Are ICTs a new revolution in rural areas?

No one doubts the contribution of information and communication technologies to development. The main issue is how well they are adapted to reality at the local community level. For rural areas in developing countries, ICT (information and communication technology) adaptation raises great expectations, especially in the struggle to protect the environment, in spite of difficult socio-economic conditions.

Economic growth and environmental protection are not incompatible. On the contrary, everything suggests that increased use of inexpensive technologies could contribute significantly to reducing energy consumption, curtailing systematic use of transport and, with time, contribute to the building of economies of scale. A few examples: Vodafone, leader in the mobile phone industry, apparently saved over 13,500 flights per year through videoconferencing thus reducing carbon emissions by over 5,000 tons [ITU, 2008]. The Technical Centre for Agricultural and Rural Cooperation (CTA) has reduced its communications costs by close to 50 percent by using VoIP. In rural areas of ACP countries (ACP: Africa, the Caribbean and Pacific), there is evidence that well-adapted technologies are quickly adopted by local communities. The most telling example is the silent revolution of the mobile phone which, second only to radio, is literally invading rural Africa at all levels.

Without energy, no ICTs

The vast majority of developing countries do not have easy access to electricity. Rural areas suffer most from this situation, thus making it even more difficult to use modern ICTs. To solve this problem, developers are turning more and more to sources of renewable energy such as solar, wind and second-generation biofuels, as long as they do not compete with food production. But these sources of energy are expensive, and thus hardly accessible for people living in rural areas (For more information, see article on page 16).

Giving and receiving information through well-adapted technologies

In this field, Web 2.0 applications offer new opportunities due to their participatory nature that gives more choice and power to networked users (see page 21). Despite the growing pains of certain tools, the following articles in this issue demonstrate the application of ICTs and their inclusion in various sectors, e.g. education, knowledge exchange, telecommunications and social networks.

However, the Internet is still a technology reserved for the elite in many rural African communities. The reason put forth most often is the lack or weakness of connectivity, dilapidated infrastructure and power shortages mentioned earlier. But the problem of access to ICTs for these rural populations is not only technical. From the

Touareg in Niger using a satellite phone.

Photo: GRA/CTA

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Sustainable telecentres require community involvement

People living in rural areas benefit from the provision of rural telecommunications services on a community basis which are organised in the form of a public utility – a telecentre. Telecentres are centres where information, assistance and help are available and where anyone can use the information and communication technology (ICT) and access the Internet. It enables users to solicit, disseminate, record, analyse, or simply access information. These institutions bring information to locals and provide opportunities to use information in different ways: to work, to learn or simply for recreation.

Rather than the one-computer-per-family approach adopted in developed countries, a telecentre approach is designed to provide a combination of ICT services to a larger number of people. Collective demand for telecommunications services can be substantial among people with very low annual incomes, as is evidenced by the rapid growth of small telecentres witnessed in Africa, Latin America and Asia. Some of these telecentres take the form of community information centres especially promoting community empowerment through ICTs. In most of the countries where CTA, IICD (International Institute for Communication and Development) and InfoBridge are present, project partners have gained experience in setting up rural telecentres or community information centres that provide access to information services on governance, agriculture, health, weather forecast and education. Experience has shown that communities around these centres appreciate the availability of ICTs and are eager to gain knowledge and empowerment through ICT training and information-sharing. Furthermore, telecentre operators are using value-added services such as telephone, fax, Internet connectivity as well as mobile handset and car battery charging to power television sets. Nevertheless, many programme partners have indicated that affordable and reliable Internet connectivity remains a key obstacle, including the lack of basic infrastructure such as reliable electricity supply and telephone lines.

ICT projects and in particular telecentres with a strong community base may be considered more likely to succeed and to become sustainable. The participatory community involvement, starting with the site selection and creating a sort of empathy and feeling of empowerment, are vital for the centre's impact. Furthermore, the centre should be well rooted in the socio-cultural context of the community. Yet, this does not happen immediately. There is a maturing period during which community leaders and stakeholders make constant efforts to drive changes of behaviour in the adoption of innovative ICTs.

Another factor in telecentres' sustainability is a strategy of creating community access networks using wireless solutions. Nevertheless, the investment required to set up the infrastructure is high (towers, antennae, etc.). The range of wireless solutions is very wide, yet WiFi technology, using a frequency of 2.4 GHz has proven to be more stable, even in remote communications. In Ghana, for instance, the Community Information Centre (CIC) of Salaga has chosen the PayAsYouGo Model provided by HMU Technologies Limited (http://www.hook-me-up.biz). The PayAsYouGo enables the CIC to access the Internet at actual usage cost rather than a fixed monthly subscription through the use of vouchers timed for 30 or 60 minutes. These vouchers are being sold with a margin to community stakeholders. Telecentre managers and stakeholders may consider expanding this experience as it can help to cater for the operational costs and recover the initial investment on infrastructure.

Bearing the above in mind, it is of importance to develop a business plan so that stakeholders can build an understanding of the operations and their associated costs and pursue a business-like approach.

With regard to the regulatory framework, permits for the operation of wireless networks are often difficult to obtain. Besides the difficulties with application formalities, permits and registrations, in some countries, legislation does not consider the existence of community wireless networks. This creates two options: to operate as a private network, yet this is not always possible due to the set-up and functioning of organisations, or to start operating without any kind of enabling title, compelling these networks to work on the fringes of the law.

Photo: OJE

Charging mobile telephones: a service highly appreciated by telecentre users.

The telecentre should continuously monitor and evaluate its relevance for the communities it serves. Telecentre staff should be aware of community needs and how these requirements can be met. Therefore, adequately trained and well-paid staff needs to be in place with opportunities for capacity building. If the telecentre does not have qualified staff, this may result in inadequate maintenance of equipment, leading to poor performance and achievements of objectives and revenue losses.

However, financial sustainability can be achieved if revenues generated of the telecentre through the sale of services are higher than the monthly operational costs including salaries, connectivity costs, and depreciation of infrastructure and equipment.

Telecentres may have a significant contribution towards knowledge and information exchange within their communities. However, it is vital to ensure that the communities are fully involved in their planning and implementation so that the anticipated impact and long-term sustainability can be achieved. For more on telecentres, see article on page 23.

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outset, modern ICTs were intended for different societies and are having difficulty in finding their rightful place in African rural communities which are rich in oral tradition but largely illiterate. Development actors should therefore adapt ICTs to grassroots realities so that rural populations can obtain information in the most satisfactory format and can share their experiences without necessarily having to depart from their usual socio-economic activities.

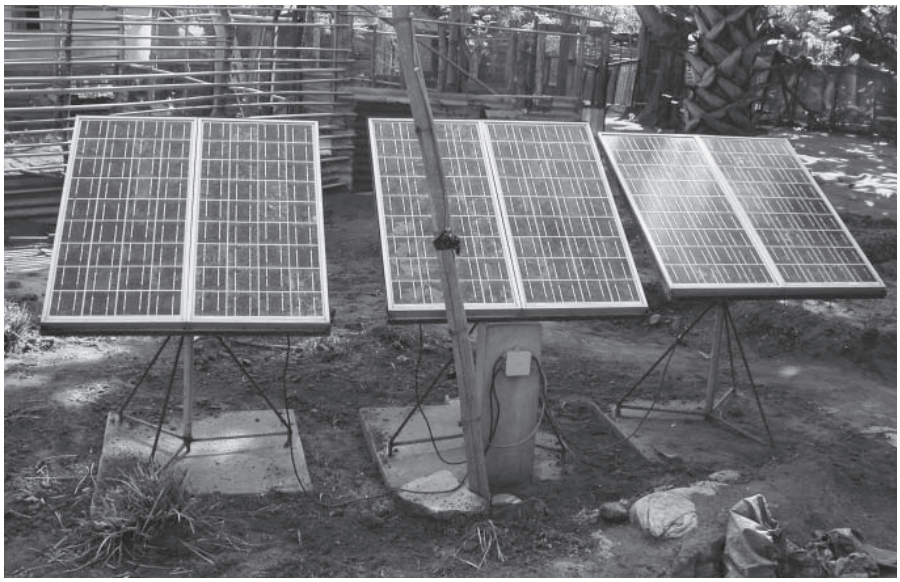
This, together with its strong socio-economic im-pact, unquestionably explains the success of the mobile phone. In local economies, for instance, mobile phones facilitate the conveyance of information on prices of agricultural produce, stock availability, etc. At the national level, the mobile phone has considerable impact on trade, employment and tax regimes (see Box "Sustainable telecentres" on page 9).

Community involvement: the key to sustainability

Nearly all the articles on this focus in this issue of Rural 21 show that the response of rural communities to ICTs can be very dynamic and depend on the level of the information and its expected use. Yet, one universally recognised pre-requisite is the involvement of rural communities in projects that integrate ICTs in local development. The participatory process is essential to project sustainability, as is pointed out in the Box on page 9 (see also Traoré et.al, 2008). Participation is essential right from the start-up phase of the project. Changes may be forthcoming at a later stage thanks to project flexibility, to allow the benefiting communities to experiment with utilisation and appropriation strategies that, moreover, could be shared on an ever larger scale. In Uganda, for instance, thanks to the use of open software, specific applications were developed to accommodate local languages and thus, with training, allowed for faster uptake [Karagami, 2008].

At the end of the day, the success or failure of ICTs in local community development depends largely on the capacity of the development actors to adapt them to local dynamics. To meet such challenges, it is vital to keep listening to these communities so that interventions can be built with due attention to specific local characteristics. ICTs should be designed to serve specific uses and realities, not the opposite.

According to some predictions, mobile phone subscriptions in West Africa will reach 100 million by the year 2011, which means a 112 percent growth since end 2006. The penetration rate in this region should grow from 18 to 34 percent in the next five years. This average is very similar in the rest of the continent (from 21 % in 2006 to 34 % in 2011) [Informa Telecoms & Media, 2008]. The mobile sector should generate over 71 billion USD in tax revenue for the African states between 2000 and 2012 [GSMA, 2008].



A solar panel in the Songhai Centre in Mali. Alternative energy sources are vital for rural areas.

Photo: ROB/CTA

Zusammenfassung

Informations- und Kommunikationstechnologien (IKT) bieten neue Möglichkeiten der nachhaltige Entwicklung und tragen zu verbesserten Lebensbedingungen bei. Die Gemeinschaft der Geberländer hat in den vergangenen Jahren zahlreiche IKT-Initiativen zur Überwindung der „digitalen Kluft" zwischen Industriestaaten und Entwicklungsländern gestartet. Dank des Einsatzes konventioneller und neuer Medien wie Radio, Mobiltelefon und Internet wird diese „digitale Spaltung" langsam geschlossen.

Resumen

Las tecnologías de información y comunicación (TIC) son reconocidas como nuevas vías hacia el desarrollo sostenible y la mejora de los medios de vida. La comunidad internacional para el desarrollo ha lanzado un cierto número de iniciativas de TIC en años recientes, a la vez que trata de resolver la llamada "brecha digital" entre el mundo desarrollado y el mundo en desarrollo. Sin embargo, esta brecha se viene cerrando progresivamente a través del avance de los medios de comunicación, tanto los de tipo tradicional como los nuevos, incluyendo la radio, los teléfonos celulares y la Internet.