ruggedness they can operate in difficult terrain and bad road conditions. The best-known example of jeep services is the jeepneys of the Philippines [see Reference 48] but they are widely found elsewhere.

- The Japanese one-tonne pick up can be characterised as the contemporary equivalent of the jeep. In some countries, notably Thailand, the numbers of these pick-ups operating in rural areas has expanded rapidly – for own-use; to provide rural transport passenger and goods services; and for the delivery of private sector trading and commercial services. In other DMCs they remain relatively rare.
- In comparison with these vehicles, the use of passenger cars in rural areas is rare. They are essentially operated by the elite for their own use and on good roads.

The most distinctive feature of vehicle operations in rural areas of DMCs is the extensive use of a variety of intermediate means of transport (IMT) including non-motorised means of transport, ‘slow-moving vehicles’, and ‘local transport solutions’. The operation of IMT is the norm, not the exception, on rural roads. Typically, the numbers of IMT operating are higher than the numbers of conventional motor vehicles. In many cases, although conventional motor vehicles have significantly larger capacities, the majority of the volumes of people and goods moving on rural roads are transported by IMT. This obviously has implications for technical, economic, social, institutional and investment aspects of planning of the development of rural transport infrastructure. *Box 4* gives some examples of uses of IMT and the services they provide.

Many rural people still walk along rural roads. Pedestrians, many carrying loads, often make up a significant proportion, sometimes a majority, of the total number of movements along a route. People walk because: (a) they cannot afford to use any other means of transport; (b) there is no suitable transport service available; or (c) the journey is not sufficiently important to justify spending scarce cash. Studies in Bangladesh and elsewhere have shown that improvement from a muddy track to a surfaced road generates a worthwhile saving in the time and effort involved in travel on foot. For local movements in and around communities that are predominantly on foot, and for longer-distance movement of people and goods on foot in difficult terrain where there are no roads, low-cost investments<sup>25</sup> in improving the standard of footpaths and walking tracks can increase the safety and efficiency of access<sup>26</sup>.

<sup>25</sup> Low-cost investments include simple cross-drainage structures, surfacing of the path with locally available materials, and in steep terrain cutting of steps, provision of hand rails, and drainage to take water away from the route.

<sup>26</sup> A study in Vietnam [47] showed that parents living in rural communes gave some priority to safe access for their children to walk to a school located in a different part of the commune, and farmers gave some priority to good access on foot and by bicycle to their fields.

### **Box 4: Examples of Rural Uses of IMT in DMCs**

#### **Porterage - Nepal**

In the more remote hill and mountain areas of Nepal, which lack road access, local people provide commercial porterage services, particularly in the quiet farming periods. They are hired to carry heavy loads over long distances, on foot, along walking trails. Prices are negotiated on a per trip basis and depend on both the weight and bulkiness of the load. Because of relatively high levels of supply and demand, prices are generally set by market forces. One of the consequences of construction of new roads in these areas is that the demand for porterage services declines causing an adverse impact, at least in the short-term, on local employment.

#### **Load-Carrying Bicycles - Vietnam**

Bicycles, which are available at low prices, are widely owned and used in rural Vietnam. Some are strengthened by reinforcing the wheels and the frame. Many of these strengthened bicycles are adapted for use as load carriers. A carrying tray is attached to the bicycle frame, and two poles are fitted so that the bicycle can be pushed (not ridden) and steered by the operator. These devices can carry loads of up to 300kg and are used even on rough tracks and in steep terrain. In some versions, the tray and poles are easily detachable so that the bicycle can be ridden. The load-carrying bicycles operate in two ways:

- i) to provide 'for-hire' cargo transport services in rural areas, along roads and tracks;
- ii) for rural trading – the trader pushes the bicycle from place to place, carrying goods for sale.

#### **Tricycles - Bangladesh**

Two types of tricycle are very common in rural Bangladesh. The cycle rickshaw has a two-seater passenger-carrying body, but is also sometimes used to carry goods. The rickshaw 'van' is a more recent innovation whose use has increased substantially over the last 20 years. It is stronger, with the passenger body replaced by a flat load-carrying platform. It can carry over 300kg of goods, or up to six passengers. The tricycles are mostly owned by richer people, and are rented out to poor men who operate them for hire. They provide demand-responsive, flexible route services from well-established stands. Rickshaw vans offer lower passenger fares than cycle rickshaws, but in less comfort. Monitoring studies show the level of operation of both types of tricycle increases after roads are improved to all-weather standard. As well as providing more extensive transport services this creates employment for poor rural males.

#### **Motor Tricycles – the Philippines**

Motor tricycles – 100-125cc motor cycles fitted with a sidecar - are found throughout the rural Philippines. They come in a variety of designs, and in different degrees of robustness depending on the roads they are operated on. Those used on bad roads are fitted with additional springs and reinforced wheels. They carry remarkable quantities of goods and passengers. They provide different types of service [48]:

- i) fixed route, on-demand rural transport services, for example connecting rural communities to higher levels of the road network where more conventional transport services operate; or connecting a fishing jetty to the local market;
- ii) flexible route on-demand services where the customer hires the whole vehicle to travel to a particular place, often with accompanying goods.

The sidecars are manufactured by local industries. But one factor in the success of the motor tricycles is that many are marketed by motor cycle dealers who also organise the credit financing for the purchase.

#### **Kong Nongs - Vietnam**

Kong Nongs are low-cost four-wheeled motor vehicles made by small industries in northern areas of Vietnam. They use off-the-shelf single-cylinder diesel engines and a combination of fabricated parts and scrap motor vehicle components. They are crude but very robust, provide slow-moving goods transport services, and can operate on bad roads.

The main categories of IMT are:

- Hand-carts and wheelbarrows, widely used to move rural cargoes.
- Pedal-driven vehicles: Bicycles are widely owned in rural areas of the Asia and Pacific regions. For most rural people they are the first means of transport to become affordable. They offer greatly increased mobility compared with walking and can be used to carry a passenger or a significant quantity of goods. They are 'two-dimensional' vehicles, i.e. they can operate on narrow footpaths and walking tracks as well as on motorable roads, and they can be pushed through difficult sections of road. In some countries bicycles are adapted into serious load-carrying devices that are pushed rather than ridden, even in quite difficult terrain. There are examples of bicycle 'taxi' operations, providing transport for one passenger. Of greater significance, there are many three-wheeled adaptations of bicycles into passenger and goods carrying tricycles with different local names, operated for hire. These can carry substantial loads, but because they rely on the propulsive effort of one person they are essentially restricted to flat terrain. Another common practice is for two-wheeled trailers (often also used as handcarts) to be towed behind bicycles.
- Animal-powered devices: Pack animals, including mules and donkeys, are used to carry goods in mountainous, hilly and arid areas. Animal-drawn carts, using buffaloes, bullocks, donkeys, horses or camels, are more common. The traditional designs using large, narrow wooden wheels (which cause significant damage to roads) are progressively declining in use, but pneumatic-tyred carts remain in widespread operation. Ownership is often associated with the use of the animals for ploughing, and they carry heavy or bulky loads of harvested produce, fodder, and agricultural inputs.
- Low-cost, limited capacity, motorised vehicles. These can be classified into two broad types:
  - i) motor cycles and their adaptations. Motor cycles, like bicycles, have the advantage of being two-dimensional. They are widely used by public officials working in rural areas, and in the private sector they are operated to provide passenger/goods transport services as well as for own-use. There are various adaptations, by addition of a sidecar or trailer or by conversion into a three-wheeler, that allows them to be used for commercial transport of substantial quantities of goods and/or passengers;
  - ii) vehicles based on single-cylinder diesel engines, which are widely available at low cost. These include single-axle tractors and trailers used for both goods and passenger carrying and typically associated with use of the tractor in agriculture, and simple, locally fabricated four-wheeled vehicles, e.g. the Kong Nong in Vietnam and the somewhat more evolved Itaen in Thailand.

The existence of these different IMT demonstrates the innovativeness, ingenuity and practicality of Asian people in finding local solutions to transport problems. But they have a wider significance. They are important because they are appropriate to rural movement needs:

- i) they are much cheaper to buy, and hence much more widely affordable and available in rural areas, than conventional motor vehicles;
- ii) they offer choice, options for meeting different rural transport needs, reinforced by the variety of demand-responsive transport services, often informal, that they provide;
- iii) in the operation of commercial services they are viable at lower levels of demand than conventional motor vehicles, providing more extensive transport services in rural areas.
- iv) they are well-suited to the characteristics of many rural transport needs, which are often for the movement of relatively small numbers of people or amounts of goods over relatively short distances, or for multi-purpose journeys;
- v) they often use local resources in their manufacture, creating employment, they are relatively easy to maintain, and the required skills are widely available.

The key lesson is that IMT are not vehicles that will be replaced through the development of rural road networks. There are indications that the use of some types of IMT, such as animal-drawn carts, may decline after roads are improved, but there is stronger evidence that the use of many other types of IMT increases. IMT have a continuing, important role in complementing the services provided by conventional motor vehicles as rural transport infrastructure is developed. A DFID publication [49] provides a valuable analysis of the challenges to be addressed in realising the full potential of IMT, and presents guidelines for promoting their use.

Programmes to invest in rural road access should:

- Include the benefits to IMT in estimating EIRRs and prioritising road links for investment. Methodologies to do this have been applied, inter alia, in Bangladesh, Cambodia, Indonesia, Pakistan and Vietnam.
- Avoid measures that might constrain the use of IMT, and incorporate measures to facilitate the safe operation of slower-moving IMT alongside conventional motor vehicles. The types of engineering design measure required can be illustrated by examples from Bangladesh:
  - i) steep approaches to bridges and culverts, or to junctions with roads built at a higher embankment level, are a barrier to the operation of heavily-loaded cycle rickshaws;
  - ii) Feeder Roads Type B are built with a 3.6m wide sealed surface, but with brick macadam hard shoulders on each side to allow slow IMT to move off the sealed surface as faster vehicles pass.
- Consider incorporating measures to promote the use of IMT, or to encourage the adoption of more efficient IMT. These might include:
  - i) regulatory measures to facilitate the operation of demand-driven transport services;
  - ii) provision of credit for purchase of IMT, or promotion of private sector financing of the rural purchase of bicycles and motor cycles;
  - iii) support to local manufacturers to increase their efficiency or improve their designs;
  - iv) demonstration of IMT options which are not currently found in a particular area.

### ***Rural Waterway Transport***

Rural inland water transport is a feature of some parts of the region, notably in Bangladesh, parts of India and Pakistan, Cambodia and the Mekong Delta of Vietnam. Inhabitants of coastal areas make local journeys by boat, and for people living on small islands, particularly in the archipelagos of Indonesia and the Philippines, boat transport provides their main link to the outside world<sup>27</sup>.

Inland water transport has been neglected in comparison with the effort that has gone into the development of rural road networks. In some cases this has created barriers to the operation of boats through construction of embankments and inappropriate design of cross-drainage structures. There have however been innovations that have increased the efficiency of rural water transport, most notably the rapid switch of country boats in Bangladesh from human and sail power to motorisation when low-cost diesel engines became widely available.

There is evidence that, as more efficient rural road transport services become available, people have a preference for the convenience and speed of travel by road, though water transport may still be competitive for the movement of rural cargoes, particularly non-perishable agricultural

<sup>27</sup> Inter-island transport between the larger islands of these countries forms part of the strategic, not the rural, transport system.

produce and fragile goods such as pottery. Inland water transport is relatively slow, and routes to key destinations are not always direct, but it offers certain advantages:

- i) its transport infrastructure, the waterways, are essentially a free natural resource;
- ii) small boats can be bought cheaply or home-built, and in riverine areas are widely owned;
- iii) cargo and passenger fare rates on commercial boat transport services tend to be low;
- iv) privately-owned boats are often used for economic activities, in particular fishing, as well as for transport of the family and household goods.

A survey carried out in Cambodia [51] in a commune on the edge of Tonle Sap lake provides a case study of a community that relies on boat transport. Fishing is the main economic activity in the area. Several different types of boat are produced locally – small paddled canoes, larger rowed boats and motorised long boats. A 7metre boat costs about US\$250. Most households own a boat, and most are operated for own-use, though the motorised long boats provide commercial transport services. About 60% of households had borrowed money, either from a relative or from a fish trader, to buy their boat.

The people in the study area regard boats as essential to their economic and social lives. However, one of the main routes that they use becomes very shallow in the dry season, and excavation to increase its depth would significantly improve boat access. People recognise that not all their access needs can be met by boat. Children travel to the local primary school by boat, but the nearest secondary school is located away from the waterway network. There is therefore a strong demand for rehabilitation of the rural road which connects the waterway system to the secondary school and to the district centre where health services are available.

In areas with inland waterways, rural transport planning and investment should aim to integrate these with the road network, and exploit their advantages:

- i) care should be taken not to disrupt passage of boats along waterways through rehabilitation of existing, or construction of new, roads;
- ii) there may be opportunities to exploit the respective advantages of the two systems through development of an inter-connected road and waterway network – markets are often a suitable location for modal inter-change between road and waterway;
- iii) low-cost investments to improve the operational efficiency of the waterway system should be considered, for example construction of landing jetties, dredging (which for small-scale works can be done labour-intensively), and riverbank erosion protection.

### **Road Safety**

Road safety has emerged as an increasingly important issue in the Asia and Pacific region in recent years. DMCs have road fatality rates that are broadly comparable with those of developed countries in Asia, America, Australasia and Europe, yet they have much lower levels of motorisation. And the risk of death or injury on the road is increasing as levels of vehicle ownership rise. At present this is primarily a problem on major highways and in urban areas, rather than on rural roads, though there is a critical lack of data on rural road safety.

The risk of death or injury in rural areas of DMCs can be expected to rise with the progressive development of rural road networks, allowing faster speeds of travel and leading to increased flows of fast-moving, larger motor vehicles rather than the more traditional small and slow-moving means of transport. Other factors that increase the risk of accidents and deaths include: (a) the behaviour of commercial transport operators in rural areas who give priority to speed of travel and lengthy hours of operation, in order to maximise income, over safety considerations;

and (b) the risks that rural people (and particularly the poor) are prepared to take in order to travel cheaply – e.g. on overloaded vehicles, and on the roofs of buses and (c) the lack of awareness amongst local people of the danger to pedestrians of faster moving traffic once rural roads are improved.

Future investment in the development of rural road networks should be accompanied by measures to mitigate the risks of increased death or injury. The measures that are needed are:

- i) road engineering design measures such as barriers on bends in hilly terrain, adequate signing of potential danger areas, maintenance of sight lines, and traffic calming and off-road parking in congested areas, e.g. at markets;
- ii) education of rural people, particularly the young but also adults, who often lack any awareness either of the safety risks from improved roads or of the precautionary measures that they should take;
- iii) improved training, formalised testing, and regulation of vehicle operators;
- iv) the application of basic safety standards to all road vehicles.

### **Rural Accessibility**

As noted earlier, it is difficult to obtain reliable and comparable national data for an assessment of the rural road network situation across DMCs. And there is a lack of comprehensive data on the levels of use of IMT in different DMCs. Assessment of the broader rural accessibility situation in different DMCs is even more problematic. Direct data on levels of rural economic and social access are simply not available at national level. This section therefore presents some indirect indicators of levels of rural access for agricultural production, and to information, water, health care and education. Two key points should be noted:

- Improved rural access is only one of several inputs that may be required, depending on specific circumstances, to increase the utilisation by rural people of resources, facilities and services and hence to enhance their economic and social livelihoods. The indicators presented do not provide the basis to define countries where there are clearly specific rural access problems. Rather, they provide the means to identify where such problems might exist, and which are worthy of further investigation at national level.
- Because the assessment is based on national indicators it does not reveal anything about the significant differences that can exist: (a) between levels of access in urban and rural areas – typically the rural situation is worse<sup>28</sup>; and (b) in levels of rural accessibility within DMCs.

The indicators used for this assessment (see Part 2 of *Appendix 3*) are summarised, in some cases in comparative rather than quantitative form, in Table 4.3.

Access for agricultural activities is assessed in terms of the agricultural share of national GDP, and the average daily food intake per capita measured in calories. A daily intake of 2,200 calories per person is accepted as the minimum required for an active life, and is often used to define a ‘food poverty’ line. The agricultural share of national GDP provides some guidance as to the significance of agriculture in the rural economy, though many other factors also influence this, for example the proportion of the population that is rural, the relative dynamism of the rural and urban economies of a country, and the overall state of economic development<sup>29</sup>.

<sup>28</sup> Except for access to safe water where the data is specifically for rural areas.

<sup>29</sup> So for example, agriculture accounts for only 13% of GDP in Thailand but remains an important rural economic activity.

Table 4.3: Assessment of Rural Accessibility in DMCs

	Agriculture Share of GDP (%)	Daily Food Intake p.c. (cal.)	Access to Information	Rural Access to Safe Water	Infant Mortality	Access to Education
<b>East Asia</b>						
China (PRC)	15	2,951	Good	Medium	Good	Good
Mongolia	21	2,249	Medium	Bad	Medium	Good
<b>Central and West Asia</b>						
Afghanistan	38	<b>1,579</b>	na	Bad	Bad	Bad
Azerbaijan	12	2,575	Bad	Medium	Bad	Medium
Kazakhstan	8	2,677	Good	Medium	Medium	Good
Kyrgyz Republic	37	2,999	Medium	Medium	Medium	Good
Pakistan	23	2,419	Bad	Medium	Good	Good
Tajikistan	24	<b>1,828</b>	Medium	Bad	Bad	Good
Turkmenistan	24	2,742	Good	Bad	Bad	Good
Uzbekistan	31	2,241	Good	Good	Medium	Good
<b>South Asia</b>						
Bangladesh	20	<b>2,205</b>	Bad	Medium	Medium	Bad
Bhutan	26	na	na	Medium	Medium	Bad
India	21	2,459	Medium	Good	Medium	Bad
Nepal	39	2,453	Bad	Good	Medium	Bad
Sri Lanka	18	2,385	Good	Medium	Good	Medium
<b>South-east Asia</b>						
Cambodia	36	<b>2,046</b>	Medium	Bad	Bad	Medium
Indonesia	15	2,904	Medium	Medium	Medium	Good
Lao PDR	49	2,312	Medium	Bad	Bad	Medium
Myanmar	55	2,937	Bad	Medium	Bad	Medium
Philippines	15	2,379	Medium	Good	Good	Good
Thailand	10	2,467	Good	Good	Good	Good
Vietnam, Soc. Rep	22	2,566	Medium	Medium	Good	Good
<b>Pacific</b>						
East Timor, D.R. of	31	2,806	na	Bad	Bad	Bad
Papua New Guinea	33	<b>2,177</b>	Bad	Bad	Medium	Bad
Solomon Islands	na	2,265	na	Medium	Good	Bad

Notes: p.c. – per capita

na - not available

Countries with average daily food intakes of 2,200 calories per capita or less are shown in bold.

In the last four columns of the Table 'good', 'medium' and 'bad' are relative assessments within the sample of DMCs.

There are five countries where agriculture represents a significant share of GDP but daily food intake is just at or below the required minimum – Cambodia, Afghanistan, Bangladesh, Turkmenistan and Papua New Guinea. These situations may be influenced by the significance of export cash cropping in the rural economies, but the implication is that in these countries

there is a need to develop food production, and hence to examine the extent to which inadequate access – to inputs, land, markets and extension services – is a constraint to achieving this.

The data on daily food intake are one indicator of the extent and nature of rural poverty. As many as nine of the DMCs – the five listed above plus Lao PDR, Mongolia, Uzbekistan and Solomon Islands - have average per capita daily food intakes below, or within 5% of, the required minimum. Given that there is a significant distribution of individual food intakes around this average, the implication is that these countries have a major food insecurity problem. Again, the need is to examine the extent to which inadequate rural access contributes to this problem.

The remaining four columns of Table 4.3 categorise DMCs as ‘good’, ‘medium’ or ‘bad’ in relation to four social aspects of rural accessibility which can also be considered as broad indicators of the poverty situation. These ratings are relative assessments within the sample of DMCs based on the data in *Appendix 3*, they are not absolute judgements. The four aspects considered are:

- i) access to information - one of the characteristics of rural isolation is lack of information<sup>30</sup>;
- ii) access to safe water, an important basic need and a major influence on the health status of rural people;
- iii) the infant mortality rate, as an indicator of level of access to health services; and
- iv) access to education<sup>31</sup>.

Some findings can be drawn from this assessment:

- Thailand stands out as successful in delivering social services into rural areas.
- Access to safe water, and to health care, remain problematic in Central and West Asia, in the poorer countries of South-east Asia and in the Pacific. .
- Inadequate access to education is a major issue in South Asia and the Pacific.
- There is a need to support rapid development of mobile phone services in rural areas of several DMCs.

The above analysis is limited, but it does highlight significant variations in the situations of DMCs, implying differences in the extent and nature of priorities for improving rural accessibility. However, the key conclusion from this analysis is that country-level poverty analysis should incorporate specific attention to the extent and nature of rural access problems that need to be addressed in order to improve people’s economic and social livelihoods.

#### 4.4 Rural Poverty in the DMCs

Poverty in the Asia and Pacific Region is declining. The ADB stated in 1999 [3] that although the population of the Asia and Pacific region had increased from 1.8 billion to 3 billion since the early 1970s, “the number of poor people has fallen slightly from over 1 billion to under 900 million”. In 2004 the ADB was able to update this [4] “in 1990 about 32% or 900 million people in the region survived on less than \$1 per day. By 2000 this had declined by around 180 million to

<sup>30</sup> This assessment is based on availability of radios. It does not take into account the rapid recent expansion of mobile phone services in rural areas of DMCs, which has increased access to information.

<sup>31</sup> This assessment does not consider the quality of the educational services to which people have access.

720 million". During the last decade, poverty reduction has been most apparent in China PRC and in India. The rest of the region has made slower progress. The reduction in poverty in recent years has been driven by the dynamism and sustained high growth in the Asia-Pacific region. However, the analysis prepared for the ADB Medium-term Strategy 2005-2010 [51] notes that the region still accounts for the largest concentration of the world's poor, and "about 621 million persons are estimated to be still surviving on less than \$1 a day".

In 2003 ESCAP/UNDP [52] assessed that, while the Asia-Pacific region as a whole appears to be on track for meeting the MDGs for income poverty, several countries are likely to be left behind. Others that are likely to meet the overall target may still have sizeable pockets of poverty. In addition, accelerating the pace of progress to meet the MDG targets relating to non-income poverty continues to be a formidable challenge. The report also emphasised that two-thirds of the poor in the region are female.

Within the framework of this overview of the current poverty situation in the region, and the various estimates of the number of poor people, this section presents an assessment of the extent and distribution of rural poverty among the DMCs, and of some of the characteristics of rural poverty in different areas.

### ***Extent and Distribution of Rural Poverty***

In Part 3 of *Appendix 3* an analysis has been made to develop an estimate of the extent and distribution of **rural** poverty among DMCs, excluding the "Small Countries". It must be emphasised that this is an approximate analysis involving a number of assumptions, because: (a) of the incompleteness, variability, and lack of full comparability, of the available data on rural poverty in DMCs; and (b) the fundamental difficulties of making precise poverty measurements. In particular, there are wide variations in different estimates of the levels of rural poverty in China PRC and India, the two DMCs with by far the largest rural populations and which therefore have a major influence on the overall findings. The limitations of the analysis, and the assumptions made, are fully explained in *Appendix 3*. The results, which relate to an overall estimate of the total number of poor people in the region of about 876 million (somewhat higher than the ADB figure), are however considered adequate to derive relevant and useful findings on the extent and distribution of rural poverty. The results are shown in Table 4.4.

The first column presents the estimate of the proportion of the rural population that is poor, by DMC and by ADB regional department. Overall, it is estimated that about 28% of the rural population of the Asia and Pacific region is poor. The second column presents the estimate of the numbers of rural poor, a total of about 612 million people. The third column presents the estimate of the proportion of the total number of poor people that are found in the rural areas, about 70%. This confirms the statement made earlier that poverty in the Asia and Pacific region is primarily a rural problem.

In all countries of the South Asia and Pacific sub-regions, and in all of South-east Asia except Indonesia, poverty is predominantly rural. This is less the case in East, and in Central and West, Asia, though in several countries there more than 70% of the poor are in rural areas. In only two countries of the Asia and Pacific region are there more poor people in urban than in rural areas – Mongolia and Azerbaijan.

Table 4.4: Rural Poverty in the DMCs

	% Rural Population Poor	Number of Rural Poor Million	% of Total Poor who are Rural	Other Poverty Indicators		
				Income Gap %	HDI	Gini Coefficient
<b>East Asia</b>						
China (PRC)	17	125.6	58	23.5	0.74	0.45
Mongolia	33	0.3	37	22.8	0.67	0.30
<b>Sub-Total</b>	<b>17%</b>	<b>125.9</b>	<b>58%</b>			
<b>Central and West Asia</b>						
Afghanistan	53	9.8	80	na	na	na
Azerbaijan	50	2.0	49	1.2	0.75	0.36
Kazakhstan	37	2.4	57	<1.8	0.77	0.32
Kyrgyz Republic	52	1.7	71	<1.1	0.70	0.35
Pakistan	35	34.4	71	7.4	0.50	0.33
Tajikistan	60	2.9	57	2.3	0.67	0.33
Turkmenistan	31	1.1	57	8.7	0.75	0.41
Uzbekistan	31	5.1	71	15.6	0.71	0.27
<b>Sub-Total</b>	<b>38%</b>	<b>59.4</b>	<b>69%</b>			
<b>South Asia</b>						
Bangladesh	53	54.3	81	16.3	0.51	0.32
Bhutan	25	0.2	79	na	0.54	0.34
India	35	274.1	72	23.2	0.59	0.33
Nepal	39	8.2	85	28.1	0.50	0.40
Sri Lanka	27	4.2	85	6.0	0.74	0.33
<b>Sub-total</b>	<b>37%</b>	<b>340.9</b>	<b>73%</b>			
<b>South-east Asia</b>						
Cambodia	40	4.5	94	27.0	0.57	0.45
Indonesia	21	24.8	63	4.9	0.69	0.34
Lao PDR	41	1.9	83	16.2	0.53	0.37
Myanmar	12	3.8	94	na	0.55	na
Philippines	51	20.9	82	9.9	0.75	0.46
Thailand	13	5.5	87	<5.0	0.77	0.43
Vietnam, Soc. Rep	36	21.5	91	<1.7	0.69	0.37
<b>Sub-total</b>	<b>26%</b>	<b>83.1</b>	<b>78%</b>			
<b>Pacific</b>						
East Timor, D.R. of	46	0.3	99	na	0.44	0.35
Papua New Guinea	41	2.1	96	na	0.54	0.51
Solomon Islands	41	0.2	92	na	0.62	na
<b>Sub-total</b>	<b>41%</b>	<b>2.6</b>	<b>96%</b>			
<b>TOTAL</b>	<b>28%</b>	<b>611.9</b>	<b>70%</b>			

Notes: na - not available

HDI: Human Development Index, produced by UNDP

If the targets for poverty reduction are to be met, the major effort must go into the DMCs with large numbers of poor people. In this regard, DMCs can be characterised in a similar manner as was presented in section 4.1.

- i) Although different estimates vary widely, it is clear that a significant proportion of the total rural poor of the Asia and Pacific region can still be found in two countries, India and China PRC.

ii) The remaining DMCs can be classified as follows:

<b>Large Poor Rural Population</b> (> 10 million poor)	<b>Medium Poor Rural Population</b> (2.5 million-10 million poor)	<b>Small Poor Rural Population</b> (<2.5 million poor)	
Bangladesh	Tajikistan	Azerbaijan	East Timor
Pakistan	Uzbekistan	Kazakhstan	Papua New Guinea
Vietnam	Afghanistan	Kyrgyz Republic	Solomon Islands
Indonesia	Nepal	Mongolia	
Philippines	Sri Lanka	Turkmenistan	
	Cambodia	Bhutan	
	Myanmar	Lao PDR	
<b>Total Rural Poor 156 million</b>	<b>Total Rural Poor 39 million</b>	<b>Total Rural Poor 12 million</b>	

The one exception to the above analysis is Thailand. Although it still has over 5 million rural poor, it has now reached the stage of economic development where it is less dependent than other DMCs on support from international development institutions to address its poverty problems, though it will continue to benefit from targeted support in disadvantaged areas.

The DMCs with high densities of rural poverty, or at least the more disadvantaged rural areas of those countries, can be characterised as “endemically poor” – lacking in natural resource endowments, very densely populated, with a low level of governance, and/or highly inequitable. These DMCs will require a more intensive effort (in relation to their numbers of poor), and with a longer-term perspective, from the international development institutions to assist their Governments to overcome their more intractable problems of rural poverty. Furthermore, this intensive effort is likely to require greater attention to policy support, and technical assistance for institutional development and capacity building, to complement investment financing. Taking a slightly arbitrary cut-off point of 35% rural poverty density the countries in this category are:

<b>Central and West Asia</b>	<b>South Asia</b>	<b>South-east Asia</b>
Afghanistan	Bangladesh	Cambodia
Azerbaijan	India	Lao PDR
Kazakhstan	Nepal	Philippines
Kyrgyz Republic	Pakistan	Vietnam
Tajikistan		

**Plus** the Pacific countries.

A particularly intensive effort will be required to deal with the special problems of post-conflict reconstruction e.g. in Afghanistan, Sri Lanka, Nepal and East Timor.

The proportion of the population of the Asia and Pacific region living in urban areas is growing, and the numbers of urban people are increasing faster. There is a real concern about the risk of increasing levels of urban poverty in the future, fuelled by migration of the poor from rural areas in search of a better life. Clearly there is a need to target additional development resources to mitigating this risk and reducing urban poverty. Nevertheless, apart from a few countries, and certain cities in other DMCs which are targets for urban migration, the above analysis suggests that, for most of the poorer DMCs, the major poverty reduction effort should continue to be targeted at where the main problem lies, in rural areas – an effort which should also contribute to stemming rapid migration to the cities.

### **Other Characteristics of Rural Poverty**

There are many variations in the dimensions of rural poverty, some of them already discussed in section 4.3. While the ADB is committed to reducing the number of poor, it recognises the need for specific attention to intractable problems of extreme poverty and of particularly disadvantaged groups in society. The last three columns of Table 4.4 provide data on three indicators of the characteristics of poverty (see Part 4 of *Appendix 3* for further details):

- The depth of poverty: measured by the Income Gap, which indicates the percentages by which the mean income of the poor is below the poverty line.
- The UNDP Human Development Index (HDI): a composite of three factors – life expectancy at birth; adult literacy; and per capita income. It provides an overall indicator of the level of well-being of people in a country.
- Gini Coefficient: a measure of the degree of equality, or inequality, in income distribution in a country. The higher the coefficient (between zero and one) the higher the inequality.

Rural poverty in China PRC is increasingly concentrated in its western provinces, mostly within the more remote and mountainous areas. Due to difficulties of access, these areas are also relatively deprived in terms of health and education services, and food security. In addition, minority peoples and the disabled are disproportionately represented among the rural poor. Thus, although China PRC has made substantial progress in reducing rural poverty, further reductions may prove more difficult to achieve because the problems are becoming more intractable – poverty is increasingly concentrated in the poorest areas and among more disadvantaged groups. Two pieces of data reinforce this view:

- i) China PC has a relatively high Gini coefficient of 0.45 indicating a fairly inequitable distribution of income, and income inequality is increasing as poverty is reduced;
- ii) the depth of poverty is high (Income Gap 23.5%), indicating that many of the remaining rural poor are very poor.

India has made steady progress in reducing rural poverty. However, the rate of poverty reduction has been slowing, more so in rural than in urban areas, and most notably in the poorest states in the north-east. This again suggests that rural poverty is becoming a more intractable problem. Another key characteristic is that India has one of the greatest depths of poverty of any of the DMCs for which data are available. This implies that there are many extremely poor rural people. The discussion earlier in this chapter suggests that there are also severe social dimensions to poverty in India, even though it has a higher HDI than other poor countries of South Asia.

The data in Table 4.4 reveal some important characteristics of rural poverty in other DMCs:

- Combined with the earlier analysis, they indicate that the most serious poverty problems are in South Asia (excluding Sri Lanka) - Bangladesh, India and Nepal, and probably also Afghanistan and Bhutan – together with Pakistan. There are very large numbers of rural poor, and rural poverty is both extensive and dense. It is also very deep – the Income Gap is very high in Nepal, India and Bangladesh. Furthermore, the social dimensions of poverty are severe. Apart from India, these countries have the lowest HDIs of the DMCs (except for East Timor which is a special case).
- Data on the depth of poverty is not available for Myanmar, but its HDI is low. The two other poorer countries of South-east Asia, Cambodia and Lao PDR have low HDIs and great

depth of poverty. Vietnam rates much higher. The depth of poverty and the high degree of income inequality are significant problems in the Philippines.

- The depth of poverty is a major issue in Mongolia and Uzbekistan.
- In the Pacific, both East Timor and Papua New Guinea have low HDIs, and the latter has the highest degree of income inequality among the DMCs.

The analysis of the DMC context in this Chapter provides the starting point to examine the rural access needs of DMCs, and the issues to be faced in meeting those needs, in the next Chapter.

## **PART B - NEEDS, ISSUES AND STRATEGY**

### **5. RURAL ACCESS NEEDS, ISSUES AND CONSTRAINTS**

*This Chapter examines the needs for improved rural access to contribute to poverty reduction across the range of conditions in the DMCs. It sets out how the different elements of a rural accessibility approach can reduce rural isolation. It examines the evidence of the link between level of rural accessibility and poverty, and analyses the array of needs in different DMCs. It then examines the issues and constraints faced by DMCs, highlighting key trends in the provision of improved access.*

#### **5.1 Rural Accessibility – the Missing Issue in Poverty Reduction**

**Rural accessibility is the missing issue in poverty reduction.** The analysis of earlier chapters indicates that poverty in DMCs is primarily a rural phenomenon. The highest numbers of poor people, and the deepest and most intransigent poverty, are found in rural areas. Despite rapid urbanisation, this situation does not look set to change for the foreseeable future. For this reason, the reduction of poverty in rural areas is the cornerstone for the attainment of the central MDG of eradicating extreme poverty and hunger. Without a significant reduction in rural poverty, this goal will not be achieved. Continued rapid economic growth in DMCs will reduce rural poverty, but unless the benefits of this growth are more equitably distributed and priority is given to rural economic and social development, the ‘urban- rural gap’ will continue to widen (see Box 5).

#### **Box 5: Effect of Access on Perceptions of Urban and Rural Poverty**

“In several cases, poor people in urban areas, though actually poorer than those in comparable rural areas, are viewed as *less* poor because they have access to infrastructure and basic services (Guatemala 1997b; India 1997a). Similarly, a report from India states, “Even the poorer families living in the prosperous villages are comparatively better than poor people living in medium and poorest villages, in terms of social and educational awareness, because these facilities are more accessible to them” (India 1997a).”

Quote from “Voices of the Poor – Can Anyone Hear Us?” World Bank, December 1999

To understand why poverty in rural areas is so widespread and pervasive, it is helpful to compare and contrast the situations of the rural and urban poor. In urban areas poor people lack assets and income, but they are physically close to opportunities. They generally have reasonable physical access to public health care and education, as well as private sector services such as banks. Initiatives to reduce poverty can relatively easily reach the urban poor. By contrast, the rural poor generally lack access to goods, resources, facilities and information. They remain isolated from economic opportunities and social services. They are marked out by their lack of ready access to agricultural inputs, markets, job opportunities, health facilities, schools, banks, post offices, government administrative services and sources of information. Measures to provide the rural poor with public services and economic opportunities are costly. It is isolation that fundamentally distinguishes the rural poor from their urban counterparts. This

isolation generates multiple constraints, leading to a poverty trap from which it is difficult to escape.

This analysis can be extended:

- i) another difference between the rural and urban poor is the dependence of the former on the local natural resource base for their livelihoods;
- ii) rural isolation is worst in the more remote, low population density areas with scattered communities, often in upland and mountainous terrain. These places are where poverty tends to be deepest. People living in these areas are the most difficult and costly to reach. Thus, while isolation, or lack of accessibility, is a key problem for poverty reduction in all rural areas, this is compounded in those areas where poverty is most pervasive<sup>32</sup>.

Reducing isolation through improved rural accessibility is an issue for the transport sector, but it is also an important component of the rural development process. In transport terms, rural accessibility has features which fundamentally distinguish it from other transport sub-sectors. As stated in section 2.1, the core problem to be addressed is the isolation, or lack of access, of the rural poor. Improving rural accessibility is not simply a matter of constructing rural roads. Reducing isolation requires a comprehensive approach which addresses:

- The provision and sustainability of transport infrastructure at all levels
- The frequency, reliability and affordability of transport
- The planning of the location of services, and
- The availability of communications.

## 5.2 The Link between Rural Accessibility and Poverty

### *Recent ADB Findings*

10-15 years ago, a link between lack of access and rural poverty was believed to exist but was not well understood. Since then there have been many studies that have created a growing body of knowledge about the nature of this link. Most recently, a major study has been carried out by ADB entitled “Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction” [54]. The scale of this study, its rigorous approach and the wealth of information that it contains, represent an important step forward in understanding the links between transport infrastructure provision and poverty reduction in DMCs.

This study was carried out between 2001 and 2005. It comprised a detailed literature review followed by field research to produce case studies in three countries, China PRC, Thailand and India. The purpose of this research was to trace the causal chain of effects that, in a given context, leads from a transport or energy intervention to a poverty reduction outcome. It covered road, rail and sea transport infrastructure, but with the main focus on roads. It also covered urban and rural electrification and examined the links to poverty of the provision of transport infrastructure and electrification, both separately and in combination. The study was not confined to rural transport or rural poverty but contains a lot of information on these aspects.

<sup>32</sup> Vietnam provides a good example. Large numbers of poor people live on the densely populated Red River plain, relatively close to Hanoi. But poverty is most pervasive, and deepest, in the remote Northern Mountains.

In **China PRC**, whether a village had road access or not had no observable effect on household poverty for the extreme poor, although it had the expected effect for the poor defined in other ways. The implication was that the extreme poor were unable to take advantage of village road access to escape from poverty. The reliability and quality of transport was found to be an important variable. The case study showed that transport and energy infrastructure contributed to poverty reduction, both by directly improving the living conditions of the poor, and by diversifying income and employment sources and improving the productivity of poor households. Infrastructure also resulted in improved health care and education and enhanced contact and communication of the poor with the outside world. The study team concluded that combining transport and energy investments with access to credit and technical training was likely to be an effective solution for targeting the poor.

A key research result from the **Thailand** study was that poor people place a high value on increased access to transport - a finding confirmed by both the econometric analysis and by the subjective evaluations made by local people. The findings suggested that many benefits of improving transport to poor communities were widely shared. Greater access by teachers, health care providers, security services and non-governmental organisations generated benefits that were accessible to all. But these made a greater difference to poor households, since the non-poor had other options for obtaining these services. The poor also felt the benefit of increased competition among buyers and traders which resulted in lower prices and greater variety of goods, and more security of supply. About half the rural households studied felt that their incomes had increased as a result of transport and energy improvements.

The **India** case study was carried out in three districts in Gujarat State. Improvements in roads, ports and energy infrastructure had significant effects on poverty at the household, village and community levels. Impacts on both poor and non-poor included growth in existing economic activities, the emergence of new employment opportunities, improved access to health care and education facilities and wider availability of news and information. Only 30% of respondents felt that transport improvements gave them more free time, probably because many activities were still carried out using slow means of transport, including walking. Time saved was used for household tasks, farming activities and wage employment. An important change was the increase in the value of land after the improvement of roads. This varied from 75% to over 3,000%, although the latter figure occurred where a port was developed simultaneously with the road improvements. Transport improvements had a significant positive impact on relations within the village and between the village and the outside world, especially for poor households. On balance respondents felt that the improved transport benefited the well-off more than the poor.

The study concluded that **“the case studies strongly confirmed that transport and energy investments are agents of economic growth that contribute to poverty reduction by raising incomes. They also confirmed the important role of transport and energy in alleviating non-income dimensions of poverty, including health care, education, empowerment, opportunity, security and freedom, thus helping raise people’s incomes over the longer term”** [54]. Such interventions are, therefore, highly relevant for the achievement of the MDGs. The findings of the study do not contradict previous work, but provide a more systematic analysis of the impacts of transport infrastructure on poverty reduction than found elsewhere.

### **Other Relevant Studies**

*Appendix 4* of this report provides an overview of a number of other studies on the impact of investments in improved transport on rural poverty reduction. The studies predominantly concern the provision of rural roads and fall into three broad types:

1. Statistical modelling to identify correlations between investment input, and output, variables.
2. Statistical analysis to correlate indicators of levels of access with indicators of levels of poverty.
3. Impact evaluations of programmes aiming to reduce rural poverty through provision of improved access.

The most significant conclusions from the analysis in *Appendix 4* are:

1. All studies indicate that improved road access leads to poverty reduction, although the exact scale and causal link does not appear to be consistent.
2. Improved road access brings benefits to the poor and the non-poor. Often the non-poor derive more economic benefit as they are in a better position to exploit the opportunities provided by better access.
3. The extreme poor derive least benefit, indicating that they are heavily constrained by other factors apart from access. However, improved access may be a pre-requisite for other necessary interventions.
4. The poor tend to derive as much or more benefit than the non-poor by increased access to social services such as health and education. The evidence is that they are more reliant on the delivery of these services to their locality than the non-poor.
5. Transport costs decrease significantly. These savings are generally passed on by both goods and passenger transport providers, although a decrease in passenger fares depends more on active competition among operators.
6. Improved road access leads to traffic increases and a significant shift in mode from walking to more efficient means of transport.
7. There is no clear trend of increases in agricultural production as a response to improved road access. Diversification into higher value crops was more commonly cited.
8. The negative environmental effects of road improvements that are most frequently mentioned by rural people are increased dust and more traffic accidents.

### **Conclusion**

The intermediate nature of transport renders it difficult to associate poverty reduction in a direct and measurable way with improved access. But all the evidence is consistent in showing a positive correlation between improved infrastructure access and poverty reduction. The studies also show that improved rural access is not purely a social intervention. Lower costs of transport stimulate the local economy. However, the improved access to social services is a benefit appreciated particularly by the poor. However, complementary measures, both through the other components of a comprehensive rural accessibility approach and other rural development inputs, are required to achieve a significant impact on the extreme poor.

### **5.3 Improved Rural Accessibility – The Means to Reduce Isolation**

The findings presented above on the link between rural accessibility and poverty are valuable. They are, however, biased towards the impacts of investment in infrastructure, though they do

identify the advantages of combining these with other interventions. To address the core problem of the isolation, or lack of access, of the rural poor a comprehensive approach is required. This section examines the four elements of that approach.

### **Transport Infrastructure at all Levels**

Studies have shown that the time and effort spent on transport constitutes a significant burden on rural households [73]. They also reveal that most travel and transport is local. Rarely are people in rural areas moving more than a few kilometres from their homesteads. Moreover, there is a clear gender divide. Women tend to move shorter distances than men although they usually make more trips per day such that, overall, they spend the same or more time and effort on travel and transport [73 & 74]. There is also a divide between rich and poor. In general, poor people make fewer long distance journeys than the rich<sup>33</sup> [75]. Given these travel patterns, for rural households in general, and for women and the poor in particular, the transport infrastructure on which they principally move is the **extensive network of local roads, tracks and paths** in the vicinity of their homes. However, this local movement of goods and people is largely invisible to conventional transport planning, which focuses on motorable roads. The issues involved with its improvement and maintenance are unfamiliar to most planners.

Many large investments in transport infrastructure in DMCs have focused on major routes linking towns and cities. These have undoubtedly had a significant impact on overall economic growth, a key component of the poverty reduction strategy. They have also provided the necessary major connections into rural regions that are the starting point for reducing 'economic distance'. But they have had little direct impact on the rural poor (see Box 6). This can be seen as a missed opportunity. With more attention to rural accessibility, greater impact on rural poverty could have been achieved with only modest additional investment.

#### **Box 6: Link between Highway Investment & Poverty**

An ex-post evaluation of a 245 kilometre major road improvement in Tanzania found mixed positive and negative impacts on rural communities in the main road corridor. However, "the social impact assessment study found little evidence that the trunk road has benefited the poorer households living along its length."

A Social and Economic Impact Assessment of the Rehabilitation of the Chalenze-Segera-Tanga Road, I.T.Transport Ltd., November 1998.

It is important to achieve 'connectivity' of the transport infrastructure network. The local administrative headquarters (e.g. the District centre) is typically the focal point for commercial and public sector activities, and for the delivery of services into rural areas. It is also often the 'point of entry' into higher levels of the transport system for long distance travel to major centres. For a rural household, a trip to the local headquarters may involve travel along a footpath, a Rural Road, a 'District Road', and a secondary or primary Highway. What is required is to develop transport infrastructure networks that respond to rural requirements by creating connectivity between the people and the places to which they need access. It is this that will effectively reduce 'economic distance' - a key factor in achieving more equitable distribution of the benefits of economic growth.

<sup>33</sup> When the poor do make longer journeys they are usually of high importance and their "value of travel time" has been found by some recent studies to be higher than for the less poor.

In some areas of DMCs where provision of roads is technically difficult and costly, particularly mountainous areas but also delta regions dissected by waterways, the existing local transport infrastructure network is extensive. For the foreseeable future, many of the access needs of rural communities will continue to be served by their footpaths and waterways and any improvement in transport infrastructure will have to address this level of the network. Although this represents a considerable challenge, it also provides an opportunity to examine methods and procedures for dealing with 'lower-level' transport infrastructure that could have wider application in the many other areas where footpaths, tracks, trails and small waterways are important but not so extensive.

The main challenges to improving the lower levels of transport infrastructure are: (a) adopting an appropriate approach to planning and design based on the concept of connectivity; and (b) establishing a system for long-term sustainability. The latter is crucial. It is necessary to reiterate that improved physical access results not from constructing a new or upgraded route, but from sustaining the level of service it provides over a period of years. How to plan and implement infrastructure improvements? What technical standards to use? How to address the problems faced by most DMCs in establishing effective maintenance? These are some of the issues that a rural accessibility strategy should address.

### ***The Frequency, Reliability and Affordability of Transport***

Improving rural transport infrastructure is no guarantee of increased mobility for rural people, particularly the poor. The infrastructure, sustained in good condition, provides the physical access, but greater mobility results when transport is more easily available and affordable, and less time-consuming.

On inter-urban highways measures to stimulate transport services are rarely, if ever, necessary. Traffic grows in response to improvements in infrastructure and this response is fairly immediate. For the lower levels of transport infrastructure serving rural areas, the situation is different. Very few rural people own motor vehicles. There is typically a low density of demand, which makes the provision of transport services relatively expensive. Attention, therefore, has to be paid to the availability and affordability of reliable means of transport.

As discussed in chapter 4, IMT are the norm, not the exception, in rural areas of DMCs, and this is not simply because people cannot afford anything better. IMT are appropriate to many rural movement needs, and can operate in an economically efficient manner providing passenger and goods transport services on routes where there is insufficient demand to justify operating a conventional bus or truck. The experience of Thailand provides evidence of the continuing importance of rural IMT, even as a country moves from developing to 'more developed' status.

IMT provide the flexible and lower cost transport appropriate for the rural situation, and in many cases have evolved to meet local needs. Interventions to improve rural accessibility must take careful account of this:

- The design of rural transport infrastructure should facilitate, not discourage, the use of IMTs if mobility for rural communities is to improve (see box 7).
- The economic appraisal of rural transport infrastructure should take into account the vehicle operating cost (VOC) benefits accruing to IMT that are likely to be major users of the routes.
- The regulatory framework for commercial transport operations should be designed to promote, not inhibit, demand-responsive but safe services provided by IMT.

- The level of ownership of IMT can be increased by making credit financing for their purchase more easily available in rural areas, including through the private sector. And small-enterprise development initiatives can support local manufacture of IMT and better facilities for rural vehicle maintenance.

These are all issues that require attention as part of a rural accessibility strategy.

#### **Box 7: Taking Account of IMT in Infrastructure Design**

In the remote South Atlantic Region of Nicaragua, a gravel rural road was built to replace an existing horse trail. This facilitated the introduction for the first time of motor vehicle transport in the area in the form of a local bus/truck. However horses, which remained an important means of transport for rural people, were unable to use the rough stony surface of the new road. Consequently they picked their way along the verges of the road gradually creating a new horse trail. In retrospect, provision of a wide reserve behind one of the road side ditches would have been beneficial for the continuing horse traffic.

Based on a review of Danida's Atlantic Regions Transport Programme in Nicaragua

Improved rural access is not concerned solely with increased mobility for rural people. Even with more frequent, reliable and cheaper transport services, and wider availability of IMT, the poorest will still be the least able to purchase or use a means of transport. They will remain largely dependent on travel and movement of goods on foot.

The impact studies reviewed earlier show that more efficient delivery of services **into** rural areas will also improve the access of poor people, and hence reduce their isolation. This includes delivery of private sector services (such as agricultural input supply, mobile shops, crop buying), those provided by the public sector (e.g. mobile health care), and NGO activities such as micro-credit systems. Similarly, local government officials concerned with development and administration must be mobile, and able to travel around the areas that they serve if they are to fulfil their responsibilities<sup>34</sup>. Facilitating the delivery of services into rural areas is an important aspect of improving rural accessibility.

#### ***The Planning and Location of Services***

Improvements in rural accessibility are not limited to the development of infrastructure networks and transport operations. For example, where the predominant time spent on transport by a rural household is in fetching water for domestic use, provision of a closer water supply can significantly reduce the need for transport. Where water-carrying is primarily women's work, this impact can also dramatically alter the gender balance of transport responsibilities.

Similar arguments can be used for other services that are either of high importance, frequent use or both. Although there are differences based on environment and existing service provision, household rural accessibility shows some consistency in the types of service that are of most significance to rural people in terms of access. These are summarised in Table 5.1.

<sup>34</sup> The lack of a vehicle, or of recurrent funds to buy fuel, for travel on official business is a common problem for local government officials in DMCs.

**Table 5.1: Significance of Household Access Needs**

Importance	Frequency	
	High	Low
High	Water	Emergency health care
Medium	Firewood	Health clinics, Markets

Good access to a safe water supply, where it is not already provided into a community, is invariably the top priority both in terms of importance and frequency. The daily collection of water can be a large transport burden on households in terms of time and effort. The collection of firewood is also a very frequent task, but usually takes less time and effort than water. However, it does have environmental implications that can be very important for the wider society. Use of health care facilities and markets is less frequent, but rural people attach high importance to access to these services. Lower priority is given to better access to education facilities, perhaps because there is already more extensive provision – certainly of primary schools.

However, the rural development planner has to resolve the dilemma that it is not feasible for all public services to be sited in all communities<sup>35</sup>. Decisions on the location of, for example, different levels of education and health care facility have to take account not just of the need for better access but of the level of demand for these services, the resources available for staffing and provision of supplies, and the capability to manage an extensive network of facilities. The use of Integrated Rural Accessibility Planning (IRAP), together with a participatory approach, can generate a rational siting of facilities that reduces the time and effort spent by rural people on accessing services while ensuring that they can be operated and managed efficiently. The use of Geographical Information Systems (GIS) is rapidly developing. These are also likely to have significant application in rural infrastructure planning in the future.

The siting of services in a remote location with poor physical access to the outside world can lead to problems in staffing, operating and managing the facility. This emphasises the importance of:

- i) a functioning transport infrastructure network at all levels;
- ii) coordinated planning of different interventions to improve access – e.g. the provision of improved physical access combined with the construction of a new rural health centre.

It also highlights the fact that improved access to social services is not simply a matter of provision of the physical facility, i.e. a primary school or a clinic. It is also related to the quality and reliability of service provided at the facility.

Improving access to social services is most problematic in remote areas with small, scattered communities. There is unlikely to be sufficient demand to justify providing a primary school or a clinic to every community, compounded by the difficulty of operating and managing such a network of widely dispersed services. There are, however, other options which have potential, for example: siting of ‘satellite’ classrooms in a community linked to a school located at a larger centre; training of village health workers; and operation of mobile clinics (which of course will require good physical access). In the future it may prove possible to deliver education services

<sup>35</sup> This is a dilemma faced by both developing and developed countries.

to remote communities via satellite. These examples illustrate how adopting a holistic rural accessibility approach highlights the linkages to other components of rural development.

Specific mention should be made of the need for health care in an emergency situation. This affects all people, urban and rural, rich and poor alike. Studies have shown that rural people give the highest priority to having access to health care services in such emergencies. The rural poor are particularly disadvantaged. Because of lack of access and affordability, they rarely seek medical help until an illness (or complications during childbirth) becomes serious. At this point transporting the sick person to a hospital becomes an urgent, difficult and time-consuming task carrying a high risk that the patient's condition will deteriorate further before reaching adequate medical help. Particularly vulnerable groups are children, the elderly and women in labour. The MDGs include explicit targets for reducing the under-five mortality rate and the maternal mortality ratio. Given that many of these deaths are occurring in rural areas before medical help has been sought, improved rural accessibility has a potentially major role to play in achieving these goals.

#### **Box 8: Importance of Access to Health Facilities**

According to UNICEF “The most impoverished – usually rural – areas have few or no health care facilities, or the means to transport people for medical assistance. About 90 per cent of children dying from these (preventable) diseases die at home, often without their families even seeking health care.”

<http://www.unicef.org/health/index>

### ***The Availability of Communications***

The world is experiencing a continuing communications revolution. Access to information is increasing rapidly. The impact of this is already being felt in the rural areas of DMCs. Radio, satellite television, mobile phone communication and the internet are becoming more widely available. The full consequences of this are difficult to predict, but some preliminary observations can be made.

On the negative side, the coverage of such services in rural areas is more limited than in urban areas. The better access of people living in towns and cities to information and communications will further exacerbate the ‘urban-rural divide’ unless priority is given to providing more extensive rural coverage of satellite transmissions. Even then there is a risk that access to these services will be predominantly in the hands of richer people.

There is, however, a positive side. The communications revolution has allowed rural areas to ‘leapfrog’ some stages of technological progress, e.g. to the use of mobile phones without going through the stage of land-line systems. In villages in Bangladesh people watch satellite TV, for a nominal charge, in communal facilities operated by local businessmen. Poor women own mobile phones purchased using micro-credit that they operate as a business, charging people to make calls. This can reduce the need for travel – if someone is sick in the village, a trip to Dhaka to contact a relative and borrow money for treatment can be replaced by a phone call. There is clearly great future potential for modern communications systems to facilitate rural banking, provide access to learning materials and information, and to be used to summon medical assistance.

There is considerable potential for modern communications to contribute to improving access in rural areas, but with the risk that they will increase inequality between urban and rural areas. Future developments in communications should be monitored, and responses to them defined, as part of a long-term rural accessibility strategy. But the provision of communication services will not substitute for face-to-face contact. They are more likely to change the patterns of, rather than replace, existing travel. Some journeys will be rendered unnecessary, others will be generated. The overall effect will probably not be a significant reduction in the need for travel and transport. In rural accessibility terms, improved communications can be seen as complementing the other aspects of the approach.

#### 5.4 Rural Access and Poverty in the DMCs

The first part of this Chapter has presented the case for the comprehensive rural accessibility approach, and its key elements. We now examine the issue from the perspective of DMCs, reiterating that the reduction of **rural poverty** will remain the priority for foreseeable future. This section reviews the rural access and poverty situation in DMCs, drawing in part on the analysis in Chapter 4, where the limitations of some of the data used are defined. This overview is no substitute for the detailed country-level analysis that is needed to assist DMCs in developing national rural accessibility strategies. Rather, it is intended to highlight the array of needs and priorities to be addressed, and to illustrate a typology that might be further developed to guide ADB strategic planning.

##### *Variations in the Rural Access and Poverty Situation*

It is useful to make an overall comparison of rural accessibility and poverty situations among DMCs. This is presented in Table 5.2. The indicator used for accessibility is the state of rural road network development. This is drawn from Box 2 in Chapter 4<sup>36</sup>. It should be emphasised that the use of the short-hand terms High, Medium and Low in the matrix is relative since there is generally an 'under-supply' of rural road networks, representing a significant need for investment:

'High':	DMCs that have progressed significantly towards creating effective rural road networks.
'Medium':	DMCs which have extensive rural road networks but need to make major investments in rehabilitating and upgrading them.
'Low':	DMCs that need both significantly to extend their rural road networks as well as make major investments in their existing rural roads.

The main indicator used for rural poverty is the number of poor:

Very Large:	India and China PRC
Large:	more than 10 million rural people
Medium:	2.5 to 10 million rural people
Small:	less than 2.5 million rural people

As a second indicator, countries where the density of rural poverty is 35% or higher are highlighted in **bold** (see section 4.4 above).

<sup>36</sup> Reference was made there to the difficulties of obtaining reliable and consistent data on national rural road networks. This is a serious problem for DMC planners in analysing and monitoring the level of service provision provided by their rural road networks.

**Table 5.2: Rural Access and Poverty in the DMCs**

State of Rural Road Network Development	Number of Rural Poor			
	Small	Medium	Large	Very Large
High	<b>Azerbaijan</b> <b>Kazakhstan</b> <b>Kyrgyz Republic</b> Turkmenistan	<b>Tajikistan</b> Uzbekistan Sri Lanka Thailand		
Medium	Mongolia <b>Lao PDR</b> <b>Papua New Guinea</b> Solomon Islands		<b>Bangladesh</b> <b>Pakistan</b> <b>Vietnam</b> <b>Philippines</b>	<b>India</b>
Low	Bhutan <b>East Timor</b>	<b>Afghanistan</b> <b>Nepal</b> <b>Cambodia</b> Myanmar	Indonesia	China PRC

The task of improving accessibility by providing better rural transport infrastructure is greatest:

- First, in those countries where the state of development of the rural road network is “Low”.
- Second where the state of development “Medium”.

In terms of meeting the MDGs, it is a particular priority in those countries with larger numbers of rural poor and/or high densities of rural poverty. The scale of the challenge is greatest in China PRC plus the poorer countries first of South Asia, then of South-east Asia. However, the level and type of support required from the international development agencies to assist in meeting this challenge will also depend upon the extent to which particular DMCs are able to finance the required investments (including long term maintenance) from domestic sources, and on their state of institutional development and ‘maturity’. Countries where civil disorder has disrupted development and exacerbated the poverty situation - Afghanistan, Nepal, East Timor, Sri Lanka - will need special support.

None of the countries which have progressed further towards creating effective rural road networks (see 1<sup>st</sup> row of Table 5.2) have large numbers of rural poor, though in half of them the density of rural poverty is high. In these DMCs the emphasis is likely to be on the targeted provision of rural transport infrastructure in disadvantaged areas, and on effective planned maintenance. In much of the discussion above, there is an implicit assumption that there is a general under-supply of infrastructure and that the challenge is how to solve this. But there are some situations where there could be an **over-supply of rural infrastructure**, notably in the ex-Soviet republics of Central and West Asia. Here previous regimes built extensive networks of generally paved rural roads. With the break up of the USSR, the newly independent republics are struggling to establish a sustainable maintenance system on these networks, some of which are economically unsustainable. The overall approach to identifying rural accessibility needs in these areas does not differ from elsewhere. However, the solution may involve downgrading the standard of, or in extreme cases abandoning rather than improving, some rural roads.

The analysis here excludes the 12 small island nations (ref section 4.1above). Many of them have very small land areas, so that problems of physical remoteness are associated with boat transport between islands, not road transport. The rural accessibility and poverty concerns in these countries are limited in scale. However the tsunami in December 2004 demonstrated the vulnerability of such islands (e.g. The Maldives) to natural disasters, generating a need for re-construction of transport infrastructure that is damaged or destroyed.

### ***Rural Access Environments***

The analysis of differing rural accessibility needs and priorities of DMCs can be extended by looking at the characteristics of different types of access environment. Two main parameters are considered – population density and physical environment. The matrix in Table 5.3 covers most situations found in DMCs. It defines six broad rural access environments. In each cell, typical examples are given from DMCs. In only a few cases does the physical environment category describe the whole of one country. Most countries have a mixture of environments. Population density is a relative term. In the rural situations considered here, “dense” population means something well below the densities found in urban and peri-urban settings.

**Table 5.3: Rural Access Typology**

Population Density	Physical Environment		
	Mountainous	Flat Terrain	Water
Medium to densely populated	Nepal hills Northern Pakistan	Uttar Pradesh	Southern Bangladesh Mekong Delta
Sparsely populated	Bhutan Upland areas of Vietnam, Laos and Cambodia	Mongolia Rajasthan	Pacific Islands

#### *Mountainous areas*

Mountainous areas are characterised by very difficult access conditions. Rural roads tend to be few. Road maintenance is very problematic with landslides and high rainfall run-off rates causing particular problems. The building of roads in these areas is costly. For these reasons the network of footpaths and trails is important for the movement of goods and people over both short and long distances. Provision of river crossings can be highly important for rural access due to dangerous rivers with steep sides and fast flows. Safety on certain sections of foot trails and at river crossing points is often a major concern for travellers. In some areas animal transport is important, with mules, donkeys and yaks being used to carry goods in steep terrain and at high altitude. These are often operated in caravans or teams. Walking is the principal means of travel for most people. Hired porters carry goods in many areas. Travel on the few rural roads that do exist is often by four-wheel drive jeeps and is expensive. Where roads are built, there can be a significant increase in the movement of goods and people due to the step change in access that occurs. However, foot and animal traffic is not entirely displaced by new roads and these may continue to use the original trails, which are usually considerably shorter than the roads that replace them. Ropeways provide an option for both people and goods but this tends to be in certain special locations.

The main difference between sparsely and more densely populated mountainous areas is the more developed transport systems in the latter. Where there is a fairly dense population the system for transporting goods, including the rates paid, is well-known. The porters and traders tend to use a few main trails along which “tea-shops” and overnight stopping places are established. The total daily “traffic” on foot trails can be high even though the trip rate per rural resident is low. Significant seasonal fluctuations in the movement of goods and people occur. This is partly due to the increased difficulty of travel in wet seasons but also because of the demands on people’s time for agricultural activities and the availability of crop surpluses for sale. There can be a significant change in the routes between wet and dry seasons with relatively flat and sandy dry river beds used by travellers in the dry seasons and more difficult and steep riverside routes used in times of high river flows.

Sparsely populated mountainous areas present the most difficult problems of rural accessibility. It is in these areas that the most remote and isolated, often ethnic minority, communities live. They have to be highly self-sufficient to survive. Communities tend to have very little connection with government authorities and, sometimes, this leads to their involvement in illegal activities such as cross-border smuggling and the production of drugs.

There are three potentially negative effects of improved rural accessibility on the local population which are not exclusive to, but are most severe in, mountainous areas.

- (i) Portage is an important source of income for local people. This opportunity can be lost when new roads are built.
- (ii) Isolated areas tend to develop self-sufficiency in many trades including, for example, the production of clay or brass pots. Once an area becomes more accessible to manufactured goods such as aluminium pots, the local industries can be undermined and livelihoods lost.
- (iii) As accessibility increases, outsiders with capital and influence can buy up local resources such as land and timber. This can price local people out of the market and lead to destitution or an increase in the level of out-migration.

#### *Flat terrain*

Flat (including gently rolling) terrain presents a quite different picture of the conditions for rural travel and transport. Road building is much less costly than in mountainous areas and maintenance presents fewer problems. Many routes develop naturally by the passage of traffic, including foot traffic. A dense network of footpaths and tracks often evolves. Road building usually comprises the upgrading of an existing track with the major decision being which routes to upgrade. Although walking is the most common means of transport, animal carts and bicycles are often highly important. Where the physical access is reasonably reliable, transport services are often available with IMT such as motor tricycles predominant.

The level of access can be dramatically different between wet and dry seasons. In dry seasons, most places can be reached by robust motor vehicles with high ground clearance. By contrast, in wet seasons large areas can be cut off to motor traffic for weeks or months. This often creates a vocal demand for “all-weather” access. For some agricultural products the difficulty of movement in wet weather is a particular problem as the marketing of produce that cannot be stored is impeded, and the variability of weather from one season to the next makes it difficult for farmers to plan ahead. In longer than average wet seasons, reports of crops rotting in the fields because they cannot be taken to market at reasonable cost are not uncommon.

The more sparsely populated flat terrain is found in arid and semi-arid areas and high plateaux with low agricultural potential. Communities in these areas are scattered and usually reliant on livestock, which may be associated with a semi-nomadic existence. Robust motor vehicles can reach most places in dry weather, with or without an existing track. However, distances between communities are long and the density of demand for transport extremely low. Consequently, transport services are few and most households rely on walking or animal-powered transport. Road building in these areas is usually possible technically but not feasible economically due to very low traffic. Road maintenance is a challenge due to the long stretches with little or no population. In some cases governments provide services in these areas by creating rural growth centres. Provision of transport infrastructure and services to and from these centres is then an important issue. In some areas major social changes are in progress with a high out-migration of young and able-bodied people to towns and cities.

### *Water*

The major category of physical environment not yet discussed is that dominated by water. This can be riverine, lake, delta or sea. Rivers and deltas are often associated with highly fertile land and include some of the most densely populated rural areas in Asia. However, the conditions of highly organic soils and perennial flooding that provide this fertility are not conducive to road building. Transport by boat is very important. Many households own a boat for personal travel, access to their fields, and fishing. Boat transport services can be important - in Bangladesh the country boats have been assessed as the major mode for movement of goods and people in some rural areas. Rural boat transport services are typically privately operated and informal.

The only maintenance of rural waterways that may be required is the dredging and clearing of certain channels and embankment erosion repairs. The major infrastructure required is for the loading and offloading of cargo and people. Well constructed wharves are seen by local people as a major benefit. They increase safety and comfort for embarking and disembarking passengers who do not have to negotiate crumbling river banks or low-tide mud flats. Wharves also permit the more efficient and cleaner handling of goods, and reduce losses. They can be operated as private enterprises with their operating costs covered by the collection of fees. The safety of passengers on boats and ferries is a concern. Standards of maintenance of boats and ferries by transport operators are often low and evasion of regulations is high.

Despite the continuing importance of boat transport, rural road networks are gradually being extended into these areas. Because of the risk of flooding, these roads are often built on costly embankments. The land required for these roads is significant and valuable agricultural fields have to be sacrificed for road development. Many small bridges are required which add significantly to the cost of the roads. Maintenance costs for these roads are relatively high due to high rainfall and the need to maintain the embankments.

Water transport is essential for people in the Pacific Islands as well as the coastal communities in countries such as Indonesia. These communities are often totally dependent on transport by boat for their connections to the outside world. Roads in these areas are typically difficult to build and to justify economically, and the availability of land transport services very limited. Connections between islands are mainly provided by ships and ferries. However, because of the long distances and low population, frequencies of visits of once or twice a week or less are common.

## **Conclusion**

This review of the rural access and poverty situation in DMCs illustrates the widely differing needs of the different areas both among and within DMCs. Improving rural accessibility requires the correct identification of the needs in each individual area. It is clear that sparsely populated areas present particular challenges with improvements to rural accessibility being costly per head of population served. However, the DMCs face an array of issues and constraints in improving rural accessibility which are examined in the remainder of this Chapter.

## **5.5 The Enabling Framework**

There are a series of issues and constraints that DMCs, with support from the development assistance agencies, must address in the enabling framework if they are to make more economically efficient, but politically realistic, use of scarce resources in improving rural accessibility to reduce poverty. These issues are concerned with policy and decision-making, donor support, planning, institutional and implementation arrangements, and governance.

### ***National Policy and Strategy***

The majority of DMCs do not have a coherent National Transport Policy that fully addresses rural access and poverty. Existing policies tend to be diverse but partial, covering everything from air to road transport and from infrastructure to transport unions but leaving out some issues that are fundamental to a pro-poor agenda. (As an example, the five-year National Strategic Development Plan for Cambodia, which has an extensive network of rural inland waterways, highlights the need for improved access to reduce rural poverty, but deals with the water transport system in a single sentence [68]). This 'partial' treatment results in part from a lack of understanding of the importance of a holistic approach to improving rural accessibility. The problem is compounded by the fact that rural accessibility 'straddles the fence' between the transport and rural development sectors. Governments face real constraints in adopting and applying consistent, coordinated policies and strategies across the institutions and departments responsible for the two sectors. The result is a lack of guidance for planners, decision-makers and implementing bodies in more complex issues such as transport and social exclusion and pro-poor targeting of interventions for increased rural accessibility – the articulation of a holistic policy and strategy can be seen as a pre-requisite for establishing appropriate operational arrangements and capacities.

The MDGs and national poverty reduction strategies provide the framework for tackling poverty in the DMCs, and at country level the desired outcomes are usually quite clear. However, the proposed array of initiatives to achieve these outcomes is often too simplistic. Transport is typically seen as "more roads" to generate growth and create jobs. The need to create a sustainable improvement in rural access, whilst addressing cross-cutting issues such as gender equity, is often poorly articulated and is not given sufficient emphasis.

Thus, a first issue for most DMCs is the explicit recognition of the need for a holistic approach to improving rural accessibility in National Policies and Strategies. This will affect both Transport and Rural Development Policies and rural accessibility can provide a bridge between the two sectors. It should form part of a broader policy reform and capacity building agenda that includes local government devolution, improved governance, and the role of the private sector in providing public services. The experience in countries that have brought rural accessibility into

national strategies is that it is immediately beneficial in giving greater visibility to the issues surrounding isolation and poverty e.g. Vietnam [48] and Tanzania [77].

### **Development with Equity**

Combining rapid economic growth with more equitable distribution of its benefits is a major challenge. There are specific issues in the allocation of resources for improving rural accessibility.

Many DMCs have some remote and scattered poor communities. There is a need to justify the investment of some resources in terms of reducing extreme isolation and integrating the most remote communities into the national economy and society. The consequence of not addressing this issue will be a rapidly growing disparity between urban centres and the poorest rural areas and a continuation of intransigent rural poverty. The experience of the Indian Border Roads Organisation shows that connecting the poorest and most remote communities into the national road system can have an important impact, even if the original justification of the investment is for national security (see Box 9).

#### **Box 9: India Border Roads**

“The Border Roads Organisation [BRO] plays a very vital role in connecting the inaccessible border areas. BRO was raised on May 7, 1960 with the mission of developing communication in hitherto forlorn areas of the north and North-East states of India and also fortification of the turbulent borders.”

“BRO usually works in remote to very remote mountainous areas along the international border which are inhabited mostly by tribal people. All these tribes are very happy with BRO. There are two reasons for that. One, by cutting new roads in difficult terrain to (the) most difficult tribal areas, the BRO has brought about (a) tremendous change in communications leading to (a) marked improvement in (the) economy and the living and working conditions of the tribal (peoples). Two, the expenditure incurred by BRO on various roads comes from the Government of India funds saving the limited State funds for execution of other developmental activities.”

[www.globalsecurity.org](http://www.globalsecurity.org)

The issue of inequality does not relate only to the most remote and poorest communities. Most rural areas of DMCs are becoming poorer compared to their urban counterparts. There is no easy formula for the allocation of resources between different areas to promote equity. But it seems clear that DMCs must apply some form of preferential weighting in the allocation of resources to rural areas, in order to achieve development with equity. Within the road transport sub-sector, for example, this means ensuring a reasonable allocation of road development and maintenance funds for local access. This could be a fixed percentage of national Road Fund revenues or of central government allocations for the sub-sector. In the context of a national strategy, the concept of achieving a minimum basic access to all rural communities can be helpful [58]. However, defining basic access and setting upper limits on the costs remains a challenge.

Achieving gender equity, and the equitable treatment of ethnic minorities, remains an issue in many DMCs. The principles are articulated in policy and strategy documents, and there are certainly some successes to report. But the widespread application of these principles to rural development work is problematic. In some countries they run counter to deep-seated cultural practices, which take time to overcome. There are practical difficulties to understanding and responding to the access needs of women in ‘male-biased’ local government organisations. And

in some DMCs ethnic minorities are under-represented in, or absent from, the local institutions responsible for rural development. The adoption of participatory approaches, discussed below, is one of the keys to resolving this issue, but it also requires real long-term government commitment and substantial institutional changes.

### ***Participation and Ownership***

The starting point to address the rural accessibility issue is the community. Engaging with communities requires a participatory approach to the identification, planning and implementation of rural accessibility improvements by the government agencies responsible. The value of stakeholder participation has become much more widely recognised over the past ten years. Increased ownership of the development process by stakeholders leads to better identification of needs and smoother implementation. It also creates the conditions for future sustainability. However, while there are examples of success, achieving effective participation remains a considerable challenge for most DMCs due to:

- i) the need to overcome resistance from local leaders and elites who see beneficiary participation as a threat to their decision-making authority and influence;
- ii) the real difficulty of ensuring effective participation by the poor and disadvantaged. Marginalised groups are the most difficult to reach, and require a special effort. Some, such as ethnic minorities, lower castes and women, are often excluded from traditional community decision-making processes. They may lack the confidence to make their voices heard; and other ‘survival strategy’ priorities for use of their time may make it difficult for them to attend meetings and discussions;
- iii) the time-consuming nature of participatory processes, and their requirement for quite intensive inputs by skilled staff during the design and implementation of investment programmes. These requirements run counter to, for example:
  - the demand to invest funds and achieve visible physical outputs as quickly as possible;
  - the desire of many DMC governments to restrict the use of loan funds to ‘hard’ infrastructure investments, not to finance ‘soft’ developmental processes.

Furthermore, the scope of participation is still widely misunderstood in DMCs:

- In some quarters it is perceived as essentially an input to the initial planning process. To be fully effective it must extend through implementation, operation and maintenance.
- There is a tendency for central and local authorities to understand participation by beneficiaries in rural infrastructure development as being restricted to their voluntary contribution of labour, cash and/or materials, or their paid employment on unskilled construction works.
- Many established participatory techniques were originally developed for water supply or irrigation programmes where the beneficiaries are very clearly defined. There remains a lack of understanding of how to adapt these techniques to, for example, rural transport infrastructure schemes which: (a) have a wider array of direct and indirect beneficiaries with different vested interests; and (b) may have adverse impacts on some people – e.g. those who will lose land or have to live adjacent to a dusty road.

This confusion can lead to poorly conceived and badly implemented projects. It highlights the need to change the mind-sets of the officials responsible towards a more participatory approach, and to develop their capacity to apply and manage practical participation techniques.

However, the framework within which to develop effective participation in improving rural accessibility does already exist. For a transport system, ownership and responsibility varies for different parts of the network:

- The strategic network of primary and secondary links is the responsibility of central authorities represented by a line ministry which may have offices at different levels. Top-down planning predominates. Participation of local government and the wider population is typically through consultation at key stages or on key issues. The management of this part of the network is by technical specialists from line ministries.
- For the tertiary network, local governments have increasingly been given responsibility for development and maintenance. This improves the prospects of network management being responsive to local priorities. However, because these offices ultimately report to locally elected officials, they tend to be closer to, and more influenced by, local leaders. The shortage of resources means difficult choices have to be made in allocating them across a wide array of needs. It is here that local participation is a crucial input. A good participatory process at the planning stage assists in reaching a consensus on the optimum use of the scarce resources. It also provides the starting point to involve the community in subsequent implementation and maintenance.
- For lower level transport infrastructure, ownership and responsibilities are with the beneficiary communities themselves. Through effective processes of participation, many communities have been willing to take on this responsibility, and to provide their own labour and other resources where they benefit directly. The Village Travel and Transport Programme (VTTP) in Tanzania is one example of this. Under the VTTP, villagers are assisted in the identification of access issues and possible solutions (usually by District Council community development staff). They then take the lead in planning, organising and implementing their improvements. They can request a contribution from the District Council in the form of materials or technical advice that they cannot provide easily themselves e.g. concrete culvert pipes or cement. The key to the VTTP is that it is a community led approach with contributions being made by the District Council to the community efforts and not the other way around (see Box 10) However, in the VTTP and elsewhere, combining communities together, for example to improve one road serving several villages, has been found to be less successful.

#### **Box 10: Community Driven Development**

Poor and marginalized people have often been viewed as the target of poverty reduction efforts. Community Driven Development (CDD) approaches turn this perception on its head, and treat poor people and their institutions as assets and partners in the search for sustainable solutions to development challenges. CDD - broadly defined - is an approach that gives control over planning decisions and investment resources to community groups and local governments. CDD programs operate on the principles of local empowerment, participatory governance, demand-responsiveness, administrative autonomy, greater downward accountability, and enhanced local capacity. Experience has shown that given clear rules of the game, access to information and appropriate capacity and financial support, poor men and women can effectively organize in order to identify community priorities and address local problems, by working in partnership with local governments and other supportive institutions.

World Bank website

The importance of bottom-up participatory planning for the whole array of rural accessibility improvements is now recognised. Only in this way can the problems and bottlenecks in rural access be identified and appropriate solutions developed. But this has to be married to the top-

down planning considerations of allocation of scarce resources among competing demands, connective network development and management and operation of rural facilities and services.

The conclusion is that a structured and appropriate participatory approach, community-driven at the lowest levels, is needed to make efficient use of resources for improving rural accessibility. But this approach is not yet applied in many situations, and is likely to require some outside facilitation and technical assistance support.

### ***Devolution and Fiscal Decentralisation***

Devolution of government responsibilities, accompanied by fiscal decentralisation is a major policy trend in most DMCs. But implementation of the policy is a long-term exercise requiring new or adjusted legislation, major institutional changes and capacity-building. It requires time, and committed long-term support from central government to become effective. The process is tending to move slowly in many countries for a number of reasons. Essentially it is politically-driven and enthusiasm can wax and wane through periods of government office. There is a large inertia, and vested interests, to overcome in existing systems and central ministries. Local government is often seen as weak and incompetent by central authorities<sup>37</sup>, which becomes a justification for a general reluctance to devolve real power and control over the use of financial resources. Delegation of responsibility without resources is common. This is the antithesis of effective management which occurs when authorities and responsibilities are in balance. Responsibility without authority, particularly financial authority, creates frustration and is ineffective (on the other hand, authority without responsibility creates conditions for corruption to flourish). The summary assessment is that local government is currently in a state of flux in many DMCs.

The incomplete process of decentralisation has already had some impact on the planning and implementation of rural accessibility improvements. But achieving effective decentralisation of responsibilities and authorities is one of the biggest issues that DMCs must address. Local government structures are usually keen to take over the responsibility for local road networks and water transport infrastructure. However, they typically find that they have been given responsibility for a relatively large network of roads (and in some countries also wharves and jetties) of low standard and in poor condition, with few resources for their development and maintenance. More broadly, the role of local government is pivotal in the key issues of regulation of local transport services, local-level planning, and providing the institutional link to communities.

Clearly, improvements to rural accessibility in DMCs cannot wait for the situation to stabilise and decentralisation to be fully accomplished. Improvements to tertiary road networks and in other aspects of local access will have to be carried out taking into account the implications of a changing institutional environment. Capacity building at different levels of local government is likely to be a feature of many rural access improvement initiatives.

Local government, as the focal point for rural development, provides the mechanism for coordination between the different sectors. This is particularly important for rural accessibility improvements where complementary interventions are crucial for meeting poverty reduction and

---

<sup>37</sup> Central government is also often highly critical of corruption in local government. But such an assessment is not normally accompanied by a comparison with corruption in central government agencies.

economic growth objectives, and can be critical in generating benefits for the extreme poor. But much remains to be done in DMCs to achieve effective, coordinated local-level planning:

- (i) staff often lack the cross-sectoral planning capacity and skills that are needed;
- (ii) many local-level development plans are unrealistic 'shopping lists' which bear no relationship to the level of resources likely to be available and lack a rational and coordinated procedure for determining investment priorities across sectors.

To support the process of decentralisation, there have been several initiatives to develop cross-sectoral local-level planning systems. Integrated Rural Accessibility Planning (IRAP) has now been applied in several DMCs and proven to be practical and manageable methodology. In the Philippines IRAP has been used since 1989 and has now been incorporated into the local government planning system. The data from IRAP is being used by several government agencies and by donor organisations to prioritise investments. It is also being used as input to the targeting of poverty alleviation programmes. It uses a bottom-up approach but also: (a) incorporates the broader transport planning considerations essential to achieving connective development of the network between the locations where people live and the places to which they need to travel and move goods; and (b) provides a procedure for defining the complementary inputs that are needed to increase the impact on poverty reduction. Local-level planning and prioritisation is inevitably a political as well as a rational decision-making process. One of the benefits from the use of IRAP is to provide a rational justification for the selection of investment schemes that can be applied to offset political influence by elites over the use of funds, particularly when the information is made publicly available as part of the participation process. The successful application of IRAP is a good example of how decentralisation is both supportive of, and can be supported by, rural accessibility improvements.

Local government bodies provide the institutional link to communities in the identification of needs and the facilitator of community-led initiatives. Both these aspects are important in the context of rural access improvements. For many countries in Asia and the Pacific, resources for rural access are likely to remain constrained for the foreseeable future. It is important that rural communities take responsibility for certain levels of the local transport infrastructure. But this requires a proper definition of roles and responsibilities. Given these conditions and an effective bottom-up planning process, there are examples where effective partnerships have been built between local government and communities for rural access improvements e.g. in the VTTP in Tanzania, as discussed above. However, these tend to be the exception, and in most DMCs the institutional arrangements and capacities, and in some instances the will, for their widespread adoption are lacking.

To summarise, even when they are weak, local governments will play a key role in improving rural accessibility. Substantial capacity building is needed including: (a) securing a flow of resources to sustain access improvements; (b) support for a local-level process in which rural accessibility is planned alongside development initiatives in other sectors to meet the objectives of poverty reduction and economic growth; and (c) developing the institutional arrangements and motivation for partnership between local government and communities.

### ***Governance and Corruption***

Good governance is acknowledged as vital for effective development. The exact nature of governance depends on the political system and environment in each country. Effective participation and decentralisation are both elements of achieving improved governance. An important facet of good governance is transparency and accountability in the delivery of government services in order to reduce corruption.

Infrastructure investment is one of the largest sources of corruption in DMCs in terms of money lost, misappropriated or mis-invested. Corruption stifles the development of an effective private sector by favouring inefficient producers, leads to the unfair, inefficient distribution of scarce public resources and to the leakage of funds. It also results in sound regulations and practices being circumvented, for example when inspection and approval procedures for road construction works are not complied with. In many DMCs there is dissatisfaction in both the public and private sectors with the current situation, but accompanied by a sense that there is no escape from the existing defective system. The small contracts associated with rural access works may be individually less attractive than larger contracts, but the percentage of leakage can be high<sup>38</sup>. In a major rural infrastructure investment programme, the sum total of small contracts can be very significant. This can result in systems of mis-using resources through the “skimming” of contracts becoming rapidly entrenched in institutions.

There is an opportunity at local government level to introduce clear contract procedures that have a high degree of transparency and local accountability. This is part of the challenge of making local government an effective service provider responsive to the needs of the people that it serves, and reducing the mis-direction of locally-managed resources through the influence of local elites. More effective people’s participation in planning and monitoring rural access investments will contribute to this. But specific measures to reduce corruption through rural accessibility initiatives should be linked to broader national-level policies and programmes.

### ***The Role of the Private Sector***

The private sector has traditionally played a role in the provision of rural access. Most DMCs have many small contracting businesses undertaking a variety of civil construction works in rural areas including roads and bridges, schools, health centres and water supplies. The private sector manufactures and/or supplies and services the intermediate and conventional means of rural transport. In some instances it provides the credit financing for vehicle purchase, and it operates some rural transport services. The inland rural water transport sub-sector is essentially privately managed and operated. In recent years the trend in DMCs has been towards increasing use of the private sector for the delivery of public services, in line with international economic thinking and supported by the development assistance agencies. This process is at different stages of evolution in different countries, and there are constraints that still need to be addressed in respect of the lack of private sector capacity in rural areas.

Part of the trend towards increasing the role of the private sector has been to dismantle force account<sup>39</sup> systems and contract-out road construction and maintenance works. The local private sector has had to respond with increased capacity in road contracting and in technical consulting services. This process is only partially complete with new systems and procedures not yet fully established.

For local access improvements, small-scale locally-based contractors are increasingly important. They are typically low-capital, i.e. fairly labour-intensive, and work in a variety of different construction sectors. Their flexibility and low mobilisation cost is particularly attractive, and they are well-suited to the execution of small packages of infrastructure works. They provide employment to local people rather than bringing in migrant labour. And they are well-

<sup>38</sup> A figure of 30% leakage has been suggested in a rural roads project in one DMC, primarily through kick-backs from contractors to government officials.

<sup>39</sup> Force account is the term used for in-house, direct labour systems.

known to the communities, which encourages accountability and reduces the fear that they will run away if problems arise. But many of these contractors:

- i) lack capacity in understanding and managing formal contracts, and in quality control and supervision procedures;
- ii) are not familiar with organising, supervising and managing civil works using labour-based methods (discussed later in this Chapter).

The trend towards private provision of infrastructure implies a need for greater local design and supervision consulting capacity. DMCs have local consulting firms, some of which also operate internationally. However, for the rural accessibility sub-sector, there are some concerns:

- i) the local firms tend to be main city based, and their first interest is in large assignments for major infrastructure works. Design and supervision of small, scattered rural works is less attractive. This is in contrast with the situation in most developed countries where there is a hierarchy of national and local consulting firms, and the larger companies have several offices in different parts of the country - a local government body can, therefore, easily find a local firm to provide consulting services;
- ii) the professional staff of the firms tends to be more experienced in, and their education and professional work has oriented them towards, the technical challenges of large-scale works. They are less capable in the design and implementation approaches appropriate to rural transport infrastructure;
- iii) local government bodies in DMCs are generally not experienced in contracting, and managing, the services of private consulting firms;
- iv) in some DMCs there are legitimate concerns about the professional practices, and commercial ethics, of some local consulting firms.

There is a need to develop the capability and professionalism of the small-scale contracting and engineering consulting industries in DMCs. This is partly a matter of demonstrating the demand for such services. But this needs to be accompanied by training and capacity-building programmes. There is also a governance element that would benefit from the development of civil society organisations – local associations of contractors and national associations of consultants. Such associations have valuable roles to play in:

- i) providing training;
- ii) keeping their members aware of new legislation and its implications for their businesses;
- iii) establishing standards, including codes of ethics; and
- iv) representing their members' interests, including dialogue with government on establishing fair and effective measures to curb corruption.

Public sector passenger and goods transport services operated by government agencies are typically inefficient and loss-making. Experiments with the use of community-managed transport services have had some limited success, but in very specific circumstances which are not necessarily widely replicable. An active private sector operating in an open market offers the best means of delivering demand-driven rural transport services. This requires government to exercise its role of transport regulation with 'a light touch', eliminating unnecessary route, pricing and other operational restrictions. Safety is obviously a legitimate public concern, but for maintaining or improving rural accessibility, it has to be regulated in a way that does not eliminate competition or unnecessarily suppress rural transport services. It is important to recognise that safety issues on low-traffic rural roads are different from those in urban centres.

The objective should be for the private sector to play an increasingly significant role in improving rural accessibility. Locally-based contractors, supported by local consultants, will carry out the infrastructure improvements. Private operators will be the providers of transport services. They

will also take on the management of related facilities – rural bus stations, transport terminals, landing sites for small boats, and rural markets. Local businesses will continue to supply and maintain the IMT that many people use, and should play a more significant role as the channel for providing credit financing for the rural purchase of vehicles.

### ***The Role of Development Assistance Agencies***

The ADB and other international development assistance agencies continue to provide substantial support to the DMCs in financing investments, reforming policies and building institutional capacities. However, to make efficient use of resources in improving rural accessibility there is a need to increase the effectiveness of this assistance. The lack of national rural accessibility policies and strategies has created the circumstances where some development assistance agencies have determined the national agenda in specific DMCs. Recognising the benefits of applying the holistic rural accessibility approach they have in effect introduced their own policies and strategies in designing and implementing projects. Although these may all point in the same general direction, each one has its own particular features. This can lead to confusion about how address such rural accessibility issues as pro-poor planning, gender equity, implementation responsibilities, technical standards, labour-based methods and maintenance strategies. These initiatives can generate valuable lessons but the diversity of approaches does not create an environment for easy replication by government departments or harmonisation of institutional arrangements and procedures.

An important recent trend does however provide cause for optimism. The ADB, together with many other donors and development partners now subscribe to the principle of moving towards greater harmonisation of donor support and alignment with government systems and procedures. This was articulated in the Paris Declaration on Aid Effectiveness of March 2005. The following commitments for donors and partners are highlighted in the Declaration:

- **Ownership** - Partner countries exercise effective authority over their development policies, strategies and national systems when relying, partially or entirely, on external resources.
- **Alignment** - Donors base their overall support on partner countries' national development strategies, systems and procedures. This creates mutual commitments. For partners, it means having sound and operational development policies and systems for managing aid. For donors it means using partner countries' policies, institutions and systems as the framework of reference for providing aid.
- **Harmonisation** - Donors organise their multiple activities in ways that maximise their collective efficacy.
- **Managing for results** - Improves the performance and accountabilities in achieving sustainable improvements by focusing on development results.

The Paris Declaration is relatively recent, and its full implications are yet to be felt in development assistance programmes. The general shift towards more local ownership and use of partner government systems is consistent with the approaches required for improving rural accessibility.

The commitment to harmonisation is particularly relevant to the ADB's future support to rural access. There was already a trend, pre-dating the Declaration, towards the ADB joining in partnership with grant-funding agencies to finance investment programmes. This approach will facilitate the implementation of initiatives to improve rural accessibility. ADB loan financing is appropriate to the 'harder' rural infrastructure investments, while grant financing provides

greater flexibility, and is likely to be more acceptable to the borrowing DMC, to incorporate the 'soft' components that are needed to achieve a holistic set of rural accessibility interventions. It should also be noted that the poorest countries now have greater access to direct grant funding from the ADB than was the case in the past.

The Paris Declaration is an important commitment by the international development community. But in respect of rural accessibility, translating this commitment into practice will require DMC government to:

- i) establish well-defined sector and sub-sector strategies and procedures;
- ii) work with the funding agencies to agree on common project preparation and operational procedures, in the context of a co-ordinated programme of support to a sector;
- iii) strengthen central and local government institutions with responsibilities for rural transport and rural development with the necessary staff capacity and capability to implement the strategies;
- iii) shift the performance measurements of institutions towards compliance with nationally-defined requirements and targets for improved access, and ensure that these take precedence over compromises made in order to obtain external funds;
- iv) establish robust and transparent procedures for managing funds to reduce the pressure from foreign financing agencies for external controls.

## 5.6 The Provision of Improved Access

DMCs face a range of issues and constraints in practical aspects of the effective provision of improved rural access – the construction, upgrading and maintenance of roads and other transport infrastructure; the expansion of demand-responsive rural transport services; the wider availability of IMT; and the more extensive provision of better quality rural economic and social services.

### ***Classification of Rural Transport Infrastructure***

An important issue that relates to better governance and effective management of the transport system, and to design standards, is the proper classification of the transport infrastructure network. Primary road networks are usually well-defined, with clear standards and agreed ownership and responsibilities for their management. The classification of secondary and tertiary roads in many DMCs is less clear, and frequently is not applied to the practical management of the system. This leads to confusion and inconsistency about ownership of the roads, the responsibilities and approach for their management, and design standards.

A major confusion is between functional and engineering classification. Infrastructure is predominantly classified in terms of its function. An example is "a connection between district centres" which might be a sub-set of a secondary or tertiary network. Engineering classification is by technical standards, for example "a 6 metre wide gravelled road". The confusion arises when it is assumed that each functional classification is tied to one engineering standard. This is not the case. Engineering classification is determined by the volume and types of traffic using the road, not the function of the link. Thus, a primary road might be gravel surfaced if it is very lightly trafficked and in a dry area. Whereas, a tertiary road could be bitumen surfaced if it is in an area where traffic levels are high, soils are weak and the monsoon heavy and prolonged. The one qualification to this is that it can be a valid objective for a certain functional class of road to meet a minimum level of serviceability. For example, a valid objective could be that all

roads connecting district centres should provide all-weather access. The result might be that these roads are all paved. But this does not invalidate the basic distinction between engineering and functional classification.

This lack of understanding of the difference between function and engineering causes confusion over responsibilities for network management. A common example is where responsibility for management of the secondary and tertiary network is divided between Provincial and District levels of government. A Provincial Authority may, on an ad hoc basis, undertake upgrading and improvement of a District Road because “it is an important link” but assume that the District authorities will carry out subsequent maintenance. On the other hand a Provincial Authority may arbitrarily abrogate responsibility for a low-trafficked, low-standard Provincial Road to the District.

The definition of a proper and rational functional classification of the network - roads, waterways and tracks and footpaths - is the correct starting point for good rural access planning. This must then be applied consistently to allocate ownership and management responsibility for different levels of the network among different levels of government (and communities). This in turn provides a clear institutional framework for coordination in planning the connective development of the network. Unfortunately, rural infrastructure at the lowest levels is typically being developed piecemeal, and the crucial importance of proper classification and its consistent application is often missed.

### ***Design Standards for Rural Roads***

The definition of appropriate technical design standards for secondary and tertiary road networks has long been an issue. From the technical and economic perspectives, because they carry less traffic, the viable level of investment per kilometre is lower than for the primary network. The key concern is that the design standards applied tend to be too high.

Because social concerns are important, there is typically less rigour in the economic analysis of secondary and tertiary roads than is the case for highways. Costs per kilometre are often not perceived as a critical issue and investment in the infrastructure is seen as a once-off opportunity to provide improved access, particularly if it is financed from development assistance funds. The key consequence of this is that there is a significant trend towards paving rural roads, particularly bitumen paving, with the justification that this will avoid the subsequent maintenance problem. This occurs even though in many cases gravel or earth surfacing is a better economic solution and is adequate technically for the volumes and types of traffic (although see below for environmental concerns).

This desire to “build rural roads to last” can be misguided. Because it is proving so difficult to establish effective maintenance in most DMCs - due to local funding and institutional issues – there is a tendency to accept higher initial investment for secondary and tertiary roads in order to reduce immediate maintenance costs. But:

- i) while paved roads have low maintenance costs in their early years, they deteriorate rapidly towards the end of their design life, so that the eventual cost of maintaining them in the future will be high. Here there are lessons to be learnt from the former Soviet republics of Central Asia where the past over-design of roads is causing current problems with maintenance;

- ii) by ignoring a whole-life cost approach<sup>40</sup> to the choice of technical standard (and in effect accepting that maintenance will not take place), DMCs are making investments in rural roads that are not economically efficient. The result is that less infrastructure can be built with the available funds, so that many rural people are left without improved physical access and the significant benefits that would accrue to them are foregone.

This is not to propose the adoption of inappropriately low standards. If too low a standard is used, the roads will deteriorate quickly under the action of traffic and weather, even with good maintenance, and the investment will rapidly be lost. Skilled and objective engineering judgement is required in deciding on the optimum solution, though many road engineers tend to have a 'professional bias' towards higher technical standards.

Another trend in the development of rural road networks is the use of a spot improvement approach. Where traffic levels are low and full rehabilitation of roads not justified, the removal of bottlenecks is often the most viable solution. This can be applied to a network over a period of time with annual investments being directed towards maintenance plus elimination of specific bottlenecks. However, despite the economic efficiency of this approach, it has met with considerable resistance (see Box 11). The arguments used against it are that the improvements do not last so the gains are only temporary. This appears to be based on a perception that a rural road investment is a once-off opportunity, and unless a full solution is provided immediately, it is felt there will be no long-term gain. This perception is sustained by the lack of regular maintenance and the irregular flow of funds for rural road investment.

#### Box 11: Spot Improvements

Under a feeder road improvement programme in Ghana, the spot improvement approach to feeder road improvements only differed from the full rehabilitation by limiting the gravelling of the surface to critical sections. The original plan to address only those sections of the feeder roads that caused problems for the passage of traffic was rejected. This was due to concerns with (a) maintenance management problems on spot improved roads and (b) public and political criticism of the government department if a lower standard of improvement was applied.

Source: Authors

On lower classes of rural roads, pedestrians, bicycles, tricycles, animal carts and slow-moving motor vehicles constitute the majority of the traffic. For the most part, the design standards of rural roads in DMCs do not take adequate account of this. There is an assumption that the roads are built for 'conventional' motor vehicles – cars, trucks and buses – and the real nature of the typical mix of traffic is not well appreciated. This can result in rural roads that make inadequate provision for IMT and are unsafe for both the fast and the slow-moving traffic. This is in contrast to the urban situation where there is often now an appreciation of the need to cater for pedestrians, non-motorised transport and other slow-moving vehicles.

Development of rural road networks impacts on the environment at the local level. Greater attention is now given to mitigating potential adverse environmental impacts from their construction and use. In Bangladesh, Feeder Road standards require provision of adequate cross-drainage to avoid water congestion in the wet season, and trees are planted along the shoulders of the roads; in Nepal the 'green roads' concept is now widely adopted as the appropriate way to build roads in the environmentally fragile hill areas. The need to make

<sup>40</sup> Whole life cost means the initial construction cost and all future routine and periodic maintenance costs over a given design life.

provision for road safety in geometric design and signing, to avoid routing alignments through ecologically sensitive areas, and to deal with the dust hazard on densely inhabited stretches of road, are increasingly recognised and addressed. However, there remains a temptation to 'short-cut' environmental considerations – e.g. by reducing cross-drainage, bulldozing tracks into fragile hill environments, or providing access into ecologically sensitive areas. This may occur either because funds are limited or there is political pressure to build a road quickly.

Environmental concerns provide one argument for paving rural roads. There is now an appreciation of the dust nuisance (and health hazard) for adjacent communities caused by gravel and earth surfacing. Moreover, gravel surfaces wear out and need replenishment after a period of between 3 and 6 years. The need continuously to exploit gravel sources for resurfacing gravel roads is exhausting existing quarries. The need for new quarries and the (more costly) transport of gravel over longer distances is increasingly unacceptable economically and environmentally. This is leading to a questioning of the appropriateness of gravel roads (see Box 12). Paved roads are of course universally preferred by users. They offer a smoother ride, lower operating costs, and less risk of vehicle damage.

#### **Box 12: Appropriateness of Gravel Roads**

DFID funded research in Vietnam found that the use of gravel surfacing under the National Rural Transport Programme was appropriate in less than 30% of the planned situations.

SEACAP Briefing Paper ([www.research4development](http://www.research4development))

The conclusion on design standards for rural roads is that universally agreed standards or even agreed criteria for deriving these standards do not exist. There is a need to bring a consistency of approach to technical standards with a close linkage to economically efficient investment. Environmental concerns need continuing attention and emphasis.

#### ***Maintenance of Rural Roads***

The effective maintenance of rural roads in DMCs has long been recognised as a problem. The issue has been given progressively increasing attention, but it has certainly not yet been resolved. Technically the requirements are simple, and good manuals and training courses are available on the practice of rural road maintenance. The problems are institutional. They lie in the generation and allocation of a reliable flow of funds to maintenance, and the management of its implementation. Despite the strong economic justification [76] – and the common sense fact that roads must be maintained in good condition to sustain their level of service – it is proving difficult to establish an appreciation of the importance of maintenance in DMCs. The development of any rural road network should start with clear and realistic arrangements for financing future maintenance – but this is not the practice in most DMCs.

Many donor-financed projects have included budgets for maintenance, alongside that for investment in the construction and upgrading of rural roads, generally with the donor providing a progressively decreasing proportion of the funds over the project life. This approach has had some benefits in better shorter-term maintenance, but:

- i) even when complemented by technical assistance on management systems, it does not create the sound foundation for subsequent financing and implementation of maintenance after the project ends;

- ii) it secures financing for the period when the maintenance costs are lowest i.e. when the roads are new but these costs tend to increase as the infrastructure approaches the end of its design life;
- iii) it focuses attention on maintenance of specific donor-financed links rather than of a connective rural road network.

One donor-financed project in Bangladesh proposed the innovative approach of deferring financing for upgrading of rural roads until some capacity had been developed, with the donor's support, to maintain the existing network. But there was huge resistance to this because of the political pressure to provide roads and concern about deferring the benefits of improved access.

Resources from central government are generally inadequate and cannot be relied upon for all rural road maintenance, though there is a strong case for arguing that a proportion of the income of Road Funds should be allocated to the tertiary networks. But at best central government will cover only part of the costs, which will increase as rural road networks are extended. Decentralisation can be expected to have a positive impact in the longer-term. It allocates responsibility for rural road maintenance to the local-level, closer to the needs and more accountable. It also offers the prospect of financing an increasing proportion of the costs of maintenance from locally-generated revenue.

Maintenance funds can in certain cases be generated from users of the rural road network. There are examples of revenue being generated from tolls on road users. However: (a) these tend to be successful only in very specific circumstances; and (b) due to low traffic volumes, the amount of revenue collected tends to be low. An exception to this is wharves. Maintenance revenue can include contributions, in cash and kind from communities, but this has only proved successful when they are the direct beneficiaries of an access road<sup>41</sup>. Other locally generated maintenance funds must come from the general revenue of local government. Thus, it is local government decision-makers who must allocate resources for maintenance. But this does not happen for two reasons. Firstly, revenue generation is low compared to the demands from all sectors. Road maintenance is seen as relatively expensive and falls to the back of the queue. Secondly, where decision-makers allocate funds to the road sector, they much prefer to invest in new construction and upgrading which is more visible and popular politically.

The conclusion is that the need for effective maintenance is widely recognised, and the financial and institutional ingredients required to create a successful rural road maintenance system are well understood. But it remains a considerable challenge to establish the widespread practice of effective rural road maintenance. This challenge cannot not be properly addressed by side-stepping the issue and constructing unnecessarily costly roads of inappropriately high standard.

### ***Lower-Level Transport Infrastructure***

In some DMCs investments are now being made in the lowest levels of the transport infrastructure network – including community roads, tracks and footpaths. And there are examples of investments in infrastructure for water transport, particularly in improved wharves and jetties. These are usually being made as part of the latest generation of rural development, social fund or other programmes for which improvement in rural accessibility is an ancillary

---

<sup>41</sup> In Nicaragua, successful community contributions were established for short access roads in rural areas. These contributions were collected by a locally-chosen village committee and were sufficient for routine maintenance. The municipal councils agreed to fund periodic maintenance.

objective. The incorporation of these investments into such programmes indicates increasing recognition of the validity of the rural accessibility approach.

These programmes tend to be strong on community involvement but weak on technical standards, network connectivity and arrangements for future maintenance. The conclusions from this innovative work to date are that: (a) infrastructure tends to be either over-designed or, conversely, not designed at all; and (b) there is a need for stronger coordination between these interventions and overall transport sector planning. This would bring consistency in standards, better coordination with other interventions and an overall increase in the efficiency of investments.

### ***Labour-based Methods***

In the early 1970s it was recognised that increasing the labour-intensity of construction could be beneficial for the economy of many developing countries by generating employment in situations of labour-surplus. Traditional labour-intensive construction was already common in many DMCs, but there was potential for large gains in efficiency through a more systematic approach involving a better mix of labour and machinery and improved organisation, supervision and management procedures. Efficient labour-based methods have now been widely tested, proven and used for construction and maintenance in DMCs, particularly in the rural roads sector. They can offer significant cost savings over equipment-intensive methods. However, in few cases have they become institutionally established as the preferred practice for rural transport infrastructure works. For example, the labour-based Rural Access Roads Project in Kenya started in the 1970s and labour-based roadworks continued with the Minor Roads Programme in the late 1980s and early 1990s. More recently, the lessons learned have been carried into the “Roads 2000” programme. However, after 30 years of experience, labour-based methods in Kenya have not fully taken root and still face some resistance. There is a similar experience in Ghana, which successfully established labour-based roadworks contractors in the mid 1980s. Despite the significant number of trained contractors with considerable experience, labour-based contractors in Ghana remain largely dependent on a protected market and donor funding.

Labour-based methods are clearly appropriate for improving rural accessibility with the added benefit of providing an income-earning opportunity for the local poor. They develop skills that can subsequently be applied to maintenance, and to self-help infrastructure works at community level. The more recent trend towards carrying out labour-based works through local small-scale contractors rather than force account offers a real opportunity for the development of a more capable contracting industry. But there are serious institutional constraints within DMC governments and international development assistance agencies that must be addressed.

The direction of labour-based works in DMCs is not clear. Currently, there is a mixture of approaches. In some areas, traditional, typically inefficient, labour-intensive methods are predominant, often in the informal sector. Some job creation programmes, including “food for work” attempt to achieve a more efficient use of labour but with employment maximisation rather than creating a physical asset as the major objective. Methods for the efficient application of labour to construction, including the appropriate mix of people and light equipment, are now well understood and documented (for example, see the many publications by ILO). However, there are few cases where they have become institutionally established as the standard practice for rural road works.

Market forces alone appear inadequate to establish the use of labour-based methods. The reasons are institutional – with prejudice against methods that are perceived as “backward” or “enslaving” and resistance from vested interests in the existing construction industry as important factors. A further complication is those programmes whose principal objective is employment creation – the production of the asset becomes secondary, and the quality of construction and work efficiency can be compromised. This can convey the impression that the use of labour-based methods is primarily a social measure producing work of poor quality rather than a technically valid and economically efficient means of constructing and maintaining infrastructure.

There are also counter-trends to the increased use of labour-based methods. The desire by governments, often supported by donors, for large-scale schemes to deliver improved infrastructure quickly tends to lead towards the adoption of capital-intensive methods with works contracted in large packages. Such an approach is arguably more expensive and not necessarily quicker than using a large number of small labour-based contracts. However, the management is undoubtedly simpler, although at the cost of not building the capacity at local levels that will be required to maintain and further improve the infrastructure in the future.

The creation of temporary wage employment in construction works is popular in rural areas where wage earning opportunities are generally few. The need is for DMCs to address the institutional constraint to the wider use of efficient labour-based methods, in order to realise their economic and poverty reduction benefits.

### ***Knowledge Gaps***

The discussion in this section to date has focussed on the provision of rural transport infrastructure. A key issue, particularly in the provision of the other elements of holistic delivery of improved rural access, is the important gaps in knowledge and understanding among the responsible DMC institutions. In part, this reflects the fact that the holistic approach to rural accessibility is the result of relatively recent developments in thinking. But it also relates to the need to extend the remit and thinking of relevant DMC institutions beyond the construction and maintenance of rural roads, and the fact that it takes time for new ideas to be accepted, absorbed and adopted by public sector bodies.

Two aspects of rural accessibility are clearly neglected by, and “invisible” to, government institutions in DMCs. The first is IMT. The Asian region is notable for the wide array of IMT that are used. Much has been written and published on IMT over the years. There are examples of successful pilot projects to introduce new or improved forms of IMT – though arguably too much attention has been paid to their technology and not enough to the enabling framework for widespread adoption. And there have been successful private sector initiatives to market IMT. However, IMT are still largely ignored in the practical processes of planning and implementing rural transport improvements:

- i) many of them are traditional forms of transport in DMCs and they are simply ‘not noticed’, or not taken into consideration, by educated, urban-based, middle class professional engineers and planners;
- ii) they are regarded as backward, or primitive, and therefore not worthy of consideration;
- iii) there is an assumption, in the face of all the evidence to the contrary, that they will disappear and be replaced by conventional motor vehicles when roads are improved.

The situation is similar with inland rural water transport. It is vital to the livelihoods of many rural people in DMCs. Yet it is paid scant attention in planning rural transport improvements. In areas where there are extensive rural waterways, there is certainly not ‘a level playing field’ in the attention given to road and water transport for the provision of access. This is despite the fact that: (a) waterways, unlike costly roads, are a free ‘natural’ infrastructure resource that requires only limited maintenance; and (b) small boats can be built cheaply using local resources. Again, part of the reason for the neglect is that inland waterway transport is a traditional part of the local cultures and tends to be regarded as backward or primitive. But it is also truly “invisible” to many of those responsible for transport planning – since they always travel by road, not by boat! There are however exceptions. Inland waterway transport in Bangladesh has been transformed in two respects. First, the change to motorisation as cheap Chinese diesel engines became available. Second, it now has official recognition as a significant part of the transport system. This has been operationalised in the adoption of road planning and bridge design procedures to prevent navigable waterways being interrupted by the construction of roads; and by substantial investment in boat loading and unloading facilities in rural areas, most commonly at markets.

The inter-connective development of transport infrastructure networks is crucially important in reducing economic distance. Yet this ‘common sense’ principle is frequently not applied. It is not unusual to find a rural road link being upgraded, even though the higher-level road into which it connects is of lower standard and in poor condition. More extreme examples can occasionally be found of ‘nowhere-to-nowhere’ sections of a road being improved – the works start not at a junction, or at a ‘node’ in the network but at some indeterminate point along an unimproved track. There is a lack of understanding amongst planners and decision-makers in some DMCs of the crucial importance of connectivity. This may in part be because of the asymmetry of networks – highways can exist without rural roads, but not vice versa.

A good example of a gap in knowledge is the technical approach to the design of lower-level transport infrastructure. This is now being addressed based on the available experience and knowledge from different countries in Asia, Africa and Latin America. For example, manuals have been produced recently on the design of footpaths [69] and footbridges [70]. Similarly, more experience is being gathered on water transport and a new water transport information network has been established <[www.ruralwaterways.org](http://www.ruralwaterways.org)>. For some time the International Forum for Rural Transport and Development (IFRTD) has provided a focal point for available knowledge on rural accessibility issues <[ifrtid.gn.apc.org](http://ifrtid.gn.apc.org)>. But the general awareness of the availability of this information in DMCs remains relatively low.

The need is for continuing attention to raising awareness of the holistic approach to improving rural accessibility and to effective dissemination of information on different aspects of implementation. These are the starting points for expanding the thinking of the relevant national and local institutions in DMCs, and changing the attitudes and motivation of their staff towards improved provision of access rather than simply construction of roads.

### **Risks**

There are risks as well as benefits associated with improving rural access. Reference has been made to the possible loss of traditional sources of income when road access is provided into remote mountainous areas. The compulsory acquisition of land for road construction adversely affects the owners and users unless they are fully compensated for any losses. Even if this does happen, financial compensation does not always compensate for the social dislocation caused. The environmental risks associated with improved accessibility have also been discussed.

The provision of improved rural access may contribute to the spread of the HIV/AIDS pandemic, because of the increased mobility that results. The relevant concerns have been discussed earlier in section 3.5. These concerns are of greater significance in the development of the strategic transport system, but they should not be ignored as part of a holistic approach to rural accessibility.

Rural road investments result in higher flows of faster-moving traffic, which can lead to increased accidents, injuries and deaths. The problem is not of the same magnitude as on major routes, but is compounded by the lack of familiarity with the risk among rural people, particularly children and the elderly. The occasional fast-moving vehicle on a quiet rural road can be a particular hazard for pedestrians and cyclists. Although road safety in urban areas and on strategic routes is now receiving a lot of attention, there is a notable lack of data to assess the situation in rural areas.

The need is to ensure that those responsible in DMCs are aware of the potential risks of improving rural accessibility; that they are taken into account in the design of programmes (e.g. employing local people rather than migrants for construction, incorporating safety measures into road design); that where necessary special measures are applied to counteract potential risks (e.g. proper compensation for loss of land, HIV/AIDS awareness-raising); and that they are monitored during and after implementation.

## 6. A RURAL ACCESSIBILITY STRATEGY FOR THE ADB

*This Chapter examines how ADB can respond to the issues and constraints faced by DMCs in meeting their needs for improved rural accessibility to reduce isolation and poverty. The proposed rural accessibility component of an ADB Transport Sector Strategy for Sustainable Development is presented. The measures that ADB should adopt to operationalise a rural accessibility strategy are examined. Proposals for practical measures towards addressing the needs for improvement in rural accessibility are presented, together with a suggested short-term action plan.*

### 6.1 Rural Accessibility in an ADB Transport Sector Strategy

Good progress with poverty reduction in the past decade has largely bypassed rural areas and poverty in the region looks set to remain primarily a rural problem, despite rapid urbanization. One of the major challenges facing DMCs is the need to reduce the isolation experienced by many rural people, to reverse growing inequality between urban and rural areas. This is primarily a local transport issue, but it needs a people-centred, broad and holistic approach to identify problems and solutions. It involves not just rural roads, but infrastructure at all levels, the means of transport and the location of facilities. Achieving changes in thinking and in institutional priorities to address rural accessibility from the perspective of the poor will be a major challenge.

#### ***ADB's Objective, Strategy and Approach***

All ADB sectoral and sub-sectoral strategies should be consistent with its objective and strategic agenda. In chapter 3, ADB's overarching objective (poverty reduction), core areas for intervention (pro-poor growth; inclusive social development; good governance) and cross-cutting areas for support (private sector; regional cooperation; environment; gender; capacity building) were described. The Millennium Development Goals and national poverty reduction strategies provide the common international vision of how to tackle poverty. At a country level, the desired outcomes are usually quite clear and reflected in poverty reduction agreements with ADB.

ADB **assists its DMC members** by:

- providing investment
- supporting policy reform
- assisting in institution and capacity building

As discussed in Chapter 5, the core problem to be addressed is the isolation, or lack of access, of the rural poor. Improving rural accessibility and reducing isolation requires a comprehensive approach which addresses:

- The provision and sustainability of transport infrastructure at all levels.
- The frequency, reliability and affordability of transport.
- The planning of the location of public facilities.
- and
- The availability of communications.

Based on the available evidence, which was presented in chapter 5, improvements to rural accessibility have been found to have a significant positive impact on poverty reduction. They

lower transport costs and bring pro-poor economic growth to rural areas. Social development is promoted by improved access to services such as health and education, and this is particularly appreciated by the poor. Contributions are made to good governance through, amongst other things, participatory planning, monitoring and implementation of improvements and strengthening of local structures. However, to achieve a significant impact on the extreme poor improved access needs to be accompanied by other, complementary rural development inputs. Thus, in all key respects, adopting a holistic approach to improving rural accessibility is consistent with, and will be an important contribution to, the main objective and strategy of the ADB.

An important and emerging component of ADB's approach is the move towards increased harmonisation and alignment in development assistance. As discussed in sections 3.4 and 5.5, increased harmonisation and alignment will enhance the effectiveness of support to the rural accessibility sub-sector, encouraging a more holistic view of needs and issues, and develop the capacities of the local institutions that must manage the reduction of rural isolation.

The holistic rural accessibility approach, therefore, fits well with ADB's overarching objective, its strategy and thematic priorities for assisting DMCs, and its approach to managing the development process. The next question is how rural accessibility will fit into a wider ADB Transport Sector Strategy.

### ***ADB Transport Sector Strategy***

According to ADB's medium term strategic framework, transport will remain as one of its priority areas for the provision of development assistance. The challenge is how to build on ADB's experience and expertise in the transport sector over the past 35 years and extend into new areas related to rural accessibility. Only relatively recently have DMCs begun to request more assistance for improving the lower levels of the network, and this has been primarily in the context of rural road programmes. Improvements to local water transport or community paths and tracks have been comparatively rare and recent features, and under rural development rather than transport sector programmes.

The objective of ADB's Transport Sector Strategy is initially defined as:

To help clients achieve sustainable increases in welfare by enhancing access to market opportunities, social services, goods and information through transport infrastructure and services.

The proposed guiding principles include:

- ADB should seek to select and define its interventions on the basis of DMCs efforts to engage in dialogue and undertake reforms to institutions, policies and regulatory mechanisms.
- ADB's assistance to DMCs and the issues that it will pursue must balance the importance of an issue in a DMC with the difficulty faced in resolving it and the likelihood of it being achieved.
- Some reforms need to be pursued even though substantial time might be required for a national consensus to emerge on their implementation.

- Some reforms, such as improving road network maintenance may be so important that agreement on a schedule of actions, and the start of their implementation, should be a pre-condition for ADB operational support.

As noted previously, the initially-defined objective for the transport sector is equally applicable to the rural accessibility sub-sector, with the addition of the words “and access planning” at the end. The guiding principles all relate to key issues to be addressed in improving rural accessibility and reducing isolation: national attention to relevant policies, strategies and regulatory mechanisms; a country-level approach given the variations in the access and poverty situations across DMCs; a long-term commitment recognising the time needed to achieve significant policy and institutional change; and the crucial importance of sustaining the level of service of rural transport infrastructure.

The need to include and give proper attention to rural accessibility as part of the ADB Transport Sector strategy is primarily because:

1. This will significantly enhance the poverty reduction impact of transport projects and programmes.
2. It will reinforce and extend a recent trend toward paying more attention to the lower levels of the transport infrastructure network.

The inclusion of rural accessibility as an integral part of the strategy implies the need to reinforce certain trends in ADB’s way of working in the transport sector:

- To take a more **holistic view** of the sector’s needs, consistent with ‘harmonisation’ including transport infrastructure at all levels. Thus, it should become the norm to consider any support to the transport sector in the context of both its strategic and local infrastructure needs. This will include rural accessibility planning.
- To give more attention to **decentralised** provincial and district roads departments and local authority technical units in terms of capacity building in all support programmes, consistent with ‘alignment’. At the lowest levels, **community-led** development is likely to be an increasing feature in transport programmes.
- A central role for **participatory development**, particularly for local-level infrastructure and access planning, with an increased focus on the inclusion of women, ethnic minorities and marginalised groups, whose voices are often not heard. This approach is likely to move transport planning away from a predominantly roads-based, technical exercise to one bringing concerns of lack of access and the need to reduce ‘economic distance’ to prominence.
- Increased cooperation between and **coordination** of transport sector and rural development operations.

These trends will promote a steady shift in thinking and approach in transport sector interventions, regardless of whether they are conceived as part of transport or rural development programmes. They will require the development of new expertise. These trends need to be reflected in ADB’s strategy for sustainable development of the transport sector. Incorporating rural accessibility into the strategy should be an important catalyst for new thinking and approaches.

## 6.2 Improving Rural Access – Principles and Strategic Considerations

For rural accessibility to be a useful and meaningful component of ADB's Transport Sector Strategy it needs to have a clear direction guided by a number of principles and strategic considerations. Its development goal can be expressed as “**poverty reduction and growth with equity**” through the mechanisms defined in the proposed objective for the Sector Strategy. This goal recognises the importance of contributing to and sustaining economic growth whilst ensuring that the benefits of improved access are widely shared and improvements do not lead to a situation whereby the more remote areas are left behind in the development process and remain isolated.

### *Principles*

The main principles can be summarised as:

- Maximising the impact of any support in the sector on poverty reduction.
- Prioritising support to meeting basic human needs.
- Giving due prominence to social and gender equity in prioritising investments.
- Empowering the rural poor, including the disadvantaged and marginalised, through participatory development.
- Working through government systems, including decentralised local authorities and village administrations, to promote ownership and achieve sustainability.
- Contributing to improved governance, particularly at local level.
- Ensuring that the investment costs are commensurate with the social and economic benefits<sup>42</sup>.
- Ensuring that the impact on the environment, both direct and consequential, is addressed and that opportunities to enhance the environment are exploited.
- Avoiding and mitigating potential adverse impacts on the poor.

The consequences of applying these principles will be to give far more weight to social development impacts and to emphasise a “bottom-up” approach to planning and implementation. This should not, however, be at the expense of ignoring the need for a functioning strategic infrastructure network and a rational use of resources. These issues will be discussed further when outlining the elements of a rural accessibility strategy.

In summary, future ADB support to the rural accessibility sub-sector must be aimed at an effective contribution to poverty reduction, and be based on considerations of economic, social and environmental sustainability and improved governance. The ADB is in a position to play a leading role in innovation, policy dialogue and national sector programme development. It should provide nationally appropriate mixes of policy-making, capacity-building and financing support to DMCs and exploit the opportunities for additionality through co-operation with other international financing agencies and innovative funding modalities, at sub-sector, country and regional levels.

---

<sup>42</sup> The economic analysis of rural accessibility improvements can be a challenge. Some useful guidance is available in reference [69].

### **Strategic Considerations**

There are a number of strategic considerations that need to be addressed. As summarised below they could form the starting point of a checklist and operational guidelines for project and programme preparation:

- The legal framework surrounding the ownership and responsibilities of transport infrastructure needs to be clear and comprehensive. This should include the roles and responsibilities of local government and communities.
- There needs to be explicit consideration of local transport infrastructure such as village paths and tracks and of local waterways, recognising the importance of these for the rural poor.
- The success of programmes should be measured in terms of net improvements to levels of access<sup>43</sup> and not in terms of physical infrastructure improvements such as length of roads rehabilitated or upgraded. Assessing levels of access will require a network approach and measurement will be in terms of, for example, the time and effort taken to access goods and services and the frequency of use of different facilities. This is the corollary of adopting an access planning approach.
- A precondition for investments should be that the means of sustaining access improvements in the future are clearly identified at the outset and based on realistic projections of likely available resources. Where appropriate, these resources should include those provided by communities, such as unskilled labour.
- The levels of intervention and standards used for infrastructure should be cost-effective over the whole-life, and appropriate for the traffic that will use the infrastructure, including non-motorised traffic.
- Implementation should be based on local institutions using existing systems and procedures. Where these are inadequate, support through capacity building should be provided as part of the implementation programme. Separate project coordination units should be avoided.
- Any support to a specific geographic area or areas should be part of a national programme with adequate consideration of the possibility for wider replication of the approach and procedures used. “Artificial success” based on the need for high inputs for relatively modest improvements in one geographical area should be avoided.
- Planning should be integrated with other sub-sectors that are closely related with the need for improved rural access such as agriculture, employment, health, education and water supply.
- The different access needs of men, women and children should be considered.
- The role of the private sector in the provision of infrastructure and of transport should be enhanced through attention to the regulatory framework, and carefully targeted support.
- Complementary inputs to access improvements should be considered, particularly when targeting the needs of the extreme poor.

These considerations provide the framework for defining specific elements of a strategy for rural accessibility, and how the ADB should address them. One of the major challenges will be to achieve the changes in thinking and institutional priorities needed to address rural accessibility issues from the perspective of the rural poor.

---

<sup>43</sup> An improved “level of access” may be defined as: “The lower cost to rural people - in terms of the monetary cost, physical effort involved and time spent – of travelling and moving their goods to and from the physical facilities, services, resources and opportunities that they need to use.”

### 6.3 ADB Rural Accessibility Strategy – Key Elements and Issues

This section presents the key elements of a holistic approach by the ADB to improve rural accessibility in its DMCs, and the related issues it should address. It includes recommendations on initial operational measures that ADB could adopt.

#### ***Country-level Focus***

There remains a need to raise awareness at DMC level of the benefits of adopting a holistic approach to improving rural accessibility. This is the first step in expanding the thinking of the relevant central and local institutions in DMCs, and provides the foundation for developing appropriate policies and strategies as well as changing the attitudes and motivation of officials towards provision of improved access rather than simply construction of roads.

The next step for most DMCs will be the inclusion of rural accessibility in its national policies and strategies. Improved rural accessibility has a facilitating role in the rural development process. For this reason, it might form part of broader, poverty-targeted, national transport sector and rural development policies and strategies. Many of the key issues in the rural access sub-sector are cross-cutting in that: (a) they are equally relevant to other aspects of rural development (decentralisation policy, the capacity and governance of local government bodies, participation and the empowerment of women); and/or (b) they relate to broader national policies (e.g. the role of the private sector). At DMC level the need is for rural accessibility policy and strategy to form part of coherent, multi-sectoral national approaches to socio-economic development.

If the rural accessibility approach is to have a lasting and significant impact on reducing isolation and rural poverty in DMCs, there must be a long-term commitment by international development agencies – from awareness raising, country-level analysis and policy dialogue through to financing and evaluation of investments in improved access. This commitment must be on a country-by-country basis. The nature, extent, timing and sequencing of support should be responsive to the widely varying poverty and access circumstances and broader policy frameworks in different DMCs. With increased harmonisation of donor support, the aim should be co-ordinated and consistent approaches to improving rural accessibility. This should include more co-financing in order to increase efficiency in poverty reduction efforts.

Due to severe immediate resource constraints, many DMC governments seek grant support for capacity building and other interventions not perceived as closely linked to economic growth. Most bilateral donors are sympathetic to this and are open to supporting initiatives with clear poverty reduction, social development and equity promoting objectives. ADB already seeks to collaborate with bilateral agencies where they are involved in supporting the ‘soft’ aspects of poverty reduction. ADB should continue to be pro-active in establishing such partnership arrangements. In a mixed grant and loan funding approach, ADB can provide the major associated investments for improved physical infrastructure on a loan basis.

All the above considerations point to the country level as the focus of efforts to implement an ADB rural accessibility strategy. In operational terms the ADB strategy should be to support the integration of rural accessibility improvements into transport and rural development programmes in specific DMCs. To the extent possible, this should be in the context of joint support with other donors involved in the sector. Where ADB support is provided for discrete infrastructure

improvements such as ports and highways, opportunities to enhance the poverty reduction impacts by integrating rural accessibility aspects should be explored. Again, this is most effectively done at the country level.

### ***Planning for Rural Accessibility***

A bottom-up planning process is fundamental to achieving a well-designed programme of assistance to improve rural accessibility. This approach is not only efficient in identifying the problems and solutions. It also builds a consensus and engenders a sense of ownership amongst the main stakeholders in the chosen option. However, for many working in the transport sector, participatory planning looks slow, cumbersome and difficult to implement, and they often lack expertise in the methodologies used. There is far more familiarity with top-down planning as this lends itself to the strategic approach appropriate for national networks. This raises two questions: (1) from where does ADB draw the knowledge and experience for bottom-up planning? and (2) what happens at the boundary between bottom-up planning for rural access and top-down planning for strategic networks in a holistic approach to transport systems?

The first question is fairly straightforward to answer. ADB has several divisions with significant knowledge and experience of bottom-up planning. The most relevant are the Agriculture, Environment and Natural Resources Divisions of the regional departments. These deal with rural development including rural infrastructure. In some departments the lower segment of the transport infrastructure network is already dealt with by these Divisions, leaving the Division responsible for Transport to focus exclusively on the strategic primary and secondary networks.

The second question is more challenging. In general, the boundary point is that part of the transport network that is publicly owned and managed, but primarily fulfils a local function. At this level, which is typically a district or feeder road, some close form of local participation is required in the identification and planning of network improvements, but this has to be moderated by taking into account the needs of different communities, connective development of the network, and local development plans. This is the natural place for local government.

An important part of planning for rural accessibility is always to consider how the need for transport can be reduced. This is usually by delivering a service closer to the community. The lessons from experience on the location of social and economic services are clear:

- Provision of better access to a safe water supply, and to a lesser extent to firewood, is a priority to reduce time and effort spent by rural households (particularly by women) on transport.
- More generally, bringing key social (health and education) and economic (markets) services closer to the people improves access by reducing the need for travel. Planning methodologies such as IRAP, accompanied by the use of GIS, are effective tools for making rational location decisions that balance the demand for improved access with practical operational and management constraints.
- Planning the location of services should be accompanied by consideration of the need for improved physical access to the new facility - for delivery of supplies and so that staff can reach there. But it should also consider whether there are any local-level access constraints to use of the service by the community. For example, it may be difficult for children to go to school in the wet season if they have to cross a fast-flowing river or a swamp.
- Access to a hospital in times of a medical emergency is a very high priority for rural people.

The ADB strategy for planning rural accessibility improvements should be:

1. Use **bottom-up planning** in a community-led approach for local improvements to paths, tracks and other local-level infrastructure for which the communities will have ownership and responsibility.
2. Use a **consultative process** involving, where appropriate, bottom-up planning but in the framework of an overall local development plan and connective network management system for improvements to district and feeder roads networks that are (or should be) the responsibility of local government.
3. Consider **non-transport solutions** for reducing access constraints such as the location of services closer to the users. This should also be in the context of a local development plan. Planning tools such as IRAP and GIS provide manageable methodologies for local development planning. ADB is already building experience of the usefulness of IRAP on a number of its projects.
4. Institutionally, focus on working through the **local government system**, with appropriate capacity-building support where necessary.

A particular feature of rural accessibility is its “people-centred” approach to identifying problems and devising integrated solutions. This is not to propose a return to the Integrated Rural Development Projects which were a major feature of development assistance in the 1970s and 1980s. Such Projects became discredited as they were found to be unwieldy and ineffective at bringing real positive change for rural people. Recently, there has been renewed attention to rural development because poverty in Asia and the Pacific is primarily a rural problem. But by contrast to the Integrated Rural Development Projects of the past, the new generation of “area based rural development programmes” are less ambitious in scope and more focused in their approach. They use predominantly bottom-up rather than top-down planning and make extensive use of participation for planning, monitoring and implementation. Rural accessibility improvements can be a natural component of such programmes.

### ***Infrastructure Development and Maintenance***

The provision of transport infrastructure is primarily a responsibility of government. For this reason it is likely to remain the major capital investment in any ADB programme of assistance to improve rural accessibility. Private sector finance is only likely to be available in special cases such as agricultural estate roads and tourist routes. ADB strategy should be informed by certain key lessons from experience:

- The inter-connective development of rural transport infrastructure networks is essential in providing improved access to the places that people need to visit. Yet this ‘common sense’ principle is sometimes not applied.
- The definition of a proper and rational functional classification of the network, whether it is roads, waterways or footpaths, is the correct starting point for development of rural transport infrastructure. This must then be applied consistently to allocate ownership and management responsibility for different levels of the network among central and different levels of local government (and communities). This in turn provides a clearly defined institutional framework for coordination in planning the connective development of the network. Unfortunately, because rural infrastructure at the lowest levels is typically being developed piecemeal, the crucial importance of proper classification and its consistent application is often missed.
- For rural transport infrastructure design, the key lesson is that, to avoid economic inefficiency, it is important to set appropriate design standards for rural roads. Too low a

standard will result in rapid loss of the asset and waste of funds. Too high a standard will generate a low economic return and reduce the length of roads that can be constructed, hence reducing the impact on poverty reduction. The process of selecting the design standard must be rigorous and objective, applying a whole-life cost approach but addressing safety and environmental concerns.

- There is a gap in knowledge about technical approaches to the design of small-scale, lower-level transport infrastructure. This includes establishing a common definition for “basic access”.
- The effective maintenance of rural roads remains problematic. But unless it is achieved, the poverty reduction impact of investments in rural transport infrastructure will be significantly diminished. The development of any rural access infrastructure has to start with clear and realistic arrangements for future maintenance. Unfortunately, this is not the practice in many DMCs. There are two negative lessons to be learnt:
  - i) effective road maintenance does not result from ‘commitments’ made by DMCs to fund future maintenance in order to obtain investment resources from donors;
  - ii) nor is it achieved by initial donor financing of maintenance of the roads that it invests in, even if this is on a sliding scale – and this approach detracts attention from maintaining connective road networks.

Development assistance agencies must give greater priority to the issue of network maintenance in order to protect the investments that they support. There are some pointers to the way ahead – allocation a proportion of Road Fund revenues to maintenance of rural roads; clear definition of the responsibility and authority of local government bodies for rural road maintenance; generation of local revenue to finance maintenance; and community involvement, including community responsibility where they are the direct beneficiaries. The issue requires a sustained and coordinated commitment from the donor community towards a situation where the performance of DMC local government institutions and the development assistance agencies is assessed by the level of service provision of the road networks for which they are responsible, not by the length of roads constructed.

The ADB strategy should focus on meeting four key requirements:

- a. The **integrated, connective development** of more efficient transport networks in order to reduce the ‘economic distance’ between rural areas and major centres, and to facilitate the wider distribution of the benefits from national economic growth to those areas.
- b. Clear **definition of responsibilities** for different levels of the network based on functional classification, and co-ordinated management of the development and maintenance of different classes of link in the transport network, in order progressively to extend an improved and sustained connective system more widely into rural areas. Here there has to be a clear recognition of the need to identify at what point the provision of infrastructure is beyond the scope of government and should be a community-owned and managed responsibility.
- c. Applying **design standards appropriate** to the needs, including those of the types of traffic that will use the routes. The use of spot improvement and innovative design standards e.g. for path and tracks<sup>44</sup>, will both form part of rural access improvement strategies. There is a need to address the ‘knowledge gap’ about technical approaches to lower-level transport infrastructure through wider dissemination of existing information and experience.
- d. Devising systems that facilitate **community-driven** development of the lowest levels of transport infrastructure, such as paths and tracks, that are beyond the practical control and

<sup>44</sup> See, for example, references [70] and [71].

responsibility of government. This is an area where much needs to be done and innovations will need to be tested. Any interventions should be planned and carried out so that they encourage, and do not compromise, community ownership and responsibility for future maintenance of such infrastructure.

Maintenance of rural transport infrastructure will remain a major challenge. ADB strategy should be guided by the following:

- i) Any involvement of ADB in improvements to rural access infrastructure should be based on a realistic assessment of the prospects for future sustainability. Adequate planning for future maintenance, including the identifying the amount and source of resources, should be an explicit part of the planning process for any ADB support. The key issue is that maintenance is discussed in detail before and not after the implementation of improvements to infrastructure. However, this approach will only be fully effective if it is also adopted by other development assistance agencies working in the sub-sector<sup>45</sup>;
- ii) ADB should provide support at all levels, including appropriately designed financing support, to assist in establishing effective road maintenance practices. Community participation in maintenance should be considered positively, particularly for the lowest levels of the transport network [72].

### ***Labour-based Methods***

The use of labour-based methods is part of the subject of infrastructure development and maintenance, but is sufficiently important to be highlighted here, for reasons of both pro-poor development and technical appropriateness. Labour-based methods are suited to the small-scale and technically straightforward types of works that are usually required, and for the geographically dispersed pattern of these works. There is a considerable amount of project-based experience to confirm that the adoption of efficient labour-based methods for construction of rural transport infrastructure achieves good quality results, is typically cheaper than more equipment-intensive methods, and offers additional benefits. It provides paid employment for the local poor, it develops skills that can subsequently be applied to maintenance and to community-level infrastructure schemes, and it provides the 'point of entry' to develop more efficient local-level contracting industries.

It is not only in paid works that labour-based methods have a role. Many improvements to rural access require work on community infrastructure for which communities themselves take control. This could be the improvement of a footpath or village access road. In these cases communities are largely reliant on their own resources for the improvement works and subsequent maintenance. One of the most important resources at their disposal is their own labour. Construction methods that use this labour effectively and require a minimum of outside resources are an attractive option.

Methods for the efficient application of labour to construction, are now well understood and documented, but there are few cases where they have become institutionally established as the standard practice. If the use of labour-based methods is to become the established practice in rural areas of DMCs, then the institutional and operational biases that work against it, both in

---

<sup>45</sup> In some cases phasing of support can be an option. Moving from one phase to the next can be made conditional on meeting certain objectives related to maintenance. However, this can be difficult to implement in practice.

governments and in international development agencies, must be addressed. The adoption of labour-based methods for individual projects can have a beneficial short-term impact on poor rural households. However, the greater reward would be the establishment of more labour intensive construction on a national basis. Economic growth can lead to more jobs but the short-term prospects in many DMCs are for increased unemployment for the rural unskilled. The following quote from its 1999 Poverty Reduction Strategy [3] provides the basis for ADB's strategy:

"The lesson is clear, growth can reduce poverty by generating employment and incomes, and labour intensive growth can reduce it even faster. Thus, policies that encourage labour intensive growth are powerful pro-poor measures."

The ADB needs to make a long-term commitment to actively promote the adoption of labour-based methods as the standard means of rural access infrastructure construction and maintenance. This needs (depending on circumstances in different DMCs) attention at the national policy and strategic level, institutional and capacity-building support, and revisions to contracting regulations and procedures. But it also requires critical review of the extent to which ADB's own operational procedures and biases inhibit the expanded use of labour-based methods over the longer-term.

In its policy and investment work ADB needs to resist the current trends that discount these methods either because they are alleged to be slow, backward and technically inadequate or because larger contracts associated with conventional machine-based methods are easier to manage. To counteract the former comment, a change in institutional attitudes is required as part of capacity development. This is often not easy. Prejudice, lack of knowledge and vested interests may all be factors to be dealt with. In addressing the latter comment, an important role for ADB is in ensuring that contract documents for the improvement of local small-scale transport infrastructure are either method-neutral or assume that labour-based methods will be used<sup>46</sup>.

ADB is well-placed to ensure that accurate information on the use of labour-based methods is made available in DMCs. Decisions on their use should then be taken with a clear understanding of both their strengths and weaknesses. The pro-poor case for the use of labour-based methods should be well articulated - their importance in labour-absorbing growth and expanding employment opportunities for women. However, the means that have been developed internationally to achieve good quality and cost-effective work using labour-based methods should also be clearly explained. This dissemination of accurate information should be incorporated into the development by ADB of a knowledge network on transport sector issues. ADB should also exploit the demonstration effect of well-executed local infrastructure works and to promote study tours and exchange visits between ongoing programmes.

Where appropriate, ADB should incorporate into project design the training of community-based technicians/foremen (men and women) in the use of labour-based methods of construction. This can sometimes conveniently be carried out by temporarily employing the trainee technicians on ongoing labour-based works in the vicinity. These works could be part of parallel support to local road improvements.

---

<sup>46</sup> This implies a need for attention to ADB's own procurement guidelines, to provide more guidance on contracting arrangements appropriate to small, widely dispersed rural infrastructure works and to create a framework that is inclusive of the use of labour-based methods – see 'The Role of the Private Sector' later in this Chapter.

### **Means of Transport**

The operation of more, and more efficient, transport is crucial in generating benefits from investment in rural transport infrastructure. Following on from the discussion in earlier chapters, the lessons from experience are:

- The array of IMT will remain the common means of transport for rural people. Users of IMT benefit from improved rural transport networks. But infrastructure design should accommodate and encourage their operation, not inhibit their use. Economic appraisal of rural roads should incorporate the benefits to slow moving traffic.
- It is the private sector that is most effective in supplying and maintaining rural vehicles, and in operating demand-responsive goods and passenger transport services, including those using IMT. Improved rural transport networks reduce costs and should promote greater competition among operators. The regulatory framework should create a free market to encourage the development of commercial services, not to restrict and control, though it must address legitimate safety concerns.
- A free market environment will encourage entrepreneurs to establish and operate new, more extensive and competitive, transport services. This is the most effective way of generating the modal shifts to more efficient means that will achieve 'step change' reductions in transport costs.
- There is potential for more extensive rural ownership of more efficient IMT that are faster and/or cheaper to operate (this also applies to boats). But initiatives to do so should as far as possible work through the private sector, and give at least as much attention to the enabling framework, including credit provision, as to new technology.

As part of the holistic approach to improving rural accessibility, the ADB needs to give more attention to the provision of rural transport, not just infrastructure, in the programmes that it supports. Through its policy support at country level for the development of national rural accessibility strategies, and through subsequent investment programmes, the ADB should assist DMCs in making the sector reforms needed to:

- i) promote the rights and responsibilities of IMT, and create the enabling framework for their safe operation, in local laws and regulations;
- ii) establish local regulatory frameworks for the free market, but safe, delivery of demand-responsive and cost-competitive commercial rural transport services by the private sector.

The analysis of the existing supply of rural transport (including inland rural water transport where relevant) should be a requirement for the preparation of rural accessibility investment programmes, even where these are primarily concerned with transport infrastructure. This will provide the basis to assess:

- i) the design requirements of infrastructure to facilitate the operation of IMT;
- ii) the extent to which lack, or constraints upon the supply, of means of transport and transport services will limit the impact of providing improved infrastructure;
- iii) the opportunities to utilise existing rural waterway networks to meet access needs.

Where ADB identifies the need to increase the supply of rural transport as part of the investment programme, its role is likely to be to facilitate: (a) the removal of local regulatory constraints; (b) the introduction of more efficient IMT (and boats); and (c) the establishment of appropriate credit

financing mechanisms. Here it will have to work closely with the private sector and through other agencies, including NGOs, probably with grant funding support.

### ***Participation and Community-driven Development***

A community-led approach is needed for development and management of lower levels of the transport system – village roads, footpaths and tracks, and rural waterways. Equally, communities have much to contribute to local-level planning of the location of services and of the connective development of the transport infrastructure network. However, this must be a combination of bottom-up planning, giving due attention to the needs and priorities of the beneficiaries, and top-down planning, taking account of wider network considerations: to resolve resource, operational and management constraints; and to mediate between competing community demands.

ADB's strategy should acknowledge that the key to community-driven development, and to an influential bottom-up planning input, is effective participation. This is much more than just information-sharing, or consultation, though both are parts of the process. Communities must be significantly involved in decision-making, in implementation, in monitoring and in subsequent management of operation and maintenance. But at the same time the participatory approach must be manageable with the resources available, practical, and demonstrate real benefits to the communities involved. A specific lesson is that the participation must be fully inclusive. It is only through this mechanism that due attention can be given to the priorities of women, minorities, lower castes and other socially excluded and disadvantaged groups.

Effective participatory practices are not always applied by ADB in its rural transport infrastructure investments. They can be perceived as a time-consuming, problematic task whose proper conduct is at odds with the demand for time and resource efficient preparation and processing of a new loan. Part of the answer to this dilemma is for wider sharing of expertise between sectoral divisions of ADB. A body of experience, and knowledge of effective and practical participatory techniques, already exists in the organisation but is not always efficiently available to those who need to apply it. However, the approach to participation in the development of rural transport infrastructure has to be rather different from that for rural water supply or irrigation programmes (where there is a much larger body of experience to draw upon), because of the wider array of direct and indirect beneficiaries involved, with differing interests. There is a need for ADB to have internal guidelines on 'stakeholder participation in rural transport infrastructure management'. In parallel with developing its in-house capability, the ADB should seek to facilitate improved approaches to participation through providing expertise and building capacity in local government institutions, NGOs and consultants to carry out effective participatory development for improved rural accessibility.

The ADB now has some experience of a project implementation modality which can facilitate effective participation. This is 'the process approach' whereby the infrastructure investment schemes to be financed are not all defined during project preparation. Rather, the criteria for eligible schemes and the procedures for selection and approval, together with the indicative allocation of funds both to different types of scheme and geographically (e.g. among several provinces or districts), are defined together with a few schemes for initial investment. This process approach is well suited to rural infrastructure, which typically comprise a large number of small investment schemes dispersed over a wide geographic area. The participatory methodology is defined and tested during preparation, but much of the participation work is actually carried out during programme implementation. This spreads the participation task over a much longer time period and makes it more manageable. It also:

- i) creates the space to develop local capacity to manage the work;
- ii) allows progress and compliance with project criteria to be monitored and the pace of disbursement of funds to be adjusted accordingly.

Motivating rural communities to improve their own local access situation is often assisted by an outside catalyst. This can be a locally-based NGO but institutionally is most successful, sustainable and replicable if it involves local government at district or sub-district level. This outside catalyst may provide a combination of community mobilisation, technical advice, or resources that are difficult to source from within the community. The necessary underlying principle is that the overall process has to remain community-led and community-managed.

### ***Remote Areas with Intransigent Poverty***

This report has highlighted the 'special case' of isolated, remote and sparsely populated rural areas in difficult terrain, where ethnic minorities often live and where poverty is deep and pervasive. Apart from the technical challenge of building and maintaining roads into these areas, such infrastructure investments are usually difficult to justify in economic cost-benefit terms. However, the provision of basic physical access into these isolated areas will reduce their economic distance from the rest of society and is a pre-requisite to: (a) achieving political objectives of national integration and attention to the need of ethnic minorities; and (b) delivering the support services required for the community-driven development that is needed to improve the livelihoods of the people. Without this basic access it is difficult to offer any kind of development support: health care, clean water supply, education, literacy, economic opportunities. And without such basic access it will be difficult to prevent indigenous people from becoming further disadvantaged and marginalised in an increasingly unsustainable natural environment.

It is recognised that this may be a difficult issue for ADB to deal with because it is problematic to justify such basic access investments in conventional economic terms. But it cannot be ignored, and addressing the issue is consistent with the priority of inclusive social development and of achieving the MDG of eradicating extreme poverty. It is proposed that the ADB should, in dialogue with its DMC partners, develop guidelines on the circumstances under, and the extent to which, it will invest in 'non-economic' rural transport infrastructure for extremely poor areas, and the financing modalities that it will use. In one respect the ADB now has greater financing flexibility in that ADF funds can be provided to many DMCs on a grant or partial grant basis. However, the ADB should also look to join forces with other, grant-financing donors to improve rural accessibility, exploiting their greater flexibility to fund social investments. This would also be consistent with the recognition that, in areas of extreme poverty, a range of complementary measures, both other components of a comprehensive rural accessibility approach and other rural development inputs, are needed to achieve significant change.

### ***Governance***

In the rural accessibility sub-sector, the issue of governance is essentially concerned with capacity building at local level and addressing the concerns about transparency, accountability and corruption. ADB needs to be pro-active in reducing the potential for corruption in rural accessibility programmes. If efforts to improve rural access are to be expanded, systems and procedures need to be developed that ensure accountability and the proper use of public funds.

As discussed in section 5.5, small contracts do not offer the same attraction for corruption as major projects. However, if ADB and other donors expand their support for rural access improvements in the future, there is potential for a large increase in corruption. Within the private sector in DMCs there is dissatisfaction with the current situation. If systems can be developed with a high degree of local accountability and transparency, this will contribute to curbing corruption. But there is no room for complacency in the current situation. Left unchecked, there is potential for large misappropriations of funds in rural access improvement projects in the future.

To complement its country-level, cross-sectoral work on good governance and reducing corruption, ADB's strategy should be to take a pro-active role in the establishment of fair, transparent and accountable planning systems and contracting practices in rural accessibility support programmes. The use of ADB funding for local managed contracts provides it with an entry point, and powerful leverage, for the adoption of such systems. And during project implementation, ADB should adopt the strategy of:

- Ensuring full public disclosure of contract information.
- Supporting: (a) the consistent application of sanctions to those responsible when significant corruption is uncovered; and (b) reward to those who help to expose corrupt practices.

Transparency International has proposed procedures for breaking out of corrupt practices in infrastructure construction by developing project anti-corruption systems such as integrity pacts. Typically, these agreements specify a number of principles and practices to which all parties agree to adhere. An important principle is that agreements are not retroactive i.e. they apply to the future not to the past. Within the pacts there are procedures for lodging complaints of malpractice with investigation systems, and agreed sanctions. This approach is new and innovative and there are only a few examples in Asia<sup>47</sup>. In addition, Transparency International has supported the establishment in UK of an Anticorruption Forum of private sector consultants and contractors to be a mouthpiece for discussions with government on how to curb corruption. This is a model that could be transferred to developing countries.

The ADB should take a lead in testing innovative approaches such as integrity pacts, in partnership with DMC governments. Public sector officials, private sector contractors and consultants or their representatives, and civil society should all be involved in formulating procedures that promote transparency in the process, fair competition and the effective use of available resources. ADB should be the catalyst for this action and an important means by which good practice is documented and disseminated to other DMCs. The sequence of actions to be undertaken by ADB should be:

- Collect together ideas and international experience relevant to building transparency and accountability in programmes involving infrastructure at local level implemented by local contractors and consultants.
- Initiate discussion in one or more DMC on the possible testing of systems to promote transparency and limit the scope for corruption in locally-contracted, small-scale infrastructure works.
- Support the testing of innovative procedures and assist in documenting the lessons learnt.
- Disseminate the lessons learnt to other DMCs
- Use the lessons learnt to modify ADB guidelines, where appropriate.

<sup>47</sup> See, for example, the information on integrity pacts used by Seoul Metropolitan Government in Korea at <http://english.seoul.go.kr/gover/initiatives>

- In its investment financing work, the ADB should ‘lead the way’ by applying rigorous sanctions when corruption is exposed.

#### **6.4 ADB Rural Accessibility Strategy - Addressing the Cross-cutting Themes**

In section 3.3 above the relevance of cross-cutting themes to rural accessibility was discussed. In section 5.5, in the context of promoting an enabling framework, an indication was given of some of the main issues to be addressed in relation to various cross-cutting themes. How these issues should be included in a strategy for improved rural accessibility is discussed below.

##### ***Capacity Development***

A holistic approach to improving rural accessibility in any DMC should be primarily implemented through the local government system. It is at local government level that the real access needs can be properly assessed, that the links can be made to involve the rural communities, and that the connective development of transport networks can be coordinated. It is local government that is responsible in most DMCs for the tertiary road network, that can take a realistic view of the resources available and their most effective application, that can adopt the use of labour-based methods, and can give due attention to regular maintenance of rural transport infrastructure.

But local government is typically institutionally weak, strapped for resources, and in many DMCs still in a state of flux. None of these are reasons for not working through and with the local government system. Rather, complementing country-level policy dialogue, the operational approach should be to delegate responsibilities and resources to local level, and support the strengthening of the government institutions, whilst at the same time:

- i) being realistic about their implementation capacities;
- ii) recognising that improvements to tertiary road networks and local access will in many cases be carried out in an evolving institutional environment.

One lesson from experience in the region and elsewhere is that capacity development at local government levels tends to follow the allocation of resources. In the context of rural access, some countries have made a political decision that part of the funds for road maintenance, for example, should be allocated to local government for local roads e.g. Vietnam. The converse is also true. Where specific budget allocation has not been made for local roads, development of sustainable rural access does not appear to progress. The introduction of IRAP in several countries provides a good example of an intervention which has achieved an impact on improving access while at the same time strengthening local government capacity and self-confidence.

The key requirements of ADB strategy are:

- a. To define local government bodies as the focal points through which assistance to improve rural accessibility will be delivered.
- b. Through its policy dialogue and capacity building work at national level, continue to support the development of effective, decentralised local government as the key capacity building input to rural development for poverty reduction.
- c. Incorporate targeted capacity building assistance to local government bodies into the rural accessibility programmes that it supports.

- d. Design flexibility into those programmes in order to respond to changes in the circumstances of the local government bodies with whom it is working.

### ***The Role of the Private Sector***

The private sector has an important role to play in the provision of improved rural access, and there are significant opportunities to promote its development. These are primarily at the local rather than national level and will require a rather different approach from other transport sub-sectors such as highways. The avenues for developing the private sector in rural accessibility programmes are:

- Small-scale contractors building and maintaining rural transport infrastructure.
- Local consultants providing technical expertise for infrastructure construction and maintenance.
- Private sector operators providing rural transport services.
- Local industries supplying and maintaining IMT and small boats.
- Credit finance for purchase of IMT and boats.
- Management of public facilities such as rural markets, transport terminals and wharves.

ADB's role should be to assist in creating the required enabling conditions, and to generate private sector business opportunities on loan-financed public sector programmes. The proposed approach in respect of means of transport has been discussed above. This section focuses on small-scale contractors, local engineering consultants, and the private management of public facilities.

One lesson from experience is that works on local transport infrastructure are best executed and most appreciated by local people when they are carried out by small-scale contractors from the local area. Small-scale contracting can take a number of forms. Typically, it involves an individual entrepreneur who is based locally and can mobilise the necessary resources to carry out the required improvement works. Often, fairly labour-intensive methods will be used (see above discussion of labour-based methods). One additional option is the use of labour groups formed from people living in the communities. Contracting arrangements for this have been developed in several DMCs, including Bangladesh. Local contracting has the added advantages of creating employment in the area and building capacity for future maintenance.

The present capability and professionalism of the rural small-scale contracting industries in DMCs is generally inadequate. In some rural areas, there are no existing road contractors. Linked to the application of labour-based methods, there is a need to develop locally-based, small-scale contractors for rural access improvement works. This may require the establishment of new small-scale contractors or the re-orientation of existing contractors e.g. from building works to road works. Similarly there is a need to develop more dispersed capacity, competence and professionalism in domestic consulting industries. The relatively straightforward nature of the work, modest scale and potential steady flow of opportunities, should make rural access infrastructure an attractive market opportunity for local consulting firms and individuals. But there are existing biases against local consultants undertaking this type of work as opposed to larger, urban-based projects.

The ADB strategy in respect of local contracting and consulting industries should be:

- To consider, in the design of all rural transport infrastructure investment programmes, how the efficient use of local contractors and consultants, and the development of their industries, could be stimulated.
- To incorporate capacity development of the local small-scale contracting industry into its investment programmes.
- To promote the use of locally-based design and supervision consultants in its investment programmes, and develop the capacity of local government bodies to manage them.
- To promote national or local associations of small contractors and consultants, as civil society organisations to establish standards of practice, provide capacity-building services to, and represent the interest of, their members.

An important first step for the ADB is to ensure that contracting systems for rural access infrastructure take account of the small-scale nature of the work, the inexperience of the private sector contractors and consultants (and the limited management capacity of local government offices). This requires some flexibility and the standard approach used for large scale civil works may be inappropriate. ADB should review and extend any relevant procurement guidelines so that provision is made for appropriate bidding requirements for small-scale contracts for simple works. In addition, provision should be made for the use of term contracts whereby a contractor is appointed to carry out a range of improvement and maintenance works on a district level road network at agreed rates over a period of one or more years. Finally, flexibility should be introduced to permit the negotiating of fixed rates and other procedures that would facilitate the introduction of new small-scale contractors and the use of community-based contracts.

In general, ADB should resist any trend towards the packaging of a number of small contracts into one large contract for rural access improvements. This can establish a barrier to emerging small-scale contractors, who may not be eligible to bid for larger contracts. Where the management of a large number of small contracts becomes a potential major burden, alternatives to packaging, such as temporarily boosting the capacity of the local authority engineer's office should be considered.

Public facilities such as rural markets, terminals for transport services, and wharves and boat landing stages, typically under the responsibility of local government bodies, are important foci for rural travel. The efficient operation of these facilities is an important input to improving rural access. ADB strategy should be to promote management by the private sector of these public facilities, for example through a transparent and competitive system of term leasing. Private sector operation of public facilities is consistent with the limited management capacities of local government bodies and offers an efficient means for them to generate and collect revenue.

### ***Gender Equality***

Improvements to rural accessibility, especially at the very local level, have the potential to have a significant beneficial impact on rural women through reducing the time and effort spent on transport activities. However, these improvements will only be identified, planned and carried out if women have a voice and play a major part in the development process. This requires an approach to rural accessibility improvements that pays due attention to the particular needs of women and promotes their involvement in all stages of the process. ADB is well placed to ensure that gender equity is given due prominence. It will usually be necessary to specify pro-

active measures to ensure the participation of women in identification, planning and monitoring. This is because they are often reluctant to express their views in front of men or to work alongside men in the development process.

The ADB strategy should be:

- a. To apply its knowledge of gender issues to encourage the participation of women in identifying, planning, implementing and maintaining rural access improvements. This will require a pro-active approach including, where appropriate, positive discrimination in favour of women.
- b. To ensure that gender issues are properly considered in all rural accessibility initiatives. The appraisal of these programmes should confirm that women's issues have been treated in their entirety. There should be a specific section in the formal programme documentation that analyses the particular access needs of rural women and how these will be addressed. And the application of the defined programme activities to address women's access needs, and their effects, should be monitored.
- c. To ensure that gender issues are an integral part of ADB efforts to develop the institutional capacity of local government bodies.

The ADB should consider applying a standard requirement that equal opportunity be given to men and women (and ethnic minorities) for employment in rural access works and for participation in any training associated with rural access improvement investments. While the principle should be equality of access to opportunities, in the short term quotas may be necessary to promote the increased participation of women.

### ***Environmental Sustainability***

The strategy for rural accessibility improvements should pay particular attention to the potential environmental consequences. This is important because the more remote rural areas are often highly vulnerable to environmental damage due to: (a) the nature of the terrain and (b) the relative abundance of unexploited natural resources. ADB should ensure that sound environmental protection and enhancement practices are incorporated into the design of its rural accessibility programmes. Environmental matters should be subjected to proper review at appraisal, and monitored. The principle to be applied is that environmental concerns and opportunities are most effectively addressed when they are incorporated into all stages of the rural infrastructure management process – planning, design, construction, operation and maintenance.

One of the reasons that access to some rural areas is bad is because of the physical difficulty of building infrastructure. This is the case in mountainous areas such as Nepal and Northern India and in the major deltas of Bangladesh and Vietnam. Any development of physical infrastructure to improve access must take due account of the fragile nature of the environment – from planning and design through construction to operation and maintenance of the infrastructure. This requires careful consideration of, for example, the interruption to the natural water flow; increased risk of erosion and landslides and the need to clear trees and other vegetation.

Opening up rural areas by improving rural access can provide the opportunity to exploit natural resources such as timber, hydro-electric potential and minerals. Such major developments can be hugely beneficial to the country as a whole but can have devastating consequences on the rural poor living in the vicinity. Even more serious is the potential for illegal activities such as unlicensed logging which brings little or no gain to either local communities or the country. Any

development of rural accessibility should take careful account of both the immediate and wider consequences on rural access improvements. Environmental scoping studies should be carried out wherever there may be a risk to the environment. Depending on the result of the scoping study, more detailed Environmental Impact Studies may be required. Mitigation measures should be an integral part of rural accessibility improvements. In some areas where rights over environmental resources are held in common, this may include ensuring the protection of the rights of the community.

Road safety is an issue of the human environment. There remains a need to understand better the nature and extent of road safety risks in rural areas, and of the adverse impacts of faster flows of more traffic on improved rural roads. This is a topic where ADB could build upon its existing work on road safety in urban areas and on highways. Operationally, ADB should adopt design standards for rural transport infrastructure that mitigate against creating a road safety hazard, e.g. road signage, maintaining adequate sight lines, and traffic calming measures in congested areas such as markets. On mountainous roads, additional road safety measures such as crash barriers may be required. Non-physical measures such as upgrading the road safety advice given to children in schools close to improved roads can also be effective and can be integrated into programmes at low cost.

But the environmental issues are not concerned only with mitigating against potential adverse impacts. Rural accessibility improvements can offer opportunities to enhance the natural environment at minimal costs, for example through erosion protection measures, improving slope stability, and roadside tree planting. Again the standards that ADB applies to rural transport infrastructure should incorporate such measures.

There is valuable experience from programmes in DMCs on practical environmental mitigation practices, and on opportunities for enhancement. ADB can play a role in sharing these experiences through regional cooperation. ADB can also assist its DMCs:

- i) to develop and apply simple methodologies for identifying potential environmental threats from rural access improvements;
- ii) to adopt practical measures to mitigate potential adverse impacts and exploit opportunities for environmental enhancement.

Environmental assessment should be based on checklists or similar means that would identify where there is a need for more detailed investigations. These should be easily usable by local consultants and local government officials who may not have specialised knowledge of environmental management. ADB should also develop standard terms of reference for environmental impact studies of rural access improvement programmes. These TOR may need to be adapted to each country, but the essential elements should be transferable

### ***Regional Cooperation***

The cross-cutting theme of regional cooperation is of less significance to rural accessibility than to other transport sub-sectors. However, there are some ways in which the ADB can add value through its regional cooperation work. The ADB should exploit the opportunities to assist its DMCs in improving rural access through a cooperative approach:

- Identification of the needs for, and conduct of, multi-country research in order to increase understanding of some aspects of rural accessibility.

- Dissemination of information and the sharing of experiences and lessons on effective strategies and methodologies for reducing rural isolation.
- Coordination of efforts to improve rural access in border areas including considering measures to reduce the smuggling of goods and movement of drugs.

The ADB supports the preparation of sub-regional sectoral strategies – it has recently been involved in the preparation of several strategies for the Greater Mekong Sub-region. Rural accessibility issues should be included in the preparation of relevant strategies so that, where neighbouring countries have a common interest, the opportunities for cooperation and coordination can be exploited. A good example, which is linked to accessibility, is the promotion of pro-poor rural water-borne tourism in the Mekong River Basin.

## 6.5 Organisational Implications for the ADB

### *Divisional Responsibilities*

Incorporating rural accessibility into the Transport Sector Strategy will have implications for the roles and responsibilities of different divisions in the ADB. There is, in principle, no reason why the Infrastructure (Transport) and the Agriculture, Environment and Natural Resources Divisions of the ADB should not both prepare and manage projects involving rural accessibility improvements. The two divisions have different institutional experiences – Transport Divisions are well-practiced in dealing with central government agencies and engineering consultants, the Agriculture, Environment and Natural Resources Divisions are familiar with the issues faced in working through local government bodies, communities and NGOs.

There appears to be a need for more clear-cut guidance on the allocation of responsibilities for rural access infrastructure between the two Divisions. The existing practice in some regional departments of splitting responsibilities in terms of classes of road is one option. A natural boundary line would be between those parts of the network managed by central government departments and those managed by local authorities and communities. Even if there is such a split, there will be a need for formal procedures of coordination between the Divisions in order to bring, and make the most productive use of, the specific strengths that each has to bear on the design of investment programmes. Experience indicates that greater coordination is required on:

- i) definition of consistent design standards for specific classes of roads in a DMC;
- ii) adoption of a common approach to establishing rural road maintenance capacity in a particular DMC;
- iii) careful analysis of the appropriate institutional arrangements for the implementation of a project, to reflect national Government structures and implementation capacities;
- iv) understanding the responsibilities for future maintenance, with a clear agreement of all concerned parties before commencing any physical works;
- v) accessing and applying the available country-level expertise within the ADB.

The ideal situation is that the DMC government concerned should lead this coordination process. ADB's commitment along with other donors towards a greater alignment of support to partner systems is consistent with this. This will be further facilitated by ADB's country-level focus. However, it does not obviate the need for improved coordination across ADB Sectoral Divisions.

It is recognised that there are real constraints to be addressed in adopting and applying consistent, coordinated policies and strategies across different divisions and departments of a large institution such as the ADB. The strategy should be to:

1. Develop a clear internal allocation of responsibilities within ADB for the rural accessibility sub-sector building on existing strengths and progressively developing expertise.
2. Ensure coordination between the key Divisions of Infrastructure (Transport) and Agriculture, Environment and Natural Resources to draw on their respective strengths and develop a consistent approach to the transport sector in DMCs. This includes a mechanism to ensure that each division is able to access specific sources of expertise that are housed in the other.
3. To disseminate new knowledge and experience within the ADB.

The Communities of Practice mechanism now introduced by the ADB could play an important role in achieving effective coordination and in the dissemination of knowledge and experience on rural accessibility issues within the ADB.

### ***Developing Expertise***

There are aspects of the rural accessibility improvement process that are not yet fully understood (rural road safety has already been mentioned), and there is a need for further work to develop suitable procedures and methodologies for managing the implementation of programmes to reduce isolation – e.g. appraisal of socially-oriented rural transport infrastructure investments, and quantitative monitoring of improvements in level of access. This implies the need for ADB to support further research, preferably as a regional cooperation activity. The effective incorporation by ADB of a comprehensive rural accessibility approach into its Transport Sector Strategy will require many of its staff to expand their expertise and develop new competencies. This creates a need for dissemination of research findings, and in-service training, as well as the preparation of the guidelines and manuals that will form part of rural accessibility operational procedures.

### ***The Role of the Country Offices***

Given the importance of the country-level focus, it will be necessary to define clearly the role of the country offices, and their relationships to headquarters divisions, in promoting a holistic rural accessibility approach to reducing isolation. This could be operationalised by making one staff member in each country office the focal point for rural accessibility, probably as part of that person's responsibilities rather than a full-time task. This responsibility would have to be incorporated into the job description of that staff member, who might need some in-service training to develop the necessary expertise and competencies. The starting point could be to select one country in each of the three sub-regions where rural accessibility is of greatest significance – East Asia, South Asia and South-east Asia – to pilot this institutional arrangement.

## 6.6 The Process of Operationalising the Strategy

### *The Approach*

Operationalising a holistic approach to improving rural accessibility as part of the ADB Transport Sector Strategy has implications within ADB for:

- i) the allocation of resources;
- ii) project and programme packaging;
- iii) the investment project cycle, from identification through preparation and implementation to benefit monitoring and evaluation;
- iv) technical assistance for policy reform, and capacity building;
- v) research.

In recommending a process for operationalising the strategy, it is essential to avoid simply proposing a long list of additional activities for ADB staff. It is recognised that ADB's operational resources are limited. From a practical point of view, there has to be a balance between introducing change in order to make a difference and being over-ambitious in terms of what can be achieved and how long it will take. Moreover, this is not a comprehensive analysis of ADB operational procedures. This would take too long, and is premature until a consensus on, and sense of ownership of, the proposed rural accessibility strategy has been built. The aim is to recommend some key first steps that can promote improved rural accessibility in DMCs.

From a conceptual point of view, there are three steps necessary in the process of incorporating rural accessibility improvements more effectively into ADB programmes:

- Build awareness
- Generate experience
- Evaluate and build knowledge

### ***Building Awareness***

One of the main reasons that rural accessibility does not feature more prominently in current ADB supported projects and programmes is a general lack of awareness of the issues involved amongst its staff, DMC government partners and consultants. There is no single remedy for this. However, the practical actions that can be taken, involving the Transport Community of Practice and in effect developing a knowledge network, are:

- Internal seminars and discussions in ADB on rural accessibility issues, especially where this can be based on actual experience in DMCs, dissemination of information within the organisation, and participation by ADB staff in relevant internet discussion groups<sup>48</sup>. This action should be directed at professional staff in the relevant sectoral divisions, those responsible for procurement and for monitoring and evaluation and, most importantly of all, at country-level offices. It is staff working at country-level who will ultimately take the lead in, and be the focal points for, ensuring that rural accessibility is adequately addressed in national programmes.
- Production of a first draft of ADB Guidelines on Rural Accessibility Issues to be incorporated into the project identification, preparation, appraisal and approval process. These would provide practical guidance to those tasked with preparing rural accessibility programmes

---

<sup>48</sup> For some examples of relevant internet groups, see IFRTD website "Email Discussion Lists"

and define that certain issues should be addressed (and, if found not to be relevant or beyond the scope of a programme, specifically rejected). The Guidelines could be in the form of checklists for each stage in the process. The availability of these guidelines would give ADB staff and consultants confidence, and provide them with a 'road map' to innovate in the design of new investment programmes.

- Participation by ADB staff in international seminars and conferences in which rural accessibility issues are discussed. A key benefit of this would be to facilitate greater interaction and dialogue between ADB staff and those responsible for dealing with similar issues in other international development agencies. This should help to bring about common approaches at national level.
- Conduct of sub-regional seminars for groups of DMCs dealing with similar rural accessibility issues: (a) to promote awareness-raising on the importance of a holistic approach to reducing isolation; and (b) to exchange experiences and lessons learnt to date.
- These sub-regional seminars could provide the 'entry point' for country-level awareness raising in specific DMCs, as the first step towards influencing and reforming relevant national policies and strategies.

### **Generating Experience**

The second step, generating experience is potentially the more powerful. Only by implementing projects and programmes involving improvements to rural accessibility will ADB staff and DMC government institutions gain first-hand knowledge and experience of the relevant issues. Some implementation experience already exists. This has been discussed earlier but, in parallel with the adoption of the transport sector strategy, it would be useful for ADB to carry out a more comprehensive internal assessment of its rural accessibility experience to date, and the practical lessons it has learnt.

For ADB, there are three situations to be addressed:

- Integration of rural accessibility issues into existing projects and programmes
- Integration of rural accessibility issues into new projects and programmes
- Development of stand-alone rural accessibility programmes

The first option, integration into existing programmes, may offer the fewest possibilities, and be constrained by practical implementation considerations, but could provide some "quick wins". Integration into new projects and programmes should provide the most solid body of experience. However, the results could be some years ahead and rural access may be a relatively small component of a bigger transport programme. A limited number of stand-alone rural accessibility programmes, or more likely rural infrastructure programmes, may be an attractive option. In these cases, a relatively large amount of experience can be gained relatively quickly and there is more potential for 'piggy-backing' action research onto the programmes for enhanced learning. The one caution is that, while there are benefits from incorporating pilot activities to learn lessons on issues that are not yet fully understood, such initiatives must be selected and prepared on the basis that successes can be widely replicated. The possible constraints to achieving this must be considered during design of the pilot activities.

In all these situations, it will be the responsibility of the ADB staff involved in the project preparation process at headquarters and in country-level offices: (a) to be pro-active in introducing the issues of rural accessibility into the dialogue with DMC governments; and (b) to

identify the nature and timing of complementary support that is needed for policy reform and capacity building.

### ***Evaluation and Knowledge Building***

To further ADB's strategic aim of building world-class expertise in its areas of concentration, it needs to continuously monitor and evaluate the outcomes of its development initiatives. This is particularly important in the case of rural accessibility where the available body of knowledge is limited. Particular efforts will be needed:

- To carry out monitoring and evaluation of rural accessibility improvements. This should look at what is effective both in terms of implementation and of the outcomes for poverty reduction and other priority themes.
- To conduct and/or support carefully targeted research on aspects of rural accessibility that are not yet fully understood, and on implementation issues that are not yet resolved. ADB staff working in relevant sectors should contribute, based on their experience and concerns, to identifying priority research topics.

In addition to building internal expertise and refining ADB approaches and procedures, the lessons learnt would provide an input for dialogue with DMC governments on new programmes and policy reform, as well as an opportunity for exchanging experience regionally and with other donors. It is, therefore, important that findings from evaluation and research should be published and disseminated. There is an opportunity for ADB to develop a leading expertise in rural accessibility issues as they relate to Asia and the Pacific.

## **6.7 Specific Operational Measures**

Some specific measures that ADB can take to operationalise a rural accessibility strategy have already been identified earlier in this Chapter. This section defines key additional measures that are required. These are not exhaustive, but provide a starting point focusing on issues of key importance and areas where ADB can make a difference.

### ***Policy Reform and Capacity Development in DMCs***

There is a major need for policy reform, institutional development and capacity building support from ADB to its DMCs in the rural accessibility sub-sector. For this reason, projects and programmes involving rural accessibility improvements may be expected to have a higher component of capacity building than other transport sector projects, particularly at the local government level. Advisory and Operational Technical Assistance (AOTA) is one significant means of carrying out the necessary capacity building, as well as for providing policy and strategic analysis and advice in DMCs as part of the process of dialogue and influencing reform. Management of this process at the country level will enhance its prospects of success.

The immediate need is to develop a typical "road map" for this process together with practical assistance in the form of model terms of reference for TA at each main stage of the process. These stages are:

- Defining a rural accessibility policy
- Developing an appropriate strategy
- Building the necessary central and local institutions

and

- Preparing the detailed procedures to operationalise the strategy.

The “model” terms of reference will need adapting to the circumstances of each DMC. However, they should provide all the key elements to be addressed at the relevant stages. Developing policies and strategies may need ancillary analytical work. ADB TA should be facilitating in nature such that the ownership of the policies and strategies rests firmly with the DMC authorities. Issues such as the revision or extension of legislation surrounding rural access may require additional inputs. Building institutions and preparing procedures are likely to be carried out by TA inputs over a longer period.

### **Financing Modalities**

Financing modalities for rural accessibility improvements need to take account of their decentralised nature, uncertain cash flow requirements and relatively large capacity building and social benefit components. The traditional ADB financing modalities need to be complemented by new instruments, some of which are currently under pilot testing. The most relevant for rural accessibility improvements are multi-tranche financing, sub-sovereign lending and new forms of co-financing (see section 3.6 above).

**Multi-tranche financing** allows DMC governments to spread lending commitments for a programme over a number of years or phases. The recipient government then only pays the commitment fee on the activated tranche(s) of the loan. This is particularly useful for rural road programmes that roll out over a number of years. It has been proposed for India’s Rural Roads Sector II investment programme. If successful (and it is important that this should be monitored), this instrument could facilitate lending to other large-scale rural accessibility improvement programmes.

Much of the investment concerned with improving rural access infrastructure is the responsibility of local government. Previously, all ADB financing had to be passed through central government. Under new procedures, **sub-sovereign lending** direct to Provincial or District government is now possible. This could facilitate ADB investment in local transport infrastructure development, particularly in the larger DMCs.

**Co-financing with other donors** has considerable scope in rural accessibility programmes. As discussed previously, grant funding from other donors combined with larger loans through ADB can provide the appropriate mix of investment modalities for programmes that combine economic growth objectives with a high proportion of social and poverty-reduction goals. The recently defined Financing Partnership Strategy [33] provides the framework for the ADB to work more effectively in partnership with other donors to fund rural accessibility programmes.

ADB needs to consider the application of its new financing instruments in support of rural accessibility improvement programmes. The increased flexibility that they offer will enhance its possibilities to become more involved in such programmes than hitherto. They may also be the means through which ADB can play a greater role in reducing isolation in remote areas where rural poverty is intransigent. In particular, co-financing with other donors should be actively pursued in rural accessibility programmes. This contributes to the wider objectives of increased donor coordination and harmonisation of support. Co-financing would also be a first step towards a Sector-wide Approach and the broader goal of achieving alignment with the recipient government’s systems and procedures.

## **Project Design**

ADB should ensure that the terms of reference (TOR) for consultants engaged in project preparation require a holistic analysis of rural accessibility issues covering a consideration of constraints due to infrastructure at all levels, the availability of transport services and the location of facilities:

- These TOR should specify that the planning of rural access infrastructure improvements is to be based on a network approach towards achieving connective development of transport infrastructure.
- There should be an explicit requirement for consideration of community infrastructure such as paths and tracks, as well as rural waterways where this is relevant.
- The criteria for specifying design standards for the infrastructure should be that they are adequate for the predicted traffic and that the costs are commensurate with the benefits, based on a whole-life cost approach.
- Analysis of the existing road maintenance situation and, based on this, an assessment of the level of infrastructure investment that is justified and the inputs required to achieve sustainability, should be included.
- The assessment of benefits should include both economic and social benefits. Economic benefits consider the modal shift that is expected to occur as a result of the access improvements e.g. from headloading to motorised transport, which can result in large travel cost benefits. Similarly, travel time savings are often significant and should be included. Social benefits should be included, but taking care to avoid any double counting of benefits.

To ensure that these and other relevant principles are applied, ADB should develop a standard **checklist of issues** to be taken into account in the design of rural accessibility improvements, together with a model set of terms to be incorporated into consultant TOR. These will guide ADB project staff in managing consultant services.

One crucial issue in project design is the **economic appraisal** of investments in improving rural accessibility. An important trend in the delivery of development assistance is the 'relaxation' of the rigid economic appraisal of investments to take greater account of social benefits. These are more difficult to quantify but are of importance in poverty reduction. This acknowledgement favours rural accessibility improvements for which a significant part of the benefits are related to addressing the social dimensions of poverty. However, conventional economic appraisal frameworks cannot take them into account because they are difficult to define and quantify, let alone value.

Given that there has been a growing recognition of the importance of social benefits from the rural transport improvements, particularly for poor people [54], their inclusion in the rural transport appraisal framework becomes essential. One of the suggested methods is the use of multi-criteria analysis that considers all type of benefits (economic, social and environmental) and can use both quantitative and qualitative values. The multi-criteria analysis provides a score for each of the investment options using weights for different type of benefits as well as types of social benefits. The combined score is then used to prioritise investment options.

There are also some simple approaches for the appraisal of access related investments with the simplest being the investment cost per capita. This is basically a cost-effectiveness approach, which assumes that the combined benefits, including social benefits, are proportional to the number of people the infrastructure serves. Such methods are recommended where (a) the

provision of minimum intervention to provide basic access is being considered [58] and (b) it is difficult to justify an investment based on an economic rate of return e.g. because no traffic can pass. This can be extended into a two stage approach whereby the first stage of improvement to provide minimum basic access is justified on a cost effectiveness approach. Once access has been opened up, the movement of goods and people can be measured and the second stage of (further) improvement can be based on economic criteria

### ***Project Implementation***

A well-designed financing programme does not guarantee good results. Effective management and supervision of implementation is essential if the intentions of the design are to be achieved. This emphasises the importance of capacity building at central, and particularly local, government level. At the latter level it may be necessary to provide significant technical assistance support during implementation, but without falling into the trap of the programme being 'implemented by consultants, rather than with their support. Effective procedures for monitoring progress and performance – with rapid feedback of key information to management in the DMC and to the ADB, provide one mechanism for checking that the programme is 'on-track'.

The need for effective supervision of implementation poses something of a dilemma for the ADB, particularly when the design of an investment programme is relatively complex, because of its acknowledged staff resource constraints. However, as reported in the Medium-term Strategy II 2006-2010 Issues Paper [51], the need for the ADB to adjust its balance of priorities from project preparation and processing towards effective implementation has already been recognised. For rural accessibility programmes, the dilemma can be mitigated in a number of ways:

- i) through the adoption of a process approach, so that the rate of implementation is linked to the development of management capacity;
- ii) by the use of simple and transparent procurement procedures for small-scale works;
- iii) with effective participatory monitoring;
- iv) through the use of technical audit consultants;
- v) by maximising the role of the country office in supervision.

### ***Monitoring and Evaluation***

A particular effort is needed in respect of monitoring and evaluating rural accessibility improvements. ADB already implements poverty-focused transport projects with clearly-defined target groups and intended impacts. Well-executed impact and evaluation studies are required so that the findings are useful in adding to the existing lessons and guidance that will increase the effectiveness of future support to the improvement of rural access. As many of the issues concerned with improving access are quite complex, the risk to be avoided is that these studies become over-elaborate and their findings difficult to understand.

There is a need for standard terms of reference and guidelines to ensure that findings are relevant, practicable, and applicable to future work. These terms of reference and guidelines should be based on available international experience and provide a framework rather than a straightjacket. They should include monitoring mechanisms to accelerate the process of learning interim lessons, and incorporate indicators of improved access. Apart from avoiding over-complexity, some degree of standardisation of these studies would assist in carrying out

cross-comparisons between different projects and programmes. ADB should take the lead in developing these standard terms of reference and guidelines.

## 6.8 Action Plan

The following action plan provides a summary of key activities from the previous sections together with preliminary suggestions on the timing and allocation of responsibilities. It is not intended to be comprehensive. It is also essentially short-term. This is not to say that other medium to longer-term activities are not important and necessary, and there will certainly be a need for more detailed definition of guidelines and procedures on specific aspects of a rural accessibility approach. However, it is probably premature to detail activities with later deadlines at this stage. What is presented here is intended to summarise the proposed 'way forward' over the next two years

One of the most important recommendations is the appointment of a focal point in ADB for rural accessibility issues. This focal point (FP) would be responsible for coordinating and monitoring this action plan. The FP could be located within the Transport Community of Practice. The timing of activities in the Action Plan is measured from the appointment of the FP.

### ADB Action Plan for the Promotion of a Holistic Rural Accessibility Approach

Ref	Activity	By Whom?	By When?
1	Appoint a rural accessibility focal point	ADB	-
2	Initiate internal seminars to raise awareness of rural accessibility issues in ADB.	FP	3 months
3	Build a knowledge network on transport sector issues with an emphasis on filling knowledge gaps in the areas of rural accessibility improvements, the use of labour-based methods, etc.	FP	5 months
4	Devise standard road map for the introduction of rural accessibility issues into DMCs	ADB	6 months
5	Produce typical TOR for each of the 4 main stages of the road map process.	ADB	6 months
6	Produce standard TOR for monitoring and evaluating rural accessibility improvements in ADB programmes.	FP	6 months
7	Identify 2-3 priority rural accessibility research topics and initiate	FP	6 months
8	Agree organisational roles and responsibilities within ADB for rural accessibility issues.	ADB	7 months
9	Appoint first three country-level focal points, one each in East Asia, South Asia and South-east Asia sub-regions	ADB	9 months
10	Produce guidelines for rural access project identification, preparation and approval, with checklists.	FP	9 months
11	Develop standard contract documents for small-scale, rural access infrastructure works that are either labour-based or method-neutral.	ADB	12 months
12	Devise an anticorruption approach for local small scale works together with a DMC government and initiate its testing	ADB	12 months
13	Initiate programme of sub-regional seminars on rural accessibility issues	FP	12 months
14	Develop a standard checklist of issues to be addressed by project preparation consultants in the design of rural accessibility improvement programmes.	FP	15 months
15	Produce a medium term action plan for the establishment of rural accessibility issues into ADB programmes	FP	18 months

## REFERENCES

1. Technical Assistance for the Preparation of a Transport Sector Policy (TAR: STU 31323). Asian Development Bank. December 1998.
2. The Livelihoods Framework. Presentation by Olivier Serrat, Southeast Asia Department, Asian Development Bank (undated, downloaded from ADB website).
3. Fighting Poverty in Asia and the Pacific: The Poverty Reduction Strategy. Asian Development Bank. 1999.
4. Enhancing the Fight against Poverty in Asia and the Pacific. Asian Development Bank. 2004.
5. Moving the Poverty Reduction Agenda Forward. Asian Development Bank. February 2001.
6. Vietnam Development Report 2000: Attacking Poverty. Joint Report of the Government-Donor-NGO Working Group. December 1999.
7. Governance: Sound Development Management. Asian Development Bank. August 1995.
8. Promoting Good Governance: ADB's Medium-term Agenda and Action Plan. Asian Development Bank Board Paper. October 2000.
9. Private Sector Development Strategy: Promoting the Private Sector to Support Growth and Reduce Poverty. Asian Development Bank. March 2000.
10. Private Sector Operations: Strategic Directions and Review. Asian Development Bank. August 2001.
11. Developing Best Practices for Promoting Private Sector Investment in Infrastructure: Roads. Asian Development Bank. 2000.
12. ADB's Poverty Analysis for Nepal. Asian Development Bank, Nepal Resident Mission. 2001
13. Poverty Reduction Partnership Agreement between Nepal and the Asian Development Bank. Asian Development Bank. 2001.
14. Cooperation with Japan: The Japan Fund for Poverty Reduction. Asian Development Bank Board Paper. April 2000.
15. Project Performance Management System: Guidelines for Bank Staff. Asian Development Bank. September 1999.
16. Anti-corruption. Asian Development Bank. July 1998.
17. Cooperation between ADB and NGOs. Asian Development Bank. April 1998.
18. Policy for the Health Sector. Asian Development Bank. February 1999.
19. HIV/AIDS and the Transport/Infrastructure Sector. European Commission. 2000.
20. Water For All: the Water Policy of the ADB. Asian Development Bank. October 2001.
21. Rural Development Policy Paper. ADB draft internal document circulated for comment. 4<sup>th</sup> December 2000.
22. Guidelines for Incorporation of Social Dimensions in Bank Operations. Asian Development Bank. 1993.
23. Handbook for Incorporation of Social Dimensions in Projects. Asian Development Bank. May 1994.
24. Bank Policy on Involuntary Resettlement. Asian Development Bank. 1995.
25. Handbook on Resettlement: A Guide to Good Practice. Asian Development Bank. 1998.
26. Environmental Guidelines for Selected Infrastructure Projects. Asian Development Bank. 1993.
27. Environmental Assessment Guidelines. Asian Development Bank. 2003.

28. Guidelines for the Economic Analysis of Projects. Asian Development Bank. February 1997.
29. Guidelines for Procurement under Asian Development Bank Loans. Asian Development Bank. November 2004.
30. Use of Consultants by the ADB and its Borrowers. Asian Development Bank. February 2006.
31. Review of the Bank's Sector Lending Policies. Asian Development Bank Paper. 26<sup>th</sup> July 1999.
32. Review of the Bank's Program Lending Policies. Paper presented for the consideration of the Board. Asian Development Bank. 22<sup>nd</sup> November 1999.
33. ADB's Financing Partnership Strategy. Asian Development Bank. June 2006.
34. Transport Sector Loan Approvals, 1998-2000, by Sub-sector. Document provided to the author by ADB. February 2001.
35. Approach Paper for Formulating the Bank's Transport Sector Policy. Staff Consultant report by R.J. Allport. Asian Development Bank. February 1997.
36. Draft Final Report: Second Rural Infrastructure Development Project PPTA [TA 3625-NEP]. Scott Wilson and IT Transport in association with East Consult and SIDeF. September 2002.
37. Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Kingdom of Cambodia for the Northwest Rural Development Project. Asian Development Bank. October 2001.
38. Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of the Philippines for the Infrastructure for Rural Productivity Enhancement Sector Project. Asian Development Bank. October 2000.
39. Country Synthesis of Evaluation Findings in Nepal. Asian Development Bank. October 1999.
40. Sector Synthesis of Post-Evaluation Findings in the Roads and Road Transport Sector. Post-Evaluation Office, Asian Development Bank. July 1996.
41. Impact Evaluation Study of Bank Assistance to the Roads Sector in Nepal – Draft for Comments. Evaluation Division East, Asian Development Bank. November 2000.
42. Project Performance Audit Report on the Farm-to-Market Roads Project in Pakistan. Asian Development Bank. July 1998.
43. World Development Indicators. The World Bank. March 2005.
44. Asian Highways and the Role of the ADB, Draft Final Report. Prepared by Clell Harral for the ADB as input to the preparation of an ADB Transport Strategy. November 2001.
45. World Development Indicators, 2006. The World Bank. April 2006.
46. World Development Report 2000/2001: Attacking Poverty. Published for the World Bank by Oxford University Press. 2001.
47. Institutional Structures. Supplementary Document to Draft Final Report: Second Rural Infrastructure Development Project PPTA [TA 3625-NEP]. Scott Wilson and IT Transport in association with East Consult and SIDeF. September 2002.
48. Vietnam Rural Transport Strategy Study. Ministry of Transport, Socialist Republic of Vietnam, and DFID. August 2000.
49. Rural Transport Services in the Philippines. By Ian Barwell. Prepared for the International Labour Organisation. December 1995.
50. Local Transport Solutions for Rural Development. By Paul Starkey. DFID. London. 2002.
51. Rural Water Transport in Kampong Lourng Commune of Cambodia. By Sok Sitha. Prepared for the International Forum on Rural Transport and Development. August 2002.
52. Medium-term Strategy II 2006-2010 – An Issues Paper. ADB internal document. 2005.

53. Promoting the Millennium Development Goals in Asia and the Pacific. UN-ESCAP and UNDP. 2003.
54. A Note on Poverty in Developing Member Countries served by the Asian Development Bank: with Possible Links to Transport Interventions. By Cynthia Cook. Paper prepared for specialists working on the preparation of the ADB Transport Policy. June 2001.
54. Assessing the Impact of Transport and Energy on Poverty Reduction. By Cook, C., T. Duncan, S. Jitsuchon, A. Sharma, and W. Guobao. Asian Development Bank. 2005.
55. Transport: Infrastructure and Services. By Gannon, C., K. Gwillam, Z. Liu and C. Malmberg-Calvo. World Bank Discussion Paper (Draft). World Bank. May 2001.
56. The Importance of Public Investments and Institutions for the Functioning of Food Markets in Developing Countries. By Hazell, P. and S. Fan. International Food Policy Research Institute. 2002.
57. A Link between Infrastructure, Growth and Poverty in Indonesia (Stage 1 Study Report). By E. Kwon. Economics and Development Resource Centre, Asian Development Bank. 2000.
58. Design and Appraisal of Rural Transport Infrastructure – Ensuring Basic Access for Rural Communities. By Lebo, J. and D. Schelling. World Bank Technical Paper No. 496. World Bank. 2001.
59. Poverty and Access to Information in Papua New Guinea. By Gibson, J. and S. Rozelle. Department of Agriculture and Resource Economics Working Paper Number 02-008, University of California, Davis. USA. 2002.
60. Choosing Rural Roads Investments to Help Reduce Poverty. By D. van de Walle. World Development Vol. 30, No. 4, 2002, pp 575-589 (Elsevier Science Ltd.)
61. Addressing Poverty in Bangladesh. By Sen, B. and R.K. Khan. Bangladesh Economic Policy Paper No. 1. Asian Development Bank. June 2000.
62. Impact Assessment of the Local Road Programme implemented on the Dhading Besi-Salyantar-Siktar Road and Bhimdunga-Lamidanda Road. Impact Monitoring Unit, Kathmandu, Nepal. 1994.
63. An Ex-post Evaluation of the Direct Effects of RDP-6. Report prepared for Local Government Engineering Department (LGED), Government of Bangladesh and Swiss Agency for Development and Cooperation (SDC) by I.T. Transport Ltd., UK. 1997.
64. An Ex-post Study of the Traffic Effects of RDP-16. Report prepared for Local Government Engineering Department (LGED), Government of Bangladesh and Danida by I.T. Transport Ltd., UK. 1999.
65. Benefit Monitoring and Evaluation of RIIP: Final Report and Recommendations for Continuing Activities within MRD. By K. Vaidya. Report prepared for Ministry of Rural Development, Royal Government of Cambodia and Asian Development Bank. July 2002.
66. Impact Evaluation Study of Rural Roads on Poverty Reduction. Draft Report, prepared for the Operations Evaluation Department (OED) of the Asian Development Bank. June 2002.
67. Participatory Poverty Assessment in Cambodia. Asian Development Bank. 2001.
68. National Strategic Development Plan, 2006 to 2010. Royal Government of Cambodia.
69. Economists Guide: Appraisal of Investments in Improved Rural Access. DFID. 2001
70. Rural Accessibility - Footpaths and Tracks: A Field Manual for their Construction and Improvement. Ron Dennis, IT Transport Ltd. ILO. 2002.
71. Footbridges: A Manual for Construction at Community and District Level. IT Transport Ltd. ILO. 2004.
72. Community Participation in Road Maintenance - Guidelines for Planners and Engineers. IT Transport Ltd. for DFID. 1999.
73. Roads Are Not Enough. Barwell and Dawson. I.T. Publications. 1993.

74. Rural Transport: Doran. I.T. Publications for UNIFEM Energy & Environment Technology Source Books. 1996.
75. Framework for the Inclusion of Social Benefits in Transport Planning. Ahmed, Davis, Bradbury and Bryceson. Report for DFID Project reference R8123. May 2004.
76. Road Deterioration in Developing Countries: Causes and Remedies. World Bank Policy Study. 1988.
77. National Transport Policy, Ministry of Communications and Transport, Tanzania. 2003.

LGED: Local Government Engineering Department  
SDC: Swiss Agency for Development and Cooperation  
Danida: Danish International Development Assistance Agency  
OED: Operations Evaluation Department (of the ADB)  
UNICEF: United Nations Children's Fund  
BRO: Border Roads Organisation  
IFRTD: International Forum for Rural Transport and Development

## APPENDIX 1: ADB Transport Sector Policy: Outline of Board Policy Paper

*Note: This assignment was originally conceived as an input to an ADB Transport Sector **Policy**. It was subsequently determined that the focus should be on **Strategy**. The references to “Policy” in the document should be interpreted in this context.*

## **ADB TRANSPORT SECTOR POLICY: OUTLINE OF BOARD POLICY PAPER**

### **I. INTRODUCTION**

Reason for transport policy consideration now: global trends, changes that have occurred in transport in recent years; treating transport as linked networks of infrastructure and services; ADB focus on sustainable transport services, poverty reduction, private sector involvement; emerging issues.

### **II. HISTORY OF ADB TRANSPORT OPERATIONS**

Record of loans and TA activities; increase in borrowers; summary of policy dialogue; post-evaluation record and lessons of experience. Changes in the nature of ADB support over time.

### **III. TRANSPORT TRENDS AND NEEDS**

Economic growth, international and domestic trade; urbanization; developments in transport infrastructure and services both globally and in the Asia and Pacific Region; volumes of goods and people; poverty and the transport needs of the poor; governance; environmental issues; private sector development.

### **IV. ISSUES**

#### **1. Transport and the Poor**

The magnitude of the problem of access faced by the poor; types of transport services and investments needed by poor; differences by type of country; stakeholder participation, socially inclusive transport development; gender and other social issues, evidence of transport effects on the poor and examples; implications for the poor of greater involvement of private sector.

#### **2. Transport and Sustainable Economic Growth**

The role of transport in generating economic growth and reducing poverty; needs and priorities of different client countries; efficiency in resource allocation; characteristics of transport interventions that lead to sustainable growth, evidence and examples; environmental mitigation and improvements; safety; global issues.

#### **3. Private Sector Participation**

Public sector role and past performance; private sector role and past performance; recent trends in Asia and Pacific and elsewhere in the world; ADB experience; modalities of ADB past support including ADB's guarantee instrument; vision for public-private roles and challenges for the future.

**4. Transport and Governance**

Governance issues affecting transport in Asia and Pacific: legal framework; regulation, institutional issues, accountability, transparency, competition; the agenda for restructuring; policy reform and capacity building; public awareness; development of local private sector participants including operators, contractors, and consultants; ADB's past role and future challenges.

**5. Financially Sustainable Transport Development**

Pricing, tariff, and subsidy policies to achieve financial sustainability; resource mobilization, sources of finance, role of private finance and capital markets; asset management.

**6. Urban Transport**

Urban transport trends and challenges in the region; urban transport and the poor; city efficiency, planning and modal choice; motorization, demand management, traffic management; investment needs and priorities by type of country; governance, institutional and policy issues, public-private roles; sustainable finance; air pollution, health and environmental effects including effects of bad environment on the poor.

**7. Regional Cooperation**

Generating trade and incomes  
Identifying investment opportunities  
Removing barriers to mobility and access to markets and information

**8. Operational Efficiency**

Safety  
Inter-modal facilities  
Use of new technologies

**V. A POLICY FOR SUSTAINABLE TRANSPORT**

1. Identifying future demand for transport infrastructure and transport services; use of market instruments in managing demand.
2. Enhancing competitive market structures for transport-related investment, contracting, financing, and operations and for dealing with land, and labor.
3. Fostering environmental enhancements.
4. Meeting the needs of the poor and vulnerable including women.
5. Promoting good governance and institutional development for meeting complex sector problems, including rationalizing the role of public and private sectors.
6. Managing transport sector assets.
7. Developing sustainable financial resources.
8. Clarifying sub-sector policies, for infrastructure and services.
9. Enhancing project implementation and performance-based implementation.
10. Making use of global best practice.

**VI. ADB's OPERATIONAL TRANSPORT STRATEGY**

**“To help clients achieve sustainable increases in welfare by enhancing access to market opportunities, social services, goods and information through transport infrastructure and services in a market oriented manner”**

1. Overall strategy and guiding principles.
2. Recommended focus of public sector and private sector operations.
3. Modalities of assistance: policy dialogue, loans, technical assistance.
4. Cooperation with others.
5. Strengthening the knowledge base; technology transfer.

**VII. IMPLEMENTATION OF STRATEGY,**

Staff resources and skills; current state of knowledge and priorities for research agenda.

## **APPENDIX 2: Terms of Reference for Rural Accessibility Specialist**

*Note: This assignment was originally conceived as an input to an ADB Transport Sector **Policy**. It was subsequently determined that the focus should be on **Strategy**. The references to “Policy” in the ToR should be interpreted in this context.*

## TERMS OF REFERENCE FOR RURAL ACCESSIBILITY SPECIALIST

### A. Background

1. The Asian Development Bank (ADB) is preparing a policy paper to guide its future transport sector operations over the next decade. This policy paper will be the first time that the ADB has formalized such a policy. In the past, lending to the transport sector was based on informal sector policies and practices in accordance with the Bank's Medium-Term Strategic Framework. To provide input to the policy paper the ADB will initially commission a number of "think pieces" covering transport sector modes: highways, railways, ports, airports and urban transport. In addition a number of think pieces will be undertaken on cross cutting issues such as resource mobilization, private sector involvement, poverty, sustainability, rural accessibility, and policy and institutional development as they affect transportation. Prior to preparing this technical assistance the Bank prepared an approach paper as background information to this work.

### B. Objectives

2. The primary objective of this consulting assignment is to prepare a paper on rural accessibility in the Asian and Pacific region that sets out the dimensions of the challenge facing countries in the region, the policy and institutional approaches which would enhance the social, economic and financial sustainability of rural transport in client countries particularly with respect to the poor, and options which the Asian Development Bank should consider that would define its own role in rural transport.

### C. Scope of Work

3. The scope of work includes but may not necessarily be limited to the following tasks:

- (i) Analyze the nature of the rural accessibility challenge facing Developing Member Countries of the Asian and Pacific Region including specific issues in the different sub-regions i.e. South Pacific and island countries, South East Asia, Indochina, South Asia, People's Republic of China, and Central Asian Republics.
- (ii) Review relevant Bank policy papers on poverty and related issues to provide the framework for the role of rural accessibility in achieving this objective.
- (iii) Review rural accessibility operations of the Bank (whether these are managed by the transport unit or by the agriculture unit) and ascertain the lessons learned and potential for future operations.
- (iv) Review evidence of the impact of these operations upon social conditions (including health, education, gender, etc) and incomes of the poor.
- (v) Recommend measures that should be considered in the design of operations that would improve social and economic benefits to the poor including measures to support the development of the local contracting industry.

- (vi) Review the Bank's experience in policy dialogue and in institutional issues for rural accessibility in its borrowing member countries.
- (vii) Identify specific measures that might improve long term sustainability of rural transport infrastructure and operations, including financial, economic, technical, social and environmental sustainability. Give examples from the region where possible.
- (viii) Identify and review the main sources of financing for public sector rural transport programs including for both investment and maintenance. Assess the options, including the role of government subsidies, for financing transport sector investments in remote and poor areas.
- (ix) Provide examples of innovative approaches to rural transport in the Asia Pacific region and elsewhere.
- (x) Identify the lessons learned from experience and best practice, covering in particular institutional arrangements, cost recovery, community participation, and implementation arrangements.
- (xi) Prepare policy recommendations for future Bank operations and identify the extent to which they may need to vary by stage of development, geographical location, or by type of project.
- (xii) Identify areas for further sector work or research in relation to future Bank operations.
- (xiii) Prepare a draft report with a summary of findings and conclusions, and finalize the report after comments from the ADB and borrowing countries.
- (xiv) All reports are to be submitted in Microsoft Word (Office 97 edition).

## **APPENDIX 3: Relevant Data on Developing Member Countries**

## RELEVANT DATA ON DEVELOPING MEMBER COUNTRIES

*This Appendix presents data on the demographic, geographic, economic, access and poverty characteristics of the ADB Developing Member Countries (DMC) which are active borrowers from the international development finance institutions.*

### Part 1: Base Data

This Table, on the next page, provides data on the population (total and rural), land area, population density, GNP per capita and annual economic growth of the Asia and Pacific DMCs.

The main source of data is the ADB website as of November 2006, complemented by information from the World Bank world Development Indicators Report of March 2005 [43]. The DMCs are grouped by ADB regional department, except that twelve countries with small populations of less than 1 million people where rural accessibility and rural poverty are not significant issues<sup>49</sup> are grouped separately as “small countries”. Only base data is provided for these countries, and they not covered in the remaining Tables in this Appendix. Three countries with populations of less than 1 million people (Bhutan, East Timor and the Solomon Islands), where rural accessibility and rural poverty are considered to be more significant issues, are retained in the main regional groupings. Data for Armenia, which only recently joined the ADB, has not been included.

The data on GNP per capita per annum and annual economic growth are generally for 2004 but there are a few exceptions. The World Bank classifies countries with a per capita GNP of less than \$765 as ‘Low Income’.

---

<sup>49</sup> For an explanation of the analysis that underlies this conclusion see Section 4.1 of the main text of this Paper.

**PART 1: BASE DATA ON DEVELOPING MEMBER COUNTRIES**

	Population million	Land Area '000 sq.km	Population Density per sq.km	Rural Population		GNP per Capita US\$	Growth in GNP (%)
				%	million		
<b>East Asia</b>							
China (PRC)	1,299.9	9,327	139.4	58	756.5	1,100	9.5
Mongolia	2.5	1,567	1.6	41	1.0	480	10.6
<b>Sub-total</b>	<b>1,302.4</b>	<b>10,894</b>	<b>119.6</b>	<b>58</b>	<b>757.6</b>		
<b>Central and West Asia</b>							
Afghanistan	23.2	652	35.6	80	18.5	200	8.3
Azerbaijan	8.3	87	95.4	49	4.0	820	19.4
Kazakhstan	15.0	2,702	5.6	43	6.5	1,780	9.4
Kyrgyz Republic	5.1	192	26.6	65	3.3	340	7.2
Pakistan	148.7	771	192.9	67	98.9	520	6.0
Tajikistan	6.7	141	47.5	74	4.9	210	10.6
Turkmenistan	6.2	470	13.2	55	3.4	1,120	21.0
Uzbekistan	26.0	414	62.8	64	16.6	420	7.7
<b>Sub-total</b>	<b>239.2</b>	<b>5,429</b>	<b>44.1</b>	<b>65</b>	<b>156.1</b>		
<b>South Asia</b>							
Bangladesh	135.2	130	1,040.0	76	102.5	400	6.3
Bhutan	0.8	47	17.0	79	0.6	630	8.7
India	1,086.0	2,973	365.3	72	776.5	540	6.9
Nepal	24.7	143	172.7	85	21.0	240	3.4
Sri Lanka	19.5	65	300.0	79	15.4	930	5.4
<b>Sub-total</b>	<b>1,266.2</b>	<b>3,358</b>	<b>377.1</b>	<b>72</b>	<b>916.0</b>		
<b>South-east Asia</b>							
Cambodia	13.5	177	76.3	84	11.3	300	6.0
Indonesia	216.4	1,905	113.6	54	117.7	810	5.1
Lao PDR	5.8	231	25.1	79	4.6	340	5.8
Myanmar	54.3	658	82.5	71	38.4	1,170	10.0
Philippines	83.5	298	280.2	49	41.2	1,080	7.1
Thailand	64.2	511	125.6	68	43.5	2,190	6.1
Vietnam, Soc. Rep of	82.0	326	251.5	74	60.5	480	7.7
<b>Sub-total</b>	<b>519.7</b>	<b>4,106</b>	<b>126.6</b>	<b>61</b>	<b>317.4</b>		
<b>Pacific</b>							
East Timor, Dem. Rep of	0.93	15	62.1	92	0.85	460	1.0
Papua New Guinea	5.80	453	12.8	87	5.03	500	2.6
Solomon Islands	0.52	28	18.6	84	0.44	560	5.5
<b>Sub-total</b>	<b>7.25</b>	<b>496</b>	<b>14.6</b>	<b>87</b>	<b>6.32</b>		
<b>TOTAL (excl. Small C'tries)</b>	<b>3,334.7</b>	<b>24,283</b>	<b>137.3</b>	<b>65</b>	<b>2,153.4</b>		
<b>Small Countries</b>							
Cook Islands	0.02	0.2	69.0	30	0.01	7,550	3.1
Fiji Islands	0.84	18.3	45.9	48	0.41	2,240	4.1
Kiribati	0.09	0.7	128.6	53	0.05	860	3.5
Maldives	0.30	0.3	1000.0	71	0.21	2,350	8.8
Marshall Islands	0.06	0.2	305.0	34	0.02	2,710	-1.5
Micronesia, Fed. St. of	0.11	0.7	154.3	77	0.08	2,070	-3.3
Nauru	0.01	0.0	559.0	0	0.00	3,740	2.5
Palau	0.02	0.5	40.0	31	0.01	5,740	2.0
Samoa	0.18	2.8	64.6	78	0.14	1,440	3.9
Tonga	0.10	0.7	142.9	67	0.07	1,490	1.6
Tuvalu	0.01	0.0	343.0	45	0.00	1,350	3.0
Vanuatu	0.21	12.2	17.5	77	0.16	1,180	2.9
<b>Sub-total</b>	<b>1.95</b>	<b>36.6</b>	<b>53.3</b>	<b>59</b>	<b>1.16</b>		
<b>TOTAL</b>	<b>3,336.7</b>	<b>24,320</b>	<b>137.2</b>	<b>65</b>	<b>2,154.6</b>		

## Part 2: Rural Roads, Rural Transport and Rural Accessibility

This Part of the data-base comprises two tables.

Table 1 presents data on the road networks of DMCs. A detailed analysis of the length of road networks in DMCs was included in the paper prepared by the Highways Specialist contributing the preparation of the ADB Transport Strategy, Mr. Clell Harral, in 2001 [44]. The analysis provided information only on the extent of a road network, not on its standard, condition, or distribution within the country. Also there were certain issues of comparability of data among countries. The information on network lengths in his paper has been updated, and the percentage of paved roads in the networks added, using data extracted from Reference 45, which defines paved roads as “those surfaced with crushed stone (macadam) and hydrocarbon binder or bituminous agents, with concrete or with cobblestones”. These two pieces of data are used to estimate the length of paved roads in each DMC. The second part of the Table combines the roads data with data on land area and population from Part 1 to estimate:

- Density of roads per unit land area ('000 sq.km).
- Density of roads per unit of population ('000 people).
- Density of paved roads per unit land area ('000 sq.km).
- Density of paved roads per unit of population ('000 people).

An attempt was made to prepare a similar table of data for rural road networks, but there is too much missing information. Instead, some case study analysis of rural road networks is presented in Section 4.3 of the main text.

Table 2 presents some broad, indirect indicators of the rural accessibility situation in DMCs. It is important to note that these are national-level indicators and do not reveal anything about significant differences between different areas in a country. They are however useful in giving insights into possible key rural access problems, and priorities for improvement, in the DMCs. The data presented are as follows:

Agricultural Access: Two indicators are used:

- Percentage share of the agricultural sector in national GDP – the data is extracted from the latest information available on the ADB website. These figures to an extent reflect the rural proportion of the total population, but are also influenced by many other factors. They provide a broad indicator of the importance of agriculture in the rural economy, and hence the need for good access to agricultural inputs and to markets for produce.
- Average daily per capita caloric intake – the data is extracted from the latest information available on the ADB web-site. The data is for the total population (urban and rural), but provides a broad indicator of the level of food security. Although the data does not reveal differences among different groups, e.g. the poor and disadvantaged, a low national figure suggests that food insecurity is a problem, and that efforts to increase the level of food security, including providing better access to agricultural inputs, services and markets, are a high priority. The World Health Organisation (WHO) estimates that a daily intake of 2,200 calories per day is the minimum required, and in several countries this is used as the measure to define the poverty line – people consuming less than 2,200 calories are ‘food-hungry’. In some countries a lower intake, of less than about 1,800 calories per day, is used as a measure of severe poverty. Given that the figures

are national averages, DMCs with intakes close to the threshold of 2,200 calories per day can be regarded as having significant food security problems, those below it can be regarded as having major food security problems.

Access to Information: Lack of access to information can be regarded as one of the characteristics of remoteness and isolation. A critically important source of information in most DMCs is the radio. The broad indicator that is used here is therefore the number of radios per 1,000 persons – the data is relatively old, extracted from Reference 45.

Access to Communications Systems: One of the generators of demand for personal travel by rural people in DMCs is the absence of other forms of communication. If rural postal or telephone systems are unreliable or absent, then the only way to deal with many business, administrative, and personal matters is to travel somewhere for a face-to-face discussion. However, the only relevant data that has been found is the number of telephone lines per 1,000 persons. Given the rapid increase in the availability of mobile phones in rural areas of many DMCs in recent years, this is an increasingly unreliable indicator of the level of access to communications.

Access to Drinking Water: Access to adequate quantities of potable water is one of the basic requirements of daily life, and a key factor in improving health conditions in rural areas – consumption of contaminated water is a major cause of sickness. The indicator used was found on the ADB web-site and in a World Bank source, which present the same data but under different titles – “Percentage of the Rural Population with Access to **Improved** Water Supply” and “Percentage of the Rural Population with Access to **Safe** Water”. The data provides a broad indicator of the need for investment to improve access to potable water supplies (and to reduce the time that women and girls spend carrying water to the house), but two points should be noted:

- i) the data does not reveal anything about the distance of travel to the safe/clean water supply – which might be a tap at the house, a communal pump in the village centre, or a protected spring source some distance away;
- ii) official data on access to safe drinking water can be misleading, since it tends to be based on the provision of an improved supply, with no cross-check on whether the system has been maintained and is in working order.

Access to Health Care: Access to safe drinking water is one broad indicator of rural health conditions. A second indicator is also presented here – infant mortality per 1,000 live births. The data is extracted from the latest information available on the ADB website. High infant mortality rates may reflect lack of access to adequate basic health care, and also malnutrition/food insecurity.

Access to Education: Two indicators are used, both sub-divided into males and females because of the significant gender issues involved in access to education:

- Adult literacy rate – the data is extracted from the ADB web-site, is for different years for different DMCs, and is national not rural. Adult is defined as 15 years and over. In one sense this can be regarded as an indicator of levels of access to education in the past. But it also provides insights to the extent to which there is a need for investment in adult literacy programmes.
- Gross primary school enrolment ratio – the data is extracted from the ADB web-site, and is for different years for different DMCs (from 1996 to 2003). It measures the total enrolment in a specific level of education, regardless of age, expressed as a percentage

of the official school-age population corresponding to the same level of education in a given school year. The figures can exceed 100%, in most cases because of enrolment of 'over-age' children. It provides a broad indicator of the level of access to basic education by boys and girls, but three points should be noted:

- i) it does not provide any indication of the extent to which children successfully complete primary education;
- ii) it does not provide any indication of the quality of education provided;
- iii) it is possible that the data for some countries could be distorted by the process of 'padding' school enrolment registers.

## PART 2: RURAL ROADS, RURAL TRANSPORT AND RURAL ACCESSIBILITY

Table 1: National Road Networks

	Road Network			Road Densities			
	Length '000 km	% Paved Roads	Length Paved '000 km	km per '000 sq.km	km per '000 people	Paved km/ '000 sq.km	Paved km/ '000 people
<b>East Asia</b>							
China (PRC)	1,809.8	80	1,438.8	194	1.4	154	1.1
Mongolia	49.3	4	1.7	31	19.7	1	0.7
<b>Sub-total</b>	<b>1,859.1</b>	<b>77</b>	<b>1,440.5</b>	<b>171</b>	<b>1.4</b>	<b>132</b>	<b>1.1</b>
<b>Central and West Asia</b>							
Afghanistan	34.8	24	8.2	53	1.5	13	0.4
Azerbaijan	27.0	47	12.7	311	3.3	146	1.5
Kazakhstan	258.0	96	247.4	95	17.2	92	16.5
Kyrgyz Republic	18.5	91	16.9	96	3.6	88	3.3
Pakistan	254.4	60	152.6	330	1.7	198	1.0
Tajikistan	27.8	83	23.0	197	4.1	163	3.4
Turkmenistan	24.0	81	19.5	51	3.9	41	3.1
Uzbekistan	81.6	87	71.2	197	3.1	172	2.7
<b>Sub-total</b>	<b>726.1</b>	<b>76</b>	<b>551.6</b>	<b>134</b>	<b>3.0</b>	<b>102</b>	<b>2.3</b>
<b>South Asia</b>							
Bangladesh	145.0	10	13.8	1,115	1.1	106	0.1
Bhutan	na	na	-	-	-	-	-
India	3,851.4	63	2,411.0	1,295	3.5	811	2.2
Nepal	15.9	54	8.6	111	0.6	60	0.3
Sri Lanka	97.3	81	78.8	1,497	5.0	1,212	4.0
<b>Sub-total</b>	<b>4,109.6</b>	<b>61</b>	<b>2,512.2</b>	<b>1,241</b>	<b>3.2</b>	<b>759</b>	<b>2.0</b>
<b>South-east Asia</b>							
Cambodia	12.3	16	2.0	70	0.9	11	0.1
Indonesia	368.4	58	213.6	193	1.7	112	1.0
Lao PDR	32.6	14	4.6	141	5.6	20	0.8
Myanmar	28.0	78	21.8	43	0.5	33	0.4
Philippines	200.0	10	19.8	671	2.4	66	0.2
Thailand	212.5	99	209.3	416	3.3	410	3.3
Vietnam, Soc. Rep of	215.6	25	54.1	661	2.6	166	0.7
<b>Sub-total</b>	<b>1,069.4</b>	<b>49</b>	<b>525.3</b>	<b>260</b>	<b>2.1</b>	<b>128</b>	<b>1.0</b>
<b>Pacific</b>							
East Timor, Dem. Rep of	na	na	-	-	-	-	-
Papua New Guinea	51.5	4	1.8	114	8.9	4	0.3
Solomon Islands	na	na	-	-	-	-	-
<b>Sub-total</b>	<b>51.5</b>	<b>4</b>	<b>1.8</b>	<b>114</b>	<b>8.9</b>	<b>4</b>	<b>0.3</b>
<b>TOTAL</b>	<b>7,815.8</b>	<b>64</b>	<b>5,031.4</b>	<b>323</b>	<b>2.3</b>	<b>208</b>	<b>1.5</b>

Notes: na - data not available  
Sub-totals and Totals are only for those countries where data are available. The Sub-totals and Totals for which data on some countries are missing are shown in *italics*.

**Table 2: Indicators of Level of Rural Access**

	Agriculture share of GDP (%)	Daily Food Intake per Capita (cal)	Radios per '000 People	Rural Access to Safe Water (%)
<b>East Asia</b>				
China (PRC)	15	2,951	333	68
Mongolia	21	2,249	151	30
<b>Sub-total</b>		<b>2,950</b>	<b>333</b>	<b>68</b>
<b>Central and West Asia</b>				
Afghanistan	38	1,579	na	11
Azerbaijan	12	2,575	23	59
Kazakhstan	8	2,677	384	72
Kyrgyz Republic	37	2,999	112	66
Pakistan	23	2,419	98	87
Tajikistan	24	1,828	142	47
Turkmenistan	24	2,742	276	54
Uzbekistan	31	2,241	465	84
<b>Sub-total</b>		<b>2,344</b>	<b>166</b>	<b>74</b>
<b>South Asia</b>				
Bangladesh	20	2,205	50	72
Bhutan	26	na	na	60
India	21	2,459	121	82
Nepal	39	2,453	38	82
Sri Lanka	18	2,385	209	72
<b>Sub-total</b>		<b>2,431</b>	<b>113</b>	<b>81</b>
<b>South-east Asia</b>				
Cambodia	36	2,046	127	29
Indonesia	15	2,904	156	69
Lao PDR	49	2,312	143	38
Myanmar	55	2,937	95	74
Philippines	15	2,379	159	77
Thailand	10	2,467	232	80
Vietnam, Soc. Rep of	22	2,566	107	67
<b>Sub-total</b>		<b>2,687</b>	<b>151</b>	<b>70</b>
<b>Pacific</b>				
East Timor, Dem. Rep of	31	2,806	na	51
Papua New Guinea	33	2,177	97	32
Solomon Islands	na	2,265	na	65
<b>Sub-total</b>		<b>2,264</b>	<b>97</b>	<b>37</b>
<b>TOTAL</b>		<b>2,667</b>	<b>211</b>	<b>69</b>

-continued

Notes: na - data not available  
Sub-totals and Totals are only for those countries where data are available.  
The Sub-totals and Totals for which data on some countries are missing are shown in *italics*.

**Table 2: Indicators of Level of Rural Access (Continued)**

	Infant Mort. per '000 live births	Adult Literacy Rate (%)		Gross Primary School Enrolment Ratio (%)	
		Female	Male	Female	Male
<b>East Asia</b>					
China (PRC)	30	87	95	115	115
Mongolia	56	98	98	102	100
<b>Central and West Asia</b>					
Afghanistan	165	21	51	63	120
Azerbaijan	75	98	100	91	94
Kazakhstan	63	99	100	101	102
Kyrgyz Republic	59	98	99	100	102
Pakistan	81	35	62	57	80
Tajikistan	92	99	100	108	113
Turkmenistan	79	98	99	109	109
Uzbekistan	57	99	100	102	103
<b>South Asia</b>					
Bangladesh	46	31	50	98	94
Bhutan	70	34	61	19	23
India	63	48	73	104	111
Nepal	61	35	63	112	126
Sri Lanka	13	89	92	110	111
<b>South-east Asia</b>					
Cambodia	97	64	85	117	130
Indonesia	31	83	93	111	113
Lao PDR	82	61	77	108	124
Myanmar	76	86	94	92	91
Philippines	27	93	93	112	113
Thailand	23	91	95	95	99
Vietnam, Soc. Rep of	19	87	94	97	105
<b>Pacific</b>					
East Timor, Dem. Rep of	87	43	43	113	113
Papua New Guinea	69	51	63	70	79
Solomon Islands	19	20	39	36	41

### Part 3: The Incidence of Rural Poverty

This Part of the data-base comprises two Tables.

Table 1 presents national data on the incidence of poverty, i.e. national-level Government statistics on the proportion of the population that is poor, using nationally defined measures of poverty. The starting point for this analysis was a paper prepared by Cynthia Cook, one of the consultant specialists working on the formulation of the ADB Transport Strategy, and circulated to other members of the consultant specialist team at an early stage in the assignment [53]. This paper, drawing largely on World Bank World Development Indicators, highlighted the complexities of analysing poverty data when drawing on different sources, using different measures, from different countries. However, the data in Table 1 is taken from information available on the ADB website as of March 2006, which is generally more recent than in Cook's paper. This source has the advantage that, for most countries, it provides national-level data on the incidence of poverty among the rural population as well as for the country as a whole.

Different DMCs use different national measures of the incidence of poverty, including food intake and income levels, so the data are not directly comparable across countries. However, the data: (a) indicate national perceptions of the extent of poverty; and (b) provide a first step towards estimating the extent and distribution of poverty among DMCs.

The ADB web-site data covers most DMCs (excluding the Solomon Islands) although: (a) rural data is not available for some countries; and (b) the data for Afghanistan is very dated and it is conceivable that poverty has increased there because of events in the intervening years. For completeness of the analysis, the assumption has been made that the proportion of poor in the Solomon Islands is the same as for Papua New Guinea.

Table 1 calculates the number of poor in each DMC, based on national poverty measures. This analysis gives a first estimate of the number of poor in the Asia and Pacific region (excluding small countries) of about 650 million people, or about 19% of the total population. This is somewhat lower than the ADB estimate that "by 2000 the number of poor people in the region had declined to about 720 million from 900 million in 1990" [4]. This difference may reflect the inconsistency of national measures of poverty across countries.

Table 1 also calculates, based on national measures, the numbers of rural poor in DMCs. For those countries where national data on rural poverty is not available, the conservative assumption has been made that the proportion of the rural population living in poverty is the same as for the population as a whole<sup>50</sup>. This analysis gives a first estimate of the number of rural poor in the Asia and Pacific region (excluding small countries) of about 480 million people, or about 22% of the total rural population. The same caution applies that this figure is somewhat lower than would be expected.

---

<sup>50</sup> This is a conservative assumption because, for most countries where data is available, the proportion of the rural population living in poverty is greater than for the total population (urban + rural).

The last column of the Table estimates the proportion of the total number of poor people in each country that live in rural areas. This analysis provides the more robust finding that, based on national measures of poverty; nearly 75% of the poor in Asia and the Pacific live in rural areas. By region:

- In South and South-east Asia nearly 80% of the poor live in rural areas, more than 90% in Nepal, Cambodia, Myanmar and Vietnam.
- In East Asia, and in Central and West Asia, urban poverty is a more significant part of the problem, about 60% and 70% respectively of the poor living in rural areas. In two countries – Azerbaijan and Mongolia, the majority of the poor are urban.

Table 2 attempts to address the problem that the analysis above would appear to underestimate the total number of poor, and the number of rural poor, in the Asia and Pacific region. The first column repeats the data on of the extent of poverty, based on national measures, in each DMC. The ADB web-site provides data for most DMCs on the proportion of the population living on less than \$1 per day, the widely used international measure of poverty applied in monitoring the achievement of the first of the Millennium Development Goals. For the two countries, China PRC and India, which have by far the largest populations of any DMCs, these figures are substantially higher than the national measures of the extent of poverty. The rest of Table 2 re-calculates the analysis in Table 1, but for each DMC uses the higher of the national poverty measure and the proportion of people living on less than \$1 per day.

This analysis gives an estimate of the number of poor in the Asia and Pacific region of about **876 million**, significantly higher than the ADB estimate of 720 million. The number of rural poor is estimated at about **612 million**, about 28% of the total rural population. The figures on the proportions of the poor living in rural areas vary only slightly from those in Table 1. The fact that this estimate of the extent of poverty is higher than that of the ADB is at least partly explained by some DMCs using a national poverty measure less rigorous than the “\$1 per day” indicator. The latter can be regarded as a measure of extreme poverty.

It is recognised that this analysis is rather imprecise and contains a number of assumptions. However, it is not the role of this paper to attempt a detailed rural poverty analysis, and the data presented is considered to be sufficient robust to provide useful information on the extent and distribution of rural poverty among DMCs. These conclusions are presented in Chapter 4 of the main text.

### PART 3: THE INCIDENCE OF RURAL POVERTY

Table 1: National Poverty Data

	ADB Website Data		Number of Poor million	Number of Rural Poor million	% of Poor in Rural Areas
	%Poor	% Rural Poor			
<b>East Asia</b>					
China (PRC)	4.6	4.6	59.8	34.8	58%
Mongolia	35.6	32.6	0.9	0.3	37%
<b>Sub-Total</b>			<b>60.7</b>	<b>35.1</b>	<b>58%</b>
<b>Central and West Asia</b>					
Afghanistan	53.0	na	12.3	9.8	80%
Azerbaijan	49.6	na	4.1	2.0	49%
Kazakhstan	27.9	36.9	4.2	2.4	57%
Kyrgyz Republic	47.6	51.6	2.4	1.7	71%
Pakistan	32.6	34.8	48.5	34.4	71%
Tajikistan	56.6	59.5	5.1	2.9	57%
Turkmenistan	29.9	31.1	1.9	1.1	57%
Uzbekistan	27.5	30.5	7.2	5.1	71%
<b>Sub-total</b>			<b>85.6</b>	<b>59.4</b>	<b>69%</b>
<b>South Asia</b>					
Bangladesh	49.8	53.0	67.3	54.3	81%
Bhutan	25.3	na	0.2	0.2	79%
India	28.6	30.2	310.6	234.5	76%
Nepal	30.9	34.6	7.6	7.3	95%
Sri Lanka	25.0	27.0	4.9	4.2	85%
<b>Sub-total</b>			<b>390.6</b>	<b>300.4</b>	<b>77%</b>
<b>South-east Asia</b>					
Cambodia	35.9	40.1	4.8	4.5	94%
Indonesia	18.2	21.1	39.4	24.8	63%
Lao PDR	38.6	41.0	2.2	1.9	84%
Myanmar	7.5	12.4	4.1	3.8	94%
Philippines	30.4	50.7	25.4	20.9	82%
Thailand	9.8	12.6	6.3	5.5	87%
Vietnam, Soc. Rep of	28.9	35.6	23.7	21.5	91%
<b>Sub-total</b>			<b>105.9</b>	<b>83.1</b>	<b>78%</b>
<b>Pacific</b>					
East Timor, Dem. Rep of	41.0	46.0	0.3	0.3	99%
Papua New Guinea	37.5	41.3	2.2	2.1	96%
Solomon Islands	na	na	0.2	0.2	92%
<b>Sub-total</b>			<b>2.7</b>	<b>2.6</b>	<b>96%</b>
<b>TOTAL</b>			<b>645.6</b>	<b>480.6</b>	<b>74%</b>
			<b>19%</b>	<b>22%</b>	

Notes: Latest information available from ADB website  
na - data not available  
Where assumptions have been made, figures are presented in *italics*

**Table 2: Adjustments to National Poverty Data**

	National Data % Poor	% Pop. < \$1 per day Income	Number of Poor million	Number of Rural Poor million	% of Poor in Rural Areas
<b>East Asia</b>					
China (PRC)	4.6	16.6	215.8	125.6	58%
Mongolia	35.6	27.0	0.9	0.3	37%
<b>Sub-Total</b>			<b>216.7</b>	<b>125.9</b>	<b>58%</b>
<b>Central and West Asia</b>					
Afghanistan	53.0	na	12.3	9.8	80%
Azerbaijan	49.6	3.7	4.1	2.0	49%
Kazakhstan	27.9	<2.0	4.2	2.4	57%
Kyrgyz Republic	47.6	<2.0	2.4	1.7	71%
Pakistan	32.6	25.3	48.5	34.4	71%
Tajikistan	56.6	7.4	5.1	2.9	57%
Turkmenistan	29.9	12.1	1.9	1.1	57%
Uzbekistan	27.5	17.3	7.2	5.1	71%
			<b>85.6</b>	<b>59.4</b>	<b>69%</b>
<b>South Asia</b>					
Bangladesh	49.8	36.0	67.3	54.3	81%
Bhutan	25.3	na	0.2	0.2	79%
India	28.6	35.3	383.4	274.1	72%
Nepal	30.9	39.1	9.7	8.2	85%
Sri Lanka	25.0	7.6	4.9	4.2	85%
<b>Sub-total</b>			<b>465.4</b>	<b>340.9</b>	<b>73%</b>
<b>South-east Asia</b>					
Cambodia	35.9	34.1	4.8	4.5	94%
Indonesia	18.2	7.5	39.4	24.8	63%
Lao PDR	38.6	39.0	2.3	1.9	83%
Myanmar	7.5	na	4.1	3.8	94%
Philippines	30.4	15.5	25.4	20.9	82%
Thailand	9.8	1.9	6.3	5.5	87%
Vietnam, Soc. Rep of	28.9	13.1	23.7	21.5	91%
<b>Sub-total</b>			<b>105.9</b>	<b>83.1</b>	<b>78%</b>
<b>Pacific</b>					
East Timor, Dem. Rep of	41.0	na	0.3	0.3	99%
Papua New Guinea	37.5	24.6	2.2	2.1	96%
Solomon Islands	na	na	0.2	0.2	92%
<b>Sub-total</b>			<b>2.7</b>	<b>2.6</b>	<b>96%</b>
<b>TOTAL</b>			<b>876.4</b>	<b>611.9</b>	<b>70%</b>
			<b>26%</b>	<b>28%</b>	

Notes: Where assumptions have been made, figures are presented in *italics*

#### **Part 4: Other Indicators of the Characteristics of Poverty in DMCs**

This last Part of the data-base, using information available on the ADB website as of March 2006, comprises one Table which presents three other indicators of the characteristics of poverty:

Depth of Poverty: This is measured by the Income Gap, the percentage by which the mean income of the poor is below the poverty line. It is a measure of 'how poor' poor people are. The data provides an indicator of the extent of change needed to lift poor people out of poverty in different countries.

Human Development Index: This is an index developed by the United Nations Development Programme (UNDP) which provides a broad measure, incorporating social factors, of the state of human development in a country: the lower the figure, the poorer the state of human development. It provides an indicator of the extent and significance of the social dimensions of poverty.

Gini Coefficient: This is a measure of the degree of equality or inequality in the distribution of income in a country. A coefficient value of zero implies perfect equality; a value of one implies perfect inequality. It can be seen as a broad indicator of the extent to which the benefits of the national economy are captured by the richer members of society (a high coefficient), or more widely distributed to the benefit of its poorer members (a low coefficient).

## PART 4: OTHER INDICATORS OF THE CHARACTERISTICS OF POVERTY

	Income Gap %	Human Development Index	Gini Coefficient
<b>East Asia</b>			
China (PRC)	23.5	0.745	0.447
Mongolia	22.8	0.668	0.303
<b>Central and West Asia</b>			
Afghanistan	na	na	na
Azerbaijan	1.2	0.746	0.365
Kazakhstan	<1.8	0.766	0.323
Kyrgyz Republic	<1.1	0.701	0.348
Pakistan	7.4	0.497	0.330
Tajikistan	2.3	0.671	0.326
Turkmenistan	8.7	0.752	0.408
Uzbekistan	15.6	0.709	0.268
<b>South Asia</b>			
Bangladesh	16.3	0.509	0.318
Bhutan	na	0.536	0.341
India	23.2	0.595	0.325
Nepal	28.1	0.504	0.400
Sri Lanka	6.0	0.740	0.332
<b>South-east Asia</b>			
Cambodia	27.0	0.568	0.450
Indonesia	4.9	0.692	0.343
Lao PDR	16.2	0.534	0.370
Myanmar	na	0.551	na
Philippines	9.9	0.753	0.461
Thailand	<5.0	0.768	0.432
Vietnam, Soc. Rep of	<1.7	0.691	0.370
<b>Pacific</b>			
East Timor, Dem. Rep of	na	0.436	0.354
Papua New Guinea	na	0.542	0.509
Solomon Islands	na	0.624	na

Notes: na - data not available  
Human Development Index is for 2002

## **APPENDIX 4: Evidence of the Impact of Improved Access on Reducing Poverty**

## EVIDENCE OF THE IMPACT OF IMPROVED ACCESS ON REDUCING POVERTY

### 1. Introduction

This Appendix complements the description of the findings of the ADB study “Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction” [54], which is given in section 5.2 of the main text. It presents the findings from a review of other available studies on the impact of investments in the provision of improved access on rural poverty reduction. Most of the studies focus on investments in improved roads. The studies reviewed cover two broad approaches to poverty reduction through investment in improved access:

1. What might be termed the ‘general development approach’ of investment in infrastructure to increase the overall efficiency of the transport sector through reduced costs and improved access. The aim is to stimulate economic growth and increased efficiency, which is expected to benefit all sectors of the population including the poor. This approach reflects ADB thinking that accelerating economic growth is one key factor in reducing poverty in the Asia and Pacific region. In the past such investments have not necessarily had poverty reduction as their main objective, or even as one of their defined objectives.
2. The ‘targeted’ approach of aiming to improve access for the poor in rural areas, primarily through investment in feeder roads to connect communities to markets and other socio-economic facilities and services. This approach aims to reduce poverty by providing opportunities to increase incomes, and to improve livelihoods through better access to education, health services, information and social contacts. This approach is consistent with ADB thinking on the need for investments targeted at benefiting the poor - though in practice, for rural road investment programmes, the targeting has been primarily at poor rural areas, not specifically at the poor in those areas.

*Gannon et al (2001)* [55] refer to these approaches as “efficiency” and “equity”. The authors recommend that an effective policy for poverty reduction should be a well-balanced combination of the two approaches but with some degree of integration:

- Promoting economic growth (efficiency) should prioritise pro-poor impact (equity).
- The targeted approach (equity) should emphasise cost-effectiveness (efficiency).

The studies reviewed here cover three broad approaches to impact analysis:

1. Statistical modelling to identify correlations between investment input, and output, variables.
2. Statistical analysis to correlate indicators of levels of access with indicators of levels of poverty.
3. Impact evaluations of programmes aiming to reduce rural poverty through provision of improved access.

It is important to emphasise that there are a number of complexities in deriving statistically robust findings on the impacts of investments in improved access, and particularly in roads, on poverty reduction. For example:

- Some of the more indirect, but higher order, socio-economic impacts may take several years to generate and it is not always possible to continue studies over the significant period of time required to identify these.

- Impacts resulting from the provision of improved access occur within a dynamic rural context where many other changes are taking place – examples include year-to-year variations in climate and crop prices, and policy changes on fuel pricing and vehicle taxes. It is often difficult to isolate the effects that are attributable to the provision of improved access from those, positive and negative, that occur because of other changes that are taking place simultaneously.
- Correlation analysis confirms the existence of statistically significant relationships, but not their direction – though often rational judgement can be applied to assess which is the ‘cause’ and which is the ‘effect’.
- Rural communities comprise complex structures of sub-groups, of which non-poor, poor and very poor is a relatively simplified classification. Not all studies, particularly the less recent ones, have attempted to isolate and quantify impacts on different sub-groups. There is certainly a lack of information on impacts on poor women.
- Practical considerations such as time, resources and access to reliable data often place limitations on the design of the analytical framework for impact studies.

None of the three approaches to impact analysis defined above, even when the study design is very rigorous, can fully address these difficulties, and it is probably unrealistic to expect to be able to generate unambiguous, quantitative evidence on all the dimensions of where, how, and to what extent different types of investment in improved rural access will impact on different target sub-groups in different situations. A more realistic expectation is that well designed and conducted impact studies should generate:

- a better and deeper understanding of the role of improved rural access as one factor in reducing rural poverty under different circumstances;
- practical guidance on how to improve the design and implementation of investments in order to increase the efficiency and effectiveness of their impact on poverty reduction.

## 2. Findings from Statistical Modelling of Input and Output Variables

This approach applies statistical models that use time-series data to relate investments to outputs. The models enable correlation coefficients to be derived between selected inputs and expected outputs, in order to measure the strength of the impact of the inputs on the outputs and whether they are positive or negative.

*Hazell and Fan (2002)* [56] describe studies carried out for rural areas in India and China. In India, data for the period from 1970 to 1993 was used to measure the impact of public investments on agricultural growth, farm wages, non-farm employment and poverty reduction. The last of these was measured by the number of people raised above a specified poverty level. Some selected results are shown in Table 1.

**Table 1: Impact of Public Investments in Rural India**

	Investment Variable			
	Agricultural R&D	Irrigation	Roads	Education
Number of people lifted out of poverty per Million Rupees invested	84.5	9.7	123.8	41.0
Productivity return to agriculture in Rupees per Rupee invested	13.45	1.36	5.31	1.39

The investment in roads had the highest impact on reducing poverty (equity) and also provided a good return in generating impacts on economic growth (efficiency). In a similar study for rural China using data for the period from 1970 to 1997, the impacts of investments in education and in roads were reversed: investments in roads provided the third highest return to agricultural growth and to poverty reduction. For the same amount invested in roads, the model calculated that 61 persons were lifted out of poverty in China, compared with 124 (see Table 1) in India.

The model for rural India was further refined by disaggregating the data into regions to show the effect of agricultural potential on the impact of investments in roads. The regions were first split into mainly irrigated and mainly rain-fed agriculture, and the latter were then classified into 13 categories based on rainfall and land productivity, with 1 being the best and 13 the worst. A selection of the results is shown in Table 2.

**Table 2: Impact of Roads in Rural India by Agricultural Region**

Region	Agricultural Region						
	Irrigated Areas	Category of Rainfed Area					
		2	4	6	8	10	12
Number of people lifted out of poverty per Million Rupees invested in roads	8.02	55.07	35.98	165.4	0.00	1.02	1.75

These results suggest that a greater impact from investment in roads can sometimes be obtained in areas with lower agricultural potential, although the impact drops dramatically in the least favoured areas. However, it appears that the results take into account only the potential agricultural productivity of the land and not other factors such as distance to markets and availability of transport.

The authors point out that India and China are both relatively well-developed compared with many other developing countries and the same results cannot be confidently assumed for all other countries, although similar trends are likely in Asia. The latter point is confirmed by an ADB study in Indonesia by *Kwon (2000)* [57] using data for the period 1976 to 1996. This showed that, out of a number of sectors of government investment, that in roads had the highest impact in reducing poverty, a 1% increase producing a 0.3% reduction in poverty over 5 years. The study model also showed that the reduction in poverty was produced partly by the direct impact of the road improvements and partly by the impact of other factors, such as agricultural production and employment, which increased following the investment in roads. Moreover it was found that these indirect impacts were significantly higher in provinces that were classified as having good access compared to those that were classified as having poor access. This indicates that better access increases the potential for investments in other areas of development to achieve greater impact.

These studies based on historical data clearly show the considerable impact of investment in roads on reducing poverty but they do not show the distribution of benefits. However, the analysis of findings from evaluations of rural road programmes later in this Appendix suggests that there will be some benefits to the poorest households through increased agricultural employment and better access to health facilities. The studies consider poverty reduction only in terms of increased incomes, but it seems reasonable to assume that this will be accompanied by other benefits such as improved food security and higher levels of education and health.

### 3. Studies Relating Levels of Access to Levels of Poverty

Another approach to appraising the impact of access on poverty reduction has been through association, by comparing the levels of access of rural communities with their levels of poverty. These studies have compared 'on-road' with 'off-road' communities, communities at different distances from roads, and communities with different levels of access to facilities and to rural infrastructure. The findings of four such studies are outlined below.

**Andhra Pradesh, India and Bhutan:** These studies were carried out to assess the likely impact of World Bank rural road projects and are summarised by *Lebo and Schelling (2001)* [58]. A comparison of two poverty indicators for communities with different levels of access is shown in Table 3. It is seen that average incomes are substantially higher in communities with better access, presumably due to more active economies with better access to markets and work opportunities. Also the communities with better access have higher levels of educational attainment (literacy rate) and enrolment, particularly for females. In the report summaries it is assumed that these differences are accounted for by the different levels of access. There is no discussion of other variables that could have significantly affected the comparison.

**Table 3: Rural Access and Poverty in Andhra Pradesh and Bhutan**

	Andhra Pradesh		Bhutan	
	On-road	Off-road	<0.5 days walk to road	1-3 days walk to road
Average annual income (\$)	700	275	176	71
Literacy rate:				
Male:	51%	40%		
Female:	35%	22%		
Enrolment in school:				
Boys:			73%	42%
Girls:			64%	22%

**Papua New Guinea:** *Gibson and Rozelle (2002)* [59] report on a national study to identify the relationship between access to the road network and poverty, as part of a World Bank poverty assessment of PNG. A random sample of 1,144 households were surveyed in 120 sampling units covering five zones, one urban and four rural, representative of the geographical, environmental and agricultural features of the country. A poverty line was defined based on the price of a basket of food to provide a daily consumption of 2,200 calories per person. The poverty gap index was measured as the percentage by which income was below the poverty line. In rural areas, access is almost entirely by walking along footpaths to reach a motorable road and, therefore, access was measured by the time to walk to the nearest road. A summary of the main findings is presented in the Table 4.

Although there are other factors that affect the relationship, there is a definite trend for both the extent of poverty and its depth (measured by the poverty gap index) to be lower in areas with better access (lower walking time). Modelling of the data showed that a one-hour increase in walking time to the nearest road equated to 10% lower household consumption, a 3.4% higher price of rice in the local store and a 2.6% fall in income-earning activities. The model also predicted that targeting communities furthest from the road would give the greatest impact on poverty reduction.

**Table 4: Rural Access and Poverty in Papua New Guinea**

	Time to walk to nearest road (minutes)			
	Less than 30	30 to 60	60 to 120	More than 120
% of households below poverty line	29.8	17.8	56.7	47.6
Average % poverty gap	8.6	4.6	19.2	16.6

**Vietnam:** *Van De Walle (2002)* [60], reports on a study concerned with developing a methodology for selecting rural road investments to help reduce poverty. The study collected data from 200 communes in 6 provinces of Vietnam to clarify relationships between poverty, inaccessibility and economic potential. Indices were developed to measure each of these factors by combining value judgements on a number of relevant components. For example the poverty index combines infant mortality, the rate of malnutrition of children under 5 years and the incidence of hungry households in the commune. In each commune value judgements were made on each component to obtain a score out of 100 for each index and the scores plotted on graphs to assess the linkages between the three factors.

The results show a much less clear-cut relationship between access and poverty than reported in the above studies. There is a broad trend for communes with poorer access to have a higher poverty index but there is a great deal of scatter, with a high incidence of poverty existing in some communes with good access, and vice versa. These findings may possibly be influenced by the definition of the indices used to measure poverty and access, since the different measures used for each index may not necessarily be independent variables, and value judgement is required to weight the different measures in constructing the index. Nevertheless, the results are important, as is the recommendation of the study that, in order to achieve a good balance of efficiency and equity, road selection should target areas that have a combination of poor access, a high incidence of poverty and a good potential for economic development.

**Bangladesh:** The famous, pioneering study by Ahmed and Hossain for BIDS/IFPRI<sup>51</sup> in 1990 compared the level of development of villages (measured as their rural infrastructure endowment) with their income levels. To quote from the original study: “The most important finding is the profound effect that infrastructure has on the incomes of the poor. Overall, estimations based on the most and least developed villages indicate that infrastructural endowment causes household income to rise by 33%; income from agriculture increases about 24%, that from fisheries and livestock about 78%, and that from wages almost doubles; but income from business and industries only rises by 17%. Most striking, however, is the distribution of these increases: the functionally landless and small farmers gained a larger share of the increases from crops, wages and livestock and fisheries, while the large landowners capture most of the smaller increase in business and industries.” Roads were explicitly identified as being the central component of the rural infrastructure endowment.<sup>52</sup> *Sen and Khan (2002)* [61] used these findings as the basis to carry out

<sup>51</sup> BIDS: Bangladesh Institute of Development Studies.  
IFPRI: International Food Policy Research Institute.

<sup>52</sup> A note of caution must be sounded here. The statistical analysis compared, and found significant relationships between, the levels of infrastructure development of villages and their levels of income. However the write-up assumes that it is the provision of the infrastructure, and particularly roads, in

a follow-up study. Controlling for variations in the resource endowments of households, and with some allowance for potential factors that affect productivity and choice of economic activities, they determined that average rural households in villages with good transport access earn about 7% higher income than those in villages lacking infrastructure. The combined presence of a road and electricity increases this effect to 19%. The findings hold good when the model is run independently for poor and non-poor households – poor households have 9% higher income in villages with good road access. They conclude that, while both roads and electricity matter for poverty alleviation, the combined effects of the two are more than the sum of their independent effects.

The above studies together suggest that there is a clear relationship between better rural access and lower poverty. However, the results must be treated quite carefully:

- Existence of ‘a road’, or walking distance to ‘a road’ is a relative crude measure of access since it takes no account of the condition and trafficability of, or volume of vehicles using, the roads. These factors clearly influence the level of access that the roads actually provide.
- As noted earlier, correlation analysis confirms the existence of a statistical relationship, not its direction. For areas that are comparable in other respects, it is reasonable to assume that provision of improved access to the without ‘communities’ will generate similar improvements in income-levels to those found in the studies. But for areas that are not comparable, it cannot be assumed that similar impacts can be achieved.<sup>53</sup>

One very interesting finding from the Bangladesh study is to highlight the benefits of combining rural road provision and electrification<sup>54</sup>, since in many countries reliable road access is a pre-requisite for the electricity supply authority to extend the system to a village – because without this reliable access it is difficult to maintain the electricity supply lines. The implication is that one of the impacts of provisions of rural road access will be to facilitate connection of a community to the electricity supply network, which will bring further benefits.

#### 4. Impact Evaluations of Rural Access Programmes

The studies reported here are all concerned with interventions aimed at improving access for rural areas or communities. By far the most usual intervention is the improvement of rural roads, which may or may not be integrated with other interventions. The impact of these targeted rural interventions is measured by evaluation studies.

As a preface to the review of study findings, it is useful to summarise the sequence, or hierarchy, of the effects and impacts of rural road investments on poverty reduction and improved livelihoods:

1. The direct effect of improved road access should be more efficient transport – faster, cheaper, more frequent and/or more reliable, resulting in increased movement of passengers and goods.

---

the well-developed villages that has caused the higher income-levels. Hence statements such as “..causes household income to rise by 24% ...”. The data analysis does not prove this. It confirms a statistical relationship, but not the direction of that relationship.

<sup>53</sup> To illustrate this, consider an example from a developed country, the UK. A study that compared the economically dynamic Thames Valley west of London with the sparsely populated Highlands of northern Scotland would show that the former had better access, higher income levels and lower poverty than the latter. Improving access in the Highlands to the level found in the Thames Valley could be expected to have some impact on increasing incomes and reducing poverty, but not to the levels enjoyed in the Thames Valley – northern Scotland simply lacks other critical characteristics, including location, that make the Thames Valley an economically dynamic area.

<sup>54</sup> The same result was found in the case study for China in the ADB study “Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction” [54]

These are the easiest changes to measure, and to attribute to the road investment. Unless they occur, there are unlikely to be any broader impacts on poverty and livelihoods apart from short-term impacts from temporary paid employment of local people on labour-intensive road construction works and the increased feeling of security from better access in case of emergencies. Key concerns are the extent to which:

- i) lower Vehicle Operating Costs (VOC) are translated into lower fares, which is influenced by the regulatory framework for and the market competitiveness of the transport services industry;
  - ii) the poor and disadvantaged can afford to, and do, shift to more efficient transport modes (than walking) and travel more; and
  - iii) there is increased delivery of better services, by the public and private sectors, into the rural areas – this may be of particular significance for the poor, who can least afford to spend cash on travel and transport
2. More efficient transport should result in increased production and marketing, and/or agricultural diversification and a shift to production and marketing of higher value commodities; development of other business and trading activities; increased employment; increased availability at lower cost of household and consumer items; increased use of health, education and administrative facilities; and the availability of more extensive, better quality social and economic services in rural areas. The key issues are the extent to which: (a) these changes occur; and (b) they benefit different groups in rural communities – the better-off, the poor, the very poor.
3. Over time, these changes should result in higher incomes, better standards of health and education, increased social capital, and consequently reduced poverty and improved livelihoods. The key issue here is the extent to which these benefits accrue to different sub-groups in the communities. These changes can take some considerable time to emerge, are the most complex to measure, and the most difficult to attribute specifically to the investments in rural roads<sup>55</sup>.

The studies reported on here have adopted different methodologies – ‘before and after’ surveys, ‘with and without’ surveys, participatory analysis - and do not attempt to analyse all the changes, and their sequence as defined above. Several of the studies identify specific impacts on the poor, but few attempt a rigorous analysis of the impacts by target sub-group. However, together they provide valuable insights into the impacts of rural road investment on poverty reduction.

**Nepal:** The 1994 report by the Government *Impact Monitoring Unit* [62] presents the findings of an impact assessment of the construction of two access roads in Dhading District under a joint programme of the Government of Nepal and GTZ: (i) Road BLR (22.5km) links an area of high horticultural potential to the markets of Kathmandu; (ii) Road DSR (42km) opens up a more remote area that could have agricultural potential if irrigated. The impact assessment was carried out six years after initiation of the works at which stage 10km of BLR had been completed and 24.5km of DSR. Unfortunately, limited availability of base-line data restricted a quantitative appraisal of impact. The main findings were:

- Vehicular traffic gradually increased as more of the roads were completed, although levels were still low. 25 to 30% of road users now travelled by motorised vehicle. The proportion of women travelling by vehicle on DSR increased from 5 to 24%.

---

<sup>55</sup> They are also of course dependent on the maintenance in good condition, over the longer-term, of the rural road investments.

- Replacement of human portorage by vehicles, and competition among vehicle operators, reduced transport costs for some goods. For example the transport cost for fertiliser dropped from 60% to 13% of total cost. Fertiliser use increased from 27% to 60% of households.
- There had been little drop in passenger fares due to lack of competition and fixing of fares among taxi operators.
- Farmers on BLR, familiar with marketing, had marketed increased amounts of produce. On DSR there was little change to traditional forms of subsistence agriculture. It was considered that additional inputs were needed to promote commercial activities.
- Trade had increased, with several shops being set up along the roads, predominantly by better-off households.
- Overall there was little change in average incomes. However, without inputs from employment on labour-intensive construction works on the roads, average incomes would have dropped during the period.
- The project produced significant social benefits. The literacy rate in on-road communities was 40% compared to 32% in off-road communities and the proportion of girls enrolled in secondary school was 44% compared to under 30%. Health and hygiene were reported as improved due to better access for health workers. Employment on construction works on the roads over 2-3 years reduced social and cultural barriers within the communities.
- Although local labour comprised 80-90% of road construction costs, wages were used mainly to meet immediate subsistence needs and had little longer-term impact. It was considered that additional inputs were needed to promote more productive use of earnings to achieve a more sustainable impact.

**Bangladesh:** *I T Transport (1997)* [63] reports on the post-evaluation of a project that improved 7 rural roads, and the markets that they connected, in Manikganj District over the period 1989 to 1996. Road lengths varied from 2 to 10 km with a total length of 50 km. The evaluation compared 'before' and 'after' data, and 'without' data from a control road<sup>56</sup>, to identify the impact of the project. The main finding was that the provision of all-weather surfaced roads produced a substantial modal shift in transport from walking to using non-motorised and motorised modes, as seen in Table 5.

**Table 5: Change in Modal Shift Resulting from Rural Road Improvement in Bangladesh**

	Percentage Modal Share after Project (Changes in modal share)		
	Pedestrians	Non-motorised vehicles	Motorised vehicles
People	33 (-40)	40 (+14)	27 (+26)
Cargo	11 (-37)	58 (+12)	31 (+25)

Other findings were:

- The reduction in traffic flows during the wet season was much less after the roads were improved to all-weather standard.

<sup>56</sup> This study illustrates one of the practical difficulties of using a 'control' road to provide data on changes in the 'without improved road' situation over time. Data collection was carried out twice a year, over a seven-year period, on each of the seven project roads plus the control road. As the study progressed, people living along the control road became increasingly vociferous in their complaints that they were repeatedly being surveyed about their road, but no improvements were being made! Eventually, this pressure became irresistible and upgrading of the control road was initiated before the end of the study.

- Passenger and cargo charges on rickshaws and rickshaw vans fell by 50% due to lower operating costs, higher speeds and increased competition. Charges on auto-rickshaws fell by about 15%<sup>57</sup>.
- Increased transport services and small businesses such as shops along the roads generated almost 1,000 long-term jobs. Much of the employment on transport services went to the poor, particularly young males.
- Although there was no significant change in the overall volume of goods taken to market, there was evidence of an increase in the marketing of higher value produce such as fruit and vegetables that would benefit from the reduced times to market using the faster transport modes.
- There was evidence of increased use of health facilities, particularly more distant facilities where better services were available. People were able to make use of these better services because they could reach them faster and more cheaply with improved transport.

Another post-evaluation carried out by *I T Transport (1999)* [64] in two other districts of Bangladesh showed similar trends but not as marked as above. Improvement of the roads reduced the modal share of pedestrians from 90 to 77% and increased the modal share of rickshaws and rickshaw vans from 10 to 23%. Due to the limited availability of motorised vehicles in the districts there was no significant shift to these modes. The main impact on passenger fares was to reduce wet season fares on rickshaws by 50%, lowering the average fare over the year by 23%. Charges per tonne per km for cargo on rickshaw vans dropped by a factor of 4, largely due to an increase of about the same factor in the loads that could be carried by these vehicles on the better roads. A secondary impact of greater demand for rickshaw travel was to increase the number of poor people renting and operating these vehicles, thus creating employment for poor persons.

Monitoring of the use of government health clinics showed only a marginal overall increase in users after the road improvements, but a substantial increase in the wet season. There was also some evidence of an increase in actual catchment areas for some clinics, and an increase in the average distance travelled by users of the facilities. However, the report notes that the use of clinics can be significantly affected by the availability of drugs and medicines, which tended to be variable.

Although the above interventions generated greater benefits to the 'better-off' class, both evaluations note that the poor and landless also benefited from the lower fares. They shared rickshaw vans to benefit from better transport at a low cost, and could also travel cheaply on the tops of the buses that started to operate on some routes. The second study showed that the poor and landless made up 50% of pedestrians and 26% of users of non-motorised transport. This indicates that roughly 15% of the poor were using improved transport on the improved roads, compared with 30% of the better-off.

**Pakistan:** The *ADB 1998* [42] Project Performance Audit Report of the Farm-to Market Roads Project included the findings from a largely qualitative socio-economic survey. Local key informants concurred that the improved roads had impacted positively on the areas that they influenced. The roads had generated increases in agricultural production, additional employment, new businesses

---

<sup>57</sup> 'Rickshaw' is a conventional cycle rickshaw used for carrying 1-2 passengers, but also sometimes for cargo. Favoured by the better-off, and by women (because in this Muslim society women can travel 'modestly' in a cycle rickshaw).  
'Rickshaw Van' has cargo carrying, rather than passenger, bodywork. Used to carry cargo, but also passengers at significantly lower cost and in less comfort than on a Rickshaw.  
'Auto-rickshaw – three-wheeled, motorised passenger and cargo carrier. Demand responsive, but operating on fixed routes.

and a higher level of trading activity. There was also greater use of health and educational facilities (enrolment in secondary school had trebled from the pre-project situation). More extensive health and education services, and additional staff, were available in the project impact areas. The perception of local women was that they had benefited from: (a) improved travel facilities, particularly for health, education, and other social amenities; (b) increased family incomes; and (c) improved quality of life.

**Cambodia:** *Vaidya (2002)* [65] reports on benefit monitoring and evaluation of an ADB funded project that has upgraded rural roads, markets and other infrastructure in six provinces in south-east Cambodia with the aim of improving access to facilitate economic and social development. The project<sup>58</sup>, which started in 1997 and ended in 2002, included rehabilitation of 600km of rural roads to gravel-surfaced standard, following by the introduction of routine maintenance on these roads. The report discusses the impact of roads completed to date. The main findings were:

- Data from 30 improved roads showed an average increase in vehicular traffic (non-motorised and motorised) of 52% (this was over a relatively short period of up to 3 years since road improvements were completed, so is unlikely to be significantly influenced by other factors).
- There was a shift in the modal share from bicycles (54% down to 44%) to motorised vehicles of 10%. The number of bicycle trips increased by 23% whereas motorcycles increased by 68%, and motorcycles + trailers, cars and trucks by factors of 3 to 5.
- Estimated VOCs dropped by an average of 20%.
- Fares for motorcycle taxis dropped 23.5%, and for motorcycle trailers 51.7%.
- Household interviews in one province indicated that the average value of farm gate sales had increased by about 76% as a result of increased prices (about 60%) and increased sales. However, it is not clear what proportion of this can be attributed to the road improvements.
- Households reported that frequency of travel to markets and resource centres had doubled. Other benefits reported were easier travel to schools and for social purposes.
- Negative impacts reported by most households were increased dust and risk of accidents from more and faster transport.
- Earnings from employment of local people on labour-based construction works increased the annual incomes of participating households by an average of 10%. Most of this went to immediate subsistence needs, with 55% on food and 13% on medicine. Only 10% was spent on education that could have a longer-term impact.
- Attempts by the project to target employment at disadvantaged groups, including women, were only partially successful. There was a need for wider dissemination of information on work opportunities, improved monitoring of employment arrangements, and inclusion of clauses in construction contracts to offer employment to disadvantaged people.

**Indonesia, Philippines and Sri Lanka:** Scott Wilson, on behalf of the *Operations Evaluation Department* of the ADB, carried out a post-evaluation study in 2002 of the impact on poverty of two ADB funded road projects in each of these countries [66]: one primarily a rural roads project and the other where the roads were a component of an integrated rural development project. The evaluation was done mainly through comparisons of project communities with control communities. The study appraised the impacts of the road improvements on the access and livelihoods of three sub-groups:

'Better off': Households that have secure livelihoods and a strong and varied assets base. They are able to respond to opportunities and take some risks such as switching to higher value crops, working outside the community and setting up small businesses.

---

<sup>58</sup> Rural Infrastructure Improvement Project: ADB Loan No. 1385-CAM(SF).

- 'Very poor': Households that form the hard-core of poverty. They lack food security and are often in debt to traders and middlemen, owing a significant portion of next season's crop. Their lives are concentrated on subsistence and their only need to travel outside the community may be to access health services. They have little potential to escape poverty.
- 'Poor': These are households between the above extremes. They have some potential to escape poverty but are very vulnerable and can easily slip back into poverty. They market some agricultural and non-agricultural produce and can therefore benefit from improved access, but have little capacity to take risks.

The 'better-off' comprised 10-20% of the target communities, the 'poor' 50-70%, and the 'very poor' 15-30%. The findings in relation to access and poverty are summarised below:

- Transport Services:* In all cases improved roads led to increased transport services and lower operating costs, but only in Indonesia did this result in enough competition to reduce fares.
- Access:* 52% of interviewed households said that better access was the main benefit of the improved roads. The rate was higher for the 'better-off' (56%) than for the 'very poor' (50%). The former rated better access to markets as more important, whereas the latter rated better access to services as more important.
- Agricultural Production & Marketing:* 26% of the 'better-off' said they were producing more crops compared to 9% of the 'poor' and 'very poor'. However, about 45% of all groups said they were producing less. This appears to have been influenced by adverse local conditions during the project periods, for example a lengthy drought in one area of Sri Lanka and reliance on the depressed copra market in one area of the Philippines. Due to high population densities, land is scarce and the main agricultural potential is likely to be in areas where there are opportunities to diversify into higher value crops. (The 'better-off' are most likely to benefit from this as they are able to take the risks involved, whereas the poor have to give priority to food security.) This trend was one of the main differences between project and control communities. The other main difference was the increase in traders visiting the project villages because of easier access. This tended to increase competition and prices. However, poorer households tended not to benefit from this as they were often in debt to the traders and had to sell at whatever prices were offered.
- Employment:* Improved access showed a small trend, about 10%, to diversify incomes away from agriculture to small businesses and external employment. Again this benefited mainly the better-off because of the better education, skills and information on opportunities. The poor favoured the security of regular, local employment, even though at lower wages.
- Incomes:* Overall, 8% of households reported an increase in income compared to 5% in control areas, comprising 22% of the better-off, 4.5% of the poor and 2.9% of the very poor.
- Health Services:* Improved access has clearly increased use of health services by people in the project areas, 76% using services compared to 53% in control areas. Also only 32% walk to facilities compared to 50% in control areas. All groups have increased usage roughly equally and although the poor and very poor are more likely to walk, 67% of the poor and 59% of the very poor said they used transport services to

travel to health facilities. Improved access to health facilities considerably increases the feeling of security for rural households. It was considered the main benefit by the very poor and women.

*Government Officers:* Better roads have improved access of government officers to project areas, particularly teachers and medical staff, with a consequent improvement in the extent and quality of services delivered.

*Project Employment:* Although the projects involved only limited labour-based work, where this did occur earnings went almost entirely to meet short-term needs such as buying food and paying off debt.

*Negative Impacts:* 74% of households interviewed said there were no negative impacts, whilst those commonly reported by the remainder were - outsiders buying land (10.2%), increased traffic accidents (5.1%), and increased noise and pollution (4.1%).

## 5. Conclusions

Statistical modelling of investment and output variables provides evidence that:

- i) investment in roads has a significant impact on poverty reduction and increased agricultural production, and that it can contribute to lifting people out of poverty even in areas with lower agricultural potential;
- ii) in some circumstances, investment in roads has the highest impact on poverty reduction;
- iii) improving access increases the potential for investments in other sectors to have a greater impact;
- iv) reducing poverty in economic terms is likely to improve social aspects of rural livelihoods as well.

However, the studies provide little practical guidance on how to increase the efficiency and effectiveness of access investments in reducing poverty.

Studies that relate levels of access (to rural roads and rural infrastructure) to levels of poverty show that:

- i) higher levels of access to the road network, and to other types of rural infrastructure, are associated with significantly lower levels of poverty;
- ii) communities living 'off-road' are likely to experience high levels of economic and social poverty, and that the more remote they are from the road network the poorer they are likely to be;
- iii) there is potential for provision of roads to very remote communities to have a high impact on poverty reduction;
- iv) incomes are higher in communities with better rural infrastructure endowments, including roads, and they there is a synergistic effect from provision of both good road access and an electricity supply.

One implication of these studies is that, across areas that are comparable in other ways, improving access to the 'without' communities' may bring their poverty levels down to those found in 'with' communities. However:

- i) the Vietnam study suggests there may be other factors at work that make this relationship more complex than it at first sight appears;

- ii) many very poor areas that currently lack access and infrastructure are also disadvantaged in other ways – remote location, poor natural resource endowment. While improving access to these areas can be expected to bring some benefits, it will not raise them to the economic levels of areas which have other advantages as well as good access.

One important output from these studies is the recommendation that, to maximise the impact, rural road investments should be targeted at areas that combine poor access, a high incidence of poverty, and economic potential.

The conclusions from the evaluation studies of the impacts of rural road investment programmes draw heavily on the findings from the work done by Scott Wilson for the ADB, because this was specifically aimed at understanding poverty reduction impacts:

1. All the evaluation studies clearly show that improvements to rural roads improve access through a modal shift to a more efficient means of transport and an increase in availability of transport services. These more efficient services include those provided by intermediate means of transport (IMT).
2. Transport services benefit from reduced operating costs, increased speeds and a reduction in income losses from breakdowns. Whether benefits are passed on to users in the form of reduced fares depends largely on competition being sufficient to force down fares, and on factors that restrain competition such as government policy and restrictions imposed by operator unions or associations. Reduced fares were found in Bangladesh, Cambodia and Indonesia, but not in Nepal, Sri Lanka and the Philippines. Even with reduced fares, operators can increase income by more intensive use of their vehicles through faster trips and possibly by hiring them out to extend usage. The latter can create employment for poor people. One implication of this is that rural road investment programmes should be complemented by measure to generate genuine competition in the market for rural transport services.
3. In all cases improved access stimulated greater travel by rural people for both economic and social purposes, particularly in the wet season. This applied in general to both men and women.
4. Few of the studies examined the impact of improved rural roads on the delivery of public sector services into rural areas. However, where this aspect was examined, the findings were positive, and there is also evidence of increased activity by private traders. This provides some support for the argument that an important role of improved access is to facilitate the delivery of education, health and trading services into rural areas. This is particularly important for the poor and very poor. Since they are less able to afford to travel, they are more dependent on services being delivered to them.
5. Although trips to market increased, there was no clear trend for an increase in agricultural production and marketing. There was some evidence of increased marketing in Nepal and Cambodia but little change in some other areas. However, in a number of areas there was some diversification into higher value crops due to the better access to markets. This may represent one of the main opportunities for raising farm incomes in areas where farmland is restricted by high population densities. Another trend was for improved access to attract more traders into the villages, increasing competition and hence raising the market price for crops.
6. The evaluations show some positive signs of economic growth such as in agricultural marketing and the establishment of shops and other businesses along the improved roads, but there is no reported evidence of a general increase in incomes in the project areas. It is possible that this

may be a longer-term impact as households adapt to the improved access. The macro-economic models discussed above show a positive correlation between improved infrastructure and income levels over longer periods of time and, therefore, give some confidence that this will occur.

7. There is clearer evidence of a positive impact on other components of poverty with people travelling more for social purposes, increased use of health services and improvements in education. Improved access to health facilities has benefited all groups, but is given a particularly high priority by the very poor and women.
8. Income from employment on the projects has essentially produced only short-term benefits. Although the poor and very poor have benefited, as soon as the work has ended they have quickly slipped back into their previous way of life. Two of the evaluations (Nepal and ADB) highlight the importance of providing complementary project inputs to assist rural people to make more productive, longer-term use of some of the work income in order to achieve more sustainable impacts.
9. Improved access is of most benefit to the 'better-off' in the community who are able to respond most readily to the opportunities created. The impact reduces for poorer people who do not have the assets, and are unable to take the risks, to be able to respond to economic opportunities. Improved access has only limited economic impact on the 'very poor'. Their lives are taken up by subsistence activities. They are landless or have little land and are often in debt to traders to be repaid by the next harvest. They seldom have any surplus to sell at market and therefore have little need to travel outside their villages, apart from to health services and even this travel is often by walking. Their main access needs are for subsistence activities in and around their villages and their main source of income is from seasonal work on local farms. It is possible that there will be some "trickle-down" benefits from the latter through economic growth in the area. The lives and vulnerability of the very poor are well illustrated in an ADB report (2001) [67] on poverty assessment in Cambodia.
10. The studies together suggest that the poor and the very poor benefit more socially than economically from improved road access. In particular, they appear to benefit from better access to health care, and attach high priority to this. This can be seen as an important element in their subsistence, risk averse, survival strategies.
11. The Scott Wilson study concludes that improving rural road access is not an adequate intervention by itself for the poor and very poor to escape from poverty – other interventions are needed with the aim of establishing a base from which the disadvantaged may develop. Paid work on building project roads can help, but produces only a temporary impact unless other measures, such as saving-credit groups are introduced to help the workers to transform this temporary income into a long-term capital asset. Regular work on the maintenance of improved roads would produce a more sustainable impact, but for much smaller numbers of people. And of course, at present, few countries place enough emphasis on the planned maintenance of improved roads. It is possible that complementing the provision of improved road access with improving the availability of subsistence resources such as water and fuel could provide significant benefits for the very poor by reducing the time and effort involved in accessing these resources. More broadly the key need would seem to be to complement investments in rural roads with other interventions (not necessarily under the same financing programme) in the same area to overcome the other constraints that prevent the poor and very poor from responding to the opportunities provided by better access. These might include adult literacy

classes, development of skills through extension services, and provision of credit to mitigate the aversion to risk-taking.

12. The Scott-Wilson report concludes that two of the main factors that affect the potential of access improvement to reduce poverty are location, with areas closer to market and resource centres having greater potential, and agricultural potential. To a certain extent this disagrees with findings from Papua New Guinea and India. In the former, Gibson and Rozelle found that higher impacts might be achieved in areas more distant from access roads, whilst in the latter Hazell and Fan forecast that higher impact might be achieved in less favourable agricultural conditions. These suggest that it may sometimes be possible to achieve greater impact in areas where the initial situation is poorer. Therefore, as recommended by Van de Walle, it is necessary to carefully consider the combination of accessibility, poverty level and potential for economic development in selecting areas for interventions. It is also essential to have a clear understanding of the poverty characteristics of the community to identify interventions needed and their likely impact.
13. Finally, it is clear that, particularly in areas where rural poverty is an intransigent problem, the provision of improved access is, of itself, not sufficient to reduce poverty and address the needs of the very poor. Indeed, it may not be the most effective intervention. But it may be a prerequisite for other, more effective interventions to be implemented. It is a practical reality that it is very difficult to deliver sustainable development services to remote, inaccessible areas. This argues the case for: (a) providing minimum sustainable cost access to such areas; but (b) recognising that this is a long-term investment, the benefits from which will not be seen until other development interventions follow.
14. Finally, attention must be given to the negative impacts of improved access. Those most frequently cited are the dust hazard, and the risk (or actual occurrence) of increased numbers of road accidents, injuries and fatalities.