

GRID LINES

Sharing knowledge, experiences, and innovations in public-private partnerships in infrastructure

Expanding the frontiers of telecom markets through PPP in Peru

Lessons for pro-poor initiatives

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Peru introduced private participation in telecommunications in the early 1990s, along with wide-ranging reforms fostering competition and independent regulation. These efforts attracted some US\$8.3 billion in private investment in the sector in 1990–2004. To help bring telephone service closer to Peru's poorest and most isolated areas, where people still had to travel some 56 kilometers on average to reach a pay phone, a pioneering fund offered subsidies to attract investment by private operators. Initial efforts led to impressive achievements, though slow implementation left room for improvement. A PPIAF-funded assessment of the first projects helped design the next generation of initiatives—and pointed to lessons for other developing countries.

Peru has some 67,500 rural towns with fewer than 3,000 inhabitants—typically located in its highland mountains and jungle regions and among the country's poorest and most isolated rural communities. Until recently the people living in such communities had to travel an average 56 kilometers to reach the nearest pay phone, sometimes by foot. A series of public-private initiatives reduced that distance to an average 5.7 kilometers, shortening the travel time from a day or more to at most several hours.

How did Peru bring telephone service closer to its rural communities? Peru (along with Chile) pioneered the concept of a universal access fund

that uses competitive public bidding to award output-based aid (OBA) subsidies to private operators willing to invest in underserved communities. The OBA subsidies, paid on the basis of performance (or output), are designed to make projects attractive to private operators. A recent study, supported by a PPIAF grant of US\$318,640, evaluated the first generation of Peru's OBA projects. This note reports its main findings.¹

The goal: universal access

Peru set out to liberalize telecommunications in the early 1990s as part of a broader program of infrastructure privatization. In 1994 a landmark telecommunications law established a new regulatory agency for the sector, Osiptel, while assigning the Ministry of Transport and Communications the power to grant concessions and licenses. The law also created a rural telecommunications fund, Fitel. Operating under Osiptel, the fund collects a 1 percent assessment on the gross revenues of all operators to finance universal access programs. To ensure that isolated and unserved rural communities would benefit from the sector liberalization, Fitel set as a goal for 1999–2003 to install pay phones in 5,000 rural communities and introduce Internet access in 500 district capitals.

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TABLE 1
The first generation of Fitel projects: basic indicators and achievements

Indicator	Fitel I	Fitel II	Fitel III	Fitel IV	All projects
Rural communities covered	213	2,170	2,520	1,614	6,517
Population benefiting	140,000	1,600,000	2,100,000	2,900,000	6,740,000
Total subsidy (US\$ millions)	5.1	12.1	30.7	11.4	59.3
Subsidy per site (US\$)	23,937	5,575	12,163	7,061	8,266
Year of tender	1998	1999	2000	2001	
Year of full service	2000	2003	2003	2004	
Pay phones installed	214	2,208	2,461	1,616	6,499
Telecenters installed	0	260	255	0	515
Average distance to pay phone in project communities (kilometers)					
Before project	90	54	24	60	56
After project	5	8	4	6	5.7

Source: INTELECON and Apoyo Consultoria.

What Fitel achieved

In 1998–2001 Fitel held successful bidding rounds, or tenders, for four OBA projects targeting different geographic areas. The bidding was based on the lowest subsidy operators would require to provide pay phones, limited Internet access, or both. The subsidies offset part of the up-front capital investment costs and, in a few cases, a small and declining share of the operating costs, and are paid as operators meet milestones in construction and service.

These initial tenders mobilized on average more than twice as much in private investment as Fitel paid in subsidies. They exceeded Fitel's initial targets, benefiting 6,517 rural communities and bringing access to pay phones to about 6.74 million people (table 1). Today 82 percent of Peru's population is estimated to live within 5.7 kilometers of a pay phone. Another notable achievement: the winners of the tenders were not the largest telecommunications operators but new, smaller operators using satellite technology.

Where Fitel fell short

Alongside the achievements, Fitel's first generation of projects also had several shortcomings. First, at least one operator proposed a subsidy that turned out to be too low, for several reasons:

- **Traffic volumes lower than expected.** Although Fitel networks carried growing traf-

fic, the average was lower than expected, in part because cellular networks encroached into some of the areas they served. These areas, previously deemed unattractive to cellular companies, gained appeal with technological innovation, the falling costs of cellular networks, and the demonstration by the Fitel pay phones that some rural communities had enough demand to sustain commercial operations.

- **Differences in traffic patterns.** The subsidy needs had been estimated on the basis of the traffic patterns of the dominant carrier's rural pay phones. Located in less isolated communities, these generated more than three times as much traffic as the Fitel phones.
- **Unforeseen regulatory changes.** Enacted after the tenders, new interconnection and tariff regulations had the unintended effect of further undermining the financial plans of the OBA operators by raising the interconnection charges the Fitel operators paid to larger operators for terminating (receiving) telephone calls.

Second, designing, approving, tendering, and implementing Fitel projects took a long time, sometimes up to four years. The longest delays were due to the requirement that the projects be approved by multiple government agencies.

Peru's first generation of projects brought pay phone access to almost 7 million people

Third, Peru still has among the lowest teledensity (fixed and mobile lines relative to population) in Latin America, in large part because of the country's challenging geography and low rural incomes. But even taking into account household incomes and ability to pay, conservative estimates suggest that teledensity could be raised to at least 25 phones for every 100 people in a couple of years, with much of this increase in rural areas. Satellite-based pay phones proved effective in improving access during the first generation of Fitel projects. But a second generation could help stimulate the expansion of cellular networks into rural communities, with an even greater impact on teledensity. With technological and market innovations, cellular phones have become the most widely used communications device for poor people and could be commercially sustainable in a growing number of rural communities.

Finally, the lack of terrestrial fiber-optic cables in Peru's interior poses one of the biggest challenges in developing rural telecommunications. A terrestrial backbone to the interior is too expensive for a single company to finance on its own, and a perception of insufficient demand further discourages private operators from pursuing such an investment. As a result, operators wishing to provide service in rural areas must use satellite-based networks, which are expensive and provide limited connectivity.

New initiatives launched

During and shortly after the PPIAF study, the government of Peru and private operators launched new initiatives linked to the study's findings and recommendations:

- To help offset the effects of the unexpected traffic patterns and changes in interconnection tariffs on the financial viability of Fitel operators, Osiptel in 2004 allowed asymmetric interconnection and tariff arrangements between the Fitel operators and others. These enable Fitel operators to pay less to terminate their outgoing calls on the networks of larger (fixed line and cellular) operators and to charge more to terminate incoming calls from those operators on their own networks. In addition, the Fitel operators took measures to stimulate traffic and reduce costs.
- Fitel began to allow rural operators to relocate some of their satellite pay phones from communities where cellular networks had been installed to other communities.
- To speed the preparation of tenders and the use of OBA funds, the Ministry of Transport and Communications in December 2004 began allowing private operators to propose universal access projects to Fitel. Proposals could request Fitel subsidies, with the cap for a project set by the 1 percent annual contribution the sponsoring company makes to Fitel. If Fitel finds a project to be cost-effective, it will authorize implementation and allocate the company's tax contributions to help offset the investment costs.
- Fitel published a proposal for an OBA tender aimed at expanding cellular coverage in 18 rural corridors that border existing cellular networks by establishing 81 new base stations—a project that would double the number of rural communities benefiting from Fitel initiatives.² Investment was estimated at US\$20.3 million, including a subsidy of up to US\$11.6 million to make the project commercially viable and attractive to private operators. This project marks a shift in Fitel's philosophy, from a sole focus on increasing community access (universal access) to a broader approach also seeking to increase phone subscribers (universal service).
- The legislature adopted a new law requiring that infrastructure using public rights of way be shared. The aim is to encourage electricity companies building transmission lines, for example, to allow telecommunications companies to use these lines (subject to reasonable commercial arrangements). The price would be a fraction of the cost of building single-use infrastructure. This is an important first step in creating incentives for constructing a backbone to the interior. Fitel and the Ministry of Transport and Communications are also designing new initiatives aimed at stimulating the development of backbones to the interior.

Lessons for pro-poor initiatives

Developing effective ways to extend access to telecommunications to poor and remote communities is the biggest challenge Fitel confronts. The low incomes, the small size of communities, and

Cellular networks could have an even greater impact in rural Peru

the large investments required because of the inhospitable terrain are all key issues in designing viable options. Fitel's experience in dealing with these issues points to lessons for other countries designing pro-poor initiatives or seeking to reach isolated communities:

- Governments should set measurable and achievable goals for a time frame of two to four years for their universal access programs, periodically updating the goals as they are met and as markets and technology evolve.
- Universal access funds can be most effective and sustainable if they create incentives for private provision of services on a commercial basis.
- Imposing a 1–2 percent assessment on operators' revenues is an effective and transparent mechanism for financing universal access funds.
- Making the universal access program part of the sector regulator, rather than a stand-alone agency or a line ministry, reduces political interference in the use of funds and makes it easier to introduce critical regulatory changes to support the program.
- Sound regulatory measures can support universal access. Allowing rural operators asymmetric interconnection arrangements and greater flexibility in setting prices can sharply reduce subsidy needs and improve the operators' financial viability.
- OBA subsidies are an effective use of universal access funds because they attract significant additional private investment. But adequate safeguards are needed to ensure that bid proposals for subsidies are based on realistic and commercially viable assumptions. If unforeseen market or regulatory developments occur, the universal access agency should be willing to consider reasonable proposals from operators to adjust contractual requirements.

- Governments should find ways to ensure that universal access funds are used in a timely way. While universal access programs should maintain financial discipline, they should avoid long delays in the review process, which can undermine the rationale and support for OBA programs.

Notes

- 1 For details on the design of Peru's first two OBA projects, see Cannock (2001); Navas-Sabater, Dymond, and Juntunen (2002); and Wellenius (2000).
- 2 Shortly after the publication of the project proposal, the Ministry of Transport and Communications allowed Telefónica of Peru to acquire BellSouth (the country's second largest operator) and permitted Telmex to enter the market as a new mobile operator. Both companies committed to expand cellular coverage to many of the communities targeted by the new Fitel project. The ministry's decision was based on findings by the PPIAF-funded study and the Fitel expansion project. As a result of this development, Fitel has not tendered the proposed expansion project and is evaluating similar tenders for other areas.

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