

## Lessons Learned from PPIAF Activities: Strategies for Developing Rural Telecommunications Infrastructure

*The following lessons are extracted from a PPIAF-funded study on the recommendations to establish a universal service obligation (USO) policy that was published in February 2008.*

### Key Lessons from International Experiences

International practice in rural telecommunications infrastructure development demonstrates that regulators have adopted a range of different measures and processes to promote greater access to telecommunications services in rural areas. There is no single model for promoting rural telecommunications infrastructure. Different countries have undertaken various schemes with differing degrees of success. Some key lessons out of international practice are as follows:

#### 1) **Critical role of markets and making competition work**

International experiences seem to suggest that market-oriented policies play a critical role to promote rural telecommunications development. Indeed, everywhere in the world, competition in telecommunications has increased the penetration of telephony in both fixed line and mobile services. In particular, in developing countries rapid increase of mobile service coverage has contributed greatly to the expansion of access of telephony services.

In view of this, it is critical to distinguish the market access gap, which can be addressed by technical progress and market-oriented policies such as introduction of competition, from the true access gap that arises due to market failure. Universal service policies can be designed to alleviate this access gap. In other words, it is important for the decision makers to bear in mind that universal service policies are only targeted on this type of access gap.

#### 2) **USO subsidy programs slow to respond to the potential of technology**

Historically, USO programs were designed based on fixed line telephone services. However, telecommunications are notable for technical progress and new services are increasingly available and competing with traditional public switch telephone network services. International experiences seem to suggest that the current USO subsidy programs are often very slow to respond to the availability of new technologies. In other words, the current USO programs often lack the flexibility to take the advantage of dynamic efficiency by accommodating changing technologies.

For instance, universal access is often defined in terms of fixed line telephone which means that new services such as mobile coverage and broadband services are not eligible for subsidization. More important, the definition of access by village phones is not consistent with the cost-effectiveness of deployment of mobile footprints. Furthermore, given the different nature of broadband services, many countries are slow to develop suitable programs to accommodate the development of broadband services.

#### 3) **Track record of high levels of unallocated funds**

International experiences also record high levels of undistributed funds in some countries. This can be illustrated vividly by the cases of Brazil, India, and South Africa. Bureaucracy may to some extent contribute to this problem. But some design failures such as ill-definition of scope of services and bad design of allocation mechanism etc. have exacerbated this problem. One important lesson from international experience seems to suggest that in many cases, the key is not collect money but to spend it in a way that satisfies all parties.

#### 4) **Competitive allocation mechanism being promoted**

Universal service responsibility used to be allocated in an administrative process. However, following the global market design trend in spectrum auction and competitive power market, more and more countries have adopted or are considering adopting competitive mechanisms such as

bidding process to allocate universal service burden. South Africa and India are cases in point which have introduced bidding process in some programs and the United States is considering following suit to some extent. The competitive allocation mechanisms not only reduce the financial burden of the government, but also increase allocation efficiency.

**5) Different funding choices**

International experiences seem to suggest that there is a global shift away from universal fund. This trend should be interpreted carefully, however, because the causes of the shift are complicated. For instance, it may be caused by the poor design of a universal service fund (USF) rather than by USF itself. The following table records the adoption information on USF.

Another trend of funding choices, at least for some USO programs, is for the funding to come from the government’s general budget instead of from direct industry revenue. This may reflect the declining demand for fund in the wake of increasing network coverage as well as the concern of creating a competition neutral environment when technical progress weakens the line between traditional services and new services.

**Table 1: Global trends in USFs<sup>1</sup>**

Country	USF in place
Albania	x
Australia	√
Bosnia & Herzegovina	x
Brazil	√
Bulgaria	x
Canada	√
Croatia	x
Denmark	x
Finland	x
France	√
India	√
Italy	√
South Africa	√
Spain	x
Switzerland	x
Turkey	x
United States	√
United Kingdom	x

**Options for Developing Countries**

Designing a USO system for a particular country requires careful consideration of the measures and processes most suitable for the circumstances in that country. In addition to a consideration of the goals of the USO system, policymakers must also examine the options available, the policy thinking behind these measures, and international experiences in applying them.

Following the international study conducted by Gilbert and Tobin, a “menu of options” is presented in the table below. These options provide a framework in which a USO system is divided into such components as demand, structure, allocation, delivery, and enforcement. The table below sets out the options relevant to the general regulatory structure used to administer and fund rural telecommunications infrastructure

<sup>1</sup> Adapted from Gilbert & Tobin, Rural Telecommunications Infrastructure Development - China: International Practice Report (2008)

development projects. Of course, a policymaker is not limited to a choice between particular “types” of schemes. Indeed, different features of the scheme tailored to national goals can be chosen.

**Table 2: Design options and trade-offs<sup>2</sup>**

Stage	Options	Advantages	Disadvantages
1. Demand Analysis	Universal service only	High levels of connectivity can be achieved.	Demands in some rural areas are currently limited by level of economic and social development.
	Universal access only	Consistent with situations when the costs of universal provision of services in some areas are high.	Maximizing access only is not the most efficient in some areas where high levels of connectivity are needed to address the demand.
	Combined universal service/universal access	It can accommodate the demands in different areas under unbalanced development pattern. It can also accommodate both telephony and broadband services with varying degrees of joint funding and administration.	The design may be complicated and difficult to implement because it is difficult to find the most efficient combination of universal access and universal service.
2. Structure	Resource allocation: Mobile or fixed? What technological standard to choose?	Fixed technology may be easier to implement and provide certainty. Technology neutral schemes allow the greatest flexibility to select the most efficient technology in an environment of rapid technical progress.	Defining scope of universal service/access in terms of fixed line network is inconsistent with development of technologies in general and rapid expansion of mobile coverage in particular.
	External/internal subsidy	Internal subsidies save administrative costs and relatively easy to implement. An external subsidy is more suited to competitive environmental.	Internal subsidies are not transparent and may entrench incumbent. External subsidy programs are more expensive to administer and difficult to reach political consensus.
3. Allocation of Resources	Allocation in “uneconomic areas”	With well-defined “uneconomic areas” it is transparent and easy to implement.	Once the initial capital costs of connecting a region have been subsidized the region may be “economic”. The region may be “economic” with one technology and “uneconomic” for another. An “uneconomic area” for one carrier may be an “economic area” for a more efficient carrier.
	Selecting operator to receive subsidy	A “beauty contest” will allow assessment of factors other than the bid price. A “least	“Beauty contest” depends to a large extent on subject evaluation of the bids. Design

<sup>2</sup> Adapted from Gilbert & Tobin, Rural Telecommunications Infrastructure Development – China: Report on Options and Strategies for China (2008)

		cost auction” will maximize efficiency ensuring the subsidies are awarded to the most efficient operator.	of auction mechanisms needs tremendous expertise and may be difficult to implement in practice.
4. Delivery	Reporting for implementation	Provide additional information for evaluation. External certification is required before the subsidy is paid.	Need more time to implement and consume more administrative resources.
5. Enforcement	Breach of license condition (roll-out obligation)	This will link the remedies for failing to reach universal service/universal access objectives with existing enforcement mechanisms— fines and cancellation of license, which will be helpful for efficient enforcement.	The breach of license condition may not function well as predicted when there is a dominance of state ownership.
	Loss of any benefits given for an internal subsidy	For example, loss of monopoly rights “serve it or lose it”.	Requires the regulator to have strong enforcement powers
	Defaulting operator required to pay costs of substituting operator	It may facilitate the implementation of USO policy as deterrence to some extent.	Fines may not function well as effective deterrence if there is a dominance of state ownership
6. Evaluation and Monitoring	Includes: performance indicators, rapid appraisal methods, participatory methods, and cost-benefit and cost- effectiveness analysis	Makes use of operators’ information, quick to implement with low implementation cost, direct evaluation of impact to stakeholders, and comprehensive evaluation of outcomes and impacts	It may be difficult to select the most proper indicators, as they can be subject to information manipulation by operators, may not reflect the real situation, may not be objective, and may be too time consuming and costly

In selecting from the “menu of options” discussed above to form a design of USO system, the following factors will be important in designing a rural telecommunications development scheme that will meet the country’s present and long term needs. These factors include:

- The need for a careful consideration of goals and clear analysis of demand for services in rural areas before funding is commenced
- Consideration of models other than the creation of a universal service fund to meet development objectives
- Maximizing the scope for efficiencies arising from the competitive allocation of funds
- The importance of a technology neutral approach to service provision
- Simplified administrative procedures and clear guidelines for co-ordination
- Consideration of factors in the overall regulatory regime, like interconnection, which will have an effect on the success of any development project