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Lessons Learned in Infrastructure Services Provision: Reaching the Poor

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A key measure of the effectiveness of public spending on infrastructure is the extent to which it benefits poor people. In recent years policymakers and development practitioners have increasingly sought to understand why earlier approaches to infrastructure development often bypassed the poor or proved unsustainable. That work has led to revisions in policies, programs, and processes within the World Bank Group and in the countries it serves, aimed at doing more to extend the reach of infrastructure services to poor households and small enterprises. There are now many “success stories.” But much more remains to be done to broaden and improve the application of their lessons across countries and sectors.

Looking back over the past decades, the key lessons include the following: Firstly, narrowing the service gap requires getting costs down and service delivery up in ways that specifically meet the needs of the poor. Secondly, the “affordability gap” can be narrowed

by offering lower cost service solutions which draw on local resources, as well as through better targeting and administration of subsidies. Thirdly, the active participation of local communities is indispensable to ensuring accountability, ownership, and thus sustainability. Lastly, creating an enabling environment that provides the possibility for scale-up and more wide-reaching impact is critical.

The information presented in this paper is drawn from numerous studies developed by Bank and non-Bank sources. The authors of this paper believe that the lessons learned can help inform OBA approaches, or explicit performance-based subsidies, more effectively serve the poor.

This paper was originally prepared as background material to “Infrastructure: Lessons from the Last Two Decades of World Bank Engagement.” Discussion Paper, Infrastructure Network, World Bank, January 30, 2006.

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Abstract

A key measure of the effectiveness of public spending on infrastructure is the extent to which it benefits poor people. In recent years policymakers and development practitioners have increasingly sought to understand why earlier approaches to infrastructure development often bypassed the poor or proved unsustainable. That work has led to revisions in policies, programs, and processes within the World Bank Group and in the countries it serves, aimed at doing more to extend the reach of infrastructure services to poor households and small enterprises. There are now many “success stories.” But much more remains to be done to broaden and improve the application of their lessons across countries and sectors.

Output-based aid (OBA), or explicit performance-based subsidies, is one mechanism that may help deliver aid more effectively to the poor. But OBA is no magic bullet: OBA approaches can succeed in delivering benefits to poor people only if the enabling environment fosters or induces effective pro-poor interventions. This paper discusses some of the lessons learned in providing infrastructure services to poor households—lessons that should inform OBA approaches to more effectively serve the poor.¹

Significant amounts of resources have been spent on infrastructure over the past decades but the outlays vary greatly between countries and sectors. Based on rough approximations, the value of global infrastructure stock today is estimated at about US\$ 15 trillion, with about 60 percent concentrated in high income countries, 27 percent in middle income countries, and 13% in low income countries (Fay 2003). The value of infrastructure stocks in low and middle income countries is approximately US\$ 6 trillion. In low income countries, roads tend to dominate, accounting for about 50 percent of infrastructure stocks, whereas water and sanitation only account for about 15 percent. The 2005 Global Monitoring Report estimates that actual investment in infrastructure in developing countries constitutes about 3.5% of developing country GDP, implying total investment of about US\$ 255 billion in all developing countries in 2003.

Further, under-pricing and subsidies are ubiquitous in most sectors and regions. The value of utility subsidies often represents a significant share of public expenditure and of utility costs. For some countries of the former Soviet Union, power sector subsidies reach over 10 percent of GDP (Komives 2005). The cost to utilities of subsidies to residential customers can also be quite substantial. A Latin American study found that the monthly value of water and electricity subsidies to residential customers ranged from US\$1.3 million to nearly US\$5 million per month (Komives 2005). Subsidies are widespread in infrastructure for several reasons, including positive health externalities of providing improved water and sanitation services, and infrastructure’s role as the driver of economic growth and rural productivity through, for example, better transport, telecommunications and power supply. Further, the cost structure of infrastructure, characterized by high fixed costs, capital intensity and long lived assets,

¹ This paper was originally prepared as background material to “Infrastructure: Lessons from the Last Two Decades of World Bank Engagement.” Discussion Paper, Infrastructure Network, World Bank, January 30, 2006.

permits policy makers and utility managers to get away with underfunding ongoing operations and postponing capital maintenance and renewal since the negative effects only gradually become apparent over time in terms of deteriorating service quality and costly rehabilitation. Lastly, as existing utility subsidies tend to benefit a broad swathe of the predominantly non-poor urban population, coalitions form to resist measures to reduce them. Depending on the policy objectives and industry structure (e.g. degree of competition), the degree of subsidy varies across infrastructure sectors. For example, subsidization is more pronounced in water supply and power than telecoms, urban transport than rural, and for household consumption rather than industrial and commercial uses.

Despite large public outlays and consumer subsidies, many people in the developing world, in particular the poor, do not have access to basic infrastructure services. As can be seen from Table 1, the degree of access is correlated with country income levels: In regions with a high proportion of low income countries – Sub-Saharan Africa (SSA) and South Asia – access rates are lowest. Access rates also vary by sector, with sanitation lagging most others. Further, access to all infrastructure service is lower in rural areas. For example, access to rural transport services is far below that found in urban areas. These disparities have narrowed over time, but only gradually. An exception to the slow pace of improvement is telecommunications (ICT) services where access rates have risen dramatically, including in SSA, and access to energy services in most regions. But gains in the absolute numbers of people with access have been matched or outstripped by population growth, especially in urban areas due to rural-to-urban migration.

Table 1: Infrastructure Access: Comparison by Region

| Region | Electricity Consumption 2002 Kwh Per Capita | Rural Transport Access Index 1997-02 ² | Access to | | Telephone Mainlines 2003 Per 1000 people |
|-------------------------|---|--|---|---------------------------------|--|
| | | | Water 2002 % of Pop. (hh connx %) ³ | Sanitation 2002 % of Pop. | |
| East Asia & Pacific | 891 | 86 | 76 (50) | 46 | 161 |
| Europe & Central Asia | 2,808 | 77 | 91 (82) | .. | 228 |
| L. America & Caribbean | 1,506 | 54 | 86 (78) | 77 | 170 |
| Middle East & N. Africa | 1,412 | 51 | 88 (75) | 85 | 135 |
| South Asia | 344 | 65 | 84 (24) | 34 | 39 |
| Sub-Saharan Africa | 457 | 34 | 58 (16) | 54 | 11 |

Source: World Bank, WDI, 2005, taken from PPIAF Africa Strategy (2005)

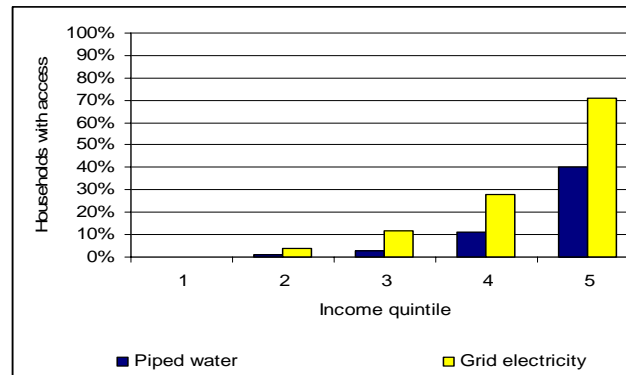
Within countries and local jurisdictions, poor households tend to be the last served.

For example, in Kazakhstan, Nicaragua, and Indonesia, over 90 percent of rich households have access to improved water sources, whereas in each of these countries, less than 50 percent of the poorest households have access to improved water sources (WDR 2004). In SSA, the lowest income groups are almost entirely excluded from access to modern network services (see Figure 1). The information available from household surveys suggests that modern infrastructure services in SSA cater mostly to the richest 40% of the population, with coverage rates of piped water and grid electricity for the poorest 40% of the population virtually nil (Foster 2005). In middle income countries, access by poor households to network and non network services is significantly higher but still less than universal.

² Roberts, Peter and Shyam KC (2005 in preparation)

³ Komives, Foster, Halpern and Wodon (2005)

Figure 1: Access to utility services in Sub-Saharan Africa – by income class



Source: Adapted from Estache, 2005

Looking back over the past decades, several basic lessons have been learned about providing infrastructure services to the poor. Firstly, narrowing the service gap requires getting costs down and service delivery up in ways that specifically meet the preferences and circumstances of the poor. Secondly, the affordability gap resulting from extreme poverty in many regions – especially SSA and South Asia – can be narrowed by offering lower cost service solutions which draw on local resources as well as through better targeting and administration of subsidies. Thirdly, the active participation of local communities is indispensable to ensure voice, accountability, ownership – all pre-requisites for sustaining services. Lastly, creating an enabling environment that not only helps ensure the success of an individual project but that also provides the possibility for scale-up and more wide-reaching impact is also critical. The remainder of this paper illustrates these lessons.

1. Service Levels and Delivery Mechanisms

Interventions in the infrastructure sectors were often designed with the notion that improved sector performance in general would be synonymous with benefiting the poor. Utility reform in the 1990s was seen as a way to increase efficiency and mobilize financing for service improvements and network expansion, thereby facilitating access by unconnected (often poor) households. Such approaches have had a positive impact on the poor in some circumstances, but were often neutral or even negative in others. For example, introducing market-driven private sector participation can encourage utilities to focus on providing electricity or water to households or communities that are already proven to be profitable or which can be connected at low cost, and to not extend the network to poor areas. Further, utility reform is typically associated with price increases aimed at making the utility more financially sound. In order to attract private investors, most reform programs have included measures to increase tariffs toward cost-reflective levels (Cecelski 2005). Although this is sound for many reasons, where tariff increases were substantial (2-5 times the prevailing charge) the minority of the poor who were actually connected were not able to afford them.

Gains in operating and investment efficiency can lead to lower tariffs and strengthen the financial capacity of utilities to expand access to the poor. Increased competition, private sector participation (PSP), performance-based contracts and good regulatory oversight can promote increased efficiency, generating resources for expanding access for the poor, *if* properly designed (see Box 1). For example, a recent Latin American study of the impact of private sector participation in water and electricity distribution found that both labor productivity and distribution losses improved significantly, particularly during the transition from public to private management (Andres, 2006). Reductions in capital costs have even more powerful potential for reducing costs and for limiting the extent of future cost increases as services are expanded and upgraded. Sustained capital cost reductions require ongoing improvements in planning, design, and execution of capital projects, as well as demand-side management. The challenge then is how to share the efficiency gains appropriately between the service provider, existing consumers, and new consumers – hence the need for appropriate regulatory oversight.

Box 1: Sector reform and reaching the poor

- 1) Argentina's privatization program of the 1990's included local water companies covering 30 percent of the country's municipalities. A recent evaluation impact study found that network connections increased significantly in the areas that privatized as compared to the areas that did not. Child mortality fell by 5-7 percent more in areas that privatized their water services. The largest gains were seen in the poorest municipalities, where child mortality fell by 24 percent. The study concluded that increased access to the water and sanitation network, and changes in service quality and lower costs paid by customers (due to efficiency gains) had a direct and positive impact on health outcomes among young children, the age group most vulnerable to water related illnesses (Galiani 2002).
- 2) For the electricity sector, appropriate sector policies are a significant component in reaching the poor. However, it appears that privatization is not the only way to provide incentives to reach the poor. An interesting case is a well-run public sector company in Tunisia which in the last 20 years has provided near universal electricity coverage. Subsidies were provided to the public company mainly through the national budget,. The company was provided with a fixed capital subsidy to reach new customers, and over the years the subsidy was raised to reach consumers at greater and greater distances from the main grid. Once communities were provided with electricity, households could connect to the system at very reasonable costs. Today well over 90 percent of rural household in Tunisia have electricity (Cecelski 2005).
- 3) Access to ICT services in rural areas and poor urban neighborhoods of many developing countries is several orders of magnitude lower than in metropolitan urban areas. Income differentials explain only part of this gap. Policymakers are devising universal access policies using OBA approaches aimed at closing the existing gaps. Such reforms include: increased competition, private sector participation, and the implementation of a transparent and fair regulatory environment. Based on the experience of many countries around the world, often with Bank support, these policies have fostered overall price reductions, increased quality, and dramatic growth of service penetration and coverage – even in areas that were previously considered too costly, *and* often without the need for any public funding (Sabater 2005).

Because traditional infrastructure services often do not reach the poor, lower cost alternatives that meet their preferences and capabilities are required. Where utility services do not reach the poor, they often rely on more costly alternative sources of supply. In the case of water supply, prices charged by alternative suppliers such as tankers can be several times higher than utility tariffs for piped water – restricting their consumption to subsistence levels. Poor households also tend to spend a higher

percentage of their income on water, sanitation and electricity than higher income groups (Foster 2005). But the poor often differ from the non-poor in ways which should inform the design of infrastructure policies and programs. Above and beyond differences in wealth and income, important factors include: (i) geographic location, topography and density; (ii) race, ethnicity, and customs; and, (iii) literacy levels, preferences, and different ways of managing their resources and allocating their time. Therefore, providing “more of the same” to the poor as for the non-poor is rarely sufficient or effective.

Expanding the scope for low-cost, small-scale and local private providers can provide viable alternatives for the poor. In many cases, these providers help fill a gap that the public network monopolies ignore. In Dar es Salaam, Tanzania, a cholera outbreak in 1996 forced the sewerage and sanitation department to loosen its monopoly on cesspit cleaning to allow private providers in. There is now an emerging market for cesspit cleaning – households can choose a provider based on price and easy-to-monitor performance (WDR 2004). Appropriate transport services, such as the pedal rickshaws of Dakha and other South Asian cities and the bicycle and motorcycle ‘boda-boda’ services which have emerged in East Africa fill an important gap in local transport services and provides substantial employment for members of poor households (Hine 2005). However, legislation and contracts often include restrictions on alternative service providers. For example within a utility’s service area, the incumbent may have the right to prevent households from installing wells, using generators or using alternative providers as soon as network service becomes available. While potentially beneficial for the utility, such policies can undermine the objective of providing poor households with access to infrastructure services (Komives 2005).

Increased access for the poor requires broadening the range of service levels offered that meet their preferences and the ability to pay. Most utilities in the developing world strive to provide a single standard of service, where costs are dictated by engineering standards often lifted directly from industrialized countries. But when these standards result in services that are unmanageable by the utility and unaffordable for the poor, an alternative service level more appropriate for some households or neighborhoods should be sought. A few water utilities in South Africa have experimented with low-cost delivery systems for water distribution. In Durban, for example, a flow restrictor meter is used in combination with a semi-pressure system, shallow networks, and individual ground tanks to provide low-income households with 200 liters of water a day (Komives, 2005). In the energy sector, many countries try to provide electricity to rural areas using the urban standards that are customary in many power companies. However, the use of single phase electricity is a less-expensive way to provide electricity to rural areas that have low levels of electricity demand. This type of system has been used successfully in a number of countries, especially those with cooperative distribution systems. However, the principal barrier is often not technological per se but rather legal and administrative – for example, minimum service quality standards, construction codes, materials specifications.

Box 3: Alternatives to help rural roads reach the poor in Africa and Asia

The appropriate choice of technology, construction, operation and maintenance of rural roads varies by circumstance. Paved roads requiring expensive and sophisticated technology and equipment are often not a feasible and sustainable way to reach the rural poor. For example, Zimbabwe's choice of gravel roads has resulted for many years in a higher quality road network than for most of its neighbors. Among the reasons for Zimbabwe's success is the choice of gravel roads using local materials which require low-cost technology to build and maintain, as well as relatively simple, locally sustainable maintenance techniques (Gongera). By contrast, Vietnam experienced problems with gravel roads in some parts of the country, both in hilly terrain that experiences a lot of rainfall and in the Mekong Delta where suitable gravel is not available. Vietnam also experienced a rapid increase in motor-cycle use, which was not suited for gravel roads in some instances (Hine 2005). In areas of Nepal, which are hilly with fragile soils and monsoon rainfall, "green roads" are used to reach very poor remote areas. The aim is to establish motorable tracks for light vehicles with a minimum of cost and interference for construction and maintenance. Much research and field experience with the effective use of local skills and materials has been supported by the ILO and others but engineers in the central line ministries and politicians are often reluctant to adopt technical standards which might be viewed as "second rate" (Roberts 2005).

In rural areas, strengthening the "supply-chain" for service delivery is essential. For example, in Sri Lanka, transport service innovations such as cycle trailers together with the training of local blacksmiths in their fabrication and repair has been successfully carried out where over 500 cycle trailers were purchased in one pilot scheme, many for use by petty traders (Technical Note 2003). A reliable supply chain of goods and services is essential to the sustainability of infrastructure investments. In rural areas, for example, having spare pump parts available on the local market and trained mechanics to make repairs and installations is important if the benefits of access to safe water are to be realized. Small scale local entrepreneurs may also need to be made aware of the market growth potential in the sector and be provided with initial assistance in market research and development. In order to encourage such innovation and ownership, micro credit schemes have supported the development of local capacities to plan, execute, maintain and finance rural infrastructure (see Box 4).

Box 4: Off-grid rural electrification in Bangladesh: Solar Home Programs

The Bangladesh Solar Home Program based on facilitating credit sales in rural unelectrified areas is part of a larger rural electrification program supported by an IDA Credit. The program is managed by the Bangladesh Infrastructure Development Company (IDCOL) and involves the following activities:

- developing consumer awareness of solar home systems (SHS) and their potential for rural lighting
- selection of Participating Organizations (POs) who will be eligible for initial business set up assistance, IDCOL loans and GEF grants;
- establishing standards to be met for equipment;
- providing refinancing of loans of POs to their customers (up to 80%);
- providing and supervising the GEF financed grant (commencing at \$90 per system and declining over the duration of the project to \$50 per system);
- supervising the activities of POs and coordinating activities between participants (POs, suppliers, and customers).

A key success factor has been the ability to develop NGO/MFI operators in rural Bangladesh to operate as SHS vendors. The project operated on the premise that these NGOs already have the confidence of the rural population and will be able to function as an efficient and trusted source of SHS delivery. In addition their collection history was strong enough to develop a credit line. The challenge was to ensure that the NGOs gain proficiency in SHS systems, their dealings with equipment suppliers and customers for after sales support. The project also demonstrates that rural people with limited means place a fairly high value on basic lighting service and are prepared to pay a considerable portion of their income for such a service. (Source: Ratnayake)

2. Targeting Subsidies

Despite the belief in the 1990's that full cost-recovery could be readily achieved with political commitment and "sound" regulation, full-cost recovery has proved elusive.

Many, including the World Bank, have advocated that utilities recover a larger proportion of costs through user tariffs to help reduce the need for external subsidies and improve the financial viability of service providers – essential requisites for improving, expanding and sustaining service. This policy was a response to the well documented observation that financially strapped utilities tend to provide low quality services and to lag in expanding networks, while soft budget constraints undermine incentives for efficient management. At present, average prices charged by many utilities are often well below costs. In many parts of Asia and Africa, electricity and water tariffs would have to increase several-fold for residential consumers to pay the full cost of the service they receive (Komives 2005). In low income countries, such tariff increases may be unaffordable for the poor who are connected to these systems. And, for the poor who do not have access to the network, high connection charges present a barrier.

While subsidies are wide-spread, they often do not reach the poor. The most common form of consumer utility subsidies is the quantity-based subsidy, such as the increasing block tariff, which has been demonstrated to be by and large regressive, as the majority of the price subsidy is captured by the non-poor. This is so for several reasons. Firstly, consumption subsidies benefit those already connected. The poor are often not connected to networks. Secondly, the differences in consumption between the poor and non-poor are less than often assumed, and therefore quantity-based subsidies are not effective in differentiating between poor and non-poor. Thirdly, high fixed charges often result in high unit prices for those poor households that consume less to avoid a larger total bill (Komives 2005). Therefore, poor design of existing subsidies in water and

energy has often resulted in subsidies not effectively or efficiently reaching the poor. The situation is not too dissimilar in other sectors. In road transport, subsidies are very prevalent as the public provision of road networks which are effectively accessed freely with relatively low license fees and user tolls charged on only a few heavily used sections. Explicit consideration of transport subsidies is generally restricted to urban schemes. The implicit subsidy through public provision of roads has been immensely successful in stimulating worldwide delivery of transport services by private enterprises. However, the poor often cannot afford these services and remain dependent on walking. Further, the most severe isolation is suffered by the rural poor, who have limited access to roads, and thus are by and large not benefiting from the large subsidy outlays (Roberts 2005).

Subsidies need to be specifically designed to target the poor. For example, subsidies could be targeted to services which the poor are more likely to use, such as public water stand-pipes, improved latrines, electricity ready boards, and buses/mini-vans. Subsidies could also be targeted to areas where the poor are concentrated – for example, slums or rural areas. Connection (or access) subsidies are likely to be a more efficient means to reach the poor, as a higher proportion of the unconnected are likely to be poor. For example, in the ICT industry universal access funds often help reduce the largest barrier to serving rural and isolated communities, i.e. the upfront investment and start-up costs. Such schemes are widespread in Latin America, and are also being devised in Nepal and Uganda (Sabater 2005). Therefore in regions with low access rates, especially SSA, connection subsidies have at least the potential be more effective in reaching the poor than consumption subsidies. Realizing that potential in turn requires addressing non price/cost obstacles the poor face to connect to utility services, barriers which are often substantial (see enabling environment below).

The subsidy delivery mechanism matters. The selection of an effective delivery scheme is essential for subsidies to cost effectively reach the poor. For example, supply-side subsidies through output-based aid (OBA), or explicit performance-based subsidies, can provide incentives for providers to serve poor customers with the assurance that their efficiently-incurred costs will be covered. Such performance based approaches are meant to tie subsidy payments to the service actually delivered – since the provider is for the most part paid *after* service delivery. OBA can be combined with different targeting mechanisms to increase the likelihood of benefiting the poor. See Box 5 for two examples of OBA in the water sector. Performance based schemes are also being deployed in the energy, telecoms and transport sectors. For example, many of the universal access funds in the ICT sector mentioned above are designed on an output-basis as are some rural road maintenance schemes.

Box 5: Output-based Aid (OBA): Subsidies enabling service delivery for the poor

Two OBA schemes, one in Cambodia and the other in Paraguay, utilize local private operators to deliver water to the poor. The operators – selected under least-cost subsidy bidding – are assured payment for connecting the poor, but are for the most part paid *after* service delivery. The two schemes utilize different forms of targeting – proxy means testing and geographic targeting – to help ensure that subsidies go to the intended recipients. In Cambodia, it was decided that subsidies would be targeted directly to individual households: of the 13,000 households in the four towns, the 3,000 poorest households (as determined by a community-administered survey and verified by an independent consultant) would receive a subsidized connection. In Paraguay, *aguateros* (small-scale water entrepreneurs) which usually only operate in peri-urban areas, teamed together with local construction companies to provide water services to poor rural communities. In the Paraguay case, un-served rural areas and small towns where most residents are poor were selected to receive the subsidies. In addition, the very poorest customers were given the option to provide labor during construction as part of their payment to the service provider (Sources: Drees-Gross 2005, Mumssen 2004).

Other delivery mechanisms include demand-side subsidies. For example, many middle-income countries such as Mexico have had positive results with pro-poor voucher schemes for urban transport services (Roberts 2005). Alternative payments arrangements such as pre-payment cards which limit charges to a predetermined maximum, and phased billing/payments which spread connection charges over time are also ways to make services more affordable to the poor, with or without subsidies.

3. Community Participation

Past infrastructure programs were often premised on the assumption that infrastructure services could be planned, administered and executed centrally without the active participation of the communities to be served – especially the poor. For example, in the 1970s and 80s, integrated rural development programs often utilized centralized approaches to planning and execution which attempted to combine a number of rural services across many communities. This top-down approach rarely resulted in sustainable solutions. Because communities were not consulted in the planning, design, execution, they often were unwilling or unable to subsequently operate the systems they were “provided” and had little sense of ownership to maintain the infrastructure. As a consequence, the infrastructure was often underutilized and not maintained, leading to rapid deterioration and disuse.

Community participation can engender voice, responsibility and ownership of local infrastructure services, and therefore improve sustainability. The poor need explicit channels through which to demand improvements in service, and politicians need to be held accountable to the poor. Effective community participation can improve the voice of the poor in decision making processes which determine what services they receive, how they are managed and paid for. Making service providers more accountable to the poor – for example, through user fees – is one way to ensure greater voice. Other approaches, particularly in rural settings, which place the community at the center of decision making processes have proven effective and sustainable (see Box 6). Such

approaches are highly relevant to poverty stricken areas where government-provided services often fail, especially in post conflict situations.

Box 6. Community-Based Water Supply and Sanitation Project in Uttar Pradesh, India

The rural water and sanitation project known as Swajal is based on a community-based, demand-responsive approach. The project rules stipulate full cost recovery for operation and maintenance, and partial cost recovery for capital costs – major departures from past practice in the Indian water sector. Implementation of water supply, sanitation, and such community empowerment activities as health awareness, women's development, and non-formal education are undertaken by a partnership of village committees, NGOs, and a project management unit. Giving user communities control over financial resources is a key feature of community-driven development, and Swajal was one of the first major rural water and sanitation projects to shift from centralized procurement and transfer investment funds to user communities, enabling them to procure materials, services, and works by themselves, assisted by support organizations. Support organizations include NGOs who assist with community mobilization, establishment of a Village Water and Sanitation Committee and development of design choices, and public sector agencies who provide technical design, inspection and monitoring services. Recent appraisals of sustainability have shown that most schemes are fully functional, and that there is a high rate of latrine use in villages that participated in the project. The Swajal project is now being scaled up through a Sector-wide Approach (SWAp) being implemented by the Government of Uttaranchal. (Sources: ICR 2003, Sustainability Report 2004)

There are several ways to involve communities in infrastructure service provision to better ensure services are suited to their needs and capacities. As Box 6 illustrates, communities can be involved in planning and construction of infrastructure services that are designed in a way the communities could subsequently operate and maintain them. Communities can also participate in service delivery, management and oversight – for example, acting in a monitoring capacity, or to participate in community consultations with sector regulators. The choice of technology can be very important for the success of community engagement. The experience with rural roads in Peru provides a good example of how positive results ensue through the use of such methods (see Box 7).

Box 7: Community participation for rural roads in Peru and rural electrification in Thailand

In 1995 the Government of Peru, with support from multilateral organizations including the Bank, initiated the Rural Roads Program to upgrade the rural road network through the rehabilitation of existing infrastructure, and to establish mechanisms to ensure long term maintenance. The project has helped reduce travel times of both women and men by up to one-half, decreased transports costs for both passengers and freight, and increased the availability and quality of transport services. Close to 15,000 km of rural roads and key secondary roads as well as 3,000 km of paths for non-motorized transportation were rehabilitated. Peru's experience with community-driven development to improve transport infrastructure offers rich lessons and illustrates a new paradigm for transport planning and economic development that is demand-driven. First, participation and inclusion during the project design and implementation phases can lead to a better understanding of the community needs. Second, a maintenance strategy for transport infrastructure can be a major catalyst in developing the private sector and entrepreneurial attitudes. Third, responding directly to the needs of women resulted in social outcomes commonly ignored by traditional road upgrading programs. (Source: Hine 2005)

Community participation has also lead to success in Thailand, which has a rural electrification program that now reaches over 95 percent of people in rural areas. Typically, a town meeting was used as a vehicle to introduce the new service to community residents. Once construction was imminent, the Provincial Electricity Authority (PEA) asked the village head to organize a town meeting, at which a company representative conducted a public hearing on the upcoming electrification effort. The representative estimated the number of possible connection requests, explained hook-up policies and connection fees, distributed application forms and discussed how to fill them out, and notified attendees of the approximate date the construction crew would arrive in their village. In this way, they also educated villagers on the uses of electricity and promoted the adoption of electricity by people in the village. The PEA also was able to secure important in-kind contributions from villagers at the time of construction. In the case of house-wiring and meter installation, the village head was enlisted to collect home-connection fees and to remit these in one installment before the village was electrified. Through this process, the PEA knew in advance the exact number of households and businesses wishing to be connected. On many occasions, villagers provided free labor and animals to transport materials and construction equipment. In areas with difficult terrain, they used various means—elephants, horses, manpower, boats, and barges—to assist in transporting poles and construction materials. These are just some of the ways that PEA encouraged local participation and contribution in kind to the country's rural electrification program (Source: Voravate 2005).

But communities need ongoing support in the form of increased information, technical and management capacity building, and financial resources. Building local capacities to operate and maintain infrastructure systems is critical for improved sustainability. Solutions that require less-costly equipment (as for gravel roads, pump-sets, and solar panels), for which parts are readily available, and which are not complicated or costly to operate and maintain still require some form of technical support from outside the local community. Financial support may also be required: communities may be able to pay for current operating costs, but financing capital investments can sometimes be more problematic. There is no “silver bullet” to improve service delivery. Decentralization and increased community participation may not be optimal in strictly engineering terms, but it may give local governments and communities the incentive to build capacity to make infrastructure services work better for poor people (WDR 2004), but this needs to be balanced with local capacity and sector strategies/co-ordination.

4. Creating an Enabling Environment

A common premise of international development agencies has been that successful approaches to reaching the poor developed within ring-fenced projects would subsequently be scaled-up to country wide programs. The obstacles to effective scale up are found both on a micro and macro level. Development agencies and recipient countries tended to work in sector silos, focusing on obstacles directly under the purview of sectoral agencies. As a consequence, constraints outside the sector were often not adequately addressed, which limited the achievement of project benefits. For example, providing subsidies for household connections to water and electricity networks for the poor may not be effective if their ability to connect is circumscribed in the absence of secure tenure for their domiciles. On the macro level, the lack of co-ordination and consistency across multiple programs (whether government or donor-driven) and the circumvention of government systems has impeded the effective scale up of successful pilot projects to national level programs. Progressing from isolated projects to national programs and breaking down sector silos often requires delivering assistance through programmatic approaches such as budget support, fundamental changes in institutional responsibilities, the strengthening of government systems such as planning and budgeting, and expansion of local support networks (see Box 9). Doing so demands long term efforts and coordination across line agencies and levels of government.

When devising a project that is expected to benefit poor households, it is essential to work from the start with national and local governments to address broader constraints. Such constraints may include: tenure security, land management, access to credit, management of city finances, regulation, and governance. For example, on the issue of low up-take of new water and sewerage connections by poor households due to lack of (required) tenure, one approach has been to legalize informal settlements by providing land titles to households occupying the lands. But this is often politically complex, given multiple claims on such lands. Moreover, if the land is titled, it becomes attractive to richer households which purchase the land, thereby defeating the original purpose of targeting public subsidies to reach the poor. An alternative approach is to find ways to adapt municipal connection policies to permit utilities to serve informal settlements. In Dhaka, Bangladesh, NGO's have negotiated on behalf of communities for the provision of time-limited municipal services (Komives 2005).

Box 9 National Program of Reform in the Ugandan Water Sector

In 1997 the government of Uganda took a political decision to strengthen poverty targeting by developing a common framework to guide investments in key social and infrastructure sectors. This framework, which became known as the Poverty Eradication Action Plan (PEAP) (later merged with the Poverty Reduction Strategy Paper) is a programmatic sector-wide approach (SWAP) based on an extensive participatory poverty assessment, detailed sector analysis and structured stakeholder consultations at both the central and local government level. The PEAP provided a clear development agenda for the country through the scaling up of service delivery in sectors including rural water and sanitation. Government efforts to bring all donors in line with the PEAP took time as most external funding was delivered through distinct projects with differing agendas and structures. The World Bank dropped the project approach altogether and began providing assistance directly to the national budget through successive Poverty Reduction Support Credits (PRSC). For rural water supply, positive results of this alignment and budget support include increased human and technical capacity at the district level where most of implementation responsibility lies. In addition, access to safe water increased nation-wide and the sector is on track to achieving the rural water MDG. Budget support has also enabled rural water to benefit from broader government reforms such as the Fiscal Decentralization Strategy. (Source: OED, 1997) Local governments are now able to contract private operators to manage their systems under a performance contract. Since this initiative in 2001, 67 water authorities have appointed 16 different private water companies. Service improvements have been clear – for example, great reductions in unaccounted for water, and improvements in collections. However, gaps in access to and the quality of water supply in small towns and rural growth centers remain. To supplement the donor activities under the PEAP, the government is also considering output-based aid pilots possibly funded by the Global Partnership for Output-based Aid (GPOBA) to reach small towns and rural growth centers using targeted pro-poor subsidies and the local private sector.

Scaling up successful “projects” requires that sector programs be linked to ongoing (or nascent) public sector reforms in areas such as competition/anti-trust, public administration, budget management, and decentralization. For example, society’s view of economic development is important. In Australia, Chile and Peru, growth-driven economic development strategies provided the impetus for improving the performance of water and power markets. Thus, pursuing solutions that address the proximate cause of the problem, although individually valuable, may not address the fundamental institutional and structural problems that precluded their adoption in the first place. Lack of knowledge about the optimal technical solution is rarely the binding constraint. Rather, what is often lacking is a set of institutional arrangements that give policymakers, providers and citizens the incentives to select solutions and adapt them to local conditions (WDR 2004).

Box 10: Sector Reform – An Enabling Environment in the African ICT sector

Far more than in other infrastructure sectors, in ICT, a competitive, well regulated environment has been a huge boon to poor people. More than 50 percent of Africans now live under a mobile signal, and the great majority of them will be able to access telephones through borrowing a phone or paying for minutes. The importance of an appropriate enabling environment can be seen by contrasting the Mauritanian and Ethiopian experiences. Both are very low income countries with generally low coverage of all infrastructure services. In Ethiopia, where competition has been prohibited, mobile service remains limited to a small minority of the wealthy, while in Mauritania, which encouraged competition and new entry; it is now widespread to the extent that millions of poor people who lacked access now have it. Regulators therefore may follow a strategy of aggressive all-service licensing of operators willing to provide services in currently uncovered areas.

5. Conclusion

Much has been learned regarding the effective provision of infrastructure services to the poor in developing countries. Among these, offering service levels and delivery mechanisms that are tailored to the poor rather than “more of the same” is critical. Targeting subsidies so that they actually reach the poor is a related and important element for improving the effectiveness of public spending, and more generally aid efficiency. Further, participation of the poor in the planning and implementation of service delivery and financing can ensure greater ownership and improve the chances of success. And finally, creating an enabling environment that permits the poor to benefit from proposed interventions is important not only for the success of the project at hand, but is critical if one is to scale-up or replicate the scheme to a wider constituency.

Pro-poor interventions will not be successful by simply tackling the concerns raised by any single approach. Rather, these lessons and approaches must be considered together and adapted to local circumstances in order to increase access to basic infrastructure by the poor.

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