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Infrastructure for Improved Rural Livelihoods

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What role can innovative strategies for infrastructure provision play in better meeting the needs of rural populations? This article highlights some of the findings from recent analytical work that has been carried out in the Latin America and Caribbean (LAC) region, notably a number of promising practices that are being developed to effectively address the infrastructure provision challenge, and in particular to ensure that infrastructure increases rural competitiveness and incomes.

A series of regional studies and country assessments, undertaken since 2003 have analyzed the linkages between rural infrastructure, poverty reduction and improved livelihoods. These have produced several recommendations to promote the increased impact of infrastructure investment.¹ Specifically, the series sought to develop holistic, cost-effective and sustainable approaches to rural infrastructure service delivery and to promote increased access to improved services and the productive use of these services by the rural poor. The results of this work have not only increased the knowledge base, but are also already having an operational impact through specific Bank lending activities.

The State of Rural Infrastructure in Latin America and the Caribbean

The coverage and quality of infrastructure in Latin America and the Caribbean has generally not kept pace with that found in middle income countries in other regions. LAC countries have been spending an average of less than two percent of gross domestic product (GDP) on infrastructure, substantially less than the four to six percent, found in countries such as China and Korea². The economic impact of investment in infrastructure has been weakened by a variety of factors such as inadequate resources for maintenance, poor targeting of subsidies, lack of transparency and competition in private concessions, and lags in the achievement of service coverage goals. These shortcomings are further magnified in the rural context, where infrastructure services coverage is still typically low (see Table 1). Provision generally lags that found in urban areas. In Latin America, nearly 95 percent of those living in cities have access to potable water, and over 80 percent access to sanitation facilities. This compares poorly to rural areas with less than 50 percent coverage for water and sanitation³.

Table 1: Rural Infrastructure Coverage Rates⁴

| | Water | Sanitation | Rural Roads ^e | Electricity | ICT | |
|-----------|------------------|-------------------|--------------------------|-------------|--------------------------------|---------------------|
| | | | | | Public Telephones ^f | Cellular Telephones |
| Chile | 66% ^a | 51% ^c | 71% | 86% | 98% | 41% |
| Guatemala | 34% ^a | <50% ^c | 70% | 65% | 80% | 3% |
| Honduras | 70% ^b | 68% ^d | 62% | 37% | n.a. | n.a. |
| Peru | 62% ^b | 49% ^b | 59% | 30% | n.a. | n.a. |

^a Indoor connections

^b Type of connection/facilities not specified

^c Houses with improved facilities

^d Also includes basic latrines

^e Rural/communal roads as a percentage of total road network

^f Percentage of communities/households with access to public telephone (within 6km)

⁴ - See footnote 1

Reaching the Underserved

The rural setting poses additional and specific challenges for infrastructure provision, notably the need to serve dispersed and, at times, isolated communities. Economically speaking, reduced economies of scale and other factors result in higher unit costs of infrastructure service delivery. The investment conditions in rural areas taken together with the generally prevailing lower incomes found in these areas create particular challenges related to the pricing of services and willingness of the private sector to participate. Extension of networked services, to remote rural locales is often costly and complex (See Box 1). Government has commonly been called upon in these cases to fill the gap on service provision, although this has rarely been sufficient to offset the disadvantages faced in the rural areas.

Improving Sustainability, Efficiency and Quality

While substantial investments have been made in the development of new infrastructure services in rural areas, the rising coverage rates often hide weaknesses in the quality of those services. In Honduras, for example, while 70 percent of rural households have access to potable water, less than 15 percent of that water is treated, and service is intermittent. Poor budgeting, use of centralized service providers, and the lack of adequate benchmarks for monitoring maintenance have all contributed to failures in the serviceability of these investments.

The process of administrative and fiscal decentralization is advancing in much of the region, and is creating new opportunities for local initiatives to address infrastructure provision (See Box 2). However, given that the roles and responsibilities may be relatively new to local officials, these demands have often exceeded human, financial, technical and physical capacity. In addition, institutional complexity has increased, and there remains a need to create more effective ways of coordinating agencies involved at both the national and local level.

II. Maximizing Impact

Most of the investment made in rural infrastructure has been focused on sector-specific interventions consistent with national goals. This investment may well have produced some benefits—such as increased coverage rates—but may not have had a significant impact on broader economic development goals. Central to addressing this perceived shortcoming is the need for a broader vision of rural development that seeks to exploit complementarities across sectors, not only among infrastructure services, but also in other areas linked to the development of human, physical,

Box 1 - Reaching the Unserved in Chile

In Chile, infrastructure needs for the bulk of the population, 87 percent of whom are living in urban areas, have largely been met. In fact, even in concentrated rural areas, most people have access to basic infrastructure. The greatest need remains the provision of services to the remote and isolated communities of rural Chile.

The Rural Infrastructure in Chile report has offered some alternative strategies to overcome the obstacles Chile has faced in addressing its relatively small, yet isolated unserved population, which the Government is currently implementing through the World Bank-supported “Infrastructure for Territorial Development” project. Chile’s traditional centralized, single-sector focus for infrastructure investment would benefit from greater local level participation and cross-sectoral infrastructure service bundling. The typically high quality, yet possibly over-designed technical standards common to Chile’s sector ministries should be adjusted according to the needs, demands and payment capacity of these communities. Off-grid and renewable technologies for electricity generation and the use of local service providers for rural road maintenance, for example, offer more viable solutions to meet the demands of low density populations.

financial and social capital, including access to education, land tenure and financial services. Consequently, there is an opportunity to identify the economic opportunities specific to geographic areas, and to build and maintain complementary infrastructure assets to maximize this potential. In responding to the multiplicity of challenges that face the drive towards improved rural livelihoods, two emerging approaches have come to light that foster the appropriate conditions for more concerted and coordinated investments in rural infrastructure in order to maximize social and economic impact.

A. INFRASTRUCTURE BUNDLING

Recent evidence from Peru has revealed that the bundling of infrastructure can increase impact on rural household incomes. Cooperative interactions across multiple infrastructure services can result in a substantially greater impact as compared to the sum effect of each service taken individually. Productive opportunities have a better chance of being exploited with access to various infrastructure services. Each service builds on the other to produce a “multiplier effect”.

Greater cross-sectoral collaboration will be required, and can largely be achieved through improved planning strategies, beginning at the local level through consultation

Box 2 - User Committees and Cooperatives in Bolivia

Various municipalities in Bolivia have come to delegate management for water and sanitation projects as well as off-grid electricity to user committees or user cooperatives. These entities, generally comprised of community members where the service is being provided, essentially serve as local administrators of the service. They are responsible for receiving regular payments from fellow community members, as well as monitoring and maintaining the systems. Users expressed the highest level of satisfaction with this model of management, particularly those administered by cooperatives, in terms of providing adequate service delivery with limited interruptions in service. 66 percent of projects administered by user committees, and 80 percent of those administered by user cooperatives were identified as offering a high quality of service, as opposed to 44 percent of those managed by public entities and only 10 percent of privately-managed projects. *Source (SUR, p.7)*

with key stakeholders, and bolstered by financial and technical commitments at the central level. Under the Regional Transport Infrastructure Decentralization Project in Peru, the concept of infrastructure bundling is being put into practice through the close interaction of rural road investments with the Participatory Regional Development Plans, which identify and prioritize public investment.

B. TERRITORIAL DEVELOPMENT

Infrastructure bundling is an idea that has inherent attractions and should perhaps be pursued more widely, provided the institutional coordination and capacity requirements can be put in place. In and of itself, however, bundling may not be sufficient to realize all the potential gains from increased, coordinated infrastructure services. The idea of territorial development offers an approach that emphasizes multi-sectoriality that extends beyond infrastructure towards a broader vision for enhancing productive growth opportunities. In contrast to most political/administrative or sectoral approaches, the territorial development strategy seeks to define a space based on its endogenous linkages for economic development. The territorial approach offers:

1. Long-term participatory planning based on the identification of strategic productive opportunities
2. Consolidated strategy to facilitate coordination among sectors
3. Linkages among geographical areas based on productive connections that often extend beyond traditional administrative units
4. Definition of appropriate tariff schemes to promote productive opportunities.

APPLICATIONS

A number of countries in the region are currently exploring various models of territorial development in pursuit of greater development gains to rural investment. In Chile, territorial development has meant an increased level of inter-institutional coordination among sector agencies, as well as local stakeholders, in the preparation of territorial framework plans. These

plans serve as the basis for investment decision-making and coordination. It should be noted that the efficacy of Chile's institutional framework is virtually unparalleled in the region - contributing greatly to its success. Guatemala has started to promote the idea of a territorial development model that will support broad-based improvement in rural competitiveness. In a first phase, eight selected departments, which have economic potential but high rates of poverty and of indigenous poor, will have the opportunity to compete for funding for a bundle of technical, financial, and infrastructure support services. In a subsequent phase, the reform of the planning system will be completed to ensure a territorial, participatory focus with better alignment with the public investment program. The objective is to increase rural incomes, rather than to increase infrastructure provision *per se*.

Recognizing the need to complement the investments in road rehabilitation and maintenance, Peru has sought to promote greater benefits to rural households through the incorporation of an innovative strategy to support broader rural development through the *Local Development Window (LDW)*. The LDW serves as a coordinating mechanism to bring together supply and demand by identifying areas of productive growth, building the capacity of local service providers, and facilitating access to financial resources. Local development plans are prepared through a participatory process with local stakeholders to define priorities for both income-generating and social welfare projects. Management of the program is carried out by a non-government organization.

ISSUES

There remains some uncertainty about the conditions necessary for effective application of the territorial approach, as well as the structures and management mechanisms that will best fit the specific local context. Two key consideration concern (i) the criteria for selecting territories—should these always be the areas with greatest potential or not and, (ii) the determination of the geographical definition of the territory. While the latter

need not coincide with one or more sets of administrative boundaries, in practice so far, this is what tends to happen. In addition, some of the specific issues that are likely to arise are as follows:

- Decentralization, and more specifically, the need to strengthen human and financial resources at the local level is critical to the effectiveness of this multi-sectoral approach.
- The susceptibility of local level management to elite capture should be managed by fostering popular participation—and putting in place a grievance mechanism.
- The sustainability of a broad-based approach, to which infrastructure service provision is to contribute, must be assured through adequate funding for maintenance and appropriate policies to the relevant infrastructure sector.
- Equity issues, given that regardless of the basis upon which territories are selected, there will be areas that might be left out of any pilot approach. In such cases there may need to be explicit criteria and timeframes established for “mainstreaming” the concept and/or sector specific strategies that will assure improvements in basic infrastructure provision go ahead in other areas as well.
- Standards - at what level and to what extent should infrastructure standards be modified to fit local contexts, especially as part of a territorial development approach. Inflexible and inappropriately high standards have, in the past, constrained adequate rural infrastructure provision.

III. Conclusions

“Bundling”, whether by combining multiple infrastructure services, or by linking various productive, social and location-specific assets through the territorial approach, offers the potential for higher returns to rural households. These will be reflected both in terms of higher incomes as well as reduced opportunity costs, through time savings, allowing for increased productive opportunities. It is an attractive concept and one that should bring benefits from the associated complementarities provided that the obstacles to its practical and cost effective application can be effectively addressed, in four specific areas as follows:

1. The need for **capacity-building** on the part of virtually all stakeholders, from municipal infrastructure providers to users, has been a recurring theme in much of the region. As local authorities assume more responsibility for infrastructure services, these responsibilities must be complemented with additional technical assistance and training from sectoral agencies.

2. Decentralization has facilitated the movement towards increased **local participatory planning and implementation**, as municipal officials are able to engage more easily with communities, while still being able to maintain oversight of their activities. The degree and quality of participation of the various stakeholders, particularly the users, is critical to ensure that rural infrastructure investments are aligned with rural development strategies, while at the same time increasing the level of commitment on the part of local beneficiaries to their successful implementation.

3. An **adequate legal and regulatory framework for private sector participation** is critical to promoting commercial opportunities and managing risks. Governments must identify the appropriate balance of incentives to encourage private sector participation, particularly by the local private sector, while maintaining sufficient oversight to ensure the desired development outcomes.

4. **Affordability** must be clearly addressed to ensure adequate cost recovery for the operational viability and self-sufficiency of services, while meeting the needs of the unserved populations. Tariff regimes must accurately reflect costs to ensure financial and operational sustainability.

Notes and References

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- 2 World Bank. 2005. *Infrastructure in Latin America: Recent Development and Key Challenges*. Washington, DC: The World Bank.
- 3 World Bank. 2004. *World Development Report 2004*. Washington, DC: The World Bank, p. 160.

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