Rural Infrastructure in Africa: Emerging Strategies

Rural infrastructure (RI) may be seen as the complex of physical structures or networks within which social and economic activities are carried out. These structures are not ends in themselves, but are means to achieving the broader goals of poverty reduction and economic growth. Rural infrastructure contributes to these goals by providing essential services such as water and sanitation; energy for cooking, heat and light and employment generating commercial activities; transportation of goods and people; and the transmission and communication of knowledge and information.

The updating of the global rural development strategy From Vision to Action provided an opportunity to take stock of experiences, consolidate lessons learned and synthesize emerging strategies for achieving sustainable RI service delivery in rural Sub-Saharan Africa. To this end, a participatory process was undertaken among RI practitioners at the World Bank to develop a “building block” paper, which focused on four RI sectors: (i) Rural Transport; (ii) Rural Water Supply and Sanitation; (iii) Rural Energy; and (iv) Rural Telecommunication and Information. This paper summarizes some of the main conclusions and recommendations emerging from this exercise, with a focus on policy and institutional models.

Characteristics of rural infrastructure

The four rural infrastructure sectors have been characterized in terms of three broad attributes: (i) physical characteristics; (ii) ownership and decision-making; and (iii) finance. Within this framework, a major distinguishing characteristic involves the levels at which decisions are made to invest in RI services. For example, in the case of energy and telecommunications, the decision to invest generally resides with the private sector, while governments seek to attract investment and provide incentives for equitable provision. On the other hand, the decision to improve the rural road network is made by public entities at various levels, while water supply and sanitation decisions are generally made at the local community or individual level.

In all sectors, RI service delivery models are in a period of transition, away from centrally-controlled public sector provision, to more private sector, demand-driven and decentralized models.
Policy Matrix: Telecommunications and Information

<table>
<thead>
<tr>
<th>Challenge rating</th>
<th>Liberalization/</th>
<th>Monopoly</th>
<th>Only mobile competition/</th>
<th>Open Market</th>
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<tbody>
<tr>
<td>GROUP 1</td>
<td>Remote and challenging areas, high economic disparity</td>
<td>Policy reform to liberalize internet, mobile, VASs, customer premise equipment and retail services (payphones, etc.).</td>
<td>Strengthen regulator, rebalance tariffs, fair interconnect, support full liberalization.</td>
<td>Establish UA fund primarily for remote areas, but ICTs not excluded.</td>
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<td></td>
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<td>Privatize incumbent with reasonable service requirements.</td>
<td>Establish universal access (UA) fund, maybe with seed finance (IDA countries).</td>
<td>Finance for new operator projects, private retailers and resellers.</td>
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<tr>
<td>GROUP 2</td>
<td>Significant variations</td>
<td>Create regulatory institutions to arbitrate in liberal market.</td>
<td>Finance for new operator projects, private retailers and resellers.</td>
<td>Support to creation of local content and computer literacy programs.</td>
</tr>
<tr>
<td>GROUP 3</td>
<td>Uniform and/or small country</td>
<td>As above, but UA fund may not be necessary or have more urban and ICT focus.</td>
<td>As above, but primary focus of UA fund on ICTs and on urban poor.</td>
<td></td>
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Emerging themes and approaches

A common thread among the individual RI strategies and operational themes is the need to build on recent advances in achieving affordable, quality and sustainable service delivery systems in Africa. This involves, above all, patient and persistent sector dialogues at the national level, combined with continuous application, testing and improvement of service delivery options at the community and local government level. To achieve these improvements, the individual sectors are exploring and testing new institutional models that capitalize on the trend toward market liberalization, private capital mobilization and decentralized development.

A fresh perspective on how to improve coherence between demand and supply for RI services underpins these institutional models. This new perspective is characterized by: (i) a demand-responsive framework that empowers consumers to express their demand and willingness to pay for services; (ii) a more private sector and “business plan” orientation to service delivery that obliges service providers to respond to service level demand and achieve financial sustainability; (iii) an opportunistic approach to capture cross-sectoral demand and supply linkages and synergies among the RI service sectors; and (iv) advocacy of the RI service delivery approach within the broader rural development agenda, so as to ensure that the emerging institutional models and synergies are incorporated into the community-driven development (CDD) framework.

The following are several operational examples in which these new approaches are being pursued:

**Sector-specific development paths**

In each sector, there is an ongoing effort to identify and test the main policy and other conditions necessary to pursue affordable, equitable and sustainable service delivery. In a dynamic setting, this involves establishing a “starting point” of development for each country and setting up guidelines that can help the country move along a continuum, or development path. For example, the Information and Telecommunications sector has formulated a working matrix, which characterizes country situations and stages of advancement in policy frameworks. The table below classifies countries according to two main criteria: (i) physical and economic characteristics (“challenge rating groups”); and (ii) extent of liberalization. This provides a framework within which to display the various policy reform options that could be supported in a country with a certain mix of characteristics particularly relevant to this sector. It also provides a useful basis for discussing policy reform...
at the country level and establishing milestones to move along the prescribed path. From the Bank’s point of view, the matrix also serves as a basis for a sector strategy to target particular countries at various stages of development and monitor the results. It is meant to be a flexible document, which can be adjusted as market and technology characteristics may change in the future.

A similar framework has been developed for the road sector, which summarizes the status of policy reform on a scale of 0-4 for each country. Criteria include: stable funding, institutional reform, staff motivation, contracted maintenance, labor-based work, reformed plant tools, network-based planning and performance budgeting (Trisch, Annex I).

**Refining service delivery and institutional models**

Each RI sector is developing institutional development models and implementation tools for improved service delivery systems. As noted, these models combine demand-responsive and service-level approaches with a business management orientation, and are driven by the need to achieve financial sustainability. One example is the Ghana Second Community Water and Sanitation Project, where the project has capitalized on a redefinition of the role of the Community Water and Sanitation Division (CWSD), away from central provider to facilitator of water supply systems. Under this framework, the project establishes a fund for which the communities self-select, by making up-front financial commitments. Communities then make informed choices based on their willingness to pay for the chosen service levels, and accept responsibility for assuring O&M through user tariffs.

**Developing guidelines and testing new instruments**

All RI sectors are in varying stages of establishing technical guidelines and best practice publications. In some cases, completely new instruments are being tested, such as performance-based maintenance and management contracts for rural roads. These contracts would provide a template which reflects a departure from previous quantity-oriented works contracts to a revised approach aimed at achieving minimum quality, or service levels of “access.” In operational terms, “access” may be defined in terms of outcome indicators, such as, “minimum year-round access,” or “blockages of no more than 2 hours during the rainy season,” or “ability to travel at an average speed of say, 50 or 80 km per hour.” By shifting the prime objective away from the mere creation and maintenance of assets, towards achievement of access service levels, the perspective is clarified and efforts refocused towards assuring the essential service that the roads are meant to provide. This approach promotes the more efficient use of public funds by providing planners with tools to calibrate investment and maintenance levels to meet current access needs and scale up expenditures as demand and traffic levels increase. The performance-based contracts will be tested for the first time in Africa in Chad starting in 2001.

**Stretching project boundaries**

The recent focus on demand-supply dynamics has obliged RI practitioners to expand their perspective beyond their sector and seek out collaborative activities that can enhance the viability of service delivery systems. This has translated into an opportunistic approach, which seeks to single out cross-sectoral, or multi-sectoral situations where the need and supply of one service tends to reinforce the demand and supply of another. A current example is the Uganda Energy for Rural Transformation Project. In this pioneering activity, the starting point of the program has been to determine the extent to which rural electrification will serve, and can be combined with, other rural transformation activities—in particular telecommunications and health services. The rationale is that these activities represent an identifiable segment of the potential market for rural electrification services. The initial exercise of assessing rural electrification needs for the health facilities has catalyzed a renewed perspective in how the quality of rural health services can be improved. Similarly, the introduction of improved telecommunications expands the health sector’s capacity to significantly improve service quality.

The Uganda experience represents a potential model on how targeted cross-sectoral collaboration can begin to have visible and meaningful impacts on the rural transformation process. The Uganda program could pave the way to explore possibilities for “rural utilities” programs, in which target RI services are bundled in joint programs, or capable entities take on a “multi-purpose” responsibility for the provision of related RI services.
Suggested action/learning themes for rural infrastructure

General themes

- Converting direct subsidies for publicly-managed services to competitively-awarded subsidies for concession-managed service delivery.
- Improving the capability of the private financial sector to provide resources for investment in RI service delivery, as well as consumer and business credit that will increase demand for those services.
- Providing communities or local governments with sector-specific guidelines for balanced and sustained RI service delivery.
- Assisting communities or local governments to expand their menu and attract limited “bundles” of RI service delivery systems, which will be mutually reinforcing in the generating demand and enhancing quality and sustainable supply response.
- Exploring potentials for a “rural utilities” program, that would include several RI services within a joint program

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<th>Rural Energy</th>
<th>Rural Telecom. &amp; Information</th>
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<td>- Test methods and guidelines for managing community networks, based on service level approach.</td>
<td>- Test methods and guidelines for community choice of service-level and technical options.</td>
<td>- Test competitively-awarded subsidy approaches to promote investment in new technologies and under-served areas.</td>
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<td>- Test modes of assistance to communities and local government by technical services.</td>
<td>- Explore linkages with financial sector and consumer credit.</td>
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<td>- Expand options for cross-sector and competitively-awarded subsidies.</td>
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<td>- Explore potential for cross-sector and rural utilities options to enhance demand and long-term viability.</td>
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Action/learning agenda

Based on emerging models and experience, a number of action/learning themes have been suggested, within the context of ongoing and newly identified programs. These are summarized in the table above, with potential applications to the individual RI sectors.

References

A full list of references and citations is available on the Working Papers series website: www.worldbank.org/afr/wps/index.htm

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