Promoting access and effective use of ICTs in rural and isolated areas is decisive for economic and social development, poverty reduction and achievement of the Millennium Development Goals. Widespread access to ICTs creates new income opportunities and contributes to the social and economic transformation of entire countries.

Yet access to ICTs in rural areas and poor urban neighborhoods of many developing countries is still today several orders of magnitude lower than in metropolitan urban areas. Income differential can only explain part of this gap, and there is little supporting evidence to the widespread notion that these communities lag behind because they are poor and cannot afford to pay for ICT services.1

To address this problem, policymakers are devising universal access policies to ensure that ICTs reach all segments of society. Such programs are an essential element of comprehensive telecommunications sector reform programs in developing countries. A best practice approach to universal access typically involves two complementary sets of policies aimed at addressing supply-side and demand-side constraints respectively.

**Competition and sector reforms as pre-requisite for universal access**

The initial set of policies is aimed at overcoming the market efficiency gap, by creating an efficient marketplace for ICTs. This entails eliminating any legal, regulatory, tax, investment and information barriers that may hinder operators from serving all consumers and businesses that are able to afford ICTs. Telecommunications sector reform policies that fall into this first category include (i) the introduction of competition in all service segments and geographic areas; (ii) private sector-led provision of service; (iii) implementation of a transparent and fair regulatory environment; and (iv) creation of capable independent regulatory authorities.

Based on the experience of a vast majority of countries around the world, many with World Bank support, it can be shown that 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 – all without the need for any public funding. Moreover, a recent World Bank study shows that the cost of achieving a specific set of universal access objectives in countries that have introduced sector reforms is less than half of that in countries that have not introduced any reform.2

**Universal access policies and the universal access fund**

However, the generally lower revenue potential of low income rural and peri-urban communities, as compared with cities, combined with the higher cost of servicing isolated locations have tended to prevent these groups from sharing equally in the gains of sector reforms. Moreover, lack of computer literacy, low awareness, and absence of relevant content and applications may also pose significant obstacles to Internet adoption.

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Specific universal access objectives need to be set with realistic service access targets. In some cases, public financing mechanisms may be needed to promote investment in areas that are not commercially viable on their own.

One such mechanism, which is becoming increasingly popular, is the so-called universal access fund, typically set up to address the largest barrier to serving rural and isolated areas, i.e. the upfront investment and start-up costs. In most instances, service can become commercially sustainable in the long run on the basis of usage revenues alone. Such funds are often administered by the telecommunications regulatory agency, under the policy guidance and oversight of the sector ministry or an inter-ministerial committee or board. They are generally financed from contributions of one to two percent of the turnover of all licensed telecommunications operators.

Fund administrators typically conduct an annual or bi-annual identification and ranking of potential projects that would contribute to the universal access targets, but which are not deemed commercially viable. The ranking is based on a cost-benefit analysis involving detailed economic justification of the required subsidies.

The projects thus identified may include the installation of rural public telephones, extension of mobile service coverage to rural areas, deployment of broadband infrastructure and provision of Internet points of presence in small towns, construction of telecenters and ICT training centers in rural or marginal urban communities, or development of Internet content, applications, and training relevant to socially vulnerable groups.

From a handful of countries in Latin America that pioneered this approach in the mid-90s, the ranks of countries setting up universal access funds are rapidly growing. The strategy is now also being applied by countries at all income levels in Africa, Eastern Europe, and Asia, as well as in other infrastructure sectors, such as water and electricity.

**The Output-Based Aid (OBA) approach to universal access fund disbursements**

Most commonly, the implementation mechanism for projects supported by the fund is a minimum subsidy auction, where the tender documents specify the service targets to be achieved, coupled with an output-based disbursement schedule. In exchange for taking on this service responsibility, the government pays a subsidy to the private operator, where the disbursement schedule is closely linked to the outputs delivered.

These contracts are competitively tendered so that different operators compete on the basis of the lowest subsidy required to take on the service obligations, with the understanding that the subsidy amount is designed purely to cover a portion of the initial investment and start-up costs. Thereafter, the operating costs of the facility must be met from tariff revenues. However, as a way of ensuring continued provision of service after the initial construction period, some of the payments may be specifically deferred for disbursement at predefined intervals during the license period, based on satisfactory performance.

This competitive allocation mechanism has multiple benefits. First, it ensures that the amount of subsidy awarded by the government is the lowest that is compatible with meeting the stated objectives, and hence that public funds are efficiently used. Second, the contractual nature of OBA also gives the government leverage in enforcing the deployment requirements specified in the subsidy agreement. Lastly, because the winning bidder is the company that requests the lowest subsidy, this scheme helps to promote private investment in the sector by encouraging companies to invest as much of their own capital as possible in the project.

**Examples of output based aid projects**

A good example of the value of this approach to universal access is the experience of Chile in extending payphone service to rural areas. As shown in Table 1 on page 3, during the first five years of operation, US$21.8m was allocated by the fund – only 0.3 percent of the telecommunications sector’s revenue for that period. On average, the public subsidy amounted to about 30 percent of the total investment costs of the projects, the remaining coming from the private operators, with a few cases requiring zero subsidy, as a result of strong competition in the bidding process. Similar results have been obtained in other countries, also shown in the Table 1.

However, not all OBA projects so far have been exclusively aimed at provision of public payphones. Increasingly, the OBA concept is being applied to other public telecommunications services, such as mobile telephony and Internet. For instance, two ongoing World Bank projects in Bolivia and Nicaragua are applying OBA to the expansion of the coverage of mobile telephone networks. Also notable is that the recent bid in Nicaragua required zero subsidy.

Regarding Internet services, Chile, Colombia, Peru, Ecuador,
and Uganda are among countries that have launched subsequent rounds focusing on provision of telecenters or broadband connections for public institutions. Other countries, for example Uganda and Guatemala, are exploring the use of OBA to support the installation of Internet Points of Presence (POPs) in smaller towns. Finally, the application of the OBA model to the promotion of general broadband connectivity is being considered in Chile and in a number of Eastern European countries. While it is still too early to extract lessons from these projects, initial indications are quite promising.

### The World Bank universal access approach and early project case studies

The current World Bank Group ICT Sector Strategy identifies the achievement of universal access objectives as one of four strategic ICT priorities, with universal access funds as vehicles for meeting such objectives in a cost-effective and transparent way.² World Bank support for universal access typically takes two forms: technical assistance and investment funding.

**Technical assistance** activities are often aimed at supporting the design of the universal access regime and creation of the fund itself. Activities may include crafting universal access policies with specific objectives tailored to particular country conditions, designing the regulatory and institutional frameworks to govern the operation of the fund, undertaking the demand studies and field work needed to identify and characterize the types of projects that could be supported by the fund, determining which of these projects merit the use of public funds in terms of their expected socio-economic returns, estimating likely subsidy requirements, and designing the associated tender documents, licenses, and contracts.

**Investment funding** is often aimed at supporting the initial startup phase of universal access funds, since in their early stages fund revenues are often small in relation to the cost of meeting universal access objectives. This is particularly true in the poorest countries where sector revenues tend to be comparatively low, and unserved populations comprise a relatively high proportion of the total.

Based on this emerging approach, the World Bank is support-

#### Table 1: Output Based Aid Projects in Developing Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
<th>Source of Finance</th>
<th>Period</th>
<th>Localities served</th>
<th>Population served (approx., thousand)</th>
<th>Maximum subsidy available (US$m)</th>
<th>Subsidy granted (US$m)</th>
<th>Subsidy per locality (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>Fondo de Desarrollo de las Telecomunicaciones (FDT)</td>
<td>Government budget</td>
<td>1995-97</td>
<td>4,504</td>
<td>1,650</td>
<td>24.2</td>
<td>10.2</td>
<td>2,256</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1998-99</td>
<td>1,412</td>
<td>500</td>
<td>14.4</td>
<td>9.8</td>
<td>6,919</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2000</td>
<td>143</td>
<td>50</td>
<td>1.9</td>
<td>1.8</td>
<td>12,727</td>
</tr>
<tr>
<td>Colombia</td>
<td>Fondo de Comunicaciones (Compartel)</td>
<td>Operator levy &amp; Government contribution</td>
<td>1999 2002</td>
<td>6,745</td>
<td>3,750</td>
<td>70.6</td>
<td>31.8</td>
<td>4,715</td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td>Fondo de Desarrollo de las Telecomunicaciones (FDT)</td>
<td>2% Operator levy</td>
<td>2001</td>
<td>500</td>
<td>770</td>
<td>4.0</td>
<td>3.4</td>
<td>6,800</td>
</tr>
<tr>
<td>Guatemala</td>
<td>Fondo para el Desarrollo de la Telefonía (FONDETEL)</td>
<td>Spectrum auctions</td>
<td>1998 1999</td>
<td>202</td>
<td>200</td>
<td>N/A</td>
<td>1.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Peru</td>
<td>Fondo de Inversión en Telecomunicaciones (FITEL)</td>
<td>1% Operator levy</td>
<td>1998 1999 2000</td>
<td>213 1,937 2,290</td>
<td>75 700 825</td>
<td>4.0 50.0 59.5</td>
<td>1.7 11.0 27.8</td>
<td>7,981 5,700 12,100</td>
</tr>
<tr>
<td>Nepal</td>
<td>Universal Service Fund</td>
<td>Government budget (initially)</td>
<td>2003</td>
<td>1,068</td>
<td>3,200</td>
<td>N/A</td>
<td>11.8</td>
<td>11,100</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>Fondo de Inversión en Telecomunicaciones (FITEL)</td>
<td>2% Operator levy</td>
<td>2005</td>
<td>366</td>
<td>N/A</td>
<td>2.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Uganda</td>
<td>Rural Communications Development Fund (RCDF)</td>
<td>1% Operator levy</td>
<td>2005</td>
<td>1550</td>
<td>N/A</td>
<td>10 ongoing</td>
<td>ongoing</td>
<td>ongoing</td>
</tr>
</tbody>
</table>

Universal Access and Output Based Aid in Telecommunications

ing universal access projects in numerous countries in Latin America (Peru, Guatemala, Nicaragua, Dominican Republic, Bolivia, Ecuador, Chile), Asia (Nepal, Bangladesh, Sri Lanka), Africa (Uganda, Tanzania, Swaziland, Zambia, Mozambique, Burkina Faso), and Europe and Central Asia (Georgia, Russia). Two recent examples are briefly described below.

**Nepal** faces a number of challenges in achieving universal access, with a very low income per capita of US$250, and 88 percent of its population living in rural areas. While slowly introducing telecommunications sector reforms, Nepal is pushing forward to achieve universal access goals. The World Bank is providing technical assistance together with US$10m in capital investment to execute an OBA project involving the licensing of one private rural telecom service operator to provide over one thousand public access phones throughout the Eastern Development Region, benefiting approximately 3.22 million people.

While the first licensing and subsidy bidding process in 2001 had to be cancelled after the withdrawal of the winning bidder, the process was successfully re-launched and concluded in 2003. Rollout began in early 2004 and completed in 2005. One challenge identified in the implementation of this project was the low level of sector reforms prior to the launch of the tender, illustrating that universal access must be considered a complement, rather than a substitute for market reforms.

The case of **Uganda** is similarly challenging, with a per capita income of about US$300 and a rural population of over 80 percent. Uganda began introducing sector reforms in 1996 and is reputed to have achieved one of the most competitive markets in sub-Saharan Africa. In 2001, a Rural Communications Development Fund (RCDF) was created under the supervision of the Uganda Communications Commission (UCC), collecting annual contributions from all sector players. In 2003, the RCDF launched and successfully implemented a pilot project, involving private provision of small numbers of public phones, Internet points of presence (POPs), Internet cafés, ICT training centers, and district information portals.

In addition, the World Bank has provided technical assistance for the definition of nationwide projects for public telephony and Internet POPs, including drafting of regulatory instruments, institutional arrangements, and bidding documents, and is currently supporting the implementation of two major projects with up to US$10 million in capital subsidy expected to be implemented in 2005.

**Emerging issues**

As implementation of all these projects progresses, and as the markets evolve, a number of issues arise that require policy makers to constantly revise and update their universal access models. Some of these emerging issues include:

- **Applicability of OBA to promote more advanced services**, in particular broadband Internet, and preferable service provision and subsidization modalities (telecenters, Internet POPs, private broadband connections, backbone networks).
- **Alternative financing schemes beyond OBA**, such as use of low-cost credits, public investment and operation of infrastructure open to all (Open Access model), rebates in licensing and spectrum fees and/or customs duties.
- **Sustainability of certain projects**, particularly telecenters, and suitability/desirability of transitory or permanent operating subsidies, instead or in addition to the usual upfront OBA investment subsidies.
- **Scalability of the OBA approach** to finance small community-based projects, local institutions, such as schools, or even individual end-users, such as through voucher schemes or direct end-user subsidies (e.g. the Uganda RCDF foresees the possibility of very small-scale subsidies to individuals for the purchase of a booster antenna to enhance the reach of mobile networks for fixed use).

**How to Engage the World Bank**

To request financial support and technical assistance, government entities must submit a request to their country’s Ministry in charge of relations with the World Bank, typically Finance, Economics, Planning, or Development. This Ministry must then submit a request to the World Bank’s relevant country director and to the Global ICT Department.

For more information on OBA in telecommunications or to request general information on ICTs please contact the Global ICT Policy Division directly.

**GICT Policy Division – World Bank Group**

2121 Pennsylvania Ave., NW
Washington, DC 20433, USA
Phone: +1 202.473.3247
Fax: +1 202.522.3001
Email: gict@worldbank.org
Website: http://www.worldbank.org/ict