



SURVEY OF UNIVERSAL SERVICE FUNDS

KEY FINDINGS

APRIL 2013

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1 EXECUTIVE SUMMARY

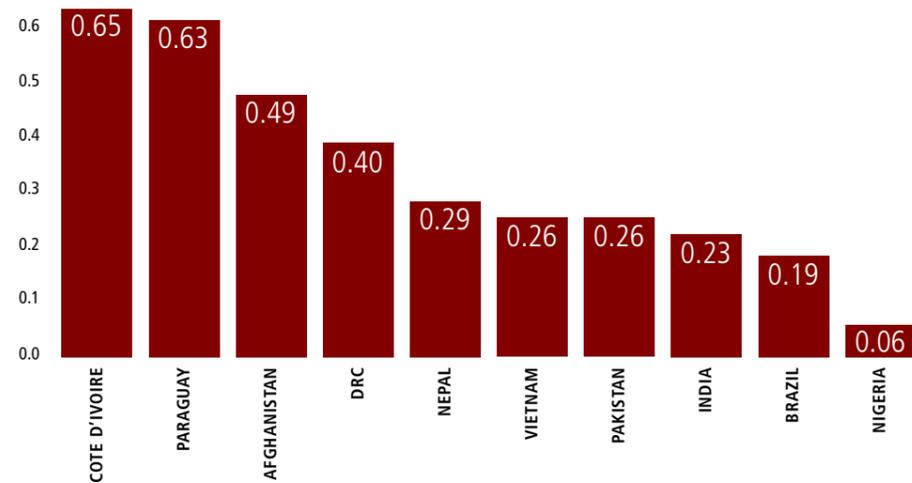
Universal service—characterised by telecommunications that is available, accessible and affordable—has been adopted as a policy goal in many countries. Some countries have established Universal Service Funds (USFs) on the premise that operators will not extend service to certain underserved areas without financial incentives. The 64 USFs surveyed for this report show that most remain inefficient and ineffective, with more than USD 11 billion waiting to be disbursed between them. The

report estimates that more than one third of the USFs studied have yet to distribute any of the levies collected and very few funds would appear to disburse everything they collect.

The money held in many USFs amount to a meaningful portion of the host country's gross domestic product (GDP). It is also a lost opportunity for countries seeking to stimulate economic growth as the money is effectively taken out of circulation (see Figure 1).

Figure 1

TOP 10 USFs WITH FUNDS HELD > \$30 MILLION AS A % OF GDP



One of the primary goals of USFs is to increase access to telecommunications services in rural areas. However, rather than boost rural access, many USFs are holding onto funds that could be used to encourage rural consumers to take-up services, for example, incentivising the purchase of mobile handsets (see Table 1).

Table 1

TOP FIVE USFs' FUND BALANCE WHEN EXPRESSED AS \$ PER RURAL POPULATION

Rank	Country	\$ per rural population
1	Brazil	173
2	Argentina	69
3	Paraguay	60
4	Peru	29
5	Malaysia	29

In many cases, USF levies and taxes have been established without any substantive analysis regarding the actual service funding or subsidy levels needed, if at all. Many funds continue to request operator contributions that appear to be in excess of the actual USF needs or capabilities even though they seem unable to use the levies collected. India, for example, has accumulated close to USD 4 billion in unused funds, yet continues to impose a five per cent USF levy on operator revenues.

The underlying legal frameworks for many of the funds appear to be poorly-conceived from the outset (e.g., not technology-neutral or service-flexible, excessively bureaucratic, insufficient oversight) which has resulted in several of them being ineffective or severely constrained. Poorly-conceived legal frameworks also pose a major obstacle to the introduction of non-commercially viable broadband through the USF mechanism.

Even in funds where there is a degree of autonomy and independence, there are many cases where political intervention or interference from other government agencies affect their performance (e.g., Brazil, Indonesia, Pakistan). In Indonesia, the Ministry of Finance is insisting that the USF may be used only for the provision of subsidies (a typical application of USFs). In Pakistan, in the absence of a full-time Minister of Information Technology, the Prime Minister has been head of the USF board, resulting in extensive delays in decision making. At the same time, many USFs suffer from, or have been accused of, poor or inefficient administration or use of funds (e.g., Afghanistan, Bolivia, South Africa, USA).

In many instances, the programmes and targets established for the deployment of tele-centres and community information centres have failed to take into account issues related to training and education, maintenance, power sources and other sustainability concerns (e.g., Afghanistan, Indonesia, India). Overall, project and financial reporting (transparency) for most funds is extremely inadequate. For instance, only half of the 64 USFs studied have set some form of targets and, of these, only eight are achieving most of them. Out of all of the funds surveyed, Colombia appears to

demonstrate best practice in administration. Colombia's USF has been structured to be financially autonomous with projects awarded transparently through a public bidding process and implemented in a timely and transparent manner.

Some of the telecommunications funds financed directly out of the government's budget also seem to be performing well and achieving targets (e.g., Chile, Paraguay) with the added benefit that any unused amounts are rolled directly back into the Treasury.

Still, alternative approaches to achieving universal service goals are often more effective than USFs. In fact, increased availability of telecommunications services has generally been accomplished through alternate solutions, such as the imposition of licence conditions on operators, the establishment of new plans or funds that are separate from the existing USF, or private/public partnerships (e.g., Finland).

In summary, based on their general performance to date, USFs do not appear to be the most appropriate mechanism to achieve universal service and further social and economic development. It would be beneficial for governments to consider whether USFs are appropriate and relevant, or whether alternative policy instruments may deliver better results.

2 INTRODUCTION AND GENERAL OVERVIEW

2.1 What is a Universal Service Fund (USF)?

One of the policy goals of telecommunications regulators and ministries is typically to make these services accessible to the widest number of people at affordable prices. The liberalisation of telecommunication markets and the promotion of competition have delivered telecommunication services to the vast majority of the world's population. The concept of Universal Service tends to be underpinned by the three following principles:

- **Availability:** users can access the service from work or home anytime and without geographical discrimination.
- **Affordability:** for all users, the price of the service should not be a factor that limits access.
- **Accessibility:** all telephone subscribers should be treated in a non-discriminatory manner with respect to the price, service and quality of the service, in all places, without distinction of race, sex, religion, etc.

Universal Service (US) and Universal Access (UA) are frequently considered to be the same concept. However, US generally means providing service to individuals or households whereas UA refers to making service accessible to communities.

The cost of providing US varies substantially between countries and is influenced by many factors, including:

- a country's demographic and geographical characteristics
- the efficiency and presence of existing operators
- the existing legal and regulatory framework (e.g., monopoly, liberalised)
- the 'universal' policy goal as applied in a particular jurisdiction.

Different countries have taken different approaches to address US objectives. These include¹:

- Market based reforms
- Mandatory service obligations
- Cross-subsidies
- Access deficit charges
- Universal Service Funds

In addition to market-based reforms and mandatory service obligations over the past two decades, an increasingly common approach to help achieve the universal service goal has been the creation of a funding mechanism – USF, also known as Universal Access and Service Funds (UASF). These funds are intended to offer a financial incentive for operators to provide universal service in areas deemed to be commercially unviable. Such funds are often used in competitive markets to supplement market-based policies and to address access gaps and possible market failures in remote and underserved locations. For the purpose of this report, these funds will be referred to as USFs.

Typically, a USF is financed through some sort of contribution mechanism from telecommunications service providers. These contributions are either fixed or calculated as a percentage of gross revenues (often with some defined exclusions in the calculation of the revenues). In some countries, the USF fee is a portion of an overall regulatory or licensing fee. In such cases, the portion allocated may be fixed, but in other cases, it could be subject to annual review. The fees may go directly to the USF or USF administrator or may be collected by the National Regulatory Authority (NRA) and then subsequently transferred to the fund manager/administrator. There may also be other sources of funds including, but not limited to: full or partial proceeds from spectrum auctions, licensing fees, direct government contributions, private industry contributions, etc.

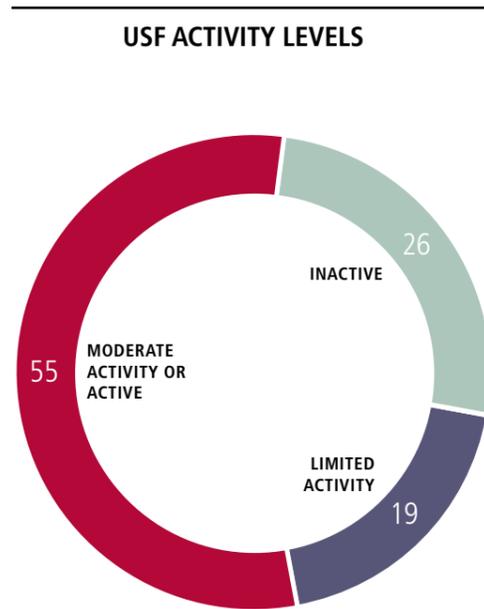
Irrespective of the well-intended objectives associated with the creation of USFs during the early stages of the liberalisation of telecommunications markets, there is considerable industry dialogue and debate regarding their practicality and efficacy. Part of this dialogue has been generated by the understanding that there are countries in which USFs have been created and monies collected, yet in many cases, these funds have either not been disbursed or the level of disbursements are substantially less than the contributions collected. There is also discussion as to whether the current structures of many USFs are flexible enough to permit a timely and practical response to rapid technological change and societal requirements.

3 THE REPORT'S FINDINGS

3.1 The scope and activity levels of USFs

Of the 64 funds surveyed in the study, 17 or 26 per cent can be classified as inactive². An additional 12 funds or 19 per cent are classified as having limited activity (see Figure 2). Africa has the highest preponderance of funds with limited or no activity, followed by Latin America.

Figure 2



² Limited activity (less than five applications of the fund); Moderate activity (six to 15 applications of the fund); Active (more than 15 applications of the fund)

Table 2

SUMMARY OF USF ACTIVITY LEVELS AND GENERAL CHARACTERISTICS REGIONALLY

Region	# funds surveyed	Activity level			Scope		
		Inactive	Limited activity	Moderate activity or Active	Fund covers fixed line	Fund covers wireless	Fund covers broadband
Africa	21	7	5	9	21	11	4
Asia Pacific	16 ³	4	0	12	15	7	6
Europe	9 ⁴	2	4	3	8	0	3
Latin America	12	2	2	8	12	5	5
Middle East	3	1	1	1	3	2	2
North America	3	1	0	2	3	1	1
Total	64	17	12	35	62	26	21

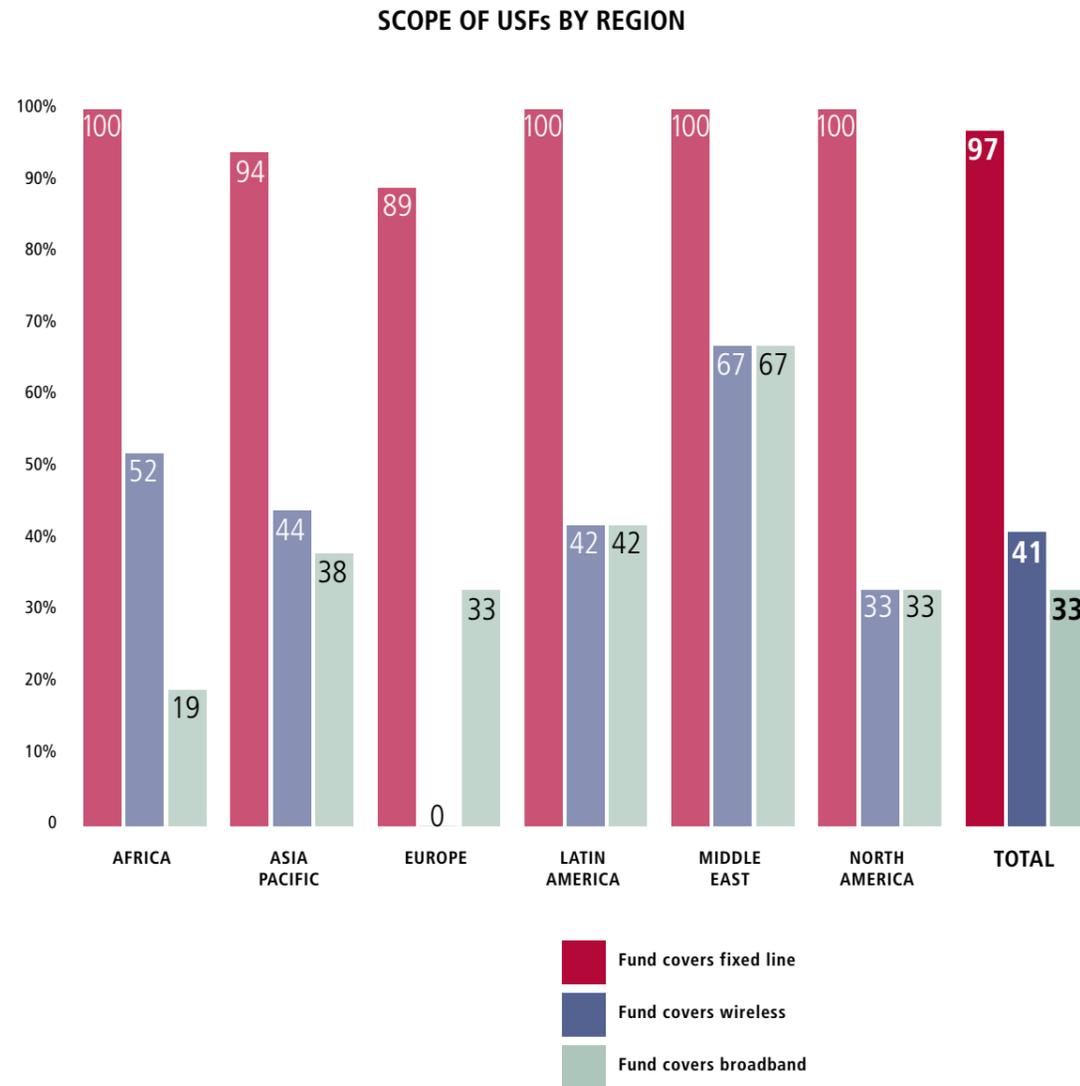
Based on the results displayed in the table above, the following conclusions may be drawn:

- Only 21 of the USFs surveyed (approximately one third) currently allow use of the funds for broadband deployment.
- The permitted use of USFs to fund broadband is the most prevalent in the Middle East (small sample size) followed by Latin America (42%) and Asia Pacific (40%).

■ As Figure 3 shows, funds are still heavily skewed towards fixed line solutions and less than half of those surveyed currently permit wireless solutions.

³ No information available on Bangladesh other than that Fund has been created
⁴ No information available on Ukraine other than Fund is being created

Figure 3



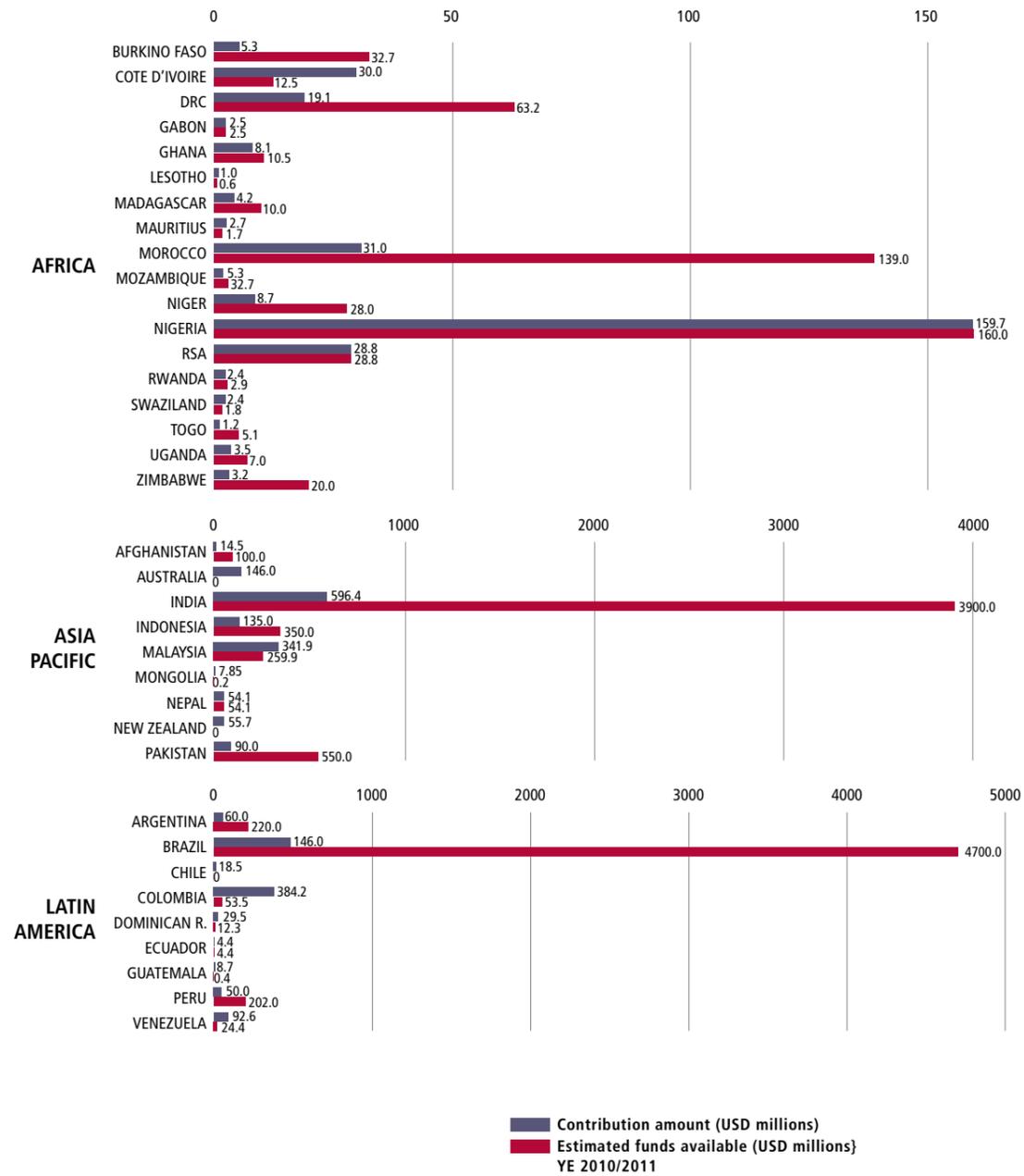
3.2 USF levies and unused funds

Figure 4 shows the estimated amount of unused funds and the annual contribution collected/estimated for the latest reporting period. There are several points that need to be noted:

- Only those countries for which some data has been reported are included in the figure; countries for which there was no published data have been excluded.
- Contributions/levies collected as of the latest date for which information has been published **or** for which estimates can be made.
- Due to the lack of detailed financial reporting (or the absence of any financial reporting whatsoever) from the majority of USFs, many of the contributions were estimated and every attempt was made to be as realistic and accurate as possible.
- Funds disbursed or estimated as having been disbursed; it is important to note that this information is **not** released for most funds, hence the lack of complete information in this area; in many cases, reports on individual USF projects indicate that funds have been disbursed, but the total funds disbursed is not clear.
- Even where figures are officially reported, it is not always possible to arrive at a direct calculation in which total funds collected = total fund amount; total fund amount minus funds disbursed = balance remaining in fund; this is due to the fact that very few USF financial reports present all three of these elements.
- Even when allowing for the limitations regarding the overall precision of the numbers presented, it is clear that there is an enormous gap between the levies and contributions gathered versus the funds actually subsequently disbursed, i.e., on a global basis, **slightly less than 50 per cent of the estimated funds collected** have been disbursed.
- Brazil and India, two of the countries for which official financial reports are released, account for **USD 8.6 billion** of undisbursed funds or approximately **73 per cent** of the estimated fund balances associated with the countries presented in this report.

Figure 4

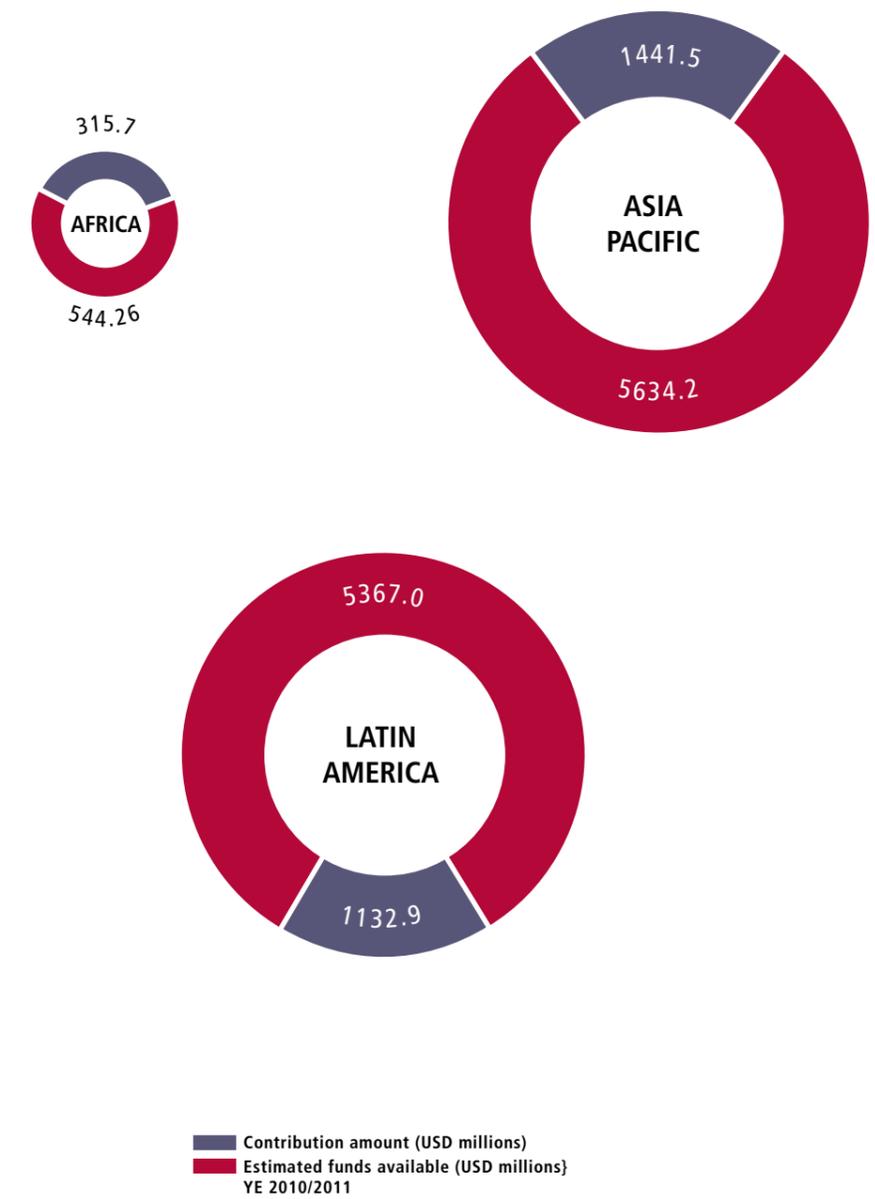
SUMMARY OF USF ACTIVITY LEVELS AND GENERAL CHARACTERISTICS BY COUNTRY



■ Contribution amount (USD millions)
■ Estimated funds available (USD millions) YE 2010/2011

Figure 4B

SUMMARY OF USF ACTIVITY LEVELS AND GENERAL CHARACTERISTICS BY REGION



■ Contribution amount (USD millions)
■ Estimated funds available (USD millions) YE 2010/2011

3.3 USF management best practices

There are a few examples of USF management best practice and even these cases have their individual drawbacks and shortcomings. Based on the analysis conducted as part of this study, the authors have concluded that although there are examples of well-conceived and well-implemented practices, it is extremely difficult to point to funds that embody all of the positive elements that would make them highly successful.

Basic elements and characteristics of a successful USF:

An effective and successful USF should have the following characteristics:

- Based on a legal and regulatory framework that:
 - is highly flexible with respect to effecting policy, structural and operational changes
 - is technology and service-neutral
 - allows use of funds for ancillary/complementary purposes (but still ICT related)
 - has the ability to easily adjust levies (in consultation with stakeholders) to accommodate actual (generally lower) funding requirements.
- Autonomous/independent fund structure⁵ along with a fund administrator who:
 - is accountable to an impartial, credible party/authority
 - not subject to political interference
 - has clearly-defined governance and governance structure.
- Clearly articulated policy with respect to how universal service will be achieved and organised, and clearly specified and measurable objectives including coverage and service delivery targets:
 - prepared in consultation with industry and stakeholders
 - presented in one or more easily-accessible information sites/media
 - clearly articulated measurement parameters that will allow milestones and achievements (or lack thereof) to be clearly demonstrated
 - measurements and results reporting should be in a format so as to facilitate independent verification
 - subject to annual review and adjustment in consultation with the stakeholders.

⁵ Even perhaps in the form of a separate company

- Highly transparent:
 - minimum of annual reporting on performance of fund (quarterly would be preferable)
 - recap of any USF tenders held and results of same
 - overview of approved USF projects in progress (project description, coverage goals and timelines)
 - performance of fund projects against targets with respect to coverage targets, project budget, timelines, etc.
 - statistics and status on funds collected, funds disbursed as well as tabulation of remaining balance held in fund
 - explanation of any roadblocks/impediments/challenges encountered in disbursement of funds
 - annual public audit independent of government with results publicly reported and published.
- Guidelines and procedures for working with other funding sources (e.g., IFC, World Bank, NGOs, etc.).
- Clear definition and delineation of responsibilities between the USF and other government agencies/departments.
- Focus on ongoing sustainability (e.g., power supplies, backbone networks, education for users, etc.).
- Fair process to allocate subsidy – technology-neutral tenders to give all interested parties an equal chance to win (as opposed to mandating universal service).
- Instead of direct and immediate reimbursement, provide incentives for efficient deployment and/or innovation and cost-minimization where feasible.
- 'Pay or play' where operators can choose if they want to participate.

Table 3

BEST PRACTICE EXAMPLES

The following table lists countries that currently seem to adhere to best practice – at least in the specific area identified.

Best practice	Country	Comments
Autonomous/independent fund structure	■ Pakistan	■ Separate company (USF Co); board of directors comprised of representatives of both private and public sector
	■ Nigeria	■ Separate entity (USPF); board of directors comprised of representatives of both private and public sectors
Consultation with stakeholders	■ Morocco	■ Successful implementation of ‘play or pay’ plus practice of consulting with operators
	■ Canada	■ Operators have representation on and input into the fund oversight committee ■ Conducted detailed public consultation
	■ Ghana	■ Board of trustees for fund includes a representative from each major telecom operator
Clearly specified and measurable objectives including coverage and service delivery targets	■ Pakistan	■ Publication of projects and related coverage targets; ongoing status reports
	■ Colombia	■ Produces four year plan with detailed project descriptions, targets and associated cost
	■ Peru	■ Annual report on fund performance with respect to project allocation and project performance versus target
Highly transparent from a financial reporting perspective	■ Colombia	■ Detailed annual reports (in a four year planning cycle) showing budget allocation, funds committed and funds used
	■ India	■ Details on fund’s financial performance on the website listing levies collected, amount contributed and balance not yet disbursed
Guidelines and procedures for working with other funding sources (e.g., IFC, World Bank, NGO’s, etc.)	■ Mongolia	■ Demonstrated in recent projects in collaboration with World Bank to increase mobile coverage
	■ Afghanistan	■ Operating manual
Clear definition and delineation of responsibilities between the USF and other government agencies/departments	■ Peru	■ Other government departments may identify possible projects and request funding with understanding that FITEL is the administrator
Focus on ongoing sustainability with particular emphasis on training and/or power sources	■ Colombia	■ Tele-centres and internet access projects include technical training and training in use of applications; build-out of fibre backbone and connectivity
	■ Dominican Republic	■ Heavy focus on education and e-strategies to accompany deployment of tele-centres and community access centres
Fair project allocation process – competitive bidding	■ Nigeria	■ Least cost subsidy; successful bidders posted on website
	■ Colombia	■ Least cost subsidy; successful bidders posted on website
	■ Pakistan	■ Least cost subsidy; successful bidders posted on website and in publications
Instead of direct and immediate reimbursement, provide incentives for efficient deployment and/or innovation and cost-minimisation where feasible	■ Chile	■ Subsidies paid in instalments based on project milestones/completed phases
	■ Dominican Republic	■ Instalments for project deployment paid in instalments over five years after initial payments made
Flexible regulatory framework to permit fund adjustments where required	■ Peru	■ Able to change FITEL to incorporate rural broadband
	■ Chile	■ Government can adjust fund parameters to respond to input regarding new technologies and practices
	■ Colombia	■ Broad definition basically underscoring access to all ICT services

3.4 Common USF administration challenges

Some of the challenges associated with administering USFs may be directly attributable to the flaws or shortcomings in the underlying legal and regulatory framework, but others may simply be a reflection of the conditions prevalent in the country in which the fund is operating. Below is a list of some of the most common challenges and pitfalls, with specific examples being provided in the subsequent section.

- The USF underlying framework and rules do not support or permit use of the funds for the services required (e.g., wireless, broadband)
- Inadequate or misguided articulation of fund strategy and objectives impeding effective administration
- Local conditions that impede or endanger full deployment of approved projects
- Absence of adequate primary infrastructure and facilities which will impede or preclude project deployment (e.g., accessible transmission backbone)

- Inefficient or excessively complex decision making, approval and governance processes
- Inadequate skill levels available for rural rollout and ongoing maintenance, sustainability
- Structural flaws in setting up the fund and its relationship with the various other institutional bodies involved in oversight or policy making
- Lack of qualified and/or interested vendors to bid on USF projects
- General managerial, operational and capacity issues.

Table 4

EXAMPLES OF COMMON CHALLENGES AND PITFALLS IN USF ADMINISTRATION

The following table provides examples of countries that are faced with these kinds of impediments and provides a brief description of the impediment.

Common pitfall	Country	Comments
USF underlying framework and rules do not support or permit use of the funds for the services required	<ul style="list-style-type: none"> ■ Brazil ■ Philippines 	<ul style="list-style-type: none"> ■ Fund permits only specific elements of fixed line deployment ■ Government simply closed down the fund through decree issuance and with no advance warning
Inadequate or misguided articulation of USF objectives and strategy	<ul style="list-style-type: none"> ■ RSA ■ Czech Republic ■ India 	<ul style="list-style-type: none"> ■ Insistence on USAL licence scheme⁶ ■ Unable to properly set targets and level of levies for previous years' funds; subject of multiple legal disputes ■ Guidelines encouraged urban rather than rural network rollout
Unfavourable local conditions that impede or endanger full project deployment	<ul style="list-style-type: none"> ■ Afghanistan ■ Pakistan 	<ul style="list-style-type: none"> ■ Hostile terrain, climactic conditions and ongoing threats ■ Security concerns in remote areas and issues with accessibility
Absence of adequate primary infrastructure and facilities which will impede or preclude project deployment	<ul style="list-style-type: none"> ■ Afghanistan ■ Columbia 	<ul style="list-style-type: none"> ■ Lack of roads or alternate access for some of remote service areas ■ Lack of suitable access roads resulted in cancellation of a major satellite project
Inadequate skill levels available for rural rollout and sustainability	<ul style="list-style-type: none"> ■ Uganda ■ RSA 	<ul style="list-style-type: none"> ■ Illiteracy and general ignorance amongst many segments of poor rural population ■ Failure to take training and education into account when rolling out tele-centres and school cyber-labs
Inefficient or excessively complex decision making, approval and governance processes	<ul style="list-style-type: none"> ■ Nigeria ■ Peru 	<ul style="list-style-type: none"> ■ Delays in budget approval by National Assembly affects fund's capacity to operate; carry out projects ■ Deployment of funds require multiple approvals from different committees and government organizations
Structural flaws setting up the fund and its relationship with the various other institutional bodies involved in oversight or policymaking	<ul style="list-style-type: none"> ■ Indonesia ■ Nepal 	<ul style="list-style-type: none"> ■ Ongoing conflict between telecom regulator and Treasury Ministry regarding how funds can be allocated and utilized ■ Unresolved issues between the NTA and the Ministry of Telecom
General managerial, operational and capacity issues	<ul style="list-style-type: none"> ■ Afghanistan ■ Indonesia 	<ul style="list-style-type: none"> ■ Senior fund management in the process of being replaced ■ Lack of human resources at local level to maintain, support and educate inhabitants because maintenance contract with the government covers only the first year of deployment

3.5 How well do USFs achieve coverage targets?

One of the principal difficulties in answering the question as to whether the USFs achieve their coverage targets is the absence in many cases of specific and well-articulated targets. Very few funds have set detailed goals regarding overall population coverage, but a number have defined coverage using parameters such as, but not limited to:

- total number of villages/localities, municipalities, provincial capitals⁷, etc.
- number of districts, provinces or states served
- number of tele-centres
- number of schools, libraries, health centres
- number of payphones installed
- number of base stations constructed
- kilometres of fibre installed.

Even if a population coverage goal has been established as part of the USF targets, this presents other hurdles as there are present day complexities associated with defining population coverage and market penetration, particularly with respect to the expansion of mobile coverage under the auspices of a USF scheme. Over the past several years, market penetration estimates have become increasingly less meaningful given the tendency of the more affluent mobile users in many countries to purchase two or more SIM cards from different providers. Therefore, it is challenging to arrive at meaningful estimates in terms of increases in the level of mobile population coverage.

Are there USF coverage objectives and have they been achieved?

The report analysis shows that of the 64 funds addressed:

- 22 do not currently have any established coverage or delivery targets
- in the case of an additional two funds, they are not yet fully defined and thus, targets cannot yet be set
- there are eight additional funds that do not lend themselves to the setting of targets since they are basically refund mechanisms
- of the remaining 50 per cent (32) that have some form of target setting, only 20 have precisely quantified targets and goals.

Although there is limited data available showing that USFs have provided funds to expand service coverage in some of the countries, there is also solid anecdotal and statistical evidence to show that improved accessibility, coverage and service quality can often be accomplished by alternative solutions rather than through the USF. For the purpose of this analysis, countries such as Canada and the United States have deliberately been excluded as they are rather unique in that universal access and service coverage have basically been achieved in vast territories by market forces.

⁶ Underserved Area Licence

⁷ This may include population estimates for the villages, towns, municipalities, etc.

4 ALTERNATIVE SOLUTIONS

Case study – Bangladesh

In Bangladesh, the Village Phone (VP) Programme, has provided modern digital wireless service to rural areas across most of the country. The programme was initiated in 1997 by Grameen Bank, an NGO, which created an independent, not-for-profit subsidiary called Grameen Telecom (GT). GT then established a for-profit company, Grameenphone, to fund the VP Programme with the profits it would earn as a nationwide mobile telecommunications provider. GT⁸ administered the VP Programme with the help of Grameen Bank, trained the operators, supplied them with handsets and handled all service-related issues⁹. The programme provided loans to Grameen Bank members, who were most often female, to purchase a mobile phone under the lease-financing programme of Grameen Bank. These villagers then became VP operators and earned money by offering telephone service to other people in their village.

The initial goal of the VP Programme was to install 40,000 village phones by year end 2004. According to Grameenphone's 2006 Annual Report, there were over 280,000 village phone operators by year end 2006 and 300,000 operators as of May 2007¹⁰. By 2007, GT's total mobile subscribers had reached 16 million. In fact, by 2007, the VP programme had become so successful that the need for the programme in its initial form had lessened considerably. Nonetheless, the impact of the VP programme in Bangladesh is nothing short of enormous. Since it began operations in 1997, Grameenphone has built the largest cellular network in Bangladesh: as of December 2011, Grameenphone's network covered 99 per cent of Bangladesh's population and 90 per cent of the total land area.

Grameenphone has also expanded its service and coverage initiatives through the creation of Community Information Centres (CIC). A CIC is a shared premise where rural people may access a wide-range of advanced services such as Internet, voice communications, video conferencing and other information services.

The pilot project started in February 2006, with 16 CICs; today the project has more than 500 CICs operational in nearly 450 Upazillas. In the long-run, Grameenphone plans to increase the number of CICs substantially so that every CIC can support the information needs of four adjacent villages. Recently, Grameenphone announced the creation of an additional 102 CICs¹¹.

The CICs are designed to be run independently as small businesses by local entrepreneurs. The entrepreneurs are trained and are provided with continuous support by Grameenphone. To help the entrepreneurs to earn more, CICs also provide local inhabitants with other Grameenphone services, such as mobile payphones and electronic recharges for prepaid and postpaid mobile accounts.

Case study – Brazil

When issuing new licenses for third generation (3G) mobile services in 2007¹², the Brazilian government imposed more expansive coverage obligations than the obligations previously imposed on the first mobile licensees. To this end, areas of low demand were not licensed in their own right, but were included as coverage obligations along with the more populous licences. For example, winners of the São Paulo metropolitan profitable licences (in the southeast of the country) were required to provide service with specific coverage obligations in the unprofitable areas of the northern states.

Based on data provided by the Brazilian regulator, Anatel, as of May 2012, mobile operators had achieved coverage of 5,564 municipalities and population coverage of 99.9 per cent, all without benefit of access to the FUST (Brazil's USF)¹³. Only one municipality of 8,000 inhabitants - Nazária-PI - remained unserved by any mobile operator.

Brazil's fixed-line operators also have to fulfill USOs. In exchange for amending the Universal Services Decree that provides targets for backhaul installation, the fixed line operators and the Ministry of

Communications entered into an agreement, known as 'Broadband in Schools', in which the fixed operators installed broadband connections of 1 Mbps downstream in each of the 70,000 public schools in the urban areas at no cost to the government and provided free of charge until 2025. The installation was gradual: 30 per cent of the schools in 2008, 30 per cent in 2009 and the remaining 40 per cent in 2012. As of April 30, 2012, almost 61,000 schools had achieved broadband connection, all without subsidies from FUST.

⁸ Telenor holds 55.8 per cent of Grameenphone, with Grameen Telecom Corporation owning the remaining 34.2 per cent. The rest (10%) of the shares belong to general retail and institutional investors.

⁹ Grameenphone website/About Grameenphone/Shareholders/Grameen Telecom Overview, at <http://www.grameenphone.com>

¹⁰ Grameen Foundation, Village Phone Direct Manual: Enabling Microfinance Institutions to bring Affordable Communications to the Poor (2007).

¹¹ <http://www.gpic.org/index.php?main=1>

¹² Edital de Licitação ("Bidding Terms") No. 002/2007. The tender was concluded in Dec. 31, 2007, and the 3G licences were signed and published on the Brazilian Official Gazette in Apr. 29, 2008.

¹³ <http://www.teleco.com.br/cobertura.asp>

Case study – Finland

A pioneer in the promotion of broadband services, Finland published its National Broadband Strategy (NBS) in 2003. At a time when less than 10 per cent of the Finnish population subscribed to broadband service¹⁴, the overarching objective of the NBS was for Finland to become a leader in the availability and use of high-speed communications, and to provide broadband geographical coverage for all Finnish inhabitants. The NBS was intended to be both market-oriented and technologically-neutral, but also had clear goals to encourage the provision of service and content, to increase demand for broadband services and to support the development of broadband infrastructure in areas where investment was not commercially viable. In 2008, the Finnish government approved a Plan of Action that called for 'practically all' (more than 99 per cent of the population) permanent residences, firms and public administration bodies to be within two kilometres of a fibre optic or cable network permitting connections of 100 Mbps by 2015.

Under this plan, the Finnish government expects 95 per cent of the population will be served through commercial investment. The remaining four per cent required to achieve the stated goal of 99 per cent (approximately 130,000 connections, required primarily in sparsely populated rural areas) will be served through a combination of private and public investment. These subsidized projects will be assigned via a competitive tender to a telecom operator that will become responsible for project execution and for funding at least 34 per cent of the total project costs. The remaining investment will consist of a combination of state, municipality and EU funds. There are approximately 800 of these subsidized projects for an expected total value of USD 512 million). Effective 2009, subscribers can also contribute to the installation of communications connections to their main residences. Each individual taxpayer can claim a credit tax deduction of USD 4,170 for labour costs through a vehicle called the domestic help credit.

One of the main reasons that the government was able to impose such requirements for broadband deployment is that Finland's MNOs had all, of their own volition, invested in HSPA technology which currently covers most of the country: TeliaSonera's entire 3G network had been upgraded to HSPA by late 2007. By June 2009, all base stations in DNA's network were able to support HSPA+ (providing up to 21Mb/s download), while since July 2009 Elisa has rolled out HSPA+ in the 900MHz band¹⁵. As of April 2012, both TeliaSonera and Elisa had already launched LTE.

¹⁴ According to the ECTA broadband scorecard Q3 2004, broadband penetration in Finland stood at 11 per cent

¹⁵ http://www.circleid.com/posts/20091015_finland_legislates_universal_broadband/



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