

## AN ANALYSIS OF infoDEV CASE STUDIES: LESSONS LEARNED

Batchelor, S & Sugden, S October 2003

### Case Study Analysis

It is important to note that few of the case studies examined in this paper conducted initial baseline surveys, monitored progress, or evaluated impact. While the project implementers did record details and filed adequate reports with *infoDev*, there was an absence of systematic impact assessment. In many of the cases, therefore, it is difficult to determine whether changes in the poverty level of the target groups was attributable to the project or to external factors.

The lack of systematic monitoring and impact assessment was rectified in late 2002, when these activities were made standard elements of all *infoDev*-funded projects. However, the new requirements did not apply to the majority of the case studies. Another factor that complicated the analysis was that, at the time of writing, a number of projects had not been in operation for a long period of time—in one case (Manobi), pilot services had been provided for only 3 months.

For details on the projects discussed in this section, readers are invited to refer to the full summaries in the previous section or to consult a two-page synopsis of all 17 case studies found in annex 2.

### Functional Use of ICT in *infoDev* Projects

The rationale behind the use of ICT in the *infoDev* case studies mainly arose out of a desire to increase the capacity of local communities to find work, improve educational standards, influence government policy, or extend the reach of an existing project. ICT components or standalone ICT projects were initiated either through existing structures (e.g., involving local communities and key stakeholders, word-of-mouth advertising, training) or by working with local authorities, communication networks, or business services.

In most projects, the technology chosen to process information and/or enhance communication was selected as the most appropriate intervention for a given situation. Implementation either proved the technology choice appropriate (e.g. Voxiva, Future Stations, Food, Cemina), or caused a change or expansion in the types of technologies selected (e.g. B2Bpricenow.com, Fantsuam, Rostropovich, Sita).

The function fulfilled by ICT in the 17 projects under examination fell into the five general categories, with some projects qualifying for more than one category:

- **Information Technology (IT) training and telecenters:** Projects that provided poor individuals the opportunity to learn various computer skills and to access the Internet.
- **Networks and partnerships:** Projects that used ICT to enhance and/or build networks and partnerships to improve health care, expand the market reach of small- and medium-size



Photo 1: Women's groups in India are learning to use the mobile phone to help increase their market (FOOD).

enterprises (SME), facilitate the exchange of experiences and information among organizations, or develop and share educational resources.

- **E-commerce:** Projects that enabled users to, among other functions, develop online catalogues, create websites, buy or sell produce, and/or solicit funding.
- **E-services:** Projects that enabled users to gain access to market information through ICT (e. g., including weather reports, daily sale and purchase prices, financial forecasts, investment opportunities) or to use ICT to exchange information, reports, and messages.
- **Radio and education:** Projects that used ICT to distribute educational and news content to radio stations, broadening educational opportunities and community awareness among poor villages and/or urban neighborhoods.

### Contribution to the Millennium Development Goals

This subsection considers the case studies in the light of the Millennium Development Goals (MDGs) for reducing poverty and creating sustainable development, which were adopted by the member states of the United Nations at the Millennium Summit in September 2000. Subsequently reaffirmed by the World Summit on Sustainable Development in Johannesburg, South Africa, in 2002, a growing number of multilateral and bilateral development agencies have subscribed to these goals.

Table 1 summarizes the contributions of the infoDev case studies to the individual MDGs. The apparent impacts and results of the specific case study projects as they relate to the MDGs are discussed below, bearing in mind that the analysis was not based on rigorous monitoring and evaluation data.

	<b>Goal 1</b>	<b>Goal 2</b>	<b>Goal 3</b>	<b>Goals 4,5,6</b>	<b>Goal 8</b>			
	Target 1	Target 2				Target 12	Target 16	Target 18
Abantu								
B2Bpricenow.com								
CDI								
Cemina								
Conexiones								
Fantsuam								
FOOD								
Future Stations								
Manobi								
OAS								
Peoplink								
Rits/ Sampa.org								
Rostropovich								
Satellife								
SibDev								
Sita								
Voxiva								

Table 1. Summary of Contributions of infoDev Case-Study Projects to the MDGs

<b>infoDev Project</b>	<b>Contribution to MDG</b>
Abantu (Kenya)	<ul style="list-style-type: none"> <li>Increased incomes on the part of some womens' groups</li> </ul>
B2Bpricenow.com (Philippines)	<ul style="list-style-type: none"> <li>Increased bargaining power of farmers and fishermen when selling produce to middlemen and customers</li> <li>Created new marketing channels for farmers and fishermen</li> <li>Potential to increase target groups' purchasing power as a result of increased</li> </ul>
CDI (Brazil)	<ul style="list-style-type: none"> <li>Increased marketable skills of schoolchildren, enabling them to apply for jobs with better-paying salaries than those of their peer group</li> <li>Potential to endow urban slum dwellers with marketable skills via access to ICT, training, and strategic information</li> </ul>
Cemina (Brazil)	<ul style="list-style-type: none"> <li>Indirect: program content on economic opportunities for women distributed to community radio stations</li> </ul>
Conexiones (Colombia)	<ul style="list-style-type: none"> <li>Increased marketable skills of schoolchildren, enabling them to apply for better-</li> </ul>
Fantsuam (Nigeria)	<ul style="list-style-type: none"> <li>Potential to provide both rural and urban dwellers marketable skills through access to ICT, training, and strategic information</li> </ul>
FOOD (India)	<ul style="list-style-type: none"> <li>Active members typically earned a profit of 500–2,000 rupees (US\$10–US\$40) per month from part-time work</li> <li>Enabled women in marketing groups to increase their profit margins and sales volume of sales, as well as to extend their marketing reach</li> </ul>
Future Stations (Brazil)	<ul style="list-style-type: none"> <li>Generated employment, trained business managers, and opened up the employment market to people in surrounding communities</li> <li>Used the Internet and local newspapers to make people aware of the situation in the slums, helping to change the current image of the area</li> </ul>
Manobi (Sénégal)	<ul style="list-style-type: none"> <li>Provided fishermen with real-time access to market data (sale and purchase prices)</li> <li>Enabled fishermen to improve their sales their catch by alerting potential buyers as soon as the catch was landed; potential to reduce catch wasted and raise daily incomes</li> <li>Created safer working environment by allowing local fishing unions to track members who did not return from sea on time, thereby creating a swifter rescue response</li> </ul>
OAS (Latin America)	<ul style="list-style-type: none"> <li>Provided over 300 people with disabilities the opportunity to learn ICT skills to increase their employment marketability. Many organizations involved in the project noted that the project improved both ICT skills and work quality</li> <li>Introduced adaptive technologies to make it easier for people living with disabilities to use ICTs</li> </ul>
Peoplink (worldwide)	<ul style="list-style-type: none"> <li>Helped a number of producers to increase sales to existing buyers and, in a few cases, find new buyers—thereby increasing incomes</li> <li>Indirect: potential to create employment for low-income residents via significant tourism growth (online tourism portals resulted in over 800 bookings a month for 600 hotels)</li> </ul>
Rits/ Sampa.org (Brazil)	<ul style="list-style-type: none"> <li>Increases marketable skills of schoolchildren, enabling them to apply for jobs with better-paying salaries than those of their peer group</li> <li>Potential to provide urban slum dwellers marketable skills through access to ICT, training, and strategic information</li> </ul>
Rostropovich (Russia)	<ul style="list-style-type: none"> <li>Not applicable, health-care project</li> </ul>
Satellife (Kenya)	<ul style="list-style-type: none"> <li>Indirect: improved knowledge of health-care professionals through access to the</li> </ul>
SibDev (Russia)	<ul style="list-style-type: none"> <li>Potential to generate employment and generate incomes by attracting investment to local SMEs in Siberia</li> </ul>
SITA	<ul style="list-style-type: none"> <li>Trained local women in ICT skills to enable them to gain employment; gender barriers to employment opportunities prompted Sita to subsequently create an e-cooperative that can provide both training and jobs</li> </ul>
Voxiva (Peru)	<ul style="list-style-type: none"> <li>Indirect: lowered the poor's vulnerability to income shock by improving disease surveillance in the remote areas of Peru</li> </ul>

Table 2: Contribution of each project to the MDGs.

## Goal 1. Eradicate extreme poverty and hunger.

*Target 1. Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day.*

*Target 2. Halve, between 1990 and 2015, the proportion of people who suffer from hunger.*

*infoDev*-funded projects contributed to this MDG by enabling target groups to increase either their incomes or their access to work. These results were generally achieved through IT training (Fantsuam, CDI, Rits/ Sampa.org, Abantu) or providing target groups access to ICT-based business development networks (B2Bpricenow.com Philippines, Peoplink, Manobi).

On the whole, the target groups of the 17 surveyed case studies were poor. It can be assumed that most project clients began their participation in the projects with incomes of one dollar a day or less. Rits Sampa.org, CDI, and Future Stations all focused on the urban poor, while Fantsuam and Manobi addressed the rural poor. Two projects that focused on female target groups—FOOD and Abantu—reached the very poor, but a third such project (Sita) served marginalized and excluded women without necessarily reaching individuals who subsisted on less than one dollar a day.

In the case of FOOD, the project shows evidence of improved incomes. The project works with approximately 300 groups, representing approximately 3,000–6,000 households. The average active member of FOOD earned a profit of between US\$0.20 to US\$1.30 per day, a sum that represented 10–15 percent of their respective household incomes. In many cases, these monies enabled clients to pay school fees for their children, enhancing the income-earning ability of future generations.

Table 2 reviews the contribution of each *infoDev* case study to the poverty reduction MDG.

## Goal 2. Achieve universal primary education.

Only one of the *infoDev* case studies, Conexiones, dealt directly with primary education, and it focused on strengthening the educational and pedagogical system. However, the main challenge of Goal 2 is the "universal" aspect. The problem of universal education is not so much a shortage of schools, but the combined effect of poverty (reducing the financial ability of households to pay school expenses and the corresponding need for children to generate income), culture (gender bias regarding the sex of children sent to school, as well as situation-specific circumstances of exclusion from education and/or employment), and the quality and relevance of educational services.

With respect to specific *infoDev* projects, FOOD reported that clients spent the majority of extra income generated by project on school fees. A number of projects targeted women in order to address gender-specific needs or, in the case of Abantu, to effect gender-related redistribution. In the case of Sita, IT training enabled only some of the project's women clients to secure employment. It became clear, however, that several participants planned to teach their children their newly learned IT skills. One participant, lacking the resources to pay school fees, introduced her children to educational computer programs available at the training center. While there are no direct reports on the impact of Cemina radio project, there is every reason to believe that this gender education project has contributed to the broader education of its target audience (poor women in Brazil).

With respect to the quality of education, Conexiones and CDI both worked with teachers to upgrade their skills. These projects place particular emphasis on non-didactic learning methods, such as group projects and problem-solving. Although both projects currently work with secondary school teachers, it is possible that the new teaching style could gain momentum and spread to the primary sector via teacher workshops and professional networking. In a different vein, Abantu helped to improve the quality of education in Kenya by challenging the linkage of ICT with science, causing the authorities to reconsider a tradition which creates gender barriers to learning ICT.



Photo 2: Primary school children form a major part of the Conexiones project

<i>infoDev project</i>	<b>Contribution to MDG</b>
Abantu (Kenya)	<ul style="list-style-type: none"> <li>Produced a critical framework for ICT education and its gender ramifications</li> <li>Specifically trained women's groups</li> </ul>
B2Bpricenow.com (Philippines)	<ul style="list-style-type: none"> <li>Gender neutral – services available to all; potentially helpful to indicator 11</li> </ul>
CDI (Brazil)	<ul style="list-style-type: none"> <li>Gender neutral – services available to all; potentially helpful to indicators 10 and 11</li> </ul>
Cemina (Brazil)	<ul style="list-style-type: none"> <li>In an area known for child labour, Cemina developed a telecenter for local youth, regardless of gender, to receive ICT training. Nevertheless, the program does have a particular focus on empowering women. To date, some 1,500 women throughout Brazil have been trained in radio production at the telecenters</li> </ul>
Conexiones (Colombia)	<ul style="list-style-type: none"> <li>Links university students to schools to increase the capacity of schools to develop the ICT skills of schoolchildren; potentially helpful to indicators 9, 10, and 11</li> </ul>
Fantsuam (Nigeria)	<ul style="list-style-type: none"> <li>50% of all trainees were women</li> </ul>
FOOD (India)	<ul style="list-style-type: none"> <li>Enabled women to gain access to new markets through a mobile phone network that would have otherwise been closed to them due to social constraints</li> </ul>
Future Stations (Brazil)	<ul style="list-style-type: none"> <li>Gender neutral – services available to all; potentially helpful to indicator 11</li> </ul>
Manobi (Sénégal)	<ul style="list-style-type: none"> <li>Not applicable; fishing is primarily a male domain</li> </ul>
OAS (Latin America)	<ul style="list-style-type: none"> <li>Gender neutral – services available to all; potentially helpful to indicator 11</li> </ul>
Peoplink (worldwide)	<ul style="list-style-type: none"> <li>Many trade producers target low-income artisans—predominantly women—and will pay “fair” rates of pay, directly affecting the livelihoods of women and that of their families</li> </ul>
Rits/ Sampa.org (Brazil)	<ul style="list-style-type: none"> <li>Gender neutral – services available to all; potentially helpful to indicator 11</li> </ul>
Rostropovich (Russia)	<ul style="list-style-type: none"> <li>not applicable</li> </ul>
Satellite (Kenya)	<ul style="list-style-type: none"> <li>not applicable</li> </ul>
SibDev (Russia)	<ul style="list-style-type: none"> <li>Gender neutral – services available to all; potentially helpful to indicator 11</li> </ul>
Sita (India)	<ul style="list-style-type: none"> <li>Focused on training women in ICT skills in order to increase their ability to find jobs in the commercial sector</li> </ul>
Voxiva (Peru)	<ul style="list-style-type: none"> <li>not applicable</li> </ul>

Table 3. MDG 3 - Promote gender equality and empower women

One indicator of the second MDG is to improve the literacy rate of 15–24 year olds. While the MDG principally seeks to support the primary school system with the aim of improving literacy, the current generation of 15–24 year olds in many developing countries suffers high rates of illiteracy. Although none of the *infoDev* case studies address literacy as a stated objective, many of the projects created alternative adult learning opportunities, particularly the various telecenters (Future Stations, CDI, Fantsuam) and training projects (Abantu, Cemina, OAS).

### **Goal 3. Promote gender equality and empower women.**

*Target 4. Eliminate gender disparity in primary and secondary education, preferably by 2005, and at all levels of education no later than 2015.*

*Target 10. Ratio of literate females to males of 15- to 24-year-olds.*

*Target 11. Ratio of women to men in wage employment in the non-agricultural sector*

A number of the *infoDev* projects specifically focused on empowering women through ICT. These projects ranged from IT training centers in India and Nigeria, to a women's group Internet network across Africa, to equipping women artisans with cell phones to increase their marketing capabilities.

### **Goal 4. Reduce Child Mortality.**

### **Goal 5. Improve Maternal Health.**

### **Goal 6. Combat HIV/AIDS, malaria, and other diseases.**

The above goals have been consolidated because they address issues of health. Lack of specific health-related data for the *infoDev* projects, however, makes it difficult to analyze their contribution to these MDGs. Absence of health data can be attributed to a general lack of understanding of the fact that ICT-related projects require monitoring and evaluation, as well as the comparative newness of several projects and the abundance of external factors that affected their impact.

Nevertheless, several *infoDev* case studies that focused on health appeared to have positively contributed to the health-related MDGs. Voxiva, for example, strengthened the health system in two districts of Peru through an improved disease reporting system. The project offers a model that can be replicated in other countries, with the potential to reduce child mortality and improve maternal health. Voxiva specifically enabled a faster response to a measles outbreak in one Peruvian district, thus reducing the impact of the disease (indicator 15 of goal 4).

Although not directly related to the above MDGs, several other *infoDev* projects can be viewed as making indirect contributions to improved child mortality, maternal health, and combating pandemics. Satelife Healthnet and Fantsuam focused on training health workers in ICT related skills, which can be viewed as strengthening the capacity of the health-care system as a whole. Rostropovich, on the other hand, enhanced the capacity of the Russian health system near St. Petersburg to deal with children's cancer cases, and is already being replicated for other caregivers in northwestern Russia.

### **Goal 7. Ensure environmental sustainability.**

None of the *infoDev* case studies specifically addressed environmental concerns.

### **Goal 8. Develop a Global Partnership for Development.**

*Target 12: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system.*

*Target 16: In cooperation with developing countries, develop and implement strategies for decent and productive work for youth.*

*Target 45: Unemployment rate of 15- to 24-year-olds.*

*Target 18: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.*

*Target 12:* Although this target primarily addresses international trade, local and national discriminatory trade practices also need to be addressed. A number of *infoDev* projects worked to create a level playing field between producers and buyers by creating information networks on the basis of the Internet and mobile phones (B2Bpricenow.com, Manobi, Peoplink). For B2Bpricenow and Manobi, the goal is to enable producers to ascertain the daily going market price, thereby increasing their bargaining powers with middlemen and other buyers. The Peoplink project endeavored to link businesses and consumers around the world in order to increase the market reach of craft producers.

*Targets 16 and 45:* By targeting youth through ICT training in secondary schools and providing schools the resources needed to incorporate ICT into existing curricula, many *infoDev* projects (CDI, Conexiones, Future Stations, Fantsuam, Rits/ Sampa.org, OAS) equipped youth with the ICT skills in demand in the employment marketplace today. Projects that enhanced the supply chain (Peoplink, B2Bpricenow.com, Manobi) can also be seen as "implementing strategies for decent and productive work."



Photo 3: Computer training for young people in Brazil's low income communities

*Target 18:* This target includes specific goals for telephone lines and personal computers per 1,000 people. However, a mismatch appears to exist between the target and the indicators used to measure its achievement, given that the target aims to make available the **benefits** of new technologies to developing countries, not necessarily the

technologies per se. While the indicators are easily measurable, they are limited to the technologies (in this case, telephone lines and personal computers), and therefore mask the way in which new technologies are appropriated in developing nations.

Fantsuam, for example, has been able to provide telephone and computer access, as well as IT training, to the local populace in the southern Kaduna area of Nigeria on the basis of one satellite phone and computer in its telecenters. These services were previously unavailable in the area and, while one satellite phone would hardly count as **significant** progress towards the MDG target 18 of increased phone lines per 1,000 people, the single phone has clearly made available the **benefits** of the new technology to entire communities. In fact, Fantsuam found that local residents were willing to pay more than US\$2 per minute for a satellite phone call that would help their families, allowing its satellite phone setup to become a sustainable business.



Photo 4: Voxiva are working with the Ministry of Health in Peru to enable health workers to send in reports and access information via the telephone.

A recent DFID study prepared by Gamos (McKemey et al 2003) shows that even where telephone density and frequency of use are low, the actual use of telephones on an infrequent basis is extraordinarily high in several countries of Africa. One impressive statistic cited by the paper was that 86% of people surveyed had used a telephone in the previous three months in Ghana, Uganda, and Botswana. This is a simple yet remarkable statistic because the survey sample was balanced between rural and urban areas and between good, medium, poor, and **no coverage** zones. Interviews confirmed that people were prepared to travel from zones with no telephone coverage to nearby covered zones in order to make telephone calls.

What is the principal purpose of such infrequent telephone use? The study distinguishes between calls to friends and family “to chat” and calls to discuss remittances. This first purpose constituted the single greatest reason for phone use, with calls to discuss remittances a close second. The use of phones for remittances is supported by anecdotal data from the Fantsuam project. Qualitative data from the study suggests that the majority of the telephone calls made in the three countries concerned “cash flow,” that is, the timing of a remittance.

The results of the Fantsuam project suggest that, in general, people who make telephone calls receive more money than they would without the ability to place calls. Given the World Bank calculation that US\$71 billion is transferred annually in remittances worldwide—more than the entire official development assistance budget of the North for the South—it is possible to infer that phones are used in developing countries with low telephone densities, even if infrequently, to secure significant financial **benefits** (remittances) for end users.

Another significant benefit provided by infoDev ICT projects that is not captured by telephone or computer density indicators is the way in which these projects broaden the reach and/or utility of existing ICT infrastructure. These enhancements are real, despite such difficulties as poor-quality networks, intermittent electricity, and old equipment. Voxiva, for example, worked with the national health service of Peru to provide healthcare staff with an information and e-service network, all on the basis of existing phone lines. Although the network has been in operation only one-and-a-half years, the Ministry of Health has already used it to avert a disaster following severe flooding. Health professionals have used the network to submit daily reports to the health service, enabling the government to respond quickly to any threat of widespread disease. The benefits of the telephone technology were thus significantly enhanced, even if the number of phone lines remained unchanged.

If the *infoDev* case studies are examined through the wider lens of the eighth MDG (“Develop a Global Partnership for Development”), it is evident that the ICT projects all formed partnerships that helped make available the benefits of new technologies, even if these benefits cannot be measured by the indicators prescribed by Target 18.

<i>infoDev Project</i>	<i>Contribution to MDG</i>
Abantu (Kenya)	<ul style="list-style-type: none"> <li>Trained a group of coffee factory workers in software and Internet applications for use in the workplace</li> <li>Engaged the government and private sector in dialogue about gender issues</li> </ul>
B2Bpricenow.com (Philippines)	<ul style="list-style-type: none"> <li>Enabled farmers and fishermen to obtain access to real-time prices of produce via the Internet and mobile phones, increasing their bargaining and purchasing power</li> <li>Project collaborated with the Philippine Rural Reconstruction Movement (an NGO), the Land Bank of the Philippines, and the technology company Unisys to make the e-service and e-commerce website available to fishermen and farmer cooperatives</li> </ul>
CDI (Brazil)	<ul style="list-style-type: none"> <li>Received funding from a number of private sector trusts to make Information Technology and Citizens' Rights Schools available to low-income communities</li> <li>Over 350,000 children have attended over 770 ICT schools since the project began, laying the foundation for professional skills</li> </ul>
Cemina (Brazil)	<ul style="list-style-type: none"> <li>Received funding from a number of private sector trusts to increase the volume of radio programming available for distribution to rural community radio stations</li> </ul>
Conexiones (Colombia)	<ul style="list-style-type: none"> <li>Worked with schools to increase their ability to integrate ICT into existing school curricula, raising the skill base of both teachers and students</li> <li>Facilitated technical support to schools, as well as funding from universities and private sector organizations, to increase the reach and content of the project</li> </ul>
Fantsuam (Nigeria)	<ul style="list-style-type: none"> <li>Received support from a number of institutions (both public and private) from around the world to increase the capacity of the project's health and education telecenters</li> </ul>
FOOD (India)	<ul style="list-style-type: none"> <li>Partners within India have provided support for this project</li> </ul>
Future Stations (Brazil)	<ul style="list-style-type: none"> <li>Over 60,000 elementary and high school diplomas have been generated through Viva Rio/Future Stations, increasing the marketable skills of the students</li> <li>Received funding and support from a number of national and international organizations and institutions</li> </ul>
Manobi (Sénégal)	<ul style="list-style-type: none"> <li>Provided fishermen and buyers with access to real-time data on market prices and catch levels, improving their bargaining power</li> <li>Manobi, an international telecommunications company, works with local fishing unions, international institutions, and local telecommunications companies to provide the e-service</li> </ul>
OAS (Latin America)	<ul style="list-style-type: none"> <li>Works across four countries in Central America to link mainly regional ICT consultants to local organizations that work with the disabled</li> </ul>
Peoplink (worldwide)	<ul style="list-style-type: none"> <li>Catgen System enables local artisans to expand into overseas markets via the Internet; many artisans are members of the International Federation for Alternative Trade</li> </ul>
Rits / Sampa.org (Brazil)	<ul style="list-style-type: none"> <li>Produced recommended guidelines for inclusion of the poor in ICT policies at the federal level.</li> <li>Extended the reach of ICTs to low-income communities in partnership with local organizations</li> <li>Monetary support and support in kind provided by a number of national and international organizations and institutions, including the International Development Research Center and the Ford Foundation</li> </ul>
Rostropovich (Russia)	<ul style="list-style-type: none"> <li>Increased the ability of Russian cancer specialists to access the Internet and other technologies to link them to other cancer treatment centers worldwide</li> <li>Linked health professionals from around the world to national staff in order to improve the care of children living with cancer in St Petersburg</li> </ul>
Satellife (Kenya)	<ul style="list-style-type: none"> <li>Via one participant in the Satellife training course, a training programme was begun at the Medical School of the University of Uganda which has to date trained over 100 medical personnel in basic Internet skills</li> </ul>
SibDev (Russia)	<ul style="list-style-type: none"> <li>Contributed to policy decisions important for SMEs and the development of ICT in Siberia</li> <li>Created 20 databases on business development and investment opportunities in Siberia, attempting to narrow the divide between regional and international investors and local SMEs</li> </ul>
Sita (India)	<ul style="list-style-type: none"> <li>Partnered with a number of local, national, and international institutions to provide ICT training for low-income women</li> </ul>
Voxiva (Peru)	<ul style="list-style-type: none"> <li>Partnered with the Peruvian Ministry of Health, a local telecommunications company (Fundacion Telefonica), and the Markle Foundation to provide a disease surveillance reporting service to local health professionals</li> </ul>

**Table 4. MDG 8 – Develop a Global Partnership for Development**



## Projects by Sector

A sectoral breakdown offers another way to analyze the *infoDev* case studies, demonstrating the variety of ways in which ICT is applied to poverty reduction interventions. The projects examined here fall into several development sectors:



Photo 5: Farmers in the Philippines are now able to use their mobile phones to access market prices. This provides them with better bargaining power over the price of their goods.

- **Education and Training:** Projects in this area tended to focus either on IT training or on telecenters that offered Internet access and computer instruction. These projects can be further disaggregated among projects that targeted young people (Future Stations, Connexions), those that targeted adults (Fantsuam, Satellife), and those that focused on specific sectors or themes (Satellife, Abantu). Other projects challenged the status quo in existing educational systems by introducing a non-didactic pedagogy (CDI) or upgrading teaching skills in schools (Connexions).
- **Social Development:** In general, most *infoDev* projects shared a common thread of bringing poor residents of developing countries together and helping them find new ways to identify and solve their problems. Social mobilization was at the heart of several case studies (Rits/ Sampa.org, FOOD, Cemina, CDI, Connexions), with ICT forums offering opportunities for new kinds of dialogue. FOOD used women's groups as a launching point for marketing training. CDI used ICT to create discussion groups on citizenship and problem solving. Abantu's gender awareness project resulted in the empowerment of a Maasai women's group, which successfully secured USAID funding for a beekeeping project.
- **Enabling environments – policy and regulatory frameworks:** Although none of the case studies specifically focused on creating enabling environments, a few have positively impacted local and national policies. Abantu, for example, held workshops and seminars to promote gender awareness and a gender-sensitive approach to ICT. Subsequent governmental policy reviews in Kenya revealed that ICT education suffered a gender bias because it was associated with science, a speciality in which education has a male bias. CDI's citizenship training is expected to have an impact on local community participation in political decision making. And OAS made governments more aware of the potential disabled workforce.
- **Business Development:** A number of *infoDev* projects focused on private sector development by building information networks to increase the market reach of SMEs. These networks, based either on telephone (e.g. FOOD) and/or Internet technology (e.g. B2BPricenow.com Philippines, SibDev), enhance the supply chain by facilitating the exchange of experience and information among producers, and encouraging them to develop and share resources. Certain projects (SibDev, FOOD, B2Bpricenow.com) attempted to support SMEs at the investment stage, while others (FOOD, Manobi, Peoplink and B2Bpricenow.com) enabled producers to influence the sale price of their products by judicious use of market information.
- **Health Care:** ICT was used in two case studies to improve health services by facilitating local (Voxiva) and international (Rostropovich) networks. In a third case study (Satellife), ICT was used to expand the access of health workers to relevant information. In Peru, Voxiva uses various technologies—primarily telephones and a computer database, with certain Internet and radio links—to enable local health professionals to access information, submit reports, and leave messages in a system designed to improve the ability of the Peruvian health system to respond quickly to natural disasters and disease pandemics.



Photo 6: Cancer doctors in Russia are being enabled to send images for a second opinion by email.

In Russia, Rostropovich used the Internet to create an international cancer network, improving patient care in St. Petersburg by facilitating exchanges with cancer specialists worldwide. Rostropovich has gone on to build a local network to create a support structure for local health workers.

Satellite Healthnet trained health workers in Kenya, Uganda, Tanzania, Ethiopia, and Eritrea to use information technology to access data, improving their ability to communicate both locally and internationally, and facilitating their professional development.

- **Agriculture and Rural Development:** A number of *infoDev* projects employed ICT as a way to make markets more transparent and effective. Networks were created to link producers to markets, exchange producers' experience and information, and develop and share educational resources. Similarly, the Manobi platform in Sénégal enabled fishermen to access to market information, weather reports, financial forecasts, and investment opportunities.
- **Infrastructure Development:** A number of case studies provided access to ICT (Future Stations, Fantsuam, CDI). In most cases, *infoDev* projects added value to established telecommunications infrastructure by enhancing it with additional technology. Voxiva added a back-office database, FOOD encouraged the use of mobile phones, Future Stations added new computers to an existing telecenter, and Fantsuam piloted satellite phones and computers. Manobi even encouraged the private sector and government to extend the telecom infrastructure by building new cellular base stations to connect to boats offshore. One unexpected benefit of this new infrastructure was the development of a brand-new security system for fisherman at sea.



Photo 7: By encouraging the expansion of telcoms infrastructure, Senegals fishermen can now access cellular information.

## Lessons Learned and Recommendations

*"Give a person a fish, you feed him for a day. Teach a person to fish, you feed them until someone comes along with a better fishing technique, or until pollution wipes out all the fish, or until the government changes the law outlawing fishing or until war overtakes the family and they become refugees. Help a person to become a creative thinker and you feed them for life."*

Having examined the case studies through several analytical lenses, the following section attempts to identify some of the key lessons learned from the *infoDev* projects and other ICT interventions undertaken by other donors. It then offers recommended guidelines for ICT-for-development projects.

### **Lessons Learned from *infoDev* Case Studies**

**Lesson 1: Involving target groups in project design and monitoring enables projects to better meet their needs.** In the Future Stations telecenter project, for example, it became clear that teenagers from the shanty towns of Rio de Janeiro required IT courses to meet professional rather than entertainment needs. As these courses generate much of the income of the telecenters, it was vital that instruction responded to client demand. Viva Rio, the organization that manages the centers, is now studying their client base in order to develop new courses more in line with their preferences.

The design of the FOOD project provides another example of effective interaction with the target group. The targeted group of poor women worked with NGO facilitators to articulate what they needed to make small business successful before the project was designed. FOOD was then able to create a viable marketing system in response to these needs.

Projects also meet the needs of different client groups more accurately if they involve these groups in the project design phase. CDI's Information Technology and Citizens Rights Schools, for example, cater to both urban and rural residents, richer and poorer social groups. Educational content for the schools thus had to be designed in such a way that each school could access content most relevant to their students.

Finally, projects have found that client involvement in project design greatly enhances project sensitivity to the social environment of the projects—gender roles and expectations, traditional values, cultural norms, etc.

**Lesson 2: Particular attention must be paid to the infrastructure requirements, local availability, training requirements, and technical challenges of technologies selected for poverty intervention projects.**

Simpler technology often produces better results.

In many of the case studies, lack of reliable infrastructure meant that the technology used in a project (e.g., Internet-based discussion groups of Abantu) limited the number of participants. In other cases, technologies were not sufficiently disbursed in local areas for end-users to apply the skills they gained in training. B2Bpricenow.com, for example, reoriented its technology platform in the Philippines from an Internet website to include mobile phones after it became apparent that farmers did not have reliable access to the Internet, but could access mobile phones.

Technical challenges include not simply unreliable electricity and communications infrastructure—which render communications networks unreliable and/or inaccessible—but also encompass physical deterioration of infrastructure, the need for skilled IT support, and the necessity of instituting standard procedures. Theft of copper piping that encased the phone lines in Nigeria, for example, reduced the ability of people to access the Fantsuam health telecenters. In Peru, the remoteness of some health centers meant that Voxiva had to arrange for some health centers to send in reports and access information via radio.

Technical problems experienced across the network of Future Stations telecenters forced the project to

bring in permanent IT support, a cost not anticipated in the planning stages, while the Rostropovich project was compelled to quickly create a standard system for information exchange in order for the communications network to operate efficiently.

**Lesson 3: Telephones and voice mail systems can add considerable value to the communication systems of poor people in the developing world.** Most of the target groups of *infoDev* projects cannot afford to buy or even access most of the technology used in the projects, with the exception of phones. As noted above in the discussion of Millennium Development Goal number 8, the poor are increasingly benefiting from the strategic use telephone communication. The cases of Voxiva, B2Bpricenow.com, FOOD, and Manobi clearly demonstrate that telephone technology (landline and mobile) can be used very effectively to answer the communication, information, and business needs of poor people in developing nations.

Voxiva, for example, chose to establish a health-reporting network in Peru on the basis of standard phone lines, a choice that both increased the reach of the project and decreased its initial setup costs. Because people were already familiar with using telephones, Voxiva had only to provide training on telephone menu systems to train health workers to use the reporting system with confidence. An unexpected benefit of the technology was that the workers learned to write more concise reports to relay over the phone, enabling faster analysis of local health and disaster situations by the Ministry of Health. Here, simplicity of technology led to simplicity of the system.

**Lesson 4: Internet technology is not a cost-effective choice for many ICT for development projects.** The geographic coverage of mobile phone systems is often broader, and expanding more rapidly, than is Internet availability (particularly in Africa).

In addition to the cost of the technology needed to access the Internet (e.g., computers, servers, modems, telephone lines, telephone usage charges), Internet-based projects often require considerable training in computer and Internet use. Moreover, such projects often require literacy, despite high levels of illiteracy among the poor people, as well as fluency in English (one of the principal languages of the Internet).

While the case studies suggest that Internet has a role to play in providing the poor access to global information in Latin America, they also clearly demonstrate the problems associated with Internet use in Africa (Fantsuam, Satellife Healthnet, Abantu). Indeed, recent studies (McKemey et al., 2003) show that Internet access in Africa is not widely available outside capital cities.

**Lesson 5: Supporting ICT projects that reach out to rural areas might contribute more to achieving the MDGs than projects based in urban areas.** Although the majority of *infoDev* projects targeted low-income communities, most of the 17 case studies were based in urban areas. Given that the majority of the world's poor live in rural areas (e.g., 70 percent of the population of India), a reorientation toward rural projects might reap greater benefits.



Photo 8: Cemina using the radio to promote the gender message in local languages

**Lesson 6: Existing technologies, particularly the radio and television, can often convey information less expensively, in local languages, and to larger numbers of people than can newer technologies.** In some cases, the former can enhance the capacity of the latter. Cemina is an excellent example of a project that used the Internet to support radio technology. By using Internet links to distribute digital radio content, the project expanded the supply and distribution of educational audio program to local stations that might otherwise struggle to fill their air time.

**Lesson 7: infoDev should consider linking television and digital video technology in future ICT-for- development projects.** None of the *infoDev* case studies chose to use television or digital video technologies as the technical basis of an ICT project, although these technologies

offer the potential to reach far greater numbers of the poor.

Although its development value is questioned, television is a known and accessible technology in many developing nations. Nearly 500 million people in India already have access to television and this is growing rapidly. Of these, at least 150 million people may be considered early literate. And in nearby Cambodia (one of the poorest nations of Asia), a recent study has shown that 5 percent of households in certain rural areas have televisions (compared to less than 1 percent in 1993).

With respect to video, recent changes in technology make it possible for digital video to be filmed by local communities and for local NGOs and government agencies to embed the editing process within their organizations. These changes in technology hold out the potential to develop local educational content on health, agriculture, and employment. In the past, video production has been expensive and video use was restricted by limited delivery channels. In the last 2 years, however, digital video has made video more accessible in terms of distribution (via computer, video player, or television) and cost. This has two key advantages—the cost of video production has fallen dramatically and the editorial process can be performed by development professionals. Video content could, for instance, be delivered through battery-operated cheap digital players carried by health or agricultural extension workers, as well as on personal players and village televisions.

Recent development projects have used digital video for formal training, adult education (particularly for the semi-literate and illiterate), and advocacy purposes. The Christian Industrial Training Institute, an NGO in Kenya, is exploring the utility of digital video to teach such subjects as mechanics and machine-working in a DFID-funded project. Kulika in Uganda is using the technology for agricultural training and the Health Foundation of Ghana (a local NGO) is training local agencies how to make videos that can be used by health clinics.

**Lesson 8. Innovative technology solutions can be used to great advantage in development projects when they respond to user requirements.** Few *infoDev* projects used special technology, although a few piloted innovative system architecture. Rostropovich, for example, used cutting-edge technology to link health imaging equipment to the Internet. In Russia, however, the majority of computers are home made, which can create problems of software compatibility and data transfer. Rits/ Sampa.org and CDI all explored a Linux-based architecture based on one high-end server and a network of between 10 to 20 made- to-order basic computers without hard drives. This system architecture has considerable potential to greatly reduce the cost per seat in telecenters and training institutes.

**Lesson 9: Neither the comparative benefits of open source software, nor the costs of commercial software licenses, are well understood by implementers or end-users of ICT projects.** End-users appear to prefer to learn Microsoft applications for employment purposes.

A few of the case studies (Rits/Sampa.org and CDI) use Linux and other open source software in their projects. However, end-users often prefer to learn Microsoft applications because they believe it will make them more employable. While other projects relied on Microsoft products, few of the latter considered the lifetime cost of Microsoft licenses and the implications this cost would have for small businesses in the South.

**Lesson 10: ICT projects should empower local communities to create their own development content.** There appears to be a general development assumption that the **supply** of information available through ICT global networks is sufficient to enhance the livelihoods of the poor, provided that the poor can access these networks. However, the *infoDev* case studies show that there is a strong need for content grounded in local realities.



Photo 9: Utilising other facilities to increase the range of ICT programmes



Photo 10: Role of financial sustainability needs to be given higher priority.

One of the best ways to generate local content is to have members of local communities create it. Local content relies on creative adaptation of content by local users. Building capacity in this area would not only support the sustainability of telecenter and training projects, it would potentially promote local businesses and advocacy efforts in the South. If local (ICT) content is to be generated, however, ICT projects must incorporate instruction in how to apply creative skills to content development into their plans.

**Lesson 11: The financial sustainability of most case study projects was weak.** While many projects included mechanisms for cost-recovery, most of the business models remain unproven and continue to rely on some form of subsidized start-up funding or ongoing support. Other projects provided “social goods,” the costs of which would be difficult to recoup.

Most of the e-commerce projects included potential cost-recovery mechanisms, yet these mechanisms seem unlikely to generate enough income to recover start-up costs. For example, Peoplink sells client subscriptions, B2Bpricenow.com could potentially generate returns through selling advertising space on its web site, and SibDev could generate income by successfully linking investors to SMEs. While each project reported some income, analysis indicates that

significant lessons regarding these business models remain to be learned.

FOOD appears to have achieved greater cost recovery due to the relative cost and ease of use of the technology selected for the project: mobile phones. The added value of using the phones in their businesses prompted women’s marketing groups involved in the later stages of the project to purchase their own phones.

The telecenter (CDI, Fantsuam, Future Stations) and training (Sita, OAS) projects could potentially recover ongoing costs by charging for the training. However, Sita found that low-income trainees could not pay the full cost of training and needed to be directly linked to employment opportunities. Other projects—those that were oriented towards social services—were simply not self-financing. Where ICT was used in schools or within a national health service, for example, it would be difficult to introduce viable payment or income-generation schemes.

Even where projects appeared to have suitable mechanisms in place (CDI, Future Stations, Cemina), project reporting on sustainability did not necessarily include replacement costs for equipment.

**Lesson 12: Most of the case study projects could not be replicated without significant external funding for initial community development work and startup operation costs.** External funds are primarily needed not because ICT components are unique or particularly expensive, but because the projects as a whole are developmental interventions that change existing information and communication systems.

All of the case study projects were financed to some extent by *infoDev*. Other funding was often provided by organizations working in partnership with the implementing organization, with many major contributions taking the form of in-kind contributions such as technical support, accommodations, software, hardware, volunteers, etc. In comparison to community initiatives around the world, however, the projects were all fairly large, with relatively high external financing.

Where developmental finance appears most needed is for the extension work that mobilizes community groups to implement a project. Although FOOD, with its use of mobile phone technology, appears to offer a solid model for replication, funding would still be required to replicate staff that would facilitate women’s marketing groups.

Similarly, CDI requires core funding to facilitate its telecenter/training model. As with many other projects, the program’s equipment costs are small in comparison to the overall cost of social mobilization and the initial organization of a telecenter. In fact, the models offered by CDI and Rits/

Sampa.org may be more suitable for local and national governments than for self-sustaining private voluntary or community organizations.

Finally, some projects can reduce the need for substantial start-up grants by cementing strategic alliances with the private sector, as was the case of B2Bpricenow.com, Voxiva, and Manobi.

**Lesson 13: Avoid involving participants who do not have a sufficient financial base in projects that require asset and/or loan repayments.** Consistent with the findings of microfinance, project activities that involve the very poor (those well below the poverty line) risk having participants use project assets (phones or community loans) for purposes of immediate survival.

Certain small artisan groups in the FOOD project had problems paying for their mobile phone usage, while those with a stronger financial base were able to take better advantage of the new network. Similarly, some groups spent the initial Fantsuam community loans on items unrelated to the project, while others were able to pay back the loans in a timely manner. Projects must be careful to screen participants to avoid indebting the most poor and placing project survival at risk.

**Lesson 14: Research the right partners for the project.** A number of the implementing organizations realized that they needed to work with other groups to increase their impact only after they began operations. Finding organizations and projects that truly complement and/or a project can be difficult, but most of the case studies demonstrate that these kinds of partnerships increase the reach and impact of project activities.

**Lesson 15: Outline the roles and responsibilities of the various project stakeholders in a specific Memorandum of Understanding.** Several case studies encountered institutional problems that derived from the lack of any Memorandum of Understanding, which in turn contributed to lack of transparency and accountability.

**Lesson 16: Use existing physical facilities where possible.** Many of the projects used existing physical infrastructure to implement the ICT component. Abantu used its existing facilities, Satellife Healthnet used a hospital as a teaching base, and CDI used existing community centers for its schools. In general, using existing facilities appears to be more efficient than creating new buildings (Future Stations).

**Lesson 17: Link employment skills training to job placements and to training in how to search for a job.** Any project that provides training must 1) ensure that skills training responds to local job market needs and 2) help trainees with job placements. Training in pro-active skills for finding jobs should also be included as a component in many training programs as, without such a component, ICT training may raise false expectations.

**Lesson 18: Ongoing project monitoring should be incorporated into infoDev-funded projects, with project staff training to conduct regular monitoring.** The case studies demonstrate that monitoring enabled projects to adapt and tailor services to changing demand and circumstances. For SITA, this meant creating an internship program half-way through the life of the project. For the various telecenter projects, it often meant changing the types and frequency of computer courses.

Monitoring also requires staff training, as heavy workloads often prevent staff from giving this activity priority. In order to address this problem, Viva Rio is now providing Future Stations staff with one-day training on its monitoring system, emphasizing the importance of this monitoring for the smooth operation of the project.



Photo 11: The use of existing community facilities tends to be a more efficient and effective mechanism than creating new buildings

<b>infoDev Project</b>	<b><i>Do current activities have the potential to become financially sustainable?</i></b>	<b><i>Is the project replicable without a large start-up grant?</i></b>
Abantu (Kenya)	Yes. Main lesson learned was to integrate ICT into all gender awareness work. In theory, ICT project activities are sustainable without large grants.	Yes. Integrating ICT in day-to-day work is a “normal” institutional expenditure.
B2Bpricenow.com (Philippines)	Yes. Cost recovery could be achieved by delivering services that improve users profit margin.	Yes, if replication effected in strategic partnership with private sector.
CDI (Brazil)	Yes. Schools are purportedly self-sustainable, based on student monthly fees.	No. Set-up costs require benevolent/ grant partnerships.
Cemina (Brazil)	Yes. Commercial advertising generates revenue and shared content minimizes costs.	No. Set-up costs require benevolent/ grant partnerships.
Conexiones (Colombia)	Yes. Program has support from government and educational institution budgets.	No. Set-up costs require benevolent/ grant partnerships.
Fantsuam (Nigeria)	Yes. Certain activities could become sustainable.	No. Set-up costs require benevolent/ grant partnerships.
FOOD (India)	Yes. User groups can sustain use of technology out of profits.	No. Community development workers needed to mobilize women’s groups.
Future Stations (Brazil)	Yes. Activities could become sustainable through fees for service.	No. Set-up costs require benevolent/ grant partnerships.
Manobi (Sénégal)	Yes. Activities could become sustainable on the basis of fees for service, <i>if</i> more subscribers are attracted.	Yes, if replication effected in strategic partnership with private sector.
OAS (Latin America)	Yes. Activities could become sustainable through training fees.	No. Set-up costs require benevolent/ grant partnerships.
Peoplink (worldwide)	Yes. Activities could become sustainable through fees for service (paid out of increased profits).	Yes, if replication effected in strategic partnership with private sector.
Rits/ Sampa.org (Brazil)	Yes. Activities could become sustainable through fees for services.	No. Set-up costs require benevolent/ grant partnerships.
Rostropovich (Russia)	No. Public good: health service delivery efficiency gains supported by government budgets.	No. Set-up costs require benevolent/ grant partnerships.
Satellife (Kenya)	Yes. Activities sustainable through training fees, although in Kenya, institutional difficulties rendered this impossible.	Yes. Integrating ICT in day-to-day work is a “normal” institutional expenditure.
SibDev (Russia)	Yes. Potential cost recovery through delivery of services that improve users profit margin (unproven).	Yes, if replication effected in strategic partnership with private sector.
Sita (India)	Yes. Activities could become sustainable through training fees and reduced scope of service.	No. Set-up costs require benevolent/ grant partnerships.
Voxiva (Peru)	No. Public good: health service delivery efficiency gains supported by government budgets. However, the model can be adapted for commercial use—Voxiva sold a similar system to the American Red Cross to monitor blood supplies nationwide.	Yes, if replication effected in strategic partnership with private sector, enabling start-up of key back office technology

Table 6. Financial Sustainability and Replication of Case Study Projects



## Lessons Learned from other ICT-for-Development Efforts

This section seeks to discover what can be learned from other ICT-for-development projects, with the aim of developing a set of guidelines for future projects. While a number of ICT case studies have been written, relatively few in-depth evaluations of what does and doesn't work in promoting ICT for development have been published. Two recent papers prove the exception: the *Magic Box*, published by the Food and Agriculture Organization of the United Nations (FAO) in 2001, and *Sustainable Initiatives*, published by the U.K. Department of International Development (DFID) in 2003.



Photo 12: Learning about ICTs

This section elucidates the guidelines developed in these papers and applies them to the *infoDev* case studies. A refined set of guidelines is then proposed, based on the experience and lessons learned from the *infoDev* projects.

### The Magic Box (FAO)

*Michiels, Al, and L. Van Crowder. 2001. The magic box: Local appropriation of information and communication technologies. Rome, Italy: FAO.*

This study looks at local appropriation of ICT in development projects around the world. Unfortunately, very little written information was available on such projects at the time the study was written, and only a limited number of community-driven, locally appropriated, ICT initiatives were then in operation. The projects surveyed by the FAO were, moreover, either in the pilot phase or, if they had concluded, had not conducted any type of monitoring, evaluation, or impact assessment. Nonetheless, the study developed some guiding principles for ICT projects, which are reviewed below using illustrations from the *infoDev* case studies.

### FAO Guiding Principles

1. Enter into dialogue with the target group about what information they wish to communicate, the most appropriate technology for communicating this information, and the impact an ICT project will have on the cultural and social norms of the community.

Although none of the *infoDev* case study projects appears to have initiated specific discussions with the local community on the way in which a project would affect current social and cultural norms, several of the projects appear to have met the overall criteria of this guideline. Manobi, for example, developed the PDA interface for its project alongside the fishermen and buyers who would use it, seeking to create a tool that these target participants would feel confident using. CDI attributes the success of its IT and Citizens Rights Schools to the deep involvement of local communities in developing the model for the schools. The technology that was then chosen for the CDI project was tailor-made to meet community needs.

2. Leave the final decision on the type and location of the technology in the hands of the local community. In reaching their decision, make sure that local residents discuss how the project and technology could affect power dynamics within the community.

Several *infoDev* case studies complied either in part or in full with this principle. Manobi, for example, worked with local fishing unions, government departments, and fishermen to choose the location for its project and the masts used as communications towers. B2Bpricenow.com adapted project technology to local needs and preferences after an initial Internet-based trial revealed that mobile phones had greater utility for the target community. CDI specifically uses the ICT component in its schools as the springboard for discussing citizenship and power dynamics within local communities. Whereas Abantu did not engage in this type of discussion with its women trainees, it did discuss power dynamics at the national level by advocating gender-sensitive government education policies on ICT.

3. Do not introduce technology for its own sake or for the sake of the project. Introduce technology solely to meet the information and communication needs of the target group.

*infoDev* case studies reflected the reality of this maxim in multiple ways. Abantu, for example, found that it needed to integrate ICT into its existing projects, rather than maintain an isolated ICT project. Manobi and B2Bpricenow.com both specifically created communications tools to empower producer groups, allowing them to obtain a fair price for their products. Voxiva developed its disease surveillance platform to answer the information and communication needs of the health care community of Peru.

Conexiones introduced its technology with the sole purpose of improving educational content and teaching techniques in local schools. Educational content developed for the project is designed to meet the requirements of school curricula and the needs of the teachers. The Rostropovich project became successful precisely because the technology solution was designed to meet the specific needs of cancer doctors (i.e., to send images to and communicate with other specialists worldwide).

4. When designing an ICT program, it's necessary to understand the different ways in which people learn, communicate, and use information.

This principle impacted the *infoDev* case studies in different ways. Abantu discovered that seminars and workshops, not written presentations, were more successful advocacy tools due to the oral nature of Kenyan society. Conexiones developed a system responsive to the learning patterns and needs of both rural and urban communities in Central America. Continued expansion of its model points to its success in understanding how Colombian target communities learn and communicate. In the OAS program, trainers were required first to determine the needs of the disabled, then to adapt the technology they needed to learn in order for them to use it.

5. Project design must incorporate monitoring, evaluation, and impact assessment components, and ensure that these components are implemented.

A number of *infoDev* case studies gathered no baseline statistics, making it difficult to assess their true impact; the cases continue to display an overall weakness in monitoring and evaluation. However, certain projects greatly benefited from monitoring and assessments conducted informally over the life of the projects. Hands-on learning, for example, in the B2Bpricenow.com project highlighted the need to integrate mobile phones into the technical design. Ongoing monitoring allowed Future Stations to determine that computer classes focusing on professional skills development were the most popular. The project subsequently modified its offerings to respond to client demand.



Photo 13: Design projects to incorporate the existing that work alongside the existing social systems already in place

6. Design holistic projects: incorporate the social, economic, and communication systems already in place in the target community.

Certain *infoDev* case studies learned this principle the hard way, while others applied it in the design stage. Sita, for instance, realized that focusing solely on ICT training was not sustainable and subsequently adopted a more holistic approach that included training and internships, laying the groundwork for the employment of its trainees. Voxiva, on the other hand, chose the existing telephone network as its technology of choice, which has contributed to the continued success of the project and its forthcoming expansion to new regions of Peru.

7. Create partnerships with public and private institutional infrastructures. Build on existing formal and non-formal local organizations and communication networks.

All *infoDev* projects highlighted the need for partnership, whether to supply funding, provide technical support, or actually link the technology to projects on the ground (Rits/ Sampa.org). To cite but two examples, CDI utilized existing community centers to house their telecenters and trained local staff to run them; SibDev created a web site and databases in collaboration with both public and private institutions.



Photo 14: Using existing communication networks to promote ICT usage.

8. Provide ICT skills training at all levels, according to community need. Pay particular attention to youth, women, and marginalized groups.

All *infoDev* projects included a training element, with many focusing on building the employable skills of young people. Certain projects, such as Food, targeted marginalized populations to enable them to increase household incomes and to promote empowerment.

### Sustainable Initiatives Study (DFID)

*Batchelor, S., and P. Norrish. 2003. Sustainable Information and Communication Technology. London: DFID.*

This study is part of a DFID research program on the sustainability of ICT projects. A more recent publication than the FAO paper, the paper looks at how organizations use ICT to enhance ongoing development activities that have some measure of sustainability. It concludes that **sustainability** “involves a combination of factors, including, among others, **clear objectives, institutional frameworks, local capacity and development benefits.**”

Drawing on the distinct shared patterns of the 12 DFID case studies surveyed by the study, general guidelines (below) have been distilled for ICT projects. Each guideline is tied to a standard project component (e.g., objectives, process, capacity) and applied to the experience of the *infoDev* case studies.

### DFID Guiding Principles

1. **Objectives:** Project objectives need to be clear and accepted by the majority of stakeholders. Interestingly, objectives were not explicitly highlighted by the *infoDev* case studies. However, the studies implicitly showed that a “champion” with a vision of success was often behind the project and kept it on track.
2. **Target Groups:** Scant information is available about those target group features essential for sustainability. To have an increased impact on the MDGs, ICT projects need to focus on the majority of the poor. While *infoDev* case studies demonstrated that a wide variety of target groups can benefit from ICT (women's groups, fishing and agricultural cooperatives, health workers), they also did not identify target group characteristics that would guarantee project success.
3. **Intermediaries:** Many ICT projects appear to illustrate the need for re-intermediation rather than dis-intermediation, particularly with respect to technical facilitation. A number of *infoDev* case studies highlighted the need for incorporating middlemen into ICT projects, due to both social and cultural norms. Manobi didn't disintermediate beach-based fish buyers, but it did give more power to the sellers to negotiate. Voxiva re-intermediated by allowing health workers to report directly to the database rather than through their local offices. FOOD, however, showed that removing middlemen (i.e., small businessmen who rent or sell mobile phone time) increased the incomes of

the target group.

4. **Policy Environment: Government policies on ICT can affect the day-to-day operation of ICT projects.** Among the *infoDev* case studies, only Abantu directly addressed the policy environment. Most of the projects benefited from a reasonable policy environment or from partnerships with local government agencies. Conexiones, for example, worked in cooperation with the educational system. CDI is presently in discussions with federal authorities in Brazil about expanding its IT-based schools, an expansion that could be enhanced by new government policies for social mobilization in the slums.
5. **Institutional arrangements: Sustainability of an ICT project requires a clear link between the target group and the institutional arrangements made for the project.** Finding the right partners for a project has been a theme throughout this paper. Certain *infoDev* projects, including Sita and Satellife, nearly terminated due to poor initial institutional arrangements with partners.
6. **Linkages: Development projects cannot operate in isolation, they must be linked to local authorities and other organizations working in relevant areas.** Several of the *infoDev* case studies forged multiple links with local government agencies and NGOs. Conexiones, for example, established links with both local schools and educational authorities. Voxiva forged links with the Ministry of Health in Peru. FOOD demonstrated a slightly different lesson: that it can be important to *avoid* linkages with other development initiatives (in this case, credit programs) which could undermine project gains.
7. **Project Process: Sustainability is closely linked to planning and the involvement of the target group.** Feedback from target groups in *infoDev* case studies often made the projects both more viable and more sustainable. As previously mentioned, Manobi involved fishermen and buyers in the technical design process, and CDI involved local communities in the development of the model for its schools.
8. **Capacity: Sustainability is affected by human capital *and* technical and organizational capacity.** The latter capacity does not need to be present at the start of a project, but it must be either developed or found (by linking with other organizations or groups). An identifiable project “champion” is also crucial for building capacity.

*infoDev* case studies show that the presence of a project champion enhances the success of a project (FOOD, Manobi, Voxiva, Fantsuam). The cases also demonstrate that technical and organization capacity can be built over the life of a project. For example, CDI currently employs a network manager and an educator who were both former students. Abantu, by contrast, enhanced its own capacity as an implementer by planning self-paced staff training using CD-ROMS.

9. **Technology: Use locally available equipment. Be ready to overcome technical difficulties. Match the style and quantity of equipment to its usage.**

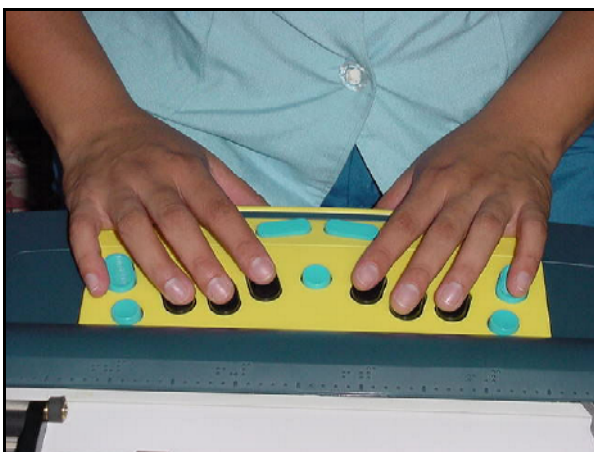


Photo 15: Adapting technology to meet the needs of the beneficiaries

Several of the *infoDev* case studies provide good illustrations of this principle. Voxiva used the local telephone network. CDI and Rits/ Sampa.org overcame technical difficulties by pioneering the use mini-networks using Linux. Both projects also matched equipment (second-hand computers and cheap workstations) to its intended use. Fantsuam, by contrast, overcame a lack of local connectivity by using leading-edge technology in an area without infrastructure.

10. **Finance: Despite the current emphasis on financial sustainability, it is too early to determine sustainability criteria for ICT projects.** Although many such projects use cost-recovery mechanisms, most do not generate sufficient income for the project to

operate independently or to purchase new equipment.

Many *infoDev* case studies use cost-recovery mechanisms, (CDI, Conexiones, Rits/ Sampa.org, Manobi), but only Future Stations stated explicitly that funding will be required to purchase or replace equipment. The Brazilian project concluded that cost-recovery from clients would not cover such costs.

11. **Development Benefits: ICT needs to be used in support of other development objectives, where it can have an immediate and identifiable benefit.**

Illustrations of this principle can be seen in most *infoDev* case studies. Voxiva used ICT to build an early warning system for epidemics. FOOD provided income support for marginalized women. CDI promoted social mobilization and Cemina promoted gender awareness and empowerment.



Photo 16: Involve the local community in deciding their information needs.

## Recommended Guidelines for infoDev Projects

The two sets of guidelines reviewed in the previous section share a number of common principles that can be refined on the basis of lessons learned from the *infoDev* case study analysis. As will be apparent, the resulting guidelines for *infoDev* do not differ greatly from those proposed by Michiels and Van Crowder or by Batchelor and Norrish.

1. **At the outset of a project, involve local communities in deciding information needs to be communicated and the most appropriate technology for communicating this information.** Encourage the communities to make these decisions in light of local cultural and social norms.
2. **Involve the community in discussions about how the introduction of technology affects current power balances.** Such discussions should be held over the life of the project, not necessarily at the start of a project, when the community does not understand the capabilities of the technology.
3. **Involve the community in continuous discussions about how the project is progressing and what adaptations are required.**
4. **View information and communication technology as a tool to enhance current projects, activities, and capacities, not as an end in and of itself.**
5. **Develop appropriate and timely content for target groups.**
6. **Utilize locally available technology. Don't be afraid of keeping it simple.**
7. **Link ICT projects to public and private institutions.**
8. **Assess potential partners in light of the project objectives.**
9. **Be certain that the infrastructure required by the project technology is in place, or in the process of being put in place.**
10. **Incorporate plans for monitoring, evaluation, and impact assessment into the project.**

## Conclusion

Using the guidelines outlined in the previous section, the following concrete steps are suggested when designing and implementing future *infoDev* ICT-for-development projects.

### Project Design

- Consider how the proposed project will contribute to the Millennium Development Goals, with special consideration to urban/rural bias of the project's location and services.
- Conduct a needs assessment with the participation of the local target community.
- Research appropriate partners for the project. Locate all stakeholders who would have a stake in the project's success.
- Where possible, locate partners with existing physical infrastructure to avoid extensive set-up costs.
- Draft a detailed Memorandum of Understanding detailing project goals and the roles and responsibilities of all stakeholders.
- Develop a monitoring, evaluation, and impact assessment system with the participation of the target community. Train project staff and end-users in monitoring procedures.
- Determine if project growth and/or replication depends on new infrastructure, a supportive policy environment, or government policies. If yes, are advocacy efforts to achieve these goals incorporated into project activities?



Photo 17: Children's conclusion on one of *infoDev*'s projects

### Technology Selection

When developing a technical solution for the needs of the local target community, consider whether:

- adequate infrastructure exists to support the technology selected for the project, including, for example, the availability, accessibility, affordability, and reliability of landline telephones, local power supply, and mobile phone coverage areas
- extensive training would be needed for target community members to use the project technology
- the technology is both accessible and affordable to community members, once they have completed initial training (e.g., whether personal computers and phone lines are accessible for Internet access, a local telephone connection is accessible for a voice-based system)
- the technical solution will require skilled maintenance and troubleshooting. Is the solution technically sustainable? Are spare parts/software updates accessible and affordable? Does the project plan to build local technical capacity to maintain the technology? Are these costs included in the project budget?
- the implications of software selection (commercial or open source) are well understood by the implementer and end-users
- alternative existing technologies (e.g., radio, television, digital video) could, alone or in combination with newer technologies, reach greater numbers of end-users and achieve greater impact
- the technology can be used to build local capacity for content creation

### Cost Recovery & Financial Sustainability

- Define and distinguish between startup and ongoing operational costs.
- Structure the project to include cost-recovery mechanisms, permitting eventual operational or full financial self-sufficiency.
- If a project involves a public good, such as education or healthcare services, define the actions and financial support needed on the part of local, municipal, and/or national government to ensure project success.
- Once cost-recovery measures have been determined, define criteria for client participation in the project. Would repayment requirements/loans place an undue burden on the very poor? Do clients need a minimum financial base for the project to be successful?
- Factor the cost of software licenses, software updates, and hardware maintenance and replacement into plans for sustainability.
- Define the extent, requirements, and cost of initial community development and facilitation work needed to replicate the project. Can staff or end-user training develop the institutional capacity to replicate the project in the same country? in other countries?

### Training

If the project contains an ICT training component, or is solely dedicated to ICT training, ensure that the training program:

- responds to local job market needs and requirements
- responds to the demand of the target community
- has a well-developed job placement capability
- has considered gender, age, and subject matter biases present in the educational system and has developed activities to address these biases

Finally, it should be emphasized that ICT for development projects are subject to the same rules and guidelines to which all development interventions are subject. ICT is not a special case, it is simply a tool that can be used in the broader, complex process of poverty alleviation. Involving participants, creating partnerships, enhancing information and communication through appropriate content, focusing on the root causes of poverty—these are standard steps in the development process. In fact, these "rules" are the key to successful poverty alleviation. The case studies reinforce the view that if innovative use of ICT is to assist the development community achieve the MDGs, then ICT needs to be firmly subject to the wider development process.

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## Annex 1: Case Study Methodology

The 17 case studies chosen for this study represent a cross-section of projects funded by the *infoDev* Core Program from 1995 through 2003, both in terms of geography and the dominant information and communications technology (ICT) used. Each case study was analyzed using a consistent framework based on the Millennium Development Goals. The framework was comprised of five basic components: an overview, impact review, impact analysis, lessons learned analysis, and beneficiary feedback. The objective of the case study analysis was to answer the question, "What can we learn from the case studies about what does and doesn't work in promoting ICT for development, and why?"

The general overview of each case study examines the development aims of the project and explores the "who," "what," "where," "when," and "how" of project activities. A second section provides a brief outline of the major impact/results of the project, followed by a third section which looks at five issues and how they contributed to these achievements: partnership, target groups, capacity building, technology, and finance. The fourth section analyzes the various issues and lessons learned over the course of each project. This section focuses in particular on the challenges faced during implementation, key factors and issues that helped to reduce poverty, and the future outlook of the project. In addition to these four sections, a "story box" encapsulates feedback received from case study beneficiaries on how the project impacted their lives.

Due to the nature of the case studies, research predominantly focused on secondary data provided by the *infoDev* task manager. Research began with a desk study involving an initial review of project documentation, including project proposals, monitoring and evaluation reports, and information found on project websites. In addition, Internet searches were conducted to locate additional available information on the projects, such as that posted on the Stockholm Challenge awards web site. The desk study of each case then produced a series of questions which formed the basis for e-mail communication with the various project leaders.

In addition to electronic communication, field visits were carried out to 13 of the 17 projects: Abantu Kenya, B2Bpricenow.com, CDI, Cemina, Fantsuam, FOOD, Future Stations, Healthnet Kenya/Satellite, Manobi, Peoplink, Rits/Sampa.org, SITA, and the Vishnevskaya-Rostropovich Foundation. Face-to-face semi-structured interviews were conducted with project staff and beneficiaries during the field visits, based on the information needed to complete the case studies. A series of still photographs and video film footage were taken in order to highlight various aspects of the projects (the video footage was later edited at the U.K. offices of Gamos and Big World.)

The four projects that did not host field visits (Connexiones, the Organization of American States, the Siberian Development Net, and Voxiva) were asked to share still photographs that they considered appropriate for the case studies. In addition to pictures, the authors also received a recent video snapshot of the Voxiva project in Peru.

Once all project data had been gathered, drafts of the case studies were sent to project leaders for review and comments. Amended drafts were then sent to *infoDev* task managers for final review and comment.

At the same time the authors were engaged in research on the case studies, they conducted a literature review on ICT-for-development issues. This review contributed both to the research framework for the present publication and to the analysis of the case studies in the light of the Millennium Development Goals. The literature review focused predominantly on information available in print and on the Internet, as well as on various ICT e-mail forums (including Balancing Act, the Development Gateway, bytes for all, and DigAfrica), ICT case story sites (including [www.digitalopportunity.org](http://www.digitalopportunity.org), [www.sustainableicts.org](http://www.sustainableicts.org), and [www.iicd.org](http://www.iicd.org)), and recent papers and/or research of major development agencies that addressed ICT and development, such as the Food and Agriculture Organization paper examined in section 3 of this publication.



## Annex 2: Summary of infoDev Case Studies

<b>Abantu</b>	Laptops, personal computers (PCs), Internet	Abantu for Development was established to promote gender awareness. In 1999 it began an ICT component of its work, concentrated on Kenya and has included training various women's groups in basic software and internet skills, and bringing together different sectors of the business community to produce gender sensitive ICT policy recommendations. While the ICT component was started as a project stream, i.e. "Gender and ICT", Abantu have found that their experience to date has highlighted the need to incorporate their ICT work into all other areas – Gender and Conflict, Gender and Governance, Gender and Poverty. Through this Abantu believe they can have a greater impact in tackling issues associated with their other Gender issue streams of Poverty, Governance and Conflict.
<b>B2Bpricenow.com</b>	PCs, Internet, mobile phones	B2Bpricenow.com is an e-marketplace in the Philippines. Through this on-line market place farmers, fisherfolk and small and medium enterprises can access market prices and trade products. This can be achieved either through their website or by cell phone.
<b>CDI</b>	PCs and Internet	CDI, the Committee for Democracy in Information Technology, is a non-profit, nongovernmental organization that, since 1995, has been developing a pioneering initiative to promote social inclusion, by using information technology as a citizens rights and development tool. They facilitate the running of Information Technology and Citizens Rights Schools, by providing the equipment (hardware and software), training of instructors, and administrative and technical support. The schools are self-managed and self-sustainable but are supported and monitored by regional CDI offices.
<b>Cemina</b>	PCs, software for digital editing, Internet	Cemina, Communication, Education and Information on Gender has the primary aim of strengthening women's leadership in community development through internet-radio in Brazil. It was the first project in Brazil that focused on promoting gender education by connecting communities to the internet through the radio. Radio programme content is produced locally and shared with other radio stations via broadband upload/download.
<b>Conexiones</b>	Interschool network connection for existing PCs	Conexiones began in 1993 in Colombia as a research project of EAFIT University and the Pontificia Bolivariana University in Medellín, intended to develop new Information and Communication Technology (ICT) - supported learning environments for improved quality and equity of education. Since its initial research phase, it has targeted schools in both rural and urban areas, without prejudice towards the socio-economic conditions. To date 75 schools in the provinces of Antioquia, Santander, Bolívar, and Valle del Cauca belong to the Conexiones network, which encompasses more than 1,000 educators and more than 6,000 students between 7 and 16 years of age.
<b>Fantsuam</b>	PCs with CD ROMs, satellite radio	The Fantsuam Foundation in Kafanchan, Nigeria is working to give local rural communities access to health and educational resources using the Internet. In the first phase of this project they have worked with local committees to establish three Community Learning Centres (telecentres). One of these, at the Fantsuam office in Bayan Loco, is already financially self-supporting. Plans to set up a mobile community telecentre, which would visit different communities and offer email access via satellite, were abandoned due to prohibitive costs.
<b>FOOD</b>	Mobile phones	FOOD, based in Chennai, India, began the Inter-City Marketing Network project in April 2001 to help poor women in urban areas increase their income. FOOD worked initially with some 100 existing women's self-help groups representing between 1,000-2,000 women and their families. An initial survey of these groups indicated that while many women derived a small income from producing goods at home (food products, soap, repackaging of food items), they were generally weak at marketing their products and finding customers. They typically sold to visiting middlemen, and made little profit from their work. FOOD provided training in marketing and the use of 'social capital', encouraging the groups to focus on production, or marketing, or both, and provided each group with a cell phone to facilitate contact between production and marketing groups, and between groups and customers.
<b>Future Stations</b>	PCs & Internet	Future Stations begun in March 2002 and form part of a Rio de Janeiro shanty-town project called Viva Rio. Viva Rio is a very large and highly respected grassroots project that has been working for over 10 years in a variety of ways in the Favelas of Rio. Viva Rio works to empower women and decrease poverty and violence within the Favelas. Future Stations are multifunctional Internet Cafes offering training in the internet and major computer packages, they act as advice centres for employment and offer many other community services. They run interactive learning evening classes for young people who have dropped out of school.

<b>Manobi</b>	Wireless Application Protocol (WAP) mobile phones, Manobi Server	MANOBI's 'Innovative Internet and wireless e-services for the strengthening of Senegalese fisherman artisans' is a new project started in early 2003. This project uses WAP technology via cell phones to provide fishermen with up-to-date weather reports and market price information. In addition the fishermen are able to use the interactiveness of the technology to input fish stock information for marketing purposes, and to log their departures and estimated times of return, so that local fishing unions can be alerted if fishing boats fail to return on time. At the time of writing some 57 individual users had registered for the service (41 buyers and 16 artisan fishermen).
<b>OAS</b>	Adapted PCs and peripherals	The 'IT: Employment for people with disabilities' project was carried out for 14 months starting in June 2000. The project used professional volunteers to train both people with disabilities and organisations working with people with disabilities in computer programmes and work related information and technology skills. A total of 13 volunteers trained 338 people representing 44 organisations in El Salvador, Guatemala, Honduras and Nicaragua.
<b>PEOPLink</b>	PCs, digital camera, Catgen software	This project supported the development of the first version of the 'catalogue generator' software CatGen, plus regional training, to enable some 55 artisan producer groups to build, maintain and update their own web catalogues of craft products to be used to enhance B2B (business-to-business) marketing. While E-commerce is no panacea for artisan producers, the CatGen system allows users to create on-line catalogues with a minimum of web or computer skills, and has brought significant benefits to producers, especially in the areas of collaborative product development, liaison with buyers and simple web or email-based marketing.
<b>Rits</b>	High-spec server, secure data center, PCs and Internet	This project involves experimentation and application of adequate digital information and communication technologies (DICTs) to contribute to Internet access and effective use by third sector organizations and their networks in Brazil. Rather than trying to build an experimentation center from the ground up Rits chose to work with the Sampa.org network of telecentres in the low income communities of Sao Paulo. Rits has provided them with technical support, evaluations and sponsorship. Currently Sampa has 10 telecentres with about 2,500 users based in Sao Paulo shanty towns.
<b>Rostropovich</b>	Primary server, PCs and peripherals, digital microscope, Internet	The telemedicine healthcare network began in 1999 in response to the need to increase the capacity among paediatric medical staff in the First Municipal Hospital, St Petersburg. Through the use of the Internet and the power of digital technology, the Foundation has linked staff from St Petersburg with colleagues from the USA and Europe. This has enabled the Russian staff to send MRI scans and records of their patients to other specialists in order to improve the care management of children living with cancer. Within the St Petersburg area the network has also improved communication links between primary care physicians and medical specialists.
<b>Satellite/ Healthnet</b>	PCs, server, peripherals, generator	The Regional Information Technology Training Centre was set up in Nairobi, Kenya in 1999. Its aim was two fold. Firstly to train up medical staff from across East Africa in basic IT skills and technical support; and secondly, to sensitise policy makers to the potential value of Information and Communication Technologies (ICTs) in the workplace. Over a one year period over 100 people were trained. In Kenya while the foundation for a sustainable business were laid, other institutional factors have led to an uncertain future. Trainees from Uganda, Tanzania, Ethiopia and Eritrea have been able to organize ICT training in their countries and ongoing training of Health professionals can be found throughout East Africa.
<b>SibDev</b>	PCs and Internet	The overall goal of this project is to increase the capabilities of small and medium enterprises (SME) in poor areas of Siberia, Russia, to attract investments for the growth and sustainability of their businesses. This has been achieved through increasing the capacity of local SME support organizations to attract private investment on the Internet, as well as the development of a website dedicated to the marketing of Siberian SMEs. To date, the project has run a number of training workshops, produced a toolkit to promote business marketing through the internet, and developed a project website.

<b>Sita</b>	PCs and Peripherals	Project SITA trained over 500 low-income women from north Delhi in basic computing during 2000-01, with the aim of assisting them to find work with local businesses. SITA estimates that as at July 2003 some 70 trainees are directly using PC skills in their paid employment. Overall the project underestimated the significant gender barriers facing low-income women: a shortcoming partially addressed by modifying the course to include work placements, to give trainees experience of local businesses. Although project SITA has now finished, a number of staff are involved in the new women's e-cooperative, Mitra Mandal, which continues to train local low-income women, and which hopes to sell services to local businesses on a co-operative basis.
<b>Voxiva</b>	Pay phone, mobile phones, PCs, Internet, local radio (occasionally)	Voxiva, a private social venture, is committed to extending the benefits of information technology beyond the digital divide. At the request of local health officials, they looked for ways to use existing telecommunications infrastructure to strengthen disease and disaster surveillance and response in Latin America. Their product, ALERTA, is a disease surveillance application that enables health professionals in rural areas to use the local telephone to submit reports to healthcare authorities. This information is then entered into a computer system enabling the health authority to keep track of disease in a timely and up-to-date manner throughout the country. The system also enables rural health professionals to receive information and help through voice mail, again via the local telephone. This product has so far been piloted in 76 health facilities located in Cañete-Yauyos zone, approximately 140 km south of Lima, and in Chilca-Mala zone, approximately 80 km south of Lima.



Photo 18: the difference ICTs can make to people's lives

This publication is an output of a co-operation between **Gamos Ltd** and **Big World** for the distribution of practical research information.



This document is an output from a project funded by **infoDev** to provide brief, detailed descriptions of **infoDev** funded projects and their impact on poverty reduction. The views expressed are not necessarily those of **infoDev**.

For more information contact  
Dr Simon Batchelor or Dr Nigel Scott  
[research@gamos.org](mailto:research@gamos.org)  
Gamos Ltd, Crown House, 231 Kings Road,  
Reading, RG1 4LS, UK