Universal Service and Access Funds Research Report

Challenges to the effective use of USAFs

March 2010

Introduction

Access to information and communications leads to economic growth and development. There are numerous examples of how information and communication technologies (ICTs) have empowered small to medium scale enterprises (SMEs) and sparked growth in developing countries. For example, the rapid growth of mobile telephony in Africa has launched a new market in ICT-related SMEs. Despite these successes, many live in rural communities that are still without any means of communication, and potential entrepreneurs in these areas have yet to benefit from the same empowerment and growth.

Connect Africa (CA) is an innovative ICT initiative that combines entrepreneurship and social enterprise to bring communication, business and public services to rural communities across Africa. We have already successfully piloted and demonstrated a sustainable rural service delivery model in both South Africa and Zambia. Having successfully completed a proof of concept, pilots and field trials the social enterprise is poised to roll out a service delivery model across Zambia and South Africa.

Background

Several African countries have set up universal service and access funds (USAFs) to subsidise the cost of extending ICT services (information and communication) to difficult-to-reach rural and remote areas. The establishment of USAFs is considered global best practice, and rural communities are, for the first time, receiving communications and reaping the associated socioeconomic benefits. Table 1 shows which countries around the world have established a USAF. Note that each of these countries' universal access legacies is different and the USAFs are at very different stages of development and maturity.

Table 1. Countries with Universal Service and Access Funds	
Latin America	Chile, Peru, Colombia, Argentina, Brazil, Guatemala, Dominican Republic, Bolivia, Nicaragua
Africa	Burkina Faso, South Africa, Uganda, Nigeria, Tanzania, Mozambique, Zambia, Madagascar, Ghana, Botswana
Asia	Malaysia, India, Nepal, Sri Lanka, Mongolia, Indonesia, China
Europe	Russia, Hungary, Poland
Australasia	Australia, New Zealand
North America	USA, Canada, Mexico

Currently, USAFs are managed by the government, who have limited exposure and experience to the complexity of the communications industry. There is a skills gap in the project management expertise required for the effective, fair and transparent administration of such a large sum of funds. Moreover, technology is rapidly evolving, and it is therefore difficult for USAFs to keep abreast of the best solutions for rural connectivity. The USAFs struggle to interact with service providers who have years of technical experience and expertise in this sector.

If not managed well, the USAF levy can become a simple direct tax on the operator and a disincentive for the extension of rural ICT networks. Some of the African USAFs have accumulated millions of dollars, but have not redistributed the funds—not out of greed—but for a lack of human capital – they do not know how, to whom and for what purpose to release the money.

Non-profitable areas of a country are of limited interest to commercial communication networks whose sole aim is to make a profit. This means the USAF is left to find the very few experienced and honest organisations with the capacity to address the technical and social challenges of operating in these remote regions.

Objectives

With all these issues in mind, the objective of this two-week research projects was the following:

1   To research the challenges faced by USAFs that inhibit USAF funds from being efficiently invested to meet their universal access and service mandate

2   To inform the development of a comprehensive business plan for the rollout of the CA Rural Service Network in Zambia and South Africa that will:

- Demonstrate to regulators and governments across Africa the successful use of USAFs and establish a policy and regulatory environment that stimulates rural development through the use of ICT
- Address the challenges faced by USAFs and honour the intentions of why the USAFs were established
- Serve as a model of effective USAF spending for the rest of Africa and beyond

This report details our research findings regarding the project's first objective. The resulting business plan accompanies this report.

Methodology

Given the time and budget constraints, the majority of our research was desk-based. This stage of research concentrated on review of the following reports:

- Universal Access: How Mobile Can Bring Communications to All, GSMA, 2008

- Commonwealth African Rural Connectivity Report, Commonwealth Telecommunications Organisation, 2007

- New Models for Universal Access in Latin America, Regulatel/World Bank/ECLAC, 2006

- Funding and Implementing Universal Access: Innovation and experience from Uganda, International Development Research Centre and the Uganda Communications Commission, 2005

- Universal Access and Universal Service Funds: insights and experience of international best practice, Intelecon Research, 2005

- ITU Model Universal Service Funds Policy and Procedures, Presentation by David Souter, 2005

The desk-based research informed the development of a semi-structured interview. We interviewed Mr. Katwamba Mwansa, the head of consumer affairs at the Zambia Information and Communication Technology Authority (ZICTA), who has been seconded to the Special Projects Department to

develop the authority's universal access programme. Mr Phineas Moleele, the head of regulatory and legal affairs at the Universal Service and Access Agency of South Africa (USAASA), Mr. Moses Okello from the Rural Communications Development Fund (RCDF) in Uganda and Mr Kojo Boakye, secretariat of the African Universal Service and Access Fund Association (AUSAFA), were interviewed by telephone.

Research Findings

Review of literature on universal service and access funds raises a multitude of issues still under debate. The proportion of operator revenues seems to be arbitrarily chosen in many countries without any justification.[1] Some regulatory authorities are exploring asymmetric pricing regimes so that calls to or from rural areas are charged at a higher rate (so that the mobile operators can recoup the higher cost of extending services to that area)[2], while others (as in South Africa) have mandated lower tariffs for calls from community phones.

On the issue of governance, the composition[3] of the new ZICTA management board, which includes representatives from the national farmers' union and a trade union, was highly criticized by those who felt the ICT industry was not duly represented.

Financial transparency is another hot topic. ZICTA has claimed to set aside a portion of its licensing fees (3-5% of operator revenue) in a separate account for universal service and access projects. However, until the recent enactment of the ICT Act in December 2009, ZICTA did not have the mandate to disburse these funds, and there is still no board-approved, systematic mechanism or procedure for disbursement. No one outside of government knows for certain how much money has been set aside for universal service.

Similarly, operators in South Africa pay their universal service levies to the regulator ICASA (rather than to the fund manager USAASA), who in turns deposits the revenue into the treasury. USAASA must then apply for money from the fund set aside in the treasury for universal access. While USAASA publishes detailed performance evaluations and budgets each year, the balance of this fund for universal access is nowhere on USAASA's accounts.

Such issues are likely to be under debate for a long time to come (as multi-million dollar issues often are), but they are not the focus of our research. The purpose of our research is to identify the challenges facing USAFs so that the business model for the rollout of the Connect Africa Rural Service Network (CA RSN) can be designed to address these challenges and promote the efficient use of universal service and access funds.

The following sub-sections discuss five challenges facing USAFs that the Connect Africa Rural Service Network must focus on addressing. The first challenge is the design of an effective tendering procedure. Second is the identification of target areas for universal service and access. We then discuss how the different African USAFs have identified and prioritized different types of projects eligible for USAF funding. Of particular note are those projects that have originated in the local beneficiary communities themselves. The last sub-section focuses on the issue of sustainability, including USAF support for sustainable business models based on local entrepreneurism, micro-finance mechanisms, creative content development, human capacity building and monitoring and evaluation.

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[1] The Rural Communications Development Fund is an exception, having published a reasonably detailed account of how it arrived at its 1% levy on operator revenues. The account is reproduced in Annex A.
[2] While the asymmetric pricing regime seems like a relatively straightforward measure to entice operators to extend their networks to rural areas without interfering in the market, the implementation of such a policy is actually quite technically challenging. See Annex B for an excerpt from our interview with Moses Okello on this issue.
[3] According to the newly enacted ICT Act, the composition of the board of ZICTA must comprise one representative from the following agencies: the ministry of information and communications technology, the ministry of home affairs, the national security agency, the attorney general, the national farmers union, the Zambia Consumers Protection Agency, the Law Association of Zambia, the Engineering Institution of Zambia, a Trade union representing staff employed by the Company, and one other person appointed by the Minister

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Tendering Procedures

The least-cost subsidy tender procedure is now considered international best practice and the majority of funds distributed by the RCDF, USAASA and ZICTA are in this manner.

RCDF disbursement at all levels for all types of projects is by open tender. The disbursement of RCDF funds for public telephony projects, with potential total subsidy amounts in excess of US$ 100,000 are by international open tender. The disbursement of RCDF funds for Internet Points-of-Presence and training contracts, with expected subsidy amounts of less than US$ 100,000, are by open tender but with invitations publicised domestically and a simplified procedure. The disbursement of smaller RCDF funds to institutions seeking to establish 'vanguard' ICT and community telecentre projects (that is, schools, colleges, hospitals, associations, NGOs or other) are normally by open tender within the district.

RCDF can also announce tenders for the bulk disbursements of smaller subsidies to establish 'vanguard' ICT and community telecentre projects, as well as micro-financing of ICT entrepreneurs. However, the tendering procedure for this type of disbursement has not yet been developed. Once established, it should facilitate the outsourcing of smaller disbursements, such as rural public phone wireless extension packages, to an agency that has the capacity to manage these disbursements efficiently in large numbers. The procedure may also apply to ICT training and capacity building.

Similarly, the majority of projects are implemented by the least-cost subsidy tenderers in South Africa. The most recent of USAASA's open tenders was for its "rapid deployment programme" of 100 containerised ICT service centres.

ZICTA had not yet finalised its operational plan for systematic tender procedures, although the agency successfully managed a relatively small tender for the establishment of seven multipurpose community centres in 2009. A tender for the construction of shared-access towers and mobile base stations is currently under advertisement. The special projects department is drafting the manual for tendering procedures and they expect large tenders to be announced at least annually once the procedures are approved and the board members are confirmed.

USAF	Frequency of tenders	Last tender announcement	Duration of tender process (from submission to disbursement of funds)
USAASA	Annual	February 2010	15 working days
RCDF	Annual	January 2010	35-40 working days
ZICTA	Expected annually	February 2010	Unknown

How to identify target areas?

The golden rule in universal service and access fund disbursement is that funds should only be used for rural and underserved areas, and should not be used to provide service where it is not necessary. The RCDF learned this the hard way when aggressive mobile operators had already rolled out GSM networks in RCDF-target areas by the time the competitive tender for universal service funding was completed.

Since then, Uganda has learned its lesson. The UCC secured a declaration from the two mobile operators UTL and MTN Uganda identifying which rural sub-counties they would not serve by a stipulated period of time (by July 2002). UTL and MTN identified 154 out of the country's 920 sub-counties as unprofitable and the UCC retracted the operators' exclusive rights in these areas.

The 154 sub-counties became the focus of the RCDF's universal access objectives. MTN asked for the least subsidy to serve the unprofitable sub-counties, won the bid and began to roll out its village phones.

As a separate initiative, the RCDF determined the need for internet points or presence and high speed wireless access systems at all district centres. Installation of these networks were eligible for separate and smaller subsidies.

Prior to the RCDF's institutionalization, the UCC commissioned research into the user needs, preferences and demand for communications services at the community and household level. The research covered every region of the country and extended to 88% of the country's population. The resulting "Rural ICT Baseline Study" identified focus areas, estimated the level of demand; and detailed the process by which the markets will develop.

The data was made available to operators and new bidders in the tender process in order to reduce the risk of underbidding due to lack of information on potential revenues.

USAASA is in the process of conducting a detailed ICT penetration study in order to determine the extent of ICT access by all. The research was commissioned to inform a parallel study on a consultative framework for definitions of universal access and service.

What kinds of projects does the USAF support?

USAFs are spoilt for choice when it comes to determining what kinds of projects they will fund and prioritise. Many include the provision of broadband internet services in their priorities, now that the market has driven mobile network expansion to ensure the provision the voice services for the majority of the countries' populations. However, the provision of community phones (payphones) is not forgotten, as many deep rural communities are still without basic telephony services.

The chart below details the different types of projects the RCDF in Uganda has funded since its inception, and the progress it has made to date.

RCDF Achievements

SN	Programme Area	As of 1 October 2009					As of 21 January 2010	
		Operational Projects	Out of Service Projects	Terminated Projects	Projects under Installation	Total Projects	Commissioned Projects	Projects under Development
1	Internet POPs	22	12	18	53	105	76	
2	ICT Training Centres	31	16	17	1	65	67	1
3	Telecentres	12	1	0	0	13	13	
4	Web Portal	40	38	0	0	78	78	0
5	Internet POPs	74	2	0	0	76	76	
6	Postal centres	18	7	0	0	25	35	
7	Postal telecentres	0	20	0	0	20		
8	School ICT labs	97	11	0	100	208	108	100
9	Health ICT labs	20	0	0	23	43	43	53
10	Payphones (incl CICs)	3349	0	0	750	4099	3349	750
11	Wireless communication sites (base stations)	60	0	0	0	60		
12	Research projects						4	1
13	Call centres							1
14	Internet café						55	53

Source: www.ucc.co.ug/rcdf/default.php

Similarly, the Universal Service and Access Fund in South Africa used a portion of its annual allocation to rehabilitate community access centres and cyberlabs. However, in contrast to the RCDF's priorities, USAASA also used funds to subsidise internet connectivity in FET colleges around the country[4]; subsidise USALS[5]; teach ICT skills to community access centre personnel and conduct research.

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[4] In the 2007/2008 financial year 18 FET out of 50 FET Colleges were funded with an amount of R150 000 each to a total of R2.5 million.
[5] USALS are Small, Medium and Micro Enterprise (SMME) operators who are licensed to provide public switched telecommunications services to areas with less than 5% teledensity. In the past 5 years USAF has subsidised seven (7) USALS at R5million per annum for a period of three years as part of infrastructure development in under-serviced areas. During the year under review, USAF paid approximately R3,740 million in subsidies to two USAL licenses. After in-depth review, it was decided that funding be suspended until a sustainable model on the business case, regulatory, financial support and policy be developed.

ZICTA is still in the process of drafting their policy on what kinds of projects to subsidise: base stations, 7 MCTs, replication of MACHA in three Copperbelt locations.

Bottom-up Approach to developing projects

The diagram below illustrates the sequence of events at the start of implementation of an RCDF-funded project. It seems common sense that the project implementer can only submit a bid for an ICT project that the RCDF has already developed.

However, this chain of events is a top-down approach whereby the regulator or universal service fund, who is far removed from the rural communities, decides and designs the ICT project parameters. In contrast, the Regulatel study emphasizes the importance of a decentralised, bottom-up approach to the definition and planning of rural ICT projects. The success of community-focused projects depends critically upon the active involvement of stakeholders at the local level, from the planning to the implementation stages. Each fund-financed project should ensure that key local representatives and organisations are engaged and committed to the initiative.

The extension of ICTs to rural areas is only the means to an end – the promotion of economic and social development in the community. Therefore, the approach must foster small business opportunities, and to provide jobs, training, and income for women and men in the targeted communities.

To adopt a bottom-up approach, the USF should emphasize a bottom-up definition of objectives, needs and opportunities from around the country. It should make financing available according to flexible criteria, in much the same manner that commercial banks respond to market trends rather than try to create them.

The fund should promote innovative, entrepreneurial thinking among those most likely to be directly affected by its decisions at the local level. It is also very important that national, regional and local universal access programs be coordinated with community organizations and non-governmental organizations who are striving to achieve similar goals.

Sustainability and Entrepreneurism

In 2006 an assessment of the USAASA-funded projects made it clear that the projects were unsustainable and the USAF was not getting a good return on its investment. The assessment showed that access centres face various challenges including lack of technical and management skills, poor financial sustainability, shortage of resources, governance, public awareness and poor uptake and usage of the facility. Most of the existing Cyberlabs are not functioning optimally. The uptake and usage of ICTs by educators is still very low and ICT is not integrated into the school's curriculum. The once state-of-the-art facilities are quickly becoming obsolete.

Sustainability is the biggest challenge of rural ICT projects. A shift in USF strategy must put emphasis on market orientation, sustainability and entrepreneurship. The role of the USF must be seen clearly as augmenting and encouraging the market, as a partner with commercial ventures of all sizes, which plans and functions with the same business-minded perspective, even while emphasizing non-market benefits and objectives that the private sector may not address.

Supporting the entrepreneurial spirit

The fund's purpose is to encourage the market, from the expansion of large telecommunications operations to the establishment of new small enterprises, which will be able to grow, innovate, and take the industry in new directions. The Regulatel study recommended an innovative, venture-oriented financing approach, which is especially well suited to the smaller entrepreneur-driven universal access projects in this sector.

Under this approach universal access funds are structured so that a portion can be used for micro financing operations including the offering of loans, equity participation in projects and/or the implementing telecoms company, grants or a combination of these. Application of funds out of the micro-financing budget item would be subject to somewhat different criteria with respect to risk and would have to have provision for some failures and defaults.

Micro credit has been an important tool in rural development in many countries of Latin America and elsewhere for years, especially in agribusiness, but increasingly in ICT projects too. Micro-financing strategies target SMMEs, understanding that they have an important role to play in poverty reduction and the creation of sustainable employment. In many cases, they are in a much better position and prepared to provide the goods and services that the local population wants.

Outsourcing the management of ICT micro-finance

Evaluating and vetting of proposals for microloans, equity positions and grants in small rural and periurban universal access projects initiated by small local entrepreneurs, local authorities and sometimes NGOs will enquire regulators and/or fund administrators to develop special due diligence, engineering, financial and economic skills, which many of them may not have today. Only three people in the RCDF have significant project management training and the fund would like to send an additional 2-3 staff to project management training if their budget allowed. Only 10 out of the 45 staff in USAASA have any project management training, while just two staff are trained at ZICTA.[6]

Therefore, the RCDF promotes a tendering option for the management and bulk disbursement of funds for telecentres and rural packages. Management of the rural packages would then be outsourced to the winning tenderer who can effectively manage a much larger volume of rural business development and micro-finance projects than the RCDF. This agency would be contracted to identify and/or respond to applicants, assess and approve applications, disburse grants or loans, and verify performance.

Colombia's COMPARTEL has also successfully implemented a competitive bidding scheme for private operators, allowing economies of scale by bidding telecentres in the hundreds. The telecentres are run by local entrepreneurs in the community, but with the support of a network and management organisation.

Minimising risk

Within traditional financial systems, commercial banks are often reluctant to assume the risk of lending to SMMEs, given low aggregate returns and high risks and transaction costs. The flexibility and responsiveness of SMMEs in the face of rapidly changing demand and supply conditions are an advantage in the ICT sector, especially in rural and underserved communities; however, potential entrepreneurs often face challenges in terms of up-front financing, even in the amount of a few thousand dollars or less.

In South Africa, the Enablis Entrepreneurial Network (**www.enablis.org**) for example, attempts to fill the financing gap for entrepreneurs who adopt ICT for economic and social development projects. In addition to financially supporting ICT projects, Enablis reduces the risk of default by supporting their promoters by providing them with the networking, learning, mentoring and coaching they need to ensure the success of their ventures. Enablis members have access to ongoing support services including an e-coaching program, an e-advantage seminar program, an e-circle peer-to-peer support program and e-finance risk capital program.

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[6] All of those interviewed expressed the desire to send as many of their staff to project management as possible.

The Regulatel study also found that the government can help with direct financing of new networks and services in its role as a user of telecoms and ICT services itself. In doing so the government helps to expand the market and minimises the risk.

Success Stories

The table below describes some success stories from around the world. These projects are all based on the management of hundreds of individual entrepreneur-run businesses.

Mobile payphones and access businesses	
Country and mobile operator	Description of project
Bangladesh, GrameenPhone	Women are recruited by Grameen and given a loan to buy a handset, battery, antenna, signage and airtime. They operate as village phone operators (VPOs) who offer a standardized customer product and price.
Uganda villagePhone, MTN	Women and men are recruited as VPOs by up to nine micro-finance institutions which are, themselves, recruited by MTN Uganda. VPOs are given a loan to buy a VP equipment kit and offer a standardized customer product and price
Nigeria, MTN	MTN Nigeria launched a community phone project named "Ogene", using micro-credit loans to women entrepreneurs as above, to provide public access using GSM handsets.
India, Spice Telecom	The mobile operator recruits small entrepeneurs to operate mobile phones as payphones.
South Africa, MTN and Vodacom, CellC	All mobile operators are obligated to provide GSM fixed-wireless community payphones at a reduced RSA- 90c per minute call rate
Mozambique, Mcell and Vodacom	Both mobile operators have franchised networks of GSM desksets located in kiosks or small stores offering a standard priced payphone product.
Colombia	As part of the COMPARTEL fund-supported program, mobile payphones are installed in the least remote communities.
Ecuador, BellSouth	Mobile payphones are housed by restaurant and shop owners, fuel stations and similar establishments.

In some cases these examples have emerged in a purely commercial fashion (as in Bangladesh), however, in others (South Africa, Uganda and Colombia) the universal access businesses were required by rollout obligations or supported by the USF.

In most of these cases, the entrepreneur or franchisee has to invest in the telephone equipment at a cost of up to $500 to get started. In rural areas, the cost could be higher because special antennas and independent power supplies are required. Thus the cost can be a big hurdle for potential entrepreneurs to overcome. At least three of these cases, micro-credit loans were used to enhance the possibility that poorer rural people could become the franchisees.

Creative content and service innovations

The findings of the Regulatel study recommend that support for the development of ICT applications and content be incorporated into USAF activities. There is a growing recognition that the success of advanced telecommunications/ICT development programs will depend as much upon the quality of the information, content and applications available via new networks, as upon the availability and affordability of infrastructure and technical facilities.

The USAFs should look for creative business plans when selecting subsidy recipients. They should look for applicants highlighting innovative uses of technology and services, including the internet and multimedia applications, which can generate increased demand and economic benefits for local communities. Service innovations might include, for example: human interest video and audio programming (news, entertainment, public affairs_ transmitted via the web over broadband links, and simultaneously on broadcast and cable TV facilities; instructional and informational interactive software applications for small businesses, farmers, mothers, students, the disabled and other interest groups; online discussion, research, and self-expression programs to encourage promotion and exchange of indigenous cultural legacies and local political initiatives.

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Technology Innovations

Technology is rapidly evolving, and it is therefore difficult for USAFs to keep abreast of the best solutions for rural connectivity. The USAFs struggle to interact with service providers who have years of technical experience and expertise in this sector.

The RCDF funds participation of its staff in international conferences, workshops and training, as well as hosting quarterly stakeholder consultations with the industry and implementers of the RCDF projects (the latter being part of its monitoring and evaluation framework).

Capacity building and training

Human resource capacity is critical to the success of all other objectives. The pressing need to reinforce the business, marketing and technical skills of ICT entrepreneurs and small operators, as well as raise awareness of ICTs in the community and educate potential user groups, dictates that USFs should require training programs to be an integral component of their financing strategies. The Regulatel study recommends that USAF support could include underwriting existing or new technical or management training initiatives by established educational institutions, or industry-based training to be introduced by service providers as an element of their business plans.

Monitoring and evaluation

Monitoring and Evaluation is a key component of any successful programme.

The RCDF fund manager requires quarterly reports from recipient operators showing network status, service status and rollout statistics. The report enables the fund manager to monitor operator performance against the contract conditions, but also inform a complete record of total network achievement.

RCDF also plans to maintain a database of service quality requirements and operator compliance in order to ensure that RCDF-sponsored rural operators provide an acceptable grade of service, to ensure operator compliance with obligations, to determine the need for remedial action, and to create competitive pressure for good performance,

Applicants to USAASA's tenders must indicate how they plan to monitor and evaluate service levels of each public access facility, opening and closing times, uptake and usage of all services by community members and cost/revenue ratios. However, USAASA has not yet finished its own monitoring and evaluation framework. Likewise, ZICTA's monitoring and evaluation framework is still in draft form.

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Conclusion

Universal service and access initiatives must be sustainable, replicable, scalable and have a positive impact on socioeconomic development if the initiative is to be considered a successful use of universal service and access funding.

This report has briefly discussed some of the hotly debated issues surrounding the implementation of universal service and access funds, and focused on a more in-depth analysis of those challenges that the Connect Africa Rural Service Network can help to address.

In summary, Connect Africa can best help universal service and access funds meet their objectives by demonstrating the following:

1. How a bottom-up approach ensures the success of community-focused projects.
2. How a flexible tendering procedure can accommodate the micro-financing needs of small-scale entrepreneurs.
3. How to reduce the risk of default on micro-loans by supporting operators with the networking, learning, mentoring and coaching they need to ensure the success of their ventures.
4. How USAF funds can be utilised to promote creative content development.
5. How USAF funds can be used to reinforce the business, marketing and technical skills of ICT entrepreneurs and small operators.
6. How USAF funds can be used to raise awareness of ICTs in the community and educate potential user groups.

Accompanying this research report is a comprehensive business plan that is designed to demonstrate the six items above. The business plan outlines the operations, human resources, marketing and management structure of the Connect Africa Rural Service Network, as well as 12-month and 5-year projection of revenues and expenses.

Our next steps are to partner with the Southern Africa Trust's Business for Development Initiative and jointly approach DFID, the Bill and Melinda Gates Foundation, the Renaissance Fund and the EU for a $10 million fund. This fund would be used to roll out the Connect Africa Rural Service Network across South Africa and Zambia, over the next five years, in partnership with their respective USAF managers, namely USAASA and ZICTA. After five years, the network and all its associated benefits will be self-sustainable.

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ANNEX A. Calculation of appropriate rate of levy

The appropriate rate of levy was calculated by RCDF based on the required total subsidy needed to meet the RCDF's realistic universal access targets. For the UAF plan to be realistic, RCDF's planned expenditures were balanced against projected income from a 1 per cent revenue levy on all operators in the communications sector and a $5M 'seed finance' grant to be provided by the World Bank.

Table 1 below lists the RCDF's projected expenditure from 2002 to 2005 to meet its universal access targets. The RCDF initially estimated that 150-200 of the 926 sub-counties would require subsidies to extend universal access to telecommunications services.(an estimate that coincides with the operator's declaration that they would not serve a total of 154 sub-counties). The RCDF also included reasonable estimates for subsidisation of Internet POPs, promotion of ICT access (for example, telecentres) and training.

Table 1: RCDF projected expenditure by activity		
	Investment (USD$)	% of total
Public telephony infrastructure for 154 sub-counties	6,000,000	60
User "rural packages" (piloting first)	250,000	2.5
Internet POPs and wireless access	1,000,000	10
Internet Exchange Point	100,000	1
Vanguard telecentre and ICT projects (first 7 projects)	250,000	2.5
Vanguard telecentre and ICT projects (one per balance of districts)	1,400,000	14
Rural post-franchise capacity investment	250,000	2.5
ICT training capacity investment	250,000	2.5
ICT awareness and ICT content creation projects	250,000	2.5
Total	10,000,000	100

Adapted from "Funding and Implementing Universal Access: Innovation and experience from Uganda"

To raise this required total subsidy of $10M, the RCDF projected potential revenues from all sector participants over the period 2000-2005.

Table 2: Projection of Sector participants' Potential Revenues						
	2000	**2001**	**2002**	**2003**	**2004**	**2005**
Total telecom market	84.5	110	158	231	248	264
Total postal and courier market	8	8.4	8.8	9.1	9.4	9.7
Total sector revenue base	92.5	118.4	166.8	240.1	257.4	273.7

Adapted from "Funding and Implementing Universal Access: Innovation and experience from Uganda"

Based on the projected revenue of all sector participants in the table above, the RCDF decided upon a 1% levy to meet the required subsidy to meet universal access targets, with a safety margin of USD$6,190,000.

Table 3: Required RCDF Revenues based on projection of sector participants' potential revenues						
	2000	**2001**	**2002**	**2003**	**2004**	**2005**
Initial endowment	.40					
1% universal access levy from sector players	.24*	1.18	1.66	2.4	2.57	2.74
World Bank Rural Transformation Project				4.0	1.0	
Cumulative amount available	.64	1.82	3.48	9.88	13.45	16.19
*Partial levies only in 2000						

Adapted from "Funding and Implementing Universal Access: Innovation and experience from Uganda"

Annex B. Issues related to asymmetric pricing regimes

There was an attempt made by the Uganda Communications Commission to introduce asymmetric pricing guidelines for rural areas in the previous universal access to telephony project, but its implementation became complex and such the proposal was dropped. The following issues among others could not be resolved:
- Should higher termination rates be associated with certain base stations or only with designated user terminals?
- Should the higher rates apply only to public access phones (where the operator may share the higher termination rates with the public access retailer to incentivise incoming call termination), or to all terminal types, including mobiles, in designed operating areas?
- Should callers be required to pay additional user fees to cover the additional interconnection cost (as is currently the case with inter-network calls involving mobile users)?
- If users have to pay the additional cost, and if all terminals in designated areas attract higher termination rates, how are users notified when a mobile user roams into a high cost area?
- Can the operator call management and billing software handle the accounting requirements?
- Would an adjustment in numbering codes be required?
- Are current interconnection rates in the existing network infrastructure cost based and fairly negotiated?
- Will operators agree to negotiate differential rates for rural areas?
- Will the regulator's job be made more difficult, monitoring implementation, abuses, etc., and does the regulator have the capacity?

ANNEX C: The project life cycle of an RCDF-supported project is illustrated below: