



Rural Transport

Improving its Contribution to Growth and
Poverty Reduction in Sub-Saharan Africa

George Banjo
Henry Gordon
John Riverson



SSATP
Africa Transport
Policy Program

Working Paper No. 93

Rural Transport

Improving its Contribution to Growth and Poverty Reduction
in Sub-Saharan Africa

Rural Transport

Improving its Contribution to Growth and Poverty Reduction in Sub-Saharan Africa

George Banjo
Henry Gordon
John Riverson

November 2012



The SSATP is an international partnership to facilitate policy development and related capacity building in the transport sector in Sub-Saharan Africa.

Sound policies lead to safe, reliable, and cost-effective transport, freeing people to lift themselves out of poverty and helping countries to compete internationally.

* * * * *

The SSATP is a partnership of

- 36 SSA countries
- 8 Regional Economic Communities
- 2 African institutions: *UNECA, AU/NEPAD*
- Financing partners for the Second Development Plan: *European Commission (main donor), Austria, France, Norway, Sweden, United Kingdom, Islamic Development Bank, African Development Bank, and World Bank (host)*
- Many public and private national and regional organizations

* * * * *

The SSATP gratefully acknowledges the contributions and support of its member countries and partners.

* * * * *

More publications on the SSATP website:

www.worldbank.org/afr/ssatp

The findings, interpretations, and conclusions expressed here are those of the author and do not necessarily reflect the views of the SSATP or its partners.

© 2012 The International Bank for Reconstruction and Development / The World Bank
All rights reserved.

Cover photo by Ms. Agnes Laima from the Zambia National Markeeters Credit association.

Table of Contents

Abbreviations	ix
Foreword	xiii
Acknowledgements	xv
Executive summary	xvii
Key findings of the review	xviii
1. Introduction	1
A call to action on rural poverty	1
Response to the call to action on rural poverty	2
Have lessons of past rural development efforts been learned and applied?	3
Rural transport and agricultural development	5
2. Addressing rural poverty	9
Nature of rural poverty	9
dimensions of rural poverty in SSA and the role of local infrastructure	12
Agriculture and rural transport in economy-wide growth	15
Conclusions	16
3. Strategies for agricultural & rural development	19
World Bank's rural strategies	20
Renewed focus on rural poor	23
Influence of diverse institutions and stakeholders	25
Comprehensive Africa agricultural development program (CAADP)	26
Implications of agricultural growth patterns for national & local transport	28
A role for a rights-based approach	30
Agriculture action plan and rural transport	31
Conclusions	33
4. Searching for an appropriate analytical framework for understanding rural transport	35
Introduction	35
The nature of rural transport	37

Findings of rural transport research and evaluation studies _____	38
Influence of the poverty focus and basic needs approach _____	41
The Rural Travel and Transport Program (SSATP) _____	48
Conclusions _____	59
5. Lessons from rural transport projects _____	61
Review of rural transport projects carried out between 1965 and 1989:	
Findings and recommendations _____	61
Findings and recommendations from projects carried out in 1992-2006 _____	65
Review of rural transport in World Bank agriculture sector projects _____	69
Findings and emerging lessons from the review of rural transport projects _____	75
Conclusions _____	77
6. Contribution to growth and poverty reduction _____	79
Convergence and divergence of sectoral perceptions, strategies, and tools _____	79
Broad conclusions leading to an improved policy and strategic framework _____	82
Building blocks of a framework for rural transport supportive of growth and poverty reduction _____	84
An improved rural transport framework based on lessons from the review _____	85
Appendix A. A Framework for addressing spatial considerations in national poverty reduction strategies _____	95
Appendix B. Guidelines for planning and implementation of village travel and transport interventions _____	99
Appendix C1. Rural transport services _____	103
Appendix C.2. A Framework for the promotion of intermediate means of transport _____	109
Appendix D. Measuring benefits and impacts _____	117
APPENDIX D.1. Core indicators and definitions for roads _____	117
Appendix D.2. Choosing rural road investments to reduce poverty: An approach to capturing nonmonetary benefits _____	121
Appendix D.3. Towards the mainstreaming of an approach to include social benefits within road appraisal _____	125
Appendix E. Case Studies _____	131

Appendix E.2. Rural roads projects in Peru: An integrated approach to rural transport, economic development, and poverty reduction _____	131
Appendix E.2. Romania’s rural development project _____	136
Appendix E.3. Vietnam’s rural transport projects (I, II, and III): Linking the people to roads challenges _____	139
Appendix E.4. India: Andhra Pradesh economic restructuring project _____	141
Appendix E.5. Yemen’s rural access road project _____	143
Appendix E.6. Ethiopian Rural Travel & Transport Program (ERTTP) _____	147
7. References _____	149

Boxes

Box 1.1.Key Messages of the RTTP on improving rural transport _____	xviii
Box 1.2.Elements of an improved framework for rural transport based on lessons from the review _____	xxiii
Box 2.1 Typology of rural households _____	10
Box 2.2 Importance of public policy in maximizing likelihood of success that rural households will move out of poverty _____	12
Box 3.1 Importance of local development and institutions _____	25
Box 3.2 Norman Borlaug on the role of transport infrastructure in Africa’s development _____	27
Box 3.3 Findings and recommendations from the study <i>Africa’s Sleeping Giant</i> _____	29
Box 3.4 Objectives of the second phase of the PAST Program _____	31
Box 4.1 Rural transport and its essential elements _____	37
Box 4.2 Structure of household interview survey _____	42
Box 4.3 The case for better local transport solutions _____	44
Box 4.4 Household-based approach to rural travel demand analysis _____	47
Box 4.5 Integrated rural accessibility planning (IRAP) _____	49
Box 4.6 Aspects of the development of rural transport policies and strategies _____	55
Box 4.7 Developing a rural road policy and strategy: A checklist of areas of interest applied in Cambodia _____	56
Box 4.8 Why is participation important in policy making? _____	58
Box 5.1 Labor-based methods: Evolution and use for construction & maintenance _____	67

Box 5.2 Basic access concept and Rural Access Index (RAI) _____	70
Box 5.3 Good practices, innovations and challenges: Lessons from a review of the World Bank’s rural infrastructure portfolio, 2000–2006 _____	72
Box 5.4 Trends in gender mainstreaming in rural projects _____	73
Box 6.1 Four key dimensions of a PRSP arising from the principles underlying the approach _____	85

Tables

Table 2.1 Location, local context, and multiple dimensions of poverty _____	11
Table 3.1 Continuity and change in World Bank’s rural strategies _____	21
Table 3.2 Implications of the current three-year agriculture action plan for transport _____	32
Table 4.1 Length and loads of movements of rural goods by small farmers in selected countries _____	41
Table 4.2 Some alternative solutions to rural access problems _____	45
Table 4.3 Key publications reflecting the evolution of a new paradigm _____	50
Table 4.4 Countries benefiting from RTTP policy and advisory activities _____	54
Table 5.1 Rural road project targets and costs, 1965–1989 _____	62
Table 5.2 Strategic context for World Bank (WB) rural transport projects _____	69
Table 5.3 A Typology of agricultural and rural development projects with a rural transport activity, 2006–2008 _____	75

Abbreviations

AAP	Agricultural Action Plan (World Bank)
AFCAP	Africa Community Access Project
AfDB	African Development Bank
AGETIP	agency for executing public works
APL	adaptable program loan
AU	African Union
CAADP	Comprehensive African Agriculture Development Program
CAS	country assistance strategy
CBRD	community-based rural development
CDD	community-driven development
CSOs	civil society organizations
DANIDA	Danish International Development Agency
DfID	Department for International Development (UK)
ERR	economic rate of return
ERTTP	Ethiopian Rural Travel and Transport Program (SSATP)
ESW	Economic and Sector Work
EU	European Union
FAO	Food and Agriculture Organization (of the United Nations)
GOY	Government of Yemen
GDP	gross domestic product
GNP	gross national product
GRTI	Gender and Rural Transport Initiative (World Bank)
HIPC	Heavily Indebted Poor Countries
IADB	Inter- American Development Bank
IBRD	International Bank for Reconstruction and Development
ICT	information and communication technology
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFI	international financial institution
IFPRI	International Food Policy Research Institute
IFRTD	International Forum for Rural Transport and Development
ILO	International Labour Organization

ILO-ASIST	ILO-Advisory Support, Information Service and Training
IMR	infant mortality rate
IMT	intermediate means of transport
IMT	Input Markets and Technology
IPRSP	Interim Poverty Reduction Strategy Paper
IRAP	integrated rural accessibility planning
IRD	integrated rural development
IRI	International Roughness Index
LAC	Latin America and the Caribbean
LBAT	labor-based assisted technology
LDW	Local Development Window
MADIA	Managing Agricultural Development in Africa
MCA	multi-criteria analysis
MDG	millennium development goal
M&E	Monitoring and Evaluation
MIRTP	Makete Integrated Rural Transport Project
MPWH	Ministry of Public Works and Highways (Yemen)
MRD	Ministry of Rural Development (Cambodia)
MRTTP	Malawi Rural Travel and Transport Program
NEPAD	New Economic Plan for African Development
NGO	Non-governmental organization
NMT	non-motorized transport
NORAD	Norwegian Agency for International Development
NRM	natural resources management
OBA	output-based aid
ODA	Overseas Development Assistance
ODG	Overseas Development Group
O&M	operation and maintenance
PAD	project appraisal document
PAST	<i>Programme d'ajustement sectoriel des transports</i> (DANIDA)
PGPTS	pro- growth, pro- poor transport strategies
PIRTP	Pilot Integrated Rural Transport Project (Malawi)
PIU	project implementation unit
PRSP	poverty reduction strategy papers
RAI	Rural Access Index
RAMP	Rural Access and Mobility Project
RAMPA	Rural Access and Mobility Pilot Activity (Malawi)

RAPCMO	Rural Access Project Central Management Office
RDP	rural development program
REC	regional economic community
RF	Road Fund
RICA	rural investment climate assessment
RMF	road maintenance fund
ROADSIP	Road Sector Investment Project (Zambia)
RONET	Road Networks Evaluation Tools
RAPCMO	Rural Access Project Central Management Office
RAP2AF	Rural Access Project Additional Financing II
RICA	Rural Investment Climate Assessment
RT	Rural Transport
RTI	rural transport infrastructure
RTTP	Rural Travel and Transport Program (SAATP)
SDC	Swiss Agency for Development and Cooperation
SGPRS	Second Generation Poverty Reduction Strategy
SIDA	Swedish International Development Agency
SME	Small and Medium-scale Enterprise
SSA	Sub-Saharan Africa
SSATP	Sub-Saharan Africa Transport Policy Program
TA	Technical Assistance
TAT	technical assistance and training
TEU	Transportation Engineering Unit
UNECA	United Nations Economic Commission for Africa
WDR	World Development Report
WDRP	Water and Rural Development Program

Foreword

Agriculture presents a tremendous opportunity for Africa. Growth in demand for food on the sub-continent is among the highest in the world. Higher incomes, rising population, and migration to towns and cities raise commercial demand for food. Increased density of population brings markets closer to producers, and raises farm-gate earnings. Much of the food that African consumers want can be grown locally or regionally, but at present imports are increasing because local production cannot keep pace with rising demand. In addition to opportunities on internal markets, international prices for many of Africa's traditional export crops are high and export volumes could increase. Africa has land and water that can be brought into production as well as a productivity gap. Africa's agricultural frontier is thus both extensive, through additional resources that can be brought into production, and intensive, through opportunities to increase yields and labor productivity. The continent's farmers are acting on the opportunity, bringing new land under cultivation and raising yields. Agricultural growth at just under 4% annually for the past five years is rapid by global standards and exceeds population growth. Improved varieties are now grown on 35% of cropped area, up from just 22% ten years ago.

The commercial promise of Africa's agricultural renaissance can be realized only if products actually get to markets. Rural infrastructure, particularly roads and transport services, continues to constrain farm incomes and adoption of technologies. This is despite considerable investment in roads and transport over the years. High costs of transport services adversely affect the cost of agricultural production and the marketing of outputs. People who cannot move themselves and their goods cannot pursue economic and social activities. They cannot access schools and health facilities. People who cannot move cannot move out of poverty.

The problems created by constraints to access have been well recognized and studied. From the *Managing Agricultural Development in Africa (MADIA)* six country studies of the 1990s to the more recent 2008 *World Development Report on Agriculture and Rural Development (WDR)* and *Sleeping Giant* studies, there is agreement that getting agriculture moving in SSA requires, *inter alia*, better access to markets and more modern market chains. As presented in the World Development Report of 2008, and more recently in the Africa Region's strategy document, *Africa's Future and the World*

Bank's Support to It, a dynamic agricultural sector will entail more competitive and commercially engaged smallholders, opportunities for wage work on larger farms and in processing facilities, and less risky livelihoods for subsistence farmers. Roads and transport services are necessary for all of these, and so are complementary investments to enhance how people use roads and derive services from them. This paper contains important findings and lessons on how to assure that the right roads are built and well used.

Many of the required approaches are known through past work but have yet to be tested in SSA beyond the pilot scale. Rural households have rarely been the direct focus in designing rural transport interventions in SSA; the continued use of indirect needs assessment may explain the observed inadequacies in available rural access and mobility. Transport specialist and agricultural experts now agree on the need to target smallholders and rural households in light to resurgent interest in agriculture. This welcome development informs the study's recommendations for improving the contribution of rural transport to rural growth and poverty reduction in SSA.

Specialists in agriculture and transport must work together. Policies, institutions, and budgeting arrangements should recognize the need for multi-sectoral planning and implementation. In its final chapter, this report advances a framework for design and implementation of multi-sectoral rural transport interventions. This is a welcome contribution to implementation of the elements of the *Comprehensive African Agriculture Development Program* that address access to markets, with particular focus for improving rural access and mobility. We in the agricultural units look forward to working with our colleagues in SSATP and the Africa Transport Unit in implementing the proposed framework.



Karen Brookes

Sector Manager, Agriculture and Rural Development Department, Africa Region,
The World Bank

Acknowledgements

This report was prepared as part of the activities of the Sub-Saharan Africa Transport Policy Program (SSATP). It combines the results of a literature review and an analysis of World Bank projects implemented through the Bank's Africa Transport and Africa Agriculture and Rural Development Units.

SSATP and the World Bank financed the work contained in this report. The work was a collaborative effort of the staff of SSATP and the Bank's Africa Transport and Africa Agriculture and Rural Development Units. The authors acknowledge the support and encouragement provided by past SSATP managers Zaza Ramandimbariso and Stephen Vincent, as well as by C. Sanjivi Rajasingham, former sector manager of the Africa Transport Unit, and Karen McConnell Brooks, sector manager of the Africa Agriculture and Rural Development Unit.

This report was prepared by George Banjo, task manager, SSATP; Henry Gordon, Africa Agriculture and Rural Development Unit, World Bank; and John Riverson, transportation engineering consultant. John L. Hine, former senior transport economist in the Transport Unit of the Energy, Water, and Transport Department of the World Bank, also contributed to the initial concept paper for the study and provided comments on earlier drafts of this report. The authors are grateful to Peter F. Freeman and Kavita Mathur of the World Bank's Independent Evaluation Group (IEG) for assistance in obtaining access to the Bank's projects database from the IEG's 2007 evaluation of recent Bank rural transport projects (World Bank 2007b). Thanks also go to Maki I. Tsumagari and John Hine for copies of the papers and data from the *Review of Fifteen Years of Bank Lending—Parts I and II*.¹ The authors also benefited from various inputs in the form of written comments on the concept notes and initial drafts of the report from Dino Leonardo Merotto, Nwanze Okidegbe, and Dieter Schelling (peer reviewers); Stephen Vincent; and Hachim Koumare, former chairman of the SSATP board.

¹ The reports were not formally published, but provided a good source of information and analytical data for this study.

The authors made a special presentation of the findings contained in the initial draft at the SSATP general meeting in Lilongwe, Malawi, in October 2009. The meeting was attended by representatives of various countries and organizations such as the World Bank, African Development Bank, European Union, United Nations Economic Commission for Africa (UNECA), Africa Community Access Project (AFCAP), and International Forum for Rural Transport and Development (IFRTD), and their comments benefited the paper. The authors circulated a draft report on March 16, 2010, to peer reviewers, within the Bank, and to other interested persons outside the Bank as part of a virtual review process. The authors then benefited from written comments by Alain Labeau, Roger Gorham, Juan Gaviria, Dieter Schelling, Nwanze Okidegbe, and Peter O'Neill of the World Bank. Peter O'Neill organized a meeting of the World Bank's Rural Transport Thematic Group, and participants provided useful comments on the draft report. Sariette Jippe (Africa Transport Unit, World Bank) assisted with some of the data analysis used in the report, and Nina Jones and Ann May Raynal of the Africa Transport Unit and Coral Bird of the Europe and Central Asia Transport Unit assisted in the formatting and editing of earlier drafts of the report. Monique S. Desthuis-Francis processed the final version of the report for publication by SSATP.

Executive summary

Poverty reduction is a long-standing development objective of many developing countries and their aid donors, including the World Bank. To achieve this goal, these countries and organizations have sought to improve smallholder agricultural productivity in Sub-Saharan Africa (SSA) as part of a broader rural development agenda aimed at providing a minimal basket of goods and services in rural areas to satisfy basic human needs. These goods and services include not only food, health care, and education, but also infrastructure. Although infrastructure investments have been increasing since the mid-1990s, rural transport support has apparently remained steady, most likely because the levels were extremely low at the outset. As a result, rural transport remains a constraint to increasing agricultural productivity, achieving rural growth, and thus alleviating rural poverty. With the launch of the Millennium Development Goals (MDGs) in 2000, there was a revival of financial support for rural transport and agricultural development that has led to a greater emphasis on pro-poor growth as an overarching development goal.

This work presents the outcome of a review of the literature on the theory and practice relating to rural transport. The objective was to assess the reasons for success and failure of past actions to improve the contribution of rural transport to poverty reduction in SSA and, based on the findings, generate an operational framework for improving the future impact of rural transport practices on poverty reduction.

A basic premise of this study is that because the agricultural and rural development agenda focuses on smallholder farmers, transport interventions should target explicitly the access and mobility needs of these farmers and their associated rural households. It is by doing so that rural transport interventions can more readily contribute to improving agricultural productivity and rural growth, thereby contributing to poverty reduction. Thus, the access and mobility needs of rural farm households and smallholder farmers are at the center of this study. These households and farmers depend principally for their livelihoods on subsistence agriculture, subsistence farming, and some cash from animals and dairy and non-farm income and wage work. Helping them to chart a pathway out of poverty requires supportive public policy on rural development and infrastructure that accommodates these different orientations. The review notes that each group of rural households will have different types of access

and mobility needs, depending on the location and natural resource endowments of the areas in which they live, as well as their household characteristics. Although not all rural dwellers are necessarily farmers, most of them are, most operate on small-holdings of two hectares or less, and a significant proportion of heads of household are women.

Box 1.1. Key Messages of the RTTP on improving rural transport

1. *Establish policies and strategies* for rural roads and transport under a national rural roads and transport strategy that ensure sector coherence and build on a commitment to reform.
2. *Build a public-private partnership* between government and local communities to maintain village access roads.
3. *Develop a legal and financial framework* that encourages local communities to claim ownership of their roads.
4. *Decentralize decision making* to the local level to involve and empower those who suffer the consequences of poor road maintenance and lack of access.
5. *Consider solutions other than just roads.* Significant improvements in mobility are best achieved by improving both infrastructure and transport services, including providing low-cost vehicles. Better placement of service facilities also improves access.
6. *Use the appropriate technology.* Employing small-scale contractors and local labor is often cheaper and more sustainable than relying on outsiders, and it stimulates the local economy.
7. *Position rural transport* in a rural development framework.

KEY FINDINGS OF THE REVIEW

The first major finding of the review of rural transport theory and practice is that many of the approaches needed to improve the impact of rural transport interventions on poverty reduction are known, particularly from the work of the Rural Travel and Transport Program (RTTP) of SSATP (see box 1). Unfortunately, many of the recommended approaches remain untested within Sub-Saharan Africa beyond the pilot scale, notwithstanding their influence on rural transport policy and project design in other operational regions of the Bank. For SSA, these are missed opportunities. Even where SSA countries have applied these approaches, institutional and financial sustainability and scaling up local successes remain significant challenges for both their agriculture and transport sectors.

The second key finding is that rural households are rarely the point of focus in the design of rural transport interventions in SSA, even though a methodology to allow this focus has been developed and successfully tested in several pilot projects since the 1980s. The result is that the transport needs of rural households continue to be analyzed and understood by means of an indirect assessment of those needs, which means that most projects have a less than desirable impact on improving the rural access and mobility situation of such households.

The third key finding of the review is that there is now an emerging convergence between the agricultural and rural development and transport communities in their understanding and approaches to making smallholder and rural households the direct targets of efforts to promote rural growth:

- The continued emphasis on small farm productivity provides a basic rationale for giving specific attention to meeting these farms' rural access and mobility needs and creating openings for the introduction of laborsaving transport technologies at the household level. The labor saved—often women's labor—can free resources for adopting technology or paying more attention to household priorities such as childcare. In this context, specific agricultural technologies such as ox-drawn plows could become more attractive by recognizing the value of animal power as means of transport.
- The emphasis of rural strategies on rural diversification and nonfarm development underscores the conclusion of recent rural investment climate studies and agricultural and rural development sector studies that transport improvements are important for rural diversification and productivity in nonfarm activities. This conclusion may help in defining diversification strategies for areas with high agricultural potential and strategies for nonfarm development in areas with low potential.
- The 2009 Agriculture Action Plan of the World Bank stresses the importance of improving risk management for agricultural development—an action considered an adequate response to the recent greater volatility in international food markets compounded by the volatility in domestic markets. Transport system efficiency is a priority because it affects agricultural marketing and significantly influences price volatility, along with storage, information and community technology (ICT), and other hard and soft marketing infrastructure.

These findings and other less important ones have given rise to several lessons from this review that have informed this study's conclusions and recommendations.

Lessons from the review

An improved framework for rural transport: country strategies. To effectively further growth and poverty reduction countrywide, individual sector strategies should be better integrated within a credible country growth strategy that takes into account the contributions of individual sectors as well as the synergies between them. The country strategy establishes an overall framework and identifies broad priorities for guiding the programs of individual sectors.

In a high growth strategy, agricultural activity and transport need to be better integrated to ensure faster growth and poverty reduction. Achieving this integration requires establishing a common set of understandings and facts about the main factors affecting rural growth and their implications for transport activities. Because transport demand derives in part from agricultural demand, development planners must evaluate future sources of agricultural growth—the expected demand for and supply of agricultural produce—to identify transport needs. So that such an evaluation is meaningful for transport planning and ensures that rural transport makes an effective contribution to agricultural growth, planners must also identify the main locations of demand and supply for individual products.. This step goes hand in hand with identifying major trade corridors and product flows, ultimately leading to assessment of the current state of the road and transport networks along these corridors, and possibly traffic and trade levels.

Road networks and transport services must adequately link farmers, particularly smallholders, to the current and planned main road network in these priority areas—many of them high-potential agricultural areas—to help them gain access to external markets, whether these markets are located in the country's urban centers, in the demand centers of regional neighbors, or in distant international locations. Roads are likely to be one of a number of investments along with capacity building and other activities needed to improve agricultural marketing. A corresponding need is to ensure the provision of roads and transport services that link rural communities, usually through a local area road network, or connect them to higher classes of road.

Poverty reduction strategies also should give prominence to the demands associated with meeting basic mobility—that is, those associated with domestic and subsistence tasks. Satisfying these demands require qualitative and quantitative assessment of the nature of rural household travel—specifically, its volume, frequency, duration, purpose, gender differentiation, and modes used, as well as travelers' livelihoods. In effect, such an assessment requires replacing transport system with household as the fundamental unit of rural travel analysis.

An improved framework for rural transport: sector strategies—transport. Country transport policy and investment programs need to be better aligned with existing poverty reduction strategies and the MDGs. For transport, the strategy should identify the mission of transport within the national economy; define the strategic partnerships needed between transport and other sectors; establish a framework for investment and sector policy; and monitor the impact of transport on economic growth and poverty reduction.

An improved framework for rural transport: sector strategies—agricultural and rural development. From Pillar 2 of the Comprehensive Africa Agriculture Development Program (CAADP) and the analysis in the World Bank's *World Development Report 2008: Agriculture for Development* (World Bank 2008b) and its 2009 Africa Agriculture and Rural Sector flagship study *Awakening Africa's Sleeping Giant* (FAO and World Bank 2009), two lessons emerge. The first is that a credible agricultural sector strategy requires paying explicit attention to rural transport. For example, a subsector marketing or smallholder commercialization strategy should take into account a wide range of factors affecting farm household access to markets, including rural transport.

An important function of an agriculture sector strategy is to provide an overview or baseline picture of the main ongoing and emerging trading links and to orient policies (infrastructure, financing, ICT, grades, and standards) to developing these corridors in line with future growth. This approach, which has implications for higher-level transport network development, should be complemented by efforts to disseminate and make accessible to farm households intermediate transport technologies as a way of increasing household welfare and productivity.

Conclusion: The essential building blocks of a framework for rural transport supportive of rural growth and poverty reduction

At the continental level, African governments have committed to meeting ambitious growth targets for agriculture through the New Economic Plan for African Development (NEPAD) and its agricultural arm, the Comprehensive Africa Agriculture Development Program. But to achieve this aim, countries must integrate their strategies for rural transport—whether to improve transport and contribute to pro-poor rural growth or to improve access to social services—with the relevant sectors, and sector strategies need to be mutually reinforcing.

At national level, sector ministries involved in rural development, agriculture, transport, or infrastructure must show how they can most effectively contribute to rural and agricultural growth, in tandem with other sectors, through a clear statement of ends and means.

At the local level, in countries in which national policy includes decentralization that is under way, the capacity of local governments and communities to develop credible, focused local plans for rural development and income growth is critical. The formulation of such plans will allow contributions from all sectors, including transport.

The key conclusion from the review is that a rural transport framework must incorporate aspects of policy, institutional arrangements, planning, financing, implementation, and monitoring. The main elements of this framework, based on the findings and lessons from this study, are outlined in box 1.2.

Box 1.2. Elements of an improved framework for rural transport based on lessons from the review

The proposed policy framework provides a checklist of actions addressing issues that require attention in developing and implementing growth-oriented transport policies and programs for rural areas.

- ✓ *Set macro-level objectives for rural access and mobility that support agricultural development and rural growth.* Integrate individual agriculture and transport sector strategies within a credible growth strategy that takes into account each sector's current and future contributions, as well as the synergies between them. In a high-growth strategy, the key element is how agriculture sector activity and transport (as well as other types of infrastructure such as power) integrate to ensure faster growth and poverty reduction. It is important to establish a baseline picture of the trade corridors that link major agricultural production areas and areas of consumption, whether the final consumers are domestic (e.g., main urban areas), regional neighbors (typically serviced by cross-border trade), or international. This approach is in fact the one proposed under the CAADP Pillar 2 framework (see chapter 3).
- ✓ *Define and adopt the macroeconomic and sector-specific policies for a rural access and mobility objective that supports agricultural development and rural growth.* Develop sector and local development policies that align sector strategies with the rural growth objective, cover transport (and possibly other infrastructure sectors), agriculture (including crop and livestock development and possibly food security, irrigation, forestry, fisheries, land and water resources), and local government, which implements and refines decentralization policies.
- ✓ *Adopt long-term perspectives and provide for scaling up.* Achieving impact requires adoption of a long-term horizon in planning and implementation. Where insufficient knowledge exists, there may be need for piloting and experimentation to determine the appropriateness of different approaches and technologies and institutional arrangements with a long-term perspective.
- ✓ *Ensure participation and input from the relevant sectors and the population in identifying and prioritizing proposed interventions to achieve maximum co-benefits.* The lessons from the rural strategies have highlighted the benefits of decentralization and community-driven development projects, which have fostered extensive participation at all levels of government and the population.
- ✓ *Adopt design and implementation approaches and methods for rural transport interventions to address specific elements of rural growth.* The specific elements essential to transport are (i) agricultural marketing, including sales and distribution, storage, and processing systems; (ii) small farm commercialization; (iii) reduced price risk; (iv) greater nonfarm investment; (v) social infrastructure development, such as schools, health centers; and (vi) trade and industry objectives, including agro processing development and micro financing. In this context, it is essential to determine the part of the overall road network to develop in order to have the greatest impact on agricultural production. In addition, actions are required to achieve sustainability, including (i) review policy and institutional arrangements; (ii) assess financial resources and economic benefits; and (iii) pursue least-cost technical designs for minimum all-season vehicular passage.
- ✓ *Establish monitoring and evaluation.* The establishment of a monitoring and evaluation system is one of the essential final steps in the design of rural transport projects aimed at achieving the strategic and development objectives for rural growth and poverty alleviation.

- ✓ *Define the rural road network, appropriate ownership and management roles and responsibilities, design standards, and financing arrangements.* It is essential to consider the relative size of rural road networks based on national resource endowments and existing constraints. Public expenditure reviews will reveal the extent of investment in rural roads from national, local, and donor sources. Strategic plans should develop road transport networks and standards within an adopted system of classification of roads for different jurisdictional levels including the rural transport network. Key principles of organizational and institutional arrangements from research and lessons from good practices of different countries are important starting points. Suitable local arrangements should foster their contributions to the financing of rural roads. Organizational requirements would include arrangements for overall network management and planning, as well as for planning, supervision, and implementation of construction, rehabilitation, improvement, and maintenance at decentralized levels.
- ✓ *Plan and provide for maintenance for all new road transport and infrastructure investments* to preserve their condition and for the upkeep of existing maintainable roads in good to fair condition. New road improvements should receive adequate maintenance. Maintenance standards should be set according to road class and surface standards, at suitable frequencies to maintain the condition as built. The institutional arrangements for implementation should include public and private sector options, as well as community and group contracting for maintenance using the appropriate labor-based and equipment-supported methods.
- ✓ *Plan for transport services together with the infrastructure.* It is essential to determine the characteristics of transport services operating in the country for both the regional (interurban) and the local farm to market, farm to village, or village-to-village distribution of inputs and outputs for agricultural production as well as marketing. The key factors to consider are: (1) existing regulations for ownership and operation of transport services; (2) the levels of duties and taxes charged and whether they are so prohibitive that they act as disincentives to entering the transport service operating industry; and (3) how tariff structures are set and how they have affected the supply and distribution of transport services.

1. Introduction

*While the great powers are trying to get to the moon,
we are trying to get to the village...
While the great powers have been to the moon and back;
and are now even communicating with the stars...
we are still trying to reach the village and the village is getting even more remote.*

Hon. Julius Nyerere

A CALL TO ACTION ON RURAL POVERTY

Poverty reduction is a long-standing objective of many developing countries and their aid donors, including the World Bank. Among the earliest high-level declarations of its importance was a speech by World Bank president Robert McNamara at the annual meetings of the Bank in Nairobi in 1973. He decried the number of absolute poor in the world, estimated then at 800 million, and the following year he placed poverty reduction at the top of the World Bank's development agenda. Indeed, every World Bank president since McNamara has made a highly visible institutional commitment to poverty reduction—such as Alden W. Clausen in 1985, Barber Conable in 1987, Lewis T. Preston in 1991, and James Wolfensohn in 1996—and this commitment has continued to the present day. Over the last decade, most donors have similarly committed to specific poverty reduction targets such as those contained in the Millennium Development Goals (MDGs). In 2000, the UN General Assembly declared that 2015 would be the target year for achievement of the MDGs.

Essential to poverty reduction, said President McNamara in 1973, is an increase in the productivity of small-scale agriculture—a goal he considered realistic if governments in developing countries were prepared to exercise the requisite political will. He then pledged, “Increased productivity of the small, subsistence farmer will be a major goal of the Bank's program of expanded activity in the FY1974–78 period.” The delivery of this message in Nairobi underscored the importance of these efforts in Africa.

Now, in the new millennium's second decade, world food price increases and a global economic crisis have again shifted attention to the poverty-reducing role of agriculture and rural development, particularly in SSA. Robert B. Zoellick, President of the

World Bank, recently made the case for increased and more effective rural development assistance aimed at improving food security. He noted that “with a sixth of the world's people going hungry every day, the crisis in food remains very real, posing a severe economic burden on developing countries, especially in Sub-Saharan Africa. Cooperation and coordination are vital to boost agricultural productivity and connect farmers to markets, as agriculture is the main lifeline today for about 75 percent of the world's poor” (U.S. Treasury 2010).

Thus at the level of donor policy, poverty reduction has not only been prominent but also linked to the development of smallholder farms and rural economies. This message has been refined over time, with a growing focus on women farmers since the UN Decade for Women (1976–85).

RESPONSE TO THE CALL TO ACTION ON RURAL POVERTY

After McNamara’s speech in 1973, donor efforts to improve smallholder agricultural productivity in SSA accelerated and became part of a broader rural development agenda aimed at providing a minimal basket of goods and services in rural areas to satisfy basic human needs. These goods and services included not only food, health care, and education, but also infrastructure. Justification for this approach was found in the emerging human capital literature that documented economic returns to investments in the health, education, and social sectors, undermining the notion that uncomfortable trade-offs existed between the sectors considered productive (e.g., agriculture and mining) and the social sectors:

Not only is the development of human resources desirable in itself, but it also raises productivity and lowers reproductivity. A vigorous, healthy and skilled labor force is a more productive labor force; and educated and healthy families tend to have fewer children. The consumption aspects and the investment aspects of human resource development thus reinforce each other. . . . No longer was it necessary to sacrifice consumption for the sake of capital accumulation and growth: consumption itself can be productive, and many disagreeable conflicts seemed to disappear. (Streeten 1984).

In the 1970s, the dominant approach to the planning and delivery of goods and services in rural areas was the so-called integrated rural development (IRD). This development approach, which is area-based and multisectoral, typically involved some combination of social, infrastructure, and agricultural activities that planners thought would fulfill basic human needs.

At the 1978 annual meetings of the World Bank, President McNamara announced the achievement of the goal of placing more emphasis on rural development: lending for

agricultural and rural development projects by the World Bank had increased by 145 percent since 1973. By the early 1980s, however, these efforts had foundered. Three factors were primarily responsible: (i) the top-down nature of IRD project design and implementation; (ii) the effects of distorted macroeconomic and sector policies on project performance; and (iii) the difficulties faced in scaling up those pilot activities that showed promise.

The Bank and many other donors responded to policy distortions by conditioning development assistance—increasingly packaged as fast-disbursing balance of payments assistance—on acceptance of macroeconomic and sector policy reforms. Countries in dire need of foreign exchange implemented liberalization and privatization policies, but often slowly—and usually reluctantly. By the 1990s, reforms had taken hold in many sectors, and private sector activity was expanding, even if reform implementation was partial and remained slow in important subsectors. As liberalization and privatization proceeded, they created space for private sector activity, but at the same time, they exposed the high costs and inefficiencies in private markets. For its part, the public sector faced the immense challenge of shifting civil servants from a control orientation to one supportive of the provision of public goods.

During the 1980s and much of the 1990s, donor support for rural development, including agriculture and transport, fell, in part because of the disillusion with dirigisme sector policies and keen awareness of the negative impact of such policies on project viability. An additional factor reducing donor enthusiasm was uncertainty about the effectiveness of traditional project types—for example, research and extension, irrigation, and commodity development—in a rapidly changing rural institutional environment. Although these challenges were real, the institutional environment was also changing in a way that presented opportunities. One was the greater scope for the activities of private entrepreneurs in agricultural markets. Another, affected by the public administration reform agenda of the 1990s, was the emergence of new community-driven approaches to local development.

HAVE LESSONS OF PAST RURAL DEVELOPMENT EFFORTS BEEN LEARNED AND APPLIED?

The current stock of knowledge about what does and does not work in rural development has progressed well beyond that of the 1970s and 1980s, reflecting significant learning from that experience. Macroeconomic and sector-level reforms created space for the activities of private firms, civil society, and local institutions. During the 1990s, public sector decentralization led to experimentation with localized approach-

es to rural planning that showed great promise. Meanwhile, rural service delivery through private sector providers was increasingly becoming an option.

Also during the 1990s, growth receded as a development priority as government and donor priorities shifted to the social sectors. By the end of the decade, it was clear that reducing income poverty and sustaining human development activities require greater support for infrastructure and productive sectors. Pro-poor growth strategies in country poverty reduction strategy papers (PRSPs) began to reflect these priorities. By 2005, infrastructure had regained prominence on the development agenda, and funding for agricultural and rural development was increasing. The 2008 *World Development Report: Agriculture for Development (WDR 2008)* accelerated this trend (World Bank 2008b).

Among the more important general lessons learned over the last decade, the following stand out: (i) it is important to have a facilitating policy environment for private markets and employ private service providers in the delivery of public goods; (ii) approaches and technologies are needed to respond to the demands and needs of small farmers; (iii) there is efficacy in bottom-up approaches to planning, financing, and implementing rural development activities that start with the local farmer, producer group, or village; and (iv) the need in some cases to move away from the traditional single-donor project assistance to more programmatic sector-wide support, often involving budget support from multiple donors. These lessons helped to circumvent some of the obstacles encountered in the 1970s and 1980s to achieving effective rural development projects. Despite this progress, significant challenges remain, including the task of scaling up pilot activities and making them sustainable. In summary, after applying lessons, the results have been promising. Yet, as argued in subsequent chapters, adequate application of many important lessons learned remains in different sectors. This outcome suggests the possibility of increasing the effectiveness of rural development relatively quickly, without starting from the ground up.

In recent years, as African governments have increasingly pursued the objectives of growth and poverty reduction, they have renewed their interest in identifying investment activities that have the greatest impact on growth. As levels of public investment in infrastructure and agriculture rise, there is also recognition of the need to improve the viability and effectiveness of investments in “crowding in” private investment. The framework document of the New Economic Plan for African Development (NEPAD) emphasizes improving infrastructure as a means of stimulating general economic growth and reducing poverty, as well as a specific factor contributing to agricultural development. An updated assessment of the contribution of rural

transport to agricultural and rural development in SSA leads to the questions that inform this study: What strategies and approaches to implementation exist to promote agricultural and rural development? Has rural transport—or, more broadly, rural infrastructure—been an integral part of these efforts? Have rural interventions been successfully implemented? Have they attained their longer-term development objectives, including poverty reduction? In short, what have we learned and applied?

RURAL TRANSPORT AND AGRICULTURAL DEVELOPMENT

Although many types of infrastructure constraints hinder rural growth, inadequate transport has long been considered a particularly important impediment to agricultural growth and poverty reduction in Sub-Saharan Africa (Platteau 2010 and Platteau 2000; Torero and Chowdhury 2005; World Bank 2008b). Various reports also highlight improved transport as a significant contributor to the achievement of the MDGs, particularly those relating to education and health (World Bank 2009b; Diao et al. 2007; SSATP 2005).² Rural transport is an important factor in advancing the MDG on poverty. It has a role in improving food security and agricultural productivity over the medium and long term, as population growth, environmental stress, and climate change converge to challenge food security, both globally and within the African continent.

Rationale, scope, and objective of this study

This study is part of the work program of the Sub-Saharan Africa Transport Policy Program (SSATP)³ under its Second Development Program (DP2). It is a joint effort of staff in the transport and agriculture sectors. They were motivated to undertake this study by the need to ensure that World Bank, donor, and country projects and programs incorporate the outputs of the program's advocacy work on rural transport

² The infrastructure monograph by Diao et al. published by the International Food Policy Research Institute (IFPRI) emphasizes that the need for specific types of infrastructure varies by area—for example, low-potential areas may need rainwater harvesting more than roads, whereas higher-potential areas may need the roads more.

³ The Sub-Saharan Africa Transport Policy Program (SSATP) is a unique partnership of 35 African countries, 8 regional economic communities, 3 African institutions, and many national and international development partners all dedicated to the goal of ensuring that transport plays its full part in achieving the developmental objectives of Sub-Saharan Africa: poverty reduction, pro-poor growth, and regional integration. The European Commission, Denmark, France, Ireland, Norway, Sweden, United Kingdom, Islamic Development Bank, African Development Bank, and World Bank currently fund the program.

policy and its recommendations on good practice in implementing rural transport projects. This study takes stock of existing approaches to improving rural access and, based on the lessons of experience, highlights both proven and promising approaches to removing rural access constraints to agricultural growth. The study relies heavily on lessons from past projects that inform an operational framework for growth-promoting rural transport. Its outputs are directly relevant to the country and regional bodies in SSA involved in national and local area planning, agriculture and rural development, and rural transport infrastructure investment and maintenance.

The review described in this report contributes to the existing knowledge and practice in rural transport development. Its specific objectives are

- To assess the successes and failures of past actions to improve rural transport and contribute to poverty reduction in SSA; and
- Based on lessons learned, to outline an operational framework for improving future practices.

In scope, this study

- Reviews existing reports and literature in order to identify the lessons learned before and since the 1990s from investments in rural access (rural transport infrastructure and services) in support of agricultural productivity and growth.
- Develops a framework for the provision of rural access that responds to the objective of increasing the contribution of smallholder farmers to agricultural productivity and growth.

Organization of this publication

Chapter 2 provides the broad developmental context for rural transport improvements. In doing so, it describes the nature of poverty in Africa in the current decade, the poverty correlates, and the significance of local infrastructure and transport for poverty reduction. Chapter 3 then describes World Bank agricultural strategy and practice since the 1970s and how it has changed in response to the findings of evaluations of past projects—both their deficiencies and as well as successes. The most recent Bank statement, its *Agriculture Action Plan*, explicitly links rural infrastructure to agricultural marketing and productivity (World Bank 2009a). Agricultural growth is a technology- and market-driven process, and improved rural transport is one element of a strategy to provide farmers with advice, information, and physical inputs and to expand output-marketing opportunities. Rural transport contributes not only to spurring growth but also to achieving food security and coping with drought and

food emergencies. It has the potential as well to reduce women's workloads, reinforcing efforts to address equity, local development, decentralization, and empowerment.

Chapter 4 presents policy and operational recommendations from related transport sector policy studies and research work carried out by the Bank and by development partners and public and private research bodies and individuals. In the process, it positions the findings within those of SSATP. The research and related study findings provided input for the development of a rural transport knowledge base and broadened understanding of the nature of rural transport and mobility and its linkages to rural growth. Using these past lessons and recommendations for rural transport development as a benchmark, chapter 5 outlines the essential characteristics of good practice in rural transport projects, based on those implemented within and outside Africa. The findings illustrate important lessons learned and applied and the new approaches developed to improve rural transport and agricultural and rural development and contribute to growth and poverty reduction.

Finally, chapter 6 proposes a framework for rural transport planning and development that will accelerate the removal of rural access constraints to agricultural and rural growth. The report concludes with five appendixes presenting examples of project case studies and resources for rural transport policy development and planning.

The principal audience for this study is the policy makers and practitioners who make decisions on investments in rural transport as well as in agricultural and rural development. These decision makers include governments, donors, and international finance institutions and agencies. The recommendations should be equally relevant to practitioners in the agriculture and rural transport sectors.

2. Addressing rural poverty

Removing the rural access constraints on agricultural and rural growth requires understanding the nature of poverty in specific rural settings, as well as knowledge of the types of agricultural and rural transport interventions likely to have the greatest and most direct impact on rural poverty. Also important is an appreciation of the synergies between the types of interventions in different sectors. This chapter provides a quick characterization of rural poverty in SSA and evidence on the poverty-reducing potential of rural transport in different rural settings.

NATURE OF RURAL POVERTY

During the 1980s and 1990s, World Bank lending for agricultural and rural development, all Overseas Development Assistance (ODA) support for agriculture, declined steadily despite donors' continued emphasis on reducing poverty. By the 1990s, new household-level data and analytical tools had produced a clearer understanding of the importance of agricultural and rural development for overall growth and poverty reduction in Africa (Delgado et al 1998). Surveys of a larger number of countries produced a detailed and nationally representative picture of rural household expenditures, assets, and living standards. This picture allowed evaluation of the impact of growth in different sectors—including agriculture—on the economy as a whole, as well as on poverty levels. As surveys continued, it became possible through panel analysis to evaluate the determinants of rural household income, as well as the pathways out of poverty—the routes by which differently situated rural households and geographical areas have been able to improve incomes and living standards over time.

Poverty reduction was described in *WDR 2000–2001* as having three basic features: economic well-being, empowerment, and security. In rural areas, poverty is closely linked to isolation from markets and economic opportunities; lack of access to social services and weak political participation; and vulnerability to natural and manmade events (World Bank 2000). The literature on poverty vulnerability highlights the frequency of the latter events, the difficulties households have in coping with them, and the limited ability of poor households to move out of poverty. The concept of sustainable rural livelihoods was developed in part to capture these insights.

A livelihood comprises the capabilities, assets (both material and social), and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabili-

ties and assets both now and in the future, while not undermining the natural resource base. (Sustainable rural livelihoods: what contribution can we make? (DFID 1998).

At the heart of the sustainable livelihood approach is an analysis of the five different types of assets on which individual livelihoods depend: (i) natural capital; (ii) social capital; (iii) human capital; (iv) physical capital; and (v) financial capital. Evans (2000) depicts rural livelihoods and the multiple dimensions of poverty from a geographic perspective (see table 2.1). As described in box 2.1, (World Bank 2008b) a rural household is dependent for its livelihood principally on one of the following, but often in some combination with the others: own-production (subsistence-oriented); cash income from agriculture (market-oriented); wage work (labor-oriented); or remittances (migration-oriented).

Box 2.1 Typology of rural households

Rural households engage in farming, labor, and migration, but one of these activities usually dominates as a source of income. Five livelihood strategies are distinguished. Some farm households derive most of their income from actively engaging in agricultural markets (market-oriented smallholders). Others depend primarily on farming for their livelihoods, but use the majority of their products for home consumption (subsistence-oriented farmers). Still others derive the larger part of their incomes from wage work in agriculture or the rural nonfarm economy, or from nonagricultural self-employment (labor-oriented households). Some households might choose to leave the rural sector entirely, or depend on transfers (remittances) from members who have migrated (migration-oriented households). Finally, diversified households combine income from farming, off-farm labor, and migration.

Source: World Bank, 2008b

Table 2.1 Location, local context, and multiple dimensions of poverty

	<i>Areas of high agroecological potential</i>	<i>Areas of low agroecological potential</i>	<i>Rural extreme/remote areas</i>
Assets	Natural capital is a key asset, and financial and human capital is important for nonfarm economic opportunities. Social networks can be an important asset.		
Livelihood	Multiple livelihoods are based mainly on use of land and other natural resources. Nonfarm income and employment are important. Links with urban areas may be important but are dominated by links with agriculture.		
	Some cash from crops/animals, nonfarm income, and wage work	Subsistence farming, irregular nonfarm work, seasonal migration	Sub-subsistence agriculture, migration, reliance on local or public safety nets
Risks/vulnerability	Inequality, insecure access to land, irregular wage work and remittances, restricted markets/controlled prices	Periodic food deficits, insecurity of tenure, irregular remittances, thin markets, covariant risks	Seasonal/periodic agro climactic stress, constant food insecurity, major covariant risks
Social/environmental well being	Poor health/education status, nutrition levels variable, poor water and sanitation facilities	Significant ill-being related to poor diet, poor facilities, and seasonal malnutrition/malaria	High levels of mortality and morbidity linked to constant food shortages and no services
Demographics	In-migration, population growth, also higher incidence of HIV/AIDS	Cyclical migration, large household size	Dispersed populations, out-migration
Service provision	Services available but poor quality reduces willingness to pay; some movement to urban areas to get access to better services	Services often unavailable or transport inadequate; travel/time costs high; poor-quality services reduce willingness to pay	Very inadequate or nonexistent services because of distance and dispersed population; very low utilization
Infrastructure—social/economic	Paved roads/wells/marketing points available, but transport costs/user charges for poor households high		Missing infrastructure; communication and travel very difficult and costly
Local institutions	Local farmer/livestock groups operate as private safety net; church groups important for mobilizing labor and income for shared purposes	Communal labor gangs/drinking groups sometimes important for dealing with seasonality and helping with consumption smoothing	Often fragmented, nonfunctioning because of migration, shocks, and low population density
Voice/governance	More links to formal structures of power but vulnerable to abuses	Removed from formal structures of power/weak information	Negligible contact, very weak political empowerment

Source: Evans 2000.

Clearly, each group of rural households will have different types of access and mobility needs that must be accommodated by local development strategies. The location and natural resource endowments of the areas as well as household characteristics also will influence these strategies. Table 2.1 by Evans (2000) reveals that not all rural dwellers are necessarily farmers. Strategies for moving out of poverty will therefore differ from household to household and from region to region. Three pathways have been identified for such movements: (i) agricultural entrepreneurship; (ii) work in

the rural labor market and rural nonfarm economy; and (iii) migration to towns, cities, or other countries. Pathways are often complementary. Nonfarm income can provide a way out of poverty in conjunction with agricultural activity. Both can facilitate labor and migration pathways to higher incomes. Because of the considerable heterogeneity within the various income-generating activities, livelihood strategies in rural areas must accommodate the needs of diverse households with different degrees of farm versus nonfarm involvement and market involvement versus subsistence (Christiaensen and Demery 2007). Charting a pathway out of poverty requires supportive public policy on rural development and infrastructure that accommodates these different orientations (see box 2.2).

Box 2.2 Importance of public policy in maximizing likelihood of success that rural households will move out of poverty

In Tanzania, those most successful in moving out of poverty were farmers who diversified their farming activities by growing food crops for their own consumption and nontraditional cash crops (such as vegetables and fruit vanilla) as well as by raising livestock. The people who remained in poverty stuck to the more traditional farming systems. *In Uganda*, escaping from poverty was linked to improving the productivity of land and diversifying into commercial crops. The qualitative evidence for *Niger* indicates that shifts to more sustainable cultivation practices by small-scale farmers led to better soil conservation, higher incomes from agro forestry, and lower vulnerability.

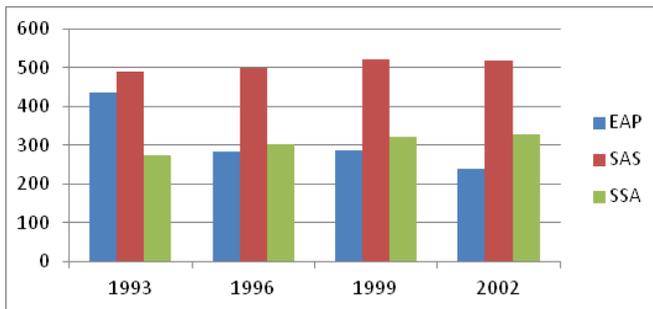
In Vietnam, liberalizing agricultural markets induced many subsistence farmers to become more market-oriented. Two-thirds of smallholders previously engaged primarily in subsistence farming entered the market. Their poverty rates then fell drastically, and their incomes almost doubled. Meanwhile, the production of high-value and industrial crops rose.

Source: World Bank, 2008b

DIMENSIONS OF RURAL POVERTY IN SSA AND THE ROLE OF LOCAL INFRASTRUCTURE

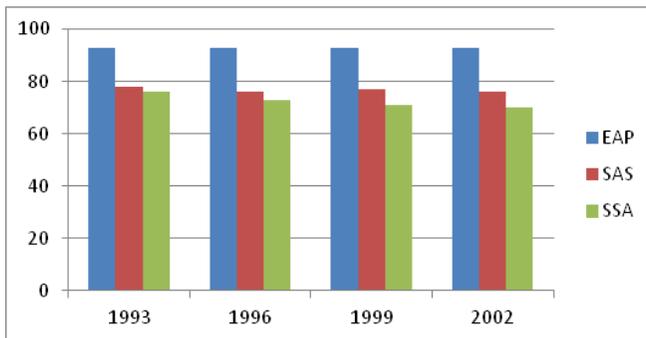
A recent study of rural poverty patterns by region, based on country household surveys, documented the continuing importance of rural poverty over time (Valdés et al. 2009). SSA had the most significant increase in total poor. Overall, poverty incidence remains stubbornly high in SSA, and the rural share remained nearly 70 percent in 2002, in part because of the high poverty rate and the large share of the total population that is rural (see figures 2.1a and 2.1b).

Figure 2.1a Total number of poor by region: 1993–2002*



* expressed in million

Figure 2.1b Share of rural poor in total, by region: 1993–2002*



*expressed in percent

Source: Valdés et al. 2009, table 3a (from Ravallion, Chen, and Sangraula 2007).

Note: EAP = East Asia and Pacific; SAS = South Asia; SSA = Sub-Saharan Africa.

Valdés et al. (2009) document current knowledge of rural household characteristics and assess different pathways out of poverty for rural households. This study relies on household survey data from 15 countries, along with demographic, health, and income information to analyze household-level determinants of income and productivity. Its main finding is that: “the lesson from experience and much of the rural development literature is that the income generating potential... depends crucially on access to assets, such as education, land, and infrastructure” (Valdés et al. 2009). The authors conclude that there is limited scope for medium-term improvements in rural household income from education and other human development policies, because these policies, despite their great importance, tend to increase productivity only over a long period. Instead, they observe, “in the medium term improving access to infrastructure appears to be among the most feasible and effective medium-term strate-

gies. Rural infrastructure improves both farmer access to markets and expands employment opportunities in the non-farm sector.... Investments in infrastructure—most notably rural roads—tend to have a large impact on poverty reduction, and there is evidence that they also enhance agricultural productivity.”

In their work on urban-rural inequalities, Dudwick et al. (2011) come to a similar conclusion: “The policy implication is that investments in human capital of poor people can help mitigate urban-rural disparities within regions, but that investments in connective infrastructure are more important for reducing inequalities between integrated and isolated regions. The investments in connective infrastructure facilitate the flow of goods and migrants between regions, which also stimulates the development of growth poles in urban areas of the more isolated regions.”

In summary, although many types of infrastructure constraints hinder rural growth and improvements in living standards, inadequate transport is—and has long been—considered particularly important in SSA (Valdes 2009; Platteau 2010; Torero and Chowdhury 2005; World Bank 2008b). According to *WDR 2008*, “Sub-Saharan Africa is massively disadvantaged in infrastructure, increasing transaction costs and market risks. In part due to low population densities, there are fewer and less developed roads in Sub-Saharan Africa than there were in Asia at the time of the green revolution. Sub-Saharan countries are small, many of them landlocked, and barriers to trade are relatively high because of high transport costs” (World Bank 2008b). These findings were confirmed by the results of the more recent African Infrastructure Diagnostic Survey, which found that Africa would need to invest about \$18 billion⁴ a year to cover its shortfall in road infrastructure capital expenditure and maintenance.

Rural transport and infrastructure are generally recognized as significant contributors to achievement of the MDGs. As the rural growth agenda has gained momentum, rural transport continues to be an important factor in advancing the MDG on poverty. Rural transport also plays a role in increasing access to education and health care services and in improving food security over the medium and long term. The latter is a challenge as population growth, environmental stress, and climate change converge to challenge food security, both globally and within the African continent.

⁴ All dollar amounts are U.S. dollars unless otherwise indicated.

AGRICULTURE AND RURAL TRANSPORT IN ECONOMY-WIDE GROWTH

Over the last decade, there has been considerable debate on the relative importance of different sectors in driving economy-wide growth, with some agricultural pessimists advocating relative neglect of agriculture because of its perceived low productivity. “Agriculture-first” advocates disagree, arguing that the high sectoral shares of agriculture in most SSA countries merit a priority focus. The truth, however, is that African agriculture is extremely heterogeneous both within and between countries. A more measured view is that “sustained increases in incomes and reductions in poverty are likely to require a combination of labor-intensive growth in both agricultural and nonagricultural activities” (Diao et al. 2005). The specific emphasis given to farm versus nonfarm activities will vary, depending on local resource potential and other factors that differ between countries and regions. Although the rural strategy in SSA elevates smallholder agriculture to the center of attention, rural transport and infrastructure planning supportive of this objective need to consider both farm and non-farm development, with the degree of emphasis depending on location and household circumstances.

One reason for the central role of rural transport in agriculture is that transport systems affect farm growth through their influence on the physical access that farmers have to markets, as well as the prices they face. Poor rural transport systems increase the costs of marketing to and from farm areas, inhibit product flows, limit the spread of information, and increase risk.⁵ These factors contribute to high and unstable spatial marketing margins and they lead to unremunerative producer prices and higher prices for purchased inputs.⁶ They also undermine farm profitability and ultimately investment and growth in an environment of weakly integrated and unstable agricultural markets. Agriculture also has a reciprocal effect on the viability of transport investments. The structure and performance of the farm sector and the volatility of ag-

⁵ Whether these conditions lead to market power—and whether such power is exerted broadly or locally, or is long-term or transitory—is a recurring issue in research and policy. Since liberalization began in the 1980s, many econometric studies of market structure and performance have been conducted, but evidence can be marshalled to support the conclusions of both competitive and uncompetitive markets. The most that can be said is that because rural areas and markets are diverse, generalizations are difficult and empirical assessments of specific local conditions are needed. Assessments must be combined with a clear operational definition of competitiveness and specification of the time and geographic area considered relevant.

⁶ The (spatial) marketing margin is the difference between a product’s price in separate selling and buying markets at a given point in time.

gricultural production and weather have a significant influence on the rate of return from rural transport investments.⁷ Thus, the economic viability of rural transport investments depends on the appropriateness of infrastructure investments to a given area's agricultural production and marketing systems and to the resource endowments and conditions (including weather and climate change) that affect investment viability. Moreover, as argued earlier, the returns on rural transport investments also depend on the characteristics of farm structure, including the types and amounts of production and marketing undertaken in a given area, and the associated transport and processing (vertical integration) requirements. Other factors are the degree of farm spatial concentration (affecting assembly requirements and costs); the value of marketed farm production; the size and commercial orientation of farms; and the extent to which farmer marketing groups exist and can achieve economies of scale in local markets, allowing assembly of larger loads with lower unit transport costs.

According to *World Development Report 2008*, as much as roads matter to economic development, *how much they matter* depends on other factors, including local resource endowments and agricultural potential. The report calls for multisector approaches to local agricultural development that are compatible with how local institutions work in practice and what they are capable of implementing. *These approaches may require fashioning a whole package of cross-sectoral investments (roads and complementary investments, policy and institutional changes) that can be effective in ensuring a higher impact, as well as poverty-reducing and equity-enhancing outcomes.* This all runs counter to the existing approaches to rural transport improvement that formulate and implement improvements within sector silos (whether agriculture or transport) with inadequate consideration of the tools needed to identify the strategic mix of investments noted in *WDR 2008* (World Bank 2008b).

CONCLUSIONS

From this brief review of the nature of poverty in rural areas, it is clear that rural households and sub national regions are diverse, and that different households and locations have different capacities for moving out of poverty. Their livelihood strategies reflect this finding. From a farming perspective, the focus is on smallholders, many of whom in SSA are women with specific mobility needs. The vast majority of farmers in SSA are smallholders, and an estimated 85 percent of them are farming less

⁷ Ongoing World Bank research on climate change appears to show that climate volatility affects the viability of transport investments through its effect on agriculture.

than 2 hectares. In countries as diverse as the Arabic Republic of Egypt, Bangladesh, Chile, and Malawi, 95 percent of farms are smaller than 2 hectares, and in many other countries the great majority of farms are less than 2 hectares. Enabling their access and mobility is therefore one of the more important ways to help these farmers move out of poverty.

3. Strategies for agricultural & rural development

Three successive strategies adopted by the World Bank from 1997 to 2009 have guided agricultural and rural development efforts: Vision to Action (1997), Reaching the Rural Poor (2003), and Implementing Agriculture for Development: World Bank Group Agriculture Action Plan: FY2010–2012 (2009a). Even more recently, African countries developed the Comprehensive Africa Agriculture Development Program (2009) as a common platform for agricultural development. These strategies have evolved in response to the lessons drawn from analysis of past interventions. These lessons include the limitations of top-down project approaches such as integrated rural development; recognition of the need for more private sector and civil society involvement in rural planning and investment; and the importance of strengthening governments' abilities to support the private provision of public goods. In addition, rural strategies have responded to new opportunities for sustainable investment with community-based approaches to local development. This chapter provides a brief review of these strategies and their implications for rural transport.

As depicted earlier, rural poverty has been an enduring concern over the past four decades. During the last decade, there was a greater emphasis on the importance of rural poverty reduction, rural income growth, and agricultural productivity. The concept of poverty has also broadened to include the non-income dimensions of living standards such as education, health, and governance. Within the transport sector, as described later in chapter 4, there have been calls for a shift in focus from the objective of providing rural road infrastructure to the broader goal of improving rural access and mobility. In this context, rural transport includes not just physical road infrastructure, but also the services and technologies that allow rural communities, including smallholder farmers, to be more mobile. Moreover, these rural transport activities should be carried out in such a way that they generate income and create employment. Although this broader concept requires a significant emphasis on community mobilization and local private and public service delivery, investment in a comprehensive national strategy is needed nonetheless in most circumstances to support local efforts. At a minimum, planners should strategically link agriculture, rural development, infrastructure, and other social and economic sectors to further rural growth and poverty reduction.

WORLD BANK'S RURAL STRATEGIES

The 1997 *Vision to Action* rural strategy marked a new beginning in thinking about rural development within the World Bank after years of disillusion with the integrated rural development (IRD) projects of the 1970s. The strategy responded to the disappointing rural growth performance in the 1980s and early 1990s, the rising food security and environmental concerns, and the policy and institutional landscape emerging from structural adjustment reforms. The *Vision to Action* strategy (World Bank 1997) was followed by two additional strategies outlined in *Reaching the Rural Poor* (World Bank 2003a) and *Implementing Agriculture for Development: World Bank Group Agriculture Action Plan: FY2010–2012* (2009a). These strategies are summarized in table 3.1.

Vision to Action identified three problems with IRD projects. The first was the command and control nature of such interventions, with basic needs decided from above by remote national ministries and multisector activities implemented locally by different sector ministries operating in parallel. The projects also achieved very little integration of different sector activities in rural areas at either the planning or the implementation level (Ruttan 1984). The second problem, related to the first but ultimately more problematic, was the difficulty in scaling up those IRD activities that had been successful in limited areas, reflecting a more general problem of sustainability. An influential review of IRD interventions diagnosed some of the reasons for these problems: “The success of many rural development pilot projects has been due to relative intensity in the use of human resources devoted to organization, management, and technical assistance. When attempts were made to generalize the pilot project as the model for a national or regional rural development program, the intensity of human resource input could not be sustained” (Ruttan 1984).

Table 3.1 Continuity and change in World Bank's rural strategies

<i>Vision to Action (1997)</i>	<i>Reaching the Rural Poor (2003a)</i>	<i>Agricultural Action Plan (2009a)</i>
Develop private sector in marketing, processing, input supply, and agribusiness; reduce government dominance; expand private sector role in rural service delivery and advisory services.	Foster an enabling environment for broad-based growth.	Raise agricultural productivity, including support for more widespread adoption of improved technology (e.g., seed varieties, livestock breeds), improved agricultural water management, tenure security and land markets, and strengthened agricultural innovation systems.
Create rural public expenditure programs. Large share of donor funds in gross domestic product (GDP) and large numbers of people in rural areas require greater coordination with a rural public expenditure program and in turn foster systemic change.	Enhance agricultural productivity and competitiveness.	Link farmers to markets and strengthen value addition, including continued support for the Doha Round, investments in transport infrastructure, stronger producer organizations, improved market information, and better access to finance.
Create Africa-wide programs to support agriculture. Strategy should increase commitment at country level via a country assistance strategy (CAS) based on well-defined rural strategies that treat agriculture and the total rural economy comprehensively; consensus building with government and collaboration with other donors; and improved project performance.	Foster nonfarm economic growth.	Reduce risk and vulnerability including continued support for social safety nets, better management of national food imports, innovative insurance products, protection against catastrophic loss, and reduced risk of outbreaks of major livestock diseases.
Increase commitment at the country level via a CAS based on well-defined rural strategies that treat agriculture and the total rural economy comprehensively; consensus building with government and collaboration with other donors; and improved project performance.	Improve social well-being, manage risk, and reduce vulnerability.	Facilitate agricultural entry, exit, and rural nonfarm income, including improved rural investment climates and upgraded skills.
Place strong emphasis on natural resource management (NRM) and land issues.	Enhance the sustainability of natural resources.	Enhance environmental services and sustainability, including better-managed livestock intensification; improved rangeland, watershed, forestry, and fisheries management; and support to link improved agricultural practices to carbon markets (e.g., through soil carbon sequestration).

Source: World Bank 1997; World Bank 2003a and World Bank 2009a

The third problem, which ultimately affected not only IRD projects but also projects in all sectors, was the macroeconomic and sector policy environment. Import substi-

tution policies had supported infant industries and a rapid shift to industry away from sectors such as agriculture that were deemed unproductive. Various reports document well the effects of these policies. They tilted incentives away from the production of tradable goods, starved economies of foreign exchange, and suppressed private markets. By the mid-1980s, goods rationing and black/informal markets were commonplace, growth had come to a halt, and Sub-Saharan Africa's basic food security was again in question, just as in the mid-1970s (Little, Scitovsky and Scott 1970; Berg 1981).

In addition to its criticism of top-down IRD projects, *Vision to Action* outlined the limitations of other rural project interventions, focusing on four: (i) directed credit schemes that missed intended beneficiaries and hindered development of private financial services; (ii) resettlement schemes designed from the top down that proved costly and ineffective; (iii) large-scale irrigation schemes that were unprofitable and environmentally damaging; and (iv) government-run agricultural marketing, processing, storage, and input supply activities that drained government budgets and marginalized the private sector.

In an atmosphere of falling donor support for the sector and declining world commodity prices, *Vision to Action* sought to counter the view that agriculture was a static and inherently uncompetitive activity. However, it went beyond justifications for agriculture's importance by identifying past operational challenges and likely solutions, as well as four major reasons for poor rural project performance:

1. The rural poor had little voice in the design or implementation of the past schemes affecting them, which reduced project quality and sustainability. New community-based pilot schemes showed promise in addressing this problem.
2. Rural areas were typically bypassed in public expenditure allocations, in part because of their weak political influence. It was felt this situation could change in the future as rural people spoke with a greater voice and had a greater input in the public expenditure process. The increased emphasis on decentralized policies by governments facilitated this approach.
3. The capacity of local rural institutions to implement agricultural and rural development schemes had fallen from their already low levels. However, pilot rural community-driven development (CDD) schemes showed some promise of reversing this course.

4. The design and execution of some past donor projects were generally poor, requiring a concerted effort to improve the quality of World Bank operations and increase stakeholder participation.

Vision to Action emphasized that a rural strategy needed to extend beyond the immediate goal of increased food production to the broader goals of poverty reduction, economic growth, and reversal of natural resource degradation. This broader perspective was a feature of all subsequent strategies, which called for coordinated interventions from multiple sectors. This perspective also stressed the need to intensify long-standing donor efforts to improve the generation and dissemination of agricultural technology. Improved agricultural technology was essential for rural growth, as were government institutions at the national and local levels better able to support the private provision of complementary rural public goods, including physical infrastructure. As donor assistance shifted away from area-based project approaches to more programmatic support, the public expenditure process could be used to address these issues. The specific priority areas of *Vision to Action* reflected these concerns.

Another contribution of *Vision to Action* was its recognition that community-based rural development directly addressed many of the problems experienced with IRD projects. It however highlighted the need for further piloting and scale-up. The institutional environment for sustainability and scale-up was improving with the advance of decentralization policies in African countries. A 2002 survey of decentralization in SSA concluded that decentralization policies were widespread and increasing, with about half of the 30 countries analyzed having high or moderate levels of overall decentralization. Francophone countries were the least decentralized (Ndegwa 2002).

RENEWED FOCUS ON RURAL POOR

Meanwhile, within the World Bank an influential study was giving impetus to poverty reduction efforts in rural areas. The *Voices of the Poor* report (World Bank 2000) not only increased awareness of the need to confront poverty more effectively, but also highlighted the dimensions of poverty in rural areas. It reinforced the idea emerging from the experience of community development projects that consultation with poor people and their collaboration in project design and implementation were essential to reduce poverty.

In 2003 the World Bank prepared a rural strategy that revised and built on its *Vision to Action* report. *Reaching the Rural Poor: A Renewed Strategy for Rural Development* (World Bank 2003a) sought to refine *Vision to Action* in light of the MDG targets

adopted to address the reasons for weak implementation of *Vision to Action* and the continued decline in World Bank support of agriculture. The overall objective of *Reaching the Rural Poor* was to “pursue more vigorously, the goals of poverty and hunger reduction (MDG1), sustainability and global market access for agricultural products, and environmental management (MDG7), and donor coordination/harmonization (MDG8).” *Reaching the Rural Poor* was prepared through extensive country consultations, a new approach. It supported *Vision to Action*’s multisector focus on rural development, but sought to accelerate efforts to integrate rural concerns into the Bank’s country assistance strategies and national PRSPs and to increase stakeholder outreach and engagement of rural people. In addition, some emerging issues had to be addressed: (i) the spread of new information and communication technology, globalization, and risk; (ii) new biotechnologies; and (iii) global warming. Although rural lending continued its decline, the quality of lending was increasing, and it was felt that this result provided a basis for future expansion.

A 2007 assessment of *Reaching the Rural Poor* noted that the focus of countries on rural development had increased between 2003 and 2006, with 54 countries devising national rural development strategies (World Bank 2007a). This outcome increased the visibility of rural issues in poverty reduction strategy papers and the Bank’s country assistance strategies and provided a stronger foundation for multisector approaches to rural development. By 2006, 17 countries had developed such strategies.⁸

The newly prepared national rural development strategies resulted in PRSPs and country assistance strategies that better reflected rural development priorities. Indeed, significant progress had taken place: “Country programs have begun upgrading their rural commitments to health, education, and infrastructure.” Nonetheless, gaps remained, and an internal assessment concluded that the objective of broad-based rural growth was still not receiving adequate attention: “There is less evidence of renewed commitment at the country level to improving rural incomes, another pillar of the strategy” (World Bank 2007a).

⁸ Typically, the World Bank supported preparation of the strategies through analyses of rural poverty and agricultural growth in individual countries (World Bank 2007a). The 17 countries are Angola, Benin, Cameroon, Democratic Republic of Congo, Ethiopia, Lesotho, Madagascar, Mozambique, Niger, Nigeria, Sierra Leone, Tanzania, Togo, Uganda, Republic of Congo, Zambia, and Zimbabwe.

Although this report does not review the rural development focus of PRSPs and country assistance strategies, it is noted that agricultural productivity has regained visibility under the Comprehensive Africa Agriculture Development Program (CAADP). The program's Pillar 2 is notable for explicitly linking rural infrastructure to agricultural marketing and productivity. As each country develops investment programs under CAADP, this pillar is expected to provide an important entry point for mainstreaming infrastructure activity into agricultural and rural strategies.

INFLUENCE OF DIVERSE INSTITUTIONS AND STAKEHOLDERS

A central lesson of the last 15 years is that the inclusion of and support for diverse local institutions and stakeholders in agricultural planning and implementation heavily affect project and sector outcomes (see box 3.1). A convincing argument was that the institutional environment for rural development and agriculture has been the single most important factor affecting performance in underperforming countries (Binswanger 2006).

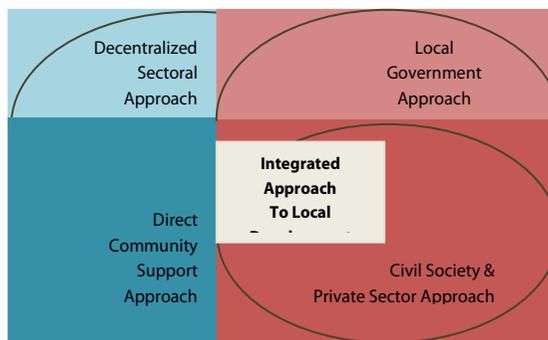
Box 3.1 Importance of local development and institutions

Local development is a core component of rural development, although the latter has components that could also be nonlocal such as transport, processing, and marketing activities. No institution by itself can carry the burden of local development. Instead, the paradigm that has emerged gives equal weight to the private sector, communities and civil society, local government, and sector institutions such as those in health, education, and agriculture (World Bank 2004). This is a considerable departure from the past when different disciplines and sectors single-mindedly advocated approaches involving only one of the four sets of actors. A broad consensus is to view local development (and therefore rural development) as a co-production by all four groups of actors. They need to take into account their comparative advantage, delegate functions to the other partners in co-production, and reform themselves to be able to function under this new paradigm. Figure 3.1 illustrates this emerging consensus.

Source: Binswanger 2006.

Binswanger (2006) observes that while “four types of institutions need to be taken into account in every agriculture sector and project scheme, the emphasis on a given type of institution, and the specific support provided, will vary by country.” The typology of institutions is (i) national sector institutions; (ii) local government; (iii) rural communities, and private sector; and (iv) civil society bodies. However, “only country-specific analysis can reveal where the greatest weaknesses are and the best opportunities for improvements in the institutional environment. There are simply no universally applicable generalizations or magic bullets.”

Figure 3.1 An integrated approach to local development



Source: Bingswanger 2006.

COMPREHENSIVE AFRICA AGRICULTURAL DEVELOPMENT PROGRAM (CAADP)

Finally, as mentioned earlier in this chapter, the World Bank’s *Agriculture Action Plan* placed greater importance on Africa-centered rural strategies as developed under CAADP. CAADP is a common framework for agricultural development and growth for African countries based on the principle of agriculture-led growth as a means of achieving the MDG of poverty reduction. It also includes exploitation of regional complementarities and cooperation to boost growth; promotes partnerships and alliances to include farmers, agribusiness, and civil society communities; and adheres to implementation principles that assign roles and responsibilities for program implementation to individual countries, coordination to designated regional economic communities (RECs), and facilitation to NEPAD. CAADP’s targets are ambitious and include the pursuit of 6 percent average annual agricultural growth at the national level, and allocation of 10 percent of national budgets to the agriculture sector. The World Bank and other donors have supported CAADP directly through an ongoing umbrella operation that will fund specific country programs and thematic pillars.

CAADP’s Pillar 2 places significant emphasis on infrastructure as a means of increasing smallholder commercialization and market access— infrastructure includes physical infrastructure for transport, storage, and processing, as well as “soft” infrastructure for market institutions—. The CAADP Pillar 2 document is specific about the need to emphasize a wide range of sector and subsector activities that underpin market development and trade:

In addition to the physical elements, agricultural infrastructure includes a wide range of public services that facilitate production and trade. The following types of infrastruc-

ture are distinguished: (a) Transport infrastructure that includes major roads linking production zones to centers of consumption, rural roads, and tracks and trails, and regional transport corridors and cross-border transit points; (b) Irrigation infrastructure; (c) Electricity (interconnected and isolated); (d) Ports and airports; (e) Telecommunications (telephone and rural cabins); and (f) Post-harvest infrastructure such as processing, sorting, grading, assembly, and marketing infrastructure, including commodity exchanges. (CAADP 2009).

Countries in SSA are in the process of aligning with CAADP through a country roundtable process. Most countries have national agricultural strategies linked to, or subsumed under, national rural development strategies. Nonetheless, although these strategies often note the importance of rural infrastructure for growth, they pay limited attention to the contribution of infrastructure to agricultural development, or the need for strategic interministerial coordination of agricultural strategies. In 2002 Nobel Laureate Norman Borlaug made this point quite aptly (see box 3.2).

Box 3.2 Norman Borlaug on the role of transport infrastructure in Africa's development

Efficient transport is the life-blood of economic modernization. It is essential to improve agricultural productivity and enable farmers to bring their products to markets. Intensive agricultural production is especially dependent upon access to vehicles at affordable prices. Unfortunately, most agricultural production in Africa still is generated along a vast network of footpaths, tracks, community roads, where the most common mode of transport is the legs, heads and backs of women. Indeed, the largest part of a household's time expenditure is for domestic transport. This situation places farmers in a double cost/price squeeze—between high farm-gate costs for inputs and low farm-gate costs for output. Finding ways to provide effective and efficient infrastructure (roads, potable water and electricity) in SSA, underpins all other efforts to reduce poverty, improve health and education, and secure peace and prosperity.

Source: Borlaug and Dowswell 2002

Thus, those at the highest policy levels recognize that transport and agriculture sector activities are mutually reinforcing and require close coordination for the maximum growth effect. However, it appears that this realization has not yet filtered down to practice by national-level policy agencies and ministries, and perhaps even to the level of the international financial institutions (IFIs). An important step would be to go beyond general statements about the need for intersector coordination to a more concrete assessment of where, when, and how transport sector activities can best facilitate growth. One of the first steps in this direction is to identify expected agricultural growth patterns for national and local transport.

IMPLICATIONS OF AGRICULTURAL GROWTH PATTERNS FOR NATIONAL & LOCAL TRANSPORT

The 2009 FAO and World Bank Africa Agriculture and Rural Sector flagship study *Awakening Africa's Sleeping Giant: Prospects for Commercial Agriculture in the Guinea Savannah Zone and Beyond* assesses prospects for growth and commercialization in African agriculture based on a well-grounded empirical assessment of the competitiveness of six major crops. The study is consistent with and supports CAADP's four-pronged approach to agricultural development, and builds on the findings of World

Development Report 2008: Agriculture for Development (World Bank 2008b). It is based on an analysis of agricultural growth prospects and competitiveness in the Guinea Savannah Zone, a vast agro climatic zone stretching from Senegal through West, Central, and East Africa, and down to South Africa's east coast (FAO and World Bank 2009). The study does not have an explicit transport emphasis; it focuses on assessment of agricultural competitiveness. However, the analysis has important implications for rural infrastructure and transport investment planning. A summary of its key findings and recommendations is presented in box 3.3. It provides a springboard for development of policy and strategy that more effectively links agriculture with rural transport in the service of rural growth and poverty reduction.

Box 3.3 Findings and recommendations from the study *Africa's Sleeping Giant*

Smallholders are generally competitive with larger farms in the production of a range of agricultural products. This finding further reinforces the need for a greater emphasis on the lower level of the transport network and the subsistence to commercialization growth process.

Competitiveness is strongest for staple food crop and livestock products. Although these products are often dismissed in policy debates as noncommercial food items with little growth potential, in fact local demand is growing, and markets are active for these products domestically and often regionally via cross-border trade. They make up such a large portion of most countries' agricultural GDP that acceleration of sector growth is impossible if they are ignored.

The experience of northeastern Thailand and Brazil's Cerrado region reveals that increasing the competitiveness in staple food production and marketing—rain-fed as well as irrigated products, livestock as well as crops—can provide a platform for sector growth, impelling farmers to move up the marketing chain to higher-value processed forms and to diversify into new and more remunerative products.

The products of African smallholders are the most competitive in domestic markets, where significant growth potential can be found in the burgeoning—typically urban—demand. In many cases, growth opportunities are even greater than rising urban populations and incomes would suggest, because a large part of urban demand is usually served by imports. Domestic production can displace these as it becomes more competitive, adding to sector growth. Expansion into regional markets, usually involving cross-border trade to neighboring countries, is the next step, providing significant short- and medium-term opportunities for growth.

Expansion into international markets is an important goal, but it takes longer and is unlikely to occur before the first two steps—increased production for domestic and then regional markets—take place.

Source: FAO and World Bank 2009

One of the key findings of the study is that rural transport investments need to focus on the lower end of the rural road network—community roads, paths, and trails—in order to meet the rural access and mobility needs of smallholder farmers. Agricultural growth is a technology-driven process, and improved rural transport is one element of the strategy to improve the provision of technical advice, information, and physical inputs to farmers through both private and public sector channels. Well-designed rural transport interventions, in addition to contributing to growth, also contribute to food security, efforts to cope with drought and food emergencies, and gender equity. They also reinforce and build on efforts to establish strong, transparent, accountable local institutions that empower farm households and their communities.

A ROLE FOR A RIGHTS-BASED APPROACH

The role of isolation in creating and sustaining poverty, particularly in rural areas, highlights the possibility of considering rural transport as a human right. This approach is captured in the recommendations of a collaborative report by the Danish Institute for International Studies and the Social Development Department of the World Bank that analyzes donor support to local governance (Friis-Hansen and Kyed 2009). The report focuses on the potential benefits of (human) rights-based approaches to facilitating decentralization and community participatory programs. The four principles of rights-based approaches—participation, nondiscrimination, accountability, and transparency—provide the framework on which selected donors and NGOs base their support for rural development, including rural transport facilities. The report describes the theoretical and practical synergies among the three intervention models currently applied to local governance in developing countries: (i) democratic decentralization or devolution; (ii) community participation; and (iii) (human) rights-based approaches. The report then highlights the possibilities and challenges of an “integrated approach” to local governance, combining the strengths of each of the three models using examples from Ghana, Malawi, Nepal, and Nicaragua to demonstrate how synergies can be achieved. The report cites four immediate objectives of the 2004 Transport Sector Adjustment Program (*Programme d’Ajustement Sectoriel des Transports*, PAST) of the Danish International Development Agency (DANIDA) to demonstrate the evolving synergies in integration of decentralization, community participation, rights, and development opportunities (see box 3.4). The rights-based approach is particularly relevant when considering the access and mobility needs of people in remote rural areas or the provision of first-level basic access needs (see chapter 4 for a description of this concept) where the existing appraisal tools may have limitations. This said, issues of sustainability and affordability must be given due attention.

Box 3.4 Objectives of the second phase of the PAST Program

The four immediate objectives reflect the combination of rights, decentralization, and community participation, as well as those factors encompassed by the overall development objective of poverty reduction among isolated rural populations. The four objectives are as follows:

1. Improve access in three regions by connecting rural areas with difficult access to social services and economic and administrative centers.
2. Ensure sustainable maintenance of the improved transport infrastructure, sharing responsibilities at the community and municipal levels.
3. Strengthen the capacities of the regional transport councils, as well as those of the local and regional governments, for planning, defining priorities, negotiating, and maintaining the transport infrastructure in order to gradually undertake PAST activities.
4. Establish and implement strategies on the crosscutting issues of gender equality, environmental protection, and the rights and needs of indigenous people and ethnic groups.

Source: Friis-Hansen and Kyed 2009.

AGRICULTURE ACTION PLAN AND RURAL TRANSPORT

In 2009, the World Bank's *Agriculture Action Plan* (AAP) provided a platform to act on the recommendations of its *World Development Report 2008: Agriculture for Development*, (World Bank 2008b) and to respond to challenges raised by the hikes in food prices and the financial system volatility. It noted additional gains in project quality, while adding that not just project performance but also sector performance had improved during the 2000s:

Thanks to reduced conflict, greater macroeconomic stability, and lower taxation, the enabling environment for agriculture in Sub-Saharan Africa has improved considerably leading to a growth response. Annual agricultural production (GDP) increased from 2.3 percent in 1980–89 to 4.5 percent in 2003–2007. With progress on policy reform, future growth will need to rely more on agricultural productivity gains (World Bank 2009a).

The AAP places higher agricultural productivity at the center of the rural agenda, particularly for African *smallholders*, building on the strategic insights of the 2008 World Development Report and the *Sleeping Giant* study. Assessment of the Africa component of the plan reveals important direct and indirect linkages to rural transport for different AAP pillars. In some cases, the AAP is explicit; in others, it merely lists factors to consider.

Table 3.2 Implications of the current three-year agriculture action plan for transport

<i>Agricultural Action Plan (World Bank 2009a)</i>	<i>Contribution of rural transport to the AAP</i>
<p><i>Raise agricultural productivity</i>, including support of the wider adoption of improved technology (e.g., seed varieties, livestock breeds); improved agricultural water management, tenure security, and land markets; and stronger agricultural innovation systems.</p>	<p>Input markets and technology dissemination and adoption Technology dissemination via private input markets and diverse rural advisory services depends in part on adequate rural accessibility. Farm household labor constraints can be reduced with labor-saving transport, including intermediate means of transport (IMT). The labor saved—often of women—can free resources for technology adoption or attention to the household such as childcare. In addition, the attractiveness of specific agricultural technologies such as carts and donkeys/oxen can be improved by recognizing their value as a means of transport in addition to the direct economic benefits they provide.</p>
<p><i>Link farmers to markets and strengthen value addition</i>, including continued support for the Doha Round, investments in transport infrastructure, stronger producer organizations, better market information, and access to finance.</p>	<p>Output market development The AAP notes that the development of agricultural product markets and farmers' integration into them requires better rural roads, along with other types of rural physical infrastructure such as storage, energy, ICT, and physical markets. In other words, an agricultural marketing strategy must be able to prioritize infrastructure needs and their contribution to market development. In addition to rural roads, tracks and paths are important, and competitive transport markets and services—not just physical roads—are essential as recent transport sector studies in SSA have shown. All these will help increase marketing system performance and promote faster growth. The AAP notes the particular importance of rural infrastructure investments that link areas of high agricultural potential to markets. It is noted that implementation of the <i>World Bank Group Sustainable Infrastructure Action Plan: FY 2009–2011</i> (So et al. 2008) and support through the Infrastructure Recovery and Assets Platform can speed support to this area—specifically, implementation of the transport business strategy.</p>
<p><i>Reduce risk and vulnerability</i>, including continued support for social safety nets and for better management of national food imports, innovative insurance products, protection against catastrophic loss, and reduced risk of outbreaks of major livestock diseases.</p>	<p>Recent sector studies in Africa have also underscored the importance of improvements in the transport infrastructure—both interregional and local—in order to reduce volatility in the market for staple foods. These studies have served as a foundation for further sector work proposed under the AAP. The work is expected to (1) document the extent of grain price volatility, including the extent of volatility convergence across commodity markets; (2) analyze the drivers of volatility change, including the relative importance of biofuels, commodity index funds, trade policy, weather shocks, and grain stocks; and (3) identify policy options at the global and national levels to reduce shocks and negative impacts.</p>

Facilitate agricultural entry, exit, and rural nonfarm income, including improved rural investment climates and upgraded skills.

Rural investment climate studies, recent agriculture studies and rural development sector studies have demonstrated the importance of transport improvements to rural diversification and nonfarm productivity. Completed rural investment climate assessments (RICAs) indicate that most businesses buy and sell locally, relying almost exclusively on local demand and the local business environment. They offer insights into how to better geographically target infrastructure investments to maximize rural employment growth. To complement this effort, the World Bank is now piloting in 12 Sub-Saharan African countries a set of indicators that track the cost of doing business in agriculture.

The World Bank Group will invest in densely populated lagging areas to support mobility, complementing infrastructure investment with incentives for enterprises to locate in these lagging areas/states to stimulate rural employment, as suggested by *World Development Report 2009: Reshaping Economic Geography* (World Bank 2009b). These actions will link with implementation of the *World Bank Group Sustainable Infrastructure Action Plan*.

CONCLUSIONS

The review in this chapter has largely centered on the renewed focus on the rural poor by the World Bank. It has also documented shifts in approach and methodology over the last three decades. These include the following: (i) a shift away from policy-based lending (structural adjustment and macro policy reforms) toward sector investment and program support; (ii) a shift from a planning and implementation focus toward one in which local bodies operate within a decentralizing system of government administration; (iii) a shift toward locally owned participatory approaches to local development that not only improves local ownership and sustainability but also help to ensure inclusion of the poor in local planning and implementation processes; (iv) a shift toward greater use of multisector approaches to project planning and implementation; and (v) a shift toward a focus on the commercial potential of key smallholder farmers and their central role in improving Africa's agricultural productivity. Within this development framework, the expectation is that adequately funded and appropriately scaled up development efforts will be more successful than in the past in stimulating growth and reducing poverty if these efforts are funded adequately and appropriately scaled up. The role of infrastructure, including rural transport, in these efforts is recognized consistently, as is the need for greater coordination between these efforts and those of agriculture as well as other social and economic sectors.

4. Searching for an appropriate analytical framework for understanding rural transport

From the preceding chapters, it is clear that rural transport is essential to achieving rural growth and poverty reduction. However, the cost-effectiveness of such an effort will depend on rural transport being supportive of efforts aimed at poverty reduction by other sectors such as agriculture and rural development, including social development. This chapter takes stock of the knowledge gained through research and practice to establish the theory and understanding of the nature of rural transport and their consistency with the paradigms and approaches developed for its planning and provision.

INTRODUCTION

In 1991, the network of rural roads in Sub-Saharan Africa consisted of some 700,000 kilometers, about half of which were in poor condition. Over the previous 25 years, the World Bank, as one of the major external financiers⁹ of rural roads in SSA, provided \$1.7 billion (in constant 1988 U.S. dollars) in support of 127 projects to construct, rehabilitate, or maintain over 160,000 kilometers of rural roads in SSA countries. Governments in SSA have likewise made considerable investments in improving their overall road networks, including rural roads. In 1995 Heggie (1995) reported an estimated 940,000 kilometers of designated rural roads in SSA (besides undesignated rural roads)¹⁰ which could boost the total road length to about 2 million kilometers. The replacement value of the designated rural roads was estimated at about \$48 billion, or one-third that of the total designated roads. A further breakdown of the network of rural roads has been generally difficult to obtain just from projects records

⁹ Other external financiers and partners are the African Development Bank (AfDB), European Union (EU), International Fund for Agricultural Development (IFAD), FAO, and the International Labour Organization (ILO), and bilateral donors such the Department for International Development (DFID, U.K.), Norwegian Agency for International Development (NORAD), Swiss Agency for Development and Cooperation (SDC), Swedish International Development Agency (SIDA), and Danish International Development Agency.

¹⁰ Undesignated means roads that are not classified into any functional group nor recorded in the national gazette.

alone. The available evidence indicates a greater focus on the higher end of the national road transport network.

The 1988 World Bank policy study “Road Deterioration in Developing Countries: Causes and Remedies” (World Bank 1988) assessed 85 countries receiving Bank assistance in the highway sector. It outlined the seriousness of the continuing deterioration of the road networks in various countries following the rapid expansion in the 1970s and 1980s. The analysis extended its focus on African roads in 1988–89. Based on that study, key messages highlighting the critical importance of road maintenance—its execution, management, and financing—were showcased at the launching of SSATP’s Road Maintenance Initiative in 1989 at six stakeholder workshops in Sub-Saharan Africa. Since then, various conferences of African transport ministers have endorsed policy actions aimed at improving road maintenance in general through institutional reform. These actions have included setting up dedicated road funds, which have allocated resources to cover some of the needs of rural roads, albeit insufficient for the total needs. Despite these efforts since the 1980s to address the road maintenance and rehabilitation backlog in SSA, a continuous cycle of investment in improving the core network of rural roads still seems to be required. Indeed, the needs remain high, especially at the lower end of the rural road network connecting to communities, which must be expanded in order to improve the access and mobility for rural dwellers and contribute to their well-being. In addition, because of the high value of the network as noted earlier, effective management and financing of the added network are important, preferably under decentralized institutions (Robinson and Stiedl 2001).

This chapter presents the results of a review of the information available on the nature of rural transport and the evolution of ideas on how to plan for it. In the sections that follow, this review of various research and policy support activities sheds light on the nature of rural transport and shifts in paradigms for planning and addressing the transport needs of rural populations as knowledge has increased.

THE NATURE OF RURAL TRANSPORT

Rural transport encompasses the infrastructure and transport services required to provide access for rural dwellers and ensure their mobility in reaching both economic and social services. Box 4.1 presents definitions of the terms associated with understanding the nature of rural transport. However, it is important to note that in addressing rural transport needs within the transport sector, two aspects stand out: infrastructure and transport services and the systems to improve access.

Box 4.1 Rural transport and its essential elements

Rural transport comprises transport infrastructure—that is, rural roads, bridges and their associated drainage, tracks, trails, paths, watercourse structures, and footbridges, as well as rural waterways and their transfer facilities. The most dominant rural transport infrastructure is the *rural road but in some countries railways and inland waterways can be important*. It is essential to differentiate between roads passing through rural areas (including roads typically classified as *trunk or primary, secondary, or link roads*) and those within rural areas and serving the needs of rural communities and people.

Rural roads are roads functionally classified in various countries as below trunk or primary, secondary, or link roads, and sometimes, tertiary roads. Such roads are often described as *rural access, feeder, market, agricultural, irrigation, forestry, or community roads*. Typically, such roads connect various settlements of less than 2,000–5,000 inhabitants to each other and to higher classes of road and higher-populated settlements. Responsibility for provision and maintenance usually falls to the central or local government, or the communities themselves.

Rural transport also includes **travel** for: (i) domestic and household activities; (ii) the movements of farm or cottage industries to markets; and (iii) access to social amenities at the village, community, and the nearest district service centers. Trip distances within rural areas typically range from 1 to 20 kilometers—distances critical for rural well-being and sustainable livelihood.

Rural access is the connection in time and distance between rural settlements, services, and markets in order to improve the livelihood and economic well-being of the rural population. Both transport and non-transport interventions can improve access, which leads to improved *mobility and accessibility*.

Mobility is the ability of people to transport themselves and their goods, and to reach economic and social services. Mobility is made possible by the transport means available—both motorized and non-motorized. Individuals and private entities typically own and operate these means of transport. However, in most rural areas of SSA, rural transport is mainly by foot.

Rural accessibility is the degree of ease or difficulty rural people or communities encounter in accessing locations for satisfying their basic social and economic needs such as food production, water collection, firewood collection, education, primary health care, trading, and transport.

Rural transport infrastructure (RTI) is often provided in the form of: (i) motorable road infrastructure facilities (and sometimes rail) that pass through rural areas. The former usually benefit communities, villages, or towns located on or near them. These roads (usually classified as trunk/primary, secondary, and sometimes tertiary) form a part of the national and regional networks linking major urban centers and internal and external markets. The standards of construction tend to be high, and so the networks include paved roads with bituminous surfaces or gravel roads engineered to high standards; and (ii) those roads that link rural communities (usually through a local area road network) or connect them to higher classes of roads such as (i) above so that residents of rural communities can reach urban and regional centers and markets. This latter network of roads includes roads classified as feeder or rural roads as well as a large network of community access transport infrastructure (such as paths, tracks, donkey trails, and footbridges) that is often unclassified. Such infrastructure facilitates efforts to reduce the isolation of many rural dwellers. This section of the network often services the day-to-day basic access and mobility needs of rural dwellers, particularly small rural farmers and households.

FINDINGS OF RURAL TRANSPORT RESEARCH AND EVALUATION STUDIES

Since 1965, rural transport research and evaluation studies have essentially been a search for a paradigm appropriate for planning rural transport in a way that makes it effective in supporting rural development efforts. Driving this search has been a tension between the need to connect rural areas to urban centers and the need to ensure access within rural areas. Unfortunately, meeting the needs of the former continues to dominate the process. As a result, the approach to improving rural transport focuses on infrastructure investment for conventional motorized vehicles. This is similar to the approach to improving trunk and secondary roads; such investments are viewed as both the catalyst for economic and social change and the prime means of enhancing accessibility and personal mobility, with vehicle supply left to the private sector. Within this orthodoxy, the inadequacies of rural transport are perceived to be: (i) the unnecessarily high design standards applied to improvements in the rural transport infrastructure and the resulting slow and uncertain rate of network expansion; (ii) the high cost and no availability of motorized transport services to the majority of rural dwellers; and (iii) the neglect of effective policies for the development of the local transport system (Howe 1995). To enhance the relevance of efforts to improve this type of transport and respond to the growing unemployment and related poverty

problems in developing countries¹¹, donors and governments, in an emerging consensus, gave primacy to poverty reduction in the development agenda and developed labor-based road works methods (World Bank 1983).¹²

The notion of developing low-cost vehicles to meet the special transport needs of developing countries entered the general transport debate in 1976 in the immediate aftermath of the first oil-induced energy crisis.¹³ Although the notion of low-cost vehicles received attention at times in the years that followed (Bryceson and Howe 1993; Riverson and Carapetis 1991) and then under the SSATP, the need still exists to establish international or national investment policies designed to facilitate the production and distribution of such transport. The change in focus from the *road* to the *vehicle* broadened the discussion about the nature of rural transport, shifting attention away from the provision of infrastructure and toward its utilization. This shift led in turn to a search for ways to reduce the cost of providing conventional motorized transport, which ultimately led to experimentation with alternative means of transport (Hathway 1985) and research aimed at observing how people traveled in rural areas. This shift was predicated on the notion that the existing planning processes were too focused on the transport system per se than on the needs of the people who wished to use it, thereby producing a fundamental misunderstanding of the real nature of the movement needs of the majority of the rural population.

Simultaneously, a broader view of the characteristics of users' travel demands began to emerge in the 1970s from a number of sources. Among the first were the work on bullock cart users in India by Tripathy (1972) and later as reported by (Ramaswamy and Narasimhan. 1984); the studies of the small farm sector by the Overseas Development Group (ODG), University of East Anglia, in Bangladesh (Government of Bangladesh 1977) and Nepal (Blaikie et al. 1977); and a specially commissioned study of small farm transport needs and constraints in Kenya financed by the World Bank (1977b). By giving prominence to the smaller scale of most small farmers' transport needs in Bangladesh and Nepal, the work of the ODG raised serious doubts about the benefits that impoverished peasant societies were likely to receive from investments

¹¹ See box 5.1 on the beginning of 1973 World Bank labor substitution studies to promote labor-based roadwork methods.

¹² Most of the research documented in this volume is from the multidonor-funded Study of Labor and Capital Substitution in Civil Construction managed by the World Bank.

¹³ This topic first came up at two conferences in 1976. However, the first effort to introduce new types of non-motorized transport in Africa with community involvement and within a transport project with international funding did not emerge until 1988 under a World Bank-funded road project in Ghana.

on conventional road and motor vehicles. These doubts then raised questions about the whole basis for the rural transport development policies then being implemented in those countries.

From these findings (see table 4.1), it was evident that most of the transport needs of farmers were to move small loads (less than 80 kilograms) over relatively short distances (1–10 kilometers). For transport directly related to farming, the range of loads was likely to be the same, but the typical distances were shorter. Rarely were motorized transport services available, affordable, or even necessary for such demands. Another conclusion from other studies was the high cost of head loading (about \$2–3 equivalent per ton-kilometer), which is needed in the absence of road access and non-motorized transport (NMT) vehicles (Pankaj 1991).¹⁴

The findings from these studies and others discussed shortly questioned whether improvements to rural roads that pass through rural areas were in fact a valid approach to the provision of rural transport for the majority of rural dwellers, particularly in low-income areas. However, because this research did not produce a well-founded alternative method of quantifying rural travel demands, it did not affect practice in the transport sector. Nor did it affect practice in the agricultural and rural development sector, which categorized transport as farm and on-farm and thus ignored non-farm households and differences between individual household members.

¹⁴ *This is again a lesson largely ignored.* Although the literature on economic appraisal techniques discusses extensively the issue of benefit distribution, operational applications have been restricted by ideological considerations (Howe and Richards 1984).

Table 4.1 Length and loads of movements of rural goods by small farmers in selected countries

	Kenya	Malaysia	India	Bangladesh	Western Samoa	Korea, Rep.
Typical distance of transport	90% of trips < 7 km	75% of trips < 7 km	90% of trips < 5 km	Most trips < 12 km	Most trips < 5 km	Most trips < 10 km
Average on-farm distance	0.8 km	1 km	1.5 km			
Average off-farm distance		10 km	8.3 km			
Loads transported	70% of trips < 25 kg			Most trips < 50 kg	Most trips < 80 kg	30–80 kg

Source: Howe (2001)

Note: On-farm transport comprises movements related to domestic needs such as water and firewood collection, smallholder cultivation, grazing of animals, and transport of farm inputs and outputs between house and fields. Off-farm transport comprises trips to the market, to visit friends, or to reach certain social amenities such as schools and health clinics. Off-farm transport relates more to the conventional perception of transport in that at least some of it takes place on a recognizable road, sometimes with a motorized vehicle (Carapetis et al. 1984; Barwell et al. 1985).

INFLUENCE OF THE POVERTY FOCUS AND BASIC NEEDS APPROACH

The emergence of a poverty-focused agenda in the 1970s and the adoption of the basic needs approach stimulated additional efforts to better understand the access and mobility problems of rural households. At the same time, recognition grew among researchers that, particularly for poor households, investments that would contribute to poverty reduction had to give more prominence to the demands associated with meeting basic movements—that is, those associated with domestic and subsistence tasks. Satisfying these demands required qualitative and quantitative assessment of the nature of rural household travel, specifically its magnitude, frequency, duration, purpose, and gender differentiation, and the modes used and the livelihoods of the household. In effect, this assessment required replacing the *transport system* with the *household* as the fundamental unit of rural travel analysis. Application of this paradigm shift enabled a conceptual leap in rural transport studies similar to the one made in the 1950s in thinking about urban transport in developed countries (such as was first applied in the 1955 Detroit Metropolitan Area Traffic Study and the 1960 Chicago Area Transportation Study).

Box 4.2 Structure of household interview survey

A. Household database

1. Location of household
2. Household composition
3. Household possessions
4. Sources of cash income
5. Household expenditure
6. Land
7. Farm inputs

C. Travel outside village

1. Grind grain
2. Address health need
3. Collect building materials
4. Market products
5. Purchase food and consumer items
6. Visit main markets

B. Transport activities in the village

1. Collection of water
2. Collection of firewood
3. Village activities
4. Crop production
5. Crop harvesting

D. Travel to other places

Rural household as a unit of travel analysis

The first systematic use of the rural household as the basic unit of travel analysis in developing countries (Howe 2001) occurred during the mid-1980s in three studies, two in Tanzania and one in Ghana (Barwell and Leggett 1986; Barwell and Malmberg 1989; Howe and Barwell 1987). At the core of the method was a structured interview recording basic data about a household and the local and external travel activities of its members (see box 4.2). Application of the method required broadening the notion of *transport*, defined as *travel from the home for any purpose, and by any means of movement, including walking or carrying loads on the head and back*. The result was a quantification of household movements in terms of (i) trips; (ii) time spent traveling and distance traveled to various facilities such as water and firewood sources, health clinics, grain grinding mills, and markets; (iii) ton and ton-kilometer of effort; (iv) modes used; and (v) gender and adult-child involvement split.

The details of the approach and its results are available elsewhere (Barwell et al. 1987). However, the following findings are noteworthy: (i) households devote a substantial amount of time and effort to transport-related activities; (ii) women assume a disproportionate travel and transport burden; and (iii) travel related to subsistence tasks are more dominant than for economic tasks. For example, findings from the village-

level travel and transport surveys (VLTTs) carried out as part of these studies supported the data from earlier studies that showed that women were contributing at least 65 percent of the total transport effort. For example, in two areas of Burkina Faso the loads carried by adult females ranged from 10.3 to 15.5 ton-kilometers compared with from 3.6 to 4.4 ton-kilometers by adult males. In two areas in Zambia, adult males carried loads of between 30.3 and 36.0 ton-kilometers compared with 7.1–9.8 ton-kilometers for adult females (Barwell 1996).¹⁵ These results clearly demonstrated that the inability to provide for *subsistence transport was a larger constraint on household-level productive capacity than originally thought*. Perhaps more important, these transport needs were nondiscretionary, linked to basic domestic activities, and as such operated as a binding constraint on productive activities, which could take place only after satisfaction of the subsistence transport needs. The results provided a link to earlier findings, such as those of the ODG, and drew attention to the importance of intermediate means of transport (local transport solutions) to rural dwellers in meeting their mobility needs (see box 4.3) and the importance of the community roads, tracks, and paths on which these movements take place.

¹⁵ This extensive amount of time on transporting products when faster means could have been used, is often referred to as "time poverty"—that is, the inadequacy of the time available for productive (economic) use.

Box 4.3 The case for better local transport solutions

The output is small despite much effort. Rural women and men invest much time in essential transport tasks when they depend mainly on walking and carrying, thereby reducing their time available for more productive activities and reinforcing their state of poverty. Much productive time and effort could be saved through local transport solutions.

Efficient transport increases household productivity. Using intermediate means of transport for domestic tasks, including the movement of water, fuel, and food, saves time and energy, particularly for women and children. The time and energy saved can improve the productivity and quality of life of rural households. Intermediate means of transport can be used in accessing markets, schools, health centers, and other social and economic facilities.

Transport stimulates agricultural production. Farmers with access to transport are more easily able to purchase farm inputs such as fertilizer. Farmers with carts increase crop production through the greater use of manure; they increase animal production by transporting and stocking crop residues; and they avoid losses by the timely transport of their harvests.

Transport increases access to markets. "Feeder transport" between farms, roads, and markets is crucial. Farmers with bicycles, carts, or pack animals can carry more produce to market more quickly. They have larger circles of travel contacts, thereby gaining access to new information, markets, and trading possibilities. An intermediate means of transport stimulates greater trade, production, and profit.

Diverse transport solutions are available. People have developed a wide range of local transport solutions. The various technologies offer different combinations (and design compromises) of cost, weight-carrying capacity, maneuverability, speed, durability, and aesthetic characteristics. The private sector has been responsible for most developments.

Rural people have insufficient mobility. Despite a wide spectrum of transport technologies, in rural areas much transport involves either walking or large-scale motorized technologies. Rural people need intermediate means of transport that increase capacity and reduce human drudgery at an affordable cost.

Source: Starkey et al. 2002

Village-level travel and transport surveys

The VLLTS was a significant advance as it achieved a degree of precision in quantifying household travel demand in relation to livelihoods (Barwell, Howe, and Zille 1987). Its use made it possible to isolate differences in travel demand among villages or households, potentially enabling assistance targeted and tailored to specific access requirements, and to quantify gender, adult and child contributions. Crucially, it showed that much of the time and effort devoted to meeting household travel demands could be reduced using more efficient transport. In addition, a significant proportion of these demands could also be reduced by non-transport interventions in

the form of more convenient access to services such as water supplies or health facilities (see table 4.2 for examples of alternative solutions to rural access problems).

Table 4.2 Some alternative solutions to rural access problems

<i>Improvement to physical infrastructure</i>	<i>Improvement in transport services</i>	<i>Non-transport interventions</i>
Construction/ upgrading/rehabilitation	Community-owned or -managed buses	Relocation or upgrading of services for a community such as health post, informal education, , water provision, firewood production
Spot improvements, spot repairs	Ferries	More fuel-efficient stoves
Road maintenance	Bicycles and bicycle trailers	Improved telecommunications
Improved footpaths—safer, more accessible to bicycles and carts	Motorcycle ambulances	Crop diversification—less perishable or damageable, low weight but high-value crops
Improved waterways, better wharves/jetties	Animal carts	Improved services and facilities at collection and service points outside the community, proper storage, waiting area, accommodation, sanitation, parking for trucks and bicycles and for drivers and head loaders; boarding accommodation for persons accompanying the sick
Footbridges such as on routes to school	Improved collective transport arrangements out of a community such as access to collection points for crops and people	Processing in situ to reduce perishability, allow transportation in season when access is easiest and value higher.
Steps, handrails, steppingstones (for head loading and draft animals)	Capacity building of transport operator and user groups.	

Source: World Bank 2003b.

After the initial studies, the VLLTS approach was refined and used in other places such as Ethiopia, Malawi, Nigeria, the Philippines, and Tanzania. In these countries, it led to a new type of rural transport project focused on facilitating movement on the lower end of the rural transport network—that is, community roads, tracks, and paths and the use of intermediate means of transport. Projects with this focus usually had two essential components: (i) improvements to the portion of the network required to meet the household-related subsistence travel needs; and (ii) provision of the means of transport required to carry lower-density traffic loads—that is, IMTs. The results of such projects revealed that rural transport problems could be gender-related, with women and girls bearing the greater portion of the load. These results from the VLTT studies were significant, requiring a new paradigm in planning rural transport.

Promoting the new paradigm through pilots and advocacy

Adoption of this new paradigm required (i) pilot activities to test the approach; (ii) additional research and knowledge-generation activities to further clarify the implica-

tions of practicing the approach and to develop an operational strategy for its application; and (iii) policy advisory and advocacy activities to draw attention to the rural transport problems in SSA and the available good practices in addressing them. The first pilot project centered on the new paradigm was the Makete Integrated Rural Transport Project (MIRTP) conducted from 1985 to 1996 in the Morogoro District of Tanzania (see box 4.4). This project was followed by similar pilot activities in Malawi (Pilot Integrated Rural Transport Project or PIRTP, 1991–97) and in Zimbabwe (Rural Access Project or RAP, 1995–2002), all of which were implemented by the International Labour Organization.

The most widespread and concerted application of the household approach to rural transport in SSA was perhaps the Village Travel and Transport Project (VTTP) in Tanzania initiated in 1994 as a result of a policy workshop on rural transport organized by SSATP's Rural Travel and Transport Program (RTTP). At that workshop, several donors agreed to promote application of the household approach in several districts of Tanzania. Since its inception, seven districts have implemented the VTTP and attempts are now being made to roll it out as a national program. Beyond such projects, these types of rural transport projects are still relatively few in SSA but more common in Asia. The few SSA examples are the pilot implementation of elements of the Ethiopian Rural Travel and Transport Program (ERTTP), the Rural Access and Mobility Pilot Activity (RAMPA) in Malawi, and the Rural Access and Mobility Project (RAMP) component of the Zambia Road Sector Investment Project (ROADSIP). The only large-scale RAMP project in SSA is in Nigeria, through which the World Bank and the Africa Development Bank are jointly helping the country implement its rural travel and transport policy, eventually in all of its 36 states.

The additional research and knowledge generation, policy advisory and advocacy activities to promote this approach have taken place mainly within the framework of the multidonor RTTP Program under the SSATP in collaboration with the ILO and the International Forum for Rural Transport and Development. The next section discusses activities and achievements under this initiative.

Box 4.4 Household-based approach to rural travel demand analysis

The Makete Integrated Rural Transport Project (MIRTP), funded by the Swiss Agency for Development and Cooperation (SDC), sought to improve accessibility in the Makete District in Tanzania. The first project period, which began around 1985, focused on defining the transport demand and identifying interventions in the transport sector. The identified transport demand was the basis for implementing transport and non-transport interventions. The activities included the manufacture and introduction of low-cost transport devices, including wheelbarrows and donkey panniers; improvements in feeder roads, paths, and tracks; and setting up a mechanical workshop for maintenance services to motorized grinding mills. These activities took place within the existing governmental and nongovernmental organizations, with the most successful supported during a follow-up phase from 1993 to 1997. The final ex post evaluation took place in early 1998.

The “Makete Approach” had the following attributes:

- The household travel demand provided the basis for planning the development of rural transport facilities.
- The focus was on the local transport system and the priority was on meeting the basic needs of the target rural population.
- Transport was an integrated system consisting of vehicles and infrastructure, and low-cost means of transport were important.

The experiences from MIRTP were useful in designing the Village Travel and Transport Program (VTTP), a national program implemented in eight districts. MIRTP also provided lessons for the development by the ILO of the gender-based integrated rural accessibility planning (IRAP) tool. The guidelines (see appendix A) formed in part the basis for planning VTTP interventions in some districts and remain largely valid for application today.

Malawi also implemented a pilot project aimed at improving rural accessibility and mobility based on the Makete Approach. Called the Pilot Integrated Rural Transport Project (PIRTP), this project sought to plan and implement measures that would improve the mobility and accessibility of rural people in order to facilitate rural development in the three pilot areas: Neno in Mwanza District, Lobi in Dedza District, and Embangweni in Mzimba District. PIRTP. The projects were implemented between 1991 and 1997.

The Malawi Rural Travel and Transport Program (MRTTP) also formulated the Rural Access and Mobility Pilot Activity (RAMPA) as a means of developing sustainable and cost-effective rural travel and transport infrastructure and services. This pilot activity took place in Ntchisi District between July 2004 and December 2005

The Need for a policy framework and tool to support project interventions

One of the key lessons from the early pilot projects to apply the new paradigm was recognition of the need for a policy framework within which to contextualize such activities and a tool to assist in identifying project interventions that would appropriately link transport and non-transport interventions at the village level. This recognition led to a series of policy workshops in the early 1990s. The most notable was the one in Tanzania in 1992 that gave rise to the VTTP. Unfortunately, although that workshop was successful in gaining agreement around a program of interventions to be carried out under the VTTP, the policy development process in Tanzania stalled after the workshop, which proved to be an impediment to implementation of the VTTP (Lema 2007). This important lesson led the RTTP in its policy advisory work to emphasize continuing its policy support during project implementation, as discussed in the next section.

The tool developed by the ILO to assist in linking transport and non-transport interventions—that is, land use transport planning at the village level—was the integrated rural accessibility planning (IRAP) tool (see box 4.5).

THE RURAL TRAVEL AND TRANSPORT PROGRAM (SSATP)

In 1988, SSATP began a close working relationship with the World Bank and other development partners under the auspices of one of its components, the Rural Travel and Transport Program, in order to facilitate much of the learning process for rural transport development in SSA. Through this partnership, the various policy and strategic studies undertaken expanded the growing body of knowledge on the appropriate approaches to rural transport development. The key publications from these studies are listed in table 4.3, along with summaries of their themes. The recommendations contained in these publications underpinned the messages championed by the program in its policy advisory work in SSA. Other publications followed and included a working paper on developing rural transport policies and strategies (Banjo and Robinson 1999). For wider dissemination, the program developed a rural transport knowledge base website, as well as a set of rural transport training materials for use in training policy makers and practicing rural road and transport planners, economists, engineers, and decision makers.

Box 4.5 Integrated rural accessibility planning (IRAP)

1. Integrated rural accessibility planning (IRAP) is a tool devised to help local-level planners capture, through surveys and collaborative analysis, the pattern of isolation of a community and then derive a hierarchy of actions required to reduce it. It is particularly useful to view roads as just one way, among others, of enhancing accessibility and mobility rather than an end in themselves. Road improvements are a possibility, as is improving tracks and footpaths for use in local trips, thereby helping people to reach the motor roads. Supporting intermediate means of transport as well as proposing improvements to conventional transport services could complement or replace road improvements. Finally, rather than embarking on costly road investments, governments could relocate clinics and other basic services in order to reduce the time spent on travel, which might be a better solution. Measures can be prioritized by their cost-effectiveness in relation to indexes of accessibility, preferably set nationally, to ensure equity among regions.
2. IRAP is the most pertinent to setting priorities within networks where the simple cost-benefit trade-offs normally used to **set priorities** for roads where motor traffic is significant cannot be used—that is, for paths, tracks, and very low-volume motor roads. Investment in the motorable network is not ignored, because IRAP will indicate the need for them at the community level. However, local residents are not the only users of these roads, and so decisions to improve them must include overall travel demand.
3. IRAP is a complex tool and so requires structured local training if local participation in the execution and analysis on which this approach is centered is to be effective. It involves both household surveys that have been processed electronically to provide travel patterns and extensive mapping of transport infrastructure, topography, and the spatial distribution of settlements and services. These two aspects of planning must then be brought together to define and evaluate improvement programs.
4. IRAP is a decision tool that cuts across many rural sectors such as health, water, sanitation, and education. It not only provides recommendations about transport infrastructure but also may propose investments in relocating or adding rural services such as schools, clinics, wells, and others in order to make them more accessible. In the context of **poverty reduction** initiatives, IRAP provides a tool for accurately targeting isolation. Successful implementation requires collaboration among ministries active in rural areas. It is best applied within local decentralized structures, where it can be learned, applied, and integrated for expansion to adjacent areas. IRAP is a valuable investment, because once it is completed it will serve forever as a sound foundation for planning any infrastructure development in the concerned area in the near or even distant future.

Table 4.3 Key publications reflecting the evolution of a new paradigm

<i>Title (author)</i>	<i>Theme</i>
<p>“Case Study on Intermediate Means of Transport: Bicycles and Rural Women in Uganda” (Malmberg Calvo, 1994)</p>	<p>Documents the use of bicycles in eastern Uganda where they generate income for rural traders and for urban poor who work as bicycle taxi operators. It also assesses women’s priorities in interventions to improve mobility and access and the potential for greater use of bicycles by rural women and for women’s activities.</p> <p>The bicycle is used to improve the efficiency of productive tasks and to serve as a link between farms and villages, nearby road networks, and market towns. The study indicates that the financial return on these activities is so high that owners can recover the cost of the bicycle in less than 12 months. It also asserts that the main reason for the relatively small number of bicycle traders is the lack of credit. The general situation in SSA is that intermediate means of transport (IMTs) are predominantly owned and used by men for mainly cultural and economical reasons; women rarely are able to use IMTs to meet their transport needs.</p>
<p>“Transport and the Village: Findings from African Village-Level Travel and Transport” (Barwell, 1996)</p>	<p>Reports on key research on local-level transport in rural Africa. Contains household surveys and case studies on IMTs and the role of transport in women’s lives in order to understand the circumstances under which local-level transport imposes a constraint, the nature of that constraint, and the appropriate measures needed to alleviate the constraint.</p>
<p>“Expanding Labor-Based Methods for Road Works in Africa” (Stock and de Veen, 1996)</p>	<p>Documents findings of a study on why labor-based road construction methods have not been used extensively despite the finding that they produce roads comparable in quality to those produced by equipment-intensive methods. The study examined experiences in Africa and developed the appropriate reforms, two of which helped to mainstream labor-based programs but had not received the attention they require: (i) improved financial management to ensure that funds flow adequately and laborers are paid on time; and (ii) decentralization to streamline payment procedures and strengthen stakeholders’ support of these programs. In addition, government commitment, effective labor laws, appropriate design standards, and training should facilitate the mainstreaming of labor-based programs in countries where such methods are feasible. While addressing these reforms, program designers can begin to establish a suitable delivery mechanism.</p>
<p>“Rural Transport Planning: Approach Paper” (Connerley and Schroeder, 1996)</p>	<p>Current rural access planning systems are based on identifying <i>needs</i> for rural transport, while paying insufficient attention to transport <i>demand</i>. Needs are expressions of aspirations for improvement, with cost constraints that are budgetary rather than economic. Demand is reflected in what users and beneficiaries are actually willing and able to purchase. This paper suggests that a greater reliance on user and beneficiary financing of rural access improvement and maintenance is highly desirable, in part because of the closer relationship to <i>demand</i>, which occurs when</p>

<p>“Promoting Intermediate Means of Transport: Approach Paper” (IT Transport Ltd, 1996)</p>	<p>users and beneficiaries are responsible for significant costs.</p> <p>This paper presents a five-stage decision-making model for the designer/planner of projects or programs to use in promoting IMTs. It begins with a contextual analysis that heeds environmental factors; economic, industrial, and social factors; and non-project issues such as institutional, policy, and regulatory. The results are filtered through consideration of access issues, including national norms and targets, as well as possible non-transport solutions to what may appear to be transport problems. This leads to a diagnosis of the problem to be tackled and the objectives for improving the rural transport system. A supply and demand analysis then provides a bridge between defining the needs and planning the detailed action.</p>
<p>“Options for Managing and Financing Rural Transport Infrastructure: An Approach Paper” (Malmberg Calvo, 1998)</p>	<p>This paper presents a framework for improving the management and financing of local government roads and community roads and paths. The first step requires developing a national rural transport policy and strategy. The strategy should provide the conceptual base for the reform effort, defining the role of governments, communities, private sector stakeholders, and donors. An effective strategy must provide clear answers to three key questions: (i) Who should own local government roads and community roads and paths?; (ii) How can one mobilize economically the capacity for managing local government roads and community roads and paths at the local level?; and (iii) Who will provide an adequate and steady source of funding, especially for maintenance?</p>
<p>The Provision of Rural Transport Services: Approach Paper (Ellis and Hine, 1998)</p>	<p>Many countries suffer from very poor transport services and high transport charges. Although most services are provided by the private sector, vehicle utilization is low, cartels are common, and government regulation is weak. This paper identifies the following key issues as the major constraints to the satisfactory development of rural transport services: (i) low density of demand for transport; (ii) poor-quality infrastructure; (iii) poor diversity of vehicle types; (iv) uncompetitive transport markets; and (v) lack of understanding by government, donors, and other agencies of the potential benefits of increasing the efficiency with which transport services are provided. The paper then discusses the following policy options: (i) controlling transport cartels, reducing tariffs, and increasing service frequency; (ii) reducing the import prices of vehicles and parts; (iii) devising training programs to indicate the advantages of slow and careful driving and the importance of routine maintenance; (iv) considering ways in which the surplus capacity of old vehicles could be removed from the market; (v) promoting the use of IMTs; (vi) devising methods to financially support a minimum frequency of transport services that are not supported through other means; and (vii) improving public-private partnerships.</p>
<p>“Rural Transport Policy in Action” (Banjo and Robinson, 1999)</p>	<p>Presents the principles governing rural transport and the factors influencing policy and provides guidance for the formulation of rural transport</p>

Rural transport, improving its contribution to growth and poverty reduction in SSA

	policy under varying scenarios in different countries.
<p>“Intermediate Means of Transport: People, Paradoxes and Progress” (Starkey, 2001)</p> <p>“Local Transport Solutions for Rural Development” (Starkey, 2001)</p>	<p>In Sub-Saharan Africa, most village transport continues to consist of people (mainly women) walking and head loading. Between walking or carrying and large motorized transport is a wide range of intermediate means of transport. These means increase transport capacity and reduce drudgery at relatively low cost, solving local transport problems. Local transport solutions include wheelbarrows, handcarts, bicycles, tricycles, animal-powered transport, motorcycles, and power tiller trailers. This paper presents some of the characteristics and factors affecting the use of various solutions. Some technologies spread rapidly, others spread slowly, and some are never adopted. The use of IMTs is higher in Asia than in Africa, whereas in Africa relatively few motorized intermediate means of transport are used, with adoption not homogeneous even within countries. Distribution is partly explained by differences in population density, incomes, cultures, topography and climate, farming systems, transport needs, and project activities.</p>
<p>“Design and Appraisal of Rural Transport Infrastructure: Ensuring Basic Access for Rural Communities” (Schelling and Lebo, 2001)</p>	<p>This paper promotes a <i>basic access approach</i> to the provision and maintenance of reliable, all-season access for the least-cost investment. Such access would provide a minimum level of all-season vehicular passage, including single-lane, spot-improved earth or gravel roads. If motorized basic access is not affordable, the existing path network and the construction of footbridges may be the only alternative.</p>
<p>“A Gender-Responsive Monitoring and Evaluation System for Rural Travel and Transport Programs in Africa” (Maramba and Bamberger, 2001)</p>	<p>The content of this paper is a practical guidance for planners, managers, and evaluators seeking to design and use monitoring and evaluation systems for rural travel and transport (RTT) to ensure <i>gender-sensitive</i> capture of the impact of RTT. This handbook provides an overview of the general principles of monitoring and evaluation design, as well as information on how to ensure that the systems fully address gender. It was developed as a collaborative product of the Gender and Rural Transport Initiative (GRTI) and the national RTTP programs. It benefited from inputs from a number of member countries, including Cameroon, Malawi, Senegal, Tanzania, Zambia, and Zimbabwe. The draft handbook was distributed to all RTTP countries for comments, and it was field-tested so that experiences from participating countries are incorporated into subsequent editions.</p>
<p>Rural Transport Knowledge Base (RTKB) (RTTP/SSATP, DFID and TRL, 2001)</p> <p>http://www.transport-links.org/rtkb/English/Intro.htm</p> <p>Rural transport training materials (RTTM) (IDL Group for RTTP, DIFD [UK])</p>	<p>This ‘knowledge base’ is a reference material on the latest thinking and practice in the field of rural transport. The knowledge base, which is in five modules, encompasses all aspects of rural transport, including the policy, management, and financing of rural transport infrastructure, transport provision, and related non-transport interventions.</p> <p>A companion to the RTKB, the RTTM is the RTKB materials transformed to training materials to facilitate the dissemination of best practices to policy makers, planners, and practitioners in the developed and developing worlds. It contains training modules as well as case study examples.</p>

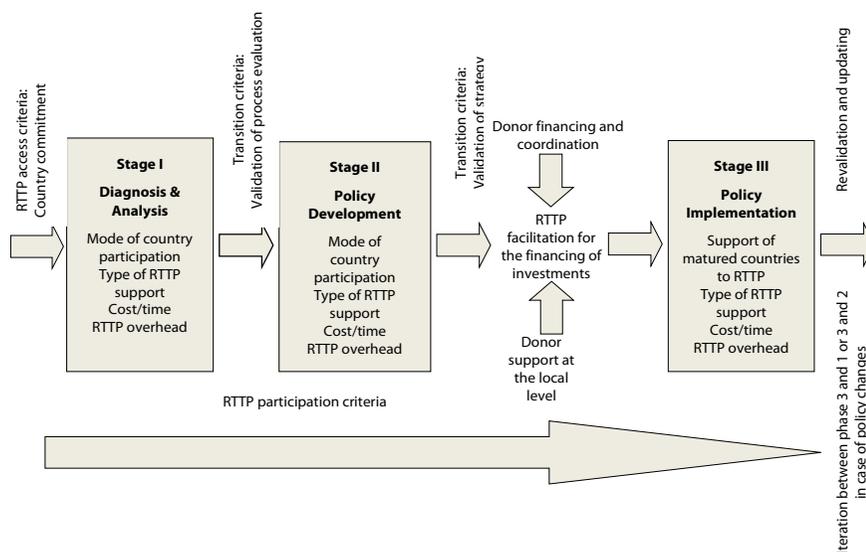
<p>“Improving Rural Mobility: Options for Developing Motorized and Non-Motorized Transport in Rural Areas” (Starkey et al, 2002)</p>	<p>Outlines the constraints that poor access to transport in rural areas impose on economic and social development. Improving rural people’s access requires improved mobility through better transport infrastructure, transport services, and attention to the location, quality, and price of facilities.</p>
<p>“A Methodology for Rapid Assessment of Rural Transport Services” (Starkey, 2007)</p>	<p>Presents (and tests) a methodology for the rapid assessment of the need for rural transport services in developing countries. “Rural transport services” include both passenger and freight transport services, limited to a medium-range distance of 5–200 kilometers. The methodology identifies key indicators and features that allow system description and schematic “mapping” using participatory, inclusive and gender-sensitive data collection that leads to an understanding of the transport system by all the key stakeholders.</p>

RTTP policy advisory outreach in SSA countries

The RTTP Policy Advisory Outreach in SSA countries, mainly from 1997 to 2002, had a thematic focus on promoting (i) appropriate approaches to improving rural transport infrastructure; (ii) the adoption of IMTs and more available and affordable rural transport services; (iii) the greater use of labor-intensive work methods; and (iv) knowledge about incorporating gender into analysis of needs and interventions. Crucially, the advice offered, particularly in the later period of the program, positioned rural travel and transport as a tool for promoting rural development. The key messages propagated in the approaches of the program were:

- Establish policies and strategies for rural roads and transport under a national rural road and transport strategy, ensuring sector coherence and building on commitment to reform.
- Build a public-private partnership between government and local communities to maintain village access roads.
- Develop a legal and financial framework that encourages local communities to claim ownership of their roads; decentralize decision making to the local level; and involve and empower those who suffer the consequences of poor maintenance and lack of access.
- Consider solutions other than just roads. Significant improvements in mobility are best achieved by bettering both infrastructure and transport services, including providing low-cost vehicles. Improved access can also stem from better locating service facilities. Use the appropriate technology. Employing small-scale contractors and local labor is often cheaper and more sustainable, and it stimulates the local economy.
- Position rural transport in a rural development framework.

Figure 4.1



Policy development process

In its work in 19 countries (table 4.3) in Anglophone and Francophone Africa between 1997 and 2002, the RTTP employed a three-phase policy advisory process: diagnostic, policy development, and implementation. Implementation focused on helping countries mobilize resources for implementation of the policy once adopted and continuing support during implementation to guide against policy reversal (see figure 4.1, which depicts this process).

Table 4.4 Countries benefiting from RTTP policy and advisory activities

Country	
1	Burkina Faso
2	Cameroon
3	Côte d'Ivoire
4	Ethiopia
5	Ghana
6	Kenya
7	Lesotho
8	Malawi
9	Mali
10	Mozambique
11	Niger
12	Nigeria
13	Senegal
14	Tanzania
15	South Africa
16	Swaziland
17	Uganda
18	Zambia
19	Zimbabwe

Source: SSATP

Box 4.6 Aspects of the development of rural transport policies and strategies

The context: (i) tradition of relative neglect, even as part of transport policy and thus of inadequate resource allocation; (ii) dominance of “road” perception when “transport” is the issue, leading to inadequate knowledge of how to address rural transport issues and inadequate understanding and use of what is known; (iii) unclear planning and institutional frameworks; and (iv) tradition of institutional compartmentalization when issues require a multisector approach.

Emerging lessons of experience: (1) adequate rural transport is necessary for achieving rural development; (2) rural transport is concerned with more than just providing roads but also with the manner of their provision, use and maintenance; (3) available approaches to the design of rural transport projects are more flexible and varied than before with more funding windows (e.g., social funds) than before; (4) these approaches facilitate use of rural transport improvements as tools for poverty reduction; (5) poverty has many dimensions, however (income, access, vulnerability); and (6) of necessity, rural transport policies should embrace a multisector approach and contribute to poverty reduction.

What is a policy? (1) a tool used to achieve its goals; (2) a basis for decision making, especially for prioritizing resource allocation; (3) a means of guiding actions of governments and their agencies, at different levels, with those of others to achieve specified objectives; (4) a tool for resource mobilization; and (5) a basis for achieving accountability. Government policies are about people and their livelihoods.

Hierarchy of policy statements: (1) statements/pronouncements—ministers to local government representatives (policy direction); (2) government statements and documents (policy framework); (3) laws and statutes (legal basis); (4) court decisions and regulatory bodies (interpretations/ fair play); and (5) procedures and manuals (standards/ intervention levels). The importance of each of these varies from country to country, depending on, for example, the governmental system and institutional arrangements, cultures, individual office holders, and so forth. Policies increase in detail and specificity from national to local level.

Objectives: specific goals to be achieved within a given timescale. Goals can be strategic (overall goal), long term or tactical (immediate objectives), and short to medium term. Goals should be measurable, relevant, specific, and achievable.

What is a strategy? (1) outline of activities needed to achieve stated objectives; and (2) the how, when, and why. For a given objective, several strategies may be needed. Strategies can be fairly broad but must be time-bound and assignable.

Source: Adapted from Banjo and Robinson 1999

The initial stages of the policy development process usually involve dialogue with various stakeholders to gain a common understanding of the nature of the exercise, the roles of different institutions during the different stages of policy development, the available resources, and the timeframe for the exercise. Box 4.6 illustrates some aspects of the background against which the development of rural transport policies and strategies often takes place.

Box 4.7 is an example from Cambodia of the checklist of questions that typically would have to be answered in the course of the process. It is important to note that

answers will not come from a single ministry or stakeholder because most of the questions are interlinked (e.g., answers to questions relating to engineering standards have financial implications, affect the approach to maintenance, and thus affect the potential role of communities in such an activity, which, of course, has implications for employment and thus local economic development). Crucially, the initial dialogue should include an attempt to contextualize the policy development process in the wider development policy of the government, particularly spatial and poverty reduction policies. This aspect is commonly not given due attention during the policy development process, perhaps because of the difficulties in carrying it out: Appendix B is a framework for addressing such considerations.

Box 4.7 Developing a rural road policy and strategy: A checklist of areas of interest applied in Cambodia

The policy of Cambodia's Ministry of Rural Development should be able to provide guidance on the following:

General

- What are the responsibilities and objectives of the MRD for rural roads and footpaths (e.g., what feasible objectives are achievable within 10 years)?
- What is the extent of the assets (roads and footpaths) to manage?
- Who are the stakeholders, partners, and beneficiaries?

Ownership

- Who owns (or should for the time being take ownership responsibilities for) the various types of assets?

Asset management and maintenance

- Who is responsible for maintaining the various categories of assets?
- Who will categorize and inventory the individual assets?
- What are the emergency, routine, and periodic maintenance requirements (physical and financial)?
- Who will finance the maintenance (what level within resource constraints)? Who can contribute? How?
- Who will plan the maintenance works?
- Who will carry out and manage the maintenance works?
- Who will supervise the maintenance works?

Asset development

- What are the priorities for network development/expansion?
- Who will identify needs and evaluate and authorize construction works?
- Who will finance the construction works (in partnerships)? Who can contribute? How?
- Who will plan the construction works?
- Who will carry out and manage the construction works?
- Who will supervise the construction works?

- What will be the balance between expansion of the network and preservation of what is rehabilitated?

Appropriate technology

- What are the adopted technologies and reasons for using them?

- What is the public policy on labor-based assisted technology (LBAT) and the use of local resources?

Resources

- Who will provide the human, equipment, and physical resources for the works?
- What measures will be taken to deal with the issues of gender, social, and disadvantaged groups?
- What are the human resource development objectives?

Standards and monitoring

- Who will set standards and specifications?
- Who will check compliance with standards and specifications?
- Who will monitor the performance of the rural road sector?

Private sector role

- What will the private sector's role be?
- Will local consultants and small-scale contractors be encouraged?

Environment and sustainability

- What is the policy on the use of materials resources and preservation of the natural environment?
- What are the effects of the roads on the people living alongside them, and how can these effects be minimized?
- Will the rural road sector policies lead to a sustainable road network?

Road safety

- What policy measures can be taken to improve the safety of road users and people living close to the transport routes?

Consultation

- How will the MDR consult stakeholders?

Source: Based on Intech Associates 1999.

Gender and rural travel and transport

Consistent with the findings from the VLTTS, a central objective of the RTTP was to promote the mainstreaming of gender in rural transport policies, programs, and projects. A rural transport intervention should seek to achieve the following specific gender objectives: (i) reduce the overall transport burden with respect to time, effort, and cost for rural households; (ii) improve the accessibility of rural households to basic services through increased mobility and improved location of services; and (iii) develop a gender-sensitive economic and social evaluation methodology. To emphasize the importance of these objectives in rural transport, in 1999 the program, in collaboration with the World Bank's PREM Gender Group, launched the Gender and Rural

Transport Initiative (GRTI)¹⁶ to promote the incorporation of gender issues in rural travel and transport policies and to build the capacity for gender mainstreaming. One of the outputs of the GRTI was the publication “A Gender-Responsive Monitoring and Evaluation System for Rural Travel and Transport Programs in Africa” (Maramba and Bamberger 2001).

Box 4.8 Why is participation important in policy making?

Participation can strengthen policy making in a number of ways.

Participation processes **build ownership** of policies and actions with political and administrative commitment by which governments are held accountable to their people.

Participation contributes to the establishment of a **more accountable government**. Transparency is increased when the public better understands government processes; the accountability of institutions is strengthened; the poor are better informed of governments’ commitments to tackling key poverty issues; and governments are held accountable to their domestic constituencies for actual performance. Building the role and capacity of non-state institutions can counterbalance the powers of the state.

Civil society organizations (CSOs) including NGOs, labor unions, business and professional organizations, religious bodies, and other citizens groups, can **provide specialist and local knowledge** to improve the quality of policymaking. Although not all are representative and some are politically aligned, others genuinely represent the views of the poorer citizens and other interest groups, such as the business community.

The poor are empowered by bringing their analysis, priorities and voice into the decision-making process, thereby making the policy framework more relevant and responsive to their needs.

Equity and social integration are promoted through appreciation of needs within society (by geographic region, gender, ethnic group,). Participation can lead to the creation of durable, inclusive political systems which are particularly important in ethnically diverse societies.

Partnerships are built between governments and business and civil society groups, leading to joint actions to achieve poverty reduction goals.

Gender mainstreaming entails ensuring that projects address the needs, priorities, and constraints of both men and women during (i) the policy development process; (ii) project design and implementation; (iii) staff recruitment and development; and (iv) other organizational policies and strategies and practices that have an impact on gender equality.

¹⁶ Funding for the GRTI was received from the Development Grant Facility of the World Bank. The regional NGO MWENGO, guided by a stakeholder group that included the UN Economic Commission for Africa and country representatives, administered the GRTI.

Social inclusion, community participation, accountability, and governance

In view of the characterization of the nature of rural transport and its complexities presented in this paper, it is not surprising that issues related to social inclusion come to the fore in rural transport policy development and project design and implementation. Community participation is particularly important in reaching consensus, gaining the ownership and commitment of different stakeholders, and arriving at acceptable accountability and governance mechanisms. Unfortunately, it appears that participatory and social assessment tools are not used as much as they should be in rural transport project preparation within the transport sector, notwithstanding the fact that invariably those projects judged “good practice” employ these tools and instruments.

CONCLUSIONS

The provision of rural transport facilitates the achievement of rural access. The access and mobility of rural dwellers can be served by two types of rural transport interventions:

1. Those aimed principally at connecting rural households to meet their needs for access in relation to domestic activities, social services, subsistence farming, and transport of surplus farm produce to local markets.
2. Those aimed principally at connecting rural households to rural growth centers and capital cities via improvements to the upper end of the rural road network and the provision of conventional transport services.

These approaches and the messages embodied in the policy advisory work of RTTP continue to be relevant, and they have informed some of the more recent rural transport projects financed by the World Bank. The paper on rural mobility (Starkey et al. 2002) listed in table 4.4 is particularly notable because it was perhaps the first time an attempt was made to consider holistically the mobility needs of rural dwellers and how these needs could be met by formal and informal transport means, motorized and non-motorized. Unfortunately, much of the recommended approach remains untested beyond the pilot scale. However, many of the messages arising from rural transport project design and implementation experience and widely shared through the SSATP and the Bank knowledge base have influenced policy and project design in other operational regions of the Bank.

Rural transport, improving its contribution to growth and poverty reduction in SSA

The next chapter discusses lessons from practice in the provision of rural transport interventions in order to draw conclusions on how appropriate they have been in meeting the needs described above.

5. Lessons from rural transport projects

This chapter outlines the characteristics of rural transport sector activities in the transport sector projects financed by the World Bank and its partners over the 25-year period 1965–91. This review is complemented by separate reviews of (1) transport sector involvement in rural transport projects from 1992 to 2008; (2) rural transport activities in the World Bank's agricultural sector from 2001 to 2006; and (3) the lessons learned from rural development projects completed since the 1990s. From these reviews emerges an outline of the characteristics of rural transport interventions in SSA, followed by proposals on policy, design, and implementation approaches needed to increase the impact of the interventions on agricultural growth and poverty reduction.

In 1991 the World Bank's Africa Technical Department, through the SSATP's RTTP, carried out a review of World Bank–financed rural transport projects between 1965 and 1991 so that it could distill lessons from them. The review arose from a felt need to establish new directions in policy and operational strategy in order to link rural roads to agricultural development (Riverson, Gaviria, and Thriscutt 1991). The rural transport projects reviewed comprised stand-alone transport operations, as well as components of transport, agricultural, and rural development projects. In addition, the review included the experience of the six countries covered in the Bank research project on Managing Agricultural Development in Africa (MADIA) (Gaviria 1991). In 1995, the Africa Technical Department conducted a follow-up review of the World Bank's involvement in rural Infrastructure. A synthesis of the findings and recommendations of these studies is presented in the sections that follow.

REVIEW OF RURAL TRANSPORT PROJECTS CARRIED OUT BETWEEN 1965 AND 1989: FINDINGS AND RECOMMENDATIONS

As shown in table 5.1, of the 127 approved rural transport projects carried out over the period 1965–89, 122 were completed, and the commitments to projects amounted to \$1,750 billion (1988 dollars),¹⁷ of which \$990 million was in International Bank for Reconstruction and Development (IBRD) loans and \$760 million in International Development Association (IDA) credits. Lending reached its peak in the early 1980s, largely because of Nigeria's agricultural development projects. The projects reviewed

¹⁷ The 1988 costs were determined using the gross national product (GNP) deflator from United Nations Development Programme/World Bank (1989).

were conducted in 28 countries, two-thirds in West Africa. Four countries—Côte d'Ivoire, Ethiopia, Kenya, and Nigeria—accounted for 64 percent of the total cost, Nigeria for 35 percent, and the other 24 countries the remainder.

Table 5.1 Rural road project targets and costs, 1965–1989

Period/Sector	No. of projects	Loan/credit amount	Project cost	RT amount	Constructed/rehabilitated	Maintained
		(US\$ millions, 1988)			Target km (actual %)	
<i>Period I (1964–79)</i>						
Transport	40	1,558.4	3,942.7	611.3	30,115 (73.4)	27,319 (41.7)
Agriculture/RD	39	1,301.7	2,124.8	276.0	19,884 (92.5)	1,659 (46.3)
<i>Period II (1979–89)</i>						
Transport	15	703.2	1,715.4	247.5	15,057 (88.6)	15,983 (53.1)
Agriculture/RD	28	1,704.6	4,097.0	615.8	24,055 (62.0)	30,210 (n.a.)
<i>Both periods (1964–89)</i>						
Transport	55	2,261.6	5,658.1	858.8	45,172 (77.0)	43,302 (42.6)
Agriculture/RD	67	3,006.3	6,221.8	891.8	49,939 (81.6)	31,689 (46.3)
Total	122	5,267.9	11,879.9	1,750.6	89,111 (79.2)	75,171 (42.7)

Source: Riverson, Gaviria, and Thriscutt 1991.

Note: RD = rural development; RT = rural transport; n.a. = not available.

The review findings demonstrated important linkages between rural roads and agricultural development in SSA. However, it also highlighted the need to increase project impact through measures in five areas: planning; design and technology; resource mobilization; sector organization and institutional performance; and transport services. The recommendations for country policy and project design and implementation included the following:

- *Planning.* Formulate a coherent rural road strategy that includes measures that will strengthen capabilities at the central, regional, district, and local community levels and are linked to the overall transport and agricultural development strategies. The strategy should emphasize maintenance and foster community involvement using multitiered planning and network-based programming and budgeting based on locally acceptable criteria.
- *Design and technology.* Design rural roads and maintain them for specific levels of serviceability of access, vehicle types, and seasonal patterns. Design should focus on reliability and durability rather than width and speed, with expenditures concentrating on essential access, spot improvements of critical sections (poor subsoil, gradients), surface drainage, and essential structures. The normal technology for rural roadwork should be labor-based methods

(see box 5.1), adapting that technology for sparsely populated areas and tasks such as long-distance earth moving. Success requires a long-term development program (10 years minimum) with considerable up-front inputs in technical assistance and training to enable piloting and rolling out, relying on a critical mass of locally trained engineers, field supervisors, and others and the transfer of expertise between SSA countries. The implementation period should provide an opportunity to build up the domestic construction industry capability with specific measures to facilitate its development.

- *Resource mobilization.* Because of the severe lack of resources at the local level, rural road development should continue to attract central funding¹⁸ and command a large portion of external sources. Improved policies should also include stepped-up mobilization of local resources such as funds and skills to cover maintenance needs. The strategy should clearly specify and agree on the aims, objectives, and target outputs for technical assistance. Just like the more successful ILO-based training, countries should implement technical assistance from the perspective of capacity-building efforts sustained over a sufficient period of from 8 to 10 years and routinely monitor the results. Successful technical assistance should lead to training and reliance on local engineers and planners.
- *Sector organization and institutional performance.* Of the various models tried for projects, including “project units” set up just to implement projects, rural road units or departments set up in a main road agency and given an adequate degree of autonomy and separate funding were the most effective in launching and implementing large-scale rural road programs. In addition, the participation of agricultural officers and local communities at the planning stage was recommended to improve subproject selection, implementation, and maintenance. This process should be combined with stable external funding and simple, well-established planning procedures and resource mobilization at the local level.
- *Transport services.* Two points are important. First, governments and others should pay more attention to the policies affecting the availability and cost of transport services at the local level, especially generally undeveloped intermediate means of transport (i.e., technologies falling between head loading and motorized transport). Second, they should increase the transport focus

¹⁸ Urban-rural partnerships may be a way of developing rural areas in the periphery of a large city with resources provided by the city.

of farm- and village-level efforts, seeking to increase small-farm productivity in SSA. Transport activities account for a sizable part of the work related to agricultural production and household upkeep. The introduction of productivity improvements to on-farm transport and movement has great potential to reduce workloads and free household labor for family priorities (e.g., childcare, schooling) or for more productive agriculture work. The introduction of such improvements could occur at the initiative of farmers individually or organized in groups, but a widespread impact would require external advice, demonstration, technical assistance, and possibly credit. Changes in transport technology¹⁹ would often have to be combined or coordinated with improvements in other areas such as postharvest practices (processing and storage). These principles were also set out in a number of studies aimed at increasing the use of IMTs.

Some projects in African countries have applied some of the policy and operational recommendations and principles arising from the 1991 RTTP study (Riverson, Gavi-ria, and Thriscutt, 1991). The overall picture that emerges, however, is that the recommended measures have not been reflected in most of the subsequent rural transport projects. In those few projects that have taken up the recommended measures, there have been encouraging results, with a few exceptions. However, even where the results have been good, efforts to closely monitor and scale up successes have been few. Significant opportunities for stimulation of rural and agricultural growth have thus been lost because of the limited uptake of promising practices and the lack of attention to scale-up needs and requirements.

The area of *planning* has seen the greatest application of the proposed approaches. Specifically, some countries have formulated rural transport strategies, along with multiyear programs of improvements within rural transport operations. These countries include Ethiopia, Eritrea, Kenya, Madagascar, Malawi, Nigeria, Tanzania, Uganda, and Zambia. As for *design and technology*, a few second-generation operations have also successfully applied the policy recommendations on design standards and the application of labor-based technology using domestic contractors—for example, the rural road components of the Uganda Transport Rehabilitation Project (1994–2000) and the Ethiopia Emergency Reconstruction Program (2000–2005). In the area of *resource mobilization*, the ILO has continued to play a key role in mobilizing tech-

¹⁹ In some countries, the wheel technology has given way to a simple skid pulled by animal force, just like a plow.

nical expertise for capacity building and implementing labor-based activities (see box 5.1) in countries such as Ethiopia, Kenya, Lesotho, Tanzania, Uganda, and Zambia. The results show that resource allocation through decentralized institutions has been less effective than anticipated. However, in countries such as Ethiopia, Ghana, and Zambia resources generated under central road funds have been used effectively to cover the maintenance and rehabilitation needs of rural roads administered by regional and district road departments. In the latter case, specific *organizational and institutional re-arrangements* were carried out. However, the proposal to use extension services to link transport technology dissemination with the mainstream channels for agricultural technology dissemination remains unexploited. Similarly, there has been limited focus on *transport services, including intermediate means of transport* (versus purely road investment). However, ongoing research and practice have generated a significant amount of new knowledge on approaches to better understanding and promoting rural transport services that has yet to be widely adopted (see appendix C).

FINDINGS AND RECOMMENDATIONS FROM PROJECTS CARRIED OUT IN 1992-2006

Two studies undertaken by the World Bank present more lessons from recent transport projects (World Bank 2007b; Tsumagari 2007.²⁰ The first, carried out by the Bank's Independent Evaluation Group (IEG), reported on the performance of the Bank's support for the transport sector from 1995 to 2005. It analyzed a portfolio of 642 transport projects, of which 284 had been completed and evaluated (World Bank 2007b). The study did not carry out detailed analysis of rural transport operations per se; rather, it presented findings on rural transport and poverty that are relevant to the present study. The second study for the Bank's Rural Transport Thematic Group (Tsumagari 2007) followed the IEG report. The Thematic Group reviewed projects from fiscal 1992 to 2006. One objective of the study was to shed light on trends developed since the last major subsector review published in 1991 (Riverson, Gaviria, and Thruscutt 1991) and discussed earlier in this chapter. Another objective was to provide information on how to implement the IEG recommendations and encourage the adoption of a new strategy for the provision of rural transport.

According to the IEG review, most rural road projects focused on providing rural access, with many using labor-intensive construction. In addition, it found that when

²⁰ The recommendations of the Bank's evaluation report on the transport sector work from 1995 to 2005, *A Decade of Action in Transport*, were incorporated in 2008 into the new sector strategy, *Safe, Clean, and Affordable. Transport for Development: The World Bank Group's Transport Business Strategy for 2008–2012* (World Bank 2008a).

transport improves accessibility and affordability for the poor, the result can be reductions in both urban and rural poverty. However, the distributional impact of transport projects (and pricing policy) is under-researched. Moreover, regardless of who implemented the project (communities or works departments), sustainability remained a major issue. In fragile states, the risks of intervention are high, but the returns can sometimes be substantial. Where institutional capacity is low, there is a general tendency to underestimate the time needed to implement reforms, build capacity, and build institutions. This remains an issue if the typical four to five-year window of project life is the main opportunity offered for institutional development and capacity building, which usually require a longer time to establish and sustain.

In the Thematic Group study, the first part of its report focused on rural transport–dedicated projects (Tsumagari 2007) and the second on non-dedicated transport projects incorporating multiple sector issues into single projects (Tsumagari 2008). The reports presented the overall rural transport investment response and the critical shifts in the way the Bank conducts business with countries. The findings also highlighted the strong connection between the following trends in the World Bank’s policy and country assistance strategy (see table 5.2) and the scale and nature of its lending to countries (as noted shortly):

- A poverty reduction focus, particularly in rural areas (e.g., PRSPs and MDGs), that began in 2000 following the launch of the MDGs
- Country ownership, which enabled bottom-up approaches and the reemergence of infrastructure as a key business area for the Bank
- A search for a rural development strategy responsive to the changing development paradigms.

Characteristics of projects from 1992 to 2006

The Thematic Group study also confirmed that during the period reviewed rural transport was a foundational business for the World Bank. Between 1992 and 2006, the Bank approved 3,261 projects of which 461 (14.1 percent) had rural transport components. Of these 461 projects, 59 projects (13 percent) were rural transport–dedicated projects, 70 projects (16 percent) were highway/main road projects with rural road components, and the remaining 332 projects (72 percent) were multisector projects with rural road components.

Box 5.1 Labor-based methods: Evolution and use for construction and maintenance

The use of labor-based technology has been an important part of rural transport strategy for infrastructure improvement in SSA for more than 25 years. These methods not only produce gravel roads equal in quality to roads produced using equipment-based methods, but also generate rural employment. Although labor-based methods have proved to be a cost-effective alternative in many low-wage SSA countries, the methods have been applied on a lesser scale than expected. In 1996, the SSATP's Rural Travel and Transport Program (RTTP) carried out a study that looked into the application of labor-based technologies (Stock and de Veen 1996).

The study reported, inter alia, that since the period from 1971 to 1973, radically new field studies of road construction technology were being launched under the World Bank's labor substitution study and the International Labour Organization's World Employment Program (World Bank 1971, 1974, 1975a, 1975b, 1976, 1978a, 1978b, 1986). These studies led to the promotion of labor-based roadwork methods. The International Labour Organization assumed leadership in the implementation and actively developed the labor-based methods with training materials and facilities (e.g., the Kisii Labor-Based Training Center in Kisii, Kenya). The methods were tested in pilot activities and projects with varying degrees of success in various countries such as Benin, Burundi, Ethiopia, Ghana, Kenya, Madagascar, Mozambique, Namibia, South Africa, Uganda, Zambia, and Zimbabwe. Prior to 1991, the use of labor-based methods was reported in only 14 road construction projects (16 percent) and in 19 road maintenance projects (20 percent). New projects have since been initiated and implemented in emerging countries in Africa, Asia and Latin America, thereby providing a means of employment creation and poverty reduction. The International Labour Organization–Advisory Support, Information and Training (ILO-ASIST) offices in SSA have continued to provide African countries with support in the formulation and implementation of labor-based roadwork, as well as in training.

The RTTP study also sought to learn why labor-based programs have not been adopted on a large scale and to develop the appropriate reforms (Stock and de Veen 1996). The research identified two key reforms necessary to mainstream labor-based programs: (i) improved cash management to ensure that funds flow adequately and laborers are paid on time; and (ii) decentralization to streamline payment procedures and strengthen stakeholders' support of these programs. These two reforms, together with government commitment, effective labor laws, appropriate design standards, and training (under several specialist training centers in Kenya, South Africa, Uganda, and elsewhere), including the development of strong people management skills, would facilitate the mainstreaming and success of labor-based programs in countries where such methods are feasible.

Within the 59 rural transport–dedicated projects, 123,015 kilometers of roads were rehabilitated, improved, upgraded, or constructed. Meanwhile, \$13.8 billion was also committed to rural transport, for an average of \$920 million per year (4.3 percent of the Bank total). The share of rural transport in Bank projects also increased from 10.3 percent in 1992–1996 to 15.6 percent in 1997–2001 and 16.5 percent in 2001–2006. At an average cost of \$100,000 per kilometer, these figures may imply improvements mainly to roads in the upper level of the road network passing through rural areas.

The focus of rural transport projects varied among World Bank operational regions and sectors, but the Sub-Saharan Africa region took the largest share, accounting for 30 percent of the Bank's rural transport project portfolio.²¹ The latter pattern reflects the clear decision by IDA members to focus on rural transport.

The Millennium Development Goals and measuring isolation: Applying the Rural Access Index to projects

Overall, then, improvements in rural transport were a way to fight poverty and a means to achieving the Millennium Development Goals (see SSATP 2005). Therefore, monitoring MDG targets using the agreed-on indicators, including the Rural Access Index (RAI), became a requirement for rural road projects after the MDG targets were adopted by Africa's ministers of transport in 2005.

In a 2010 published study (Raballand, Macchi, and Petracco (2010), the authors questioned the use of the RAI. They argued that the index as defined could overestimate the needs for rural roads and lead to overinvestment in rural roads compared with main and secondary road networks. They propose instead a reference distance of 5 kilometers, not 2 kilometers. *However, the RAI is better seen as a measure of network density and thus of access as opposed to an absolute indicator of the required level of investment. It is best used in the framework of a mixture of different standards of road needed to improve the overall access of rural communities.* According to Jalan and Ravallion (1998), road density is one of the significant determinants of the household-level prospects of escaping poverty in rural China, and this determinant can be expected to apply as well in SSA. The original RAI therefore represents a higher order of access, reflecting a certain level of demand arising from rural growth. A desired level of density will likely be attained via incremental investment over a period starting with the highest-priority road sections. The RAI has served as a useful basis for planning rural roads in a number of countries, including Vietnam (see case study in appendix E.3).

The basic access concept as applied in rural transport project planning

The basic access approach (see Lebo and Schelling 2001 and box 5.2) is another useful method applied more recently to planning rural transport projects in Peru, Romania,

²¹ More specifically, 32 percent of the rural transport project portfolio in 1992–96, 30 percent in 1997–2001, and 31 percent in 2002–6 originated in AFR, the World Bank's regional vice presidency.

and India (see appendixes E.1, E.2, and E.4). Box 5.2 demonstrates the linkage between the basic access concept and the RAI and how both serve as useful tools for addressing poverty reduction through rural road and transport projects.

Table 5.2 Strategic context for World Bank (WB) rural transport projects

Country poverty reduction strategies	Strategic Compact (1997–99)		Millennium Development Goals (2000–2015)
			<i>Poverty reduction strategy papers (2000–)</i>
WB infrastructure strategies			<i>WB Infrastructure Action Plan (2003)</i>
Key infrastructure reports	<i>World Development Report 1994</i>		<i>Africa's Infrastructure: A Time for Transformation (2009/2010)</i>
WB transport strategies	<i>Sustainable Transport Strategy (1996)</i>		→ <i>Affordable Transport Strategy (2007)</i>
Key rural transport reports	<i>Rural Roads in SSA (1991)</i> <i>RR Maintenance Review (1992)</i> <i>RR Maintenance and Improvements (1994)</i>	<i>Options for Managing & Financing Rural Transport (1998)</i> <i>Poverty and Transport (1997)</i> <i>Design and Appraisal of Rural Transport Infrastructure: (2001)</i>	<i>A Decade of Action in Transport (2007)</i> <i>Rural Road Investment Efficiency (2010)</i>
WB rural & agriculture sector strategies	<i>From Vision to Action (1997)</i>	→ <i>Reaching the Rural Poor (2002)</i>	→ <i>Rural Strategy 2009 (draft)</i>
Key agricultural/rural reports		<i>World Development Report 2008</i>	<i>Sleeping Giant</i>

Source: Authors Adapted and updated from Tsumagari 2007, 2008

REVIEW OF RURAL TRANSPORT IN WORLD BANK AGRICULTURE SECTOR PROJECTS

This section presents characteristics and lessons learned from Agriculture and rural development Sector projects with rural infrastructure/rural transport components. The good practices, challenges and lessons learned are summarized in Box 5.3.

In Bank lending worldwide from 2001 to 2006, among the new investments made in rural areas rural infrastructure lending accounted for both the highest number of projects and the biggest lending commitment. In 2006, almost a third of the World Bank’s rural sector lending was for infrastructure, and nearly two-fifths of rural projects included an infrastructure component. However, beginning in 2005 rural infrastructure lending continuously decreased while the share of rural investments in total World Bank lending increased. In 2006, almost 60 percent of projects devoted more than 50 percent of their total cost to infrastructure components versus 47 percent in fiscal 2005.

Box 5.2 Basic access concept and Rural Access Index (RAI)

The World Bank has adopted the Rural Access Index as one of the core indicators for measuring the effectiveness of the resources of the International Development Association. The RAI measures the number of rural people who live within 2 kilometers (typically equivalent to a walk of 20–25 minutes) of an all-season road as a proportion of the total rural population. An all-season road is a road that is motorable all year-round by the prevailing means of rural transport (typically a pick-up truck that does not have four-wheel drive). Occasional interruptions of short duration during inclement weather (e.g., heavy rainfall) are accepted, particularly on lightly trafficked roads. According to the current estimates, about 900 million rural dwellers worldwide, or about 15 percent of the total world population, are without reliable access. Such isolation contributes substantially to poverty for both economic and social reasons.

The RAI derives from the basic access concept, which defines a minimum of access as a basic human right. Providing the rural population with basic access requires a minimum of institutional, financial, and knowledge resources. Normally, the institutions responsible for such basic access are local governments and communities. Financial resources are provided through local resources, fiscal transfers, and road funds, and knowledge is required to provide for the appropriate locally adapted, least-cost approaches to resolving access issues.

Because resources are scarce, the appropriate selection procedures for basic access interventions are required. The basic access concept proposes ranking interventions on the basis of the least-cost intervention divided by the number of people served. "Least cost," however, means life cycle cost, which is the cost of investment and maintenance over a period of, say, 10 years. Consequently, it may not be the cheapest initial investment that provides the least life cycle cost. One example is the construction of a good-quality ventilated drift across a river on an otherwise all-season road, which would reduce the time that a road leading to a large population is closed from several months to a few hours a year. That road would get a higher ranking than a seasonal track to an all-season road that leads to a few remote villagers. Agricultural potential, for example, will augment such a ranking. However, one can safely assume that populations will tend to move toward areas with higher agricultural potential.

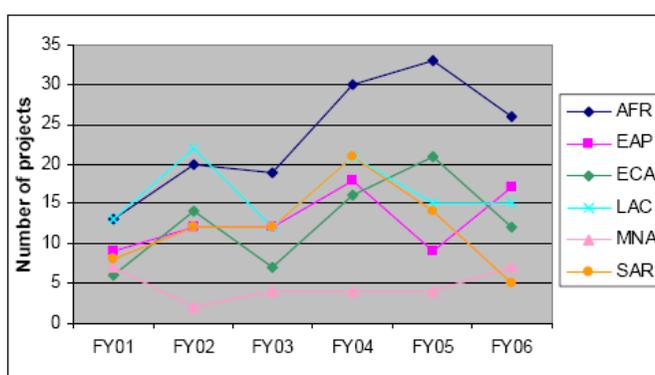
From a sector perspective, significant increases in lending volumes were noticeable in the energy and mining sector (lending increased from an average of \$148 million during fiscal 2001–2004 to nearly \$600 million in fiscal 2005 and \$1,056 million in fiscal 2006). Transport and the rural sector had dominated the rural infrastructure portfolio in the fiscal 2001–2004 period in terms of both number of projects (figure 5.2) and lending levels. In fiscal 2006, the rural sector more than doubled its fiscal 2005 lending levels to reach \$373.24 million. Lending in the transport sector decreased, however, by nearly 44 percent from the previous year, 2005 to \$828 million in fiscal 2006.

Across infrastructure projects, rural transport infrastructure (roads, tracks, paths, and footbridges) was the most frequently supported in both fiscal 2005 and fiscal 2006, followed closely by energy and electricity, water supply, and educational facilities.

These findings are consistent with the results for the previous four years, as is the high level of involvement of the relevant sector ministry or agency (in 91 percent of rural infrastructure projects in fiscal 2005 and 88 percent in fiscal 2006). This involvement tends to ensure more effective and efficient delivery of sector-specific interventions.

Figure 5.1 Distribution of rural projects with infrastructure lending by region, FY01–FY06

Source: World Bank, 2008c: Agriculture and Rural Development Thematic Group, Review of the Agriculture and Rural Development Portfolio for Fiscal Year 2006



Note: AFR = Africa; EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MNA = Middle East and North Africa; SAR = South Asia.

As for projects with explicit provisions for maintenance arrangements, 69 percent of projects had such provisions in fiscal 2004, but only 36 percent of projects in fiscal 2005 and 47 percent in fiscal 2006.

During the fiscal years 2005 and 2006, there was less stakeholder involvement in the design and implementation of World Bank infrastructure projects than between 2001–2004, when about 45 percent of the rural infrastructure projects were implemented either through participation of the local beneficiary communities or through the combined participation of local government and the community. Only 35 percent of projects in fiscal 2005 and 32 percent in fiscal 2006 were community-driven development projects, whereas local governments implemented 56 percent in fiscal 2005 and 52 percent in fiscal 2006 (figure 5.1). Both the energy and the transport sectors continue to implement the majority of their rural projects without the local participation of their beneficiaries. The good practices, challenges and lessons learned are summarized in box 5.3.

Box 5.3 Good practices, innovations and challenges: Lessons from a review of the World Bank's rural infrastructure portfolio, 2000–2006

A few projects with rural infrastructure services continue to focus on the impact they are likely to have on the investment climate necessary to support successful business environment activities and agricultural growth in line with the most recent empirical evidence.

- A good example in 2005–6 was a project in Madagascar that identified specific infrastructure issues as imposing an indirect cost on firms. Those issues included the poor physical road network, deficient power supply, high telecommunication costs, and tax and policy inefficiencies.
- The experience gained in territorial development in Latin America and the Caribbean (LAC) countries through improved access to basic services and infrastructure (e.g., Guatemala, Honduras, and Peru) has been applied in Chile (fiscal 2005) and Haiti (fiscal 2006).
- Routine road maintenance and rehabilitation projects or components continue to represent a significant share of rural transport investments to ensure the sustainability of road investments (Uruguay and Poland in fiscal 2005; Haiti, Iraq, and Poland in fiscal 2006).
- The fiscal 2006 regional transport decentralization project in Peru is a good example of how progress achieved for rural roads at the municipal level can create a favorable environment for implementing a decentralized rural infrastructure strategy, integrating the various infrastructure sectors with potential complementarities for possible economic opportunities derived from bundling the services.
- Rural projects with infrastructure lending devoted to energy access show some promising development. Assistance to Africa—a region with the lowest access rates in the world—is both significant and growing in the size of investments and the breadth of issues covered, receiving at present nearly one-third of the total World Bank investments in energy access.
- Good practice for telecommunications projects has consisted of implementing the innovative output-based aid (OBA) approach, which consists of giving contracts to private operators requesting the minimum subsidy in exchange for extending services to selected locations. The client disburses funds through periodic payments established once the service starts and is of the prescribed quality. The focus of ICT projects using the OBA approach has been on providing public telephone services via pay phones. This approach has proven to be quite cost-effective for public telephony and is now under consideration for scaling up, in particular for the provision of broadband Internet services. For fiscal 2006, telecommunications projects included Nicaragua, where there was to be an increase in geographic coverage of mobile telephone networks, and Mongolia, which included expanding Internet access.
- Quantifying the potential tangible benefits from rural infrastructure access remains a challenge, as does the decentralization of responsibility for infrastructure planning and monitoring. The projects need to link the net benefits and results more directly with the agreed-on activities.

Making a virtue out of the diversity of rural development interventions

The preceding review of the Bank's rural infrastructure portfolio revealed that a large number of different sectors, subsectors, and stakeholders are involved in agricultural and rural development. Although rural development is a complex activity, it also creates opportunities to identify and exploit joint benefits—also called co-benefits—in rural development projects. For example, rural road investments may generate direct economic benefits for farmers in a village, while providing additional direct education and health benefits to households through reduced travel time to schools and clinics. Over the longer term, improved health and education can also generate economic benefits, although these are difficult, if not impossible, to calculate with any accuracy. Localities need tools and processes to identify the full range of benefits. For example, it should be possible to evaluate the viability of investments having such co-benefits by either a hybrid appraisal method involving both cost-benefit and cost-effectiveness analysis, or a financial appraisal method that assesses whether after economic benefits are identified and weighed against capital and recurrent costs the local road owners/managers are willing and able to finance any uncovered costs because of their perception of social benefits such as higher school attendance and greater use of clinics.

Box 5.4 Trends in gender mainstreaming in rural projects

Of the rural projects approved in fiscal 2006, 63 percent addressed gender based on how often the project appraisal document (PAD) mentioned gender keywords such as *gender*, *women*, *female*, and *girls*. In about 28 percent of all the rural projects, gender analysis was included in the social assessment presented in the PAD. About 33 percent of the projects mentioned gender as a factor guiding the project design, investments, and implementation. And about 19 percent of the projects explicitly allocated resources for gender-related components. Finally, about 27 percent had at least one gender-disaggregated monitoring and evaluation indicator (M&E)

Compared with fiscal 2005, fiscal 2006 saw improvements in several criteria in incorporating gender in rural projects. For example, the proportion of projects that addressed gender increased by 13 percent, from the 56 percent of total projects in 2005.

From fiscal 2001 to fiscal 2006, the proportion increased three times. There was also a slight increase in the proportion of rural projects with gender analysis (a 7 percent increase from fiscal 2005) and a significant increase in the projects with gender-disaggregated M&E. However, there was a significant decline (24 percent from fiscal 2005) in both the absolute number and the proportion of rural projects that allocated resources for gender, which is consistent with the decline in funds allocated to gender actions in rural lending.

Source: World Bank, 2008c: Agriculture and Rural Development Thematic Group, Review of the Agriculture and Rural Development Portfolio for Fiscal Year 2006.

As in rural transport, gender is an issue in agricultural and rural development. In the rural projects reviewed, gender mainstreaming shows both promising and declining trends (box 5.4). In fiscal 2006, the World Bank's board approved 194 IBRD/IDA projects directed to rural areas with new loans amounting to \$8.1 billion. Gender-focused activities within the rural portfolio are valued at about \$192 million, or 2.4 percent of the total rural lending (excluding five projects with the exact amount not determined). The decline in allocation for gender in fiscal 2006 compared with the \$368 million (4 percent of total rural lending) allocated in fiscal 2005 is significant.

Rural transport components of rural projects in Sub-Saharan Africa

What is the evolving approach of agriculture sector projects to rural transport and their performance? To answer this question, this section analyses the evaluation reports for projects initiated and completed since the early 1990s, as well as the design and approach of agriculture sector projects from fiscal 2006 to 2008. The agriculture projects reviewed are only those identified as including rural transport activities. These were selected from the earlier transport sector review (Tsumagari 2007) supplemented by review of the agricultural and rural development project information in the World Bank's project database. This discussion is aimed at evaluating the scope and characteristics of rural transport activities in agricultural operations and not the extent to which the agriculture portfolio is aligned with the rural strategies described earlier.

The six projects for which evaluation reports were available were approved from 1993 to 1997. They showed some marked continuities in design with the active projects initiated from 2006 to 2008 (see table 5.3). First, in both sets two types of projects loom important: multisector community-based rural development (CBRD) and agricultural marketing operations. During the earlier period, these projects were experimental pilot operations. Their success led to an increase in the number of such operations. The size of such projects also increased, but it is significant that the size of rural road activities did not. In both periods, the total length of rural roads rehabilitated, built, or maintained was typically small, usually between 500 and 1,000 kilometers in total. In both periods as well, transport interventions were typically limited to road rehabilitation or construction rather than broader rural transport or rural access activities. No direct references to the uptake of IMTs were identified.

There were also clear differences in performance between the earlier and later projects and their rural road activities. Projects carried out in the 1990s exhibited poor, often unsatisfactory implementation and outcomes, with the exception of the Ghana Vil-

lage Improvement Project—a relatively successful project that may have provided a demonstration for the broader portfolio (this project was scaled up in later Ghana operations). The 2006–8 projects were much more successful in terms of both implementation status and project development objectives. Sustainability and road maintenance, however, remain significant challenges, consistent with the IEG’s evaluations of projects in the earlier period. The extent to which later projects successfully address these issues requires further attention to ensure the application of lessons learned, particularly from transport sector projects.

Table 5.3 A Typology of agricultural and rural development projects with a rural transport activity, 2006–2008

<i>Project type</i>	<i>Example (active projects)</i>	<i>Nature of existing (or potential) rural transport activity</i>
Floods and natural disasters	Guinea-Bissau	Road rehabilitation and maintenance
Food security	Kenya	Food-for-Work
Post-conflict	Rwanda	Infrastructure rehabilitation
Rural transport in irrigation	Madagascar	R&D focusing on special irrigation project
	Ethiopia	Road and track access constraints noted but not directly addressed
Marketing & commercialization	Burkina Faso, Senegal	Geographically concentrated activities stemming from agro climatic needs or processing requirements (e.g., sugar, milk, horticulture) More spatially dispersed products (e.g., staple foods)

FINDINGS AND EMERGING LESSONS FROM THE REVIEW OF RURAL TRANSPORT PROJECTS

From this review of past rural transport projects in the transport and agriculture sectors, several findings can be singled out and lessons drawn:

- *Within the overall lending portfolio, rural transport has managed to hold its own, with investments continuing to be robust during the infrastructure financing crunch in the late 1990s.* Rural transport activities in the agriculture sector have been relatively high although overall lending for other subsectors of infrastructure appeared low during the latter part of the 1990s. This demonstrated the high priority given to rural transport even in the face of overall lending crunch.
- *Institutional responsibility for financing and management varies from country to country and even within countries.* Although all countries have focused

strongly on strengthening management and financing arrangements, their approaches have differed. A significant challenge remains in establishing sustainable institutional arrangements for growth-oriented rural development programs in which transport has a significant role. Some countries have emphasized supporting the dedicated agencies charged with coordinating and implementing rural transport improvements financed by the World Bank. Others have emphasized strengthening decentralized local government or community bodies. The degree to which higher-level sector institutions or lower-level government and community organizations have been responsible varies significantly between countries. What is important is that each country make its own strategic choice of institutional mix, while ensuring some degree of involvement and dialogue between the higher and lower levels of government.

- *Improved access requires not only better roads, but also improved transport services along with the associated non road infrastructure and the appropriate IMTs.* These are relatively neglected elements of transport. Moreover, to the extent that road construction and maintenance have received priority, it has usually focused on the upper end of the network over road improvements that increase local access. Finally, other modes of transport (e.g., rail and river transport) can have a comparative advantage over roads, and countries should allow them to play their role in fulfilling the goal of rural growth and poverty reduction.
- *Execution of road works.* Rural transport road works are largely executed through private contractors, with AGETIP (agency for executing public works)-type arrangements still featured in francophone countries such as Mali and Senegal. Contractor training and development are essential for building the capacity of small entrepreneurs to implement labor-based road contracts. Recent ongoing projects also include pilot output-based contracting. For example, Zambia's Rural Access and Mobility Project was implemented essentially on secondary roads. *The experience is still too early to judge, as well as the potential for success by replication and extended application to rural road works in many other countries.*
- *Maintenance and choice of technology.* Overall, transport strategy considers maintenance important. Although past rural transport projects have included some financing for road maintenance, nationally allocated funds continue to be inadequate, particularly for rural roads. In this context, as promoted under the SSATP, transport sector projects in many countries have succeed-

ed in introducing and setting up road funds. For example, in countries such as Ghana, Ethiopia, Kenya, and Zambia, the road fund allocates resources for the improvement and maintenance of rural roads through local government road agencies. Nonetheless, countries are still finding maintenance, especially of rural roads, challenging in terms of both its financing and execution. Based on evidence from the project portfolio, many rural transport projects have faced financing, management, and institutional limitations in the area of maintenance. A short-term solution to this deficiency in maintenance funding is to allocate financing from project resources to ensure the short-term availability of maintenance funding. Countries can also do more with existing funds if they systematically adopt cost-effective methods such as labor-based technology in maintaining road networks. Stronger institutional and financing arrangements covering the needs of rural roads and access to communities will also be required for the long-term preservation of the overall national road infrastructure assets.

- *Social dimensions.* Particularly for projects in the transport sector, social assessment and participatory approaches are not well appreciated or used, thereby reducing the beneficial social impact of such projects. There is a considerable body of knowledge on the gender and social aspects of rural transport, including the effects on household labor. This knowledge needs to be disseminated and more widely applied.
- *Governance and accountability.* Rural transport projects, like other projects, can be captured by dominant groups within the society at the national, regional, and local levels. Greater involvement of communities in the design and implementation of rural transport projects can help improve governance arrangements and accountability.

CONCLUSIONS

In view of its potential, rural transport appears to be making a limited direct contribution to poverty reduction, in part perhaps because of a lack of awareness or willingness to apply known practices that hold the promise of accelerating growth and reducing poverty. Linkages between agriculture and transport are generally weak in the design of operational support within both the World Bank and donor agencies in general and the SSA countries themselves. One potentially good example that should be further evaluated is the work under way in Nigeria. The World Bank Transport Unit and the Agriculture and Rural Development Unit both have projects they support which are being implemented within the country's Ministry for Agriculture and

Rural Development. For the first Unit, the project is the Rural Access and Mobility Project (RAMP) while for the second Units they are the Commercial Agriculture and the Fadama projects. It is not yet known whether this arrangement has realized the full benefits of the synergies intended by the institutional design.

Overall, in addition to increasing the application of innovative practices and scaling up localized successes, the key agenda in rural transport development is that of securing sustainability. This agenda should incorporate the following essential elements and enhance its contribution to rural growth and poverty reduction: (i) set policy and institutional arrangements for planning and management; (ii) determine and allocate financial and economic resources and clarify decision making; (iii) select and implement an affordable technical design and technology; (iv) ensure the social buy-in and participation of local communities in prioritizing and organizing maintenance of the infrastructure constructed; and (v) increase the involvement of domestic private contractors in road rehabilitation and maintenance. The above elements should be addressed in any project with rural transport activities, whether a traditional project, a rural development or CDD project, or an agricultural marketing project.

6. Contribution to growth and poverty reduction

The preceding chapters have tried to show that improved rural transport is essential to rural growth and poverty reduction in Sub-Saharan Africa, primarily through its impact on agriculture and rural development. The key knowledge areas, strategies, and tools presented embody lessons from past projects in the transport and agriculture sectors. Social development projects, including those offering social safety nets for ensuring food security, have also included rural road construction, often with a focus on employment creation for youth and displaced persons. Although the perceptions of and approaches to rural transport differ somewhat, depending on the sector window used to address the problem, there are several areas of convergence on rural transport approaches and some areas of continued divergence. This chapter presents a summary of these areas before outlining a suggested policy framework for rural transport development for rural growth and poverty reduction.

CONVERGENCE AND DIVERGENCE OF SECTORAL PERCEPTIONS, STRATEGIES, AND TOOLS

Previous chapters, in documenting the operational experiences of the agriculture and transport sectors, revealed each sector's distinct perspective on rural transport. Although project sustainability remains a challenge across the board, the approach of each sector to rural transport clearly has elements that can contribute to the acceleration of broad-based rural growth. The review presented in this report notes, however, that application of these potential and successful elements has been insufficient, both within and across sectors. Where they have been applied, usually in a pilot context, scaling up has proven to be a significant challenge. An effective operational framework for rural transport should provide guidance to individual sectors that draws on the different sectoral strengths. In doing so, it should make available the guidance and tools that improve the growth influence of rural transport efforts in many different kinds of organizations, including local government and community bodies, ministry and sectoral technical units, and donor departments. In addition, it should highlight what to do in areas of continued challenge, such as *sustainability*, even if there are fewer successes. An important first step in developing a common rural transport framework is therefore to identify areas in which the rural transport approach of different sectors converge and diverge.

Areas of convergence

The following are the areas of convergence:

- Good sector policy (in agriculture and transport) remains a bedrock for good project design and implementation.
- Improving the conditions of rural roads can translate into better access to social services (such as health and education) and to income generation, providing opportunities for co-benefits.
- Rural transport development is part of local economic development, which is by its nature a multisectoral activity. An integrated approach to rural transport can work if embedded in sound growth-oriented planning processes that involve the relevant local stakeholders and technical and decision-making input from diverse sectors.
- Women's involvement in road project design and maintenance activities can generate important equity and broader socioeconomic benefits commonly ignored by the traditional road upgrading approaches.
- Strong cooperation between development organizations is required in rural transport because of the diversity of the issues involved, the large number of intervention points and tools, and the size of the financing need.
- Support for the development of local and sector institutions to plan, manage, and finance rural transport is essential to their successful implementation and sustainability. To undertake these actions, one must build in ample time for capacity building should be included in the project preparation and implementation stages.
- Like rural development, rural transport development requires a long-term perspective. By their very nature, some activities, such as institutional capacity building, take a long time to implement and take hold. The same is true of the impact of improved rural transport on poverty and broader local economic development. Local and national planning and budgeting processes should consider these factors in addressing rural transport. A key challenge at the budget planning level is to translate intersectoral growth strategies into sector allocations that exploit complementarities between sectors and maximize sector impact on broad-based rural growth. Sharing and consolidation of information on budget execution and outturns across sectors are essential if the budget process is to inform allocation decisions. Two ex-

amples of countries in which rural transport developed within the national budget processes are Peru and Ethiopia (see appendixes E.1 and E.6).

- Decentralization can improve the planning, implementation, and maintenance of rural transport interventions through enhanced ownership and greater mobilization of local resources. Such advances can help strengthen the decentralization agenda and contribute to territorial development as well. Rural roads are one of the most important assets owned or managed by local governments, and in SSA the total size of the network typically exceeds that of the primary network. Good management of this asset not only contributes to local development but also provides a crucial test of the capabilities of emerging local institutions. To be effective, these institutions must be inclusive and socially and politically sustainable. This requires a social consensus among the relevant stakeholders on the importance and value of the project.
- Piloting is important, but scale-up remains a significant challenge. Scale-up of successful pilots will not happen until pilot activities strengthen their M&E and pay explicit attention in the M&E system to developing a strategy for scaling up.
- National policies and sector institutions need to support local initiatives with technical expertise and skill development, finance, and broader network planning and budgeting.

Areas where perspectives diverge

Experience from agriculture sector projects and programs provides some lessons that may not be common to the transport sector:

- Participatory planning and inclusion can ensure better targeting of resources, increased ownership and responsiveness to community needs.
- Local government agencies and communities provided with the right mix of expertise and financial resources can efficiently manage rural road assets.
- From the transport side, some lessons may not be common to agriculture:
- Gravel roads can be a sustainable and cost-effective technical solution to improving rural transport infrastructure.

- Least-cost design principles and construction quality are available and applicable to ensure budgetary discipline.
- Financial and economic appraisals should be carried out for each investment, covering the investment life cycle.
- A maintenance strategy for transport infrastructure can act as a catalyst for developing the local private sector and entrepreneurial attitudes.

These lessons form the background for the broad conclusions outlined in the section that follows on what should be the essential characteristics of a rural transport project in order for it to contribute meaningfully to poverty reduction.

BROAD CONCLUSIONS LEADING TO AN IMPROVED POLICY AND STRATEGIC FRAMEWORK

The first broad conclusion is that because of the existing characteristics and stages of development of rural areas in SSA, proposed interventions in rural transport and agricultural and rural development need to be those that make a direct impact on rural growth and poverty reduction. Their relevance, or irrelevance, should therefore first be judged on the contribution they make to rural growth and poverty reduction in a sustainable manner.

The second broad conclusion is that sector-specific actions must be conceived and coordinated within the multisectoral growth framework in order to realize improved rural development, growth, and poverty reduction. These actions will, however, need *national, regional, and local dimensions*, requiring inputs from different agencies at these levels along with an institutional and coordinating framework that facilitates such cooperation.

Third is the need to use tools and instruments that encourage the different sectors and their agencies to generate and share information that is aimed at common target beneficiaries. These beneficiaries should remain at the center of the planning and development process in order to build trust.

Fourth is the need to adopt a long-term perspective to the plans and programs proposed for implementation in order to overcome the seemingly endemic nature of poverty and the extent of stifled growth in the rural areas of SSA.

The fifth is that there is a significant role for smallholder farmers in increasing Africa's agricultural output. But, the interventions that will allow them to make this contribution must be put in place. Road infrastructure is considered generally a public good. Therefore, there is a clear consensus that the public sector as the main source of financing for roads and other infrastructure, needs to increase significantly its investment in rural infrastructure, particularly roads and access facilities. While the need is also recognized for a mix of road transport infrastructure along the supply chain for farm inputs and outputs and supportive social infrastructure, priority should be given to that infrastructure that directly affects households—their community roads, tracks, paths, and trails. Such priority should go hand in hand with the development of secondary road links to the primary national roads required for intranational movements and external trips for import-export purposes. These actions will help lift farmers out of a life of subsistence and drudgery, rural isolation, and poverty in order to empower and offer them hope for a better future.

A sixth conclusion is that planning and estimating the demand for rural roads, particularly for the lower end of the network, require use of an approach different from that used for strategic road links. Those estimating demand for the lower end of the network would need to apply a methodology that has the rural household at its center, much like the approach taken to assessing urban travel demand. Such an approach will improve the link between the daily activities of rural households and the possible role transport interventions could play in improving the quality of such activities and reducing households' poverty levels and fostering rural growth. The interventions identified should be implemented while adhering to the appropriate standards and ensuring interventions' cost-effectiveness and sustainability. In addition, their impacts and contribution to reducing poverty must be consistently monitored and evaluated.

Seventh and last is the need to apply promising and pilot-tested practices and for the wider dissemination and faster application of good practices.

All these broad conclusions provide the basis for defining the essential building blocks of a policy and implementation framework for rural transport that increases its contribution to agricultural and rural development, growth and poverty reduction.

BUILDING BLOCKS OF A FRAMEWORK FOR RURAL TRANSPORT SUPPORTIVE OF GROWTH AND POVERTY REDUCTION

A framework for national poverty reduction and agricultural and rural development must closely link its related policies and strategies to the policies, strategies, and actions being applied to developing rural transport and its associated services. The policy and strategic framework is intended to provide local, national, and international institutions working in country with the guidance needed for planning, programming, and implementation of rural transport improvements that support rural development and growth. This requires greater inter-sector collaboration, thereby reducing sector-centered and narrow business-as-usual approaches and working to overcome sometimes-difficult institutional relationships and challenges faced by under-resourced local administrations.

At national level, sector ministries involved in rural development, agriculture, transport, or infrastructure must show how they can most effectively contribute to rural and agricultural development, in tandem with other sectors, through a clear statement of ends and means. The "silo" approach to public sector policy and planning—that is, infrastructure and agricultural policies with a narrow focus on increasing the stock of infrastructure and agricultural production, and ministry budgets that are departmental in focus rather than reflections of a coordinated strategy—will not suffice. Changes are needed to meet the ambitious agricultural development objectives of NEPAD and the poverty reduction targets of the MDGs.²² SSATP's pro-growth, pro-poor transport strategy (PGPTS) has established guidelines for defining the status of the linkage between the poverty reduction strategies and the related transport strategies in many countries, and proposed ways to proceed to finalizing a PGPTS. The PGPTS will provide the takeoff point to review and develop rural transport strategies.

At the local level, in countries in which national policy includes decentralization that is being implemented, the capacity of local governments and communities to develop credible and focused local plans for rural development and income growth is critical. The formulation of such plans will allow contributions from all sectors.

²² NEPAD aims for 10 percent annual growth in the agriculture sector and the allocation of 10 percent of government expenditures to agriculture.

Based on this review, a rural transport framework needs to address the necessary policy, institutional, planning, financing, implementation, and monitoring aspects of rural transport. The next section outlines the building blocks or basic areas of policy to address, followed by a discussion of the ways in which to apply the framework in the different country circumstances in SSA.

Box 6.1 Four key dimensions of a PRSP arising from the principles underlying the approach

A description of the participatory process used. Describes the format, frequency, and location of consultations; summarizes the main issues and views of participants; includes an account of the impact of the consultations on the strategy design; and discusses the role of civil society in future monitoring and implementation.

Comprehensive poverty diagnostics. Required to gain a good understanding of the poor and where they live, thereby allowing the PRSP to analyze the macroeconomic, social, structural, and institutional constraints to faster growth and poverty reduction.

Clearly presented priced priorities for macroeconomic, structural, and social policies. Together, they make up a comprehensive strategy for achieving poverty-reducing outcomes. Policies are priced and prioritized as far as possible to avoid becoming a "wish list."

Appropriate targets, indicators, and systems for monitoring and evaluating progress. A PRSP defines medium- and long-term goals for poverty reduction **outcomes** (monetary and nonmonetary), establishes indicators of progress, and sets annual and medium-term targets. The targets should be consistent with the assessment of poverty and the institutional capacity to monitor, as well as the policy choices in the strategy.

AN IMPROVED RURAL TRANSPORT FRAMEWORK BASED ON LESSONS FROM THE REVIEW

The proposed policy framework provides a checklist of issues (including guiding questions) that require attention in developing and implementing growth-oriented transport policies and programs for rural areas. In addition, it provides specific guidance on national (including sector-level) and local policies, as well as the guidelines and tools needed to formulate these policies, prepare strategies and translate them into credible budget plans, and implement and monitor their contribution to growth.

1. *Set macro-level objectives for rural access and mobility that supports agricultural development and growth*

To be effective in furthering growth and poverty reduction countrywide, individual sector strategies should be integrated into a credible growth strategy that takes into account each sector's current and future contributions as well as the synergies between them. The country strategy establishes an overall framework and identifies broad priorities, guiding the programs of individual productive sectors and infrastructure. In most countries, the PRSP became the main starting point after adopting the MDGs for achievement by 2015. Meeting these goals in particular requires achieving increases in rural development and rural growth. The principles underlying the PRSP approach require that PRSPs consider the four elements outlined in box 6.1.

In a high-level growth strategy, the key element is how agriculture sector activity and transport (as well as other types of infrastructure) integrate to ensure faster growth and poverty reduction. Experience and recent sector analysis (Raballand 2009) demonstrate the importance of establishing a baseline picture of the trade corridors that link major agricultural production areas and areas of consumption, whether the final consumers are domestic (e.g., main urban areas), regional neighbors (typically serviced by cross-border trade), or international. This in fact is the approach proposed under the CAADP Pillar 2 framework as noted in chapter 3.

2. *Define and adopt the macroeconomic and sector-specific policies for a rural access and mobility objective that supports agricultural development and rural growth*

These policies are as follows:

Sector and local development policies that align sector strategies with the rural growth objective, covering transport (and possibly other infrastructure sectors), agriculture (including crop and livestock development, and possibly food security, irrigation, forestry, fisheries, land and water resources), and local government, which implements and refines decentralization policies.

Rural development and agricultural policies that support pro-poor growth and take into account the role of rural transport in rural growth, not as an add-on activity, but closely integrated with efforts by agriculture and other sectors to *stimulate activities crucial for rural growth*. In agriculture, this should include action to increase small-farm

productivity and competitiveness, technology availability and uptake, farm commercialization, development of responsive marketing systems, and more stable and remunerative prices. Marketing, beyond sales, covers transport, storage, and processing of outputs and inputs, along with the related services (finance, brokerage and contracting, packaging).

Empowerment or decentralization policies that confer significant responsibility for planning, resource mobilization, budgeting, decision making, and implementation on local government and communities, delivering timely financial resources adequate for rural transport investment and growth over which localities have control and are accountable. *At the level of the institutional process, an inclusive process of consultation is required on national and local policies (agricultural/rural, rural transport, empowerment, implementation, maintenance, resource mobilization, and financing). The actions taken should ensure adequate local input to, and ownership of, policies and the ongoing contributions of different sectors at the national and local levels as they clarify their respective contributions (joint as well as individual) to growth.*

Rural transport policies that accelerate rural growth and poverty reduction and are consistent with overall transport strategy, the latter based on a functional classification of roads (defining network levels, ownership, management, design standards, implementation, maintenance, and financing arrangements) as well as appropriate means of transport for improving mobility. *These policies also must take into account local rural productive activities—especially agriculture—and the impact of these activities on the economic viability of road transport investments, as well as any dynamic role for transport (in combination with other activities such as those of farmer marketing groups or ICT infrastructure) in stimulating increased commercialization, trade, and productivity.*

3. *Adopt long-term perspectives and anticipate scaling-up needs*

Achieving impact requires adopting a long-term horizon in planning and implementation. Where insufficient knowledge exists, there may be need for piloting and experimentation to determine the appropriateness of different approaches and technologies and institutional arrangements with a long-term perspective. What initially seems the best approach may prove to not be the case, and it is important to be ready to admit mistakes and adopt new approaches based on lessons learned. This requires putting in place from the beginning both a good monitoring system to measure the

impact of implementation and an information-sharing mechanism. In this context, where success occurs and scale-up is justified, then political will and resources would be required to facilitate and support the proposed actions. The use of labor-based roadwork approaches and of IMTs in SSA, for example, requires scaling up in response to successful pilot interventions in many SSA countries, including Kenya, Ghana, and Uganda.

4. *Ensure participation and input from relevant sectors and the population in identifying and prioritizing proposed interventions to achieve the maximum co-benefits*

The lessons learned from the rural strategies highlighted the benefits of decentralization and community-driven development projects, which fostered extensive participation at all levels of government and the population. This finding implies that the policy and strategic framework should clearly clarify the existing roles and organizational arrangements, determine capacities, and identify the needs for improved working relationships, accountability to stakeholders and beneficiaries, and the participation of each partner in the planning and implementation of interventions.

5. *Adopt design and implementation approaches and methods for rural transport interventions to address specific elements of rural growth*

Design and implement rural transport interventions to help achieve specific elements of rural growth. The related elements are the following: (i) agricultural marketing, including sales and distribution, as well as storage and processing systems with suitable connectivity to the available transport infrastructure network and transport services; (ii) small-farm commercialization; (iii) reduced price risk; (iv) increased nonfarm investment; (v) social infrastructure development—reducing isolation by increasing mobility; and (vi) trade and industry objectives, including agro processing development and micro financing. *In practice, the success of this action would need to be anchored in the development and strengthening of the intersector working relationships recommended for the planning, programming, location, and implementation of rural transport facilities.* The planning approaches used for development of various rural transport projects include many of those outlined in the project case studies in appendix E. These approaches include the methods used in network planning to influence the development of rural access roads, as well as measures applied to ensure accountability—for example, defining the role of beneficiaries in planning and priori-

ty setting such as in the Peru case study. In addition, there is need to outline the criteria for making decisions about the selection and prioritization of roads, including economic and social criteria based on the lower tiers of government (districts, towns, and community jurisdictions).

Determine which part of the overall road network needs to be improved to have the greatest impact on agricultural production. This critical need must factor in national, regional, and local development and physical planning covering all sectors. The planning principles include national policies aimed at creating the enabling environment for rural growth and poverty reduction. Planning actions include defining and targeting growth poles for national, regional, and local economic development; exploiting the rural–urban links in establishing markets; and ensuring their linkages to productive rural areas. In this context, this could imply dedicating suitable areas to the harvesting of strategic or high-value commodities and basing the location of rural transport facilities on farmers’ needs and households’ requirements. In addition, the policy actions should provide for efficient transport, logistics planning, operations, and regulations that facilitate the access and operations in rural areas and development of transfer points for transportation. National policies involving the resettlement or relocation of people will sometimes allow people to take advantage of better opportunities. However, the consultation process should allow for the participation of all beneficiaries and key stakeholders and give voice to the poor as well. Analytical methods would usually be based on (i) the application of the traditional cost-benefit methods of economic analysis (such as vehicle operating costs and producer surplus); (ii) the development of rural access as contributing to poverty reduction objectives (MDGs); and (iii) the application of basic access appraisal methodology.

Apply tools for national and local planning that help assess network development needs, thereby helping to identify and locate rural transport interventions to ensure the highest probability of stimulating rural growth. Planning tools usable in localities are available for identifying the priority investments needed to increase rural incomes. The specific planning tools include:

- Local road network and transport service assessment, including network analysis based on the national, regional, and local configurations; road conditions; travel patterns (origins and destinations) and traffic levels (with vehicle types and composition—motorized and non-motorized, including IMTs); and loads on all vehicles and head/back loading

- Locally appropriate technical options—for example, for road designs that make the best use of materials available locally and can be adapted/modified by applying technology and practice developed in-country or worldwide and IMT options
- Costing investment options over the entire life of the transport infrastructure, taking into account the investment/improvement costs, annual routine and recurrent as well as multiyear periodic maintenance requirements, and financing over the life cycle
- Simple cost-benefit analysis.

Various methods can be used to evaluate and establish the rates of return on the investments. The tools currently available include RED, HDM4, and RNET, as well as producer surplus analysis. In specialized cases, the analytical process may include applying suitable multicriteria analysis for investments contributing to poverty reduction and improving social livelihoods.

Take the actions required to achieve sustainability based on three vital dimensions:

- *Policy and institutional arrangements:* integrating agricultural and rural development into transport sector strategies and investment cycles; putting community at the center of the decision-making process, which requires community participation and capacity building; and ensuring that rural accessibility can be introduced into non transport sector activities, with the central focus on the maintenance of rural transport infrastructure and the associated services
- *Financial resources and economic benefits:* leveraging national and local resources to encourage enough community contribution to develop and maintain the required network and adopting the appropriate participatory methods to identify investment options (local network inventory and traffic assessment tool) and to make choices (a simple cost-benefit analysis will lead to a cost-effective, serviceable network)
- *Technical:* identifying the least-cost technical solutions for minimum all-season vehicular passage, focusing on essential access and spot improvements and drainage preservation and upkeep, with new construction only where demonstrably needed, and increasing the use of affordable and effective IMTs.

Because of the need to design rural transport infrastructure to specific standards often suited to low-volume traffic volumes, *there are benefits to physically restricting different sections of the rural networks to use by non motorized four-wheel vehicles, as well as motorized four-wheel-drive vehicles of up to 1,500 kilograms payload, and motorized four-wheel vehicles of higher payloads.* Planning such measures should be deliberate to ensure proper network utilization.

It is necessary to remember that maintenance is an essential provision in all planned new investments and is essential to ensuring that the existing maintainable roads remain in good to fair condition. New road improvements should receive the maintenance needed to preserve their condition. Meanwhile, sound asset management principles should be applied to the entire road network and especially the rural road networks. This is critical because the rural road infrastructure is composed mostly of earth or gravel and other naturally occurring materials, and so is usually more vulnerable to the detrimental effects of neglected maintenance, as well as weather and traffic loading. In this context, the traffic movement restrictions suggested in the previous paragraph would prove beneficial.

Asking the following questions can be useful: What are the characteristics of transport services operating in the country for both the regional (interurban) and the local farm-to-market and farm-to-village or village-to-village distribution of inputs and outputs for agricultural production, as well as marketing? What factors in existing regulations affect the ownership and operation of transport services? Are the levels of duties and taxes charged so prohibitive that they act as disincentives to entering the transport service operating industry? How are tariff structures set, and how have they affected the supply and distribution of transport services?

6. *Define the road network, appropriate ownership and management roles and responsibilities, design standards, and financing arrangements*

Road network size and financing. It is essential to consider the relative size of rural road networks based on national resource endowments and existing constraints. Doing so requires public expenditure reviews of the extent of national, local, and donor investments in rural roads. Many countries have established road funds financed by additional user funds initially to cover road maintenance. These funds are collected by means of fuel levies and other charges, which are considered the natural source for transport financing. The policy framework must cover the criteria and process

whereby funds are allocated to fill the needs of all parts of the network, including the rural transport facilities. One area to be explored in many countries is the levels and nature of local (beneficiary/user) contributions—financial and in-kind—to be employed to ensure the availability of resources for the development and maintenance of rural access roads. Donor-financed rural road projects have increasingly included provisions for maintenance along with rehabilitation. However, many countries require the appropriate local arrangements to elicit local contributions for the financing of rural roads.

Standards. Strategic plans should develop road transport networks and standards within an adopted system of classification of roads for different jurisdictional levels. This process should include the planning and development processes for the different parts of the network with clear provisions for the rural transport network. Development of the total network, including the sub-network (regional or district rural/feeder or access roads), should occur simultaneously in order to build on the comparative advantages of these roads in fostering rural growth and poverty reduction. In this connection, because of the more extensive network of shorter links required for rural transport, planners should pay attention to the standards of the rural roads built. They should be adequate to respond to the real needs of smallholders and the commercial needs of agriculture—extension services, input distribution, and marketing for both local consumption and export. Design of the network would preferably foster the application of cost-effective, nationally affordable technologies, such as the use of labor-based construction methods, for the construction/rehabilitation and maintenance of rural roads.

Administrative arrangements, sector organization, and institutional performance. Some key principles should be applied in setting organizational and institutional arrangements, while also taking note of some typical arrangements in other countries. Typical national administrative arrangements include ministries and road agencies or departments at the national level and agencies or departments at the regional, district, and urban levels, often with no formal arrangements at the community or village level. It is essential to understand the factors that influence rural transport and agricultural development planning and decision-making. These include:

- Identifying the sector organizations at the national and subnational levels and the interrelationships required in order to address effectively the needs for rural roads and agricultural and market development

- Making arrangements to ensure the maintenance and continued management of the existing and newly developed rural road infrastructure
- Assessing the levels of capacity and resources (human and technological including equipment and systems) in each institution and how they can be developed and enhanced to ensure an ability to implement rural access improvements and maintenance
- Tapping the unexplored capacities of local areas and communities to ensure proper and sustainable upkeep of rural access roads to various communities.

Maintenance standards, organizational and financing requirements, skills, and technology transfer/equipment needs. Maintenance standards should be set as applicable to road class and surface standards, with suitable frequencies to maintain the condition as built. Organizational requirements should include arrangements for overall network management and planning. Such arrangements should also cover decentralized arrangements for the planning, supervision, and implementation of rehabilitation/improvement and maintenance, including public and private sector options, as well as community and group contracting for maintenance using the appropriate labor-based and equipment-supported methods.

7. Establish a monitoring and evaluation system.

The establishment of a monitoring and evaluation system is one of the essential final steps in the design of rural transport projects aimed at achieving the strategic and development objectives of rural growth and poverty alleviation. The essential elements of evaluation that derive from measuring project benefits and impacts are presented in appendix D. For road infrastructure, the indicators listed are based on World Bank–recommended core indicators for monitoring road sector project results and include detailed definitions and guidance (see appendix D.1). The first four indicators are directly applicable to rural road projects, but the information should be collected and kept on a regular basis. An approach to capturing the nonmonetary benefits of rural road investments to reduce poverty is presented in appendix D.2. Finally, appendix D.3 presents guidance on including social benefits in road appraisal. Other indicators would provide different measures of the cost of developing rural transport infrastructure and services. These measures would be combined with specific indicators for measuring agricultural and rural development.

Appendix A. A Framework for addressing spatial considerations in national poverty reduction strategies

Who are the poor and where do they live?

<i>Spatial concerns</i>	<i>Quantitative & qualitative parameters</i>	<i>Steps</i>
<p>Key issues - to what extent does the poverty profile provide a disaggregated picture of where the poor are by location, of different livelihood patterns, by gender/lifecycle.</p> <p>Are there indicators that show how the nature of an individual's poverty varies spatially?</p> <p>Is the poverty line adjusted to take into account regional and rural-urban differences in cost of living?</p> <p>Are there indicators of health outcomes, which help to identify areas with high concentrations of poverty?</p> <p>Is there disaggregated information on differences in main sources of household income, employment opportunities, assets and access to essential services?</p> <p>Is there information on the different dimensions of risk and vulnerability facing individuals or households in different parts of the country? Is there information available about the poorest groups and where they live and work?</p> <p>Are there limitations of aggregate/national indicators discussed? What is the highest level of disaggregation currently possible?</p> <p>Is there any discussion of what to do to improve the availability of data?</p>	<p>Share of households living below poverty line by region, rural and urban district center.</p> <p>Poverty gap and severity indicators by region, rural and urban district or center</p> <p>Share of households with unsatisfied basic needs by location, gender of household head and by socioeconomic group.</p> <p>Share of households without access to potable water/paved road/sewage by location.</p> <p>Share of households using house for business purpose by location.</p> <p>Primary/secondary school completion/dropout rates by location/local government area.</p> <p>Share of food-insecure households (be gender and age) by region, district, urban center.</p> <p>Share of population undernourished by region, district or urban center.</p> <p>Index of regional susceptibility to natural or weather related shocks.</p> <p>% of single-person households by location.</p> <p>% of orphans by location.</p>	<ol style="list-style-type: none"> 1. Basic recognition of the rural/urban, intra-rural/urban distinctions even though disaggregated data is not available. Use of participatory process to develop indicators for disaggregated poverty profile in future. 2. Some use of disaggregated data from income-based/HH surveys, combined with regional/sub-regional maps of variations in poverty. Discussion of the limitations of aggregate and some disaggregate data and what needs to be done to improve it. 3. Presentation of the main characteristics of poverty based on disaggregated quantitative and qualitative information covering income and employment sources, asset holdings, access to services and extent of vulnerability. 4. Plans to use information from qualitative studies to inform future analysis of cross-section surveys (LSMS) and data collection of service use etc. at local government levels.

Objectives and key targets

Spatial concerns

Key issues Does the PRSP specify poverty reduction objectives at sub-national levels? Is there any disaggregation of expected growth/poverty outcomes to sub-national levels?

Are the objectives clear with respect to achieving significant reductions in poverty in areas where the poor predominate

Enabling policies necessary to stimulate growth and remove impediments to participation by the poor

<i>Spatial concerns</i>	<i>Quantitative & qualitative parameters</i>	<i>Steps</i>
<p>Key issues Key issue – how are spatial issues discussed in the context of the macroeconomic framework and recommended policy changes necessary to stimulate growth?</p> <p>Macroeconomic framework – assessment of gainers and losers from effects of real devaluations or interest rate changes, assessment of policy distortions that limit free flow of goods, services and people between rural and urban areas.</p> <p>Policy distortions that continue to favor areas where the poor are not?</p> <p>Tax/subsidy/expenditure framework – do the poor benefit from current subsidy regimes (e.g. housing power.), tax/spending capability of local government in poorest regions, satisfactory cost-</p>	<p>Ex-ante assessment of impact of policy options on rural and urban groups —small-farmers, agricultural workers, urban informal sector — income/wage effects etc.</p> <p>Discussion of record of response from the poor to past structural changes (e.g. price liberalization in agriculture)</p> <p>Regional spending per capita relative to national average.</p> <p>Regional revenue that is raised per capita relative to national average.</p> <p>Identification/diagnosis of legal constraints, regulatory barriers to housing, land and labor markets in predominately-poor locations.</p> <p>Identification of barriers/constraints</p>	<p>1. Plausible diagnosis of macro framework as it affects poor groups in rural and urban areas.</p> <p>2. Evidence that the pattern of expenditure and taxation is moving towards priorities consistent with where the poor live and the areas/sectors they work in.</p> <p>3. Discussion of ‘pro-poor’ revenue patterns and how to improve the current tax regime, including the development of simplified taxation policies for SMEs, etc.</p> <p>4. Capacity to conduct ex ante and ex post assessments of social impact of policy change, assess tax/benefit incidence of government policy and track shifts over time.</p>

<i>Spatial concerns</i>	<i>Quantitative & qualitative parameters</i>	<i>Steps</i>
<p>recovery mechanisms that benefit the poor, share of national spending going to localities where the poor predominate.</p> <p>Regulatory framework – existing regulatory regime and the poor, expected impact of regulatory changes on assets/income sources relief on by the poor. Assessment of regulatory issues facing SMEs – land use, registration, taxation etc.</p>	<p>to mobility for employment, residence?</p>	

Participatory process

<i>Spatial concerns</i>	<i>Quantitative & qualitative parameters</i>	<i>Steps</i>
<p>Key issues – Is the participatory process representative of the departments and levels of government and of different locations within the country (province /cities/rural towns)</p> <p>What has been the extent or frequency of public consultation at local government levels and below during the PRSP process?</p> <p>What kind of issues have emerged during the consultative process that reinforce/or change the national poverty diagnosis, and how are these represented?</p> <p>What has been the impact of the local consultation process on the design of the strategy, the choice of indicators, etc.</p>	<p>What evidence is there that consultations at the local level have impacted on the national strategy? Is this at the level of strategy, targets, and indicators?</p> <p>Are poor communities or localities specifically identified within the participatory process?</p> <p>Is there a discussion of the gaps or limitations in the consultative process with respect to local-level representation?</p> <p>Is the PRSP disseminated beyond central government and donors?</p>	<p>Sets out a clear framework for incorporating the views/interests of poor from different localities, including setting out how they will be approached and using what methods?</p> <p>Active consultations with a diverse range of poor groups or representatives from rural and urban areas, resource poor areas and resource rich areas.</p> <p>Full presentation of the range of information gathered by locality and how this was used to inform both the poverty profile and the strategy framework.</p> <p>Discussion of how process will be improved/strengthened in future iterations and for the purpose of PRSP implementation and monitoring.</p>

Monitoring & evaluation

<i>Spatial concerns</i>	<i>Quantitative & qualitative parameters</i>	<i>Steps</i>
<p>Key issues – Does the M&E ensure coverage of key spatial dimensions i.e. participation by local authorities, NGOs, communities? Are there plans for sub-national monitoring of sector or national targets?</p>	<p>Is there a description of the kind of data needed to monitor outcomes – at national and sub-national (& household) levels?</p> <p>Is it clear who will gather such data and how frequently?</p> <p>Are outcome indicators clearly specified, measurable and disaggregated where appropriate?</p> <p>What is the most appropriate level of disaggregation for monitoring – urban/rural; administrative area; geo-climactic zone, gender?</p> <p>What types of data sources are required for strategy/program evaluation? Are these available at sub-national levels?</p> <p>What plans are in place to strengthen M&E and what is the extent of expected participation from sub-national/ city authorities?</p>	<p>Key issues – Does the M&E ensure coverage of key spatial dimensions i.e. participation by local authorities, NGOs, communities? Are there plans for sub-national monitoring of sector or national targets?</p>

Source: Evans, A. 2000. Poverty reduction in the 1990s: An Evaluation of Strategy and Performance. Operations Evaluation Department, World Bank, Washington, DC.

Appendix B. Guidelines for planning and implementation of village travel and transport interventions

Introduction

The guidelines have been prepared to provide the main players in VTTP with guidance on both planning and implementation of the rural travel and transport interventions. The guidelines cover the following aspects:

- (a) The rural sector and the travel and transport situation in particular.
- (b) The main reasons for the poor travel and transport situation.
- (c) The major alternatives available for improving the situation.
- (d) The entry point of stakeholders in the process.
- (e) The process for planning, implementation and sustenance of appropriate interventions.

The guidelines recognize the innovative nature of VTTP in its approach rather than the physical interventions implemented or the technologies involved. The VTTP approach comprises the following:

- (a) It looks holistically at the travel and transport needs of the rural households;
- (b) The stakeholders, especially the ultimate beneficiaries, participates fully at all stages of the project cycle; and
- (c) It takes in consideration the potential of locally available resources.

The guidelines are subject to improvements as new experiences on rural travel and transport in Tanzania emerge.

Understanding the Rural Travel and Transport Situation in Tanzania

The rural sector and the rural travel and transport situation

The majority of the population lives in rural villages.

Rural households sustain their living by carrying out productive, reproductive and social activities. Agriculture is the main economic activity.

Most of the productive, reproductive and social activities take place within and around the villages hence travel and transport outside the local environment is rare.

Travel is dominated by walking and head loading.

Most of the travel and transport takes place on paths and tracks except when an existing road happens to be a natural short cut.

Most paths and tracks are: (i) narrow; (ii) rugged; (iii) poorly drained; (iv) meandering; (v) surrounded by uncontrolled vegetation; (vi) sandy or slippery; and (vii) lacking reliable river and stream crossing structures.

Women carry the largest burden of the rural travel and transport activities mostly done through walking and head loading.

Major reason for poor rural travel and transport situation

The importance of paths and tracks within the transport infrastructure network is not fully recognized.

Most of the paths and tracks are developed and maintained with limited resources and technical skills.

The nature of most of the paths and tracks makes them unsuitable for using both intermediate and motorized means of transport.

Low utilization of intermediate and motorized means of transport is attributable to: (i) low purchasing power; (ii) distant location of retail shops and hire services; (iii) ignorance on available technologies; and (iv) lack of skills, raw materials and spare parts.

In most cases, the location of economic and social facilities and services are chosen with little consideration to how communities will access the amenities.

Social and cultural factors, and limited opportunities to generate cash, hinder women from using, buying and hiring transport aids.

Women are rarely involved in decision making, even on issues concerning travel and transport aspects.

Alternative solutions to rural transport problems

Improving the rural transport infrastructure such as paths and tracks.

Promoting the use of intermediate means of transport and motorized means, as appropriate.

Since communities' travel over long distances to access basic social and economic amenities, planned actions can reduce distances by locating the services and amenities in neighborhoods of communities.

Entry Point of Stakeholders in the Process to Improve the Rural Travel and Transport Situation

Improvement of the rural travel and transport situation should be a felt need of the local communities. This shall express local recognition of the problems.

Recognition of problems in the local travel and transport situation can start from within communities or influenced from external sources based on analytical studies. Parties on one side should be able to raise awareness of parties on the other side.

The communities and other stakeholders should be aware of the available alternatives and should be willing to commit resources to improve the situation.

Institutional Issues

Recognized institutional frameworks should be in place to enable the various stakeholders deal with transport issues in a systematic manner.

The institutional arrangements would vary from one area to another depending on the institutions involved and circumstances prevailing locally.

However, the institutional frameworks should facilitate channeling of ideas and decisions from individuals, or groups of villagers to relevant authorities and vice versa.

The appropriate institutional frameworks should also facilitate smooth planning, implementation and sustenance of the appropriate interventions.

A basic model may include travel and transport committees in villages, wards and district levels. A position of a transport planning officer could be established at the district level to co-ordinate travel and transport issues.

Planning for Implementation of Relevant Interventions

The important stakeholders should be made to recognize the existing rural travel and transport problems and alternative solutions.

Dialogue in stakeholders' meetings, seminars and workshops can facilitate recognizing the problems and solutions of rural travel and transport by stakeholders.

The communities should propose the interventions, which they consider appropriate for them. Support agencies should raise awareness of communities to alternatives not known to them. Selection of appropriate interventions are selected based on mutual understanding.

The stakeholders should analyze the constraints to implementation and sustenance of the selected interventions. The constraints can be social, financial, technical or institutional and stakeholders seek appropriate solutions collaboratively.

Support agencies should analyze the selected interventions in terms of short and long-term costs and benefits, and in relation to other development activities, to be able to advise correctly the communities.

Stakeholders should prioritize the selected interventions and allocate responsibilities among themselves or approach other partners for additional resources. Communities should be assisted to appreciate and mobilize the resources they have at their disposal.

Action plans should be agreed for subsequent implementation and sustenance.

Source: From Guidelines produced for the Ministry of Local Government by Hans Mhalila.

Appendix C1. Rural transport services

This appendix provides the generic scope of services for a study of rural transport services and intermediate means of transport. The details of the study should be adjusted to the circumstances of the country or area being examined. This scope of services is for a survey of rural mobility in a particular country or region with the goal of developing a strategy to improve rural transport services. The scope of services sets out a situation analysis, including the actual use of and the assessed demand for rural transport; try to identify constraints to the provision of rural transport solutions; and develop a strategy to mitigate these constraints in order to promote affordable transport solutions for the rural poor. The survey should address the whole range of transport provision relevant to the area, including motorized and non motorized means, as well as transport services and private transport.

1. SCOPE OF SERVICES FOR A COUNTRY STUDY OF RURAL TRANSPORT SERVICES

The principal objective of the study is to identify the problems in rural mobility in a country or region hindering development and to develop a strategy that can alleviate these problems. The study would be used by policy makers, planners, program officers, community planners, and nongovernmental organizations (NGOs) to enhance the provision of transport services. It would outline the situation in the area and describe a plan of action that details who is responsible, the proposed timeframe, and potential pitfalls.

Scope of services

The study will survey the current situation in rural mobility, transport services, and means of transport within and outside the specific region or country in order to draw lessons from similar cases. It should consider different transport solutions based on conditions and potentials and should integrate transport services and infrastructure, though the interventions should focus on the means of transport. Because of various standards of roads and population densities on a specific route, the study must also consider the linkages between motorized and non motorized transport. The study should present the rationale and justification for improving rural mobility and review

its contribution to the objectives of increasing agricultural productivity and rural welfare and to facilitating access to economic and social services.

The report could be divided into three parts. The first would examine the existing situation to increase the understanding of the prevailing conditions of use, supply, and demand in rural transport, means of transport available, laws and regulations, tradition and culture, and so on. The second part would highlight the constraints and problems in the provision and use of rural transport. The third part would outline a strategy for undertaking programs and activities to promote and develop rural mobility. The strategy should identify and address the players who can contribute to the development of transport services such as communities, government, operators, manufacturers, donors, institutions, and NGOs. Of the issues that should be addressed under each part; the major ones follow.

Part 1 Situation analysis: The nature of rural mobility (means of transport and infrastructure)

This part is an assessment of the variety of transport services in the area, people's access to them and the existing and planned road infrastructure (including larger roads, as well as smaller paths and footbridges), and the responsibilities for constructing and maintaining the infrastructure.

- Assess access to facilities and the needs and preferences for solutions.
- Identify transport users. Assess demand patterns and any seasonal variations.
- Describe gender and cultural conditions affecting transport needs and usage.
- Analyze affordability and economical options for transport services (income and distribution; available credits and subsidies to purchase vehicles or use services; cost of vehicles, spare parts, maintenance and services; ownership; and so on).
- Assess community awareness and capacity for options and potential.
- Review the process of identification, planning, and initiation of transport services; participation of communities and the public and private sectors; involvement of donors, NGOs, and government departments; and impact of policies affecting the sector. Identify stakeholders and their roles.
- Describe the organization of rural transport services by identifying the stakeholders, users, operators, cartels, regulatory authorities, and the management of rural transport services.

- Describe the legal framework for the transport sector (such as taxes and duties on vehicles and services).
- Review the rural transport policy (if any) and its implementation.
- Assess the economic efficiency and profitability of transport services, including transport costs, vehicle operating costs, and socioeconomic disadvantages or benefits of existing transport options.
- Describe the supply, after-sales services, and maintenance facilities available for the transport sector.
- Analyze safety and environmental problems related to transport solutions.
- Study other options to improve accessibility such as rural markets, health clinics, and other facilities.

Part 2 Problem analysis: Problems related to the existing transport situation

- Access to transport services
- Affordability and economical options
- Gender and cultural hindrances
- Community's degree of empowerment and participation in local government planning
- Local and national awareness of transport options
- Local initiatives
- Transport operations
- Reasons for lack of services and vehicles, road infrastructure, affordability and critical mass
- Supplies of vehicles and spare parts with characteristics of marketing systems
- Lack of or unfavorable laws and regulations
- Institutional arrangements and involvement of stakeholders in decision making
- Rural markets, access to facilities, infrastructure type and condition
- Safety and environmental problems

Part 3 Recommendations: proposed strategy for improving availability of transport means and services

Promotion of the private ownership of means of transport

- Outline options for appropriate rural transport services and show how complementarity and diversity can improve rural mobility.
- Provide guidance on appropriate spending for transport services in relation to people served, tonnage handled, increased income from sales, and so on. Consider economical options to enhance affordability and use of transport among the poor (including credit, subsidies, taxes, and duties).
- Propose ways to adopt participatory planning and empowerment and explain the benefits.
- Propose ways to enhance human capacity and awareness and to stimulate local initiatives.
- Propose interventions to address gender and cultural obstacles to make transport available to those in need.

Promotion of transport services

- Consider ways to improve the supply and distribution of vehicles and maintenance.
- Consider ways to improve effective demand.
- Outline options for improving safety and environmental conditions.
- Consider economical options to promote transport use (credit, subsidies, taxes, duties).
- Outline options for institutional arrangements and stakeholder involvement.

Other options

- Consider alternative ways to improve access (rural markets, relocation of facilities, and provision of infrastructure).

2. METHODOLOGY FOR A RAPID ASSESSMENT OF RURAL TRANSPORT SERVICES

Checklists of some key questions for key stakeholders

The aim is to establish a baseline of available information and gaps to facilitate informed discussions leading to an informed understanding of and recommendations on the required interventions.

1. Is there a transport policy that addresses rural transport issues and services? If yes, what is it?
2. What, if any, are the current rural transport initiatives?
3. What are the regulations relating to rural transport (freight, passenger, IMTs, and safety)?
4. Are there any incentives to stimulate rural transport?
5. Who are the key stakeholders in rural transport to contact?
6. What are the key trends in rural transport services and access to rural services?
7. What are the key problems and solutions for rural transport?
8. Are there HIV/AIDS issues or programs relating to rural transport? If so, what are they (e.g., awareness raising at transport hubs)?
9. Are there gender issues or programs relating to rural transport? If so, what are they (e.g., gender balances of transport professionals, transport operators and users, load carrying for markets, access to IMTs, and security in vehicles)?
10. Are there environmental issues or programs relating to rural transport? If so, what are they?
11. What role is your PRSP playing in developing rural transport and access to rural services?

-
1. What is your role, if any, in connection with rural transport services?
 2. What is the frequency of motorized transport in the district?
 3. Are there by-laws affecting rural transport? Please expand.
 4. Are there transport associations, and if so, what role do they play?

-
1. What is the frequency of motorized transport in the village?
 2. Are there associations or local transport groups in the village, and if so, what role do they play?

-
1. What are the major rural transport safety issues in your area, motorized and non motorized? Obtain statistics if available.
 2. What are the major rural transport security issues in your area, motorized and non motorized? Obtain statistics if available.
 3. What are the major regulation issues in rural transport regulation?

-
1. What, if any, are the problems relating to accessing the required inputs?
 2. How do patients access the health center?
 3. How are patients transported within the health system?
 4. How do health workers reach the outlying communities?
 5. What are the key trends in transport for access to rural health services?

-
1. What, if any, are the problems relating to accessing the required inputs?
 2. How does rural transport affect school attendance?
 3. How does rural transport affect teachers and schools?
 4. What are the key problems and solutions for rural transport for education?

-
1. Whom do you represent (e.g., users, operators of different transport modes)?
 2. What is the role of the association?
 3. How do new operators enter the transport market?
 4. What is the procedure, if any, for route allocation?
 5. How are terminals managed and what conditions apply (e.g., queuing, payments)?
 6. How are fares set?
 7. Are there local transport/road groups, and if so, what role do they play?
 8. Is credit available in the region for transport provision, including IMTs?
 9. What are the key trends relating to credit for rural transport issues?
 10. What are the key problems and solutions for rural transport financing?

-
1. What is your role, if any, in rural transport provision or support?
 2. Please provide details of your program/intervention.

Source: Starkey 2007. (Also contains checklists of questions for transport users, operators, and support services.)

Appendix C.2. A Framework for the promotion of intermediate means of transport

The framework presented in this appendix is the outcome of consultative meetings with rural transport practitioners in Sub-Saharan Africa over 1998 and 1999 by SSATP's Rural Travel and Transport Program (RTTP) and a concluding stakeholders' workshop held in Nairobi. The workshop was attended by about 50 participants from 12 African countries—Burkina Faso, Cameroon, Côte d'Ivoire, Eritrea, Ghana, Kenya, Madagascar, Malawi, Tanzania, Uganda, Zambia, and Zimbabwe—and from the Netherlands, Sri Lanka, United Kingdom, and the World Bank. The aim was to tap into existing knowledge on success and failures in the promotion of intermediate means of transport (IMTs) and what would be appropriate approaches to improving use of IMTs in Sub-Saharan Africa (SSA). Although the outcome of the workshop did not lead to a regional initiative to promote IMTs based on the included logframe, it did generate two key publications: *IMT—People, Paradoxes and Progress* and *Local Transport Solutions for Rural Development*.

Promotion/marketing. *Promotion of IMTs is a significant problem at all levels in SSA, but especially among policy makers.* The application of a more business-like marketing approach is favored over public sector activism in IMT promotion, which has not worked well. The commercial sector should be addressed directly because it provides feedback from the users and so viable IMT diffusion is more likely to be achieved. Because in some cases the demand for IMTs is insufficient to allow private sector activity to thrive, the strategy initially should be to concentrate promotion in pockets of high population density. Indeed, it has been observed that in such pockets IMT adoption seems to be more successful than in areas of low population density. Many IMTs are useful in both rural and urban settings, and opportunities should be explored for marketing them to these populations. The focus should be on IMT use in income-generating activities, while simultaneously seeking to empower potential users in the decision-making processes.

A related issue is how to promote IMTs among the people currently marginalized by the market such as women who might like to use IMTs for carrying water and other domestic items. One option is through development projects, although it is doubtful such activities will be sustainable in the end. Promoting IMTs through targeting in-

come-generating activities is another option that will also promote them for domestic uses. However, enabling support by the appropriate institutions is essential.

Networking and cooperation. *Regional networking and cooperation are needed to disseminate from one country to another the lessons learned from IMTs.* At the same time, it has been noted that the existing national networks are inadequate, indicating that capacity building measures need to be a core part of the regional IMT strategy. Such capacity building might include organizing IMT producers and users into a lobby that can press for more attention to IMT issues among politicians and policy makers. A regional database of experts and institutions in the IMT subsector should also be created as the first step in developing networks both regionally and within countries.

Policy, regulations, and an institutional framework. The major thrust is to address the low priority that governments generally give to the inclusion of IMTs in national policy making. This is believed to be an attitudinal problem whereby governments often regard IMTs as a backward technology. The low priority accorded IMTs has led to many negative results such as (1) restricted uptake; (2) unclear identification of sectors/ministries and other institutional frameworks responsible for the promotion of IMTs; (3) the low priority given to IMTs in national development plans and budget allocations; and (4) unsupportive regulations in, for example, taxation.

Of crucial importance in addressing these situations is a supporting climate for private sector promotion of IMTs, especially in the context of the economic liberalization under way in most SSA countries. IMT promotion requires a solid policy, regulatory, and institutional basis at both the micro and macro levels. Another important facet is the need to develop methods for the analysis of the economic benefits associated with IMT ownership and use (currently lacking in many situations) in order to support policy development.

Adoption. *The key issue in this activity domain is how to improve the generally low IMT adoption rates exhibited in SSA.* Disparities have been noted: in some countries IMTs register significant growth, while in others they have stagnated. The same disparity occurs in the different types of IMTs. Some countries exhibit a wide variety of types, and in others the choices are limited. It is thus important to determine whether the success of IMTs in some regions can be replicated elsewhere, and whether the range of choice can be improved where it is currently restricted.

Ideas on how to improve the adoption rate may include bringing the technology closer to the people, improving affordability, providing training, and promoting private sector participation, user-to-user interactions, and measures to enhance the status of IMTs. Other adoption-enhancing factors are designing IMTs for multiple use, creating a critical mass of users, integrating IMT promotion with income-generating projects, and working on an enabling policy framework.

Much of the burden and drudgery that could be reduced by IMTs is borne mainly by women, and yet they play very little part in the acquisition of IMTs because they lack money and decision-making power. Ways and means of achieving a higher adoption rate of IMTs among women are needed. Higher adoption rates will lead to more economic activity and better incomes, thereby breaking the cycle of low adoption because of high poverty levels.

Supporting infrastructure. *Lack of supporting infrastructure is an important hindrance to greater use of IMTs.* New footpaths, cart lanes, bicycle lanes, and the like should be integrated into existing and new road networks. This approach would increase the safety of IMT use, which in turn would increase adoption. At the same time, it reduces conflict between authorities and IMT users, and conflict between IMTs and conventional modes of transport. Indeed, such conflicts usually lead authorities to ban IMTs from their normal operations, especially in cities and urban centers and on major road networks. IMTs should also be integrated within donor-financed transport infrastructure projects, as well as in national budgets. In addition to the focus on road infrastructure for IMTs, other types of infrastructure that are complementary to the adequate provision of repair/maintenance services—such as providing electricity in small rural centers—may need to be considered in the national IMT strategy.

Design and development. The IMT experience in SSA indicates that the needs of users such as women have not been taken sufficiently into account in the design of IMTs. Design and development seem to be too technology- rather than user-driven, and thus many prototypes have not been successful. Designers should refocus on prototypes that are inexpensive but do the job, with durability to reduce maintenance and operating costs a major consideration. A partial solution lies in facilitating the use of some modern technologies (e.g., car wheels for ox carts), standardization, and capacity building so that the private sector will produce spare parts. Safety issues also need to be stressed in IMT design because in some cases they inhibit adoption. Important paradigms need to be considered as well in analyzing IMT demand, design, and development, as well as adoption questions such as planned versus spontaneous

developments, personal use versus use for services provision, male versus female users, favorable versus unfavorable environment, single versus multipurpose use, sociological versus economic justifications.

Production and supply of services. *Many countries have a weak manufacturing capacity for IMTs.* Consequently, there is a need to build capacity in the private sector for the production and supply of repair/maintenance services. Production constraints that need to be ameliorated include cash flow problems for the small- and medium-scale operators, lack of credit, seasonal demand, and technical capabilities. The link between small- and medium-scale producers and mass production needs to be properly developed, along with a well-coordinated promotion strategy. Still, in many countries it is not known whether production is really the problem, or whether it lies in the lack of supporting effective demand, and if so how that demand should be stimulated. These questions point to the need for further analysis of IMT demand situations vis-a-vis production constraints.

Animal care. *Animal care is often lacking.* Two factors stand out: (i) the need for users to maintain certain health standards for animals used in operating IMTs or as IMTs; and (ii) the need to carefully match the animal with the right tasks and environment.

Credit facilitation. *Little appears to have been achieved in developing credit mechanisms for IMT promotion.* Although much could be borrowed from other subsectors where rural credit systems have worked well, an appropriate credit strategy needs to be developed. Any strategy should consider the special nature of the demand for IMTs and potential user characteristics.

Monitoring and evaluation. *Monitoring and evaluation systems for IMTs in SSA are not well developed.* However, such systems are crucial to an analysis of successes and failures, an assessment of what the beneficiaries want, efforts to change demand patterns, and other factors that need to be fed into planning processes, design and development, production, marketing, and policy formulation. Monitoring and evaluation concepts should be harmonized regionally to enable an efficient exchange of information from one database to another between countries, and the integration of such information at the regional level.

An intervention logframe for a program to promote IMTs in SSA

<i>Summary of objectives and activities</i>	<i>Impact assessment criteria</i>	<i>Possible data services</i>
Goal (vision)		
Increased contribution of rural transport to socioeconomic development in Africa*	<ul style="list-style-type: none"> ▪ Increased rural incomes ▪ Increased access to social economic opportunities ▪ Reduced time and effort in rural travel ▪ Reduced drudgery 	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
Purpose		
Enhanced utilization of IMTs in rural areas of Africa promoted	<ul style="list-style-type: none"> ▪ More IMTs in use ▪ Productivity of IMTs increased ▪ Increased share of IMTs in rural transport 	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
Specific objectives (outputs)		
1. Effective promotional/ marketing systems identified as developed**	01.1. A positive change in attitude toward IMT 01.2 A marketing strategy for each target group in place and operational in two years. 01.3 All RTTP products include an IMT strategy.	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
2. Networking and cooperation on IMTs strengthened	02.1 Greater information on IMT experiences and IMT resources shared 02.2 Greater number of people and agencies working on IMTs.	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
3. Development of appropriate transport infrastructure for IMTs encouraged	03.1 IMTs given appropriate policy attention & resources	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
4. IMT user needs, constraints, and options defined	04 Increased application of user needs/constraints and options assessment in steering project decisions and implementation	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
5. Development of appropriate transport infrastructure for IMTs encouraged	05 IMT infrastructure given proper planning attention and resources	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
6. Supply systems for appropriate IMTs identified and strengthened/developed	06 Wider range of IMTs available at local level being more affordable and of better quality	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
7. Effective maintenance systems for IMTs supported	07 Reduced number of breakdowns and positive changes in knowledge attitude, practices, skills	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports
8. Better animal care in IMTs facilitated	08 Less injuries and increased productivity of animals	<ul style="list-style-type: none"> ▪ Surveys ▪ Government reports ▪ Project reports

9. Appropriate credit systems for IMTs promoted	0.9 Increased access to credit	<ul style="list-style-type: none"> ■ Surveys ■ Government reports ■ Project reports
10. Comprehensive monitoring and evaluation systems for IMT initiatives established	0.10 Lessons learned, documented, shared, and influencing ongoing programs.	<ul style="list-style-type: none"> ■ Surveys ■ Government reports ■ Project reports

* Important assumptions: Social economics and political stability

** Stakeholders are willing to collaborate and work effectively

Activities

1. Effective IMT promotional/marketing systems identified as developed

- 1.1 Identify target groups (e.g., users, suppliers, financiers, politicians, donors, etc.).
- 1.2 Develop a marketing strategy for each target group.
- 1.3 Implement the regional strategy at the regional level.
- 1.4 Assist country teams to identify IMT marketing gaps.
- 1.5 Assist countries to develop national marketing strategies.
- 1.6 Promote a positive image of IMTs regionally and nationally.

2. Networking and cooperation on IMTs strengthened

- 2.1 Identify IMT promoters and interest groups and networks.
- 2.2 Establish a network of IMT promoters and interest groups in SSA.
- 2.3 Establish a database of IMT network members and their activities.
- 2.4 Encourage the use of e-mail discussion lists on IMT.
- 2.5 Organize thematic regional/international workshops on key issues.
- 2.6 Collect and disseminate case studies and experiences on IMT (through networks).
- 2.7 Conduct national-level workshops throughout the region.
- 2.9 Link with other regional cooperation initiatives (e.g., COMESA).
- 2.10 Seek regional and international expertise to assist national workshops and PRA surveys.

3. Development of appropriate policy and institutional framework for IMTs supported

- 3.1 Conduct regional awareness programs of the need of IMTs policies.
- 3.2 Assist governments to identify gaps in policies that support IMTs.
- 3.3 Assist in creation of lobby groups of IMT stakeholder interests.
- 3.4 Assist governments to formulate policies that promote IMTs.
- 3.5 Conduct capacity building for institutions responsible for implementation of the policies.
- 3.6 Formulate guidelines for the economic analysis of IMTs investment within transport sector programs.
- 3.7 Facilitate a more favorable/streamlined IMT taxation system at the regional level.

4. IMT user needs, constraints, and options defined

- 4.1 Develop national and regional Networking.
- 4.2 Develop/disseminate guidelines on PRA methodology relating to rural transport (emphasize IMTs).
- 4.3 Make guidelines on gender analysis available.
- 4.4 Prepare resource material for assessment of short-distance transport needs.
- 4.5 Develop resource materials on IMT options, including illustrated publication, photos, and videos.
- 4.6 Develop case study materials on IMT options, successes, and failures.
- 4.7 Develop assessment.
- 4.8 Conduct in-country capacity building on IMT user assessment methods.

4.9 Disseminate appropriate decision models/expert systems (e.g., rural transport planner).

4.10 Provide performance characteristics, typical costs, and experience of specific IMTs.

5. Development of appropriate transport infrastructure for IMTs encouraged

5.1 Formulate guidelines to ensure integration of IMT routes within transport system.

5.2 Strengthen capacity for construction and repair of IMT infrastructure.

5.3 Assist in creation/capacity building of lobby groups for IMT route infrastructure.

5.4 Facilitate resource mobilization for IMT infrastructure within national budget.

6. Supply systems for appropriate IMTs identified and strengthened/ developed

6.1 Compile database on IMT manufacturers/costs, suppliers/products, trainers.

6.2 Assess IMT manufacturing capacity in each country.

6.3 Integrate both assessments at regional level.

6.4 Recommend strategies for improving IMT manufacturing capacity.

6.5 Recommend actions for improvement of animal supply systems.

6.6 Assess training needs for IMT production.

6.7 Compile country needs into a regional document.

6.8 Conduct regional training of trainers.

6.9 Facilitate IMT inter country importation/exportation.

7. Effective maintenance systems for IMTs supported

7.1 Collect information on problem of lack of costs of preventive maintenance.

7.2 Disseminate information on preventive maintenance.

7.3 Provide guidelines for preventive maintenance.

7.4 Study and promote concept of mobile maintenance support services.

7.5 Provide guidelines for IMT operator training.

7.6 Provide backstopping to country teams in implementing guidelines.

7.7 Encourage the concept of suppliers of IMTs providing warranties.

8. Better animal care in IMTs facilitated

8.1 Produce guidelines for animal welfare and needs.

8.2 Support animal welfare organizations and users.

8.3 Recommend suitability of animals for IMTs for different tasks and environments.

9. Appropriate credit systems for IMTs promoted

9.1 Formulate procedures for identification of credit needs and constraints.

9.2 Review experiences in the provision of credit.

9.3 Produce guidelines on cost-effective and sustainable credit approaches.

9.4 Identify and lobby sources of credit for IMT initiatives at the levels of end users, suppliers, and business operators.

9.5 Provide assistance on monitoring and evaluation.

10. Comprehensive monitoring and evaluation systems for IMT initiatives established

10.1 Develop guidelines on monitoring methodology.

10.2 Identify/agree on indicators for use in monitoring and evaluation of IMT intervention.

10.3 Identify efficient ways of stakeholder/user involvement in M & E, including gaining information from peer to peers.

10.4 Conduct capacity building for national institutions in the application of IMT monitoring and evaluation systems.

10.5 Stimulate regional cooperation in program evaluation.

Source: Proceedings of the Regional Experts Meeting on IMTs, Nairobi, 1999. unpublished. See also Dennis 1999.

Appendix D. Measuring benefits and impacts

These appendixes present the essential elements of evaluation derived from measuring the benefits and impacts of rural transport intervention. For road infrastructure, the indicators listed are based on core indicators for monitoring road sector project results and include detailed definitions and guidance for measurement, which are presented in appendix D.1. The first four indicators are directly applicable to rural road projects, but the information should be collected and kept on a regular basis. Appendix D.2 presents an approach for capturing the nonmonetary benefits of rural road investments to reduce poverty. Finally, appendix D.3 presents guidance for including social benefits in road appraisal.

APPENDIX D.1. Core indicators and definitions for roads

The indicators presented here are selected from core indicators recommended by the World Bank for country monitoring of road sector project results. Although the interest is in rural roads, the indicators are set to ensure that rural roads are planned in the context of the overall road network. A rural road agency may actually collect and store the specific information applicable to roads defined as “rural” only. The central road agency will store, collate, and compare the information covering the overall network. At the initial stages, when local level capacity is low, the data collection may be organized and managed at the central level, with support in data collection carried out at the local authority level.

1. Roads constructed (km)

- (i) Rural
- (ii) Non-rural

2. Roads rehabilitated (km)

- (i) Rural
- (ii) Non-rural

3. Roads in good and fair condition as a share of total classified roads (percentage)

- (i) Size of the total classified network

4. Share of rural population with access to an all-season road (proportion)

- (i) (i) Number of people with access to an all-season road

DEFINITIONS AND SUPPLEMENTAL DATA

1. Roads constructed (km)

This indicator measures the number of kilometers of all roads constructed under the project. It is expected that the baseline value for this indicator will be zero.

Supplemental information: Specify separately the total of rural roads constructed and the total of non-rural roads constructed. [Non-rural is not equivalent to “urban”.]

Guidance on rural and non-rural road classification:

Rural roads are roads functionally classified in various countries below Trunk or Primary, Secondary or Link roads, or sometimes including Tertiary roads. Rural roads are often described as rural access, feeder, market, agricultural, irrigation, forestry or community roads. Typically, rural roads connect small urban centers/towns/settlements of less than 2,000 to 5,000 inhabitants to each other or to higher classes of road, market towns and urban centers.

Non-rural roads are roads functionally classified in various countries as Trunk or Primary, Secondary or Link roads, or sometimes, Tertiary roads. Typically, non-rural roads connect urban centers/towns/settlements of more than 5,000 inhabitants to each other or to higher classes of road, market towns and urban centers. Urban roads are included in non-rural roads.

To define rural and non-rural roads, consider the functionality of the classified network first. In the absence of such classification, use the size of settlements connected by the road as the basis for the definition—specifically, a road would be defined as *non-rural* if the settlements connected have more than 5,000 inhabitants, and as *rural* if the settlements connected have less than 2,000 to 5,000 inhabitants.

2. Roads Rehabilitated (km)

This indicator measures the number of kilometers of all roads reopened to motorized traffic, rehabilitated, or upgraded under the project. The baseline value for this indicator will likely be zero.

Supplemental information: Specify the total of rural roads rehabilitated and the total of non-rural roads rehabilitated. [Note that non-rural is not equivalent to “urban”.]

Guidance on rural and non-rural road classification:

See definitions under Item 2 above.

3. Roads in good and fair condition as a share of total classified roads (percentage)

This indicator measures the percentage of the total classified road network in the pro-

ject area that is in good and fair condition depending on the road surface and the level of roughness.

Supplemental information:

3 (i) Size of the total classified network

Indicate also the size of the total classified network in the project area as supplemental data. (Note: From the indicator and this supplemental data on its denominator, calculate the km of roads in good and fair condition). When aggregating the shares across several project areas, or several countries, the size of the classified networks serves as the weight.

Guidance on classified road network: Classified roads are the roads that have been included in the roads legislation as public roads.

Guidance on good and fair condition of roads:

Table 1: Indicative link between surface type/road condition and roughness

Surface Type	Condition category ¹	Roughness (IRI ² m/km)	
		Minimum	Maximum
	Good	1.0	3.5
Concrete	Fair	3.5	6.0
	Poor	6.0	16.0
	Good	1.0	3.5
Asphalt	Fair	3.5	5.5
	Poor	5.5	16.0
	Good	1.0	4.5
Surface treatment	Fair	4.5	6.5
	Poor	6.5	16.0
	Good	1.0	9.0
Gravel	Fair	9.0	13.5
	Poor	13.5	25.0
	Good	1.0	11.0
Earth	Fair	11.0	15.5
	Poor	15.5	25.0

Note: A minimum distinction needs to be made by the authorities to show concrete and bitumen paved (asphalt concrete, surface treatment) and unpaved (gravel, earth) roads for compiling data for these core indicators. Any other details may be relevant only to any country/ road inventory and management purposes.

Source: Conditions identified by RNET (Road Network Evaluation Tools)

1. Good classification includes Very Good and Poor classification includes Very Poor.
2. International Roughness Index (IRI).

4. Share of Rural Population with Access to an All-Season Road (Also known as Rural Access Index (RAI))

This is the proportion of rural people in the project area who live within 2 kilometers (typically equivalent to a 20-minute walk) of an all-season road.

Supplemental information:

4 (i) Number of rural people with access to an all-season road

Indicate also the absolute number of rural people with access to an all-season road, i.e., the numerator of the 'share' indicator above, as supplemental data. Note: From the Share indicator and this supplemental information, the size of the rural population (i.e., the denominator of the share) can be calculated as well. If the shares are aggregated across several project areas, or several countries, the size of the rural population serves as the weight. This supplemental information also allows aggregating the absolute number of rural people with access to an all-season road.

Guidance on rural population: "Rural" should follow the definition officially used in the country.

Guidance on all-season road: An all-season road is a road that is motorable all year by the prevailing means of rural transport (often a pick-up or a truck, which does not have four-wheel-drive). Predictable interruptions of short duration during inclement weather (e.g. heavy rainfall) are acceptable, particularly on low volume roads.

Guidance on living within 2 kilometers: There are three main approaches to measure this indicator:

Using mapping geo-referenced population to determine how many people live within 2 kilometers of the classified road network. Limitations relate to assumptions on the passability of the classified network as well as the absence of a non-classified network. The level of confidence is rated as good.

Extrapolating based on sampling: physical data on population and road length (km) generated in formal surveys are used to extrapolate the index. The level of confidence is rated as fair.

Using partial spatial estimation: the index is physically measured in a sample of rural areas through geo-referencing of all roads and villages. Limitations come from possible lack of robustness of the sampling process. The level of confidence is rated as fair.

Appendix D.2. Choosing rural road investments to reduce poverty: An approach to capturing nonmonetary benefits

The paper summarized in this appendix addresses a key problem: an important share of benefits to the poor from rural roads is not measurable in monetary terms.²³ The approach seeks to identify places in which poverty and economic potential are high and access is low. It presents the steps involved in applying the approach for a project in Vietnam.

APPROACH

The following gives a step-by-step process applied in Viet Nam. It is important to be flexible and allow for institutional and other local inputs and complaints to be considered. The approach needs to be piloted, revised after a first cycle and altered with experience. All players must be willing to accept set-up costs including the time for data collection and analysis, and for all project proposals to be made. A fixed budget is available for the rehabilitation for rural road links. All provinces (covered by the project) compete for this budget. The project team in collaboration with the government devises the specific variables and their weights. The idea is thereafter to decentralize the formula to the provinces responsible for making proposals and bidding for the money.

Step 1: Availability of data at the commune/district level and an extensive consultation allows the transport ministry and the Bank or other donor teams to delineate a set of Xs—encompassing commune and road characteristics—to be taken into account in estimating expected efficiency benefits.²⁴ A potential list of variables that determine efficiency gains might include the following:

²³ This section elaborates on an actual example from a recent World Bank project. Some points have been developed further than in the project for expository reasons.

²⁴ A number of variables that help determine the efficiency gains might also include the entire equity weights, possibly with the opposite sign! For example, there is evidence of significant complementarities between physical and human infrastructure investments (e.g., see Van de Walle 2000). Thus, it is likely that the marginal benefits from a road project will be higher in

Road density in area; Local human resource development: as measured, say, by percent of children completing primary school; Other (complementary) development projects in area; Accessibility to social service facilities; Accessibility to other forms of transport (train, waterways); Agricultural development potential as measured, say, by unused land with agricultural potential; Current road condition; Linkages with the existing network of road.

Step 2: Next the scale and key variables determining the imputed social value of the benefits from a link must be determined. From the point of view of the project objectives, the poverty level is an important characteristic of encompassing communities. Ideally, poverty data by commune would be available centrally. Data often exists at commune or district level but there is no system to compile it nationally. One possibility is to rely on the provinces to come up with an internal poverty ranking of their communes based on a composite index of variables (Z) influencing S_i , the content and the scale of which is decided centrally. For example, this could include IMRs, average incomes, literacy, share of school-age children attending secondary school, under-nutrition, etc. Since such indicators are typically expressed in different units, a different scale must be determined so that the numbers can be added up (note that this applies also to the X s). Most communes report such data to the district. The province authorities should then be able to collect the information from each of their districts.

Step 3: To determine the weights on the variables in B and S , and the value for the scale of the poorest EC relative to the least poor and hence the scaling of equity versus efficiency concerns, a multi-disciplinary group of Government and the non-government Vietnamese experts can be set up to define the weights through a consultative process. The Bank or donor team can design and participate in a meeting to do this. Possibly, separate meetings will be needed for S and B . By relying on a commission of local experts, it is expected that the measurement of benefits will adequately reflect societal values.

areas in which education and health status are higher. On the other hand, one might want to favor encompassing communities with lower human capital and hence welfare, with a higher distributional weight.

Step 4: A technical assistance team could assist each province for a certain amount of time to explain the rules of the game, help make project plans, comment on the shelf of possible projects, etc. It will also explain that validation checks will be made.

Step 5: All provinces produce proposals. The methodology is applied to all types of roads. The provinces must carefully weigh the costs of spot repairs, versus rehabilitation, versus full upgrading in making their proposals. Each province draws up a list of benefits and costs for all road links put forward as potential sub-projects. The process should allow for proposals that include more than one road link, possibly combinations of different levels of road links. For example, a benefit-to-cost ratio calculation could be based on 2 or more contiguous links where it is persuasively argued that the benefits from one link are considerably higher if the other link is also rehabilitated. The technical team will be responsible for explaining this and extending assistance to the provincial teams.

Step 6: Since the formula is fully decentralized, it would be desirable to introduce incentives to play according to the rules. Validation of the province assessments of numbers can be made on a random basis. A province that is found to have cheated is punished. Punishment can consist of being thrown out of the game, or face some appropriate penalty such as a tax on its costs.

Step 7: The money is allocated to provinces according to the lists. The first unit of money goes to the highest benefit for the cost “sub-project”; the second to the next and so on. One potential issue is that of the cross-province funding distribution. It is conceivable that the best projects will be concentrated in a few provinces. If this is a concern, there are a number of ways to prevent this eventuality. It might be specified that the second pot of money must go to a different province from the first and so forth, to avoid all the money ending up in only a few places. On the other hand, it may be decided that each province originally selected to participate must get a minimum of the total, (say $1/60^{\text{th}}$ in the case where 30 provinces are participating). Alternatively, a formula could be determined by which one-half of the entire budget is allocated in proportion to province size, or population and a provincial index of inaccessibility and poverty, leaving the rest to be allocated according to where the most cost-effective links are proposed. Either way, the money is still allocated according to the lists of rankings. If the minimum allocation has been reached for each province, the exercise is stopped. If not, then we need to go back to the list and go through a process whereby the last chosen link is dropped and (unless it is located in the under-

funded province) replaced by the one with the highest cost/benefit ratio from the under-funded province.

Step 8: For a representative project within each of the main road types, a conventional internal rate of return calculation is made based on the producer and consumer surpluses. This is used to estimate the overall rate of return to the set of sub-projects selected up to Step 7. A minimum return adjusted for expected non-pecuniary benefit levels is determined. If the average rate of return is at or above the minimum, then one has to substitute projects that had not previously been included for some that had. Thus, substitution should be made so as to assure the least cost in terms of the more comprehensive measure of benefits used in selecting projects. The project with the lowest benefit-cost ratio in the road type category with the lowest rate of return should be dropped and replaced by the project with the highest ratio amongst those previously rejected. This continues until the minimum rate of return is reached.

CONCLUDING COMMENTS

The approach proposed here builds on a number of past approaches, observations and project experience. The aim has been to focus the discussion back squarely on the poverty objective, but doing so within a public economics framework in which efficiency and equity concerns are inseparable, information is incomplete in important ways, and resources are limited. The approach tries to avoid the tendency to treat budgets for so-called 'social objectives' outside the realm of hard-nosed economic analysis, but also recognizing the constraints faced in practice in implementing rigorous appraisal with limited information.

The advantage of proceeding as outlined in this proposal include that it holds the hope of building capacity, and is participatory; it extracts local information that may not be readily available to the center; and it appears to be feasible through its reliance on the participation of local authorities in the appraisal of sub-projects. The method promises to assume that the most effective investments are selected from the point of view of poverty reduction, given both the information and resource constraints.

Source: Van de Walle 2000

Appendix D.3. Towards the mainstreaming of an approach to include social benefits within road appraisal

CONTEXT

Developing countries dedicate a considerable share of total infrastructure investment to roads. The adoption in 2000 of the Millennium Development Goals and an increasing emphasis on justifying road investments in terms of their contribution to poverty reduction have directed considerable attention to low volume rural roads. Often the poorest of the poor live in remote rural areas and improved access to social and economic services is a key factor in raising their living standards. The traditional road appraisal frameworks do not fit well with this trend as they generally ignore the impact of social benefit and poverty reduction. Past attempts to overcome these problems have lacked consistency. Therefore, there is a need to develop a consistent framework to address the poverty and social benefit aspects in a systematic manner. This case study documents the main findings of such an attempt in 2003-04 in Uganda into the “identification and treatment of social benefits in road transport project appraisal”. The study highlighted the problems of identification, separation, measurement, forecasting and valuation of social benefits within a cost-benefit approach framework. It recommended a flexible approach using the principles of multi-criteria analysis (MCA) that is capable of combining qualitative and quantitative data into a single analytical framework. One of the study outputs was a computerized software tool that can be used alone or within the framework of globally accepted appraisal models. Although such tools appear to be robust in methodological terms, there are fundamental operational problems, including the choice of the benefits/costs indicators and their weights. The study the findings and conclusions of which are summarized in this case study, undertook field testing of the proposed social benefits model and the software tool to recommend the choice of indicators with their corresponding weights based on results from the field. In addition, the study aimed to improve the capability of the Highway Development and Management Model (HDM-4) and Social Benefits Software Tools in addressing road investment related social issues.

METHODS

The field study was conducted in Acholi and Bugisu sub-regions of Uganda. The two sub-regions are different in demographic, poverty and transport intensity terms. Data

were collected at different levels – project (community), program (district) and strategic (national). The project level data collection involved a total of four communities, two remote and two with good access. District and national level data were collected from decision makers at the respective levels. The qualitative methods included semi-structured interviews and focus group discussions. The quantitative methods used structured questionnaires, both open and closed-ended. The main responses sought included identification of benefits/costs arising out of road development and pair-wise comparison between different types of costs and benefits. The data were analyzed using specialized MCA software². One of the outputs of the study is the TRL *Overseas Road Note 22: A Guide to Pro-Poor Transport Appraisal*.

SUMMARY OF RESULTS

Table 1: Weights and ranges for different types of benefits/costs and social costs and benefits

<i>Benefits/costs Category</i>	<i>Levels</i>		
	<i>Micro (Community)</i>	<i>Meso (District)</i>	<i>Macro (National)</i>
	<i>Mean (Range)</i>	<i>Mean (Range)</i>	<i>Mean (Range)</i>
Type of benefits/costs			
Economic	0.22 (0.05-0.64)	0.33 (0.04-0.78)	0.47 (0.07-0.78)
Social	0.65 (0.26-0.81)	0.51 (0.05-0.79)	0.26 (0.07-0.69)
Environmental	0.14 (0.05-0.21)	0.16 (0.05-0.49)	0.27 (0.08-0.73)
Social benefits/ costs			
Social Costs	0.17 (0.16-0.20)	0.26 (0.10-0.90)	0.71 (0.50-0.88)
Benefits	0.83 (0.80-0.84)	0.74 (0.51-0.90)	0.29 (0.13-0.50)
Different Social Benefits			
Increased access to health facilities	0.43 (0.14-0.70)	0.45 (0.04-0.69)	0.27 (0.26-0.28)
Increased access to clean water sources	0.30 (0.04-0.70)	0.32 (0.06-0.70)	-
Increased access to educational institutions	0.23 (0.11-0.48)	0.29 (0.11-0.65)	-
Access to information, new knowledge, and modernity	0.05 (0.04-0.07)	-	0.47 (0.33-0.75)
Access to Markets	-	0.15 (0.08-0.32)	0.27 (0.13-0.33)
Different Social Costs			
Increased road accidents	0.52 (0.13-0.68)	0.41 (0.70-0.72)	0.38 (0.06-0.78)
Increased insecurity & crime	0.32 (0.03-.72)	0.13 (0.03-0.53)	-
Increased incidences & diseases	0.09 (0.07-0.10)	0.37 (0.07-0.65)	-
Negative cultural influence	0.04 (0.04-0.04)	-	-
Loss of land and property	-	0.10 (0.03-0.36)	0.18 (0.04-0.74)
Mud and dust pollution	0.06 (0.06-0.06)	0.16 (0.04-0.40)	-
Social consequences of environmental degradation	-	-	0.29 (0.19-0.75)
Resettlement problems	-	-	0.18 (0.08-0.50)

The main study conclusions are:

- The top four road improvement related social benefits identified by the communities in rank order were increased access to health facilities (ranked 1st), increased access to water sources, and increased access to educational institutions (both ranked 2nd), new knowledge and modernity (ranked 3rd), and increased access to firewood and the creation of employment opportunities (both ranked 4th). The communities identified increased road accidents as the most important social cost linked to roads. The other important social costs included increased insecurity and crime (ranked 2nd), increased risk of diseases (ranked 3rd), and loss of land and property and mud and dust pollution and negative cultural influences (jointly ranked 4th).
- Contrary to common belief, the communities did not identify access to markets as one of the main social benefits. This may be because the communities considered access to markets as an economic benefit rather than a social benefit. The respondents identified mud and dust pollution as one of the highest ranked social costs although it is categorized often as an environmental cost. Nonetheless, it is to be recognized that the immediate consequence of mud or dust is social (chances of a person traveling on a dusty or muddy road ending up with dirty clothes are considerably higher than on a road without dust or mud; this may have a significant social implication). The environmental consequences of the mud or dust pollution occur in a medium to longer term.
- The composition of social benefits and costs identified by the community and district level respondents were similar. However, responses from the national level were significantly different.
- The community and district respondents attached more importance to social benefits/costs over economic and environmental benefits/costs. However, respondents at the national level attached more importance to economic benefits/costs; the weight attached to social benefits/costs reduces and the weight attached to economic and environmental benefits/costs increases as the level of decision-making moves from the community, through district to national level.
- Community and district level respondents attached more importance to social benefits than social costs (and therefore assigned more weight). Responses from the national level were opposite.

- Although the associated weights for different social benefit types assigned at the community and district levels were similar; they were substantially different (both in type and value) at the national level. Again, the weights for different social costs assigned by the national level respondents are considerably different from the community and district levels.

Limitations, policy implications and requirements for further studies: The conclusions from the study can only be taken as valid in the context of rural Uganda. Ideally, it would be necessary to conduct similar studies in the context of a particular country of interest. However, the findings from the study provide general guidance, if time and financial resource constraints do not allow context specific studies. MCA's flexibility in combining qualitative and quantitative data is a major requirement for including non-monetized benefits including social benefits into road appraisal. Because of this, the MCA approach has the potential to be one of the main approaches for the appraisal of rural roads. This study is only a way forward towards the mainstreaming of an approach to include social benefit issues in road appraisal. There still exist important knowledge gaps in the following areas:

- (i) Would the indicators identified by rural residents in Ugandan be considerably different in other African, Asian and Latin American countries?
- (ii) How rural residents in other countries compare social, economic and environmental benefits as well as social costs and benefits?
- (iii) Would techniques similar to those used in Uganda work in other developing countries?
- (iv) How would the weights work in a real appraisal situation and what would be the rural residents' reaction when a list of roads prioritized using the approach is presented to them?

Table 2: Benefits & costs by the communities in Acholi and Bugisu sub-regions in Uganda

<i>Identified Benefits from Road Investment</i>	<i>Costs from Road Investment</i>
1. Provides access to health centers	1. Roads take away land, properties and spaces
2. Provides access to maternity centers	2. Accidents
3. Enhances access to markets	3. Brings in robbers and thieves to the community
4. Promotes intermediate means of transport	4. Increases prostitution, divorces and bad behaviors
5. Opens up ways to other communities	5. Brings famine and hunger as the amount of foodstuff sold outside the community increases
6. Provides access to water sources	6. Exposes the community to commodities which are difficult to acquire
7. Provides access to various opportunities	7. Poor road condition stagnates development
8. Provides access to quality merchandise	8. Promotes easy infection with ST diseases
9. Attracts more visitors and enables tourists to get better information	9. Increases soil erosion
10. Enables investors to find you where you are	10. Negative changes in lifestyles (drinking habits, laziness...)
11. Improves security	11. Provides grounds for unscrupulous political manipulation and corruption
12. Adds value to land	12. Brings in-migration of workers
13. Provides access to schools	13. Dust and Mud from unsealed roads
14. Exposes people to motorized vehicles	14. De-forestation
15. Eases communication	15. Destruction of wetlands.
16. Brings literacy and modernity in community	
17. Provides access to firewood collection places	
18. Facilitates health educators to visit the community more frequently	
19. Facilitates wider immunization programs, that lead to low infant mortality rate	
20. Provides access to safe and clean water that enhances hygiene	
21. Networks surrounding communities	
22. Makes visiting relatives and friends easier	
23. Helps in performing cultural rites (e.g. circumcision in Bugisu sub-region)	
24. Improves the standard of living	
25. Provides greater employment opportunities – (e.g., improves sales and transport of bricks)	
26. Increases selling and buying capacities	
27. Provides access to worship places	
28. Provides access to sports and recreation facilities	
29. Helps political mobilization	
30. Helps in performing traditional marriages	
31. Provides for animal grazing and care	
32. Helps reduce poverty	

Source: Odoki et al. 2008

Appendix E. Case Studies

The case studies presented in Appendix E demonstrate lessons learned from various rural transport projects implemented in different countries. The lessons range from: (i) implementing an integrated approach to rural transport, economic development and poverty reduction in Peru; (ii) local level implementation of a Rural development project in Romania; (iii) providing basic access and building capacity at both provincial rural transport projects in Vietnam; (iv) implementing a program of building and maintaining a core network of rural roads as a component of an economic restructuring project in Andra Pradesh Region in India; (v) addressing issues of poverty reduction attributed to isolation by improving rural access in Yemen; and (vi) developing a national strategy, preparing and implementing a pilot program in 8 weredas and moving on to prepare wereda development plans and later rolling out a national program of implementation under a universal rural road access program in Ethiopia.

Appendix E.1. Rural roads projects in Peru: An integrated approach to rural transport, economic development, and poverty reduction

In the years before the launch in 1995 of the first rural road project, poverty in Peru was heavily concentrated in rural areas; over half of rural Peruvians were considered extremely poor, living on less than \$1 a day. The incidence of poverty varied across regions. Poverty rates in the *sierra* (highlands) and *selva* (jungle) were nearly double that of coastal regions. Over half of the extremely poor resided in the rural sierra, which was home to less than a quarter of the national population. Indigenous people formed about 15 percent of the population, but they had a poverty rate of 70 percent.

Further reduction of rural poverty rates was constrained by lack of an effective road network. Peru has isolated rural communities and the poor living in remote areas had no access to markets, jobs, and socioeconomic services. Road density was lower than in most South American countries or those at a similar level of development; Peru had a density of 6.7 kilometers of asphalt roads per 1,000 square kilometers (or just over one-third of the networks of neighbors such as Chile and Brazil). About 80 per-

cent of the 47,000 kilometers of rural road network was still in very bad to barely acceptable condition, which, when combined with poor maintenance practices and a lack of adequate drainage systems, made traveling a challenge for the nearly 3 million people living in isolated villages in difficult mountainous terrain. Peru's total road network was about 78,000 kilometers, with a large unknown number of unclassified tracks connecting the dispersed population to the network, despite a successful rural road program implemented with the support of the World Bank and the Inter-American Development Bank (IADB) from 1995 to 2000. That project rehabilitated 8,900 kilometers of rural roads.

Under these conditions, the level of motorized transport was low, with only a few vehicles venturing to reach rural communities and making the provision of transport services unreliable. Vehicle ownership for most of the poor rural households remained limited to only the most affordable types of non-motorized vehicles. Indeed, many communities relied exclusively on non-motorized transport for travel outside their settlements, often over neglected and unsafe paths.

The 1995 Peru Rural Roads Project, the first phase of Peru's road program, was financed by a World Bank loan of \$90 million. This project sought to alleviate poverty and raise living standards in the 12 departments that ranked highest in rural poverty: 10 in the sierra (Ancash, Apurimac, Ayacucho, Cajamarca, Cusco, Huancavelica, Huanuco, Junin, Pasco, and Puno) and two in the selva (Madre de Dios and San Martin). The project improved rural accessibility in 314 districts by rehabilitating 11,200 kilometers of rural roads and the key secondary roads connecting them to regional centers, and about 3,000 kilometers of paths for non-motorized transport. This first phase demonstrated that the rehabilitation of rural road infrastructure, when followed immediately by sustained maintenance performed through community-based organizations, was a cost-effective way of restoring basic rural accessibility and could stimulate poverty alleviation in the rural highlands of Peru. Rural communities realized that without maintenance, and regardless of how well roads were rehabilitated, passage is compromised and with it a wide array of services that affect their social and economic livelihoods. This first phase also provided important insights into the constraints faced by central agencies in implementing rural development programs.

The second rural road project, from 2001 to 2006, built on the impressive results of the first rural road project. Its goal was to deepen the impact of its activities in the same 12 departments. The project sought to focus investments in areas with high levels of poverty, and it emphasized labor-intensive maintenance methods as a means of generating employment in those areas.

In this manner, the project would help improve the access of rural communities to markets, on- and off-farm economic opportunities, and social services, thereby bringing communities into the economic mainstream—the essence of any poverty alleviation program. The project also sought to strengthen the institutional and financial sustainability of road maintenance in order to enable a gradual transfer of responsibilities to local governments. Finally, the project piloted rural transport interventions customized to the specific conditions of the Peruvian selva, and it introduced a new mechanism—the *Local Development Window*—aimed at facilitating the emergence of productive activities in the areas where transport conditions had improved.

Strategic choices for the project components were developed on the basis of cross-sectoral dynamics identified as contributing to the persistent poor living conditions of rural households.

Lessons learned

Continuing a learning process begun with the first phase of the rural road program, the second rural road project offered rich lessons in what can ensure the sustainability of both investments and implementation capacity. One of the most striking features of the project was its *integrated approach through its multifaceted components and how they were coordinated in a systematic, graduated manner*. Because the project had six components that covered many aspects of rural infrastructure—rehabilitation, maintenance, institutional strengthening, participation—it might have been difficult to logically articulate and monitor and evaluate them while giving sense to the whole. In such a project, the starting conditions, flexibility, participation, and a robust M&E framework exploited by a learning organization such as Provias were key. By including the various stakeholders and engendering the project activities, the project illustrates a new demand-driven paradigm for transport planning and economic development. Building on the decentralization reforms, the project also helped in gradually handing over the management of rural roads to municipalities, thereby making rural roads one of the sectors in which decentralization has been the most successful. The key lessons can be summarized as follows:

- *Improved transport conditions* can translate into better access to social services (health and education) and to income-generating opportunities.
- *Participatory planning and inclusion* can ensure better targeting of resources while better responding to community needs.
- *A maintenance strategy for transport infrastructure* can act as a catalyst for developing private sector and entrepreneurial attitudes. The inclusion of mi-

croenterprises to perform routine maintenance addressed both the difficulties of ensuring that the central government would maintain the myriad of scattered rural roads and dealing with the failure of traditional municipal accounts to provide sufficient funds for financing. In addition to being cost-effective, the microenterprise program had spillover effects on local development initiatives, creating employment opportunities for the rural populations involved, becoming a contact point for extension services, and even mobilizing untapped local resources for local community ventures.

- *Gravel roads can be a sustainable and cost-effective technical solution to improving rural transport infrastructure.* Peru's experience confirmed international evidence that paving roads is not the most cost-effective solution to transport needs on low-traffic roads (i.e., fewer than 200 vehicles per day). Instead, for rural roads where traffic levels typically exceed 50 vehicles per day, gravel roads are by far the most adequate technical solution in rural Peru. Moreover, under proper maintenance arrangements, gravel roads are both a cost-effective and sustainable option.
- *Municipalities provided with the right mix of technical expertise and financial resources can efficiently manage rural road assets.*
- *Coordination of road rehabilitation with local productive activities can stimulate development and improve the efficiency and effectiveness of a rural road project.* In the fight against poverty, road rehabilitation is generally not sufficient to overcome isolation while promoting local development. Past impact evaluations have shown that significant improvements in transport conditions (reduced travel times and costs and greater availability and reliability of transport services) follow the rehabilitation of transport infrastructures.
- *However, the impact on poverty reduction and local economic development takes much longer.* Consequently, the project established an independent structure, the Local Development Window (LDW), to help identify synergies between areas for productive growth, create linkages between local service providers, and coordinate access to key financial services in areas in which rural transport conditions had improved. The project showed that, in parallel with the improvement of transport conditions that can make access to local markets easier and more reliable, an implementing agency such as the LDW can promote opportunities for self-employment and income-generation activities for both the local and regional economies. LDW intervened in 85 districts in the 12 poorest provinces of Peru, identifying the best productive initiatives while reducing transaction costs for potential sponsors. Selected initiatives were presented during "project fairs" (*ferias*). Between October 2001 and September 2006 and under the active management of CARITAS, the LDW identified 850 initiatives at the prefeasibility stage, of which 167 reached the feasibility stage and 72 found a sponsor. Eight regional fairs and one national one were organized, leveraging SDR 7.2 million.

Significant projects included the Yacon production project in the Junín Department and fish farms in Sauce, San Martín Department.

- *Decentralization can improve rural road programs, which in turn can contribute to strengthening the decentralization agenda, as well as territorial development.* The national decentralization process that took place in Peru facilitated reforms in the rural road sector. However, the rural road program and the "Participatory Provincial Road Plans" developed by the key rural provincial stakeholders also had positive effects on strengthening decentralization reforms and resulted in rural road investments being better aligned with territorial development strategies.
- *Women's involvement in road project design and maintenance activities can result in social outcomes commonly ignored by the traditional road upgrading systems.* The project paid particular attention to the role of women—at least 10 percent of the microenterprise members and at least 20 percent of road committee members were to be women. Participation showed that women are keen to provide feedback on how lack of transport services affected their day-to-day lifestyles. It also provided them with economic opportunities linked to road maintenance activities that otherwise would not have been available to them (24 percent of the micro-entrepreneurs are now women). In direct response to the transport needs expressed by women, phase two of the rural road program supported improvements not only to the roads connecting to the communities but also to non-motorized tracks, which are most often used by women and are commonly ignored by road upgrading. In beneficiary communities, there was greater openness to women using health centers and going to markets. Women acquired new skills, knowledge, and confidence, and enjoyed the following social and personal impacts that the project had on them and their families: (1) men and women had a socially more balanced distribution of domestic work at home and in the community; (2) women were able to improve their self-image and increased their income; and (3) women's participation contributed to the emergence of a new image of gender relations in the social and cultural lives of the communities. Women are now more active in community decision making and accessing leadership positions in local organizations.
- *Strong cooperation between development organizations such as the World Bank and the IADB can be a factor in success.* The experience of the Peru Rural Roads Project illustrates how two multilateral entities were able to work together within a framework that emphasized adding up the comparative value of the two organizations' teams and an open approach to the discussion of topics and the resolution of conflicts. The added value of the project also came from the interest of all stakeholders (the two banks and Provias) in harmonization policies.

Appendix E.2. Romania's rural development project

The Romania Rural Development Project, financed by a \$40 million adaptable program loan, and was implemented from 2002 to 2007 (the closing date was later extended by one year). The project sought to strengthen the institutional capacities of local administration, community and user groups, and private service providers to make small infrastructure investments in a participatory and accountable manner, and to increase the access of rural inhabitants in pilot areas to markets and social services (through road rehabilitation investment grants) and improved water and sanitation (through water and sanitation investment grants). The design included community-driven development-type mobilization, blended with capacity building for local governments. These approaches were new and innovative in the immediate post socialist environment. The project sought to improve water and road infrastructure in about 100 communes and fund subprojects that crossed commune boundaries for about 20 intercommunity associations.

Assessment after project completion deemed the project design to be innovative and concluded that goals had been achieved. Road improvements were the most popular type of investment among beneficiaries (there were 145 subprojects, representing 73 percent of commune investments). At appraisal, a targeted economic rate of return (ERR) for commune road investments was set at 10 percent, lower than a standard road or highway, but considered acceptable for investments focusing on low-volume roads in poorer communes. About 90 percent of roads financed under the project met, and in most cases exceeded, the economic criteria established at appraisal. The RED model for average gravel roads yielded an ERR of 18 and 23 percent over 10 and 20 years, respectively. Surface treatments for this lower traffic level just met the target ERR of 10 percent for a 20-year evaluation period, but not for a 10-year evaluation period. A smaller group of bituminous road surface treatments with higher traffic resulted in an acceptable ERR of 16 percent for a 20-year evaluation period, barely missing the target ERR of 10 percent for a shorter 10-year discount period.

The project development objective rating was satisfactory. Key achievements include the following:

Accountability and participation

- The percentage of individuals informed about the draft of the local budget nearly doubled from 2002 to 2006 for households in rural development program (RDP) communes.

- Significantly more information flowed to households in project communes than to those in other communes.
- In both 2002 and 2006, a third of households in the RDP communes perceived that their local governments were spending public funds appropriately, based on community needs, whereas households in non-RDP communes increasingly disapproved of the way these resources were being spent.
- In more than 60 percent of RDP communes, local councils involved the local community in discussing and agreeing on investment priorities and decisions during the period 2004-6.
- The percentage of individuals in RDP communes who believed local authorities or elites decided alone about public investments decreased from 35 percent in 2002 to 29 percent in 2006, while in non-RDP communes, significantly more households felt this to be the case in 2006.

Institutional capacity and sustainability

- The percentage of households in RDP communes involved in non-RDP small projects more than doubled from 2002 to 2006, whereas households in control communes did not report a significant change.
- Institutional sustainability was high: (1) during monitoring missions, community investment groups were observed to be continuing to influence local public decision making and public investment oversight; (2) two out of five project implementation unit (PIU) teams were retained by counties with local budgets to oversee and coordinate European Union grant absorption; (3) technical assistance and training personnel (TATs) are being hired as consultants by communes and counties for advisory support on the local budgetary process and investment preparation; and (4) commune (village) associations formed under the project are continuing to cooperate in applying for and implementing EU projects.
- Operation and maintenance arrangements for rural roads appeared to be sustainable. The O&M post-project survey in 2007 revealed that 45 percent of communes with road subprojects created special O&M departments in the commune; 84 percent of communes with road investments reported collecting taxes for road maintenance; and 90 percent of communes with road investments were confirmed to have included road maintenance funds in their 2007 budget.

The following box summarizes key lessons from the project.

Key Operational Lessons from the Romania Rural Development Project

Local level (implementation). Multisectoral training teams working at the local level do have a beneficial impact. These teams are not formed organically, and it is important to be able to overcome sectoral resistance to fostering such collaboration.

Local level (design). Institution building for public participation in and control of local government activities is an important aspect of effective decentralization. It takes time to build these skills. Adequate time for capacity building should be factored into project design so that the clients are not frustrated by their unrealistic expectations of fast and sustainable institution building. When sufficient attention is given to capacity building, there is a greater possibility that the created structures are institutionalized and used by the communities in similar contexts. Another lesson on local design is the strict enforcement of the least-cost design principles and construction quality. This enforcement forces contractors to search for creative solutions, and helps commune leaders adapt infrastructure subprojects to hard budget constraints.

National level. It is important to build into a locally implemented project some resources and mechanisms for the dissemination of results and a policy dialogue with the national government. Otherwise, the effects of the project, even when significant, may be missed at the national level, and therefore hinder full appreciation of the policy implications and the follow up replication.

General. Rigorous measurement of projects using well-matched (or randomized) control and treatment areas gives the World Bank much more confidence in assessing the developmental impact of the Bank's intervention and can be a tool in itself in promoting project-initiated approaches with clients.

Appendix E.3. Vietnam’s rural transport projects (I, II, and III): Linking the people to roads challenges

In 1993 only 30 percent of the Vietnamese population lived within 2 kilometers of an all-weather road. In 1999 the World Bank identified a massive effort to restore the country’s rural road network to adequate standards as a critical input to rural and national economic development.

Approach

The International Development Association (IDA)-supported Second Rural Transport Project (2000–2006) aimed to

- Provide the lowest-cost basic road access to all communes and to rehabilitate other district and commune roads in 40 project provinces
- Build the capacity of provinces, districts, and local communes to plan and implement long-term rural road maintenance
- Train private contractors
- Help the Ministry of Transportation formulate and implement rural transport policies.

Results

Improved access to all-weather roads occurred for some 16 million rural residents, 950,000 of whom were poor. Some 210,000 people came out of poverty.

Highlights

- About 7,600 kilometers of roads and 26,000 meters of bridges were rehabilitated, and road usage by rural residents increased by 70 percent during the project, with a 12 percent drop in travel time to markets, clinics, schools, and district centers.
- Evidence indicates that the number of health care visits increased, school attendance grew, and people enjoyed greater access to local government.

- Ensuring access to the rural road construction market spurred development of the fledgling private sector in an area in which state provision had been, until recently, the norm. Participation by small private contractors increased from 35 percent of contracts awarded in 2000 to 100 percent six years later.
- Technical assistance helped make public spending in the transport sector more effective, allowing the government to better target the \$3 billion of investment flowing into the sector during the next phase of scheduled improvements in 2006–10.

IDA and Partners' Contributions

- IDA funded \$103 million out of the total project cost of \$145 million.
- Technical expertise combined with large-scale support enabled the government to realize the reductions in poverty that rural roads can provide.
- The IDA leveraged its unique ability to help manage the large number of contracts (over 2,000) needed to have an impact in the sector.
- The United Kingdom's Department for International Development (DFID) also provided \$36.2 million and a further \$47 million in bilateral grant financing under Road Transport Projects II and III (2006–10), respectively.

The World Bank intends to move away from project support. The program's third phase (2006–11) will focus on the national and provincial road program using government systems as much as possible. This approach includes incentives for performance and more post-implementation reviews to ensure that procurement takes place transparently.

Appendix E.4. India: Andhra Pradesh economic restructuring project

In the Indian state of Andhra Pradesh, the lack of reliable all-weather rural roads constrained citizens, communities, and businesses. It delayed passenger and freight mobility, compromised transportation safety, and hindered economic development. It also gravely restricted efforts to alleviate poverty.

The rural road component of the Andhra Pradesh Economic Restructuring Project was part of a multisector investment loan that included support for nutrition, health, education, irrigation, and public enterprise reform. Its objective was to address these challenges by providing basic all-weather road access to villages in three districts.

Results

Approximately 2.65 million people benefited from their new, reliable all-weather road access, which significantly improved their economic and social well-being:

- About 2,900 kilometers of seasonal rural roads were upgraded to all-weather standards. The work included the construction of 72 major bridges, maintenance of core rural road networks in the project districts, and technical assistance to the Panchyat Raj Engineering Department (PRED). The percentage of roads in poor condition dropped from 70 percent to 15 percent.
- Average household income increased by about 20 percent. Ownership of refrigerators increased by 200 percent, televisions by 35 percent, and telephones by 500 percent. The number of bank account holders also increased fivefold and deposits more than twofold. Bank loans increased 15 times, demonstrating a big surge in economic activity. The average wage rate increased by about Rs 15 per day, and an average of two days of extra work per month is available to laborers.
- The project has significantly contributed to poverty reduction by promoting agricultural development and introducing cash crops to previously isolated areas. Spoilage of perishable agricultural products has lessened. The average yield per paddy has increased significantly. Farmers now receive about one extra rupee per kilogram of cereals sold because of the direct access to mar-

kets and the ability to bypass middlemen. The price of agricultural land has increased 30–50 percent.

- The enrollment of girls and boys in primary and secondary schools has increased by more than 50 percent. Additional schools have been established in about 50 percent of the villages. Before the project, many of the schools were not functioning because of a lack of teachers. These schools have now begun to function because teachers can travel more easily to the schools.
- About 50 percent of the health centers now have more doctors and nurses. More female patients and children are using the health services. Pregnant women, emergency care patients, and everyday patients are arriving sooner and receiving medical care faster.

Andhra Pradesh adopted a policy framework that defines how to prioritize investment and fund maintenance. Least-cost engineering solutions optimize cost-effectiveness (e.g., gravel roads were cost-effective solutions for low-traffic roads), and a computerized system formulates annual maintenance plans for the core network.

Next Steps

The core network approach of this project has now been adopted nationwide under the Prime Minister's Rural Roads Program (PMGSY), which is seeking to connect all towns and villages with populations of more than 500 persons. Other experience gained in this project, including the use of gravel roads and annual maintenance plans, is applied in World Bank-funded rural road projects in other states of India. At the request of the government of India, the Bank hopes to support similar rural roads projects in about 10 states under the PMGSY.

Source: World Bank 2007c.

Appendix E.5. Yemen's rural access road project

Yemen's current socioeconomic development and high poverty rate are attributed to the isolation of much of the rural population. This situation stems from the country's historical and geographical circumstances, especially the rugged and mountainous conditions in the northwest of the country where most of the population lives. One of the most critical constraints to economic growth and poverty alleviation is land transportation. The government of Yemen has strived over the last two decades to improve its road network. Indeed, roads have become a national priority to foster social and economic development. The network of paved roads (rural and others) has grown from only about 4,500 kilometers in 1990 to about 14,000 kilometers today, a 210 percent increase over 19 years, representing a magnitude of change that few countries have been able to achieve. Despite this remarkable achievement, some serious issues remain.

Yemen's rural road network is still far from serving all the rural population. To date, only 5,500 kilometers of rural roads (11 percent) are paved and therefore all-weather. Most of the unpaved rural roads are essentially earth tracks in very poor condition, allowing travel only under exhausting conditions at extremely low speeds and entailing high vehicle operating costs. These roads are often not passable because of rain and so do not provide the rural population with reliable access to services and markets. The Ministry of Public Works and Highways (MPWH) estimates that only a quarter of rural households have access to a paved road.

Yemen is a very rural country: 73 percent of its 22 million inhabitants and 84 percent of its poor live in the countryside. It has around 140,000 population settlements, many of which are isolated in steep and rocky mountainous regions difficult to access in the western part of the country. On average, a rural inhabitant lives 12.5 kilometers from a paved road.

The road sector also faces institutional challenges, including poor budget allocation processes, especially for the rural road network. This has often led to commitments for rural road projects that (i) are not approved by the parliament; (ii) receive very little funding through the annual budgets; and due to low funding (iii) are not completed and do not lead to sustainable accessibility improvements for the rural poor.

Despite the establishment of an independent road maintenance fund with its own revenue source and maintenance planning capability, the road sector still suffers from inadequate road maintenance funding and management. At about \$25 million a year,

funding for road maintenance is insufficient, and planning and organization of maintenance need strengthening. The annual budget for road maintenance is partly from road users through a surcharge on gasoline fuel (\$5 million, of which a third is transferred to the governorates for local roads) and general budget allocations (\$20 million) from the Ministry of Finance and the MPWH.

The Rural Access Program (RAP) was designed to address poverty by improving overall mobility in rural Yemen and by reducing the isolation of villages and communities. The program was to reduce isolation by ensuring that the rural population had reliable access through local, regional, and national road networks. In addition, the program supported the government's decentralization process and further complemented several concurrent community-based IDA programs in Yemen such as the Social Fund Project and the Public Works Project.

Phase I: 2001-2005 involved pilot implementation of physical interventions and created an adequate institutional and participatory framework for planning, prioritization and maintenance of the intermediate road network;

Phase II: 2006-2010 focuses on the improvement and maintenance of the intermediary road network as well as village access roads and capacity building at the central and Governorate level; The credit was approved on November 9, 2005, and became effective on June 9, 2006. Closing date been revised from November 10, 2010 to November 10, 2013.

Phase III: 2013-2017 will expand the physical interventions of rural access improvements to cover areas not yet covered under Phase II.

The Yemen Rural Access Program Phase 1 Project (RAP1) received the following ratings: outcomes were satisfactory; the risk to development outcome was moderate; the World Bank's performance was satisfactory; and the borrower's performance was satisfactory. One lesson learned was that contract management is at present the main weakness of local contractors. This lesson should be carefully considered by those designing future projects in Yemen, especially when assessing the capacity of the local construction industry and estimating contracts' implementation periods. The environment in Yemen is in general very difficult for contractors, and small works in isolated rural areas are unlikely to be financially attractive, even for large Yemeni contractors, because of the high mobilization and administrative costs of contracts and the high risks. The use of preliminary designs (and not final designs as was done for this project for two-thirds of the contracts) should be limited as much as possible. Local consultation and participation in the design and implementation processes

have proved to be highly effective in making designs more relevant and in facilitating implementation. The outcomes of this project have shown that it is a rather complex exercise to set specific outcome targets and that it should be done on a case-by-case basis with careful analysis of potential improvements.

The World Bank has learned major lessons from previous projects in the transport sector in Yemen, particularly RAP1 and RAP2 (Rural Access Program Phase 2). These lessons, which are consistent with the Bank's experience with similar projects in other countries, have been incorporated in the design of RAP2AF (Rural Access Program Phase 2 Additional Financing). The RAP2AF was approved in December 2009 and now has a revised closing date of November 2013.

First, in Yemen as in most countries institutional performance can be substantially improved if it takes place within a transparent framework of well-defined procedures and technical guidelines; if staff are recruited based on merit, adequately motivated and remunerated, and offered sound work conditions; and if the institution can perform its daily tasks without outside interference. This was the case for RAPCMO and will be continued under RAP2AF.

Second, the Yemeni road maintenance and construction industry and consulting profession have shown that they can develop relatively fast and reach satisfactory quality levels if they perform under a competitive and transparent selection process and professional supervision. At the same time, capacity constraints are expected to be binding in the near future as RAP's size is greatly expanded with the participation of other donors. RAP2 and RAP2AF therefore include significant activities for the development of local contractors and consultants. Some contracts also will be offered in larger packages in order to attract international contractors.

Third, the rural population has shown that it is interested mostly in access and that high technical standards have only marginal benefits. In addition, the costs of improving rural roads could lower substantially if the appropriate design and implementation methods are selected. On this basis, under RAP2AF the project team will continue to pay attention to the appropriate standards, also taking into account the future costs of road maintenance.

Fourth, *social framework agreements* have proved to be of high practical value in rural road projects to maximize net benefits and to avoid conflicts. These written and signed agreements initiated under RAP1 between RAPCMO and the local beneficiaries of each road improvement project (which involve significant community participation in project design) have greatly reduced the difficulties and work stoppages that

were commonplace earlier. The use of social framework agreements will be further strengthened in RAP2AF.

The Rural Access Program Phase I was a success. The specific development objective of the second Rural Access Program is to reduce the isolation of the rural population with a high incidence of poverty. It is thus expected that by the end of the project some 250,000 people located in district centers, and within 2.5 kilometers of the project roads in rural areas (currently with no reliable access to governorate centers), will be provided with such access. Through its components, the project will upgrade some 200 kilometers of intermediate rural roads and some 75 kilometers of village access roads. It will also provide institutional support and capacity building to strengthen the institutional and technical capability at the central and local levels for rural road planning, engineering, environmental and social analysis, management, and implementation; and support the maintenance of roads under a performance-based management contract and for the road maintenance fund.

Appendix E.6. Ethiopian Rural Travel & Transport Program (ERTTP)

Under the ERTTP, Ethiopia prepared its Rural Travel and Transport Strategy in 1998, following a multisector development approach. (Ethiopian Road Authority 1998). In 2002 it began to implement pilot projects in *weredas* (administrative divisions) in eight different regions, which was expected to be completed in 2009. (Ethiopian Road Authority 2004). Various manuals prepared for implementation were refined during the pilot activities. (Ethiopian Road Authority 2003). Meanwhile, Ethiopia continued to help over 130 other *weredas* to prepare *wereda* development plans, while seeking ways to finance and roll them out to full implementation in other regions and *weredas*. (Ethiopian Road Authority 2007).

Between April and July 2008, a team of consultants carried out an independent assessment of the implementation and effectiveness of the pilot activities in terms of outcomes, impacts, and lessons learned. The main findings were as follows:

- Roads constructed or improved at the *wereda* and *kebele* (administrative division) levels under the ERTTP have brought about substantial reductions in travel time. Most of these reductions were due to the opening up of routes to the passage of motorized transport and the switch of transport mode from back loading or animal transport to motorized means.
- Traders now travel to local markets and farmers to deliver inputs and purchase agricultural produce. Where this has occurred, it has eliminated the time and costs associated with traveling to *wereda* centers to purchase inputs and market crops. Farmgate and local market prices for produce have also increased.
- Constructing new facilities such as health centers and schools closer to the users has reduced travel time and increased usage.
- Mobility in rural areas has increased with the introduction of new buses and other transport services. Moreover, in some pilot *weredas* the use of intermediate means of transport, mainly animal carts, has increased owing to interventions such as credit schemes supported under the ERTTP pilot project.
- Changes in the socioeconomic conditions in rural areas are already apparent, including increases in farm production, increases in marketed output,

diversification into new products, reductions in the prices of manufactured goods in local shops, and the wider spread of microcredit.

- Labor-based methods have been used successfully for most road construction, achieving a satisfactory standard that is sustainable and that has proved popular with local people.

The main lessons learned were that weredas can successfully carry out local road construction and build facilities using the ERTTP approach and largely by using the existing government systems and institutions. The consultants recommended that the ERTTP pilot project also include the following steps:

- Test methods and procedures for road maintenance, building on the recommendations of the planned maintenance strategy study.
- Test some community-led interventions so that weredas play a supporting and facilitating role in community-managed access improvements.
- Test some contracting arrangements for road construction and maintenance, including developing small-scale, locally based contractors, labor-only groups, and community contracts.
- Sharpen the promotion of the IMT seeking to establish a sustainable model based on pilot project experience and drawing from a proposed IMT study.
- Streamline the reporting system and consider how the ERTTP approach should be adapted for different environments in the country.
- Place more emphasis on documenting and disseminating the lessons learned and update the ERTTP manuals and guidelines.

The main recommendation of the consultants for future programs involving the improvement of rural access was to increase the dissemination of the lessons learned from the pilot project, highlighting the potentially dramatic improvements brought about by improved rural access and emphasizing the importance of well organized planning and maintenance. This dissemination could include holding a national-level workshop on a future strategy for improving and maintaining community roads.

7. References

- Banjo, G., and R. Robinson. 1999. *Rural Transport Policy in Action*. Draft report, World Bank, Washington, D.C.
- Barwell, I., G.A. Edmonds, J.D.G.F. Howe and J. de Veen. 1985. *Rural Transport in Developing Countries*. (Intermediate Technology Publications), London, UK.
- Barwell, I., J. Howe and P. Zille. 1987. *Household Time Use and Agricultural Productivity in Sub-Saharan Africa*. A synthesis of I.T. Transport Research. (I.T. Transport Ltd), UK.
- Barwell, I. and Leggett, I. 1986. *Study on Promotion of rural transport in Tanga Region*. Consultancy Report by I.T. Transport Ltd.
- Barwell, I. and Malmberg-Calvo, C. 1989. *The transport demand of rural households: Findings from a village level travel survey*, Geneva.
- Barwell, I. 1996. *Transport and the Village: Findings from African Village-Level Travel and Transport Surveys and Related Studies*. Discussion Paper 344, World Bank, Washington, D.C.
- Beenhakker H. L., S. Carapetis, L. Crowther, and S. Hertel. 1987. *Rural Transport Services: A Guide to Their Planning And implementation*. Intermediate Technology Publications, UK.
- Berg, E. 1981. *Accelerated Development in Sub-Saharan Africa*. World Bank, Washington, D.C.
- Binswanger, H. 2006. *Empowering Rural People for Their Own Development*. Elmhirst Lecture, International Association of Agricultural Economists Conference, Gold Coast, Australia.
- Blaikie, P., Cameron, J., Seddon, D. 1977. *The Effects of Roads in West Central Nepal: Summary*. Overseas Development Group, University of East Anglia.
- Borlaug N.E. and Dowsell C. (2002). *Food Security and Agricultural Development in Sub-Saharan Africa: The Challenges*. NEPAD & SSA Workshop, Johannesburg, South Africa, November 18, 2002.
- Bryceson, D. F. and J. Howe, 1993. *Rural Household Transport in Africa: Reducing the Burden on Women?* World Development 21 (11): 1715–28.

- CAADP (Comprehensive Africa Agricultural Development Program). 2009. CAADP Pillar 2 Framework Document. <http://www.caadp.net/library-pillar2-documents.php>.
- Carapetis, S., H.L. Beenhakker and J.D.G.F. Howe. 1984. *The supply and quality of rural transport services in developing countries: a comparative review*. World Bank Staff Working Paper No. 654. Washington, D.C.
- Carapetis, S., H. Levy and T Wolden. 1989. *The Road Maintenance Initiative: building capacity for policy Reform*. Report on the Policy Seminars – Volume 1. Sub-Saharan Africa Policy Program, World Bank, Washington D.C.
- . 1989. *The Road Maintenance Initiative: building capacity for policy Reform: Readings and Case Studies*. Volume 2. Sub-Saharan Africa Policy Program, World Bank, Washington D.C.
- . 1989. *The Road Maintenance Initiative: building capacity for policy Reform: Guidelines for Policy Action Planning*. Volume 3. Sub-Saharan Africa Policy Program, World Bank, Washington D.C.
- Christiansen, L. and L. Demery. 2007. *Down to Earth: Agriculture and Poverty Reduction in Africa*. Published in World Bank Directions in Development Series: Poverty, Washington, D.C.
- Connerley, E., and L. Schroeder. 1996. *Rural Transport Planning*. SSATP Working Paper No. 19, World Bank, Washington, D.C.
- Dennis R, 1999. *Issues relating to the demand for and supply of IMT in SSA*. Paper and overheads prepared for experts meeting held 15-18 June 1999, Nairobi, Kenya. Rural Travel and Transport Program (RTTP), World Bank, Harare, Zimbabwe. 22p.
- Diao, Xinshen, Peter Hazell, Danielle Resnick, and James Thurlow. 2007. *The Role of Agriculture in Development: Implications for Sub-Saharan Africa*. IFPRI Research Report 153, International Food Policy Research Institute, Washington, D.C.
- Diao, Xinshen, Alejandro Nin Pratt, Madhur Ghautam, James Keough, Jordan Chamberlin, Liangsi You, Detlev Puetz, Danielle Resnick, and Bingxin Yu. 2005. *Growth Options and Poverty Reduction in Ethiopia*. DSGD Discussion Paper 20, International Food Policy Research Institute, Washington, D.C.

- Delgado, C.L, Hopkins, J. Kelly , V., Hazell, P. B. R., McKenna, A. A., Gruhn, P., Hojjati, B., Sil, J., Courbois, C. 1998. *Agricultural Growth Linkages in Sub-Saharan Africa*. International Food Policy Research Institute (IFPRI) Series number: 107, Washington, D.C.
- Dudwick, Nora, Katy Hull, Roy Katayama, Forhad Shilpi, and Kenneth Simler. 2011. *From Farm to Firm: Rural-Urban Transition in Developing Countries*. World Bank, Washington, D.C.
- Ellis, S. D., and J. L. Hine. 1998. *The Provision of Rural Transport Services*. SSATP Working Paper No. 37, World Bank, Washington, D.C.
- Ethiopian Roads Authority. 1998. *Rural Road and Transport Strategy Final Report*. Addis Ababa, December.
- _____. 2003. Ethiopian Rural Travel and Transport Program (ERTTP) Implementation Manuals, Vol. 1: Manual for Formulation and Implementation Framework; Vol. 2: Manual for Planning, Monitoring and Evaluation; Vol. 3: Manual for Rural Transport Infrastructure Development; Vol. 4: Manual for Means of Transport and Service Development; Vol. 5: Manual for Non-transport Interventions and Income Generating Schemes; Vol. 6: Manual for Resource Mobilization and Management. Addis Ababa: ERA.
- _____. 2004. A Pilot Implementation of the Ethiopian Rural Travel and Transport Program (ERTTP): Access and Mobility Component. A project proposal for The United Kingdom Department for International Development (DFID) and Development Cooperation Ireland (DCI). Addis Ababa, March.
- _____. 2006. An Account of the Ethiopian Rural Travel and Transport Program and Prospects. Addis Ababa, November.
- _____. 2007. *Wereda Integrated Development Plans: Implementation Status and Future Direction*. Addis Ababa, February.
- Evans, A. 2000. *Poverty Reduction in the 1990s: An Evaluation of Strategy and Performance*. Operations Evaluation Department, World Bank, Washington, D.C.
- FAO (Food and Agriculture Organization) and World Bank. 2009. *Awakening Africa's Sleeping Giant: Prospects for Commercial Agriculture in the Guinea Savannah Zone and Beyond*. Directions in Development, Agriculture and Rural Development. World Bank, Washington, D.C.

- Foster, Vivien. 2008. *Overhauling the Engine of Growth: Infrastructure in Africa*. World Bank, Washington, D.C., September.
- Friis-Hansen, E., and H. M. Kyed. 2009. *Participation, Decentralization and Human Rights: A Review of Approaches for Strengthening Voice and Accountability in Local Governance*. Social Development Department, World Bank, and Danish Institute for International Studies.
- Gannon C., and Z. Liu. 1997. *Poverty and Transport*. TWU-30, World Bank, Washington, D.C.
- Gaviria, J. 1991. *Rural Transport and Agricultural Performance in Sub-Saharan Africa: Six Country Case Studies*. Joint Sub-Saharan Africa Transport Policy Program/Managing Agricultural Development in Africa. Washington, D.C.
- Harral, Clell, and Asif Faiz. 1988. *Road Deterioration in Developing Countries: Causes and Remedies*. Policy Research Working Paper 13370, World Bank, Washington, D.C.
- Hathway, Gordon. 1985. *Low-Cost Vehicles: Options for Moving People and Goods*. Warwickshire, U.K. Practical Action Publishing.
- Heggie, I. G. 1995. *Management and Financing of Roads: An Agenda for Reform*. Technical Paper 275. World Bank, Washington, D.C.
- Howe, J. and P. Richards. 1984. *Rural roads and poverty alleviation*. London, (Intermediate Technology Publications Ltd.).
- Howe, J. 1995. *Enhancing Non-motorised Transport Use in Africa - Changing the policy climate*. Transportation Research Board Annual Meeting, 22nd-26th January, Washington, D.C.
- . 1997. *Transport for the Poor or Poor Transport? A General Review of Rural Transport Policy in Developing Countries with Emphasis on Low-income Areas*. Geneva: International Labour Office.
- . 2001. *Village Level Transport*. Paper No. 1.1a under *Module 1: Policies and Strategies*. Rural Transport Knowledge Base. SSATP Rural Travel and Transport Program, Washington, D.C.
- Howe, J., and I. Barwell. 1987. *Study of Potential for Intermediate Means of Transport*. vols. 1 and 2. Report prepared for the World Bank and Ghana Ministry of Transport. Ardington, U.K. IT Transport Ltd.

- Intech Associates. 1999. *Developing Policies and Strategies for Rural Roads and Routes*. Ministry of Rural Development, Royal Government of Cambodia.
- IT Transport Ltd. 1996. *Promoting Intermediate Means of Transport*. SSATP Working Paper No. 20. Sub-Saharan Africa Transport Policy Program, World Bank, Washington, D.C.
- _____. September 1999. *Village Level Travel and Transport Study in Ethiopia*. IIT, UK.
- Jalan, J., and M. Ravallion. 1998. *Geographic Poverty Traps?* Discussion Paper 86, Institute of Economic Development, Boston University.
- Lema, C. 2007. *The Makete Approach: From Pilot Project to Policy Impact and Institutionalisation. Case Study of Tanzania*. International Forum for Rural Transport and Department, UK.
- Little, I. M. D., T. Scitovsky, and M. Scott. 1970. *Industry and Trade in Some Developing Countries: A Comparative Study*. London: Oxford University Press.
- Malmberg Calvo, C. 1994. *Case Study on Intermediate Means of Transport: Bicycles and Rural Women in Uganda*. SSATP Working Paper No. 12. World Bank, Washington, D.C.
- _____.1998. *Options for Managing and Financing Rural Transport Infrastructure*. Technical Paper 411, World Bank, Washington, D.C.
- Maramba, Petronella and Michael Bamberger. 2001. *A Gender Responsive Monitoring and Evaluation System for Rural Travel and Transport Programs in Africa*. SSATP Working Paper 55, World Bank, Washington, D.C.
- Ndegwa, S. N. 2002. *Decentralization in Africa: A Stocktaking Survey*. Africa Region Working Paper Series No. 40, World Bank. Washington, D.C.
- Odoki, J. B., F. Ahmed, G. Taylor, and S. A. Okello. 2008. *Towards Mainstreaming of an Approach to Include Social Benefits within Road Appraisal: A Case Study from Uganda*. Transport Paper 17, World Bank, Washington, D.C.
- Pankaj, T. 1991. *Designing Low-cost Rural Transport Components to Reach the Poor*. Infrastructure Notes Transport RD-3, Transportation, Water, and Urban Development Department, World Bank, Washington, D.C.
- Platteau, J.P. 2000. *Institutions, Social Norms and Economic Development*, Harwood Publishers.

- Platteau, J-P. 2010. *Redistributive Pressures in Sub-Saharan Africa: Causes, Consequences, and Coping Strategies*. Paper prepared for the Conference “Understanding African Poverty”, International Institute for the Advanced Study of Cultures, Institutions, and Economic Enterprise (IIAS), Accra, July 15-17.
- Raballand, G. P. Macchi, D. Merotto, C. Petracco. 2009. *Revising the Roads Investment Strategy in Rural Areas: An Application for Uganda*. World Bank Policy Research Working Paper 5036, September.
- Raballand G., P. Macchi, and C. Petracco (2010). *Rural Road Investment Efficiency: Lessons from Burkina Faso, Cameroon, and Uganda*. Published in *Directions in Development*. World Bank. Washington, D.C.
- Ravallion, M., Chen, S. and P. Sangraula. 2007. *New Evidence on the Urbanization of Global Poverty*. Background paper prepared for *World Development Report 2008: Agriculture for Development*, World Bank, Washington, D.C.
- Riverson, J. D. N., and S. Carapetis. 1991. “Intermediate Means of Transport in Sub-Saharan Africa: Its Potential for Improving Rural Travel and Transport.” Technical Paper 161, World Bank, Washington, D.C.
- Riverson, J., J. Gaviria, and S. Thriscutt. 1991. *Rural Roads in Sub-Saharan Africa: Lessons from World Bank Experience*. Technical Paper 141, World Bank, Washington, D.C.
- Robb, Caroline, and Alison M. Scott. 2001. *Reviewing Some Early Poverty Reduction Strategies in Africa*. IMF Discussion Paper PDP/01/5, November 2001, International Monetary Fund, Washington D.C.
- Robinson, R. and D. Stiedl. 2001. *Decentralization of road administration: case studies in Africa and Asia*. In *Public Administration and Development* Volume 21, Issue 1, pp 53–64, February 2001. John Wiley and Sons, UK.
- Ruttan, V. 1984. Integrated Rural Development Programmes: A Historical Perspective. *World Development* 12: 393–401.
- Schelling, D., and J. Lebo. 2001. *Design and Appraisal of Rural Transport Infrastructure: Ensuring Basic Access for Rural Communities*. Technical Paper, World Bank, Washington, D.C.
- So, Jaehyang, et al. 2008. *World Bank Group Sustainable Infrastructure Action Plan: FY 2009–2011*. World Bank, Washington, D.C.

- SSATP (Sub-Saharan African Transport Policy Program). 2005. *Transport and Millennium Development Goals in Africa*. World Bank, Washington, D.C.
- Starkey P. 2001. *Local Transport Solutions: People, Paradoxes and Progress*. SSATP Working Paper No. 56. World Bank, Washington D.C. 2001c. Personal observations during field visits. Animal Traction Development, Reading, U.K.
- Starkey, P. 2007. *A Methodology for Rapid Assessment of Transport Services*. SSATP Working Paper No. 56, World Bank, Washington, D.C.
- Starkey, P., S. Ellis, J. Hine and A. Terrel. 2002. *Improving Rural Mobility: Options for Developing Motorized and NonMotorized Transport in Rural Areas*. Technical Paper No. 525. World Bank, Washington D.C.
- Stock, Elisabeth A., and Jan de Veen. 1996. *Expanding Labor-Based Methods for Road Works in Africa*. SSATP Working Paper No. 22, World Bank, Washington, D.C.
- Streeten, P. 1984. *Basic needs: Some unsettled questions*. World Development, 1984, vol. 12, issue 9, pages 973-978
- Torero M., and S. Chowduri. 2005. *Increasing Access to Infrastructure for Africa's Rural Poor*. Issue briefs 32, International Food Policy Research Institute (IFPRI).
- Tsumagari, M.I. 2007. *Rural Transport: A Review of Fifteen Years of Bank Lending from Fiscal 1992 to 2006 – Part I*. Unpublished. Transport Unit (ETWTR) Energy, Water and Transport Department, World Bank, Washington, D.C., May. United Nations Development Programme/World Bank. 1989. "African Economic and Financial Data." Washington, D.C.
- United States Treasury. 2010. United States, Gates Foundation, Partner Nations Announce Proposed Contributions to Global Food Security Trust Fund. Press Release by the United States Treasury Department Office of Public Affairs, Washington, DC, April 22, 2010.
- Valdés, Alberto, William Foster, Gustavo Anríquez, Carlo Azzarri, Katia Covarrubias, Benjamin Davis, Stefania DiGiuseppe, Tim Essam, Tom Hertz, Ana Paula de la O, Esteban Quiñones, Kostas Stamoulis, Paul Winters, and Alberto Zezza. 2009. *A Profile of the Rural Poor*. Background paper for chapter 1, *Setting the Scene*, IFAD Rural Poverty Report 2009, International Fund for Agricultural Development, Rome.

- Van de Walle, Dominique. 2000. *Choosing Rural Road Investments to Help Reduce Poverty*. Policy Research Working Paper 2458, World Bank, Washington, D.C.
- World Bank. 1971. "Study of the Substitution of Labor and Equipment in Civil Construction: Phase I Final Report." Staff Working Paper 172, Volume 1. Washington, D.C.
- _____. 1974. "Study of the Substitution of Labor and Equipment in Civil Construction: Phase II Final Report." Staff Working Paper 172, Volume 2. Washington, D.C.
- _____. 1975a. "Increasing Output of Manual Excavation by Work Reorganization: An Example of a Passing Place Construction on a Mountain Road." Technical Memorandum 12. Transport Research Division, Transportation and Urban Projects Department. Washington, D.C.
- _____. 1975b. "Some Aspects of Unskilled Labor Markets for Civil Construction in India: Observations Based on Field Investigation." Staff Working Paper 223. Transport Research Division, Transportation and Urban Projects Department. Washington, D.C.
- _____. 1976. "Scope for the Substitution of Labor and Equipment in Civil Construction: A Progress Report." Transport Research Division, Transportation Department. Washington, D.C.
- _____. 1978a. *Guide to Competitive Bidding on Construction Projects in Labor-Abundant Economies*. Report prepared jointly by the World Bank and Scott Wilson Kirkpatrick & Partners. Washington, D.C.
- _____. 1978b. *The Study of Labor and Capital Substitution in Civil Engineering Construction*. Report on the Bank-Sponsored Seminars in Washington, Cologne, Copenhagen, London, and Tokyo. Transportation Department. Washington, D.C.
- _____. 1983. *Labor-Based Construction Programs: A Practical Guide for Planning and Management*. World Bank Washington, D.C.
- _____. 1986. *Scope for the Substitution of Labor and Equipment in Civil Construction: A Research and Implementation Project*. World Bank Project Completion Report. Operations Policy Staff, Transportation Department. Washington, D.C.

- _____. 1988. *Road Deterioration in Developing Countries – Causes and Remedies* (Washington, D.C.).
- _____. 1992. *Poverty Reduction Handbook*. World Bank, Washington, D.C.
- _____. 1994. *World Development Report 1994: Infrastructure for Development*. World Bank, Washington, D.C.
- _____. 1997. *Rural Development: From Vision to Action: A Sector Strategy*. World Bank, Washington, D.C.
- _____. 2000. *World Development Report 2001–2001: Attacking Poverty*. New York: Oxford University Press.
<http://www.worldbank.org/poverty/wdrpoverty/report/index.htm>.
- _____. 2001. “Rural Transport in Ghana.” In *Gender in Agriculture: A World Bank Learning Module*. Washington, DC: World Bank.
<http://www.worldbank.org/gender/module/cases/transprt.htm>.
- _____. 2003. *Reaching the Rural Poor: A Renewed Strategy for Rural Development*. World Bank, Washington, D.C.
- _____. 2003b. “Technical Note on Rural Transport Infrastructure and Community Driven Development.” Washington, D.C.
- _____. 2004. “Local Development Discussion Paper,” International Conference on Local Development. Washington D.C., June 16-18
- _____. 2005. *Education Sector Strategy Update: Achieving Education for All, Broadening Our Perspective, Maximizing Our Effectiveness*. World Bank, Washington, DC.
- _____. 2007a. *Agriculture and Rural Development at the World Bank FY03–FY06: Rural Strategy Implementation Mid-Term Review*. World Bank, Washington, D.C.
- _____. 2007b. *A Decade of Action in Transport: An Evaluation of World Bank Assistance to the Transport Sector, 1995–2005*. Independent Evaluation Group. Washington, D. C.
- _____. 2007c. *IDA at Work: A Retrospective Look at What IDA Has Achieved in Select Areas over the Last 10 Years*.
- _____. 2007d. *Rural Roads and Agriculture: A WDR Operational Brief*.
- _____. 2008a. *Safe, Clean, and Affordable. Transport for Development: The World Bank Group's Transport Business Strategy for 2008–2012*. Washington, D.C.

- _____. 2008b. World Development Report 2008: Agriculture for Development. World Bank, Washington, D.C.
- _____. 2008c. Agriculture and Rural Development Thematic Group, Review of the Agriculture and Rural Development Portfolio for Fiscal Year 2006. World Bank, Washington, D.C.
- _____. 2009a. Implementing Agriculture for Development: World Bank Group Agriculture Action Plan: FY2010–2012. World Bank, Washington, D.C.
- _____. 2009b. World Development Report 2009: Reshaping Economic Geography. World Bank, Washington, D.C.

General Bibliography

- Airey, T., and I. Barwell. 1991. *Report on Interim Analysis of First Village-Level Survey in Zambia: Village-Level Transport and Travel Surveys and Related Case Studies*. IT Transport Ltd., Ardington, U.K.
- Banjo, G. 1999. Emerging Management and Financial Framework for Rural Transport Infrastructure: A Tool for Poverty Reduction? Proceedings of the Workshop on Food Chain in Sub-Saharan Africa: Linking Farmers to the Markets. Sasakawa Africa Association and Global 2000, Bamako, Mali.
- Clarke, N. 1999. "Considering Wheelchair Riders as Transport Users." In *Meeting Transport Needs with Intermediate Modes of Transport*. Colombo, Sri Lanka: Lanka Forum of Rural Transport Development. ISBN 955-8233801-3
- Crossley, P., and S. Ellis. 1996. *A Handbook of Rural Transport Vehicles in Developing Countries*. Silsoe College, Cranfield, United Kingdom, and Transport Research Laboratory, Crowthorne, U.K.
- Dawson, J., and I. Barwell. 1993. *Roads Are Not Enough: New Perspectives on Rural Transport Planning in Developing Countries*. London: Intermediate Technology Publications. ISBN 1 85339 191 3
- Delaquis, M. 1993. *Vehicle Efficiency and Agricultural Transport in Ghana*. MSc. Thesis, University of Manitoba, Department of Engineering, Canada.
- Edmonds, G. 1998. *Wasted Time: The Price of Poor Access*. Geneva: International Labour Office.

- Ellis, S. 1996. "The Economics of the Provision of Rural Transport Services." PhD thesis, Cranfield University, U.K.
- . 1997. "Rural Transport Services in Zambia." RTTP case study. World Bank, Rural Travel and Transport Program, Washington, D.C.
- Fernando, P. 1997. *Balancing the Load: Gender Issues in Rural Transport*. London: International Forum for Rural Transport and Development.
- Fernando, P., and P. Starkey. 2000. "Donkeys and Development: Socio-economic Issues." In P. Starkey and D. Fielding, eds., *Donkeys, People and Development*. A resource book of the Animal Traction Network for Eastern and Southern Africa. Wageningen, the Netherlands: Technical Centre for Agricultural and Rural Cooperation. [www.atnesa.org]
- Fischer, R. 1994a. "A Note on the Use of Donkeys for Rural Road Maintenance in Tanga Region, Tanzania." In P. Starkey, E. Mwenya, and J. Stares, eds., *Improving Animal Traction Technology*. Wageningen, the Netherlands: Technical Centre for Agricultural and Rural Cooperation.
- . 1994b. "Transfer of Animal Traction Technology: Lessons from Project Experiences in Zimbabwe, Cameroon and Tanzania." In *Animal Traction Technology*, ed. P. Starkey, E. Mwenya, and J. Stares. Wageningen, the Netherlands: Technical Centre for Agricultural and Rural Cooperation.
- Guitink, P. 1996. "Strategic Planning for Non-motorized Mobility." Transport Note OT-4. World Bank, Washington, D.C.
- Havard, M., and A. Faye. 1988. *Éléments d'analyse de la situation actuelle de la culture attelée au Sénégal: Perspectives d'études et de recherches*. In P. H. Starkey and F. Ndiame, eds., *Animal Power in Farming Systems*. Vieweg for German Appropriate Technology Exchange. Eschborn, Germany: GTZ.
- Heggie, I., and P. Vickers. (1998). *Commercial Management and Financing of Roads*. World Bank Technical Paper 409. World Bank, Washington, D.C.
- Hine, J. L., J. H. Ebdon, and P. Swan. 1997. "A Comparison of Freight Transport Operations in Tanzania and Indonesia." TRL Report 267. Transport Research Laboratory, Crowthorne, U.K.
- Hine, J.L., and J. Rutter. 2000. "Roads, Personal Mobility and Poverty: The Challenge." Paper presented at a workshop on transport and poverty alleviation, 13 June, World Bank, Washington, D.C.

- Hoban, C., Riverson, J., and Weckerle, A. 1994. *Rural Road Maintenance and Improvement*. TWU Series No. 11. World Bank, Washington D.C.
- Howe, J. and A. Davis. 1988. "Boda boda: Uganda's rural and urban low-capacity transport services." Sustainable Livelihoods, Mobility and Access Needs Report for Department for International Development, U.K. in collaboration with Makerere Institute of Social Research, Makerere University, Uganda.
- Howe, J., and P. Zille. 1988. *The Transport Demands of Small-farm Households in Africa: A Synthesis of IT Transport Research*. Ardington, U.K.: IT Transport Ltd.
- IFRTD (International Forum for Rural Transport and Development). 2001a. "Report 1999–2001." IFRTD, London, UK.
- . 2001b. "Twice the Success: Colin Relf Award 2001." *Forum News* 9:2. International Forum for Rural Transport and Development, London, UK.
- ITDP (Institute for Transportation and Development Policy). 1996. "Jakarta's Non-motorized Modes 'Living Dangerously.'" *Sustainable Transport* 6 (summer): 8-10.
- ITSL (IT Sri Lanka). 1998. "Cycle-Based Transport Project Completion Report." Colombo, Sri Lanka.
- Kauffman, S. 1993. "A Review of the Poverty Alleviation Components within a Feeder Roads Program." Ministry of Transport, Northern Region Pilot Scheme, Accra, Ghana.
- Lalana. 2000. *Promotion de moyens intermédiaires de transport pour les femmes Antemoro dans la zone de Lokomby, Sous-Préfecture de Manakara, Province de Fianarantsoa, Madagascar*. Dossier pour requête de financement. Antananarivo, Madagascar.
- Lisinge, R. T. 2001. "Transport, Sustainable Livelihoods and Travel Patterns in Rural Cameroon." TRL Limited, Crowthorne, U.K.
- Litman, T., R. Blair, W. Demopoulos, N. Eddy, A. Fritzel, D. Laidlaw, and H. Maddox. 2000. *Pedestrian and Bicycle Planning: A Guide to Best Practices*. Victoria Transport Policy Institute, Victoria BC, Canada.
- Löffler, C. 1994. "Transfer of Animal Traction Technology to Farmers in the North Western Province of Zambia." In P. Starkey, E. Mwenya, and J. Stares, eds., *Improving Animal Traction Technology*. Wageningen, the Netherlands: Technical Centre for Agricultural and Rural Cooperation.

- Lukungu, N. J. 2000. Personal communication. Muzama Crafts Ltd, Manyinka, Zambia.
- Makwanda, A. C. 1994. "Women and Animal Traction Technology: Experiences of the Tanga Draft Animal Project." In P. Starkey, E. Mwenya, and J. Stares, eds., *Improving Animal Traction Technology*. Wageningen, the Netherlands: Technical Centre for Agricultural and Rural Cooperation.
- Malmberg Calvo, C. 1992. "Case Studies on Intermediate Means of Transport and the Role of Women in Rural Transport." SSATP Working Paper No. 3. World Bank, Washington, D.C.
- Malmberg Calvo, C. 1994b. "Case Study on the Role of Women in Rural Transport: Access of Women to Domestic Facilities." SSATP Working Paper 11. World Bank, Washington, D.C.
- Matin, N., M. Mukib, H. Begum, and D. Khanam. 2001. "Spatial Mobility and Women's Empowerment: Implications for Developing Rural Transport in Bangladesh." In P. Fernando and G. Porter, eds., *Balancing the Load*. London: Zed Books.
- OPCS (Operations Policy and Country Services). 2006. *Implementation Completion and Results Report Guidelines*. Washington DC: World Bank.
- Operations Evaluation Department & Infrastructure and Energy Division, World Bank. 1992. *Rural Roads Maintenance: Review of Completed World Bank Operations*. World Bank, Washington D.C.
- QAG (Quality Assurance Group). 2006. *Quality of Transport Components in Non-Dedicated Projects: A QAG Assessment*. Washington DC: World Bank.
- Ramaswamy, N. S., and C. L. Narasimhan. 1984. "India's Animal-drawn Vehicles." Indian Institute of Management, Bangalore, and Department of Science and Technology, New Delhi.
- Rao, N. 2001. "Cycling into the Future: The Experience of Women in Pudukkottai, Tamil Nadu, India." In P. Fernando and G. Porter, eds., *Balancing the Load*. London: Zed Books.
- Rizet, C., and J. Hine. 1993. "A Comparison of the Costs and Productivity of Road Freight Transport in Africa and Pakistan." *Transport Reviews* 13 (2): 151-65.
- Salifu, M. 1994. "The Cycle Trailer in Ghana: A Reasonable but Inappropriate Technology." *African Technology Forum* 7 (3): 37-40.

- Shyam, K. C. 2007. *A Review of Rural Transport Knowledge Dissemination: Making a More Effective Engagement*. World Bank, Washington D.C.
- Sifa (Société Industrielle du Faso). 2001. "Production et distribution de vélos en milieu rural cas de la Sifa (Société Industrielle du Faso)." Paper presented at a Groupe Forum National du Burkina seminar on gender and transport, 3-5 April, Ouagadougou, Burkina Faso.
- Sisay, Zenebe, and Tilahun Fekade. 2000. "The Role of Donkey Pack Transport in the Major Grain Market of Addis Ababa." In P. Starkey and D. Fielding, eds., *Donkeys, People and Development*. A resource book of the Animal Traction Network for Eastern and Southern Africa. Wageningen, the Netherlands: Technical Centre for Agricultural and Rural Cooperation
- Starkey, P. 1994. "Donkey Utilization in Sub-Saharan Africa: Recent Changes and Apparent Needs." In M. Bakkoury and R. A. Prentis, eds., *Working Equines*. Rabat, Morocco: Actes Editions.
- , ed. 1995. *Animal Power in South Africa: Empowering Rural Communities*. Gauteng, South Africa: Development Bank of Southern Africa.
- . 1998. *Networking for Development*. London: International Forum for Rural Transport and Development.
- . 1999. "Transport Using Animal Power: Some Key Issues for Asia." In *Meeting Transport Needs with Intermediate Modes of Transport*. Colombo, Sri Lanka: Lanka Forum of Rural Transport Development. ISBN 955-8233801-3.
- . 2000. Personal observations during field visits. Animal Traction Development, Reading, U.K.
- . 2001a. "Aide mémoire de la mission de 16 février-8 mars 2001" Ministère des Transports et de la Météorologie, Programme Sectoriel des Transports, Antananarivo, Madagascar.
- Starkey, P., H. Dibbits, and E. Mwenya. 1991. "Animal Traction in Zambia: Status, Progress and Trends." Ministry of Agriculture, Lusaka, and IMAG-DLO, Wageningen, the Netherlands.
- Starkey, P., and J. Grimm. 1994. *The Introduction of Animal Traction in the Tanga Region, Tanzania*. Eschborn, Germany: GTZ.

- Starkey, P., and W. Mutagubya. 1992. "Animal Traction in Tanzania: Experience, Trends and Priorities." Ministry of Agriculture, Dar es Salaam, and Natural Resources Institute, Chatham, U.K.
- Starkey, P., Roberts, P., KC, Shyam, and Rastogi, Cordula. 2006. *Rural Access Index: A Key Development Indicator*. World Bank Transport Papers. No. TP-10. World Bank, Washington, D.C.
- Transport Sector Board. 2008. *Safe Clean and Affordable Transport for Development: The World Bank Group's Transport Business Strategy for 2008-2012*. World Bank, Washington, D.C.
- Valdés Ríos, H. 2001. "Public transport services using animal power in Cuba". Centro de Investigación y Desarrollo del Transporte, La Habana, Cuba. [www.recta.org].
- Vidanpathirana, J. 1999. "The Importance of Including Intermediate Modes of Transport in Highway Designing in Sri Lanka." In *Meeting Transport Needs with Intermediate Modes of Transport*. Colombo, Sri Lanka: Lanka Forum of Rural Transport Development.