Community-radio case studies

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Community-radio case studies

The Commonwealth of Learning (COL)
and UNESCO/BREDA Case Studies

Preface

Radio is a century old technology that reaches all corners of the world. Although the emergence of the Internet in the late 1960's and the web in the 1990's have had a major impact on communications and lifestyles this past decade, it is still a means of communications that requires a level of infrastructure that is not available to many disadvantaged groups especially in the rural areas of the developing world. As delivery systems for information, radio and print are still the leaders in mass communications. This is especially true in the developing countries where radio can be highly effective in reaching and addressing people about their local concerns in their local dialects. Radio is the great equaliser.

The Commonwealth of Learning has promoted and employed, in a number of Commonwealth based activities, low-powered FM community radio as a viable means of delivering education at a distance. A suitcase radio system can reach populations effectively and at a fraction of the cost. Inhibiting factors such as electrical bills and replacement parts, necessary for large installations, can be limited if a low-powered FM solution is considered. Solar electricity can be factored into this scenario with low power requirements of a suitcase FM station. It must, however, be stressed that community radio does not just happen once the station has been

implemented. Training in management and business skills is needed in order to sustain staff, organise programming, and replace or purchase equipment. Good planning and training will lessen the risk of failure. The case studies will allow the reader to consider some of the issues that may be a relevant to their own country situations.

The case studies presented by Boulahya, Walker and Naidoo, focus not only on the effective setup and delivery of community radio in the field, as demonstrated by the RANET Niger and the Apac, Uganda models, but also on Naidoo's description of the, "highly competitive, often volatile commercial environment", of community radio which is forced into, "vying with the commercial and public broadcaster for listenership". The authors share the urgency of the promotion of community radio as an essential element, "in the battle against AIDS and ignorance about the pandemic". It is the goal of these case studies to demonstrate the effectiveness of community radio, "as an open system that invites rural populations to participate, it offers tremendous returns to those who are willing to invest their energy and imagination", to quote Boulahya. Walker draws our attention to the crucial issues of cost-effectiveness and the sustainability of such projects. COL and UNESCO-BREDA have commissioned these case studies as examples of issues and good practice in community-based radio in Africa. The case studies challenge us to consider community radio as an effective means of reaching the targets of a world free of HIV/AIDS and of each child having access to educational opportunities if only, as Boulahya declares, 'we dare to dream'.

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Climate, Communications, and Innovative Technologies : Potential Impacts and Sustainability of New Radio and Internet Linkages in Rural African Communities

by
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Just tell me where it has rained. I will know where to take my flocks.

Nomad near Hirir, Algeria
February 1988

Communicating drought information to remote rural populations is a major challenge for drought monitoring and prediction in Africa. Seasonal rainfall forecasts, precipitation and stream-flow monitoring products, key environmental information, and even life-saving early warnings are commonly trapped in the information bottle-neck of Africa's capital cities. Without access to reliable communication networks, the vast majority of Africa's farmers and herders are cut off from the scientific and technological advances that support agricultural decision-making in other parts of the world.

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Inspired by the potential that drought monitoring and prediction technologies hold for improving the quality of life in rural Africa, the African Centre of Meteorological Applications for Development (ACMAD) worked with herders and farmers to design the RANET system. RANET is an information and communications support network based on the needs of remote communities and the realities of rural living in Africa. The RANET system, named for its innovative linkage of radio and Internet, brings new communications and information technologies together with the oral traditions of Africa to deliver scientific drought information over a distributed network owned and managed by local communities.

RANET combines data from global climate data banks in the U.S., seasonal rainfall predictions from the international scientific community, data and forecasts generated in Africa, along with food security and agricultural information, to disseminate a comprehensive information package via a network of digital satellite, receiving stations, computers, radio, and oral intermediaries. Prior to RANET, this information was rarely available outside of capital cities, and much of it never traveled far beyond the research centers where it originated.

RANET was met with enthusiasm when it was initiated in Niger in 2000 and in Uganda in 2001. Hailed as a technology that has finally caught up with the needs of rural populations, RANET is already demonstrating positive impacts on agricultural production and vulnerability reduction. RANET, however, has come to be more than a drought monitoring and early warning system. Involvement of rural populations in local RANET implementation has motivated community members to become part of the communication system, unleashing their creativity and capacity to address a variety of local needs. The program's positive effects on sectors

such as rural health and civil society have caught the attention of the international development community.

As the RANET system is replicated in other African countries and as potential expansion to Asia and the Pacific is considered, it is important to explore the advantages and limitations of RANET as a technology and as a communications framework. Experiences with RANET in Niger and Uganda reveal the system's successes and challenges in two very different African contexts, highlighting key issues for communicating drought monitoring and prediction information within the RANET context and beyond.

A communications network is born in the desert

The need for a drought communications system tailored to the realities of rural Africa was initially articulated to the RANET implementing partners by a nomad in the desert of southeastern Algeria as he declined the gift of a radio offered by a young meteorologist researching desert locusts near Djanet. The nomad maintained that information was vital to his survival. "Just tell me where it has rained. I will know where to take my flocks." He explained that he knew every rise and fall of the terrain, and would lead his flocks to the lowest point to meet the water as it moved through the landscape in seasonal streams. After drinking, they would make their way uphill to meet the new grass where it grew. But as much as the nomad needed information, a radio in the Sahara becomes little more than a burden once its batteries lose power.

It was not until ten years later, as the Director of the African Centre of Meteorological Applications for Development (ACMAD), that the meteorologist discovered the Freeplay wind-up radio. Subsequently modified to

incorporate a solar panel and other improvements suggested by rural listeners, the Freeplay radio was to become the front line of the RANET communications interface for remote communities.

Continuing the trend of community-driven innovation, the women of the dusty village of Bankilare in western Niger, delighted with the concept of wind-up radios, further challenged ACMAD to modify the technology so that they could create information as well as receive it. ACMAD came back with the Wantok solar-powered FM radio transmitter. So compact that it ships in a 28-kg suitcase, this low-cost and fully portable FM radio equipment proved strikingly durable in the harsh, dry conditions of the pilot site in Bankilare. Residents described the community radio station as having transformed Bankilare into an information oasis. Once the town had been like a well that compelled them to come to its center to draw the information they required. But the radio brought information to them where they needed it in their homes, in neighboring hamlets, and in the pastures with their flocks.

The addition of WorldSpace digital satellite radio provided a vital link with the outside world, permitting access not only to drought information, but also to a host of other information relevant to development. Unlike familiar satellite dishes, the WorldSpace digital satellite radio receiver is comparable in size to a standard radio and its small antenna can be easily held in one hand. The WorldSpace satellite broadcasts over 100 channels of clear digital radio signals across the whole of Africa. Voice transmissions can be rebroadcast directly over community-owned FM radio or interpreted by community radio animators and incorporated into locally produced programming. Because the WorldSpace system is digital, it can broadcast data files as well as voice transmissions. When attached to the WorldSpace receiver with a special "modem," known as an adapter card,

a common 486 PC saves the transmissions for display in a format that looks like a web page—a format ideal for transmitting drought and environmental information, so much of which is graphical.

The RANET System

RANET depends on four critical steps to move information from capital cities to rural communities. information gathering and integration, satellite transmission, reception and interpretation, and dissemination. [See Figure 1.] First, scientists at the U.S. National Oceanic and Atmospheric Administration (NOAA), the African Center of Meteorological Applications for Development (ACMAD), National Meteorological Services (NMSs) in Africa, and RANET partners gather vital climate, weather, and food security information and integrate it into a satellite compatible presentation. Control of drought monitoring and prediction information broadcast over the RANET system is distributed among the network of scientific organizations contributing content Input of multimedia climate and weather information originating from the U S., Europe, and Africa is managed and maintained by the Climate Information Project at NOAA's Office of Global Programs, in cooperation with the World Space Foundation

Management of national-level content is the responsibility of each country's NMS, which may, in turn, be working with other government offices or non-governmental organizations (NGOs) to develop national RANET content. The program as a whole is managed by ACMAD staff and faculty at the University of Oklahoma. The distributed nature of input to the RANET system supports a strong sense of ownership and responsibility among partnering institutions. The success of this distributed network,

however, was founded on extensive training, ongoing technical support, and close communication among participants.

In the second step on RANET's communication pathway, information processed by this network of scientists is loaded to the WorldSpace digital radio satellite over the Internet. NOAA's Climate Information Project has automated satellite uploading of RANET information to streamline participation by NMSs and other RANET partners. A partner with even the most basic computing and communications capabilities can e-mail its RANET contribution in text format to an external loading site where updates will be automatically collected and posted to the satellite. Partners with more sophisticated computing capabilities post a variety of advanced RANET products to sites on their own servers which are automatically queried for updates on an hourly basis. RANET information compiled from all partners is delivered over the Internet to the WorldSpace uplink station in South Africa. At the top of every hour the uplink station sends updated RANET information to the WorldSpace digital radio satellite for broadcast over all of Africa.

Next, field sites download RANET information using a WorldSpace digital radio receiver, adapter card and PC, frequently powered by solar energy. Staff at RANET field sties, often extension agents, development practitioners, or trained members of the community, interpret RANET information according to the local context and translate it into the languages of the surrounding area. Like the network of scientists supplying RANET content, the local RANET interface requires training, technical support, and coordination. Without adequate training in interpreting and communicating climate and drought information, much of what RANET has to offer on the local level might be wasted, and could, under some circumstances, be counterproductive. ACMAD, for example, has provided training for sites

receiving multimedia information in Niger, and the Department of Meteorology trained field personnel in Uganda. Ongoing technical support and follow-up training will continue to be important as these programs mature.

In the final step on RANET's information bridge from capital cities to rural areas, localized information is disseminated to communities by word of mouth and FM radio broadcasts (solar-powered in the case of remote sites) that are received by traditional radio receivers and Freeplay wind-up/solar-powered radios. According to local priorities, communities across Niger and Uganda have devised different methods of distributing Freeplay wind-up/solar-powered radios provided by the project--donating radios to the most vulnerable families (in particular female-headed households), providing radios to those most able to further disseminate information, awarding radios as prizes in a neighborhood hygiene competition, or selling radios to support activities of the local RANET project Depending on local needs and capabilities, some communities have expanded this basic information system to include other technologies. Communities in Niger, for example, are developing RANET sites into Community Centers of Integrated Information for Development, or CIDs, that include technologies such as satellite television and two-way radio.

To complete the communication loop and to ensure that system evolution continues to be driven by the needs of rural communities, RANET partners are pursuing a number of strategies for collecting feedback. Some project sites have organized formal feedback systems such as weekly discussion groups or regularly scheduled feedback visits to nearby communities, while other sites rely on input from radio councils or visiting community members who frequent radio stations in Niger and project sites in Uganda to communicate their opinions, support, and requests for clarification or modifications. Most feedback is generated through

training workshops, site visits, and other person-to-person contact, and subsequently communicated among RANET partners via e-mail and web discussion groups. Two-way technologies such as VITA satellite-enabled e-mail and other portable ground stations are being explored as possible avenues for facilitating communication between rural RANET sites, their NMSs, and the broader RANET system.

Local ownership of the RANET interfaces puts control and responsibility in the hands of participating communities, mobilizing them to become part of the information system rather than passive recipients of information. One community in Niger, for example, requested 25 rain gauges to monitor local precipitation. On the national level, RANET triggered new broadcasting legislation in Niger as well as the creation of a national commission for radio broadcasting. As a further step in decentralization, local ownership strengthens the system as a whole, but ties success or failure at any site to the will and capacity of the community to vigilantly maintain and equitably manage the system for the benefit of local stakeholders. The experience at Bankilare's pilot site, for example, illustrates the importance of local training and support for developing the human infrastructure to manage and maintain a local RANET interface.

Before the first radio was installed in Bankilare, the community, with the help of ACMAD, formed a local radio association to guide community input, lead program development, and ensure that the radio station would serve the needs of different interests within the local population. Early attention to the balance of gender and ethnic groups and the involvement of youth in Bankilare shaped the evolution of the local station and set a standard that would influence development of the communication system as it spread across Niger. ACMAD built a coalition of partners to train Bankilare's residents as radio technicians and animators and to

aid the radio association in obtaining licensing agreements, broadcast permits, duty waivers, and funding.

Thanks to funding from the U.S. Agency for International Development's Office of Foreign Disaster Assistance (OFDA), Bankilare's dream of becoming an information oasis in the desert was developed and shared with other communities that lack telephones, electricity, and paved roads. Such programs support OFDA's mandate of saving lives and relieving suffering by helping vulnerable populations in both rural and urban settings to anticipate, plan for, and mitigate the negative impacts of natural disasters. As news of RANET's success spread across Niger, more communities sought participation in the communications system, attracting a heterogeneous constellation of donors and NGOs with mandates reaching beyond humanitarian assistance. These new partnerships have unleashed a powerful force for integrated, community-driven development. However, they increasingly demand more attention to coordination.

This complex and innovative human network supports the management, maintenance, and implementation of RANET at each step in the system. Though RANET would not be possible without technology, the system for transporting and transforming information from computer, to satellite, to receiver, to radio, to knowledge employed to improve dryland management, it is as much a human as a technological system. Together, the human and technical elements of RANET have created a new set of possibilities for improving drought preparedness and the quality of life in rural communities.

RANET Information in Action

Rural communities in Niger and Uganda have begun to use the RANET system to improve dryland management, increase agricultural production, enhanced food security, and reduce vulnerability to natural disasters. The greatest benefits are realized in field sites where both the community FM radio and satellite multimedia links are functioning smoothly together, the multimedia link supplying timely drought monitoring and prediction information and FM radio supporting broad dissemination to food-insecure and disaster-prone communities. Together, RANET multimedia and FM community radio permit rural populations to blend local knowledge and new information according to their needs. However, even in sites where only community radio or multimedia services were established, the communication system has still resulted in vulnerability reductions for rural populations. Some of these benefits were the direct result of access to drought monitoring and prediction information, while others are the fruit of unanticipated positive effects in related areas such as public health, women's empowerment, and democratization.

The RANET system in Uganda, for example, depends primarily upon digital multimedia transmissions of drought monitoring and prediction products, without the advantage of a community radio component. Encouraged by the first season of largely accurate forecasts delivered over the multimedia system, farmers in two of three Ugandan field sites visited by a USAID assessment team in February of 2002 expect to reduce seed losses through timely planting and to improve production and food security through use of optimal crops and crop varieties. In seasons when insufficient rainfall

is forecast, they expect to conserve seeds and fertilizer. The positive reception of climate and weather information disseminated over the multimedia system in Uganda is part of a wider orientation away from the riskier traditional forecasting methods of "rainmakers," towards a more scientific approach to agricultural production, especially among model entrepreneurial smallholders. The availability of both traditional and scientific information allows farmers to make more informed choices in their efforts to increase production.

Together the Uganda Department of Meteorology and the NGO World Vision have worked with farmers at RANET field sites to explain the information disseminated over the RANET system and develop local applications. Asserting that "nature is not definite," farmers generally seemed to understand the concept of risk and probability in predicting the weather, as well as the possibility that forecasts are sometimes wrong. They expressed the sentiment that because "the world is becoming scientific," as are their seeds and fertilizers, they would also like scientific information about the rain. However, some farmers admitted that despite the enthusiastic reception that the RANET multimedia system has received, they could become discouraged if future forecasts are not accurate. The close working relationship between the Uganda Department of Meteorology, World Vision, and rural communities is a promising foundation for ongoing applications of RANET information, however, without the addition of community FM radio, RANET's impacts in these project sites remains limited to the number of people that can be reached by word of mouth.

Radio is one of the most pervasive technologies in Africa. Its inclusion in the RANET system helps to maximize the number of people exposed to drought monitoring and predictions while building upon existing communications capabilities. Community-initiated FM broadcasts also promote a

range of unanticipated vulnerability reduction measures. In recent pilot projects in Niger, for example, the improvements in local communication made possible by community radio stations improved dryland management and reduced resource pressures. Herders, for example, commonly confined their flocks to an area within two to three days walk from their home village due to security concerns in outlying rural areas. With the advent of community radio, herders picked up news from home on the first two to three days of their walk and could comfortably continue for another two to three days, knowing that they were still within only a few days walk of a report on local security. Community FM radio effectively doubled their range, significantly decreasing pressure on the fragile dryland ecosystem.

Evidence of reductions in disaster vulnerability made possible by community radio abound in Niger. For example, community broadcasters have helped fellow villagers to protect their families by disseminating warnings of bush fires during the dry season and instructions on how to prevent houses from collapsing during the rainy season. Radio advertisement of missing livestock has supported local food security by significantly reducing livestock theft in many villages. Broadcasts of market price information have helped families to economize household expenditures and maximize profits from goods sold. The opportunity to transmit announcements of births, deaths, weddings, and illnesses over the radio has led to significant savings in family travel costs, boosting disposable family income.

Public health applications range from identifying cases of serious illnesses for local health authorities to disseminating announcements concerning HIV/AIDS, nutrition, hygiene, the dangers of early marriage, the value of prenatal care, and the timing of vaccination campaigns. The village of Zinder near Niger's southern border arrested the spread of measles by

encouraging residents to forego traditional courtesy visits to the sick during the epidemic in favor of wishing them well over the radio Zinder has also employed its FM station to diffuse tensions between farmers and herders when drought heightens competition over resources.

RANET community FM radio has also had a visible impact on the empowerment of women and youth. Women, the young, and the elderly are critical to disaster prevention, both as vulnerable populations and as sources of knowledge and capacity for preparedness and recovery. Ardent listeners of community radio, women have expressed enthusiasm for the technology and influenced the production of a wide range of programming addressing their needs and interests. Thanks to the inclusion of women's involvement among the initial goals of RANET in Niger, fifty percent or more of the animators at community FM stations are women, and women are strongly represented among technicians, animators, station administration, and local radio councils. Youth are heavily involved in the operation of stations in Niger as animators, journalists, volunteers and listeners. Youth radio clubs have sprung up in many villages and the stations have become popular places for young people to gather to share ideas and socialize.

The active role of women and youth in developing Niger's local radio stations has shaped the system to reflect their concerns, goals, and aspirations, raising their status in the eyes of their communities and shifting preconceptions about what is possible. On a community level, rural radio stations have enabled people in isolated areas to better communicate with one another, bringing villagers together and giving them a sense of connectedness and a voice that they did not have before. Communication has changed the way that communities understand themselves and their neighbors. Becoming a part of the communication system has unleashed

the creativity and capacity of local communities across Niger and Uganda to address a variety of local development needs. In Niger and Uganda, RANET has proven to be much more than a drought early warning system.

Challenges and Sustainability

Challenge is as much a part of the RANET story as success. Broadly disseminating drought monitoring and prediction information to remote project sites with minimal access to support continues to present challenges in both Niger and Uganda. The main issues are maintaining equipment in working order and distributing information to a wider audience through already existing national or regional broadcasts or, where those cannot reach, via additional community radio stations or relay antennas. RANET's powerful radio-internet communication system risks breaking down at two critical junctures: the computer-enabled multimedia link with the outside world (the main challenge for Niger) and the dissemination of climate information by word of mouth and radio (the main challenge for Uganda).

In Niger, RANET's efficiency is hindered by the difficulty of installing and maintaining computer systems in hot, dusty conditions that lie beyond the reach of regular technical support. Technical problems frequently reported include insufficient knowledge to hook up parts of the solar power systems, inadequate battery storage, power surges that burned up computers, and sudden losses of power that unexpectedly shut down the computers, necessitating reinstallation of the WorldSpace software. Conditions in remote field sites are so damaging to equipment that even the most durable items require regularly scheduled maintenance. Minor malfunctions in FM station equipment such as tape recorders, microphones

and lights, frustrate station personnel and hamper efficiency. More serious breakdowns such as loss of batteries or transmitter blowouts can severely limit transmission range or shut a station down altogether. Curtailed transmission range not only limits RANET's efficiency, it also jeopardizes the viability of stations that depend on memberships and paid advertisements

Although RANET field sites in Uganda have had much more success installing rural computer systems and maintaining multimedia capabilities, technical hurdles are not unique to Niger. Solar power proved to be the weakest link in the multimedia system in Uganda. At times, 20 to 30 percent of the multimedia field sites in Uganda were not operational due to complications resulting from power fluctuations. Transmission at some sites was temporarily suspended because field personnel lacked the knowledge to reinstall the WorldSpace software after a power shock. Other sights suffered from serious malfunction or damage due to improper installation of the solar and computer equipment such as hooking up batteries in series rather than in parallel.

Reaching a broad user base remains RANET Uganda's biggest challenge. Dissemination relies primarily on printouts of multimedia downloads (limited by a lack of funding for stationery supplies and by the large draws on solar power sources) and word of mouth through dissemination workshops and supporting community networks. In a country where community radio stations are not common, private FM stations and the government radio station represent a potential resource for addressing what has become a rural information bottleneck at the village level. Existing radio infrastructure however, has its own drawbacks. Few people listen to the government station when private FM stations are available,

and private stations have such a strong commercial orientation that they expect to be paid to air public service announcements RANET Uganda is seeking to build relationships with commercial and government producers, and will explore the possibility of establishing community radio stations at sites that cannot be effectively served by national or private FM radio.

Technical solutions, such as new software that will not require reinstallation after power outages, are being developed to address specific technical problems. Other areas of technical improvement include reconfiguration of solar power systems, installation of relay antennas for augmenting the reach radio programming, and strengthening the vital digital information link with the outside world by introducing voice transmission of drought information over the WorldSpace satellite system The most pressing technical issue, however, continues to be the need for ongoing training and technical support.

Consistent technical assistance to field site personnel is essential during the first two years of operation. In remote sites, visits by technical staff and implementing partners are normally the only opportunity for community members to ask technical questions or hand over broken equipment for repair. Ideally, technical support should be provided in conjunction with opportunities for additional training on subjects such as WorldSpace and FM radio technology, station repairs, solar power, journalism, and station management. Follow-up training opportunities allow participants to learn from each other's experiences, build upon the basic knowledge gained in initial training sessions, and solve problems that arise during program implementation, including revenue generation and long-term financial viability. Unfortunately, budgetary constraints often curtail technical support and follow-up training.

Co-locating RANET sites in conjunction with pre-existing development projects has helped to provide crucial training, technical support, and institutional support. Regularly scheduled field visits by NGO staff, for example, provided opportunities to transport technical experts, broken equipment, and field sight requests between remote areas and the capital city. Integrated development projects have played important intermediary roles, interpreting information delivered via the radio-internet system and applying it within the local development context. As implementing partners, development projects can often provide the use of computers and other equipment which are maintained as a part on ongoing project activities. The institutional support of an integrated development project can also be invaluable for establishing baseline survey data and tracking results, and the development orientation of such a partner can lead the project to support the local community in new and innovative ways.

However, as the web of supporting partners becomes more complex, so too does the problem of coordination. Overextension can also undermine sustainability. In the rush to expand the benefits of RANET to communities that are hungry for communication, it is easily forgotten that a few well-supported field sites are far preferable to the many that languish without assistance for months at a time, often in extremely remote locations with malfunctioning equipment and few resources.

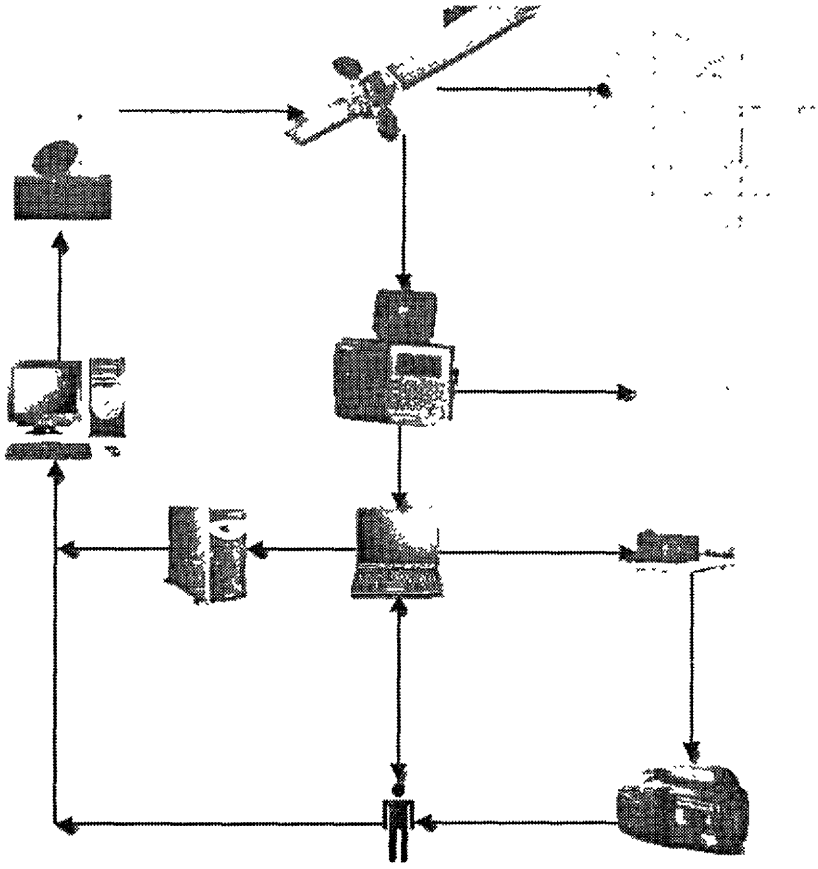
Conclusion

New radio and internet technologies are bringing drought and development information to rural Africa through the RANET communication network. The key to RANET's early successes lies in its dual nature as both a technological and a human communications system. Its human and technical elements depend one upon the other for their combined strength, but at the same time they expose the system to potential pitfalls. RANET is, at base a network of people supplying, interpreting, and utilizing drought and development information. Technology exponentially increases the ability of this human network to work together to achieve results that were previously inconceivable. The Internet, digital satellite technology, wind-up mechanics, solar energy, and computing power have created new possibilities for rural communication. Yet the tremendous power of RANET's technology is completely dependent on the human system that manages and maintains the RANET's infrastructure and supplies, interprets, and utilizes RANET information.

RANET's main strengths and weaknesses are wrapped up in this way. Distributed control of the system at both national and local levels creates an empowering sense of ownership and responsibility. Decentralization permits the system to be readily adapted according to each country's and community's needs and capabilities, but it also leads to uneven results. The multiplicity of RANET partners bring a wealth of expertise and depth of support to the system, but the increasing coordination burden may result in diminishing returns, and spreading responsibility among too many organizations blurs accountability. The rapid spread of the system

across and among countries is a testament to RANET's ability to serve rural populations; however, rapid and uncontrolled replication can lead to dangerous overextension

In the end, the strength of RANET's model for communication of drought monitoring and prediction information lies in its diversity and flexibility. As an open system that invites rural populations to participate, it offers tremendous returns to those who are willing to invest their energy and imagination, and, who, like the desert nomad and the women of Bankilare, challenge the limits of technology and dare to dream



2 Portable FM Radio Stations — Broadcasting with the Sun

*David Walker**

Introduction

"All available instruments and channels of information, communications, and social action could be used to help convey essential knowledge and inform and educate people on social issues. In addition to the traditional means, libraries, television, radio and other media can be mobilized to realise their potential towards meeting basic education needs of all".

Final Report World Conference for All :
Meeting Basic Learning Needs, Jomtien, Thailand, 1990.

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Community radio is an immensely powerful technology for the delivery of education with enormous potential to reach globally. Opening up opportunities for the intended beneficiaries of development to participate in the utilization of this powerful delivery system, will enable disadvantaged groups to engage in evolving a development agenda, which can appropriately and adequately respond to their needs and aspirations.

In order to be truly of service to the underprivileged and rural poor, mass media such as radio must therefore create conditions and mechanisms that can provide people with genuine access to information. Such mechanisms will offer ways in which people can express their sentiments, opinions, views, dreams and aspirations, their fears and insecurities, their strengths and capabilities, as well as their potential for development.

Yet, high illiteracy rates and low levels of schooling among disadvantaged groups, especially women, in many developing countries continues to limit their ability to lift themselves out of poverty. Despite demands for increased education, the existing educational system is unable to respond to this need, which exists on such a massive scale. In particular, the formal school system in many poverty-stricken countries is incapable of coping with the massive education needs of the rural poor. Consequently, disadvantaged groups continue to be consistently denied access to information, knowledge, skills and technology transfer.

In order to empower disadvantaged groups as equal partners in development, the limitations of formal and non-formal education are now being challenged. New ways to achieve mass education, that can be both efficient and effective, are being sought. In this context, radio, an effective telecommunications medium, was proposed at the UNESCO Education for All Forum (EFA), Jomtien in 1990 and Dakar in 2000, as one massive solution. Radio

can cut across geographic and cultural boundaries. Given its availability, accessibility, cost-effectiveness and power, radio represents a practical and creative medium for facilitating mass education in a rural setting. However, radio still continues to be an underutilized technology in education. This is especially surprising, because from a learner's point of view, radio is user friendly, accessible and a well-established medium. From an educational provider's point of view it is easy to set up, produce and broadcast programmes. After almost one hundred years of broadcasting history most nations of the world have more than a respectable level of engineering skills and broadcasting talent to apply the technology in education. In the last twenty years, radio has been greatly enhanced by the emergence of new technologies, which have opened up new opportunities for a variety of forms of delivery and access for both broadcaster and listener. For example, portable, low cost FM transmitting stations have been developed and digital radio systems that transmit via satellite and/or cellular are being implemented in many parts of the globe Internet streaming audio software technology has emerged recently to allow a global audience to listen the news from a distant country. And windup and solar radios have been developed thus freeing radios from expensive power sources.

COL is addressing the Millennium Development Goals with creative media, using radio, audio, video and e-learning activities, that fall under the banner of a programme called The Commonwealth of Learning Media Empowerment (COLME). COLME activities work directly with disadvantaged groups, allowing them to partake in the ICT revolution to address their own issues and also to demonstrate to local policy makers the possibilities of effective, low-cost solutions that aim at employment opportunities and skills development for the community and nation.

The activities within the COLME initiative will :

- Provide new skills in the use of technology for the disadvantaged
- Address the issues of the digital divide and the goals of Education for All through the creative use of radio, educational broadcasting, and online education.
- Provide media models that will stress local participation and transfer of knowledge and skills and amplification or dissemination of local knowledge.
- Provide opportunities for disadvantaged groups to participate and benefit from new technology and media-based initiatives
- Create a capacity for dialogue among government sectors, institutions and different interest groups.
- Promote and work in partnership with organisations involved with the Millennium Development Goals.
- Contribute to research and the body of knowledge that can be utilised by Commonwealth governments, organisations and communities by experimenting with and documenting new models for media and technology-based initiatives
- Demonstrate technologies' potential effectiveness with respect to priority issues such as literacy, child protection, gender, HIV/AIDS, basic education and life skills.
- Provide a means of sustainable employment and new skills for rural areas.
- Demonstrate to governments models that can aid in policy creation and/or change.
- Provide value-added expertise to work undertaken by INGOs, NGOs and governments in focusing on the Millennium Development Goals.

What follows is a short overview of the technology and a case study concerning solar powered community radio

Overview of the Station

Radio is a very powerful technology that can allow large sectors of the population to be reached with information, quickly and economically. Due to national broadcast regulations in many countries, community radio stations have not developed. Also the cost of transmitters, infrastructures, and equipment, has placed most potential community broadcasters at a disadvantage, especially those in the remote rural areas There is a distinct information gap to the rural corners of some countries resulting from the lack of service by national broadcasters who in some cases have weak or non-existent signal coverage. Under COLME, portable FM radio systems have been tested and implemented as part of media project work over the past three years. The station configuration that was first developed has, with input and data gathered from COLME initiatives in the field, have aided the manufacturer in altering the station to address the each community's need. The station configurations range in price from three for five thousand dollars US including all elements, antenna, transmitter, console, mixer, microphones and CD and tape decks. There will be moves to decrease this price by competitors in the near future. The stations can run from 12 V DC or 120/240 AC.

Keys Elements to Success

There are number technological factors that are important in the initial needs analysis before a station can be considered. First the physical landscape must be conducive to an FM signal to reach the intended target audience especially if rebroadcast of the origin station signal is not possible due to cost or licensing regulations. If the landscape is mountainous then there will be difficulty in the signal reaching a large radius of users. Secondly, the station target audience must have radios or access to radios. Thirdly, there must a situation where there is a steady flow of content and a regular broadcast schedule. Fourthly, the station must be targeted to the local users so that they can directly relate to the content, language, and situations discussed.

In the feasibility stage before station implementation certain conditions must exist to improve the element of sustainability. In-country stakeholders are identified for each of the stations. Their role is to insure infrastructure is in place for FM radio and that all licensing and issues pertaining to community broadcasting are dealt with.

Another important factor is that the broadcasts are in languages that are used daily in the local community level. The national or regional stations do not have the capacity to aim linguistically or at the level of information detail for rural community issues. Community-based stations can be effective if well managed in providing information and training directly to the community. In the case of the COLME installed community station in Uganda, it was imperative that the station be able, by law, to rebroadcast

Radio Uganda in the event of important political announcements. Therefore, among the technological upgrades in the design of the station, in addition to the interface for telephone calls, extra microphone inputs for group discussions, and a more powerful transmitter, a facility for radio rebroadcast of the national government station, (in Uganda, Radio Uganda) and international broadcasters (such as the BBC) was implemented.

The overriding factor to the success of these stations has been the proper community access and ownership, which was paramount in the initial project design. If the station is or becomes an integral part of the voice of the community and local interest groups have an equal say in the information that is disseminated via the station, then there is a lesser risk of failure in the long-term sustainability of the station. This can be achieved with good station management that works with community leaders and committees consisting of both political and community leaders. There is community participation and information input from local groups, NGO's and community leaders. In essence, sustainability of a community radio station comes through good management and a good business model. These skills sets must be considered in the training scheme of any community radio effort.

The local stakeholders, with the aid of COLME, will provide on going evaluation of the stations via listener surveys and media expert evaluation. Workshops will be given in production and survey techniques that will aid broadcasters with improving programming to suit the needs of the community. Local broadcasters will be tapped to train in advanced broadcasting techniques and programme development that will improve community radio personnel. Portable tape recorders are used extensively in the field for information gathering.

A Solar Station on the Move – Apac, Uganda

Apac (pronounced 'apatch'), Uganda is located in the northern region of Uganda This project was a cooperative effort with the Minister of State and Tourism, The Right Hon. Akaki, to work with community leaders to implement an FM radio station in the Apac region. The feasibility study revealed several limitations with the electrical infrastructure, which was not reliable. This was a result of load sharing throughout the country (Apac would not receive power for several days). The power was also not usable for electronic equipment due to the dramatic power fluctuations. Therefore, it was decided that in order to maintain a reliable broadcasting schedule and develop the station as a center point to community activities by different groups, Radio Apac would be operated entirely by solar power. This would free the project from the constraints of electrical situation and the tariffs associated with it.

A configuration was determined, in consultation with a solar distributor in Kampala, to allow the station to stay operational during the eighteen-hour broadcast day. Eleven solar panels and ten deep cycle batteries were installed at the station, which now provides lighting and all the station power requirements for daily broadcasting. A solar system also drives a VHF radio system, and a computer network. The VHF radio system provides a direct live to air device that can be used for interviews and events in the local community.

A second small solar system, which powers the retransmission, is installed 45 kms away from Apac at a high elevation, , picking up the main station's signal on 92.2 FM and retransmitting it on 106.5 FM. Therefore the station

signal now covers a radius of over 100 kms. A 64 Kbps data downlink via WorldSpace onto the station's computer provides health and educational information. Also the service provides meteorological information for farmers in the local community that can be read on the radio after be received via the data downlink. This system is also being used in several development projects throughout Africa. The station has a rebroadcast facility incorporated for programmes from the national broadcaster as well as the BBC and WorldSpace.

A committee was organized and a station manager appointed. This person works directly with the community to create programming and allow the development of community involvement. Local training workshops with groups interested in participation in content were organized. However, the station has to be run as a business in order to sustain itself. Income has to be generated to support the staff who maintain the station. Like any business model these skills have had to be acquired through training and in some cases trial and error. It is interesting that since the opening of the Apac community radio station, a number of other radio stations have started service within a 100 kms area of Apac. This is especially true in Lira only 45 kms from Apac. There has recently been a threat to the local stations by rebel forces in the north of the country that have been attacking towns and villages. Hopefully, this issue will not affect the Apac station and others nearby radio stations.

Conclusion

As seen by the Apac model, radio is an effective system for delivery of education to large numbers of people. It facilitates information exchange at the community level, acting as a "community telephone" and can be effective in literacy and formal/non formal education Analogue systems for radio will be supplanted by digital broadcasting in the coming decade, however digital radio will pose issues including cost of radio receivers and renewal of broadcasting infrastructure. Analogue radio systems, such as the portable solution that COL and others have utilised in community FM radio initiatives, can be effective in delivering education to the masses without the high infrastructure costs associated with radio broadcasting With community broadcasting not only can broadcasters focus on addressing local needs through their own produced programming, but also have the choice among a tremendous variety of quality educational content that is available via rebroadcast from national and international sources whether it is delivered via satellite or via the Internet. Rebroadcasting also should be balanced with the needs of the local community and the provision of appropriate and relevant programming content. Good management skills and a business model must be part of the initial training as a factor towards sustainability.

There is a marriage between the digital and the FM analogue systems that is taking place. The convergence also includes Internet streamed audio-based broadcasters that can effectively be employed by the community FM station in a rebroadcast mode. Will we be able to say in ten years that radio's potential for educational delivery to millions of disadvantaged

groups has finally been realised? With the many varied formulas for convergence of digital and analogue technology and the vast selection of content and tools to create original culturally sensitive material for education at the community level, we state clearly - yes. But will the bodies that regulate frequencies for community radio initiatives reform regulations to reflect the current technological developments and pressing need for mass media to meet the goal for education for all in the next ten years? We can only hope The next ten should see the harnessing of radio, analogue, and more so digital, as the powerhouse for delivery of education. Governments should be prepared to adjust broadcasting regulations to adhere to technological developments and realities, and also consider community based mass media delivery as an effective solution for improving a nation's human resource development towards the goal of Education for all.

_Effective Community Radio in Education

Gordon Naidoo *

Introduction

"In Africa, the terms ingenuity and technology more often than not, go hand in hand. While the developed world moves at high speed into the Information Age assisted by the appropriate technology, the African continent is still debating ways and means of how to regulate the African Broadcasting environment consisting of radio and television stations. It is premature to talk of "new media" and the "Information Age" when the old media" has not yet been properly accessed in most African countries"

Jurie van der Walt [1]

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The above observation serves to highlight the fundamental dearth of electronic communications in Africa, and the woeful extent to which it is underserved in this regard. It is no less axiomatic though, that the continent need embark upon an incremental, evolutionary acquisition of 'old technologies', as a prerequisite to engaging in the policy and mechanics of procuring the multiplicity of wireless technologies, likely to impact on sustained socioeconomic development. The old 'hardwired infrastructures' are in any instance, indicative of a slew of 'industrial revolution' technologies, and the attendant socio economic formations.

The advent and ever permutating nature of the global knowledge economy and its determining influence on the means of economic generation and development, information acquisition and transfer, are compelling arguments for adoption of newer electronic communications infrastructures, representing a substantial departure from that of the earlier 'hardwire technologies'. This imperative to digitize communications, cannot however, be dismissive of the critical role of more accessible 'appropriate technologies' in the developing world, in the light of the infrastructural and economic realities that persist here, and for purposes of this discussion, in the African diaspora in particular. Considering for instance, that a mere one percent of the African population is online[2], and half of those again in South Africa alone, or that seventy five per cent of Africans have yet to make their first telephone call, it is arguable that 'leapfrogging' and similar overnight conversions to new communications media, are improbable in the short to medium term, despite the inexorable pace of such development in the industrialized world. Though acquisition of information and communications technologies (ICTs) in Africa has witnessed a perceptible growth over the last decade, this has nonetheless been far insufficient to effect a shift of the continent from its position at the bottom of the digital divide[3].

Over the past two decades, development and proliferation of a myriad applications of digital information and communications technologies in the industrialized countries, has been vertiginous, resulting in a robust, thriving telecommunications environment that has become commonplace and taken for granted. Individuals and entire communities alike are able to communicate with any part of the globe at the press of a key on a computer, cell phone or other digital appliance, enabling the sending or receiving of e-mails, faxes, telephone calls, sms, internet telephony, web searches, etc, ad infinitum. The possibilities of communication are seemingly limitless, as the technologies proliferate almost daily and simultaneously becoming widely accessible for mass consumption in the industrialized economies. The digital age heralding a plethora of ICTs, is firmly ensconced here, to the extent it is an integral part of collective communications consciousness. This exponential growth of the ICT sector, inadvertently exacerbating the digital divide, holds both opportunity and danger at one and the same time

Information and Communications Technology (ICT) in the Developing World

" . The opportunity for people to participate in economic, political and cultural life depends on their ability to access and use communication and information services Individuals need skills and tools to locate the communication pathways, information, and audiences in timely fashion and in an appropriate format Unequal access to communication resources leads to unequal advantages, and ultimately to inequalities in social and economic opportunities " US Congress (2002)

A recent UNESCO study indicates that the estimated average number of main lines per 1000 people was 18 in Africa against a developed world average of 567, and the estimated number of online subscribers in Africa was 4.15 million against a world total of approximately 514 million [4]. Teledensity in the developing world clearly remains abysmally low with the oft drawn analogy of more telephone lines in Tokyo than in Sub Saharan Africa [5]. The anomalous comparative figures for connectivity between the developed and developing worlds above, looms equally large at the intra continental level, where South Africa comprises little over 50 % of the continent's connectivity, illustrating further, the paucity of infrastructural development and the subsequent dearth of connectivity within African countries north of the Limpopo [6].

The endemic fragile state of connectivity is compounded by a high incidence of down time due to unreliable and under maintained infrastructure and connectivity. Hence, even where online access is possible, there is no assurance that this will be sustained guaranteeing reasonably unfettered online access for the user It is estimated that 70% plus of the African continent's population, have yet to make their first telephone call. This staggering observation is a devastating comment on the phenomenal disparities in digital communication opportunity and access between the developing world (and most especially Africa), vis a vis that of the industrialized global dispensations in the 21 century, proclaimed paradoxically as the century of information and communications technology..

It is widely accepted that digital, wireless applications and cell and satellite technology now provide unprecedented capacity to transform the world telecommunications infrastructure in a hitherto unimagined manner. It is however arguable, as to whether the necessary resources for this potentially transformative technology will be realized in the developing

world, in the short to medium term. Near saturation connectivity thus far, remains essentially the preserve of the developed economies[7]. The digital divide shows little sign of letting up or narrowing in the near future, most especially in continued absence of an upturn in the overwhelming majority of African economies. NEPAD, the New Partnership for Africa's Development, hailed as the potential plan for the collective, economic recovery of continent, prioritizes telecommunications infrastructural development as the sine qua non of this anticipated economic regeneration of the continent[8].

Considering the massive African foreign debt, some $ 206 billion in Sub Saharan Africa alone[9], acute demands for basic goods and services in most countries and sustained fiscal stress, resources for ICT infrastructural development will inevitably remain of secondary importance and therefore substantially out of reach, NEPAD ICT prioritization This is turn will serve to exacerbate the digital divide, placing ICTs further out of reach for all but the privileged few, with the implications that might have for African ICT development in the new millennium..

Heightened optimism around the potential success of the plan remains premature and how the west will respond to the collective African programme for economic recovery is yet to be seen, given persisting reservations concerning policy and practice in African states in the 'growth areas' of governance, democracy, civil society and civil liberty, deregulation/free market economy, etc. Given the litany of fundamental developmental imperatives in all sectors, it is improbable that realization of resources for techno 'leapfrogging' will occur. There is instead, considerable evidence to the contrary, of a world increasingly divided along the lines of distribution and access to new socially enhancing, information technologies

capable of expediting their development and economic wellbeing. A firmer entrenchment of poverty and stagnation in developing countries, in the absence of ICT enhanced development in African countries is foreseeable, in a world increasingly morphing into a global knowledge economy.

Radio :
Appropriate Communications Technology (ACT) - ICT Bridge
Ubiquitous, Accessible, Cost Effective :

All things equal, the developmental trajectory of the African continent, including that in the sphere of information and communications technologies infrastructure, is theoretically intertwined with the level and degree of prioritization such development is accorded within the NEPAD strategic framework. Apropos ICTs, the NEPAD document is emphatic on the need for African ownership and leadership in a 'people centred' development, and where attainment of universal primary education is concerned, "to reform education from the standpoint of better quality and better access to ICTs. ." [10]

Understandably, and as alluded to earlier, within the African context, where access to basic education, health safe drinking water and (increasingly) food are the immediate priorities, revenues for ICT development and access, rank lower in priority on the list of national needs. With a mere 1% of the world's total GDP [11], the average GDP of African states is drastically low, non conducive to levels of income generation commensurate with that necessary for developing and maintenance of an even modestly effective telecommunications infrastructure. That the bulk of the countries in question represent some 34 of the world's 49 poorest and least developed countries, Africa's access to ICTs is seriously compromised

and dependent upon external financial assistance and technical expertise.

Access to information and education for the overwhelming majority of the continent's population, is grossly lacking, evidenced inter alia, by an overall literacy rate of 41 per cent for the continent. ICTs punted as the mainplank to socioeconomic development and poverty alleviation, is remote and out of reach for all but a miniscule number of the more privileged in these societies. The reality of this equation is that access to more low end, 'appropriate technologies', which are at once more affordable and available, effectively comprise the 'bridging technologies' to the digital divide. Radio most particularly, for these complex reasons, is seen as the major communications artery to local and international news, information and education, for communities otherwise marginalized from high end ICT access.

It is in this light that this South Africa case study, attempts to demonstrate the capacity of radio, as a prime example of 'appropriate information and communications technologies' (AICTs) to assist in effecting educational transformation within schools, local communities across the country..

Equity of Access

ICTs are amply capable of affording individuals and communities at large, unlimited access to information, entertainment and education, in a manner that raises awareness of the issues and conditions that impact the circumstances in their lives. Emerging from a social order that denied the vast majority of its citizens access to relevant information and quality education for over fifty years, the new democratic dispensation in South Africa prioritized as one of the cornerstones to educational policy, equity

of access to information and education To this end the new educational policy resonated the strong sentiments of the Jomtien Declaration that "all available instruments and channels of information, communications, and social action could be used to help convey the essential knowledge and inform and educate people on social issues" [12] It urged new avenues for ensuring universal education delivery, most particularly media channels that were effective, efficient and accessible by the billions of educationally disenfranchised. Radio was emphasized as the information technology, widely available in the developing world, and one capable of being deployed more effectively in service of disadvantaged communities. But more importantly, radio was seen as a powerful medium in the delivery of quality educational instruction for learners, in school and out of school, as well as providing Inservice support for teachers, with the objective of making for greater efficiency and effective teaching and learning.

"An estimated 24 million African children are out of school, while of those enrolled, only 61 per cent reach fifth grade.... And of the 22 countries with 70 per cent or more illiterate women, 16 are in sub-Saharan Africa," [13]

There is a certain paradox in that radio has the claim to having been the foremost, 'wireless' technology, and possibly the first to approximate on becoming a truly (electronic) mass medium in the developing world. In a century where 'wireless' is the shape of all ICT things to come, it is notable if not humbling, that 'wireless' technology made its debut electronically, through the radio. 'Wireless' was synonymous with radio and a revolutionary vehicle at the time, for transcending geographical boundaries on the African continent, as indeed elsewhere. The ubiquitousness of radio in Africa, deriving from near saturation ownership or certainly individual or group access to the medium, ensured its place as an all familiar technology, in even the remotest of rural of communities. Access to this

medium surpassed that of print, audiovisual media, or other electronic technologies, many of which in any instance, were predicated upon the assumption of user literacy. With an ownership rate of one in four and an even higher rate of 'access to a radio', it makes for mass access in a manner considerably more equitable than other ICTs have yet to provide in the developing world [14].

Community Radio

Community Radio is loosely defined as 'that service offered to a predetermined "community" based on a geographical location and distribution, usually within a specified radius' [15].. Community Radio however, has a history that goes back some fifty years to Latin America, where it has been used by several interest groups and communities, such as the labour unions, churches, universities, etc. However, seeking a narrow definition of Community radio is difficult, as it manifests itself in several different forms throughout the world. Common to all community radio internationally, are nonetheless certain hallmarks that ensure its independence and contradistinction to mainstream, i.e. state controlled/influenced broadcasting, or for that matter to independent commercial radio, that would additionally include, inter alia,

- local community involvement in the station
- wider community representation and recognition in the broadest content and interests
- community produced programmes receiving airtime
- local content and issues impacting the respective communities served by the station

- considerable diversity of target group interests and opinions, hence greater pluralism in their disposition
- encourage consolidation of local culture and language
- focuses on issues of democracy, group and community rights, participatory citizenship, social change, etc

The arrival and consolidation of Community Radio on the international broadcast landscape, initiated an erosion of state monopoly and control of the information and communications media. Unlike the public broadcaster, this meant in essence, new founded access to 'customized' content with local communities able to 'see themselves reflected in the media', thereby affording them more control over information flows consistent with their needs. Africa was slow to embrace and internalize the power of community radio for some time, a situation that was to radically change over the last decade. The number of African Community Radio stations affiliated to the World Community Radio body, AMARC, is indicative of the rise, expansion and influence of this broadcast sector on the continent[16]

Community Radio in South Africa: Helping narrow the Digital Divide

Pre-1994, Community Radio stations were a relatively uncommon occurrence in South Africa. Impervious state controlled broadcasting was dominated by the public broadcaster, the South African Broadcasting Corporation, which served primarily as an ideological apparatus of the state. A handful of 'pirate' community radio initiatives, illegal under the previous government, were the sole and often dispirit voices of local community political and social interests and culture, within their miniscule footprint. These clandestine community radio efforts were usually

vehicles for information on social issues of democratic change, under the guise of innocuous 'general information' broadcasts.

In recognition of the need to embrace marginalized local communities and offer them a voice in their own development and access to information on issues pertinent to their wellbeing, the Independent Broadcasting Authority Act was passed in 1993, ushering in a new age of community radio broadcasting, a departure from state control and monopoly of broadcast, via the public broadcaster. This implied a new broadcast ecology, within which local communities and interest groups were eligible to apply for renewable licences, (initially one year and subsequently four year licences) for purposes of setting up as community broadcasters, serving specific information, entertainment and educational needs. Some 120 such licences were issued within the fist five years of setting up of the statutory broadcast authority. The unprecedented plethora of community radio stations across the country catering for a characteristically plural South African society opened the doors to several genres of broadcast content, catering for vastly differing community interests. To this end, the Act confirmed establishment of the regulatory authority that would define the parameters and standards, as well as oversee the operations and subscription to broadcast legislation, on the part of the sector.

Regulatory Authorities :

The Independent Broadcasting Authority (later to become the Independent Communications Authority of South Africa (ICASA) with a broader telecommunications portfolio of responsibilities and control) is the regulatory body for community, commercial and the public broadcaster, and whose central task is one of defining and determining frequency assignment, foot-print and operational prerequisites for every Community Radio

Station and other licences it approves. ICASA therefore represents the statutory mechanism for ensuring the proliferation of Community Radio Stations as vehicles for information and educational access for geographically determined urban and rural communities.

The hallmark of the Community Radio sector in South Africa, is the rich diversity of broadcasters, outside of the Public Broadcasting arena, though less overtly political in their disposition, vis a vis their 'pirate predecessors'. ICASA has provided for a broadcast environment that appears less turgid and is predominantly 'development driven'. ICASA's Community Broadcasting Act of 1993 is enormously supportive of community radio as a developmental medium, specifying strict pre-conditions for licence application and broadcast content. In order to protect the integrity of community radio within the ambit of the Community Radio Broadcasting Act, the regulatory authority also places severe constraints on Cross Media Control, as a means of ensuring further the independence and editorial integrity of this sector. For South African purposes, it thus defines as a Community Broadcasting Service, one which:

- is fully controlled by a non-profit entity and carried on for non-profitable purposes;
- serves a particular community with ownership representative of local geographically recognisable communities or of communities of common interest;
- encourages members of the community served by at or persons associated with or promoting the interests of such a community to participate in the selection and provision of programmes in the course of such broadcasting service;
- may be funded by donations, grants, sponsorships or advertising or membership fees, or by any combination of the aforementioned; and

- help promote the right to communicate, assist the free flow of information and opinions, encourage creative expression and contribute to the democratic process and a multicultural society

The civil society counterpart to ICASA in many ways, is the National Community Radio Forum, the umbrella affiliatory body for the South African Community Radio sector, The National Community Radio Forum (NCRF) was launched in 1993, as a national, member-driven association of community radio stations and support service organisations, in order to lobby for the diversification of the airwaves in South Africa, and to foster a dynamic broadcasting environment in the country through the establishment of community radio stations [17]. Its aims and objectives were to :

- promote the ideals, principles and role of community radio, as an integral part of the broadcasting environment of a democratic South Africa
- promote the participation of historically disadvantaged communities in all levels of community radio
- facilitate the establishment and development of community radio stations throughout the country
- encourage networking and cooperation between community radio stations
- advocate the role of community radio within institutions responsible for legislating and regulating broadcasting policy, as well as popularise the value of community radio within the reconstruction and development of South Africa
- promote the production of high quality and innovative programming from diverse sources to serve local programming goals;
- promote democracy, development and empowerment of communities through community radio

With the major focus on educational change at both national and provincial levels, government policy was one of encouraging the use of technology-enhanced teaching and learning, acknowledging the inability of delivering a new curriculum to conventional classrooms. Radio was identified as having an enormous role to play in offering equitable and affordable access to the remotest of rural communities. It was also apparent, that equity of access meant choice of the least constraining technologies, if the historically marginalized communities were to be included in mainstream change. Radio, and community radio in particular, was seen as a powerful vehicle for communities, learners and teachers to access the "new pedagogy" consistent with the transformation programme in the educational sector.

Community Radio and Educational Transformation in South Africa

In South Africa, a diverse variety of broadcasters exists, outside of the Public Broadcasting arena, though less overtly political in their disposition than their Latin American counterparts.

Social sector interventions

A number of community radio initiatives are directly supportive of government transformation policy in the 'soft sectors' of health, HIV/AIDS information, education, and general information access sectors which by their very nature are immensely susceptible to influence and change from sustained engagement. There has been a perceptible pattern of behavioural shifts, especially of the young, (youth radio constituencies) in local communities, which might be linked to long term broadcast campaigns

around HIV and AIDS prevention. The most popular programme format for these campaigns are dramas, information/infotainment, education/ edutainment programmes, magazine, call ins, etc. Inter provincial community disparities are comparable to intra-provincial disparities, and emphasise the appropriateness of community radio for local communities.

Formal education, school-based interventions by radio, have been less common, presumably based upon conventional broadcast wisdom (and presumably pressing financial drivers) of avoiding 'niche broadcasts' especially of the educational variety. Radio is an eminently capable medium for making interventions by way of distance education programming for learners and teachers alike, at an affordable cost and in the context of accruing economies of scale. Developmental costs for such core curriculum programme formats are indeed high [18] but with greater audience/target group numbers, economies of scale are effected, reducing unit costs accordingly. Universal education in South Africa and national teacher development through Inservice programmes, through use of open and distance learning programmes by radio, have been central to the work of a Radio Learning non governmental organization in South Africa, OLSET, using community radio (and the public broadcaster where possible) to offer daily support to teachers and learners in disadvantaged schools countrywide. Curriculum change to a constructivist, outcomes based education (OBE) pedagogy, is perceived by the education authorities, as being the foundation stone to a learning ethos consistent with the demands of the new global knowledge based economy [19].

The Open Learning Systems Education Trust (OLSET) is an instructive example of the deployment of radio in support of government programmes for providing equitable access to quality education for urban

and remote, marginalized rural communities in South Africa. Distance Education non governmental organizations (NGOs) supporting government efforts in the implementation of the new Outcomes Based Education pedagogy in poor classrooms throughout South Africa, OLSET spearheaded rapid responses to curriculum development and support for thousands of unqualified teachers across the country, in the post 1994 period. Ten years from inception, OLSET is arguably, the largest provider of Distance Learning programmes by radio (and print support) to the country's poorest schools, with a view to enriching the teaching and learning experience in classrooms, and raising the effectiveness of schools

To achieve this, OLSET negotiated airtime with Community Radio stations amongst others, the Voice of Soweto (4 million target audience) Unitra, Link FM, Voice, Barberton Broadcasting, and a host of community broadcasters in the provinces, ensuring daily broadcasts to schools in seven provinces. The geographic definition of community implies limited signal distribution within the predetermined foot-print, as assigned by the Broadcasting Regulatory Authority, ICASA. The scale and intensity of Radio Learning via Community Radio, is constrained by regulated limitation on signal distribution, in keeping with the 'predefined geographical community'.

With a view to attempting more locally specific broadcasts of the Radio Learning series to deeply remote rural classrooms daily, OLSET entered discussions with the Commonwealth of Learning (COL) for the installation of 'Suitcase Radios' in those areas where neither community nor public broadcasting is available, or is suitable for schooling communities. Presently, OLSET is working with one of the COL funded radio stations in rural Kwa-Zulu Natal. The progress of this initiative has been hamstrung

by bureaucratic delays and a protracted process of application review and issue of Community Radio licences It is anticipated that the partnership with COL, will potentially provide a new model for supporting change via local radio, in areas that continue by dint of their remoteness, to be on the periphery of the mainstream.

OLSET is also currently negotiating with COL, support for low cost transmission facilities for the Mongaung Community Radio initiative in the rural Free State province, where schools are geographically dispersed over considerable distances. Radio intervention is ideally suited to this nature of terrain and geographic isolation of communities. Conventional modes of instructional delivery and teacher support are impractical if not unaffordable in such conditions, and distance learning programmes by radio have proven their ability to impact the education of learners and teachers effectively. Mongaung Community Radio is an anomaly in that it has secured an ICASA licence; a not inconsiderable achievement, for reasons discussed earlier in this paper, but lacks the financial resources to procure the much needed transmitter for going to air. COL support by way of prototype, powerful yet cost effective Suitcase Radio unit, will in partnership with OLSET's Radio Learning Programme, effectively make access to community specific educational broadcasts a reality, to some of the most information and resource-starved communities in this province. The Mongaung Community Radio initiative will serve as the litmus test for International Agency partnerships with local community based NGO providers, in ensuring access to social development programmes via local community radio initiatives.

Critical to the Community Radio Station/NGO partnerships in effecting Radio Learning for local communities, has been the immensely supportive

partnerships with the British Department for International Development (DFID) and the Norwegian Agency for International Development (NORAD). OLSET has been able to embark upon a bold programme of providing Radio Learning broadcasts and training of teachers through Inservice work-shopping, in the severely under-resourced, urban and remote rural communities of schools. The main plank to OLSET and its Distance Education interventions in the delivery of the new OBE curriculum, inservice support and capacity building for teachers, has been the multiple stakeholder partnership comprising Community Radio (and PBS) stations, Provincial Departments of Education, national and international broadcasters, such as the SABC and BBC, and the indispensable International Donor Agencies mentioned above..

Radio Learning Programmes need not constitute stand-alone broadcasts to schools, as per conventional radio broadcast traditions in South Africa and on the continent. Broadcasts are additionally supported by: Inservice Teacher Development workshops; Teacher Support Groups; lesson observations and monitoring and integrated teaching and learner and teacher support materials. The OLSET Radio Learning approach is to deliver interactive learning programmes that allow both learners and teachers to engage in quality outcomes based learning experiences as directed by the South African Curriculum 2005 model. This is achieved through the use of innovative radio instructional design that provides for greater learner participation whilst simultaneously engaging teachers in accepted best practices. The programmes are designed to afford the teacher an array of innovative teaching methodologies within the OBE framework.

The use of radio as the primary medium of instruction is a key element of this programme. Its accessibility in all areas of the country as well as

tailored broadcasts for specific schooling communities can be achieved through close networking with the umbrella Community Radio Forum, is a familiar technology to both teachers and learners. Hence, the teachers are engaged through a medium they are comfortable with, more especially on the local radio service, within their own classroom environment during a lesson. This offers a number of benefits; the teachers are not threatened or marginalised by high level technology; inappropriate resource levels; stand-alone broadcasts, or external nationally focused 'experts'. This distance education training is classroom and activity-based, reinforced on a daily basis by the broadcasts. In addition, the radio medium is highly cost effective with low recurrent cost implications.

Radio creates a 'classroom chemistry' difficult to be replicated solely by a teacher or by print medium. Interactivity and learner participation warrant utilization of music, dance, drama, games and other activities, if learner centred pedagogies are to be implemented, and learning made fun particularly for primary school A critical element of delivering OBE is student participation. The OLSET Radio programmes are designed to engage learners more actively in the learning process through the use of music, drama, games, song etc. In addition, in a case study conducted in 1995, teacher focus groups consistently reported a significant increase in students' attendance in schools offering the OLSET programme[20].

Apart from being a well-placed medium for outreach, radio possesses intrinsic strengths and advantages for educational purposes, where the power of audio in brightening up instructional design, heralds a new paradigm. With the high dropout rates in Sub Saharan schools where more than 130 million primary school age children, between 6-11 years, are out of school and some 80 million or 60 per cent of them are girls. (FAWE

2002), radio's capacity to impact upon greater learner participation in the learning process and (hopefully) subsequent retention rates in primary schools, warrants closer scrutiny in the light of the South African Radio Learning Programme evaluation findings. (Potter et al, 1994)

HIV and AIDS Education by Radio

UN estimates of the number of people living with HIV/AIDS world-wide are put at 36.1 million. Of these, some 25.3 million (or some 70% of the world total) live in sub Saharan Africa[20]. Coupled with an alarmingly low literacy rate of approximately 41% among the over 15 age group population in the region, this situation makes for a bleak outlook, undermining capacity in all sectors of the economy in the region, with education delivery severely jeopardized at precisely a juncture when it is evidently in need of massive infusions of learner and teacher support, and quality educational instructional resources, to increase effectiveness of schooling systems Research indicating the corrosive effect of this crisis on the health status and life expectancy of the population, and the multiplier impact on poverty elimination and educational renewal, impede prospects of economic recovery for the region. Information and educational programmes accessible to out of school learners, the sick and ailing, confined to their homes, and the school age children for whom tending their ailing family members instead of attending school, have become paramount in communities needing counselling and guidance through what is an unprecedented epidemic.

Community Radio services are increasingly intervening in the crisis, and proving indispensable in the battle against AIDS and ignorance about the

pandemic. The profile of sexual health information and related issues has been raised enormously, and are discussed considerably more on local community radio stations, than has been commonplace hitherto. Community Radio phone ins, on air counsellors, public awareness campaigns using local opinion leaders and public personalities to inform and educate with a view to reversing trends that contribute to the pandemic, are a major boost in the war against the disease. Now more than ever, a plethora of Community Radio stations providing information and education lifelines to marginalized communities, woefully under-served by the commercial or public broadcaster, is of paramount importance in South Africa, and indeed the region.

Challenges Confronting Community Radio Services in South Africa

Sustainability of the Community Radio sector is directly impacted by a multiplicity of social and material factors, not least of which is the financial imperative. Comprising an intrinsic strand of the non-profit broadcasting sector and operating in a highly competitive, often volatile commercial environment, vying with the commercial and public broadcaster for listenership, the fortunes of the Community broadcaster tend to be perpetually wanting. In the absence of state subsidies (unlike the public broadcaster) or 'in-kind support', many operate precariously at the edge of insolvency, on minimal budgets. The net effect of functioning in chronically austere financial environments is most keenly felt at the level of day to day operational issues, compounding already challenging mission objectives.

In that Community Radio by its very nature is located in poorly resourced communities, drawing upon locally available, largely unskilled personnel for day to day operation, clearly places them at a disadvantage from the outset. The constraints of human and material resources predictably impact on the length, quality and intensity of their training (mandate) necessary for building capacity of the standard required for effective broadcast practice. By all accounts, a persistent lack of capacity cuts across the areas of station management, financial administration, audio production, broadcast scheduling and management, and programme development, to name a few. Without the necessary coordinated input and the resources to make this possible, many community broadcasters are forced to divide attention between competing needs, hence providing a less than optimal service, for the very communities they were ostensibly set up to cater for. More commonly, stations have little choice but to resort to 'volunteers' in order to remain operational, with the attendant pitfalls such practice entails. Paradoxically, the turnover of post-trained personnel tends to be inordinately high. Scarce resources notwithstanding, the sector provides skills development programmes, as much as is possible. Somewhat perversely, local community stations serve as recruitment grounds for the considerably better resourced public and commercial broadcast sector.

In the absence of subsidies from government or other public institutions, the corporate sector comprises the primary source of income generation for community radio, most commonly through programme sponsorship. In the South African scenario, where a major state driven social transformation programme has been underway post 1994, one which the corporate sector has yet to significantly embrace, such revenue streams are invariably closed to the community broadcaster. Persisting conservative private sector

perceptions and subsequent marketing trends remain at best, elitist and nouveau riche focused. The predominant community broadcaster audience is not the target of such advertising, nor are these stations perceived as appropriate vehicles for such consumer messages. Community radio broadcasters continue to grapple with the endemic financial austerity, and cyclical tensions between skills development needs, and financial wants. In the interim, a not inconsiderable number of licences, mandates to broadcast, are under or unutilized and has a direct bearing on local communities, denying them the right to access information and educational broadcast services, enshrined in the national broadcast policy.

Conclusion

Some 120 community radio stations in South Africa currently provide a major unprecedented radio network and footprint, for local communities across the country. At a juncture when the combination of the past and the present ravages of previous social, most especially educational policy, and as the inexorable spread of the HI Virus approximates on endemic proportions, access to information and programming relevant to the daily lives of local communities, are without exaggeration, life and death issues. The pandemic prevalence of this crisis throughout the sub Saharan region, means a similar role for Community Radio initiatives regionally

The power, relevance and outreach of community radio in the developing world, are all too evident, despite the frugal existence of many in this sector. Until the advent of widespread access to ICTs for the significant majority of communities across the developing world is realized, radio, and community radio more pertinently, will in all likelihood, constitute the sole, affordable, ubiquitous wireless information technology, cell telephony advances notwithstanding. Alluring though the internet and high end ICTs may prove on either side of the digital divide, it is arguable that access to these technologies in immediate to medium term for under-resourced communities, remains substantially out of reach. There is a certain irony, often missed, that the Internet's resplendent, multifold access to all manner of information in the ether has also reinvented radio, giving it a new lease of life. For the developing world and Africa in particular, the cheaper route to radio, community radio, will be traversed for some time yet in the foreseeable future.

NOTES

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