WORKING PAPER NO. 9

ENHANCING THE LIVELIHOODS OF THE RURAL POOR THROUGH ICT

A Knowledge Map

June 2008

Information and communication technologies (ICTs), appropriately adapted, help improve the livelihoods of poor individuals, families and communities in rural areas and increase their income opportunities, thereby improving their chances of escaping from persistent poverty. This Knowledge Map helps understand what we know, both from research and from experience in the field, and what do donor staff and their country counterparts most urgently need to know about these issues. In addition, it provides recommendations on the use and role of ICT in enhancing the livelihoods of the rural poor.

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ENHANCING THE LIVELIHOODS OF THE RURAL POOR THROUGH ICT: A KNOWLEDGE MAP

June 2008

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1. Executive Summary

An Introduction to the Knowledge Map

The Knowledge Map is designed to answer the following questions: How can the full range of information and communication technologies (ICTs), appropriately adapted, help improve the livelihoods of poor individuals, families and communities in rural areas and increase their income opportunities, thereby improving their chances of escaping from persistent poverty? What do we know already, both from research and from experience in the field, and what do donor staff and their country counterparts most urgently need to know about these issues? How should we think about the role of ICT in enhancing the livelihoods of the rural poor? What elements most urgently require further research and analysis to lay the basis for informed policy and investment by donors, governments, and others?

The Map builds on the Information and Communications for Rural Livelihoods (ICD4RL) project which was completed a few years ago by the Overseas Development Institute (ODI) in cooperation with the UK Department for International Development (DFID), the Food and Agriculture Organisation (FAO) and the World Bank (WB). That work identified eight principles for successful ICD4RL:

- Adapting Content to Local Context.
- Building on Existing Systems and Working with Existing Policies.
- Addressing Diversity.
- Building Capacity.
- Ensuring Equitable Access and Empowerment.
- Building Partnership Networks.
- Adopting Realistic Approaches to Technology.
- Information Costs.

Those principles have subsequently been incorporated into FAO's Bridging the Rural Digital Divide (BRDD) Program (http://www.fao.org/rdd/livelihood_en.asp), and their leadership of the e-Agriculture working group (http://www.itu.int/wsis/c7/e-agriculture/index.html) established at the World Summit on the Information Society (WSIS) in Tunis, 2005.

The project ran between September 2006 and May 2007 and included the following components:

Literature, Survey, and Field Studies

- A **Literature Review** – building on the review undertaken by ODI for the earlier DFID/FAO/WB study and focusing specifically on documents which provide recent analysis or evaluation about the application and impact of ICT projects on Rural Livelihoods. There proved to be very few documents that do this. Those that were found are included in the Annotated Bibliography.

  http://www.odi.org.uk/RAPID/Projects/R0093/bibliography.html),

- A **Donor Review** – which included a review of public websites ,documents, and interviews with staff from six international donors active in the area of ICTs for livelihoods – the Asian Development Bank (ADB), International Development Research Centre(IDRC), German Agency for Technical Co-operation (GTZ), United Nations Development Program (UNDP), United States Agency for International Development (USAID) and the Department for International Development (DFID). The results are presented in the a Donor Review document that complements this report.

- Six **Country Studies** – carried out by in-country research institutes. They used a combination of interviews, focus group discussions, in-depth case studies, and workshops to explore key actors and themes in the area of ICTs for rural livelihoods. Key actors included donors, policymakers, private sector technology providers, CSOs, and beneficiaries. Key themes varied across the studies, but included issues such as the question of coordination between key institutions; local appropriation of technology; the exploding mobile phone market; issues of sustainability, scale and funding models; the role of ICTs in increasing the empowerment and voice of the rural poor; and the linkages between ICTs and broader development priorities. The country studies were carried out in the following countries:
    - Argentina (by the Center for the Implementation of Public Policies Promoting Equity and Growth – CIPPEC).
    - Bangladesh (by Unnayan Onneshan)
    - South Africa (by Louis Fourie Consultants)
    - Sri Lanka (by Practical Action Consulting Sri Lanka)
    - Tanzania (by ESRF)
    - Uruguay (by ICP)

Interim Outputs

- The reports listed above were reviewed to develop two **Interim Outputs**:

    - A Knowledge Needs Assessment aiming to identify the key topics, and what donors, governments, and practitioners need to know about them so they can use the full range of ICTs, appropriately adapted, to help improve the livelihoods of poor individuals, families, and communities in rural areas and to increase their income opportunities, thereby improving their chances of escaping from persistent poverty.
    - A Key Topic Outline aiming to identify existing knowledge, and knowledge gaps for each of the topics.

- These two Interim Outputs were discussed at an **Expert Review Meeting** in March 2007, which identified the need for further research on in-country donor information needs, and made a number of recommendations about the content and structure of the final Knowledge Map. See Expert Review Meeting.

- Following the recommendation of the Expert Review Meeting, an additional brief **Online Survey** of in-country donor and agency staff was carried out. This was used to inform the revision and final writing up of the Knowledge Map. See the results from the Online Survey.

The Map

- The final Knowledge Map was assembled at a **Write Shop** in ODI in May 2007. It was written up in wiki format to ensure that it can remain a flexible resource that can be updated. In addition, key sections and summaries were pulled out to compile a printed book.

The issues, approaches, and recommendations in the Knowledge Map are based on the Sustainable Livelihoods Approach (SLA), which has core principles that state that pro-poor initiatives should be:

- people-centered;
- responsive and participatory;
- multi-level;
- conducted in partnership;
- sustainable; and
- dynamic.

This approach is elaborated on in more detail in the section Linking Sustainable Rural Livelihoods to Information and Communication.

The project also builds on current thinking, programs and policies about ICTs and rural development. We have especially highlighted three frameworks: 1. The "12 Cs," developed by UNCTAD: **Connectivity, Content, Community, Commerce, Capacity, Culture, Cooperation, Capital, Context, Control, Coherence, and Continuity**. 2. The "Diamond of Alignment": This framework may be especially useful in assessing the climate for innovation and partnerships. Elements include constituents' goals and resources, the nature of the technology, and the governance context. 3. The "8 Pillars": developed by ODI, DFID and FAO, as mentioned above.

Two other principles emerged during the course of the work. The first is that development processes are highly context-specific, and a thorough understanding of the local context is a prerequisite for successful and sustainable development interventions. The second is that in a rapidly changing world, learning systematically from on-going work, sharing knowledge and experience, and knowing where to find knowledge, are increasingly important. This Knowledge Map is an attempt to capture current knowledge and make it accessible. While these two important principles fall outside the scope of this Knowledge Map, short introductions to Understanding the Local Context and Knowledge Management and Learning, with links to other resources, have been included in response to this demand.

The Knowledge Map Topics

The topics in the knowledge map have been selected as areas where there is considerable interest and demand for information amongst donors, policymakers, and other stakeholders involved in the planning and implementation of livelihood projects employing ICT. The current body of knowledge on the topic is presented and illustrated with case studies, and areas for further work and gaps are highlighted. Areas of further investigation and links to key resources on each of the topic areas are also given on the topic sections themselves.

Enabling Environment

The enabling environment refers to the national policies, laws, physical infrastructure (roads, electricity, etc), and other infrastructure (access to education, access to banks, etc.) that need to be in place to allow people to use ICTs to their advantage.

Current knowledge base includes:

- The most suitable setting for ICT policies and strategies is unclear.
- Without advocacy, communication, and localization, national strategies remain ineffective.
- Universal Access Funds are at an early stage, and face bureaucratic and political hurdles. They require support in implementation**.**
- Basic needs: Before ICT can be positioned in the context of rural livelihoods, other basic needs must be mentioned, such as literacy, infrastructure and costs.
- Licensing: Especially concerning radio frequency allocation, this can be a real impediment depending on how strict the government or regulator's requirements are.

Examples include:

- The Universal Access Fund in Chile. It seems that some of the key aspects of its success have been (see Regulatel, 2006) clear parameters and detailed telecommunications acts to guide regulators when monitoring the Universal Access Funds' system implementation.
- Legal framework. South Africa's Value Added Network Services exemplify a way in which the interpretation of the same law can override previous elements found as obstacles. This allowed, for example, metropolitan councils to start providing telecoms services to residents or to extend Internet access through optical fibre. See South Africa – Value Added Network Services (http://linux.odi.org.uk/ict4rl/CaseStudies/VANS?v=osy page) for more details.
- Change in regulation. This was triggered by the Mapuche community in Argentina, which allowed them to broadcast in their native language (something that was not allowed in the past). See Argentina Country Report for more details.
- Basic infrastructure. South Africa's Government Access Initiatives (see example in http://linux.odi.org.uk/ict4rl/CaseStudies/PITS?v=1bbv) constitute second-best initiatives towards solving basic infrastructure problems. Through the establishment of Public Information Terminals, E-School Cyberlabs, and Multi Purpose Community Centres, the South African government seems to have partially sorted some of these problems.

  Read the full Enabling Environment Topic Section.

Evaluation

This section looks at how we can evaluate the impact of ICTs on rural livelihoods.

Current knowledge base includes:

- **Livelihood evaluation focuses more on process and longer-term outcomes than immediate project outputs.** This necessitates a change in focus from the one-time evaluation of *project outputs* (management or project level evaluation) to *livelihood impact* evaluation (stakeholder or community level evaluation).
- **Indicators for livelihood outcomes are inherently flexible.** Livelihood outcomes for a particular community should be negotiated as part of any intervention process.
- **Socio-technical methodologies have relevance to ICT for livelihoods.** While much of pure ICT evaluation is concerned with the functions and reliability of technology on its own, there is also a history of design and evaluation that considers the whole system of people and technology. Soft Systems methodology, Multiview and more recently, community informatics are examples of these.
- **There are limited documented examples of putting participatory livelihood evaluation principles into practice** ICT-related evaluations continue to focus primarily on outputs. The Reflect ICT project is one good exception.
- **With a few notable exceptions (see case studies below), there is a lack of systematic evaluation data on ICT's contribution to rural livelihoods at project and program levels.** There is consensus among donors and practitioners that there is insufficient rigorous evidence on the impact of ICTs on livelihoods, despite a wealth of positive claims from pilot projects and programs. This gap is starting to be addressed (e.g. IDRC Project proposal 2006).

Examples include:

- Evaluation of pilot projects implemented under the e-Sri Lanka strategy. This "KPI"-based evaluation, by Ernst & Young, looked at eight of the pilot projects of the e-Sri Lanka strategy. For each project, data was collected on performance against predefined Key Performance Indicators and outcomes. Half of the projects were found to have had a "substantial" impact on the target audiences, and five of the projects were deemed likely to be sustainable.
- An auto-evaluation approach to impact measurement. IICD and its partners developed a monitoring and evaluation approach for its ICT-enabled development programs. The method used questionnaires and focus group meetings and has been used since 2005 for most of IICD's projects. The volume of data collected allows for cross country and sector comparisons.
- Using the sustainable livelihoods framework for evaluation. The sustainable livelihoods framework has been used as a tool to assess the contribution of ICTs to development projects, using the example of a Colombian telecenter. It was found to help broaden the scope of the evaluation and was felt to be more academically rigourous than other available methods.

  (http://ci-journal.net/index.php/ciej/article/view/310/263).

- A comparative analysis of evaluation frameworks. This study looked at a range of methodologies in evaluating e-government projects, e-education, telecenters and ICT and civil society projects. It concludes that a theoretical framework is useful to guiding the evaluation method, and that there is a need for more longitudinal studies on ICT assimilation. Universities are suggested as playing an important role in helping to develop these frameworks.

  (http://www.asiafoundation.org/pdf/ICT_analysis.pdf).

  Read the full Evaluation Topic Section.

Partnerships

To enhance the livelihoods of the rural poor, strong partnerships must be formed with information providers (Batchelor, Norrish, Scott, & Webb 2003); organizations that promote services and raise awareness (Cecchini & Scott 2003); and organizations offering the technological infrastructure and finance. This section looks at the different types of partnerships between governments, civil society organizations, grass-root organizations and the private sector to see how partnerships can be used in the most appropriate and effective way in the area of ICTs-for-rural-livelihoods.

Current knowledgebase includes:

- Factors that promote partnerships are starting from communities' development priorities; building capacity among all partners to deliver; providing partners with incentives; negotiating conflicting interest; clear and achievable mission and goals; clarity about the type of partnership agreement; clearly defined timeline; availability of required resources; clear expectations; adequate staffing and resources; and well-trained staff.
- Factors that hinder partnerships are cultural differences among government, private sector, and civil society organizations; lack of trust; hidden agendas of different partners; lack of clear identification and recognition of interests of each partner; over positive expectations of partners; rushing partnerships, as they require time and trust as a basis of good partnerships; unequal remuneration of efforts of the different partners; financial and political power differences; and Lack of financial and human resources to invest in the partnership.
- The area of global partnerships needs much more attention.
- Policies that make it easier to partner on connectivity will stimulate rural ICT access.
- Information services are enhanced when content owners form partnerships with organizations able to provide the technology and finance.
- Best practice entails the selection of partners with complimentary strengths.

Examples include:

- In South Africa several municipalities are working on extending Internet access to their citizens by means of optical fibre, the electricity grid or wireless connections. Knysna Municipality, the first South African town to provide Internet access to its 50 000 citizens via wireless technology (the Uni-Fi project), is one of the successful public-private partnership stories in South Africa.

  See http://linux.odi.org.uk/ict4rl/CaseStudies/VANS?v=osy for more details.

- A very successful example of a civil society partnership is the Tanzania Development Gateway Project that provides services and information to the private sector, civil society, and government. See http://www.tanzaniagateway.org

  Read the full Partnerships Topic Section.

Sustainability

This section looks at how ICTs-for-rural-livelihood projects and programs can be set up in ways that continue to support livelihoods strategies in the longer term. This can be achieved by concentrating on: ownership, partnerships, involvement, capacity building, local innovations, and a cross-sectoral approach.

Current knowledge base includes:

- Multi-stakeholder partnerships and networks are recognized as important aspects of the enabling environment and can support community-driven initiatives. To facilitate participatory, broad-based yet ICT-aware rural initiatives, it is recognized that a range of stakeholders need to work together.
- Intermediaries should have a stake in the local community.
- ICT interventions must build on existing systems, including information content (indigenous knowledge, local sources and databases), information technology (TV, radio, telephone, internet), processes (existing surveys, research and extension), and policy environment. ICTs should be built into existing structures and should recognise the existing but less formal communication arenas.
- In poorer countries, local community control and participation is widely recognized as critical to the success of ICT projects, such as telecenters and application development. Community ownership works best when supported by well organized local institutions and where ICT demand emerges from community livelihood needs.
- When an ICT project is cutting across sectors, it is likely to be more sustainable. A good example is Knysna Municipal Uni-Fi project in South Africa.
- Sustainable funding models require that the funding of a project must have clear objectives and an institutional framework.
- The Nokia and Grameen Foundation Village Phone project in Uganda and Rwanda is a sustainable mobile communication service that has helped to create small business and provide connectivity to the rural areas. With the aid of microfinance loans, entrepreneurs can become Village Phone Operators, allowing them to buy the equipment they need to provide telecommunication services to villages. See http://www.nokia.com/A4174134
- Creating an investment environment is an important element of funding.

Examples include:

- **Argentina – TEDEL Rural ICT entrepreneurs**. This project involves linking telecenters to a reciprocal assistance virtual network. Collaboration is based on teleworking practices. The aim is for the network to allow local groups to create synergies and complementary relationships that help to ensure the project's sustainability. For more see the Argentina Case Study

  http://linux.odi.org.uk/ict4rl/CaseStudies/TEDEL?v=5j0

- **Uruguay – Intelligent Rural Community: Bernabé Rivera village**. The main objective of the initiative was to improve social inclusion of poor population in rural areas through the use of ICT tools. A community-elected "Commission" was created to manage the project and ensure its sustainability. For more information, see the Uruguay case study: http://linux.odi.org.uk/ict4rl/CaseStudies/Bernabe?v=1dgj

- **Telephone kiosks "vibanda vya simu"**. In Tanzania, micro-enterprises have been playing a tremendous role in providing service to the remote rural area. Communities use kiosks as the main communication channel.

  http://linux.odi.org.uk/ict4rl/CaseStudies/Vibanda?v=hms

- Knysna Municipal Uni-Fi project in South Africa is the first South African town to provide Internet access to its 50,000 citizens, business community and support tourism to the popular Garden Route and Knysan area, thus creating a model of sustaining itself. For more information see:

  http://linux.odi.org.uk/ict4rl/CaseStudies/VANS?v=osy

  Read the full Sustainability Topic Section.

Scalability

This section looks at how successful ICT for rural livelihood projects or programs can be scaled up in the same context, or adopted in other contexts to create the same positive effects.

Current knowledge base includes:

- The success of small-scale ICT projects may be determined by relatively unique combinations of actors, demands, and conditions at the local level.
- Scaling-up initiatives should start by building capacity at the local level to generate content and to use new technologies (among intermediaries and knowledge brokers, practitioners, and policymakers).
- Programs should share costs appropriately between government for public goods information services and social protection, and users for private goods. The programs should work in partnership with the private sector to ensure effective coverage in remote rural areas.
- Frameworks can be employed to "join up" macro, meso, and micro levels and to understand social, political, and technical aspects of the wider system. Livelihoods and capability frameworks attempt to join up national and local conditions. The 12 Cs framework, for instance, can be used to map out conditions and highlight connections.
- Similarly, a "diamond of alignment" approach can be used to analyze the interplay of institutions, the problem domain, available technologies, and the governance environment. In the case of Grameen phone, a good institutional foundation aligned well with knowledge of the problem domain and the solution technology, and – significantly – with a governance environment where deregulation of the mobile network made the whole system viable.

- Despite the existence of some analytical frames to help identify "what works where," not enough has been done to collate experiences and design tools which systematize the range of available case studies and experiences.
- It is important to avoid sheer replicability of pilot projects. Simple replication of successful models often fails to meet expectation. This can be due to "rushing" to apply models without understanding their inner workings and local applicability. Scaling up is more about adaptation than about replication. Scalability is essentially a question of being able to reproduce the positive impacts of a project in a number of other locations, without photocopying the original project plans.

Examples include:

- **Upscaling IFAD's First Mile Initiative.** This is a seven-year agriculture marketing system development program that used blended technologies (community core meetings, mobile, face-to-face, internet, village billboards). One of the measurable outcomes was a $1.8 million increase in producer sales. IFAD's new Rural Micro, Small and Medium Enterprise Support Program in Tanzania will draw on the First Mile initiative on a larger scale. More information can be found at:

  http://www.ifad.org/english/operations/pf/tza/i708tz/index.htm

- **Up-scaling the TICBolivia program.** These projects focus on price, market and production information in Bolivia. The information is distributed and collected through rural agriculture information centers in small rural towns linked up through the internet. In 2005, around 50 centers were operational. The pilots have currently expanded to 80 centers. Many of these centers have a very basic set up but have become fully sustainable.

Read the full Scalability Topic Section.

Local Innovation

This section looks at how local innovation can be encouraged in the area of ICTs-for-rural-livelihoods, including how to foster the use of local content and locally appropriate technologies.

Current knowledge base includes:

- The innovation capacity of communities is strongly related to their capacity to use their traditional knowledge for innovative practical solutions for everyday life problems. Hence, to foster local innovation it is important to understand the particularities of how knowledge is generated and transmitted.
- Local innovation is often not directly related to development issues, but to entertainment or leisure activities.
- Rural information systems should contain a high proportion of local or appropriately localized content, both to maximize local usefulness and uptake, and to enrich local, national, and international knowledge. Content needs to be prioritized equally with access.
- Programs need to use realistic technologies that are affordable and that can be easily used, managed, and maintained.
- Blended media can enhance interactivity in useful ways. Convergence of devices and technologies is increasingly blurring the distinction between traditional and new media and between analogue and digital.
- Despite its perceived importance as an interactive information medium, the internet reaches few rural people and has relatively low uptake where it is available. Even well- established rural telecenters and information centers have relatively low usage levels.
- Radio remains an important and underrated technology in many rural areas. Radio access is still far higher than mobile and internet coverage.
- Community radio has additional livelihood impacts. Community radio adds improved interactivity and localization of content and therefore has additional relevance.
- Television is likely to overtake radio as the preferred broadcast media as it becomes more accessible.
- Access to telephony has an impact on and expands multiple dimensions of livelihoods. Through expanding social networking, telephony allows a greater support network, access to information, and contact with family in urban centers. At the same time, telephony can increase economic assets.
- There is a demonstrated economic basis for advocating rural telephone use. There is high demand and willingness to pay even amongst poorer users.
- Coverage data can be difficult to obtain for rural areas.
- Mobile telephony use in general is growing and spreading outside urban areas.
- M-banking has considerable potential to reach “unbanked” clients.
- Men often control access to radio and TV. In the home and in communal areas, choice of program and access can be dominated by men, and women access information by other means.
- More equitable access can be achieved through targeted programming and access.

Examples include:

- **Agrecol Andes, IICD Bolivia**. This project promotes the use of Multimedia tools to document traditional Andean farming practices. Farmer-to-farmer exchanges, in which farmer groups visit other groups to exchange experiences in traditional production methods, are a longstanding tradition in Latin America. More information available at: http://www.agrecol.org.bo

- **Govi Gnana Systema (GGS) Project. Sri Lanka**. This pilot project was implemented by the e-Development Labs Interblocks Ltd. and Pricewaterhouse Coopers. The GGS enabled farmers, traders, buyers, and sellers of agricultural produce to view transaction prices in other areas of the country. More information is available at: http://www.ggs.lk/

- **Tedel Project Argentina**. The Telework and New Working Methods for Local Development (TEDEL) Project was developed by the Argentine Telework Association (AAT) and funded by the International Development Research Centre (IDRC). The TEDEL project consists of five pilot research experiences, aiming at creating a set of favorable conditions for promoting local development initiatives through the application of new working methods and ICTs.

Read the full Local Innovation Topic Section.

Recommendations

The recommendations drawn from the Knowledge Map have been tailored for the needs and use of five groups: international donors, donor staff in-country, policymakers, private sector actors, and CSOs and other intermediaries to the rural poor. The recommendations have also been written so that they can serve as a useful entry point into the Knowledge Map for each of these groups. International donors, for example, may wish to explore their recommendations section to find links to further information, examples, and sources that are of particular interest to them in the main body of the Knowledge Map. We have also drawn up particular recommendations for *info*Dev.

Recommendations for International Donors

Evaluation

- Fund academic studies on **the impact of ICT on different dimensions of livelihoods**, which also test and refine available frameworks (e.g. the "12 Cs" or the "8 pillars") and should triangulate using qualitative and quantitative methods.
- Encourage **complementary research** between different research institutions.
- Fund dissemination and encourage **open sharing and standardization** of research and evaluation methods and results.
- Work with other donors and international organizations to **jointly evaluate** their work.

Partnerships

- When ICT programs and strategies aimed at enhancing rural livelihoods are formulated and implemented it is of the utmost importance that **all the different stakeholders should be involved** and that the **responsibility is appropriately shared** among civil society, the private sector, and government.
- Ensure that **in-house data** on investment in ICT-for-rural-livelihoods is available to other actors in the field.

Sustainability

- Ensure that projects make use of **local innovation and locally appropriate technologies** in order to have a sustainable impact on rural livelihoods.

Scalability

- Work in partnership with other international donors to **collate experiences of scaling up** in a systematic and analytical way.

Local Innovation

- Carry out research on **local socio-cultural attitudes** towards information, communication and technology before implementing projects.
- The easier the technology used, the higher the local content incorporation. **Use simple ICT instruments** for content generation and information access, as these can significantly increase the quantity and quality of local content generation.
- Be aware of how ICT incorporation can produce **cultural changes and social interaction transformation** inside small rural communities.

Read the full recommendations for international donors.

Recommendations for Donors In-Country

Enabling Environment

- Find ways to support initiatives designed to meet **basic needs in rural communities** (e.g. electricity, infrastructure, etc), as these will have a positive effect on the use and impact of ICTs.
- Find ways to support the **digitalization of national data systems.**

Evaluation

- Ensure that funded projects provide for **participatory evaluation** and are preferably guided by a livelihoods-influenced framework.
- Work in partnership with other donor, government, or civil society organizations to **share evaluation methods and results.**

Partnerships

- Support the production of a **stakeholder map** depicting all stakeholders and their various ICT and rural livelihood initiatives in the country.
- Ensure that funded projects involve **multi-sectoral partnerships** wherever appropriate.

Sustainability

- Fund sustainable projects that are either **generated from or can be easily appropriated by the community.**
- Support relevant **ICT infrastructure.**

Scalability

- Start by **building capacity at the local level.**
- Use **frameworks** to understand the connections between macro, meso, and micro levels.
- **Do not "rush" to replicate projects**, but rather seek to foster a more careful and thoughtful adaptation of successful projects to new contexts.

Local Innovation

- Respect **local traditions**.
- Increase **partnerships and coordination** among different donors working on the same issues or areas.
- Promote more **locally tailored,** realistic technologies that are affordable and easily used, managed, and maintained.
- The easier the technology used, the higher the local content incorporation. **Use simple ICT instruments** for content generation and information access, as they can significantly increase the quantity and quality of local content generation.
- Carry out research on **local socio-cultural attitudes** towards information, communication, and technology before implementation.

- Consider possible **cultural and social interaction changes** due to ICT incorporation while monitoring the implemented projects.

Read the full recommendations for donor staff in-country.

Recommendations for Policymakers

Enabling Environment

- Find ways to address the **lack of basic needs in rural communities** (e.g. infrastructure, literacy, electricity).
- Ensure that ICT policies and strategies for rural livelihoods are more **transparent and coherent.**
- Foster good **communication among relevant actors in different government agencies**, and create appropriate networks or for such communication.
- Ensure that **licensing laws** are not over-regulated.
- **Digitalize** national data systems.

Evaluation

- Ensure that **data collection and archiving** are carried out systematically.
- Ensure that **needs assessments** are carried out before initiatives are implemented.
- Use livelihoods-influenced **evaluation criteria**.

Partnerships

- Ensure that projects and other initiatives are based on **strong partnerships.**
- Formulate and build on **policies that would make partnering on connectivity easier**. Restrictive legal environments and quasi-governmental monopolies should be removed.
- Support projects with a **self-sustaining commercial focus.**
- Government departments hold a huge amount of information and should endeavour to **unlock the content** and make it available by partnering with private sector service providers.

Sustainability

- Invest in **ICT infrastructure in rural areas**, or provide incentives to private sector agencies that are willing to make this investment.
- National and local governments may need to **review the legal framework for investment**. Ensure that it is not de-motivating to potential investors.

Scalability

- Work in **partnership with local organizations and NGOs** who have experience in ICT for livelihoods.
- Work in **partnership with the private sector** to ensure effective coverage in remote rural areas.
- **Avoid sheer replicability** of projects or programs.

Local Innovation

- Improve the **coordination** between national and local initiatives and different offices or ministries involved in ICT policies.
- Use **blended media** to enhance interactivity in useful ways.

- Give equal priority to **content and access**. Rural information systems should contain a high proportion of local or appropriately localized content.
- Ensure that **local government agencies** are involved, as this can improve governance impacts.
- Enhance **national ICT statistics systems**.
- The easier the technology used, the higher the local content incorporation. **Use simple ICT instruments** for content generation and information access, as this can significantly increase the quantity and quality of local content generation.
- Scaling up ICT for effective poverty reduction requires mechanisms to **ensure the quality of content**. These need to be based on evaluation criteria shared with local government and civil society actors.
- Develop and disseminate **local content complemented with information from other government sources, civil society, and research institutions and networks**.
- Be aware that ICT incorporation can generate **cultural changes and social interaction transformation** inside small rural communities.

Read the full recommendations for policymakers.

Recommendations for the Private Sector

Enabling Environment

- Investigate micro-prepay systems and other **options for reaching the base of the pyramid.**

Evaluation

- **Invest in evaluation** to inform investment decisions.

Partnerships

- Investigate options for **public-private partnerships.**

Sustainability

- Consider **working with other partners** (e.g. banks, CSOs or donors) to reach the rural poor.
- Ensure that initiatives can be **easily appropriated** by the local community.

Scalability

- Use **frameworks** (e.g. the "diamond of alignment" approach) to analyze chances of successful up-scaling.

Local Innovation

- Design specific innovative strategies to **reach poor rural households.**
- Exploit the potential economic basis for **rural telephone use.**

- Work on **the potential of the mobile infrastructure** as a suitable tool for rural livelihoods needs, e.g. as a new medium for remittance transactions.

Read the full recommendations for private sector actors.

Recommendations for CSOs and Intermediaries

Enabling Environment

- Coordinate work on **local content and using local dialects** with other CSOs and donors.
- Work to encourage the involvement and inclusion of both **men and women** in ICTs-for-rural-livelihoods projects.

Evaluation

- Engage in **evaluations of telecenters.**
- Take account of **both livelihoods and ICT evaluation methods** when planning and implementing projects.
- **Document the indicators** arising from particular action research projects, so these can be used by others or compared across contexts
- Plan for **long time spans** for evaluation in order to capture changes that take time to come through.

Partnerships

- Select **partners** who complement your strengths.
- Work closely with the **local community.**

Sustainability

- Ensure that projects **originate in the local community or can be easily appropriated.**

Scalability

- Choose specific local partners and **"champions."**
- Think through the **implications for community needs and demands**, including implications for the local market, before scaling up.

Local Innovation

- Carry out research on **local socio-cultural attitudes** towards information, communication, and technology before implementation.
- Consider possible **cultural and social interaction changes** due to ICT incorporation while planning and monitoring the project.
- Promote more **locally tailored**, realistic technologies that are affordable and that can be easily used, managed, and maintained
- **Radio** may be the most appropriate solution for providing information in situations with significant infrastructure and security constraints.
- **Blended media** can enhance interactivity in useful ways.
- Rural information systems should contain a high proportion of **local or appropriately localized content**.
- When developing local content, it is vital that it is created based on the **needs and socio-cultural particularities** of each target group.

- It is also necessary to ensure **local ownership and effective use** of the content.
- The easier the technology used, the higher the local content incorporation. **Use simple ICT instruments** for content generation and information access, as these can significantly increase the quantity and quality of local content generation.
- Scaling up ICT for effective poverty reduction requires mechanisms to **ensure the quality of content**. These need to be based on evaluation criteria shared with local government and other civil society actors.
- Develop and disseminate local content **complemented with information from government sources, civil society and research institutions and networks.**

Read the full recommendations for Civil Society Organisations (CSOs) and intermediaries to the rural poor.

Recommendations for infoDev

Enabling Environment

- Collect and share robust success stories on how government can create an enabling environment for private sector ICT / livelihood enterprises in rural areas.
- Undertake a review of the effectiveness of Universal Access Funds.
- Further study of ICTs in environments without (regular) electricity supply

Evaluation

- Undertake a systematic evaluation of the impact of ICT in livelihoods projects, including academic and action-orientated work combining quantitative and qualitative evidence.

Partnerships

- Ensure that successful examples of public-private partnerships are available much more widely, so that they can be adapted in other contexts.
- Identify and publish examples of successful ICT "social ventures."

Sustainability

- Continue to engage with the broader ICT-for-rural-livelihoods community to embed sustainable practices more deeply across all initiatives in this area.
- Continued dissemination of rigorous, analytical case studies of programs that have successfully been sustained over a longer period of time.

Scalability

- Rigorous, analytical case studies of projects, programs and approaches that have successfully been scaled up.

Local Innovation

- Further research on how donors and governments can promote local innovation.

- Comparative studies of blended projects to draw out best practices.

Read the full recommendations for infoDev.

Bibliographies and Other Sources

Finally, the project has collated a number of annotated directories of recent literature, useful web portals and sites, and key organizations. The sources that have been collected are:

- **Recommended Resources**. This section provides a list of around five key recommended resources for each topic (Enabling Environment; Evaluation; Partnerships; Sustainability; Scalability; and Local Innovation).
- **Annotated Bibliography**..The annotated bibliography builds on the review undertaken by ODI for the earlier DFID/FAO/WB study, and focuses specifically on documents that provide recent analyzes or evaluations about the application and impact of ICT projects on Rural Livelihoods.
- **Key donors supporting ICT for rural livelihoods.** This section provides information on a small number of key donors who have been supporting ICT for rural livelihoods approaches over the last few years, namely the Asian Development Bank (ADB), the International Development Research Centre (IDRC), the German Agency for Technical Co-operation (GTZ), the United Nations Development Program (UNDP), the United States Agency for International Development (USAID), and the Department for International Development (DFID).
- **Organizations and programs involved in ICTs for rural livelihoods**. An annotated directory of further organizations and programs of special interest in the field of ICTs-for-rural-livelihoods.
- **Portals to further information**. An annotated list of web resources, focusing especially on portals and major sources of information.
- **ICT4RL Projects**. This section contains a list of other project-level case studies where ICTs are being used to improve livelihoods which were mentioned by informants during the course of the project, but which do not necessarily fit under the source sections on donors, organizations, programs or web portals.
- **References**. The full list of references for the project.

2. Introduction

The Knowledge Map

Information and Communication Technology (ICT) is now regarded as an essential tool for business and prosperity, and increasingly as a vehicle for entertainment in the developed world. But ICT has more or less bypassed nearly one billion people – the rural poor, who live on less than one dollar a day – despite a substantial investment by the private sector, developing country governments and development donors, and agencies in ICT projects and programs. Some of these investments have been highly successful, others less so, but knowledge about how ICT can contribute to improved livelihoods of the rural poor is fragmented, and not easily accessible to governments, donors, practitioners and researchers.

To address this problem the Information for Development Program (*info*Dev) (www.infodev.org), commissioned this Knowledge Map to synthesize what is already known about these issues, and to identify the most urgent priorities for further research. The Knowledge Map builds on and updates existing research, adds new evidence and experience from the field, maps the current state of knowledge in this area, and recommends a way forward both in the international community's framing of these issues and in urgent priorities for further research and experimentation. The Knowledge Map is designed to address the priority knowledge needs of policymakers, donors and other key stakeholders.

The Map builds on the Information and Communications for Rural Livelihoods (ICD4RL) project (http://www.odi.org.uk/RAPID/Projects/R0176/index.html) completed a few years ago by the Overseas Development Institute (ODI) in cooperation with the UK Department for International Development (DFID), the Food and Agriculture Organisation (FAO) and the World Bank (WB). That work identified eight principles for successful ICD4RL:

- Adapting content to local context;
- Building on existing systems and working with existing policies;
- Addressing diversity;
- Building capacity;
- Ensuring equitable access and empowerment;
- Building partnership networks;
- Adopting realistic approaches to technology; and
- Information costs.

Those principles have subsequently been incorporated into FAO's Bridging the Rural Digital Divide (BRDD) Program (http://www.fao.org/rdd/livelihood_en.asp), and their leadership of the e-Agriculture working group (http://www.itu.int/wsis/c7/e-agriculture/index.html) established at the World Summit on the Information Society (WSIS) in Tunis, 2005.

The Map was developed by ODI in close collaboration with partners in the UK and six developing countries in Africa, Asia, and Latin America. Work included a review of the recent literature, a donor review, country studies and in-country workshops, country case studies, the preparation and discussion of a Knowledge Needs Assessment and Key Topic Outline with an Expert Review Panel, and a "write shop" using Wiki technology to prepare a draft Knowledge Map, finalized after a further electronic discussion.

The issues, approaches and recommendations in the Knowledge Map are based on the Sustainable Livelihoods Approach (SLA), which is elaborated on in more detail in the section Linking Sustainable Rural Livelihoods to Information and Communication; and current thinking, programs and policies about ICTs and rural development (see ICTs and Rural Livelihoods – An Introduction).

Two other principles emerged during the course of the work. The first is that development processes are highly context-specific, and a thorough understanding of the local context is a prerequisite for successful and sustainable development interventions. The second is that in a rapidly changing world, learning systematically from ongoing work, sharing knowledge and experiences, and knowing where to find knowledge, are increasingly important. This Knowledge Map is an attempt to capture current knowledge and make it accessible. While these two important principles fall outside the scope of this Knowledge Map, short introductions to Understanding the Local Context and Knowledge Management and Learning, with links to other resources, have been included in response to this demand.

The Knowledge Map is designed as a resource to meet the needs of a wide range of stakeholders: donors and especially their in-country representatives; multilateral and bilateral development agencies; international and national policymakers; CSO practitioners involved in ICT projects; and others who stand as representatives or intermediaries to the rural poor, such as rural service provider institutions. The Map provides entry points for each of these groups through the Recommendations sections, which have been tailored to the different roles and knowledge needs of the different groups. The Recommendations sections also draw out the most urgent knowledge needs (and proposed actions) for each group.

Sustainable Livelihoods and Communication

The shift in development theory from modernization to dependency led to a rethinking of how communications can be harnessed for development. In the 1970s, multilateral organizations such as FAO began to implement two-way knowledge flows and information exchange between rural communities and technocrats, rather than one-way transfer of knowledge. This recognition that development comprises of more than just increased productivity led to alternative development approaches, such as the Sustainable Livelihoods (SL) approach in the 1990s. The approach is centered on people and their livelihoods. It prioritizes people's tangible and intangible assets, and their ability to withstand shocks in the vulnerability context. It also prioritizes policies and institutions that reflect poor people's priorities, rather than those of the elite (Chambers and Conway 1991).

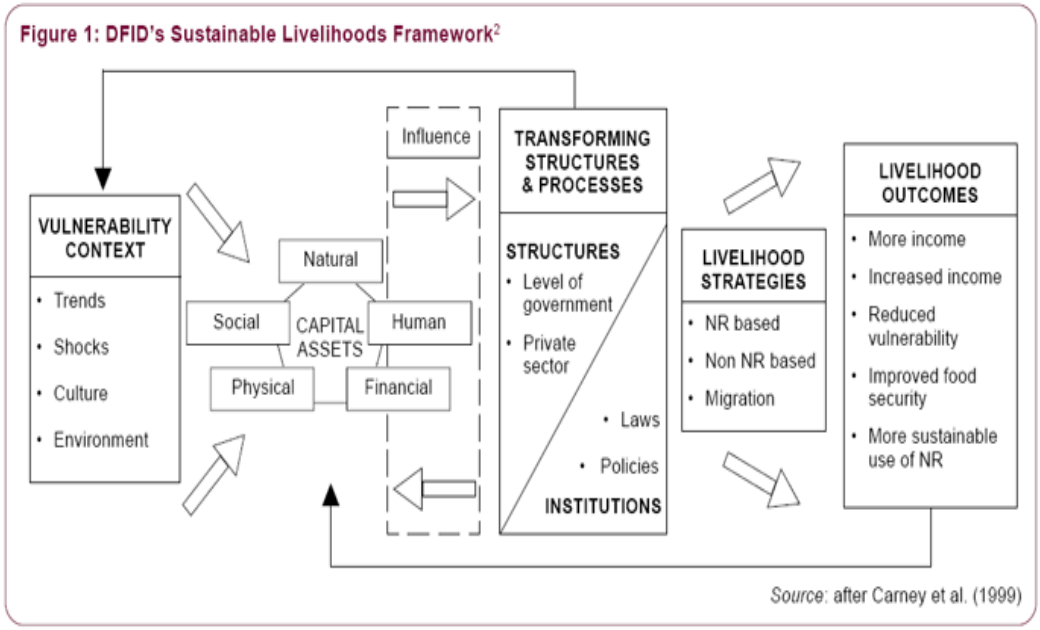
Many multilateral, bilateral, and non-government agencies believe that using an SL approach is a sensible and practical way of thinking about planning and implementing development. Key elements of the approach have been used in a variety of development agencies ranging from bilaterals and multilaterals to international NGOs. Karim Hussein's multi-agency review (2002) finds that SL approaches have acquired applications in new sectors and settings, and have been adapted to incorporate more explicit issues of gender, power, and markets. They have challenged the sectoral divisions characterizing development work. DFID was one of the first proponents of this approach. It sees the objectives of the SL approach as:

- a more realistic understanding of poor people's livelihoods and the factors that shape them;
- building a policy and institutional environment that supports poor people's livelihoods; and
- supporting development that builds on the strengths of poor people and provides them with opportunities to improve their livelihoods.

The core principles underlying the approach are that poverty-focused development should be:

1. *People-centered.* Sustainable poverty elimination will be achieved only if external support focuses on what matters to people, understands the differences between groups of people and works with them in a way that is congruent with their current livelihood strategies, social environment, and ability to adapt.
2. *Responsive and participatory.* Poor people themselves must be key actors in identifying and addressing livelihood priorities. Outsiders need processes to listen and respond to the poor.
3. *Multi-level.* Poverty elimination is an enormous challenge that can be overcome only by working at multiple levels, ensuring that micro-level activity informs the development of policy and an effective enabling environment, and that macro-level structures and processes support people to build upon their own strengths.
4. *Conducted in partnership.* With both the public and the private sectors;
5. *Sustainable.* .There are four key dimensions to sustainability - economic, institutional, social and environmental sustainability. A holistic approach is essential with a balance between the different dimensions.
6. *Dynamic.* .External support must recognize the dynamic nature of livelihood strategies, respond flexibly to changes in people's situation, and develop longer-term commitments. See: http://www.livelihoods.org.

The SL framework (see Figure 1) is a tool that highlights processes that contribute to a set of livelihood outcomes.



Insight
The arrows within the framework denote different types of relationships, all of which are embedded with information communication dynamics. Information and communication are means to facilitate livelihoods strategies.

The Role of Information in the SL Framework

When looking at the relation between the SL approach and communication in ODI's 2003 research, "*Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security,*" information and communication were identified as important elements in securing sustainable livelihoods. Using an SL lens illustrates that there are numerous livelihood strategies that can be pursued and developed through working with a combination of assets, policies, principles, and institutions in each context to create positive change. "*In each and every case, information and communication are central driving forces of change. Understanding the local level information needs of the rural poor, as the ultimate beneficiaries, is centrally important to the development of effective projects, programs and policies in support of SL*" (ODI 2003:4).

Because of their importance, information and communication have been fully integrated into the SL framework to aid analysis. A number of characteristics of information have been highlighted in the SL framework:

- Information has both an analytical and functional role within the framework.
- Information should be considered as part of a dynamic process of change (access, assessment, application and action) rather than as a static resource.
- Information can fulfil both short-term and long-term needs.
- Dynamic information processes can be actionable at micro, meso, and macro levels, and can serve to foster interaction between different levels of activity, i.e. linking

structures and processes via assets to the rural poor themselves through channels of communication (Duncombe 2006).

From this perspective, information and communication are not outputs in themselves, but have immense value in sharing and building knowledge that can contribute to development. When we then link the principles of the SL approach and the role of information we can come to the following conclusions:

A People-Centered Approach and Information

As a people-centered approach, SL makes use of participatory methods in devising livelihoods strategies. For the role of information this implies that a two-way flow of information is seen as vital in supporting livelihoods strategies. In Sri Lanka, the Kotmale Community Radio initiative combines ICTs, community participation, and multi-party strong partnerships. The project uses community radio as an interface between the Internet and the communities. It does this by including direct inquiries from listeners on specific information that is instantly addressed by the community broadcasters browsing the internet and interpreting in local languages. (See Sri Lanka Report, p.13).

Multi-Level Support and Information

The literature on SL approaches has sought an increased focus on power relations, institutions and politics at multiple levels. There is interest in the links between rights-based approaches and SL. The two approaches are increasingly used in parallel to inform projects or organizational strategies. They share a strong focus on addressing policy and institutional factors, and ensuring access to assets and institutions However, a livelihoods approach is often perceived as starting from the micro level, whereas the rights-based approach most often starts from an international or national perspective. See:

http://www.livelihoods.org/SLdefnSimilarApps.html#2

From the Bangladesh country report, it is clear that information is not a privilege but a right. Following the storm of 17 September 2006, the Bangladesh trawler owner's association demanded that the government should modernise the weather forecast and warning systems, and provide cell phone and radio networks in deep sea to reduce loss of life during natural calamities (Bangladesh Report, p. iv). As this example clearly illustrates, a lack of information can cause vulnerability. However, institutional systems can act to reduce risk and protect livelihood assets.

Therefore, information in support of SL "*has a dual function: to supply the information required by the poor to pursue sustainable livelihood strategies; and to supply information required by institutions responsible for making decisions that affect those strategic livelihood options*" (ODI 2003:5). As the example above illustrates, information relating to weather patterns can be an important asset in reducing vulnerabilities. However, a multi-level approach will both deliver information on weather patterns in an appropriate format, and incorporate information from the local level into a government's Poverty Reduction Strategy Paper (PRSP). Such information is integral for governments to implement disaster management, from early warning to preventative strategies. Strategies should be linked to the micro levels and based on the needs and capacities at the community, district, and national levels.

A Participatory and Responsive Approach and Information

Despite a strong emphasis from the SL approach on livelihood *outcomes*, some development projects are highlighting ICTs as *outputs*. Tensions exist between supporting the development of telecommunications infrastructure (which achieves a certain amount of economic benefit) against a more participatory process of capacity development in ICTs (for the benefit of livelihoods outcomes).

With little participation of stakeholders in the design of telecommunications, a positive effect on economic production is still possible. As highlighted by Vodafone, mobile telephony has a positive and significant impact of economic growth, and this impact may be twice as large in developing countries compared to developed countries (Vodafone Policy Paper Series, p.11). Furthermore, allowing the market to guide innovations in the applications of ICT has led to some useful new applications for people's livelihoods.

But does this positive effect on economic production automatically result in more sustainable livelihoods, and reach those who are marginalized or live in rural areas? There is now a growing recognition from donors that some facilitation and subsidization must occur to bring ICT benefits to the lives of rural people across the globe. Therefore, governments, CSOs, and development partners are increasingly supporting ICT development as a means of achieving a sustainable livelihoods outcome, rather than simply viewing ICTs as outputs that can boost economic production.

A Sustainable and Dynamic Approach to Information

The SL framework approaches communication as a way of facilitating livelihoods strategies, and offers a way of thinking holistically about the various dimensions that need to be identified, encouraged, and built upon to harness the power of communication for sustainable livelihoods. Despite the holistic focus of SL thinking, ICT applications are sometimes viewed within the narrow confines of individual sectors in various development programs and projects. While these demand-driven applications of ICTs for development are showing promising results for people's education, health, governance, and livelihoods, the applications themselves are compartmentalised and are often not used holistically.

A sustainable and holistic view highlights the need for multiple ICT applications that can be used by people in urban and rural settings for a variety of information and communication needs. Sharing of innovations must cut across sectors to create holistic ICT innovations that increase the overall well-being of the individual. Finally, the needs for information and ICTs are constantly changing. Therefore any program responding to needs must by definition be set up in a highly flexible and dynamic way to keep up with demand.

ICT and Rural Livelihoods

In the previous section we have linked sustainable rural livelihoods to information and communication. In this we will consider the linkage between livelihoods and ICTs. Although many ICT-supported development initiatives refer to the livelihoods impacts of their activities, few have been fully informed by the Sustainable Livelihoods (SL) approach. Typically, people's livelihoods have been understood in the narrow sense of their economic welfare (income), with less emphasis given to the rounded view of their range of social and human assets, several of which can be impacted by technological progress. Project planning has tended not to consider these aspects or how ICT could be used to benefit multiple dimensions of livelihoods simultaneously.

The drive to understand the potential benefits of ICT to rural livelihoods began by mapping connections between the livelihoods framework and the various perceived benefits of ICT. Subsequent work has sought to develop more integrated frameworks that emphasize the key aspects of ICT policies, programs, and projects that need to be considered for ICT to benefit rural communities in a holistical and sustainable manner. At the same time, ICT-for-development practitioners have also been developing more participatory, flexible, and human-centered approaches that can help to make technology implementation more responsive to real user needs. A combination of these strategies is most likely to benefit rural livelihood initiatives that employ ICT.

Rural communities continue to face a number of well-known constraints relating to the access and use of ICT, such as power, connectivity, and often the more basic and pressing needs of shelter and food security. One of the advantages of the livelihoods approach is that it does not dwell on constraints, but instead focuses on existing strengths and assets. This leads to a more appropriate placement of ICT in the rural scene and due consideration for traditional ICTs.

Connections between ICT and the Livelihoods Framework

Early attempts to relate ICT to the livelihoods framework looked for connections between aspects of livelihoods and the perceived benefits of ICT (Table 1).

Table 1: Areas of Connection Between ICT and the Livelihoods Framework

Capital Asset	Potential Positive Impact of ICT
Natural Capital (natural resource stocks)	• Mapping for land and resource security • Improved access to natural resource management institutions for land tenure and conflict resolution
Social Capital (relationships and networks)	• Improved global and national communication for family and social networking • Expanded social networks • Link to local and national governments • Advice and counselling for life events • Remote education links
Human Capital (skills, knowledge and basic health)	• Better access to information in local languages • Distance learning • School connectivity • Health advice and access to healthcare • Capture and storage of indigenous knowledge • New working skills
Physical Capital (basic infrastructure needs)	• Access to ICTs • Access to cheaper production equipment
Financial Capital (income, savings, credit)	• Increased profit margins through better access to market information • Potential for improved access to financial services • Remittances from migrant workers • Reduction in transport costs

Adapted from:
Batchelor and Scott (2001) http://www.sustainableicts.org/livelihoods.htm
ODI/FAO (2003)
http://www.odi.org.uk/rapid/Publications/Documents/SPISSL_WP_Complete.pdf

Additionally, applications of ICT can be directly related to the livelihoods approach to mapping the vulnerability context of rural households. Early warning systems for flooding, hurricanes and other natural disasters, and access to meteorological data are often quoted as examples of areas that ICT may enhance.

Direct and Indirect Impacts of ICT

Systems and communications supported by ICT can have both a direct and indirect effect on rural livelihoods. Strengthening the delivery of local government services using ICT, for instance, may impact livelihoods indirectly but still significantly and with a larger spread

of benefits, whereas direct access to ICT may have negligible impact without capacity to benefit from it. Similarly, national policy level changes have a wide but rather indirect impact on local communities. The need to monitor both positive and negative indirect benefits of ICT has been recognized in evaluation work and in the development of vertical frameworks for understanding ICT and its potential for livelihood improvements. The IICD case study on lessons learned from projects in Africa and Latin America helps to distinguish direct and indirect effects.

Applications with a Demonstrated Impact

The project has identified many examples of ICT applications with a demonstrable impact on rural livelihoods in many sectors:

Health

Health information has been shown to be a key demand in rural areas. ICT provides new options for applications, such as patient record management, linking health specialists with rural treatment centers, providing initial information on symptoms to clients, and linking conventional to traditional practice.

> More at the applications section: Health

Education

ICT can enhance teaching for both children and adults when properly deployed. An initial period of trials of ICT in rural education now provides the opportunity for reflection on how to maximize impacts.

>More at the applications section: Education

Finance

Microfinance has proven a valuable route to stabilizing uneven rural cash flows and stimulating enterprise. Technology has the potential to significantly lower transaction costs for the finance provider and improve convenience and access for the client.

>More at the applications section: Finance

Agriculture

Market information systems can both improve income for producers and lower costs for consumers. ICT can help streamline supply chains and improve market access. Direct financial impacts from improved agricultural information may have knock-on effects in other livelihood areas.

>More at the applications section: Agricultural markets

Land tenure

Digitization of land rights and land registration processing can improve transparency and the speed with which claims can be processed.

>More at the applications section: Land tenure

Access to state programs

E-government can demonstrate the power of ICT in the provinces, and at the central level.

>More at the applications section: Governance

Traditional and New Technologies

Traditional technologies and media are crucial to the development of appropriate solutions that suit the state of the ICT infrastructure in rural settings. The continued importance of radio, particularly in Africa, can be overlooked in the process of assessing information access options. Additionally, the "digital-print" interface can be the basis of successful systems that recognize printed media and paper-based data collection as a practical option in many settings.

Increasingly, initiatives that use a "blended" mix of ICT are allowing more flexible and realistic projects. Examples include the use of internet to source content for radio, or combined radio and mobile delivery of market price information, giving users the option of their preferred method of access.

At the same time, the rapid rise and popularity of mobile communications is being embraced in many countries as a tool for development. Mobiles may address primarily the social dimension of livelihoods but clearly have a secondary impact on other dimensions. They give some flexibility as to which livelihoods strategy they support and how, and are also important in mitigating shocks.

Just as capability approaches to economics have placed a renewed emphasis on leisure and entertainment in human welfare, the leisure opportunities offered by ICT in development should be seen as a livelihoods benefit. Newer ICT allows additional recreation and creative outlets that should not be written off as unimportant.

Frameworks, Principles and Indicators for ICTs in the Livelihoods and Pro-Poor Context

Several theoretical frameworks have been developed to help understand how ICT can best be deployed for rural livelihoods. These frameworks have an important similarity in approaching ICT as a way of facilitating livelihoods strategies and thinking holistically about the various dimensions that need to be identified, encouraged, and built to harness the power of ICT for sustainable livelihoods. The three frameworks that will be presented here are:

1. The "12 Cs": These are all basic factors to consider when developing successful ICT for development projects and programs.
2. The "Diamond of Alignment": This framework may be especially useful in assessing the climate for innovation and partnerships.
3. The "8 Pillars": Consider this set of principles when assessing program sustainability.

1. The "12Cs"

These are all basic factors to consider when developing successful ICT for development projects and programs.

UNCTAD's *Information Economy Report 2006: The development perspective* offers the 12 Cs framework for the evaluation of pro-poor ICT policies and programs. It is designed to help in the asking of questions and to focus on issues that are important to the poor, but not necessarily to prescribe particular actions. The framework includes 12s that are crucial to consider for communications development programming: **Connectivity, Content, Community, Commerce, Capacity, Culture, Cooperation, Capital, Context, Control, Coherence, and Continuity** (UNCTAD 2006).

Table 2: The 12 Cs Framework

12 Cs	**Key issues**	**Questions**
Connectivity	• Infrastructure & technology (hw/sw) accessible & affordable	Extent to which the planned infrastructure and technology ensure the people living in poverty can use and afford them.
Content	• Relevant • Accessible • Beneficiaries involved	Extent to which the content is relevant to the needs of the targeted population. Can women and men access and use it to meet their needs? Is it available in the local language & accessible to non-literate and ICT-illiterate people?
Community	• Who benefits? • Beneficiaries participate	Who should be the target group? How do the different stakeholders participate in the program? Are beneficiaries taking part in the design and implementation of the program? How will the intervention affect the different groups (women, men, old, young, illiterate, etc.) of the community?
Commerce	• Supports livelihoods	Does the planned intervention sustain the livelihoods of the beneficiaries? To what extent does it support the economic activities of the beneficiaries?
Capacity	• Beneficiaries capacity • Organizations' capacity	Do the beneficiaries have, or can they acquire, the capacity to participate in the program? Do the organizations involved have the (financial and organizational) capacity to develop and implement the program?
Culture	• Supportive culture • Learning promoted	Is there a forward-looking and supportive culture for using ICTs for poverty reduction?
Cooperation	• Stakeholders	To what extent is the cooperation among

	cooperation favourable	the different stakeholders favourable to ICTs for poverty alleviation?
Capital	• Financial sustainability	Are there sufficient financial resources?
Context	• Adapted to context • Influences context	Is the policy or program adapted to the local context? Is the intervention able to influence changes for a more favourable context for using ICT for poverty alleviation?
Continuity	• Monitoring and evaluation • Flexible, promotes learning • Potential for increased impact • Socially sustainable	Does the policy or program incorporate a monitoring and evaluation component? Does it promote learning and allow for adaptation? Could the ICT program be scaled up? To what extent is it socially sustainable?
Control	• Beneficiaries' ownership • Stakeholders accountable	Do beneficiaries have ownership of the policy or program? Do beneficiaries have a say in the design, implementation and evaluation of the policy or program? Are the different stakeholders accountable?
Coherence	• Pro-poor	To what extent is the ICT policy or program consistent with other pro-poor policies and interventions?

Source: UNCTAD, based on Rao (2003).

The advantages of this framework are that:

- it can be used at different levels, for specific contexts, and to target poor communities;
- it forces people to think about issues relevant to the poor, and not only about functional ones, such as the legal framework and the budget;
- it takes into account ICTs' cross-cutting nature;
- it highlights linkages between different levels of action – macro, meso, and micro; and
- it draws attention to assumptions, conflicts, and visions.

For more information, see http://www.unctad.org/en/docs/sdteecb20061ch3_en.pdf.

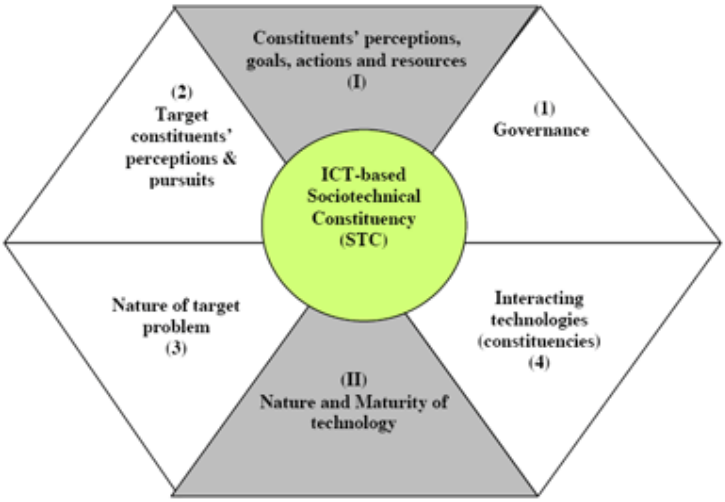
This has been adapted and extended from the 8 Cs of Rao (2003).

2. The "Diamond of Alignment"

This framework may be especially useful in assessing the climate for innovation and partnerships.

The Diamond of Alignment has been used as a model to study the "socio-technical constituency" of technology-based innovation (Molina, 1990+). Essentially, the model recognizes the importance of integrating the technical and social elements of a project or program. The alignment or harmonization of people-people, people-technology and technology-technology is crucial for successful innovation. Elements include:

- **Constituents' Perceptions, Goals, Actions and Resources**, used to describe the material and human resources of the actors involved, their experiences, goals and strategies;
- **Nature and Maturity of the Technology**, with the different technologies involved in a system warranting separate consideration;
- **Governance**, or the political, organizational and market environment for an innovation;
- **Target Constituents' Perceptions and Pursuits**, the motivations of the stakeholders that are being targeted;
- **Nature of Target Problem**, the needs that are being met through an ICT supported innovation;
- **Interacting Technologies / Constituencies**, or technologies and actors that are already interacting and which need to be taken account of.



The Diamond of Alignment framework can be used to describe how a combination of conditions, actors, and technologies can lead to successful innovation, or conversely, how misalignment of the constituents can hamper innovation. For instance, it has been used to illustrate the success of the Grameen Phone project (Molina, 2006). Consideration of these dimensions has led to successful development programs that have integrated ICT to the benefit of the poor (in both policies and applications).

3. The "8 Pillars"

Consider this set of principles when assessing program sustainability.

ODI, DFID, and FAO collaborated to identify seven key principles for ICT use in livelihoods programs in their 2003 study *Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security* (Chapman, Slaymaker & Young 2003). The "pillars" were derived by distilling success factors from a range of projects in developing countries.

These are the eight pillars:

- **Share costs appropriately**, between government for public goods information services and social protection, and users for private goods. Work in partnership with the private sector to ensure effective coverage in remote rural areas.
- Ensure **equitable access** to all, especially women, the poor, the disabled, people living in remote areas, and otherwise disadvantaged communities.
- Address **diversity**, by paying particular attention to equitable access and use by men and women, and other groups where unequal access and use may apply.
- Provide a high proportion of **local or appropriately localized content,** both to maximize local usefulness and uptake, and to enrich local, national, and international knowledge.

- **Build on existing systems**, including information content (indigenous knowledge, local sources and databases), information technology (TV, radio, telephone, internet), processes (existing surveys, research and extension), and policy environment.
- **Build capacity at the local level** to generate content and use new technologies, among intermediaries and knowledge brokers, practitioners and policymakers.
- Use **realistic technologies**, which can be easily used, managed, and maintained. Integrate existing and new technologies and that are affordable.
- Build **knowledge partnerships** between knowledge users, producers, and intermediaries at and across all levels to convert information into useful knowledge.

For more information,
see http://www.odi.org.uk/rapid/Publications/Documents/SPISSL_WP_Complete.pdf

Understanding the Local Context

During the course of this project, stakeholders and participants repeatedly underlined that ICT-for-rural-livelihood projects and programs will only succeed if they are designed and implemented with a good understanding of the local context. There are several approaches that can be used to better understand local needs, local interest groups, and ways to build local involvement. Here we briefly outline some of the most common approaches, namely:

- Participatory rural appraisal (PRA;)
- Stakeholder analysis;
- Information systems methodologies; and
- Community informatics & ICT user-centerd approaches

Participatory Rural Appraisal (PRA)

Participatory rural appraisal (PRA) is a label given to a growing family of participatory approaches and methods that emphasize local knowledge and enable local people to make their own appraisal, analysis, and plans. PRA uses group animation and exercises to facilitate information sharing, analysis, and action among stakeholders. Although originally developed for use in rural areas, PRA has been employed successfully in a variety of settings. The purpose of PRA is to enable development practitioners, government officials, and local people to work together to plan context appropriate programs.

Participatory rural appraisal evolved from rapid rural appraisal-a set of informal techniques used by development practitioners in rural areas to collect and analyze data. Rapid rural appraisal developed in the 1970s and 1980s in response to the perceived problems of outsiders missing or miscommunicating with local people in the context of development work. In PRA, data collection and analysis are undertaken by local people, with outsiders facilitating rather than controlling. PRA is an approach for shared learning between local people and outsiders, but the term is somewhat misleading. PRA techniques are equally applicable in urban settings and are not limited only to assessment. The same approach can be employed at every stage of the project cycle and in country economic and sector work.

Key tenets of PRA:

- **Participation**. Local people's input into PRA activities is essential to its value as a research and planning method and as a means for diffusing the participatory approach to development.
- **Teamwork**. To the extent that the validity of PRA data relies on informal interaction and brainstorming among those involved, it is best done by a team that includes local people with perspective and knowledge of the area's conditions, traditions, and social structure, and either nationals or expatriates with a complementary mix of disciplinary backgrounds and experience. A well-balanced team will represent the diversity of socioeconomic, cultural, gender, and generational perspectives.
- **Flexibility**. PRA does not provide blueprints for its practitioners. The combination of techniques that is appropriate in a particular development context will be determined by such variables as the size and skill mix of the PRA team, the time and resources available, and the topic and location of the work.

- **Optimal ignorance**. To be efficient in terms of both time and money, PRA work intends to gather just enough information to make the necessary recommendations and decisions.
- **Triangulation**. PRA works with qualitative data. To ensure that information is valid and reliable, PRA teams follow the rule of thumb that at least three sources must be consulted or techniques must be used to investigate the same topics.

PRA Tools:

PRA is an exercise in communication and transfer of knowledge. Regardless of whether it is carried out as part of project identification or appraisal, or as part of country economic and sector work, the learning by doing and teamwork spirit of PRA requires transparent procedures. For that reason, a series of open meetings (an initial open meeting, final meeting, and follow-up meeting) generally frame the sequence of PRA activities. Other tools common in PRA are:

- Semi-structured interviewing;
- Focus group discussions;
- Preference ranking;
- Mapping and modeling; and
- Seasonal and historical diagramming

Organizing PRA:

A typical PRA activity involves a team of people working for two to three weeks on workshop discussions, analyses, and fieldwork. Several organizational aspects should be considered:

- Logistical arrangements should consider nearby accommodations, arrangements for lunch for fieldwork days, sufficient vehicles, portable computers, funds to purchase refreshments for community meetings during the PRA, and supplies such as flip chart paper and markers.
- Training of team members may be required, particularly if the PRA has the second objective of training in addition to data collection.
- PRA results are influenced by the length of time allowed to conduct the exercise; scheduling and assignment of report writing; and critical analysis of all data, conclusions, and recommendations.
- A PRA covering relatively few topics in a small area (perhaps two to four communities) should take between 10 days and four weeks, but a PRA with a wider scope over a larger area can take several months. Allow five days for an introductory workshop if training is involved.
- Reports are best written immediately after the fieldwork period, based on notes from PRA team members. A preliminary report should be available within a week or so of the fieldwork, and the final report should be made available to all participants and the local institutions that were involved.

Further information:

- This text has been taken from the World Bank's Participation Sourcebook http://www.worldbank.org/wbi/sourcebook/sba104.htm
- IISD's Community Adaptaion and Sustainable Livelihoods Program http://www.iisd.org/casl/CASLGuide/PRA.htm
- Chambers, R. (1992) *Rural Appraisal: Rapid, Relaxed, and Participatory*. Institute of Development Studies (IDS) Discussion Paper 311. Sussex: HELP.

Stakeholder Analysis

A stakeholder is a person or group who has something to gain or lose through the outcomes of a planning process or project. In many circles these are called interest groups and they can have a powerful bearing on the outcomes of political processes. It is often beneficial for projects to identify and analyze the needs and concerns of different stakeholders, particularly when these projects aim to influence policy or to bring about changes in the status quo. Stakeholder analysis also helps to engage stakeholders so that the impact of research on policy can be maximized. It helps project staff and others to consider who needs to know about the project, what their positions and interests are, and how the project should be presented and framed to appeal to them.

The first step in Stakeholder Analysis is to clarify the development or policy change objective being discussed (for this Problem Tree or Objectives Analysis might help http://www.odi.org.uk/rapid/Tools/Toolkits/Policy_Impact/Problem_tree.html). Next, identify all the stakeholders or interest groups associated with this objective, project, problem or issue. A small group of about six to eight people, with a varied perspective on the problem, should be enough to create a good brainstorming session. Stakeholders can be organizations, groups, departments, structures, networks or individuals, but the list needs to be pretty exhaustive to ensure nobody is left out.

Then, using a grid, organize the stakeholders according to their *interest* and *power*. 'Interest' measures to what degree they are likely to be affected by the project or policy change, and what degree of interest or concern they have in or about it. 'Power' measures the influence they have over the project or policy, and to what degree they can help achieve, or block, the desired change. The grid below may be used:

High power, low interest: Keep satisfied	High power, high interest: Engage closely and influence actively
Low power, low interest: Monitor (minimum effort)	Low power, high interest: Keep informed

It is important to fully engage and bring on board stakeholders with high power and interests aligned with the project. If trying to create change, these people are the targets of any campaign. At the very top of the 'power' list will be the “decisionmakers,” usually members of the national or local governments. Beneath these are people whose opinion matters – the “opinion leaders.” Stakeholders with high interest but low power need to be kept informed but, if organized, they may form the basis of an interest group or coalition that can lobby for change. Those with high power but low interest should be kept satisfied and ideally brought around as patrons or supporters for the proposed policy change.

If time and resources permit, further analysis can be carried out to explore in more detail i) the nature of the power and its position and ii) the interests that give it that position. This

helps the project to better understand why people take certain stands and how they can be bought around. This analysis is developed further in Influence Mapping (http://www.odi.org.uk/rapid/Tools/Toolkits/Policy_Impact/Influence_mapping.html).
The final step is to develop a strategy to engage different stakeholders in a project, frame or present the message or information so it is useful to them, and maintains a relationship with them. Identify who will make each contact and how, what message they will communicate, and how they will follow-up.

Further information:

- The RAPID website http://www.odi.org.uk/rapid/Tools/Toolkits/Policy_Impact/Stakeholder_analysis.html
- DFID has produced various guidance notes on how to do stakeholder analysis which can be found at http://www.dfid.gov.uk/FOI/tools/chapter_02.htm or http://www.eurofic.org/gb/stake1.htm
- For a basic step-by-step guide, see www.scu.edu.au/schools/gcm/ar/arp/stake.html
- For a template, see www.scenarioplus.org.uk/stakeholders/stakeholders_template.doc
- For material specifically adapted for campaigning, see resources at www.thepressuregroup.com

Information Systems Methodologies

What do we mean by information systems? *"Information is data that have been put into a useful and meaningful context and communicated to a recipient who uses it to make decisions. Information involves the communication and reception of intelligence or knowledge."* (Burch & Grudnitski 1989) According to Lachlan Mac Kinnon, Definitions and descriptions of information systems almost always define them in terms of computer technology. However, we need to divorce the concept of information systems from its technological manifestation. Information systems are concerned with a much broader domain of interest than purely computerised application of information technology. Information systems incorporate information technology, but are also concerned with information and organizational activities. Since these activities are relevant to different fields of knowledge, information systems can be seen as an interdisciplinary subject.

Lachlan Mac Kinnon identifies five functions of information systems (Jayaratna 1994): 1) Information processing and usability function; 2) Education and learning function; 3) Information systems development function; 4) Management and control function; 5) Strategy and planning function. He suggests that systems should provide learning opportunities for inexperienced and naive users. Enabling users to make the best use of systems incorporates the effectiveness of decision-making processes based on the information provided. Continuous examination and modification of models and decisions is necessary where users have to operate in a dynamic environment. Expecting users to abandon the status quo in favour of a new and potentially threatening system is unrealistic without transition information and support (change management).

Further information:

- The text above has been taken from Lachlan Mac Kinnon lecture notes http://www.macs.hw.ac.uk/~lachlan/ism.html
- Soft Systems Methodology http://sern.ucalgary.ca/courses/seng/613/F97/grp4/ssmfinal.html
- Qualitative Research in Information Systems http://www.qual.auckland.ac.nz/

Community Informatics & ICT User-Centered Approaches

Just as development practice has evolved from top-down to more consensus-based, consultative methods, through e.g. participatory tools and the livelihoods approach, ICT as a sector has moved in a similar direction. Increasingly, technologies are recognized as just one part of a dynamic system, and stakeholders or "users" are acknowledged to play a key role in determining the design and function of a system. A number of methodologies and approaches have been developed to ensure participation and the flexible matching of stakeholder requirements to system capabilities. Such techniques can be used together with participatory rural development methods to provide an overall approach to the delivery of rural ICT. The term Community Informatics has been used to describe the process of understanding the existing information flows and systems within a community before determining if any can be supported or enhanced through the deployment of ICT. User-centered approaches to ICT design also focus on initial appraisals of the task and a profile of the user, including their capabilities and mental models.

Further information:

- Community informatics http://en.wikipedia.org/wiki/Community_informatics
- User-centered design http://en.wikipedia.org/wiki/User-centered_design

Knowledge Management and Learning

Many of the participants involved in the various stages of this project – at the country workshops, the expert review meeting, and in the donor survey – stressed that there is a clear need for more and better knowledge management in the field of ICTs-for-rural-livelihoods. This echoes the recommendation made by the previous ODI/FAO/DFID/WB work: there is a need for more and stronger knowledge partnerships in this field (Chapman, Slaymaker and Young 2003). Key stakeholders need spaces where they can share their knowledge, exchange information on current and planned projects, and discuss new and challenging issues as they arise. Smaller actors need access to the knowledge base of major stakeholders, and they need to be able to develop partnerships with other players in the field.

In sum, knowledge partnerships and knowledge management are recognized as essential requirements in this field. Yet there is still much uncertainty around where to access information on these approaches and "how to do it".

What is Knowledge Management and Organizational Learning?

What is knowledge management (KM)? As an introductory step, it is useful to distinguish between raw information and knowledge (Edwards 1994). Raw information may be widely available to a number of agencies, but only some organizations will be able to convert the information into relevant knowledge and to use this knowledge to achieve their aims. The processes by which they do this can be called KM strategies. In the section below on KM in the corporate sector, a further distinction will be made between first and second generation KM strategies. While the first generation focused on systematizing and controlling existing knowledge and knowledge sharing within an organization, the second generation KM strategies have shifted towards enhancing the conditions for innovation and knowledge creation (Mc Elroy 2000).

Challenges and advantages of KM are naturally related to challenges and advantages of organizational learning. In the international development field, these two sets of issues are often examined together. As with the two generations of KM strategies, an organization's ability to learn from past experiences can also be divided into first and second order strategies (Argyris 1992). First order strategies concern "single loop learning," aimed at correcting and modifying practices to fit in with an established policy. Second order strategies are those of 'double loop learning', which – in parallel with second generation KM strategies – aim to increase the organization's capacity to think creatively and act innovatively.

A very large proportion of the literature on KM and organizational learning is developed by, and aimed at, commercial businesses and firms. Many organizations in the corporate sector look to KM as a solution to the new challenges of the information age. The corporate sector has embraced KM and learning with the aim of improving organizational efficiency – measured in metrical figures of production and profit. In the development sector, organizational efficiency is also important, but it is far from the only aim. The goal of enhancing sustainable rural livelihoods that many development agencies work towards requires that KM and learning in the development sector should not only contribute to internal efficiency but also to issues such as improved responsiveness, connectedness, partnership, and policy influence.

Further Resources

ODI has published an introduction to key issues concerning KM and international development, *Knowledge Management and Organisational Learning: An International Development Perspective*, which can be found at http://www.odi.org.uk/rapid/Publications/Documents/WP224.pdf. The ODI paper also contains an annotated bibliography of key documents in this area. A more general guide, which is both accessible and easy-to-read, is *Learning to Fly* (Collison and Parcell 2001). An overview of the same issues applied to development agencies can be found in the report from Bellanet's 2000 KM Workshop (Bellanet 2000) or at their 'KM4DEV' website (http://www.bellanet.org/km).

ODI has also published a *Knowledge Management and Learning Toolkit*, which offers practical guidelines and tools on how to incorporate knowledge management and sharing approaches into a project. The full Toolkit can be found at http://www.odi.org.uk/rapid/Publications/Documents/WP224.pdf
The tools that may be most useful for ICT-for-rural-livelihood projects and programs are:

- Social Network Analysis http://www.odi.org.uk/rapid/Tools/Toolkits/KM/Social_network_analysis.html
- Force Field Analysis http://www.odi.org.uk/rapid/Tools/Toolkits/KM/Forcefield_analysis.html
- Structured Innovation http://www.odi.org.uk/rapid/Tools/Toolkits/KM/Structured_innovation.html
- Create a Community of Practice http://www.odi.org.uk/rapid/Tools/Toolkits/KM/CoP.html
- Storytelling http://www.odi.org.uk/rapid/Tools/Toolkits/KM/Stories.html
- After Action Reviews http://www.odi.org.uk/rapid/Tools/Toolkits/KM/AAR.html

The Approach

The Knowledge Map project was funded by *Info*Dev, and coordinated by ODI in partnership with the Institute of Development Studies (IDS), and three of ODI's Civil Society Partnership Programme (CSPP) Partners: the Economic and Social Research Foundation (ESRF) in Tanzania; Center for the Implementation of Public Policies Promoting Equity and Growth (CIPPEC) in Argentina; and Unnayan Onneshan in Bangladesh. The project has also partnered with the Institute of Political Science (ICP) in Uruguay; Practical Action Consulting in Sri Lanka; and Louis Fourie Consultants (based at the University of the Western Cape) in South Africa.

The Map is designed to answer the following questions: How can the full range of ICTs, appropriately adapted, help improve the livelihoods of poor individuals, families, and communities in rural areas, and increase their income opportunities, thereby improving their chances of escaping from persistent poverty? What do we know already, both from research and from experience in the field, and what do donor staff and their country counterparts most urgently need to know about these issues? How should we think about the role of ICT in enhancing the livelihoods of the rural poor? What elements most urgently require further research and analysis in order to lay the basis for informed policy and investment by donors, governments, and others?

The project ran between September 2006 and May 2007 and included the following components:

Literature, Survey, and Field Studies

- A **Literature Review. This was built** on the review undertaken by ODI for the earlier DFID/FAO/WB study (http://www.odi.org.uk/RAPID/Projects/R0093/bibliography.html), and focusing specifically on documents providing recent analysis or evaluation about the application and impact of ICT projects on rural livelihoods. There proved to be very few documents that do this. Those that were found are included in the Annotated Bibliography.

- A **Donor Review.** This included a review of public web sites, documents, and interviews with staff from six international donors active in the area of ICTs for livelihoods – ADB, IDRC, GTZ, UNDP, USAID and DFID. The results are presented in the Donor Review.

- Six **Country Studies**. These were carried out by in-country research institutes. They used a combination of interviews, focus group discussions, in-depth case studies and workshops to explore key actors and themes in the area of ICTs for rural livelihoods. Key actors included donors, policymakers, private sector technology providers, CSOs, and beneficiaries. Key themes varied across the studies, but included issues such as the question of coordination between key institutions; local appropriation of technology; the exploding mobile phone market; issues of sustainability, scale and funding models; the role of ICTs in increasing the empowerment and voice of the rural poor; and the linkages between ICTs and broader development priorities. The studies were carried out in the following

countries:

- Argentina (by CIPPEC). See Argentina Country Study.
- Bangladesh (by Unnayan Onneshan). See Bangladesh Country Study.
- South Africa (by Louis Fourie Consultants). See South Africa Country Study.
- Sri Lanka (by Practical Action Consulting Sri Lanka). See Sri Lanka Country Study.
- Tanzania (by ESRF). See Tanzania Country Study.
- Uruguay (by ICP). See Uruguay Country Study.

Interim Outputs

- The reports listed above were reviewed to develop two Interim Outputs**:**
  - A Knowledge Needs Assessment aiming to identify the key topics, and what donors, governments, and practitioners need to know about them so they can use the full range of ICTs, appropriately adapted, to help to improve the livelihoods of poor individuals, families, and communities in rural areas; and to increase their income opportunities, thereby improving their chances of escaping from persistent poverty.
  - A Key Topic Outline aiming to identify existing knowledge, and knowledge gaps for each of the topics.
- These two Interim Outputs were discussed at an Expert Review Meeting in March 2007 which identified the need for further research on in-country donor information needs, and made a number of recommendations about the content and structure of the final Knowledge Map. See Expert Review Meeting.
- Following the recommendation of the Expert Review Meeting, an additional brief **Online Survey** of in-country donor and agency staff was carried out. This was used to inform the revision and final writing up of the Knowledge Map. See the results from the Online Survey.

The Map:

- The final Knowledge Map was assembled at a **Write Shop** in ODI in May 2007. It was written up in wiki format to ensure that it can remain a flexible and updatable resource. In addition, key sections and summaries were pulled out in order to compile a printed book.

3. Key Topics

An Introduction

The topics in the knowledge map have been selected as areas where there is considerable interest and demand for information amongst donors, policymakers and other stakeholders involved in the planning and implementation of livelihood projects employing ICT. The current body of knowledge on the topic is presented and illustrated with case studies, and areas for further work and gaps are highlighted. Links to key resources on each of the topic areas are given so that interested users can follow up on items of relevance to them.

Topic areas that are presented are:

- **Enabling Environment.** We look at the policy environment and supporting conditions for ICT-supported livelihoods programs. Regulatory issues and subsidy instruments for rural connectivity are covered. Areas that are poorly known relating to the relationship between the policy environment and rural outcomes are highlighted.

- **Evaluation**. A key area in assessing the value of programs and projects, this topic addresses the need for better information on evaluating the impacts of ICT-supported initiatives on the livelihood assets of the poor. Livelihood- and ICT-related evaluation techniques are signposted and the need for better evaluation processes are outlined.

- **Partnerships**. While there is agreement that stakeholder partnerships are vital to program success, there remains uncertainty as to how such partnerships can be created and fostered. This topic looks at the issues connected to partnership formation and summarizes the current knowledge base.

- **Sustainability**. For some time a central discussion point, sustainability remains a challenge to the institution of rural-based ICT. This topic brings together learning on ways to encourage embedding of ICT into rural livelihood strategies.

- **Scalability**. A hot topic for donors, this issue relates to the ability to generalize successful lessons and methods across contexts and from small- to medium- and large-scale, thereby multiplying their value to the rural poor.

- **Local Innovation**.This is illustrated with examples and case studies, this final section discusses the media and applications most suited to the rural situation and to positively impacting livelihoods, while encouraging the growth of local capacity and ownership of the technology.

Enabling Environment

The enabling environment refers to the national policies, laws, physical infrastructure (roads, electricity, etc), and other infrastructure (access to education, access to banks, etc) that need to be in place for people to be able to use ICTs to their advantage.

Guiding questions

- What enabling environment is necessary and what is sufficient for pro-poor use of ICTs in rural areas, particularly with regard to affecting cost of and access to ICTs?
- What evidence is there and what recommendations can be drawn regarding the appropriate enabling environment for the implementation of ICT-related policies, especially with the aim of having a positive impact on rural livelihoods?

Current knowledge base

What we believe, what we know – and what we don't

On a national enabling environment:

- **The most suitable setting for ICT policies and strategies is unclear.** A number of countries now have national ICT strategies (Various 2007a). These have tended to focus on ICT adoption in education, health, government, and business and do not always distinguish rural needs explicitly, though many do outline plans for Universal Access subsidies and funds. Some countries have included ICT strategy components in the national Poverty Reduction Strategy Paper (PRSP), in an attempt to mainstream and to focus the overall effort on poverty alleviation.
- **Without advocacy, communication, and localization, national strategies remain ineffective.** Some studies have shown that despite the presence of national ICT policies, ICT initiatives have gone ahead in relative isolation and without the benefit of central and local coordination (Etta & Elder 2005). This finding was supported by our country assessments in Argentina and Tanzania (see the Argentina Report and the Tanzania Report). This highlights the need for policymaking agencies to also be actively involved in networking and coordination. Such coordination would, in turn, help to avoid the overlap between projects coming from different sources but geared towards the same area or public.
- **Universal Access Funds are at an early stage, face bureaucratic and political hurdles, and require support in implementation**. Spurred by WSIS discussions, several countries are introducing Universal Access Funds aimed at subsidizing rural ICT infrastructure provision and sourced through public, private, and donor contributions. These have not been implemented well in some cases, due to problems over urban price capping leading to an unwillingness of the private sector to contribute towards rural access (as in Argentina; see the Argentina Report) or due to the application arrangements not yet being clear (as in Tanzania; see the Tanzania Report).
- **Good communication skills of actors at all levels can enable ICT to support rural livelihoods**. Inculcating open communication and trust can be a factor in ICT effectiveness (Beardon 2004) and this may be culture-specific. The importance of advocacy at all levels to enable policy coherence is also recognized (Gerster & Zimmermann 2005). This is also related to the projects themselves, where there seems

to be a separation between "rural experts" and "ICT experts" Good examples of how to overcome these are In Co's project in Uruguay and CDI in Argentina (these are briefly described in the section on examples/case studies below).

- **Facilitating information exchange among stakeholders.** The Bangladesh study highlighted the gap that exists between Quality Management Systems (QMS) service providers and demand-side players, i.e., small and medium enterprises (SMEs) in Dhaka. Interactions between suppliers and buyers rarely take place, and as a result, there is a mismatch between buyers' needs and the service providers' offers. A relatively successful intervention, KATALYST, has helped to aid this. KATALYST is briefly described in the section below on examples / case studies.
- **The legal framework.** The legal framework determines the extent and viability of public-private coordination and deregulation. Licensing laws and tax regulation can either enable or disable ICT enterprises in rural areas. One example of a barrier to innovation can be business registration (see e.g. the World Bank site about costs and time of doing business: http://www.doingbusiness.org).

On preconditions and basic constraints:

- **Basic needs.** Before ICT can be positioned in the context of rural livelihoods, other basic needs must be mentioned, such as literacy, infrastructure, and costs.
- **Literacy.** Levels of (both functional and IT) literacy remain low in many rural communities and this needs to be tackled before ICT can really make a difference. Illiteracy in Bangladesh remains at 62% – 52 million illiterate adults – with much of the illiteracy in rural areas. This means that people lack choices and independence when it comes to accessing information (see the Bangladesh Report). The choice of media and the way ICTs are presented to rural people needs to be tailored to known literacy levels. Understanding the literacy environment is seen as a necessary precondition for ICT-enabled programs (see the Donor Review).
- **Infrastructure environment.** Lack of general infrastructure, notably water, electricity and housing, remain the most pressing needs for many rural people. Technology appropriation can only follow when these needs are met. This point was highlighted in all the country studies (see especially the Argentina Report). Unreliable and underdeveloped power supplies hamper the spread of ICT (Garai & Shadrach 2006; Rave & Wetzer 2005). There are still many uncovered knowledge needs in relation to the infrastructure environment (see areas for further investigation, below). There are, however, some examples in which these difficulties have been addressed in a fairly successful manner (see the section on examples / case studies, below).
- **Affordability issues.** Even where available, telephones, internet access, television sets, etc., are sometimes too expensive to be considered for household connectivity. This tends to restrict ICT use to middle or high income sections of society (see the Bangladesh Report). In Bangladesh, for example, the concentration of income and the distribution of ICT accessibility show that the latter is highly skewed towards the urban wealthy population. There is a growing concern that, due to the asymmetric processes of information sharing, marginalized people are falling further behind in the competition for jobs, market shares, and common resources. For more information, see the case study on Affordability in Bangladesh.
- **Licensing.** Licensing regulations can sometimes be a real impediment, especially with regards to radio frequency allocation, depending on the government or regulator's requirements.

- **Data availability and content.** Most of the country studies and the literature highlight the need for high quality data that enables the identification of the beneficiaries' priority needs. This is vital as a precondition for a favorable enabling environment, both for the donors and for the government and CSOs working in this area. Having said this, there might also be a trade-off between defining a set of high data standards across all contexts, and accounting for specific local content. This was highlighted, for example, in the Argentinean workshop (described in the Argentina Report, Appendix 3).

Comments

General comments

- **Debate - mainstreaming ICT policies.** The conviction that ICTs should be tools towards achieving an end have led some countries to incorporate ICT development policies and strategies into poverty reduction strategies and other sector programs to "mainstream" **Pro mainstreaming:** Focus on objectives of enhancing livelihoods rather than technocentric priorities; policy decentralized to allow sectoral agencies to concentrate on their specializations; and appreciation that ICTs are part of a wider system. **Con mainstreaming:** Diffusion of responsibilities and lack of ownership; poor coordination of initiatives on the ground; and more difficult to evaluate. **Compromise position?:** Decentralization and mainstreaming of strategies but with some centralized coordination and knowledge sharing
- **Debate - subsidy or self-financing?** Differences of opinion remain over whether certain aspects of access to information should be funded by the state or external support in perpetuity, or whether more "sustainable" financing models will allow subsidies to be phased out in time. **Pro subsidy:** Access to information is a fundamental human right, and it is the duty of the state to provide this; and the poorest are the most likely to be excluded by market pricing of access. **Con subsidy:** Lack of ownership and lower perceived value of externally-funded information; access costs likely to fall with time; and sustainability more assured by financial independence (risk of state or donor funding withdrawal). **Compromise position?:** Fair pricing systems with accompanying long-term subsidies by state (e.g. similar to public library financing in many countries). A good discussion about this was raised in the Uruguay workshop, see conclusions of the Uruguay Report.
- **Participation in formulating and implementing national ICT strategies.** To scale up the role of ICT in poverty reduction, it is vital to develop national ICT strategies. This is of particular relevance in the Latin American region, characterized by a highly unstable political environment, with regular changes in governments. A long-term national ICT strategy can provide the necessary continuity in the overall strategic direction and implementation of programs (van der Krogt 2005). A national ICT strategy needs to take the government's poverty alleviation policy and strategy as the key reference point. This would allow it to address its contribution to poverty alleviation. However, in many cases, ICT strategies focus on ICT infrastructure instead, and are developed in isolation from overall national development plans. This limits the interest and support of key national policymakers and, often, the international donor community. The integration of the ICT strategy into national

poverty-reduction plans must take into account the needs and values of the different stakeholder groups participating in formulating the ICT strategy. The strategy should be clear about how it will address urban-rural differences in ICT access. It also needs to take account of links between the different sectors. In this way the strategy can provide both continuity and integration of existing and future ICT projects and programs. A participatory approach to formulating and implementing ICT programs and strategies is a basic prerequisite for the effective application of ICT to poverty alleviation. Responsibility should be seen as shared between civil society, the private sector, and government (van der Krogt 2005).

Examples / case studies

- **Universal Access Funds.** Chile is often cited as a successful example of the implementation of Universal Access Funds, which started in 1995. Some of the key aspects for its success have been clear parameters and detailed telecommunications acts to guide regulators when monitoring the Universal Access Funds' system implementation (Regulatel 2006). Further vital elements seem to be a sufficient degree of flexibility that allows the adjustment of the program according to the circumstances of the time and its administration by an independent agency. Chile has even started to subsidize broadband services as opposed to telephony.
- **Legal framework.** South Africa's Value Added Network Services exemplify a way in which the interpretation of the same law can override previous elements found as obstacles. This allowed, for example, metropolitan councils to start providing telecoms services to residents or to extend internet access through optical fibre. See the case study on South Africa – Value Added Network Services for more details. Another example in this field is the change in regulation triggered by the mapuche community in Argentina, which allowed them to broadcast in their native language (which had not allowed in the past). See the Argentina Report for more details.
- **Basic infrastructure.** South Africa's Government Access Initiatives constitute "second-best" initiatives towards solving basic infrastructure problems. Through the establishment of Public Information Terminals (PITs), E-School Cyberlabs, and Multi Purpose Community Centers, the South African government seems to have partially addressed some of these problems.
- **Communication skills among actors at all levels.** The Computing Institute (In Co) in Uruguay has started a project that tries to address the obstacle of the separation between rural versus ICT skills by forming a multidisciplinary group. This group consists not only of experts on community and local issues, but also experts who have the skills to set up and repair the technology being applied. This is a vital element, especially when applied to areas where access is restricted or subject to weather conditions (for more information see the Uruguay Report, section 3.7, and http://www.fing.edu.uy/inco/proyectos/wan/presentacion.html). Another example of this is Escuelas CDI project in Argentina, which includes a technician as part of their setting-up team (see the Argentina Report, section 4.3). Furthermore, Bolivia's Ministry of Agriculture played a coordinating role in the sector with regard to information exchange for ICT policy and strategy in agriculture. This followed the recognition of the need for a concerted effort to link up ICT projects undertaken by the civil society and the private sector to government policies at sectoral level. See the brief example of ICT Policy in Bolivia's agriculture sector.
- **Facilitating information exchange among QMS stakeholders.** In Bangladesh, the Quality Management Systems (QMS) service market is in its infancy, and a strong

disconnection exists between QMS service providers and demand side players, i.e., small and medium enterprises (SMEs) in Dhaka. Given that information was not flowing freely and regularly between the buyers and suppliers of QMS services, KATALYST designed an intervention to facilitate interactions amongst QMS stakeholders, i.e., consulting houses including freelance consultants, certification bodies, and enterprises as clients of QMS services under an information exchange platform.

See http://www.katalystbd.com/admin/downloads/20060507045112.pdf

Literacy and social barriers. Social barriers also come in the way of implementing ICT projects. For example, in Bangladesh, infomediaries at the telecenters of Nilphamry and Sittakund said that many of the villagers are not yet convinced that the information available at the telecenters can improve their livelihoods. Social barriers can be overcome through increased literacy and ability to use the technology, awareness building programs such as issue-based camps to link villagers with the service providers, training the information workers to become efficient infomediaries, and providing relevant information that demonstrably improves livelihoods and incomes (see case studies in Annex C in the Bangladesh Report). Also in Bangladesh, DNet (the Development Research Network) has developed a unique approach called *Pallitathya Kendra* (PK), a rural information center created to improve access to relevant information for rural communities. The objective is to link the target beneficiaries with information providers through a combination of mobile phones and computing. DNet, in partnership with other organizations, the local government, universities, and experts, has generated user-friendly Bangla content. This content is divided into laws and legal issues, education, health, agriculture, awareness raising, sustainable technology, rural employment generation, disaster management, and other rural nonagricultural issues. For more information see the case study on Bangladesh – Telecenter Intermediaries.

Areas for further investigation and research

- Knowledge sharing on national-level initiatives is needed, perhaps in the form of a clearing house for ICT-related funding sources. Our country needs assessment in Argentina (see the Argentina Report) revealed confusion over in-country donor funding programs and priorities, and a requirement by practitioners for a central, probably web-based, location for this type of information. Related to this there is a need for generating good quality data to help stakeholders in their determination of the priority areas and sectors to focus on.
- Are there any robust success stories on how government can create an enabling environment for private sector ICT / livelihood enterprises in rural areas? (A possible example is SONATEL in Senegal - http://www.sonatel.sn/).
- How can stronger integration between national policies and supra-national policies (e.g. of the African Union) be encouraged, and would this strengthen the national enabling environment?
- How can the cost of cross-border telecom exchanges be reduced, especially in Africa?
- If Universal Access Funds are “old-fashioned” should national governments still be striving to implement them? (Possible success story: The Universal Access Fund

in Chile). What further guidance can be given to national-level governments on the establishment and use of Universal Access Funds?

- Are there any available guidelines on how to use ICTs in projects operating in environments without (regular) electricity supply? Can kiosk-type initiatives (e.g. South Africa's Government Access Initiatives) help alleviate basic infrastructure problems?
- What are the locally appropriate infrastructure requirements in different areas? (e.g. not all areas need broadband)
- Which local solutions for power production are most realistic (e.g. biogas, windmills, etc.), and should these be advocated instead of a centralised power / electricity grid supply?
- As governments have lots of information, including national data which could be helpful to develop content but is not easily accessible, would it be relevant for donors to look at ways to encourage government to digitalise the information?

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Evaluation

This section looks at how we can evaluate the impact of ICTs on rural livelihoods.

Guiding questions

- How can the contribution of ICTs to livelihood outcomes be evaluated?
- How can livelihoods frameworks and principles be used in evaluations and integrated with methods from ICT evaluation?
- What specific examples of evaluation methods and findings exist?

Current knowledge base

What we believe, what we know – and what we don't

On livelihoods evaluation:

- **Livelihood evaluation focuses more on process and longer-term outcomes than immediate project outputs.** This necessitates a change in focus from the one-time evaluation of *project outputs* (management or project level evaluation) to *livelihood impact* evaluation (stakeholder or community level evaluation). The adaptation of monitoring and evaluation (M&E) methods to the livelihoods approach requires an understanding of participatory methods and the role of evaluation as an iterative, community-owned tool (Pasteur 2001).
- **Indicators for livelihood outcomes are inherently flexible.** Livelihood outcomes for a particular community should be negotiated as part of any intervention process. To this extent they will be somewhat unique to a locality or situation (Carney 1998).

On ICT evaluation:

- **Socio-technical methodologies are relevant to ICT for livelihoods.** While much of pure ICT evaluation is concerned with the functions and reliability of technology on its own, there is also a history of design and evaluation that considers the whole system of people and technology. Soft Systems methodology, Multiview, and more recently Communitiy Informatics are examples of these.

On "ICT for livelihoods" evaluation:

- **There are limited documented examples of putting participatory livelihood evaluation principles into practice.** ICT-related evaluations continue to focus primarily on outputs. The Reflect ICT project (http://www.reflect-action.org/Initiatives/ict/home.htm) is one good exception, with indicators being discussed with beneficiaries and used to monitor and evaluate as projects progressed. See also the UNESCO study on participatory ethnographic research. (http://portal.unesco.org/ci/en/files/13276/10672478597Ethnographic_Action_Research.pdf/Ethnographic%2BAction%2BResearch.pdf).
- With a few notable exceptions (see the section on case studies below), there is a **lack of systematic evaluation data on ICT's contribution to rural livelihoods** at project and program levels. There is consensus among donors and practitioners that there is insufficient rigorous evidence of the impact of ICTs on livelihoods, despite a wealth of positive claims from pilot projects and programs. This gap is starting to be addressed (e.g. IDRC Project proposal 2006).

- **There have been few systematic attempts to evaluate *ICT-related policy* impact on rural livelihoods.** Few evaluations of the impact of ICT policies on rural areas exist, though techniques such as Outcome Mapping are being investigated to determine the direct and indirect impact of policies (IDRC Project proposal 2006) on stakeholder groups.
- **Frameworks exist that can be used in evaluating ICT for livelihoods**. ODI, DFID and FAO, for example, have identified eight policy pillars on which communications for development should be built in their 2003 study "Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security" (Chapman, Slaymaker, & Young 2003). These "8 pillars", as well as the "12 Cs" and the "Diamond of Alignment" frameworks, are described in more detail in the ICT for Rural Livelihoods Introduction.

On linkages to broader development goals

- The Knowledge Needs Assessment revealed a widespread need for knowledge about how to bring about **linkages and synergies between specific ICT-for-livelihood interventions and broader priorities for growth and poverty reduction in rural areas.** This need was expressed both by international-level donors as well as by local practitioners interviewed for the country studies.

Comments

- There is some debate as to the need to separate out ICT from general project impact and whether ICT alone can impact livelihoods rather than the improved communication enabled by it, though this may depend on the importance of ICT usage in the project or program in question. Some have distinguished between "ICT-supported" and "ICT-driven" projects, where ICT is more of a core component in the latter and therefore more worthy of direct consideration. Good use of ICTs should be integral to an "ICT-supported" project / program, similar to the role of knowledge management or quality assurance.
- The need to mainstream ICTs within holistic programs, to adapt indicators to local needs, and to take account of livelihood diversification complicates the evaluation process and requires new techniques and substantial knowledge sharing between agencies. Development of indicators for local needs will need to be done at the pre-project stage.
- Taking the 'T' out of ICT may help us to focus on the information and communication needs, channels and processes (in which technology may play a part). This is especially relevant during evaluation processes.
- When carrying out evaluations of ICT-supported initiatives, it may be helpful to differentiate among the following three levels:
    - *Level 1* – Sectoral level: this is the outcome level (e.g. rural livelihood outcomes).
    - *Level 2* – Information, communications and knowledge. This is the most important layer in terms of linking ICTs to rural livelihoods outcomes.
    - *Level 3* – Set of technologies. It is not useful to evaluate the effect of level 3 directly on level 1 (outcomes). Instead, we should evaluate the effect of level 3 on level 2 (information and communication channels and processes), and then we can evaluate the effect of level 2 on level 1 (rural livelihood outcomes).

Examples / case studies

- **Evaluation of pilot projects implemented under the e-Sri Lanka strategy:** This "KPI"-based evaluation, by Ernst & Young, looked at eight of the pilot projects of the e-Sri Lanka strategy. For each project, data was collected on performance against predefined Key Performance Indicators and outcomes. Half of the projects were found to have had a "substantial" impact on the target audiences, and five of the projects were deemed likely to be sustainable.
- **An auto-evaluation approach to impact measurement:** IICD and its partners developed a monitoring and evaluation approach for its ICT-enabled development programs. The method used questionnaires and focus group meetings, and has been used since 2005 for most of IICD's projects. The volume of data collected allows for cross country and sector comparisons.
- **Using the Sustainable Livelihoods (SL) framework for evaluation:** This study describes a case where the Sustainable Livelihoods framework was used as a tool to assess the contribution of ICTs to development projects, using the example of a Colombian telecenter. The SL framework was found to help broaden the scope of the evaluation and was felt to be more academically rigourous than other available methods.

  http://ci-journal.net/index.php/ciej/article/view/310/263

- **A comparative analysis of evaluation frameworks:** This study looked at a range of methodologies in evaluating e-government projects, e-education, telecenters and ICT and civil society projects. It concludes that a theoretical framework is useful to guide the evaluation method, and that there is a need for more longitudinal studies on ICT assimilation. It is suggested that universities can play an important role in helping to develop these frameworks.

  http://www.asiafoundation.org/pdf/ICT_analysis.pdf

Areas for further investigation and research

- There is a need for more systematic evaluation of the role of ICT in livelihoods projects, with case studies and examples being collected and compared.
- Different organizations working in this area should do more joint evaluations across their projects.
- Academic, longitudinal studies on ICT impacts on rural households may also help determine the diverse impacts of technology on livelihoods.
- What are the evaluation criteria from the livelihoods field that can be used for ICTs-for-rural-livelihoods projects?
- What are the critical success factors that can be identified across projects / programs?

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Partnerships

To enhance the livelihoods of the rural poor, strong partnerships with information providers (Batchelor, Norrish, Scott, & Webb 2003), organizations that promote services and raise awareness (Cecchini & Scott 2003), as well as organizations offering the technological infrastructure and finance need to be formed. This section looks at different types of partnerships between governments, civil society organizations, grass-root organizations and the private sector to see how partnerships can be used in the most appropriate and effective way in the area of ICTs-for-rural-livelihoods.

Guiding questions

- What is known about the factors that promote or hinder public-private partnerships?
- What is known about the factors that promote or hinder partnerships with rural service provider institutions (including e.g. local government services, agricultural extension agents, NGOs, local research organizations, financial service providers, commercial businesses, etc)?
- What potential improvements to the enabling environment could be offered by:
    - public-private adaptations of business models;
    - developing community-based intermediary roles, either public or private;
    - other types of public-private partnerships?
- How could more effective 'knowledge partnerships' be fostered in the field of ICT-for-rural-livelihoods?

Current knowledge base

What we believe, what we know – and what we don't

Involving multiple partners:

- When discussing partnerships, the involvement of the different stakeholders formulating and implementing ICT programs and strategies is a basic prerequisite for the effective application of ICT to enhance rural livelihoods. Responsibility should be seen as shared between civil society, the private sector, and government. Frequently, the government, private sector, or civil society considers responsibility to lie with one of the other stakeholders. In other cases, stakeholder groups assume exclusive ownership and decision-making powers, excluding other stakeholders from the process. Successful models for using ICTs to support rural livelihoods, however, demand **multi-sectoral engagement, clearly distinguishing the role of each of these stakeholders in the process of formulating, implementing, and monitoring the results and impact to ensure the success of the program**. The following roles for the various stakeholders could be defined:
- In many cases it is appropriate for **the national government** to have the leading role in policy and strategy development, and responsibility for the coordination and co-funding of ICT programs in relation to enhancing the livelihoods of the rural poor. The strategy formulation process needs to start from an analysis of ICT experiences at project and sector level. NGOs and academia also have a responsibility to participate in this, drawing on their practical experiences.
- **The private sector**, as a provider and operator of basic ICT infrastructure and services, is often a key player in employing ICT for enhancing the livelihoods of the poor. Interestingly enough, in many countries the small- and medium-sized

ICT-providers show more interest than large-scale providers in investing in services in areas with limited profitability. This group of private sector operators can establish strategic partnerships with government and civil society to explore new forms of development-oriented (but sustainable) solutions for marginalised users.

- **Grassroots organizations and local government agencies** in collaboration with the community have to play a key role in identifying local needs and potential uses of ICT for livelihood improvement. Strategies for awareness-raising and advocacy should be developed to help local government agencies gain support from leading decisionmakers in the national government agencies.
- **Beneficiaries** from the community have an essential role in formulating and implementing ICT policy, as it is they who ultimately have to take on the capacities and ownership of ICT programs and the responsibility for their longer-term validation and sustainability (Van der Krogt, Liendo, Betancourt & Buenascasas 2005).

Factors that promote and hinder partnerships

- **Factors that promote partnerships are:**
  - Starting from communities' development priorities;
  - Building capacity among all partners to deliver (Talyarkhan, 2004);
  - Providing partners with incentives;
  - Negotiating conflicting interests;
  - Developing clear and achievable mission and goals;
  - Having clarity about the type of partnership agreement;
  - Clearly defining timeline;
  - Availibility of required resources;
  - Clear expectations;
  - Adequate staffing resources; and
  - Well-trained staff.
- **Factors that hinder partnerships are:**
  - Cultural differences among government, private sector, and civil society organizations;
  - Lack of trust;
  - Hidden agendas of different partners;
  - A lack of clear identification and recognition of the interests of each partner;
  - Too high expectations of the other partners;
  - Rushing partnerships, as they require time and trust to become robust;
  - Unequal remuneration of efforts of the different partners;
  - Financial and political power differences; and
  - Lacking financial and human resources to invest in the partnership

Global partnerships:

- It has been established by the UN Fund for International Partnerships (UNFIP) that today's complex global problems can be addressed through **international cooperation, mutual respect, and partnerships** among different stakeholders. However, the area of global partnerships needs much more attention. From the study, the following needs with regard to global partnerships became apparent:

  http://www.unfip.org/

- The need to collect and collate **information on national and global investment in ICT use** (infrastructure and information services such as in agriculture, governance, health and education) for rural development.
- The need to identify **successful private sector investment in ICT** (infrastructure and services) in rural areas.
- The need to understand **why pilot projects have not really delivered** the potential for ICT use to contribute to rural livelihoods.

Partnerships with the private sector:

- There is no doubt that the private sector is slowly starting to realize **the value of the bottom end of the market** and many multinational corporations are adopting new business models and partnership models to exploit these markets, such as the shared access model popularised by the Grameen Bank (Prahalad & Hammond 2002).

  http://www.grameen-info.org/

- Badshah, Khan and Garrido (2003) highlight some initiatives that have developed innovative solutions to **financial sustainability**: «*Several projects have a self-sustaining commercial focus as the driving factor – Drishtee (India), Cabinas (Peru), Warnet (Indonesia), n-Logue (India), Telecottages (Hungary), are all based on a business model. According to Amin, one way to structure a business driven kiosk model is as a franchise and many of the successful efforts analyzed have adopted this approach.*» The involvement of the private sector in ICT projects can often reduce costs and improve service quality and efficiency as in the case of the partnership between the municipality of Knysna and Uni-Net in South Africa in providing internet access via wireless technology (see the case study on the Uni-Fi project, and Badshah, Khan, & Garrido, 2003).
- **Policy that makes it easier to partner on connectivity will stimulate rural ICT access**. Our country studies have revealed opportunities for rural access via privately installed networks (for example along railway lines in Tanzania; see the Tanzania Report) or access points. There are also examples of sectoral projects with good communication facilities where there may be opportunities for other local groups to share connectivity. This type of partnering could be facilitated by local governments or similar authorities. However, in many instances the legal environment and quasi-governmental monopolies (e.g. the Telkom monopoly in South Africa; see the South Africa Report) may act as a restrictive factor on these types of partnerships.
- **Information services are enhanced when content owners form partnerships with organisations able to provide the technology and finance.** The Satelife initiative in Uganda delivered health information texts to PDAs and involved partnerships between information providers, health professionals, students and technical and funding partners (see Talyarkhan 2004 or the description on Bridges.org).

- **Partnerships can span rural-urban markets and lead to sustainable enterprises.** The "institutional core" of successful partnerships, such as in the Grameen phone model in Bangladesh, is strengthened by the know-how and funding of a large commercial organization partnering with a rural development organization with long experience in rural development work and with an established and trusted reputation at the community level (Molina 2006). In this case, a "bottom of the pyramid" solution is made possible where private sector constituents also have a presence in more lucrative urban markets.
- **Government content owners partnering with private sector service providers:** Government departments often hold a huge amount of information on agriculture, health and education, but this may be in inaccessible formats, or simply not widely publicized. There may also be bureaucratic and capacity constraints in making this information available to third parties. At the same time, private sector content providers are fast gearing up to make information available through rural information centers. The challenge is how to unlock state-owned content and make it available through these new channels. An example of government succeeding in making relevant content available is the very successful multi-lingual Cape Gateway Project of the Western Cape Provincial Government in South Africa. The Cape Gateway Project follows a multi-channel approach by providing walk-in centers, contact centers, an e-government portal, knowledge centers, and Gateway kiosks at local authorities, libraries and NGOs.

  http://www.capegateway.gov.za/

Partnerships between civil society organizations (CSOs):

- Best practice entails **the selection of partners with complimentary strengths.** Bridges.org describes the case of the Ugandan Satelife PDA project, whereby physicians, medical officers, and medical students tested PDA devices in the context of their daily work environments. Partner organizations working on the health project in Uganda included the American Red Cross, Makerere University Faculty of Medicine, and Health Net Uganda (who provided technical support and project assistance). Medical texts were obtained from Skyscape, an online information provider (Talyarkhan 2004).
- In Bolivia and Ecuador, community organizations are collaborating in the **sharing of connectivity**. The "Community of Networks" is based on shared VSAT satellite connectivity, which means that a group of local organizations unite to make connectivity more affordable and therefore make access to the internet and information feasible (for more information, see the description by IICD). In this case, one organization active in the community contracts a VSAT service. The costs of investment and operations are then distributed among a group of local organizations. Local organizations are linked to the connection via wireless linkages, either through WIFI or Mesh solutions (see the article).

  http://www.iicd.org/articles/connectivitymodel

http://www.iicd.org/articles/iicdnews.2006-04-24.3282480478/view

- Successful **coordination and involvement of different stakeholders** are crucial to have an impact on the livelihoods of the rural poor. Our South Africa study revealed the need for a stakeholder map depicting all stakeholders and their various initiatives in order to promote collaboration between civil society organisations (see the South Africa Report).

Comments

- **Debate: The role of the private sector.** There is some divergence of opinion over the extent to which donors should work with the private sector (see the Donor Review). While some assume that closer alliances will be mutually beneficial, others feel that more research on the role of the private sector is necessary before this can be proven. It is also noted that some private sector actors tend not to share their research, even when it could be of use to others who are not positioning themselves to compete for profit.

Examples / case studies

- In South Africa several municipalities are presently working on extending internet access to their citizens by means of optical fibre, the electricity grid or wireless connections. Knysna Municipality, the first South African town to provide internet access to its 50,000 citizens via wireless technology (the Uni-Fi project), is one of the successful **public-private partnership** stories in South Africa. See the case study on the Uni-Fi project for more details.
- A successful example of **civil society partnership** is the Tanzania Development Gateway project, which provides services and information to the private sector, civil society and government. The Tanzania Development Gateway is an internet portal that provides and promotes online networking, sharing, exchange and dissemination of knowledge, ideas, and information on development matters. The typical value of the Gateway is illustrated by the assistance of small entrepreneurs through the provision of online product information. (http://www.tanzaniagateway.org/).
- Tanzania Online, another **civil society partnership project**, provides a gateway to information on development issues in Tanzania. It is a UNDP, Government of Tanzania and Economic and Social Research Foundation (ESRF) initiative to address problems faced by government officials, policymakers, the private sector, civil society, the donor community, researchers, and academics accessing information on development issues in Tanzania. (http://www.tzonline.org/).
- It has been pointed out that **telecenter returns** are increased through economies of scope and scale, network externalities, vertical integration, agglomeration, as well as **partnerships** to overcome high initial investment costs. High initial investment costs in equipment and infrastructure make it difficult to base expansion plans on local owner-operators' means. In-kind investment partnerships, for example the Indonesian government's vocational school system's partnering with local businesses to sponsor cybercafes; and the Indian Andhra Pradesh state government's scheme to involve long distance telephone companies, are possible solutions to the above-mentioned problems (Tschang, Chuladul and Le 2002).

- The Kothmale Community Radio in Sri Lanka is one of the most discussed and commended initiatives because of its unique features, such as the use of a combination of information and communication technologies, community participation, and **strong multiparty partnerships** (see the Sri Lanka Report). Kothmale Community Radio serves an area of 25km radius, which includes three rural towns – Gampola, Nawalapitiya and Thispane with an estimated population of more than 350,000. The project uses community radio as an interface between the internet and rural communities. While UNESCO provided computer equipment and training, the Sri Lankan government, through its Telecommunication Regulatory Commission, provided the internet connectivity to the community radio station. With the availability of a website in three languages – Sinhala, Tamil and English – the project has also incorporated computer classes and Web design with the assistance of the Institute of Computer Technology.
- **Example of donor-government partnership:** The Virtual Extension Research Communication Network (VERCON) is a FAO-developed model for an internet-based network designed to improve information sharing between agricultural researchers and extension workers. The model's first implementation took place in Egypt. The objective was to establish a Virtual Extension and Research Communication Network to strengthen and enable linkages among the research and extension components of the national agricultural knowledge and information system. The overall goal is to improve, through strengthened, research-extension linkages, the agricultural advisory services provided to Egyptian farmers and in particular to resource-poor farmers, to increase production of food and agriculture with the goal of raising farm incomes.

  http://www.fao.org//docs/eims/upload/192803/Egypt%20VERCON.pdf

Areas for further investigation and research

- Given that there are some successful examples of public-private partnerships, how can these success stories be adapted in other contexts?
- How should donors seek to support government cooperation with the private sector, and how can donors themselves cooperate with the private sector?
- Are there any robust success stories, or guidelines, on how to set up "social ventures," i.e. forprofit-nonprofit partnerships within civil society?

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Sustainability

This section looks at how ICTs-for-rural-livelihood projects and programs can be set up in ways that continue to support livelihoods strategies in the longer term. This can be achieved by concentrating on the "eight pillars." In this section we focus particularly on ownership, partnerships, involvement, capacity building, local innovations, and a cross-sectoral approach.

Guiding questions

- What is known about the factors that promote and hinder sustainability in ICT-for-rural-livelihood projects and programs?
- What evidence exists that demonstrates sustainable ICT-for-rural-livelihoods projects?
- What are the key elements that have led to sustainability of livelihoods projects and programs?
- How does ownership contribute to sustainability?
- Who can support models of partnership? What is the role of infomediaries?
- How does local involvement and capacity building contribute to sustainability?
- Do sustainable ICT-for-rural-livelihoods projects incorporate a holistic and cross-sectoral approach?
- Which financing models and technologies allow for sustainable ICT-for-rural-livelihoods project and programs?

Current knowledge base

What we believe, what we know – and what we don't

- **The "eight pillars:"** Frameworks exist that can be used in assessing the potential sustainability of ICT-for-rural-livelihoods projects and programs. ODI, DFID and FAO for example have identified **eight policy pillars** on which information and communication for development should be built in their 2003 study, "Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security" (Chapman, Slaymaker, & Young 2003).
  The following eight pillars need to be addressed to make sure that ICT programs benefit the rural poor:
  1. **Share costs appropriately**, between government for public goods information services and social protection, and users for private goods. Work in partnership with the private sector to ensure effective coverage in remote rural areas.
  2. **Ensure equitable access** to all, especially women, the poor, the disabled, people living in remote areas and otherwise disadvantaged communities.
  3. **Address diversity**, including issues of equitable access and use between men and women.
  4. Contain a high proportion of **local or appropriately localized content**, both to maximize local usefulness and uptake, and to enrich local, national, and international knowledge.
  5. **Build on existing systems**, including information content (indigenous knowledge, local sources and databases), information technology (tv, radio,

telephone, internet), processes (existing surveys, research and extension), and policy environment.

6. **Build capacity** at the local level to generate content and use new technologies, among intermediaries and knowledge brokers, practitioners and policymakers.
7. Use **realistic technologies** that can be easily used managed, and maintained, and that integrate existing and new technologies and are affordable.
8. **Build knowledge partnerships** between knowledge users, producers, and intermediaries at and across all levels to convert information into useful knowledge.

- In this section, we will especially elaborate on the points concerning partnerships, local involvement and capacity building, the role of infomediaries, holistic thinking, cross-sectoral approach, and cost and financing models.

The importance of partnerships:

- While community-driven initiatives work well, they are best supported by **a high level of community institutional organization.** Within the community-driven sphere, different models exist that include: user/community cooperatives, local authority networks, and hybrid entrepreneurial/community models (Ó Siochrú 2006).
- **Multi-stakeholder partnerships and networks** are recognized as important aspects of the enabling environment and can support community-driven initiatives (for further information see the Partnerships Topic Section). To facilitate participatory, broad-based yet ICT-aware rural initiatives, it is recognized that a range of stakeholders need to work together. In addition to participatory rural development specialists, ICT specialists need to be on hand to explain possibilities and recommend suitable solutions (Beardon et al. 2004).
- **Telephone kiosks "vibanda vya simu"** have been a very popular business in Tanzania. Micro-enterprises have been playing a tremendous role in providing service to the remote rural areas. Many people, even in poor communities, use kiosks wherever they are available.

Who can support partnerships? The role of infomediaries:

- **ICT-literate intermediaries have an important role to play in empowering rural communities** to benefit from improved communication and information processing. "Infomediaries" have been found to be useful in linking information resources to rural users and can also assist in capacity building and confidence raising. In India, for example, "computer munshi" trained in accountancy and computing are assisting cooperative groups in accounting and reporting, and can claim a small transaction fee (Choudhary 2003).
- **Intermediaries should have a stake in the local community** (and could ideally originate from the community). In order to foster long-term, trusted relationships with a community, it helps if intermediaries have a commitment to an area and its development. In Argentina, the TEDEL project is seeking to pay ICT specialists to train with the expectation that they will return to their native rural locations to work. While yet to be proven, the premise is that local roots will lead to lasting results.

Local involvement and capacity building:

- **ICT interventions must build on existing systems**, including information content (indigenous knowledge, local sources and databases, etc.), information technology (TV, radio, telephone, internet), processes (existing surveys, research and extension), and the local and national policy environment. ICTs should be built into existing structures and should recognize the existing but less formal communication arenas (Beardon et al. 2004; Creech 2006; Talyarkhan 2004). Building trust through existing social networks is as important to the poor as ICT access on its own, though ICT can facilitate it (Duncombe 2006). ICT can "lubricate or enhance" systems that are already working (Richardson 2006).
- In the poorer countries, **local community control and participation is widely recognized as critical to the success of ICT projects,** such as telecenters and application development. Community ownership works best when supported by well-organized local institutions and where ICT demand emerges from community livelihood needs (Ó Siochrú 2006). Bottom-up design is a characteristic of successful pilot projects (Harris 2007). The Segerema Multipurpose community centre in Tanzania has been sustainable due to community involvement from the start where they participated in the steering committee and provided content. See also http://www.sengerema.or.tz
- **Successful participation gives rise to multiplier effects.** The satisfaction of successful involvement in local initiatives creates the desire to seek out more opportunities of local relevance, creating a virtuous circle of participation (see the Uruguay Report).

Holistic thinking and a cross-sectoral approach:

- Taking a holistic approach to development leads to thinking across sectors. In developing sustainable ICT-for-rural-livelihoods project and programs, a cross-sectoral approach will allow for linkages between different sectors of the economy. "*In focusing on cross-sectoral issues, planners may be able to forestall potential problems while discovering new opportunities for applications and service delivery*" (Grant et al 2002).
- When an ICT project is cutting across sectors, it is likely to be more sustainable. A good example is the Knysna Municipal Uni-Fi project in South Africa, which is the first South African town to provide internet access to its 50,000 citizens. The business community is able to draw on tourism to the popular Garden Route and Knysan area, thus creating a model of sustaining itself.

Finance models and funding:

- **Sustainable funding models** require that the funding of a project must have clear objectives and an institutional framework.
- **Financing models for intermediaries need to be further explored.** Many projects requiring intermediaries continue to rely on subsidy or funding by donors, NGOs and government due to the inability or unwillingness of rural communities to meet the costs. This may be partly mitigated through intermediaries who are entrepreneurial enough to have other income streams, or by the infomediary also being the agricultural or health extension worker (Richardson 2006).

- The National Telecomunication Administration (ANTEL) in Uruguay is an example of a finance model based on partnerships. Through the Uruguay Information Society (Uruguay Sociedad de la Informacion) several subsidies and loans are available for equipment and connectivity. This is possible through revenues from the urban market which ANTEL channel to provide a pool for subsidies, For more information, see the Uruguay Report, http://www.antel.com.uy and http://www.usi.org.uy
- The Nokia and Grameen Foundation Village Phone project in Uganda and Rwanda is a suatainable mobile communication service that has helped to create small businesses and provide connectivity to the rural areas. With the aid of microfinance loans, entrepreneurs can become Village Phone Operators, allowing them to buy the equipment they need to provide telecommunication services to villages. See http://www.nokia.com/A4174134
- Creating a favorable environment for investment is an important element of funding. More information on this can be found on the Enabling Environment Topic Section.

Comments

- What tends to stand out in the existing knowledge in this area is that capacity and participation lead to the most favorable outcomes, and that appropriate technologies that interface well with existing communication preferences and knowledge sharing traditions follow.
- Sustainable projects tend to address needs that cut across several sectors (e.g. livelihoods, health, governance). The importance of thinking "across" sectors should be highlighted.

Examples / case studies

- **Argentina. TEDEL Rural ICT entrepreneurs**. This project involves linking telecenters to a reciprocal assistance virtual network. Collaboration is based on teleworking practices. The aim is for the network to allow local groups to create synergies and complementary relationships that help to ensure the project's sustainability.
- **Uruguay. Intelligent Rural Community: Bernabé Rivera village**. The main objective of the initiative was to improve the social inclusion of poor populations in rural areas through the use of ICT tools. A community-elected "Commission" was created to manage the project and ensure its sustainability.
- **Tanzania. Sengerma Community Telecenter**. Sengerema Multi-Purpose Community Telecenter in Tanzania is an example of a community center that has been sustainable and is owned by the community. The community have actively participated and been involved in planning.
- **Tanzania. Telephone kiosks "vibanda vya simu"**. In Tanzania, micro-enterprises have been playing an important role in providing services to remote rural areas. Communities often use kiosks as their main communication channel.

Areas for further investigation and research

- What other rigorous, analytical case studies exist of projects or programs that have successfully been sustained over a longer period of time, and how can the lessons already learned be applied more widely?
- What processes are needed and recommended to encourage more cross-sectoral ICT livelihoods projects?
- Which public-private partnership models contribute to sustainable ICT livelihoods projects and programs?

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Web resources:

- Sustainable ICTs http://www.sustainableicts.org
- Empowering through ICT http://www.telecentre.org
- Challenges and Opportunities on Rural Telecenter Development in Malawi http://www.ictmalawi.org/Presentations/ISRD_SoustaineSeminar_%2029%20May_final.pdf

Scalability

This section looks at how successful ICT-for-rural-livelihood projects or programs can be scaled up in the same context, or adapted in other contexts to create the same positive effects.

Guiding questions

- There are fragmented examples of successful ICT projects in rural areas that have been "scaled up." Which factors have enabled their success?
- How can successful ICT-for-rural-livelihood projects and programs be adapted in other contexts?

Current knowledgebase

- The success of small-scale ICT projects may be determined by **relatively unique combinations of actors, demands, and conditions at the local level.** Recent participatory action research projects point to the variation in local priorities that will dictate the type of solutions that are appropriate (Beardon et al 2004). Others stress the importance of individual personalities involved in pushing through successes.
- **Scaling-up initiatives should start by building capacity at the local level** to generate content and to use new technologies (among intermediaries and knowledge brokers, practitioners and policymakers). Building capacity in local communities is a key component of program success and up-scaling (Gerster & Zimmermann 2005; IICD 2006; Talyarkhan 2004). Capability to use ICT tools is one of the "12 Cs" (Torero & von Braun 2006). Capacity building activities, material developments, establishing national pools of resources and expertise, and networking should be priority areas for support (Ó Siochrú 2006). The selection, training, support, and development of telecenter personnel and infomediaries warrants more attention (Harris 2007).
- **In addition to scalable ICT solutions, it is equally important to have a "scaled up" view of community needs.** This will enable service providers to tailor their offerings to meet demands and provide the necessary flexibility of approach.
- **Programs in the process of scaling up should share costs appropriately** between government for public goods information services and social protection, and users for private goods. The programs must work in partnership with the private sector to ensure effective coverage in remote rural areas. Defining the level of institutional and public support is an important part of scaling up (Gerster & Zimmermann 2005).
- **Frameworks can be employed to "join up" macro, meso, and micro levels and to understand social, political, and technical aspects of the wider system.** Livelihoods and capability frameworks attempt to join up national and local conditions. The "12 Cs" framework, for instance, can be used to map out conditions and highlight connections. In two case-based examples in Bolivia, it has been used to show how good Coherence was achieved by central support to the PRSP and local support to pro-poor initiatives, but poor Connectivity for women's groups to local radio was adversely influenced by the overregulation of radio by the state (UNCTAD 2006).

- **Similarly, a "diamond of alignment" approach can be used to analyze the interplay of institutions, the problem domain, available technologies and the governance environment.** In the case of Grameen phone, a good institutional foundation aligned well with a knowledge of the problem domain and the solution technology, and – significantly – with a governance environment where deregulation of the mobile network made the whole system viable (Molina 2007).

- To promote and integrate lessons learned from pilot initiatives, **it is important to systematize the pilot project phase as well as the processes of scaling up and adaptation.** Despite the existence of some analytical frames to help identify "what works where," not enough has been done to collate experiences and design tools that systematize the range of available case studies and experiences.

- When considering the up-scaling of ICT pilot projects, a **number of steps** need to be taken. These steps have been outlined by Stephen Nolan, the Executive Director of the Global eSchools and Communities Initiative (Ge SCI), an endeavour that was founded by the United Nations ICT Task Force in 2003. Nolan has developed a theory of how innovative technologies are adopted by organizations. The steps in up-scaling, adapted for the particular case of ICT for development, can be summarized as follows:

    1. The first stage is characterized by a period of innovation led by **a few enthusiastic change agents** within organizations.
    2. Once the projects produce valuable results, the pilot gradually triggers **a period of contagion**, during which the technology spreads across the organization. This results in the institutionalisation of ICT at the organizational level, where the organization recognizes that ICT is one of the necessary components in every successful livelihoods program undertaken and in which the decisionmakers embrace the potential role of ICT as part of their broader organizational objectives.
    3. The third essential step is the strong **demand and willingness to pay for the services** expressed by beneficiaries, including local farmer groups, local governments, and the wider community for maintaining and expanding ICT access.
    4. Finally, **governments and other development partners gain interest** in the pilot project or at least the basic elements of the ICT model applied. This stage is the most complicated one, as initiatives may be disperse and can result in an increased top-down approach where local actors lose ownership of the initial pilot project or fledgling initiative. The priority here is to rationalize investments by setting priorities and establishing a coordinated sector strategy among key actors.

Comments

- **It is important to avoid sheer replicability of pilot projects.** Simple replication of successful models often fails to meet expectation. This can be due to "rushing" to apply models without understanding their inner workings and local applicability (Kenny 2006). Scaling up is more about adaptation than about replication. Scalability is essentially a question of being able to reproduce the positive impacts of a project in a number of other locations, without photocopying the original project plans.
- **When scaling up, it is important to consider any potential (positive or adverse) effects on local systems, including the effect on local markets.** Project staff needs to understand the changes in markets caused by larger scale programs, which may mean that the impacts of pilots are different from impacts of scaled-up programs.
- **Sucessful up-scaling benefits from active participation of local grass-roots organizations and NGOs** with experience in ICT for livelihoods, in the formulation and implementation of larger-scale programs initiated by either governments of development partners. Their experiences are key to ensure that lessons learned are actually taken on board by agencies with less experience on the ground.

Examples / case studies

- **Upscaling IFAD's First Mile Initiative.** This is a seven-year agriculture marketing system development program with an ICT component, implemented by IFAD and the government of Tanzania. The project uses live documentation methodology and monitoring with hard figures throughout the duration of the project. They use blended technologies (community core meetings, mobile, face-to-face, internet, village billboards). One of the measurable outcomes was a $1.8 million increase in producer sales. IFAD's new Rural Micro, Small and Medium Enterprise Support Program in Tanzania will draw on the First Mile initiative on a larger scale, and will blend old and new ICTs. More information on the First Mile initiative can be found at http://www.ifad.org/rural/firstmile/index.htm – or for an accessible story and video, go to http://www.ruralpovertyportal.org/english/regions/africa/tza/voices/ispy.htm

  More information on the next project can be found at http://www.ifad.org/english/operations/pf/tza/i708tz/index.htm.

- **Up-scaling the Uganda Commodity Exchange.** In Uganda, the Uganda Commodity Exchange pilot project is an initiative of the Uganda Commodity Exchange, with support from the International Institute for Communication and Development (IICD). Essential to this system is timely and accurate information on the market and the current prices. The first three telecenters are operated and sustained by organized farmer groups. After the successful start up, the agriculture extension branch of the government has picked up the initiative and initially set up three new centers in collaboration with UCE, and later on in 2007 they set up a further 15 centers. In addition the Dutch organization SNV has taken note of the initiative and has started with three new centers, but aiming at a total of 45 outlets over the subsequent years, with funding from the Dutch government. Up-scaling is based on a proven model and furthermore draws directly on the experience of the original implementing agencies UCE and IICD, particularly in the design and formulation phase of the up-

scaling programs. This allows the program to draw on the first-hand experiences of the practitioners.

- **Up-scaling the TICBolivia program.** The TICBolivia program is a clear example of up-scaling ICT carried out by local organizations, including farmer associations and NGOs. The partner organizations of the TICBolivia network, with support from IICD, DGIS, DFID, SDC, CORDAID and HIVOS, have initiated ICT projects in livelihoods throughout the country since 2000. The projects focus on price, market and production information. The information is distributed and collected through rural agricultural information centers in small rural towns linked up through the internet, supplemented by rural radio programs and voice radio solutions to communicate with a larger group of smallholder farmers in isolated rural areas. Most centers are operated by the users, including local government agencies and farmer organizations. In 2005, around 50 centers were operational. The centers are mostly successful in terms of participation of beneficiaries, but encounter difficulties with sustaining the high cost of connectivity and with maintaining the ICT infrastructure operational. Yet, to the surprise of many, the pilots have currently expanded to 80 centers working directly with 20,000 smallholder farmers and serving 475,000 beneficiaries. Many of these centers have a very basic set up but have become fully sustainable. Here the success factor is clearly found in the strong demand expressed by farmers and local governments, working together to seek innovative models of cost sharing between them and the support organizations. Another success factor is the institutionalization of ICT in the local organizations provides support to the local initiatives. The organizations, together with IICD, are also keen to build the evolving needs of the users into their support mechanisms while implementing up-scaling. For example, in 2007, additional attention was paid to innovative and low-cost solutions for connectivity and an increased focus on large-scale user training.

  See http://www.ticbolivia.net

- **Up-scaling UNESCO's Community Multimedia Centres.** The 2006, Evaluation of UNESCO's International Initiative on Community Multimedia Centres (CMCs) discusses the process of scaling up and expanding the number of CMCs. The report notes that an enabling policy environment is critical in this process. In addition, the report highlights 11 considerations that need to be addressed during scale-up (UNESCO 2006:55-57:
  - Rigorous adherence to the requirement for community roots, ownership and involvement.
  - Opportunities for training, staff exchanges and networking.
  - Tools available in several languages.;
  - Appropriate use of volunteers.
  - Local development programming, including the preparation of local content and training.
  - Good integration of the telecenter and radio functions so that there is one manager overall for the CMC, rather than a station manager and a separate manager for the telecenter service.
  - The CMC manager should be both entrepreneurial and development oriented;
  - Adequate access to technical support.

- A full cost assessment of CMC operating requirements, and a hybrid plan for financial sustainability.
- At startup of a new CMC, a full cost account just for startup expenses should be prepared.
- Explore how to build resilience into the CMC model so that centers can systematically identify and plan for the impact of external factors on their operations.

See the summary of the evaluation report or the full evaluation report. Additional information on the project can be found at http://www.unesco.org/webworld/cmc

Areas for further investigation and research

- Which other rigorous, analytical case studies exist of projects or programs that have successfully scaled up or been adapted elsewhere, and how can lessons that have already been draw out be more widely applied?
- Is there more that can be learned about the possibilities of scaling up and adapting?

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Local Innovation

This section looks at how local innovation can be encouraged in the area of ICTs-for-rural-livelihoods, including how to foster the use of local content and locally appropriate technologies.

Guiding questions

- What do we know about factors that promote or hinder local innovation in ICTs-for-rural-livelihoods? (innovation here refers to content and/or technology)
- What do we know about how locally appropriate technology choices can be fostered? How do different types of ICTs (especially the internet, radio, and mobile telephones) compare in terms of local appropriateness and appropriation?
- What do we know about equitable local access to technologies, e.g. between men and women?
- What do we know about strengthening/stimulating quantity and quality of local content generation?

Current knowledge base

What we believe, what we know – and what we don't

On local innovation:

- **The innovation capacity of communities is strongly related to their capacity to use traditional knowledge for innovative practical solutions** for everyday life problems. Hence, to foster local innovation it is extremely important to understand the particularities of how knowledge is generated and transmitted. That local knowledge sharing system is a key component of how trust is built in rural communities. Communities will trust certain contents and communication instruments more than others, for example oral vs. written, diagrams vs. video, face-to-face vs. telephones, etc. By supporting appropriate technologies that respect these community particularities, initiatives will significantly contribute to the local capacity to carry out innovative transformations.
- Part of the international literature referring to **National System of Innovation (NSI)** has also focused our attention on the enabling environment at the local level. In this regard, some key issues are stressed: the importance of promoting synergies between innovative institutions at a national level with local actors, the interweaving of the transformation processes with the production activities that improve community income, and the importance of South-South cooperation for more tailored technology, among others (Arocena et al 2003; James 2002; Singh 2004).
- **Local innovation is often not directly related to development issues, but to entertainment or leisure activities**. However, it is important to take advantage of and to facilitate this innovative spirit, particularly among young people, as it can in turn have spillover effects on rural livelihoods. In addition, when rural communities have a certain innovation culture in other areas, such as shelter construction or agricultural practices, they are also creating an innovative culture that can facilitate ICT incorporation.

- **Innovation and ICT incorporation at the local level can be a powerful instrument for the achievement of the MDGs** (UN-ICT TASK FORCE 2005). However, this is far from an homogenous perspective among scholars and experts, as some have a more skeptical view of potential impacts (Heeks 2005).

On locally appropriate technology:

- **Programs need to use realistic technologies that are affordable and that can be easily used, managed and maintained**. Pro-poor effects can be determined by technology choice (Gerster & Zimmermann 2005; PANOS/SDC 2005). Printed newsletters and radio may be the most appropriate solution for providing information in situations with significant infrastructure and security constraints (Beardon et al 2004).
- **More interactive media confer more livelihood benefits, but tend to be have heavier infrastructure and literacy demands.** The advantage of mobile telephony and internet access over broadcast media is the enhanced immediacy and interactivity of these media (Souter et al. 2005). This is because the newer, primarily digital media offer more effective two-way communication (Gerster & Zimmermann 2005). Greater interaction confers more livelihood benefits through enabling diversification (Duncombe 2006).
- **Blended media can enhance interactivity in useful ways**. Convergence of devices and technologies is increasingly blurring the distinction between traditional and new media and between analogue and digital (Gerster & Zimmermann 2005). A range of options for information delivery ensure that even traditional media (such as print and radio) can be driven by information repositories constructed with advanced, digital media (Beardon et al 2004; Creech 2006).
- **Rural information systems should contain a high proportion of local or appropriately localized content**, both to maximize local usefulness and uptake, and to enrich local, national and international knowledge. Content needs to be prioritized equally with access, (Gerster & Zimmermann 2005; Torero & von Braun 2006) and the availability of content needs to be assured.

On internet use

- **Despite its perceived importance as an interactive information medium, the internet reaches few rural people and has relatively low uptake where it is available**. Even well established rural telecenters and information centers have relatively low usage levels (Kenny 2006; see also the Bangladesh Report). This partly reflects a preference for telephones for information gathering and a lack of knowledge about the potential of the internet (see the Tanzania Report). Better publicity for the services of information centers and the use of intermediaries to deliver services are perhaps needed, such as the use of village "phone ladies" who promote telecenter services from door to door (see the Bangladesh Report).
- **Localization of content is seen as an important process in enhancing the impact and acceptance of the internet as a useful medium**. Telecenters that are also translating content into local dialects are building an important community resource (see the Bangladesh Report).

- **There are greater cultural sensitivity and "rural brain drain" risks associated with internet access.** The internet is associated with negative cultural impacts amongst some rural populations (see the Tanzania Report). Increased technical literacy resulting from successful telecenter initiatives can increase urbanization, which might be an unintended consequence of a successful program (see the Uruguay Report).

On radio:

- **Radio remains an important and underrated technology in many rural areas.** Radio access is still far higher than mobile and internet coverage (e.g. in Tanzania; see the Tanzania Report). Donors recognize that, while it may not be fashionable, it is a trusted and reliable medium (see the Donor Review). Set-up costs are relatively low, and large audiences can be reached at low cost to the audience – e.g. 40 US Cents per person per year in Mali (Kenny 2006).
- **Community radio has additional livelihood impacts**. Community radio adds improved interactivity and localization of content and therefore has additional relevance to rural communities. It also allows conflict resolution and can be a tool for social change (Del Castello 2002). For indigenous communities, radio offers a way to preserve cultural practices and also to share knowledge relating to rights (see the Argentina Report). For displaced persons, it allows them to "keep in touch" with their mother country (Beardon et al 2004). A combination of broadcast radio with training and certification packages can also enable financial sustainability and increase capacity building impact, as has been the case with Namma Dhwani in Bangalore, India.
- **Community involvement in station establishment, programming and evaluation promotes communication and reflection.** Impacts are realized when the livelihood principles are applied (Del Castello 2002).
- **Local government involvement can improve governance impacts.** The UNESCO community multimedia centers initiative found that local administrations employed radio to increase involvement in decision-making in Uganda (Creech 2006).
- **Television is likely to overtake radio as the preferred broadcast media as it becomes more accessible**. In Bangladesh, 27% of rural households now own televisions and communal viewing is common. Television is also a more popular medium for accessing information (see the Bangladesh Report). In India, television ownership has now surpassed radio. In Africa, however, radio is still preferred (Souter et al 2005) and remains the most affordable solution for many (Beardon et al 2004).

On fixed-line and mobile phones:

- **Access to a telephone impacts and expands multiple dimensions of livelihoods.** Through expanding social networking, telephones allow a greater support network, access to information and contact with family in urban centers. At the same time, telephones can increase economic assets by providing access to employment and can be used for business purposes to expand supply chains, improve market information and reach new customers (Torero & von Braun 2006; Vodafone 2005).
- **There is a demonstrated economic basis for advocating rural telephone use**. There is high demand and willingness to pay even among poorer users and there are network effects brought about by improved rural-urban communications (Torero & von Braun 2006).

- **Coverage data can be difficult to obtain for rural areas.** Teledensity figures often do not give a good view of rural coverage, which may be as low as one telephone per 1000 in Africa, but survey data is poor (Richardson 2006). In India, rural teledensity is one tenth of the urban figures (Garai & Shadrach 2006). Lack of transparency from mobile providers also contributes to the lack of information (see the Argentina Report).
- **Mobile telephony use in general is growing and spreading outside urban areas.** Recent figures gave 16% teledensity and 22 million mobile subscribers in Bangladesh (see the Bangladesh Report). Mobile subscribers in Tanzania grew from 110,518 in 2000 to 5,718,641 in September 2006. 54% of respondents in rural districts on the coastal belt owned mobile phones (see the Tanzania Report).
- **M-banking has considerable potential to reach "unbanked" clients**. Given the success and expansion of mobile networks there is great interest in the potential of mobile banking to serve rural people who do not currently have access to banking services. While at an early stage, there is some evidence that telecom companies may have as much of a role to play as service providers as traditional banks (Porteous & Wishart 2006).
- **Remittances can also be facilitated with communications technology.** Recent pilots have confirmed the potential of the mobile infrastructure as a new medium for remittance transactions, a vehicle that could enable more financial flows from abroad and from urban to rural areas. For more information see http://www.dfid.gov.uk/news/files/pressreleases/remittances-growth.asp
- **Telephony is a valued route to accessing market prices among business users** (Souter et al 2005). Unstructured use of mobile telephones is having a significant impact on the livelihoods of fishermen in Bangladesh (see the Bangladesh Report). In Tanzania, a partnership between the Ministry of Industry, Trade and Marketing and the mobile operator Vodacom delivers market prices over SMS, though no evaluation of this service has yet been undertaken (see the Tanzania Report).

On local and equitable access:

- **Men often control access to radio and TV.** In the home and in communal areas, choice of program and access can be dominated by men, and women access information by other means (Beardon et al 2004).
- **Women can be more likely than men to be involved in many rural livelihood activities, especially smallholder agriculture and food processing**, and it may therefore be especially important to involve them in ICT-enabled programs (Richardson 2006).
- **Women and youth participation and sustainability:** When women and young people are strongly involved in the implementation process of ICT projects, the sustainability prospects and community appropriation levels are generally higher. Considering this particular characteristic, ICT projects could constitute a privileged environment where other policies related to fostering gender equality or promoting women's empowerment can be implemented. In addition, youth policies to promote job creation and cultural inclusion can also have ICT instruments as core goals. (See the Argentina Report and the Uruguay Report.)
- **More equitable access can be achieved through targeted programming and access**. Programming can be targeted to particular groups when there is an understanding of daily routines, focusing on when women are most likely to have time to access information. Availability of radio to women's groups can ensure that

they are able to access programs of relevance to them. Agricultural programming, featuring women and targeting women, has been shown to facilitate the spread of agricultural technologies and innovations (see e.g. the case study on Seed Technology Video in Bangladesh).

On local content:

- **Direct participation of the target groups in developing local content:** When developing local content it is vital that it is created based on the needs and socio-cultural particularities of each target group. It is also necessary to ensure local ownership and effective use of the content. At the same time, it is important to build local capacity in ICT. One of the main challenges in scaling up ICT projects is ensuring that these principles are applied to ICT programs at the national level. Experiences in the Latin American region indicate that national governments, when formulating and implementing ICT for poverty alleviation, tend to focus on the introduction of technology and infrastructure rather than locally appropriate content. Where content provision is incorporated, standardized content tends to be introduced, often acquired from the private sector or imported from other countries (van der Krogt 2005).
- **The easier the technology use, the higher the local content incorporation:** Many of the ICT projects for rural development face what some experts call "the problem of the technological paradigm". This means that some initiatives prioritize the infrastructure and the degree of sophistication of certain equipment, rather than the specific role it will play according to the project objectives or the content it will transmit. In this regard, very simple ICT instruments for content generation and information access can significantly foster quantity and quality of local content generation (see the Uruguay Report and the Project Survey).
- **There is a tendency to ignore or undervalue local content.** As a result, valuable local content developed by target groups, and often supported by local governments, grassroots organizations and NGOs, is not used on a wider scale. Scaling up ICT for effective poverty reduction therefore requires mechanisms to ensure the quality of content. These need to be based on evaluation criteria shared with local government and civil society actors. Although standardization of content is important at the national level, allowance needs to be made for the use of content at the local level that is validated only by local actors (van der Krogt 2005).
- **Important key success factors for local content development:**
    - Ensure availability of relevant content.
    - Content should address key needs of end-users.
    - Provide information that addresses local needs. It should be context-specific, delivered in a timely and accurate fashion and presented in an appropriate language and format.
    - Develop and disseminate local content complemented by information from government sources, civil society, and research institutions and networks.
    - Carry out research on local socio-cultural attitudes towards information, communication, and technology before implementation.
    - Track information-use by simple monitoring methods.
    - Focus initially on one or two types of information to build up a relevant information service for the specific target group.
    - Foster two-way information flows to validate content (van der Krogt 2005).

Comments

- The field of ICTs-for-rural-livelihoods has clearly undergone an important shift in the last few years, from computer-based applications to mobile-based applications. This will have substantial impacts on how and to what extent ICTs can be incorporated into rural livelihoods projects and programs. The shift towards mobile phones will also have significant implications in terms of possible cooperation with the private sector. Previously, most ICT-for-livelihoods projects were centered on telecenters or different strategies to foster internet access and productive use in poor rural communities. The recent increasing interest in the explosive growth of the mobile phone sector and its potential highlights that this growth is mainly market driven, compared to those internet initiatives that were subsidized by social policies or donor funds. This issue (market driven vs. social policy delivery) is a key issue that still requires much more research.
- Mobile and other wireless technologies are opening new, cheaper opportunities of internet access, such as Wi Max, that can make it more available and affordable for low-income communities.
- We must, however, "deshrine" technologies: consider local information needs, ways to discover needs, etc. Map these.
- Highlight the importance of local innovation. Local innovators should be free to develop their own ideas. Then donors should consider supporting them rather than seeking to push other technologies on communities. Local innovation includes potential "non-development" uses of technologies, such as entertainment uses. Encourage open-ended, not closed-ended, innovations (e.g. telephone fosters greater collaboration/participation than television).
- Note that the term "locally appropriate" is perhaps too homogenous. Many projects include several levels of infomediaries, and technology that is appropriate for one infomediary (such as a computer) may not necessarily be appropriate for farmers (who may instead wish to use radio or word of mouth).
- The incorporation of ICT instruments in small rural communities allows access to new information and knowledge. Most of that content is not locally generated. This access can start up cultural changes and social interaction transformations inside the rural communities, for example regarding issues such as women's empowerment or youth participation in the community, which sometimes triggers a "backlash" of e.g. domestic violence. In other words, these transformation processes could have outcomes that are not well understood at the start of the project. Without doubt, further research is necessary regarding this issue, and project implementers need to be highly aware of the processes that they may be triggering.

Examples of local content generation / case studies

- **Agrecol Andes, IICD Bolivia**. This project promotes the use of multimedia tools to document traditional Andean farming practices. Farmer-to-farmer exchanges, in which farmer groups visit other groups to exchange experiences in traditional production methods, are a longstanding tradition in Latin America. Agrecol Andes introduced local communities to the use of presentation software, using pictures, graphs and text and oral testimonies to document traditional sustainable production techniques. A representative of the farmers' group exchanges the documented experience with other producer groups in different parts of Bolivia, each time

enriched by new insights. The choice of technology is compatible with the predominantly oral culture of Andean communities. More information available at http://www.agrecol.org.bo

- **Govi Gnana Systema (GGS) Project, Sri Lanka**. This pilot project was implemented by the e-Development Labs Interblocks Ltd. and Pricewaterhouse Coopers. The GGS enabled farmers, traders, buyers and sellers of agricultural produce to view transaction prices in other areas of the country. The main objective was to enable a farmer to obtain the maximum price for his/her produce by providing him/her with up-to-date information about trading prices. This was established at the Dambulla and Meegoda Dedicated Economic Zones, which are considered as large agricultural market towns. The local content generated refers to the prices of agricultural products that are collected at the point of conducting trades from selected trader terminals. It is also collected by personnel who conduct spot price-capture using hand-held devices. These are projected on display terminals and kiosks and published via the internet. The aim of this sharing of information is to reduce price volatility and bring stability to agricultural prices, so as to help farmers get into forward sales contracts that can eventually be used as collateral for additional funding. For more information, see the case study on Govi Gnana Systems or http://www.ggs.lk
- **TEDEL Project, Argentina**. The Telework and New Working Methods for Local Development (TEDEL) Project was developed by the Argentina Telework Association (AAT) and funded by the International Development Research Center (IDRC). The TEDEL project currently consists of five pilot research experiences, aiming at creating a set of favourable conditions for promoting local development initiatives through the application of new working methods and ICTs. The project involves a research study that will record the different follow-up, monitoring, analysis, interpretation and assessment activities of the whole development process of each experience in particular. This local content generated by stakeholders at every pilot village is available online, to be used by the community and by the other pilot projects. For more information, see the case study on the TEDEL project or http://tedel.org/index.php?option=com_content&task=blogsection&id=16&Itemid=225!!

Areas for further investigation and research

- How can donors and governments promote local innovation? What are the available policy options and funding options?
- How can the importance of local innovation be underlined more strongly in organizational implementation frameworks?
- There is a need for a comparison across examples of blended projects, to draw out best practices.
- There is a need for knowledge sharing among donors and other stakeholders on the range of applications that can be used with mobile phones, and how local appropriation of these can be facilitated.
- What lessons can be learned from the mainly market driven mobile explosion useful for the improvement of public ICT services delivery?
- Should donors now more actively seek to cooperate and/or coordinate rural livelihood initiatives with private sector actors, such as mobile phone operators?
- Even in the mobile phone market, men have a larger share of access and use than women. How can this be mitigated in ICT-for-rural-livelihoods projects?

- What are the potential transformations of cultural values and social relations that access to new content through ICT can generate in small rural communities?

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4. Recommendations

The recommendations drawn from the Knowledge Map have been tailored for the needs and use of five groups. The recommendations have also been written so that they can serve as a useful entrypoint into the Knowledge Map for each of these groups. International donors, for example, may wish to explore their recommendations section to find links to further information, examples, and sources that are of particular interest to them in the main body of the Knowledge Map.

Recommendations for International Donors

Evaluation

General reflections and sources of further information:

- **IDRC** is leading work on longitudinal impact studies of ICT and its experiences will be informative.
- **IICD** have developed a structured approach to evaluation that is generating a very useful knowledge base. See the IICD M&E methodology description.

Recommendations:

- Fund academic studies on **the impact of ICT on different dimensions of livelihoods**, which also test and refine available frameworks (e.g. the "12 Cs" or the "8 pillars") and should triangulate using qualitative and quantitative methods.
- Encourage **complementary research** among different research institutions.
- Fund dissemination and encourage **open sharing and standardization** of research and evaluation methods and results.
- Work with other donors and international organizations to **jointly evaluate** their work.

Partnerships

General reflections and sources of further information:

- Current knowledge indicates that successful models for using ICTs to support rural livelihoods demand **multi-sectoral engagement**, clearly distinguishing the role of each of the stakeholders in the process of formulating, implementing, and monitoring the results and impact.
- There is a serious need for **collection and collation of data** regarding the global investment in ICT use for rural development.

Recommendations:

- When ICT programs and strategies aimed at enhancing rural livelihoods are formulated and implemented it is of the utmost importance that **all the different stakeholders should be involved** and that the **responsibility is appropriately shared** between civil society, the private sector and government.
- Ensure that **in-house data** on investment in ICT-for-rural-livelihoods is available to other actors in the field.

Sustainability

General reflections and sources of further information:

- Current knowledge indicates that projects need to be **adapted to regional, national and local conditions** to be easily accessible and affordable to the rural poor.

Recommendations:

- Ensure that projects make use of **local innovation and locally appropriate technologies** to have a sustainable impact on rural livelihoods.

Scalability

General reflections and sources of further information:

- To promote and integrate lessons learned from pilot initiatives, it is important to **systematize the pilot project phase** as well as the processes of scaling up and adaptation. Despite the existence of some analytical frames for helping to identify "what works where," not enough has been done to **collate experiences of scaling up** and to design tools that systematize the range of available case studies on scaling up.
- **Examples** of relatively successful experiences of up-scaling:
    - Up-scaling IFAD's First Mile Initiative - http://www.ifad.org/rural/firstmile/index.htm
    - Up-scaling UNESCO's Community Multimedia Centres
    - Up-scaling the Uganda Commodity Exchange - http://www.iicd.org/articles/iicdnews.2006-04-20.1984570391/view?searchterm=UCE
    - Up-scaling the TICBolivia program - http://www.ticbolivia.net/

Recommendations:

- Work in partnership with other international donors to **collate experiences of scaling up** in a systematic and analytical way.

Local Innovation

General reflections and sources of further information:

- **ICT incorporation at a local level** can be a powerful instrument for achieving the MDGs.
- Current knowledge highlights the importance of **South-South cooperation** on ICT projects for rural livelihoods.
- There is greater cultural sensitivity and **"rural brain drain" risks** associated with internet access than with other ICTs (e.g. radio).
- There is a tendency to ignore or undervalue **local content**. Local content generation is a key issue for projects appropriation.
- **Examples** of local content development on ICT Projects:
    - Agrecol Andes, IICD (Bolivia) - http://www.agrecol.org.bo/
    - Govi Ganana Systema (GGS) Project (Sri-Lanka)
    - Tedel Project (Argentina)

Recommendations:

- Carry out research on **local socio-cultural attitudes** towards information, communication, and technology before implementing the projects.
- The easier the technology used, the higher the local content incorporation. **Use simple ICT instruments** for content generation and information access, as these can significantly increase the quantity and quality of local content generation.
- Be aware of how ICT incorporation can produce **cultural changes and social interaction transformation** inside small rural communities.

Recommendations for Donors In-Country

Enabling Environment

General reflections and sources of further information:

- It seems vital to try to find ways of addressing **the lack of basic needs** in many rural areas across the world. South Africa's Government Access Initiatives is a good example of a "second-best" solution to palliate such an impediment to ICT impact on rural livelihoods.
- Governments have a lot of information, including **national data** that could be helpful to developing contents but it is not easily accessible. It would be important to look at ways in which donor staff in-country can encourage the government to digitalize that information. This could be done through public-private partnerships that also include CSOs.

Recommendations:

- Find ways to support initiatives designed to meet **basic needs in rural communities** (e.g. electricity, infrastructure, etc), as these will have a positive effect on the use and impact of ICTs.
- Find ways to support the **digitalization of national data systems.**

Evaluation

General reflections and sources of further information:

- If donors in-country are in need of **evaluation criteria**, the frameworks and principles presented in this Knowledge Map can be used to evaluate projects for funding. Further information can be found on the Evaluation Topic Section and the Sustainability Topic Section.

Recommendations:

- Ensure that funded projects provide for **participatory evaluation** and are preferably guided by a livelihoods-influenced framework.
- Work in partnership with other donor, government or civil society organizations to **share evaluation methods and results.**

Partnerships

General reflections and sources of further information:

- There is a serious need for **collection and collation of data** regarding the national investment in ICT use for rural development. The need for a **stakeholder map** depicting all stakeholders and their various initiatives in order to promote collaboration between CSOs would be extremely helpful, and donors in-country could play a role in making this happen.
- In terms of **multi-party partnerships**, it is important to understand the context well before setting these up. In some contexts (but not in others) it is appropriate for the national **government** to take the leading role in policy and strategy development, and to coordinate and co-fund the ICT programs. In other contexts the **private sector**,

as a provider and operator of basic ICT infrastructure and services, is a key player in employing ICT for enhancing the livelihoods of the poor. **Grassroots organizations and local governments** (in collaboration with the community) have to play a key role in identifying local needs and potential uses of ICT for livelihood improvement.

- **Further information / recommended resource:** Paul Ulrich's paper (2003) on **public-private partnerships** provides valuable insights. After starting with a taxonomy of the different groups of actors involved in public-private partnerships (PPP), he identifies their respective roles and interests, and discusses the factors that cause partnerships to succeed or fail. He also discusses the issue of providing access to ICT for the poor, rural ICT deployments, universal-access funds, and targeted subsidies. The discussion describes how various options for funding, recent advances in technology, and creative program designs can enable governments to achieve their objectives in ICT.
- **Example:** The **Satelife initiative in Uganda** involving partnerships among information providers, health professionals, students and technical and funding partners is a good example of how information services can be enhanced when content owners form partnerships with organizations able to provide the technology and finance. The project connects the American Red Cross, Makerere University Faculty of Medicine and Health Net Uganda (who provided technical support and project assistance) and Skyscape (an online information provider). This is an excellent example of selecting partners with complimentary strengths.

Recommendations:

- Support the production of a **stakeholder map** depicting all stakeholders and their various ICT and rural livelihood initiatives in the country.
- Ensure that funded projects involve **multi-sectoral partnerships** wherever appropriate.

Sustainability

General reflections and sources of further information:

- **Capacity building and transfer of knowledge to the local community** is key to the sustainabilty of any livelihood initiative. While this seems to start being acknowledged by some donors, it is always important to bear in mind the need to fund sustainable projects.
- Current knowledge also indicates that ICT-for-rural-livelihoods projects are more sustainable when they are **fully integrated into national and regional strategies.**
- More robust **ICT infrastructure** undoubtedly plays a role in the sustainability of ICT-for-rural-livelihoods projects and programs. Donors can play an active role in supporting relevant ICT infrastructure. What type of partnership is most appropriate for this type of work will depend on the specific national context.

Recommendations:

- Fund sustainable projects that are either **generated from or can be easily appropriated by the community.**
- Support relevant **ICT infrastructure.**

Scalability

General reflections and sources of further information:

- The success of small-scale ICT projects may be determined by **relatively unique combinations** of actors, demands and conditions at the local level. Recent participatory action research projects point to the variation in local priorities that will dictate the type of solutions that are appropriate. Others stress the importance of individual personalities involved in pushing through successes.
- Scaling-up initiatives should start by **building capacity at the local level** to generate content and to use new technologies (among intermediaries and knowledge brokers, practitioners and policymakers). Building capacity in local communities is a key component of program success and up-scaling. Capability to use ICT tools is one of the key Cs in the "12 Cs" framework.
- Frameworks can be employed to **"join up" macro, meso, and micro levels** and to understand social, political, and technical aspects of the wider system. Livelihoods and capability frameworks attempt to join up national and local conditions. The "12 Cs" framework, for instance, can be used to map out conditions and highlight connections. In two case-based examples in Bolivia, it has been used to show how good Coherence was achieved by central support to the PRSP and local support to pro-poor initiatives, but poor Connectivity for women's groups to local radio was adversely influenced by the overregulation of radio by the state (UNCTAD 2006).
- Similarly, a "diamond of alignment" approach can be used to analyze **the interplay of institutions, the problem domain, available technologies and the governance environment.** In the case of Grameen phone, for example, a good institutional foundation aligned well with knowledge of the problem domain and the solution technology, and – significantly – with a governance environment where deregulation of the mobile network made the whole system viable.
- **It is important to avoid sheer replicability of pilot projects.** Simple replication of successful models often fails to meet expectation. This can be due to "rushing" to apply models without understanding their inner workings and local applicability. Scaling up is more about adaptation than about replication. Scalability is essentially a question of being able to reproduce the positive impacts of a project in a number of other locations, without photocopying the original project plans.
- **Examples** of relatively successful experiences of up-scaling:
    - Up-scaling IFAD's First Mile Initiative - http://www.ifad.org/rural/firstmile/index.
    - Up-scaling UNESCO's Community Multimedia Centres
    - Up-scaling the Uganda Commodity Exchange - http://www.iicd.org/articles/iicdnews.2006-04-20.1984570391/view?searchterm=UCE
    - Up-scaling the TICBolivia program - http://www.ticbolivia.net/

Recommendations:

- Start by **building capacity at the local level.**
- Use **frameworks** to understand the connections between macro, meso and micro levels.
- **Do not "rush" to replicate projects**, but rather seek to foster a more careful and thoughtful adaptation of successful projects to new contexts.

Local Innovation

General reflections and sources of further information:

- Be aware that there are greater **cultural sensitivity and "rural brain drain" risks** associated with internet access than with some other ICTs.
- There is a tendency to ignore or undervalue **local content**, and the importance of local content generation should be stressed.
- **Examples** of local content development in ICT Projects:
    - Agrecol Andes, IICD (Bolivia)
    - Govi Ganana Systema (GGS) Project (Sri-Lanka)
    - Tedel Project (Argentina)

Recommendations:

- Respect **local traditions**.
- Increase **partnerships and coordination** among different donors working on the same issues or areas.
- Promote more **locally tailored technology,** realistic technologies that are affordable and that can be easily used, managed and maintained.
- The easier the technology used, the higher the local content incorporation. **Use simple ICT instruments** for content generation and information access, as they can significantly increase the quantity and quality of local content generation.
- Carry out research on **local socio-cultural attitudes** towards information, communication and technology before implementation.
- Consider possible **cultural and social interaction changes** due to ICT incorporation while monitoring the implemented projects.

Recommendations for Policymakers

Enabling Environment

General reflections and sources of further information:

- **Lack of basic needs (e.g. deficient infrastructure, low literacy rates).** It seems vital to try to find ways of addressing the lack of basic needs. South Africa's Government Access Initiatives is a good example of a "second-best" solution to palliate such an impediment to ICT impact on rural livelihoods. And Bolivia's ICT policy and strategy in the agriculture sector is a good example on how it is possible to work with a community where there is low literacy.
- **Unclear setting for ICT policies and strategies.** ICT policies geared towards rural livelihoods have to be more transparent, less contradictory and non-overlapping. A good example can be seen in the implementation of Universal Access in Chile (see the Examples section in the Enabling Environment Topic Section).
- **Communication skills of actors at all levels.** It is important to fuel better communication between and within government agencies to enable ICT to support rural livelihoods. Furthermore, recent trends on the establishment of networks can help strengthen the links within and among different stakeholders.
- **Licensing.** The allocation of radio frequencies runs the danger of being over-regulated and political. Uganda is a good example of how a more flexible environment can favour the livelihoods of the rural poor (see http://www.comminit.com/ict/ictpolicies/ictpolicies-36.html).
- Governments have a lot of information, including **national data** that could be helpful to develop contents but it is not easily accessible. It is important for governments to implement the digitalization of already available information. This could be done through public-private partnerships, with the support of both donors and CSOs.

Recommendations:

- Find ways of addressing the **lack of basic needs in rural communities** (e.g. infrastructure, literacy, electricity).
- Ensure that ICT policies and strategies for rural livelihoods are more **transparent and coherent.**
- Foster good **communication between relevant actors in different government agencies**, and create appropriate networks or fora for such communication.
- Ensure that **licensing laws** are not over-regulated.
- **Digitalise** national data systems.

Evaluation

General reflections and sources of further information:

- As livelihoods evaluation requires long-term commitment, it is often appropriate to give responsibilities for **coordination and data centralization** to local and regional government authorities, who can make the data accessible to other stakeholders. This in turn can help to encourage local consultation on policy issues by providing a feedback mechanism. In other contexts, however, such centralization of data in government agencies may not be appropriate.

- National ICT projects require substantial **needs assessments** to determine how they can best be implemented at local level. Flexibility in the ICT used may be necessary to serve different areas.
- Some livelihoods outcomes are difficult to measure and will not be accessible through quantitative evaluation methods. Different frameworks for evaluation criteria are given on the Evaluation Topic Section and the Sustainability Topic Section in this Knowledge Map.

Recommendations:

- Ensure that **data collection and archiving** are carried out systematically.
- Ensure that **needs assessments** are carried out before initiatives are implemented.
- Use livelihoods-influenced **evaluation criteria**.

Partnerships

General reflections and sources of further information:

- Current knowledge indicates that, enhancing the livelihoods of the rural poor requires the formation of **strong partnerships** with information providers; organizations that promote services; organizations that raise awareness; organisations that offer the technological infrastructure and finance.
- Projects with a **self-sustaining commercial focus and workable business model** have proved to be more successful. The involvement of the private sector in ICT projects often reduce costs and improve service quality and efficiency.
- An **example** of government succeeding in **making relevant content available** is the very successful multi-lingual Cape Gateway Project in South Africa - http://www.capegateway.gov.za.
- **Further information / recommended resource.** The article of Clive Harris (2003) on **private participation** makes wortwhile reading. He describes the new paradigm of private sector involvement in the delivery and financing of infrastructure services. However, since 1997 private investment dropped by more than half, mainly due to macroeconomic crises and declining interest of many investors in developing country infrastructure, driven in part by some disappointing experiences.The report *inter alia* assesses the impact that the private provision of infrastructure has had on service delivery, as well as discusses the main policy lessons that can be drawn, and what governments have to do if they are to ensure that the supply of infrastructure services does not become a bottleneck to growth.

Recommendations:

- Ensure that projects and other initiatives are based on **strong partnerships.**
- Formulate and build on **policies that would make partnering on connectivity easier**. Restrictive legal environments and quasi-governmental monopolies should be removed.
- Support projects with a **self-sustaining commercial focus.**
- Government departments hold a huge amount of information and should endeavour to **unlock the content** and make it available through partnering with private sector service providers.

Sustainability

General reflections and sources of further information:

- In many contexts it is appropriate for the government to be the main **investor in ICT and supporting infrastructure**, such as electricity and roads, in rural areas. This can help to make the services affordable. In other contexts the private sector or even CSOs can be equally important investors. In these cases the government should provide **incentives to investors** willing to invest in ICTs in rural areas. They may also foster Public Private Partnerships.
- **Example.** Telephone kiosks "vibanda vya simu" have been a very popular business in Tanzania. Micro-enterprises have been playing a tremendous role in providing service to the remote rural areas.

Recommendations:

- Invest in **ICT infrastructure in rural areas**, or provide incentives to private sector agencies that are willing to make this investment.
- National and local governments may need to **review the legal framework for investment**. Ensure that it is not de-motivating to potential investors.

Scalability

General reflections and sources of further information:

- Sucessful up-scaling benefits from **active participation of local grass-roots organizations and NGOs** with experience in ICT for livelihoods. Their experiences are key to ensure that lessons learned are actually taken on board by agencies with less experience on the ground.
- **Programs should share costs appropriately,** between government for public goods information services and social protection, and users for private goods. Defining the level of institutional and public support is an important part of scaling up.
- **It is important to avoid sheer replicability of pilot projects.** Simple replication of successful models often fails to meet expectations. This can be due to "rushing" to apply models without understanding their inner workings and local applicability. Scaling up is more about adaptation than about replication. Scalability is essentially a question of being able to reproduce the positive impacts of a project in a number of other locations, without photocopying the original project plans.
- IFAD's First Mile Initiative provides a successful **example** of up-scaling, carried out in partnership between an international donor and national government.

Recommendations:

- Work in **partnership with local organizations and NGOs** who have experience in ICT for livelihoods.
- Work in **partnership with the private sector** to ensure effective coverage in remote rural areas.
- **Avoid sheer replicability** of projects or programs.

Local Innovation

General reflections and sources of further information:

- National policymakers play a key role in ensuring **coordination of policies**.
- Be aware that there are greater cultural sensitivity and **"rural brain drain" risks** associated with internet access. This should tie in with rural / urban policies in general.
- There is a tendency to ignore or undervalue **local content**, and the importance of local content generation should be stressed.
- **Coverage data** can be difficult to obtain for rural areas. In many contexts, national or local government can play a key role in ensuring access to such data.
- For the importance of simple ICT instruments, see the Uruguay Report and the Project Survey
- **Examples** of local content development in ICT Projects:
    - Agrecol Andes, IICD (Bolivia)
    - Govi Ganana Systema (GGS) Project (Sri-Lanka)
    - Tedel Project (Argentina)

Recommendations:

- Improve the **coordination** between national and local initiatives and different offices or ministries involved in ICT policies.
- Use **blended media** to enhance interactivity in useful ways.
- Give equal priority to **content and access**. Rural information systems should contain a high proportion of local or appropriately localized content.
- Ensure that **local government agencies** are involved, as this can improve governance impacts.
- Enhance **national ICT statistics systems**.
- The easier the technology used, the higher the local content incorporation. **Use simple ICT instruments** for content generation and information access, as this can significantly increase the quantity and quality of local content generation.
- Scaling up ICT for effective poverty reduction requires mechanisms to **ensure the quality of content**. These need to be based on evaluation criteria shared with local government and civil society actors.
- Develop and disseminate **local content complemented with information from other government sources, civil society and research institutions and networks**.
- Be aware that ICT incorporation can generate **cultural changes and social interaction transformation** inside small rural communities.

Recommendations for the Private Sector

Enabling Environment

General reflections and sources of further information:

- **Affordability issues:** Even where available, most ICT equipment is still too expensive for poor households. The private sector can investigate ways to satisfy the base of the pyramid while still maintaining profitability. This can be done, for example, through the generation of **micro-prepay systems** for the poor (both in mobile and internet services). Grameen in Bangladesh and Telefonica Moviles' project in Argentina are interesting examples of how this can be a feasible and profitable business, both from the social and the private points of view. (See the Bangladesh Report and the Argentina Report.)

Recommendations:

- Investigate micro-prepay systems and other **options for reaching the base of the pyramid.**

Evaluation

General reflections and sources of further information:

- Private sector engagement in the monitoring and evaluation process will help improve understanding of the potential in rural markets and inform investment decisions.
- Evaluation along the supply chain will necessitate the standardization of methods between private sector partners.

Recommendations:

- **Invest in evaluation** to inform investment decisions.

Partnerships

General reflections and sources of further information:

- Information services are enhanced when content owners form **partnerships with organizations able to provide the technology and finance**.
- **Examples** of successful public-private partnership projects based on a commercial business model are: Drishtee (India), Cabinas (Peru), Warnet (Indonesia), n-Logue (India), Telecottages (Hungary), Grameen Bank (Bangladesh), and Uni-Net (Knysna, South Africa).
- The Uni-Net Project of Knysna has proven that the involvement of the private sector in ICT projects can **reduce costs, improve service quality and efficiency, and increase accessability.**
- **Further information / recommended resource:** The article of Clive Harris (2003) on **private participation** makes wortwhile reading. He describes the new paradigm of private sector involvement in the delivery and financing of infrastructure services. However, since 1997 private investment dropped by more than half, mainly due to macroeconomic crises and declining interest of many investors in developing country infrastructure, driven in part by some disappointing experiences.The report

inter alia assesses the impact that the private provision of infrastructure has had on service delivery, as well as discusses the main policy lessons that can be drawn, and what governments have to do moving forward if they are to ensure that the supply of infrastructure services does not become a bottleneck to growth.

Recommendations:

- Investigate options for **public-private partnerships.**

Sustainability

General reflections and sources of further information:

- Those private sector agencies that draw up a business model to reach the rural poor should **consider working with other partners** such as banks, microfinance institutions, government and donors, in order to ensure sustainability.
- **Example:** The Nokia and Grameen Foundation Village Phone project in Uganda and Rwanda are sustainable mobile communication services that have helped to create small business and provide connectivity to the rural areas. With the aid of microfinance loans, entrepreneurs can become Village Phone Operators, allowing them to buy the equipment they need to provide telecommunication services to villages. See http://www.nokia.com/A4174134
- While this is acknowledged by some of the private sector stakeholders, it is always important to bear in mind that sustainable projects are either **generated from or can be easily appropriated by the community.**

Recommendations:

- Consider **working with other partners** (e.g. banks, CSOs or donors) to reach the rural poor.
- Ensure that initiatives can be **easily appropriated** by the local community.

Scalability

General reflections and sources of further information:

- Successful up-scaling benefits from **active participation of local grass-roots organisations and NGOs** with experience in ICT for livelihoods.
- **A "diamond of alignment" approach** can be used to analyse the interplay of institutions, the problem domain, available technologies and the governance environment. This may help private sector actors to situate themselves within the stakeholder map, and to analyse their chances of up-scaling.
- A good **example** of this alignment can be seen in the case of Grameen phone in Bangladesh (see the Bangladesh Report). Here a good institutional foundation aligned well with knowledge of the problem domain and the solution technology, and – significantly – with a governance environment where deregulation of the mobile network made the whole system viable.

Recommendations:

- Use **frameworks** (e.g. the "diamond of alignment" approach) to analyse chances of successful up-scaling.

Local Innovation

General reflections and sources of further information:

- **Telephony** can increase economic assets by providing access to employment and can be used for business purposes to expand supply chains, improve market information and reach new customers.
- There is a demonstrated economic basis for advocating **rural telephone use**. There is high demand and willingness to pay even among poorer users and there are network effects brought about by improved rural-urban communications.
- A potential hindrance is that **coverage data** can be difficult to obtain for rural areas.
- **M-banking** has considerable potential to reach "unbanked" clients. There is some evidence that telecom companies may have as much of a role to play as service providers as traditional banks.
- **Examples** of telephony as a valued route to accessing market prices amongst business users: see the Tanzania Report and Bangladesh Report.
- **Examples** of local content development in ICT Projects:
    - Agrecol Andes, IICD (Bolivia)
    - Govi Ganana Systema (GGS) Project (Sri-Lanka)
    - Tedel Project (Argentina)

Recommendations:

- Design specific innovative strategies to **reach poor rural households.**
- Exploit the potential economic basis for **rural telephone use.**
- Work on **the potential of the mobile infrastructure** as a suitable tool for rural livelihoods needs, e.g. as a new medium for remittance transactions.

Recommendations for CSOs and Intermediaries

Enabling Environment

General reflections and sources of further information:

- **Content development.** Coordination among CSOs, donors, and communities can result in content with local dialect.
- **Social acceptance.** In some countries, further social acceptance and accessibility for women are needed. In Bangladesh, infomediaries working at the telecenters are mainly women who provide livelihoods information to poor households. However, these infomediaries often face resistance from the villagers because of their gender. See the Bangladesh Report.
- **Example** of accessibility issues. The Rural Development Academy in Bangladesh has carried out research called «Women to Women Expansion". This is a video documentary broadcast through Bangladesh TV (BTV) looking at cost effectiveness and accessibility for women. See the Bangladesh Report.

Recommendations:

- Coordinate work on **local content and using local dialects** with other CSOs and donors.
- Work to encourage the involvement and inclusion of both **men and women** in ICTs-for-rural-livelihoods projects.

Evaluation

General reflections and sources of further information:

- **Telecenters.** Much of the evidence on telecenters tends to be anecdotal. More strategic evaluations on how telecenters can improve the livelihoods of the rural poor are needed. The rate of users of telecenters is still relatively low. A practical challenge is to increase their usage.
- CSOs and individuals familiar with the livelihoods approach may need to familiarize themselves with ICT evaluation methods. Conversely, ICT specialists may need to study the livelihoods approach to understand how it can assist in maximizing the impact of their work on the rural poor. Relevant areas to look at are introductions to livelihoods and ICT, approaches to monitoring and evaluation, and ethnographic action research. See e.g. the introductory sections on ICT and sustainable rural livelihoods in this Knowledge Map, and the Evaluation Topic Section and Sustainability Topic Section.

Recommendations:

- Engage in **evaluations of telecenters.**
- Take account of **both livelihoods and ICT evaluation methods** when planning and implementing projects.
- **Document the indicators** arising from particular action research projects, so these can be used by others or compared across contexts.
- Plan for **long time spans** for evaluation to capture changes that take time to come through.

Partnerships

General reflections and sources of further information:

- Success stories indicate that it is **best to select partners with complementary strengths**. A good **example** of complementary organizations is the Ugandan Satelife PDA project where partner organizations working on the health project in Uganda included the American Red Cross, Makerere University Faculty of Medicine, Health Net Uganda (who provided technical support and project assistance) and Skyscape (an online information provider).
- **Beneficiaries from the community** play an essential role in the formulation and implementation of ICT strategies.

Recommendations:

- Select **partners** who complement your strengths.
- Work closely with the **local community.**

Sustainability

General reflections and sources of further information:

- Current knowledge indicates that projects may be more sustainable where CSOs or intermediaries have a stake in the local community (or even originate from the community). For example, in order to foster long-term, trusted relationships with a community, the TEDEL project in Argentina is seeking to fund ICT specialists to train with the expectation that they will return to their native rural locations to work.
- Even though this is already acknowledged by many CSOs, it is always important to try to focus implementation on projects that are either **generated from or can be easily appropriated by the community.**

Recommendations:

- Ensure that projects **originate in the local community or can be easily appropriated.**

Scalability

General reflections and sources of further information:

- The success of small-scale ICT projects may be determined by **relatively unique combinations** of actors, demands and conditions at the local level. Recent participatory action research projects point to the variation in local priorities which will dictate the type of solutions that are appropriate. Others stress the importance of individual personalities involved in pushing through successes.
- In addition to scalable ICT solutions, it is equally important to have a **"scaled up" view of community needs.** This will enable service providers to tailor their offerings to meet demands and provide the necessary flexibility of approach.
- When scaling up, it is important to consider the **effect on local markets.** Project staff need to understand the changes in markets caused by larger scale programs, which may mean that the impacts of pilots are different from impacts of scaled-up programs.

- For a successful **example** of up-scaling, see the TICBolivia program.

  http://www.ticbolivia.net/

Recommendations:

- Choose specific local partners and **"champions."**
- Think through the **implications for community needs and demands**, including implications for the local market, before scaling up.

Local Innovation

General reflections and sources of further information:

- **Community radio** adds improved interactivity and localization of content and therefore has additional relevance to rural communities. It also allows conflict resolution and can be a tool for social change. For indigenous communities, radio offers a way to preserve cultural practices and also share knowledge relating to rights.
- **Community involvement** in project design, implementation and evaluation promotes communication and reflection.
- There is a tendency to ignore or undervalue **local content**.
- The level of participation of the community in **local content development** cannot be underestimated.
- For **examples** of the importance of simple ICT instruments, see the Uruguay Report and the Project Survey.
- **Examples** of local content development in ICT Projects:
  - Agrecol Andes, IICD (Bolivia)
  - Govi Ganana Systema (GGS) Project (Sri-Lanka)
  - Tedel Project (Argentina)

Recommendations:

- Carry out research on **local socio-cultural attitudes** towards information, communication and technology before implementation.
- Consider possible **cultural and social interaction changes** due to ICT incorporation while planning and monitoring the project.
- Promote more **locally tailored technology**, realistic technologies that are affordable and that can be easily used, managed, and maintained
- **Radio** may be the most appropriate solution for providing information in situations with significant infrastructure and security constraints.
- **Blended media** can enhance interactivity in useful ways.
- Rural information systems should contain a high proportion of **local or appropriately localized content**.
- When developing local content it is vital that it is created based on the **needs and socio-cultural particularities** of each target group.
- It is also necessary to ensure **local ownership and effective use** of the content.
- The easier the technology used, the higher the local content incorporation. **Use simple ICT instruments** for content generation and information access, as these can significantly increase the quantity and quality of local content generation.

- Scaling up ICT for effective poverty reduction requires mechanisms to **ensure the quality of content**. These need to be based on evaluation criteria shared with local government and other civil society actors.
- Develop and disseminate local content **complemented with information from government sources, civil society and research institutions and networks.**

Recommendations for infoDev

On each of the Topic Sections, we have identified priority areas for further investigation and research. Some of these are particularly relevant to *info*Dev's work. These are areas that it would be beneficial for an international-level institution to engage more thoroughly with and to share information and knowledge on:

Enabling Environment

- Collect and share robust success stories on how government can create an enabling environment for private sector ICT / livelihood enterprises in rural areas.
- If Universal Access Funds are "old-fashioned," should national governments still be striving to implement them? (Possible success story: The Universal Access Fund in Chile). Given that many governments are struggling to implement such Funds, what further guidance can be given to national-level governments on the establishment and use of Universal Access Funds?
- Are there any available guidelines on how to use ICTs in projects operating in environments without (regular) electricity supply? Which local solutions for power production for ICT hardware are most realistic (e.g. biogas, windmills, etc), and should these be advocated instead of a centralised power / electricity grid supply?

Evaluation

- There is a strong need for more systematic evaluation of the role of ICT in livelihoods projects, with case studies and examples being collected and compared across different geographical areas and institutional contexts. More meta-evaluation would be useful in updating the global knowledge base on suitable methodologies for livelihood-oriented ICT evaluation.
- Academic studies can supplement more action-oriented work by combining quantitative and qualitative evidence of the contribution of ICT to livelihood assets over time.

Partnerships

- Public-private: Given that there are some successful examples of public-private partnerships, how can these success stories be disseminated and made available much more widely, so that they can be adapted in other contexts?
- Civil society: Are there any robust success stories, or guidelines, on how to set up "social ventures", i.e. for-profit/non-profit partnerships within civil society?

Sustainability

- There is a need for continued engagement within the ICT-for-rural-livelihoods community regarding the use of appropriate frameworks (e.g. the "8 pillars" and the "12 Cs") to embed sustainable practices more deeply across all initiatives in this area. Continued engagement may take several forms, including e.g. a series of regional workshops (to build on and extend the lessons from the present project), and extensive engagement with other major initiatives (e.g. the e-Agriculture group) to strengthen relationships and knowledge sharing.

- Rigorous, analytical case studies of projects or programs that have successfully been sustained over a longer period of time need to be communicated more widely so that the lessons already learned can be applied across organizations working in this area.

Scalability

- Similarly, rigorous, analytical case studies of projects, programs and approaches that have successfully been scaled up, or adapted in another context, need to be communicated more widely so that the lessons already learned can be applied across organizations working in this area.

Local Innovation

- There is still a lot of research to be done on how donors and governments can promote local innovation. What are the available policy options and funding options? How can the importance of local innovation be underlined more strongly in organisational implementation frameworks?
- There is a need for a comparison across examples of blended projects to draw out best practices.

5. Application Areas

Agricultural Markets

Overview

ICT enables market information and improved market access through structured and unstructured routes, both of which have the potential for livelihood impacts. Although many studies note that this is happening, there is rather less information available on livelihoods outcomes achieved.

Successful market price information systems disseminate prices using a variety of media and in a format that has been agreed with end-users. Market access enablement is perhaps less well developed, but also needs to take account of users' preferred ways of establishing trust relationships.

Current Knowledge Base

- ICTs are improving access to market information and enable diversification and the enhancement of economic assets for rural producers. Telephony is a valued route to accessing market prices amongst business users (Souter et al. 2005).
- Dissemination of price information over traditional mass media (radio and television) can be effective, particularly in Africa, even if the information is stored and managed in databases (IICD, 2006). As such media are established and trusted, they foster wider word-of-mouth dissemination.
- Market information delivered over GSM by the Manobi initiative in Senegal is reportedly enabling farmers to increase their sale prices by over 50% per year (Manobi, 2007).
- ICT can enable farmer's cooperatives to connect more directly with buyers via commodity trading systems or simple e-mail of VOIP connections (IICD, 2006)
- Critical success factors for specialised applications include an appropriate combination of ICTs, strategic positioning of information access points and localisation of language. The timeliness, diversity and reliability of the information provided is also key (See Govi Gnana System project case study).

Examples / Case studies

- The Govi Gnana System project in Sri Lanka makes fruit and vegetable product prices available through telephone and internet.
- Unstructured use of mobile telephony is having a significant impact on the livelihoods of fishermen in Bangladesh (see the Bangladesh Report).
- In Tanzania, a partnership between the Ministry of Industry Trade and Marketing and the mobile operator Vodacom delivers market prices over SMS, though no evaluation of this service has yet been undertaken (see the Tanzania Report).
- The Uruguay private sector initiative “Screen Uruguay” is enabling remote cattle trading via television and internet links, thereby supporting the country’s main economic activity (see the case study or the Uruguay Report).
- In Bolivia, market prices for vegetables are collected and broadcast to 60,000 farmers in Vellegrande, the main growing region for the capital, twice a day. At the same

time, regional information centers enable the analysis of price developments and production planning (IICD 2006).

- More recent initiatives such as Tradenet and Agmarknet (http://agmarknet.nic.in) have a national or regional focus and combine web access with mobile delivery of information. At the time of writing Tradenet had 3500 members (Tradenet 2007).
- Manobi is offering market prices over SMS in South Africa and Senegal (Manobi, 2007)
- Use of mobile phones in Kerala for accessing price information for fish led to price stabilisation, reduction of waste, an average increase in profits of 8% to fisherman and a reduction in 4% of the price to consumers (Jensen, in press)

References and Resources

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2. Tradenet (2007) Tradenet. Available from: http://www.tradenet.biz
3. Manobi (2007) http://www.manobi.sn/sites/za/index.php?M=9&SM=20&Cle=54
4. IICD (2006) ICTs for agricultural livelihoods: Impact and lessons learned from IICD supported activities, International Institute for Communication and Development (IICD). Available from: http://www.iicd.org/articles/booklet-impact-agric
5. Jensen (in press) The digital provide: information technology, market performance and welfare in the Indian fisheries sector. Quarterly Journal of Economics

Health

Overview

Even rudimentary health information systems have demonstrable effects on the quality of rural health care (Greenberg 2005). ICTs can be used effectively in telemedicine to facilitate communication between rural health care assistants and health facilities. ICTs can also be used in informatics to improve the speed and productivity of data collection, and to provide up-to-date statistics on health budgets and resources. There are also initiatives that seek to use ICT to bridge the gap between traditional and modern healers.

Current Knowledge Base

- Health advice is a leading information need being met by rural information centers and information kiosks.
- Successful programs have in common the practical application of ICT accompanied with significant capacity building and re-training (Greenberg 2005).
- Effective ICT programs also require a local needs assessment phase, should use the simplest possible technology, and should build on existing information systems. Sustainability needs to be planned for and capital and operating costs identified at the beginning (infoDev 2006)
- Telemedicine projects can be difficult to sustain, though the development of strong partnerships, local champions and community support can help programs to grow and thrive (Seale et al 2004)
- As with other areas of ICT in development, good impact data is lacking. There is also insufficient scaling-up from pilot level projects.

Examples / Case studies

- In Bangladesh, health related enquiries were the most common use of *Pallitathya Kendra* telecenter facilities and the majority of visits were by women (see the Bangladesh Report).
- The Chezsalama inititive in Tanzania provides web-based information on HIV/AIDS and reproductive health and also promotes ICT for knowledge exchange (Rave & Wetzer 2005).
- SMS (mobile text messaging) has been used to alert TB patients to take their medication, leading to improved recovery rates (http://www.bridges.org/iicd_casestudies/compliance/index.html)
- GIS and remote sensing can be used to establish risk areas for parasitic diseases (http://www.who.int/entity/bulletin/archives/80(10)783.pdf)

References and Resources

1. Greenberg, A. (2005) ICTs for poverty alleviation: basic tool and enabling sector, Swedish International Development Cooperation Agency (Sida) http://www.eldis.org/fulltext/sidaictpoverty.pdf.
2. Rave, P. and Wetzer, A. (2005) 'ICTs – enabler for rural development?', GTZ. Available from: http://www.rural-development.de/fileadmin/rural-development/volltexte/2005/05/ELR_dt_18-19.pdf
3. ICT and Health infoDev Knowledge Map (2006) http://www.asksource.info/res_library/ict_out.htm
4. Seale, D E et al (2004) A guide to utilisation and sustainment of telemedicine : answering the question, 'what is in it for me?' International Journal of Healthcare Technology and Management, Vol 6 no 1 2004, p 91–107.

Finance

Overview

Microfinance provides a means for rural households to stabilize their financial assets and reduce their vulnerability to shocks and life events. ICT has the potential to facilitate outreach of microfinance services to the rural customer base, reaching previously "unbanked" clients. Given the success and expansion of mobile networks there is great interest in the potential of mobile banking to provide low cost banking services. Remittances, an important component of rural incomes, can also be facilitated with mobile communications technology.

Current Knowledge Base

- Surveys have shown that ICT can improve the outreach, productivity and efficiency of microfinance institutions, while improving convenience for the beneficiaries. Depite this, upfront costs for microfinance technologies remain high and a barrier to uptake by NGOs (Hishigsuren 2005)
- There is some consensus that microfinance institutions need a functional MIS before client-facing services can be sensibly offered. Some open source initiatives, such as Grameen's MIFOS, are seeking to reduce the entry costs for MIS (http://www.grameenfoundation.org/what_we_do/technology_programs/mifos_initiative/.
- At an early stage, there is some evidence from promising initiatives such as G-Cash that telecom companies may have as much of a role to play as service providers for mobile banking as traditional banks (Porteous & Wishart 2006).
- Recent pilots have confirmed the potential of the mobile infrastructure as a new medium for remittance transactions, a vehicle that could enable more financial flows from abroad and from urban to rural areas.
  See http://www.dfid.gov.uk/news/files/pressreleases/remittances-growth.asp
- Recent trials of a Remote Transaction System for microfinance, where handheld terminals communicate with back office systems over GSM, showed that existing rural clients could be better served, and MFI and agents could be more efficient (Magnette & Lock 2005).
- In India, rural financial services are a key feature of rural kiosks and are also being enabled through the spread of multiservice ATMs (Mathison 2007).

Examples / case studies

- Prodem's ATMs in Bolivia provide a good example of an adapted, localized technology that was readily appropriated by a poor customer base in Bolivia (Hernandez & Mugica, 2003)
- The G-Cash initiative of Globe Telecom in the Philippines is enabling remittance and cashless payments via mobile http://www.nextbillion.net/remittances-mobile-globe-cash

References and Resources

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2. Mathison, S. (2007) Increasing the Outreach and Sustainability of Microfinance through ICT Innovation. Available from: http://www.fdc.org.au/Electronic%20Banking%20with%20the%20Poor/1%20Mathison.pdf#search=%22Increasing%20the%20Outreach%20and%20Sustainability%20of%20Microfinance%20through%20ICT%20Innovation%22
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Education

Overview

ICT is widely considered to have potential in helping to improve rural literacy. The use of ICT in education facilities and the provision of distance learning via access points are key applications in this area.

Current Knowledge Base

- Despite the widespread assumption that ICT s can empower teachers and students, there is only limited data to support this belief, though if asked, most students agree that it improves their motivation and learning effectiveness (Trucano, 2005)
- The goals of ICT in education projects need to be clearly defined (Trucano, 2005)

Examples / Case studies

- The Africa Drive Project – A partnership between GTZ, SAP Research, Siemens Business Services and local partners, this project sought to use ICT to improve teacher training in South Africa. In addition to boosting the ICT literacy of trainees, the project was seen to assist the private sector service providers in improving their products' usefullness and usability (de Bastion & Bertolini, 2005)

References and Resources

1. de Bastion, G and Bertolini, R. The Role of the private sector in mainstreaming ICT4D BMZ. Digital Reach (SEANS)
2. Trucano, M (2005) Knowledge Maps: ICT in Education

   http://www.infodev.org/en/Document.8.aspx infoDev, Washington DC

Land Tenure

Overview

Land tenure is recognized as a key livelihood asset which is often poorly defined or disputed in rural areas. ICT has been applied to help clarify or register land tenure and land use through its introduction within government agencies and its use in preparing land use plans and maps. The latter approach, using Geographical Information Systems (GIS), has recently become less of a top-down activity and has increasingly involved community participation in preparing and interpreting geographical data for the community's own use.

Current Knowledge Base

- Participatory GIS has the potential to improve democracy empowerment as well as provide a community monitoring tool and combine perceived and physical aspects of the environment. Despite this, it can still exclude the less technically able and can be limiting it its representation of local knowledge (SEI, 2001).
- ICT is expensive and usually requires donor subsidies, but can make an impact on the transparency of land and property rights administration. Connectivity and digitization leads to improved synergy between land management systems (USAID, 2006).

Examples / Case studies

- Digitized land registration systems are simplifying and speeding up land titling. Electronic systems incorporating biometrics are being rolled out in India and help to give legitimacy to paper titles. In some cases this has shortened the process of registration from days to 25 minutes (Prasad 2006).
- The Stockholm Environment Institute undertook Participatory GIS in the Northern Cape province in South Africa, in an area where poorly covered by social and economic indicators. The survey helped identify the extent of arable and grazing land, and combine the availability of water points with community information on the state of those points.

  (http://www.york.ac.uk/inst/sei/sustainability/livelihoods/tool2.html)

- Participatory GIS combined with 3D modelling has assisted in ancestral land claims in the Philippines

  (http://www.iapad.org/applications/ancestral_domains/higaonon_impasug-ong.htm)

References and Resources

1. Prasad, N. K. (2006) Providing one-stop e-Registration of properties in Bihar. E-Gov Magazine.
2. Stockholm Environment Institute (SEI). 2001. Participatory Geographic Information Systems – a tool for assessing livelihood options http://www.york.ac.uk/inst/sei/sustainability/livelihoods/tool.html
3. USAID (2006) ICT for the administration of land tenure and property rights (http://www.usaid.gov/our_work/economic_growth_and_trade/info_technology/tech_series/LandTenure_Property_508.pdf)

Governance

Overview

Improving the communities' access to, and influence of, local and national government is a key livelihoods outcome. ICT is seen as a key enabler, both by directly providing access to government services and by the secondary effect of stimulating the uptake of ICT among the communities themselves.

While national e-government programs have tended to look to the web as the means of connecting with citizens and providing interactive services, at the local and rural levels the more traditional technologies are often those most effective and empowering communities to engage with government.

Current Knowledge Base

- The District Net program in Uganda highlighted the importance of piloting in the early phases of rollout and showed that change management skills were crucial in the process of introducing ICT to local government offices.(Weddi, 2005)
- Trials of e-services at local post offices have shown that the government department or agency responsible for providing a service should have some real contractual obligations to support and promote it, in order to ensure its ongoing sustainability (See the e-Sri Lanka evaluation)

Examples / Case studies

- Simple information systems can be used to collate community-level data and claim state benefits. A database of unemployed eligible for India's national Employment Guarantee Scheme (EGS) compiled in Maharashtra, India, reportedly brought the area US $150,000 worth of development investment in agriculture, water works and sanitation, employing 4,000 individuals from 22 villages around Manvat (Various 2007b).
- In Gujarat, India, migration information centers assist in seasonal migration of rural workers by providing information on state programs and citizen's rights. This initiative recognizes the importance of migration to the livelihoods of rural people and seeks to facilitate this through ICT (Hiremath & Misra, 2006)

References and Resources

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2. Various (2007b) Solution Exchange ICT for Development Community Consolidated Reply Query: ICT and Livelihoods – Experiences. Available from: http://www.solutionexchange-un.net.in/ictd/cr/cr-se-ictd-22010701.doc
3. Hiremath, B.N & Misra, H. (2006) ICT perspective enhancing livelihood security http://www.i4donline.net/aug06/768.pdf

Forecasting

Overview

Weather and disaster forecasting can make a substantial impact on rural livelihood stability and is an area where ICT has much potential. Forecasting allows loss mitigation measures and for the arrangement of crop insurance for rural farmers. One hour of notice of flooding, for instance, can reduce losses by an estimated 10 percent and damage reduction due to improved forecasting can be up to 35% of annual losses (World Bank, unpublished data). While ICT dissemination channels may exist to broadcast forecasts, these are often not well connected with the centralized agencies handling the primary information.

Current Knowledge Base

- Although national systems for early warning may function, the ability to broadcast warnings at a local level may be neglected. In fact, this can be mitigated by relatively simple, prearranged dissemination systems, for instance through community radio.
- Improved forecasting and communication is demanded by groups such as coastal fishermen vulnerable to natural disasters (for example see http://linux.odi.org.uk/ict4rl/Documents/files?get=bangladesh_Report.pdf)
- At the global level, initiatives are seeking to improve the availability and uptake of standards for communicating meteorological data. This should help make it easier to access information at the local level (WMO/WSIS, 2005).

Examples / Case studies

- Post-tsunami evaluations revealed the importance of community media in bridging "the last mile" in disaster preparedness.
  see http://www.comminit.com/strategicthinking/st2007/thinking-2169.html

References and Resources

1. World Bank (unpublished) Using ICT to support rural livelihoods – early warning and country preparedness
2. WMO WSIS (2005) Thematic Meeting on ICT applications in natural disaster reduction http://www.itu.int/wsis/docs2/thematic/wmo/final-report.pdf

6. Country Snapshots

The Country Studies

The six country studies were carried out by in-country research institutes. They used a combination of interviews, focus group discussions, in-depth case studies and workshops to explore key actors and themes in the area of ICTs for rural livelihoods. Key actors included donors, policymakers, private sector technology providers, CSOs, and beneficiaries. Key themes varied across the studies, but included issues such as the question of coordination between key institutions; local appropriation of technology; the exploding mobile phone market; issues of sustainability, scale and funding models; the role of ICTs in increasing the empowerment and voice of the rural poor; and the linkages between ICTs and broader development priorities.

The studies were carried out in the following countries:

- Argentina (by CIPPEC)
- Bangladesh (by Unnayan Onneshan)
- South Africa (by Louis Fourie Consultants)
- Sri Lanka (by Practical Action Consulting)
- Tanzania (by ESRF)
- Uruguay (by ICP)

Argentina

By international standards, Argentina is a middle-income developing country with a high ranking on the Human Development Index. Nevertheless, it is worth noting that significant disparity exists across and within Argentinean provinces. While the provinces of Buenos Aires, Cordoba, La Pampa, Santa Cruz and Santa Fe had below 12% of the population living with unmet basic needs in 2001, this figure rose to over 30% of the population in the Northwest and Northeast regions. This disparity is in part a reflection of differences between urban and rural areas, especially in terms of infrastructure. In fact, the Argentina report observes that although Argentina is, on average, well positioned within the Latin American context, it is also one of the countries that has least contributed to rural ICTs, both from the public and the private sectors.

However, some successful ICT-for-rural-livelihood initiatives do exist. In particular, telephony cooperatives are a long-established model. They emerged in the 1960s to operate in areas considered to be non-profitable by the then state-owned operator Entel. There are currently over 350 telephony cooperatives in the country, with two-thirds of these operating in communities with less than 10,000 inhabitants. Most of the successful experiences highlighted in the Argentina report show similar bottom-up (i.e. community-generated) initiatives, rather than top-down projects imposed on communities. Community-generated initiatives have fostered local appropriation and adaptation of the technology involved.

The penetration of fixed telephone lines in Argentina remains relatively stable at 23% in 2003 and 25% in 2005. Over the same period, the number of mobile phone subscriptions almost tripled, growing from 20.7% in 2003 to 57.4% in 2005, and reaching almost 70% by the end of 2006. In terms of internet usage, the latest figures (2006) indicate that 28% of the population uses the internet, but that there are very few residential connections. This reflects a large proportion of shared access, as most people use the internet in telecenters or at work. Telecenters are used more by the poorest sectors of society.

Finally, the Argentina report highlights the need to create a more effective enabling environment for the use of ICTs in rural areas. Key policy issues that deserve attention in this regard include the question of how (and whether) to implement a universal access fund, and how to solve basic infrastructure needs, such as accessible roads and energy provision, in rural areas.

This country snapshot is based on the full Argentina Report, produced by CIPPEC. See also the Argentina Case Study.

More information on ICT in Argentina can be found at:

- CIPPEC: http://cippec.org/nuevo/content.php?idcontenido=1&idcategoria=1
- Educ.ar: http://www.educ.ar/educar/ (in Spanish)
- Sub-secretary of Public Management (SGP): http://www.sgp.gov.ar/index.html
- Secretary of Agriculture: http://www.sagpya.mecon.gov.ar/
- National Institute of Statistics and Censuses (INDEC): http://www.indec.mecon.ar/default.htm
- Secretary of Science, Technology and Productive Innovation (Se Cy T): http://www.setcip.gov.ar/
- Secretary of Communications (Se Com): http://www.secom.gov.ar/
- National Communications Commission (CNC): http://www.cnc.gov.ar/
- Federal Radiodifusión Committee (COMFER): http://www.comfer.gov.ar/
- AMARC: http://wiki.amarc.org/index2.php?lang=EN&topic=AMARC_home&site=amarc&style=amarc

More information on ICT in Latin America can be found at:

- ECLAC, Information Society: http://www.cepal.org/socinfo/default.asp?idioma=IN
- DIRSI: http://www.dirsi.net/english/
- Regulatel: http://www.regulatel.org/
- Institute for Connectivity in the Americas (ICA): http://www.icamericas.net/

Bangladesh

Bangladesh is a low-income, least developed country with 55 million, or 40% of the total population (138.8 million) living below the poverty line. Of them, 35 million live in extreme poverty. About 75% of the total population live in rural areas where agriculture is the predominant source of income. Income inequality has widened in recent decades. The Poverty Reduction Strategy Paper (PRSP) and the national ICT policy recognize that improved access to cost-effective information and communication systems can contribute to faster poverty reduction by generating employment and empowerming the poor in Bangladesh. But success has been limited so far, as the policy documents lack specific strategies on how to link ICTs to poverty reduction. Yet with some recent changes in ICT policies and the concurrent entrance into the ICT sector by private firms, including opening up the telecom sector as well as that of television and radio to private enterprises, the sector has grown considerably in recent years.

In Bangladesh, the accessibility of ICTs is highly skewed toward the urban wealthy population due to its associated high cost. The high cost is a result of the capital-intensive infrastructure requirements of ICT, which mean that some forms of ICT are not scale neutral. In addition to this, excessive monopolization, as well as overbearing regulatory control have held back the spread of ICT, while low literacy rates hamper adoption even where ICTs are accessible. According to recent statistics on the accessibility of ICTs in Bangladesh, only 0.8% (8 per 1000 people) of the total population possesses a personal computer, while the rate of internet users is languishing at 0.5% (5 per 1000 people). The density of fixed-line telephone is struggling at a meagre 0.86%, thanks to the capacity constraints resulting from inadequate investment, as well as pervasive corruption within the state-owned Bangladesh Telegraph and Telephone Board (BTTB) that had monopolized the sector till 2004. By contrast, the mobile phone penetration rate has jumped up to 15.8% in 2006 over 6.7% in the preceding year as a result of the recent growth of the country's fledgling mobile phone industry.

The Bangladesh Report highlights a growing concern that, due to asymmetric sharing of information, marginalized people are falling further behind in the competition for jobs, market shares, and common resources. Acknowledging this concern and recognizing that reducing the information gap through sharing can play an important role in improving rural livelihoods, local and national non-government organizations (NGOs) working with ICTs in collaboration with international NGOs, research organization, government and private sector stakeholders have been developing community information centers (telecenters) to help transmit information to rural people. One of the features of the telecenters is that they do not rely on a single form of ICT. Rather, they use multiple ICTs to improve both accessibility to and availability of information. In turn, integrating multiple forms of ICTs and creating localized content helps to generate demand for ICT-driven services.

This central focus on telecenters by NGOs and by the private sector in Bangladesh is presented in more detail in the Bangladesh Report. The report also present a couple of case studies examining how well the objectives of access, availability and demand are or can be met by the telecenters, which face particular constraints in the context of rural Bangladesh. In conclusion, the study examines further policy issues and roles of key stakeholders, as well as what types of technologies can be used for what types of services, categorizing the need for information both in short and long term perspectives.

This country snapshot is based on the full Bangladesh Report, produced by Unnayan Onneshan.

Further information on ICTs in Bangladesh:

- Unnayan Onneshan – The Innovators, Centre for Research and Action on Development, Dhaka, Bangladesh: http://www.unnayan.org
- Ministry of Information and Communication Technologies, Government of Bangladesh: http://www.mosict.gov.bd
- Bangladesh Computer Council, Dhaka, Bangladesh: http://www.bccbd.org
- Bangladesh Telegraph and Telephone Board (BTTB): http://www.bttb.net.bd
- Bangladesh Telecommunication Regulatory Commission (BTRC): http://www.btrc.org.bd
- Ministry of Education, Government of Bangladesh: http://www.moedu.gov.bd
- Ministry of Agriculture, Government of Bangladesh: http://www.moa.gov.bd
- Ministry of LGRD & Co-operatives, Government of Bangladesh: http://www.lgd.gov.bd

South Africa

The GNP in South Africa categorizes it as an upper-middle income country within the World Bank's framework. This relatively healthy economy does not reach all of South Africa's population, where Statistics SA estimates 48% of the population is living below the dollar-a-day poverty line. With nearly half a billion people with diverse origins, cultures, languages and beliefs, information communications technologies in South Africa can offer a means of inclusion and integration. ICTs have the potential of transferring learnings and an equal enabling environment within South Africa's dichotomous economy.

Government priorities in ICTs have focused on promoting universal service and access, primarily by expanding telecommunications infrastructure and training. Since 1994, the government has made a substantial effort to incorporate participatory measures in government programming. The South African government's role within ICT is not only as national-level policy maker, but also as a donor, technology provider, and beneficiary.

Government Department	**Activities**
The Department of Science and Technology	Conducts research and development
The Department of Trade and Industry	Assists trade and business development of ICTs
The Departments of Labour and Education	ICT skill and capacity development
The Department of Communication (and to a limited extent, the Department of Public Service and Administration, and the Department of Public Enterprise)	Oversees Telkom, the South African Post Office, Sentech, the South African Broadcasting Corporation, the National Electronic Media Institute of South Africa and the Independent Communications Authority of South Africa
The South African Post Office	Provides access points for ICTs in rural areas

According to the South African Cities Network, as of 2001, 42% of South Africans resided in rural areas. In response to this large portion of the national population, current infrastructure and services in rural areas are increasing. As government holds significant ownership in the telecommunications industry, it has been able to mobilize access and expand affordable access to rural regions. There was nearly a 50% increase in households with telephones from 1996 to 2001. Mobile use is even greater than landline telecommunications. Total household internet access in 2003 is estimated at 13.6%, and 9.1% have access to a computer (World Watch Institute). However, according to some studies, 75% of South Africans have never used the internet. Radios continue to be the primary ICT used in rural areas, with nearly half of South Africa's population listening to the national radio network. Press and television offer additional, though lower access communication mediums. Given this range of stakeholder access, a substantial number and breadth of stakeholder needs have also been identified. These range from basic infrastructure needs and the need to make ICT access affordable, to needs around coordination and partnerships. The South Africa report gives a full account.

Ownership in the ICT industry ranges from state-owned, para-statal, and private ownership in the forms of co-operatives, closed corporations and sole proprietors. However, to respond to the diverse needs of South Africa's rural communities, all avenues are being explored. Private operations such as Vodacom, MTN, and Cell C have contributed to a significant increase in mobile phone users and have made South Africa one of the World's fastest growing cellular communications market. Major public ICT initiatives in response to rural needs have included Cyberlabs and Personal Information Terminals to bring access to disadvantaged regions.

This country snapshot is based on the full South Africa Report, produced by Louis Fourie Consultants.

Further information on ICTs in South Africa:

- If you need further information on South Africa or the country report please contact Louis Fourie, Professor at the University of the Western Cape, at Lfourie@uwc.ac.za or office phone +27 21 9593248
- The University of the Western Cape: http://www.uwc.ac.za
- Statistics on South Africa including teledensity: http://www.statssa.gov.za
- Information on ICT penetration in South Africa: http://www.ictportal.org.za
- The Government Communication and Information Service: http://www.gcis.gov.za
- The Directory of Development Organizations in South Africa: http://www.sarpn.org.za/documents/d0001795/Country_Dir_South-Africa_2006.pdf
- The Southern African Regional Poverty Network: http://www.sarpn.org.za

Sri Lanka

Sri Lanka is currently in the position of having a high literacy rate in general, but very low IT literacy rates (9% for the urban population and 3% for the rural population). Moreover, the vast majority of those who use ICTs in the country are located in urban areas. For example, 87% of all internet users are located in Colombo District alone, and internet usage is rare in rural areas. The use of ICTs for the enhancement of rural livelihoods therefore remains extremely low, and there are very few reports on the impact of ICTs on rural livelihoods.

However, this situation may change in the near future. It is expected that ICTs will soon be more widely adopted in Sri Lanka, due to a combination of reasons: there is donor willingness to invest in this area; there is continued state support for ICT policy irrespective of the political parties that come to power; the country has seen a rapid expansion of the telecommuniation networks, especially in rural areas; and there is increasing private sector investment in ICT-based businesses.

A few interesting projects recently launched include the government-driven e-Sri Lanka Initiative, and the establishment of multi-service community information centers, or Nenasala, which are primarily aimed at rural sector development. The centers provide access to the internet, telephones and other information services, along with training to the public in rural communities.

Finally, the Sri Lanka report observes that in order to capitalize on any rise in the use of ICTs for the enhancement of rural livelihoods, a few key gaps need to be addressed. These include a current lack of understanding of the complexities of rural livelihoods; a failure to identify appropriate ICT interventions; weak collaboration among key stakeholders in the area; low focus on the sustainability of the services; and too little attention paid to capacity building programs that are essential at the service delivery level. The report recommends that one possible step forward is to encourage action research on innovation amongst CSOs to foster the integration of ICTs into ongoing development projects and to develop sectoral and rural development policies that compliment ICT policy and vise versa.

Further information on ICTs in Sri Lanka:

- If you require further information please contact Practical Action Consulting via Jayantha Gunasekera: Jayantha.Gunasekera@practicalaction.org.lk
- Practical Action: http://www.practicalaction.org
- Janathakshan: http://www.janathakshan.org

Tanzania

In its efforts to promote the use of ICT for development in Tanzania, the government in 2001 appointed the then Ministry of Communications and Transport (now Ministry of Infrastructure Development) as a National Focal Point for all ICT-related matters. The National ICT Policy was then developed and approved in March 2003. It includes 10 focus areas, including local content development and universal access. The policy, legal and regulatory framework for ICT is set up to encourage private sector participation, and the National ICT Policy is rolled out through public-private partnerships (PPPs). The government also continues to implement sector-specific programs such as e-Government, e-Education, e-Health and e-Agriculture.

The Tanzania Report surveyed the use of ICTs in three rural districts. The survey results confirm that the common ICTs used by the rural populations in these districts were radio, mobile phones and TVs. Some use land line phones. Few people in the rural areas that were surveyed use internet or e-mails. The number of mobile phone subscriptions in Tanzania increased from just over 110,000 in 2000 to over 5.7 million in 2006. The enormous growth has also penetrated the rural areas. Fixed line subscriptions, on the other hand, have had a slight decrease in the same period.

The Tanzania Report found that where people in rural areas do have access to ICTs, this has in many cases had a significant impact on their ability to access relevant information, ranging from local government services to weather forecasts and health alerts. Radio and mobile are responsible for most of the positive examples in the report. This reflects the fact that only 30% of the rural population have access to electricity, and internet facilities remain relatively scarce despite efforts to establish rural telecenters. Finally, the report notes that there is a discernible gender imbalance in rural access to ICTs.

Further information on ICTs in Tanzania:

- For further information please contact ESRF via Margareth Nzuki: mnzuki@esrf.or.tz
- The Economic and Social Research Foundation (ESRF): http://www.esrftz.org
- Tanzania Online: http://www.tzonline.org
- Tanzania Development Gateway: http://www.tanzaniagateway.org

Uruguay

Uruguay is one of the smallest countries in Latin America and has traditionally shown favorable socio-economic and ICT indicators. It currently possesses a 100% digital telecommunication system and a broadly extended optic fibre network for data transmission. Telephone penetration stands at 78% for fixed lines in households and 52% for mobile phones. Official statistics show that 31% of the Uruguayan population normally uses the internet, a figure that reaches 50% in the capital city, Montevideo, where 32.8% of households own a computer. However, in small villages and rural areas, the situation is significantly different. Only 10.7% of rural households own a computer and 2.6% have internet connection. While 32% of the urban public schools are connected to the internet, the rate in rural public schools is less than 4%. In addition, there are very few studies about the Uruguayan ICT sector in general. There is not much concern about how ICTs can enhance the livelihoods of the rural poor.

Among the main conclusions of the Uruguay Report is that radio is still a very powerful information and communication instrument in rural areas. At the same time, the explosion of mobile telephony is the most important transformation taking place, and this will undoubtedly have a growing impact on rural areas too. The telecommunication company ANTEL has proved to be an important actor in terms of infrastructure deployment and funding of social projects in rural areas. Market-driven initiatives for ICT incorporation, such as the cattle identification and trace system, can have a significant impact on the productivity growth of rural production in the mid and long-term, eventually leading to poverty reduction through progressive tax policies and social protection of rural workers. On the other hand, the absence of a clear national strategy and relatively weak management capacity in the public sector (except for ANTEL), combined with a lack of proper coordination among CSOs and international donors' initiatives, weaken the sustainability and potential impact of ongoing ICT projects.

Finally, the report identifies several areas and specific topics where more knowledge is needed to achieve a better understanding of the type and intensity of correlation between ICT promotion and rural poverty reduction. Stakeholders need to know more about how appropriate technologies can be used in areas without reliable electricity supply. Key stakeholders also pointed to the need to know how to encourage local project sustainability without putting undue financial pressure on local communities. More knowledge is also needed on how to ensure better coordination between the various initiatives and projects that are being implemented.

This country snapshot is based on the full Uruguay Report, produced by ICP.

Further information on ICTs in Uruguay:

- Institute of Political Science (ICP): http://www.fcs.edu.uy/icp
- National Institute of Satistics (INE): http://www.ine.gub.uy
- National Telecomunication Company (SOE): http://www.antel.com.uy
- Uruguay Information Society Program: http://www.usi.org.uy

- National Commission on Science, Innovation and Technology: http://www.dinacyt.gub.uy/
- Digital Inclusion Project "Link.all": http://www.link-all.org/
- Rural Area Network Project: http://www.fing.edu.uy/inco/proyectos/wan/presentacion.html

Other sources of information on ICTs in Latin America:

- ECLAC, Information Society: http://www.cepal.org/socinfo/default.asp?idioma=IN
- DIRSI: http://www.dirsi.net/english/
- Regulatel: http://www.regulatel.org/
- Institute for Connectivity in the Americas (ICA) (based in Uruguay): http://www.icamericas.net/
- The Latin American and Caribbean Internet Addresses Registry (LACNIC) (based in Uruguay): http://www.lacnic.net/

7. Case Studies

Introduction to the Case Studies

Each country study drew out two examples of ICT-for-rural-livelihood projects or programs that are of particular interest. These examples have each been examined in more depth and have been written up as separate case studies, paying particular attention to critical success factors and critical failure factors.

The examples are:

- Argentina CoTelBe Telecoms Cooperative
- Argentina TEDEL Rural ICT Entrepreneurs
- Bangladesh Affordability Issues
- Bangladesh CABI/IRRI Seed Technology Video
- Bangladesh Telecenter intermediaries (D-Net and Grameen)
- Bolivia ICT Policy and Strategy in the Agriculture Sector
- South Africa Government Access Initiatives (PITs / Cyberlabs / MPCCs)
- South Africa Value Added Network Services (VANS)
- Sri Lanka Govi Gnana Systems (market pricing)
- Sri Lanka Ernst & Young Evaluation of the E-Sri Lanka Initiative
- Tanzania Vibanda Vya Simu (rural phone kiosks)
- Tanzania MKUKUTA & Community centres
- Uruguay "Bernabé Rivera" Rural Intelligent Community
- Uruguay "Screen Uruguay" Online Livestock Auction System
- Global UNESCO Community Multimedia Centres Evaluation
- Global IICD Projects Review
- Global Auto-evaluation method

Argentina – Telecoms Cooperatives

1. Organizations involved

This example concerns the Telephony Cooperative for the Provision of Public, Social, Welfare, Consumer and Housing Services (Cooperativa Telefónica de Provisión de Obras y Servicios Públicos, Sociales, Asistenciales, de Consumo y de Vivienda de Belén Ltda., Co Tel Be). This cooperative formed part of the Argentina Case Study as an example of successful implementation of a bottom-up project; it was also included so as to highlight some of the difficulties encountered (see Sections 5 and 6).

The telephony cooperative operates its telecommunications services in the department of Belén (see Section 2 for a description of the area). Co Tel Be is governed by an administrative council of nine members (president, vice-president, treasurer and five members) and one syndic, which has to meet at least once a month and is responsible for setting the cooperative's priorities and needs. There are currently 15 people working in the cooperative (four in administration, seven technicians, three operators, and three interns), and it is involved in four telecenters (one of which holds Co Tel Be's offices) spread around the center of Belén. At the moment, the cooperative counts 2,058 active fixed lines, including eight residential lines in the locality of La Puerta de San José. It finances its activities entirely through income from its services and new line connection charges. We were informed that the cooperative had just acquired a new switch which would give them the capacity to install over 600 additional lines, as well as providing internet services to some of the northern localities.

2. Locality

The city of Belén is the capital of the department of Belén, in the western region of the province of Catamarca. According to the last national census (2001), the department of Belén has a total of 25,475 inhabitants (12,252 in the capital itself), with a density of 1.9 inhabitants per square kilometre. This represents 7% of the total population of Catamarca. Following INDEC's definition (i.e. below 2,000 inhabitants), 8.1% of the population in Catamarca is rural. Within the department, except for Belén and Londres, every locality had less than 1,000 inhabitants in 1991.

Given the apparent size of Belén, we concentrated for the case study on some of the northern regions to which Co Tel Be provides a service. That said, the so-called "city" of Belén (and its quite rudimentary public services) is not too different from the rural localities of the interior of the department. The department of Belén has a fairly decentralized structure, with by far the highest number of municipalities. Belén and Londres are the largest, and the remaining seven are located in the so-called 'northern regions': two in the Norte Chico (La Puerta de San José and Pozo de Piedra), and five in the Norte Grande (San Fernando, Hualfín, Puerta de Corral Quemado, Corral Quemado and Villa Vil). The two rural

municipalities covered in the case study were La Puerta de San José (together with La Ciénaga and Asampay), with
a population of 1,073 people (i.e. 1.7 people/km2) and Pozo de Piedra, with 1,933 people (4.5 people/km2). As mentioned in the Argentina Report, these two rural localities are among the poorest in the country. In 2001, 32% of the population living in La Puerta de San José and 34% of Pozo de Piedra saw their basic needs unsatisfied.

The main economic activity in the area under the municipality of La Puerta de San José is agriculture. In particular, there is large-scale production of nuts (criollas and now Chandler), and the municipality has installed a processing factory (located between La Puerta de San José and La Ciénaga) to generate more employment for people residing in the area. At the moment, a large proportion of the workforce is also involved in paving the road to the north.

Asampay is a very isolated town, and improvements have only recently been made to enable access from the main road. Not many services cover this route: only a municipality vehicle covers the Belén-Asampay route, once or twice a day, three days a week. This vehicle is one of the only means of connection with the outside world for residents of Asampay (and Chistín, a nearby locality), and not only does it act as a means of transport but also it delivers goods and messages from Belén and other nearby towns. Asampay is vulnerable to weather conditions and often suffers from power outages. As mentioned earlier, although residents do have a payphone, it rarely works (sometimes owing to the weather or to energy shortages). Some locals revealed that about five of the 200 or so people living there had a mobile telephone, which they used to communicate with Belén or with their family members from outside of Asampay. They also use the radio (FM Líder or FM Norte) as their main information media.

3. Dates and durations

November 1990 saw the privatization of the Argentinean state telecommunications company, National Telecommunications Enterprise (Empresa Nacional de Telecomunicaciones, En Tel). The government then assigned a monopolistic concession to two companies: Telecom controlled the north and Telefónica de Argentina the south. Telecom had two telecenters in Belén but decided in mid-2006 to leave the city, and currently only provides telephone and internet services to the locality of Londres (also in the department of Belén). Co Tel Be was created in 1970 by 39 neighbours from Belén facing a lack of alternative telecommunication services. Residential telephony was launched in 1976, with 100 lines for local calls. Co Tel Be started providing long distance calls in 1987 although the big growth of the cooperative was over the 1990s (i.e. during the convertibility years, under the benefits of a strong local currency). Towards the end of 1990, Telecom started allowing Co Tel Be interconnection services; these, together with the purchase of a digital switch, allowed Co Tel Be to expand its service to reach 600 families. In 1996, installation began of fibre optics in the northern regions, with payphones established over the second half of the 1990s in six localities: Asampay, Condor Huasi, Hualfín, La Ciénaga de Arriba, Pozo de Piedra and La Puerta de San José.

There is a computer laboratory in the municipality of La Puerta de San José (located in La Ciénaga, in operation since September 2005). Although there initially was an ADSL connection, this stopped working after six or seven months (owing to severe weather difficulties).

4. Description

As with most cooperatives, Co Tel Be has only one way of providing services to and from outside its network: the cooperative has to pay an interconnection charge of 78% for calls outside its network (i.e. for any outgoing long distance calls) to its incumbent, Telecom. This dependency is also related to the provision of internet connectivity services. The 10MB broadband that Telecom provides to Co Tel Be is used by the whole city of Belén, including banks and local government offices. This means that it is quite hard for most (residential and telecenter) users to have decent internet browsing speed during working hours.

Regarding the six public payphones located in the interior of the department of Belén, the one in La Puerta de San José has been installed for over 10 years, whereas La Ciénaga and Asampay have had a service for about eight years. The phone in Asampay was not working for a month at the time of our visit, as it was dependent upon electricity and this had been cut off after a powerful storm. Payphones takea coded card and are pretty straightforward to use. By mid-2000, Co Tel Be had started providing internet ADSL services, for which Telecom is currently allowing 10MB broadband.

The cooperative also gives training courses to its partners and to teachers and students, mainly covering topics concerning cooperativism. Its relationship with the local (i.e. Belén's municipal) government seems to have been neutral (see, however, relationship with the municipalities of the northern regions in Section 4).

The computer laboratory working in La Ciénaga is used for training courses, especially for students over 10 years old. These courses are voluntary for the students of the school in La Ciénaga, but interest in participating seems to be low. The teacher running the courses mentioned that parents did not show much interest in seeing their children access computer training.

5. Results

Co Tel Be has proved to be a successful and self-sustaining provider of telecommunication services. One of the main findings of the focus group in La Puerta de San José was a significant coordination problem between Co Tel Be and the municipalities of the northern regions. The need for better and more telephony is evident and users made this quite explicit. For example, they argued that the only payphone in La Ciénaga, which was first installed in the police station but then taken outside a convenience store, had been vandalised several times and, even when it worked, was insufficient for the number of people wishing

to make calls. In addition, there are localities without any telephones (e.g. La Ciénaga de Abajo). Beneficiaries pointed to the need to install more payphones and residential lines in the northern regions. Sometimes, people have to go as far as Belén to buy telephone cards (we were able to buy the cards at the convenience store in La Ciénaga, however).

Municipality officials at La Puerta de San José were quite insistent about the fact that Co Tel Be was not providing a good service, and that it was not investing enough resources either in improving the service or in increasing the number of residential lines in the area. We were told that the main role of the Co Tel Be council was in the first instance to provide the service in the city of Belén, and that northern residents benefited because they mainly received outside calls. Over the past year, and even without full agreement of the assembly, the cooperative council had tried to make an agreement with the northern mayors in order to increase the number of residential or payphone lines in the area using some of the mining funds (royalties) received by each municipality. Co Tel Be councilors told us that all they were asking was that the municipalities requested and managed those funds, but that it was not possible to reach an agreement.

In other words, the northern region has never been a profitable service area for Co Tel Be. On the other hand, there seems to be a clear misunderstanding on the local government side, in terms of considering the cooperative to be a private (i.e. profit-seeking) company and of being closed to negotiating cooperation agreements. This is a clear example of a lack of coordination between key local actors, i.e. municipalities and the cooperative which could help them solve their isolation problems, but which is not willing to invest funds in a non-profitable business.

The only direct communication link for the municipality of Pozo de Piedra is an ADSL connection available since the beginning of 2005, provided by a company based in the province of Cordoba. In the past, there were four payphones (also with services from Cordoba), but the service has recently been interrupted because calls were too expensive (even a local call had to go via Cordoba, hence this became a long distance call). The only telephone in all Pozo de Piedra is a Co Tel Be service installed in a private house (a so-called semi-public telephone). Users and teachers argued that the main two difficulties with a semi-public payphone were i) the lack of privacy, the queues and the overcrowding and ii) the fact that people picking up the phone did not always deliver messages contained in incoming calls. A major problem is related to the provision of energy, as the telephone runs out of batteries and, when there is a big storm, electricity outages leave the area cut off. A similar situation is suffered by the residents of Condor Huasi, another locality forming part of the municipality of Pozo de Piedra.

6. Livelihoods impact

There are many potential uses for the telephone. For example, some people from the municipality of La Puerta de San José told us that the company now paving the road towards the northern region could have contacted prospective workers to work on the road if telephones were more easily available. Regarding the need for other means of communication (e.g. the internet), the five people in the group agreed that a good telephone service would be more than enough, although they recognised the importance of learning the basics of computers and the internet for their children. They also pointed to the advantages of the internet for distance learning.

It is first worth mentioning the potential impact that an appropriate communications network would have in the area under study, given the different initiatives generated by the municipality and the national government. In 2005, the municipality of La Puerta de San José started building a camping site, which will contain the first lodging facilities in the area. This site, which was set to open by mid-January (it is still unfinished), was developed to attract more tourism to the area. Tourism would, in turn, give more opportunities for the sale of local handcrafts and agriculture products. Another interesting project is an already functioning nut processing factory, which allows the addition of local value to one of the main agricultural products of the area. Last, but not least, it is worth noting the immense impact on the local labour market of the paving of the national road (No. 40) which passes through most of these localities. This is a three-year plus project which is absorbing a large part of the workforce from the surrounding localities and which will also contribute to improving general access to the area.

The school at Pozo de Piedra has about 190 students, 20 of whom board at the school for the whole week. When the municipality's telecenter was working well, teachers taught the theory of informatics in the school, and then went with the students to the telecenters to carry out practical work. The teachers at the school stated that lack of inclusion of the internet in the community owed mainly to lack of infrastructure, as interest from both teachers and students was high. The municipality of Pozo de Piedra also runs a sort of telecenter with some computers, equipped by means of a subsidy from the national government.

The existence of successful ICT initiatives, such as Co Tel Be and FM Líder despite their various difficulties shows that it is possible to (at least partially) overcome most problems through community will and participation. These two initiatives, which never took on external financial support, were organized for and from the local community, and now constitute two sound examples of how it is possible to have a positive impact on the livelihoods of the rural poor. However, it is worth emphasizing that the reach of community-generated initiatives is still limited and unable to overcome some of the obstacles mentioned. This calls for intervention from other stakeholders, such as local or national governments, technology providers, and national and international donors.

On the other hand, users seem to be less conscious than local government of the impact of new technologies, e.g. the internet, on their lives. Although they consider the radio to be their main link with the outside world, beneficiaries often use the telephone for personal, work and emergency purposes.

7. Critical success factors (CSFs) and critical failure factors (CFFs)

An appropriate communications network would increase the leverage of some government projects through the provision of better links among the different stakeholders involved. In the case of the camping site, better telephony or internet access would generate more tourism to the area. ICTs would further contribute to the diversification of activities in the nut processing plant project, e.g. through the creation of a better advertisement and sales network to commercialize the products with more value added. At the same time, projects such as the road paving would be better facilitated through more efficient links between the company and its prospective employees, both at the recruitment stage and throughout the whole duration of the project.

The weather is a serious deterrent to the implementation of ICT projects. Although Belén is a fairly populated city, its infrastructure is dependent upon services from another province (Tucumán). It is not uncommon for strong storms to leave the whole city absolutely isolated for many hours (or even days). In addition, the lack of communication itself makes it difficult to contact actors involved in ICT projects. For example, most mayors have a mobile phone but most of the northern areas do not have a signal. This means that the mayors can only be contacted on one of their sporadic trips to Belén city. With adverse weather conditions, it is difficult to consider developing ICT initiatives without first investing in appropriate basic infrastructure, such as energy provision and paved roads.

Another important factor is the dependency of Co Tel Be on Telecom for calls outside its network and broadband access. Moreover, although Co Tel Be does manage to sustain itself financially, the cooperative has scarce resources to expand its network and invest in wider and better services, especially to the less profitable northern regions. This situation is exacerbated by the apparent lack of coordination between Co Tel Be and the local governments of these regions. Poor ICT infrastructure affects users at every level, including local government. The fact that most mayors have a mobile phone they cannot use because of a lack of signal makes communication to and from the municipalities extremely difficult and cumbersome. This is especially worrying in places such as Pozo de Piedra, where the only pay phone is installed in a house and this is then used for the delivery of messages to local government officials. The situation is of course worsened by the not infrequent road closures owing to flooding. Given the important role of local government (as the main employment provider and facilitator of community cohesion), poor communication with the outside is a significant obstacle.

FM Líder, a local private radio station which provides several community services, has also struggled over the years against diverse factors. Among them, it is worth citing the lack of local capacity. None of the people working for the radio has professional training, and the director has made considerable efforts to train (both locally and nationally) people in operations, broadcasting and editing. Adverse factors are more related to funding problems, and it is the director himself who goes around Belén to sell advertising and find funding opportunities.

Although rural ICTs in the department of Belén are deficient, their direct users (i.e. beneficiaries and local government) acknowledge their contribution to livelihoods. They use the radio as the main means of communication and for information on health, work and personal matters. Moreover, although the telephone service is found to be deficient, this does highlight a recognition of the great impact of telephonic communication on people's daily life. In other words, given poor access to telecommunications, beneficiaries consider radio to be a more reliable tool for information and communication. Despite this, people acknowledge the positive impact that more interactive communication (telephone) has had on their lives, and it is likely that an improved service would serve as a good complement to current radio usage.

Moreover, improving basic and ICT infrastructure is also likely to have an impact on the diversification of economic activities in the area. Among other initiatives, this might include investment in tourism, agricultural goods processing, or different services in the area. This would allow locals a chance to lessen reliance on local government or agricultural production to earn a living.

Overall, the key lesson learned from the case study is the urgent need for investment in basic infrastructure (roads and electricity), as crucial to improving the situation for ICTs.

Links

Co Tel Be http://www.cotelbe.com.ar/
Tedel Project, Belen (in Spanish)
http://tedel.org/index.php?option=com_content&task=blogcategory&id=72&Itemid=264
Tedel Project (in English)
http://tedel.org/index.php?option=com_content&task=blogsection&id=16&Itemid=225

Argentina – TEDEL Rural ICT Entrepreneurs

1. Organizations involved

Telework and New Working Methods for Local Development (Teletrabajo y Nuevas Formas de Trabajo para el Desarrollo Local, TEDEL) Project was developed by the Argentine Telework Association (Asociación Argentina de Teletrabajo, AAT). The project is funded by the International Development Research Center (IDRC).

AAT is a leading institution in the field of new working methods. Its main aims are to spread the possibilities and advantages of telework and e-work, and to research and expand ICTs and all forms of telework, e-work and tele-learning. It further seeks to create a network on participatory and collaborative learning and to support the creation of collaborative networks of e-entrepreneurs to generate win-win projects.

2. Locality

The TEDEL project is being developed as a pilot in five (mainly agricultural) localities: Benito Juárez, Fernández, Villa Ángela, 25 de Mayo and Belén. These localities were chosen owing to their geographical and demographic conditions and because they had a scheme of players and organizations enabling the creation and implementation of joint local development projects.

Besides agriculture, Benito Juárez, located in the province of Buenos Aires, also sees small-scale manufacturing of syrups, candies and bath soaps. It also has some tourism thanks to its many lagoons and its old farmhouses and parks. Fernández is located in the northwestern province of Santiago del Estero, and has become an important archaeological and anthropological site. Villa Ángela, in the northeastern province of Chaco, is closely linked to activities exploiting the red *quebracho* and the white and black carob trees, and it has two meat processing plants for slaughtering cattle. 25 de Mayo, in La Pampa province, also has mining and goat and cattle breeding activities. Its industry is oriented towards the transformation or preparation of local raw materials, while its landscape facilitates the development of different tourist activities. Finally, Belén, located in the northwest province of Catamarca, has traditional agricultural activities, but its inhabitants also engage in crafts, livestock farming and mining.

3. Dates and durations

This is a two-year project which started in March 2006 in the first four localities (Belén's starting in September 2006). The coordinating team meets frequently, both personally and virtually, with the local coordinator in order to follow the different stages of the project. The aim is that, towards the end of the two years, those local coordinators will become the leaders of their own community development through ICTs.

4. Description

The TEDEL project consists of five pilot research experiences aiming to create a set of favourable conditions for promoting local development initiatives through the application of new working methods and ICTs. The project involves a research study that will record

the follow-up, monitoring, analysis, interpretation and assessment activities of the whole development process for each specific experience.

More specifically, the project involves settling in five young professionals who want to go back to their original area, town, or city in the interior of the country. They will help to promote local development conditions, such as market opening, value creation, and employment development through their education and technical knowledge. In doing so, TEDEL has set up a local promotional group in each of the five localities, which is then participated in by representatives from the production sector, social institutions and public administration agencies. The different components of the project involve a range of training courses to teach basic technological and organisational skills. In other words, these young university graduates return to their home to involve the local community in ICT-related projects and help the community develop its own activities. The whole process requires permanent assistance and frequent visits from the coordinating team based in Buenos Aires.

5. Results

Although it is still a little soon to see definitive results, the coordinators of the project have already seen good impacts in the community. Some of the projects have already started growing.

For example, the Instituto Nacional de Tecnología Agropecuaria (National Institute of Agricultural Technology), situated in the locality of Fernández, has a project for local development called Center of Information, Management and Agribusiness (Centro de Información, Gestión y Agronegocios, CIGA). Its main goal is to promote products and services provided in the area with the purpose of positioning them on local and international markets.

6. Livelihoods impact

According to the AAT, telework methods have proved to have an impact on Latin American and Caribbean key social and development issues, e.g. social equality, employment, human resources education and training. Furthermore, they strengthen new social groups leading to socioeconomic and technological transformation and subsequent social relationships, and the region's integration into the world.

The TEDEL project puts an emphasis on local development, treating it from a broad perspective. According to the organizers, the three core elements for this process are to promote social and gender equality at every level, to include people with disabilities, and to use education and training as a strategic element in local development policies.

7. Critical success factors (CSFs) and critical failure factors (CFFs)

Appropriation. The two main motivations for this project's implementation are "increasingly consolidated trends for the dissemination of new working, employment and teleworking methods" together with "local development strategy" (source: TEDEL's website).

Sustainability. The project involves linking telecenters to a reciprocal assistance virtual network and the collaboration based on teleworking practices. The idea is that such network will allow local groups to create synergies and complementary relationships that help ensure the project's sustainability.

Replicability. The project aims at systematizing, within a conceptual model, the different types of learning. This is to generate a framework and a source of reference for the creation and development of similar experiences with other groups of people, institutions, localities and regions.

In sum, although it is still a little soon to judge, TEDEL seems to constitute an extremely good example in both reversing the rural brain drain and helping local communities in ICT appropriation.

Links

Tedel Project, description [http://tedel.org/index.php?option=com_content&task=blogsection&id=16&Itemid=225]
Interview with Andrea Molinari on rural ICT project [http://www.aat-ar.org/Revista_art.asp?iid=887]

Affordability Issues in Bangladesh

Distribution of households with access to telephone, mobile phone, computer, email and electricity are presented in the following table. Government statistics show that in 2005 only 2.87% of households had access to fixed line telephone at the national level, with 0.33% of households in rural areas and 10.36% of those in urban areas. The percentage of households with access to a mobile phone was 11.29% at the national level in 2005. Only 6.05% of households in rural areas have access to mobile telephony in contrast with 26.73% in urban areas. However, the recent growth in the mobile phone sector shows that accessibility of mobile phones at the household level has increased. Households owning a radio were at 27.3%, with 32.3% of households in urban areas and 25.7% of those in rural areas. Only 19.1% of households were reported to have a TV at national level. The percentage of households owning a TV was larger for urban households (42.9%) than for rural households (11.6%). Only 1.36% of households, according to government statistics, had a computer at the national level in 2005, with only 0.17% of rural households and 4.88% of urban households. Internet facilities were limited to urban areas, with 0.81% of households having access. National Media Survey (NMS) findings show that only 1.2% of people in urban areas have internet access. These data, however, differ from the BASIS data stated earlier (Bangladesh Association of Software & Information Services).

For further reference, see the Bangladesh Report

Bangladesh – Seed Technology: Video

About 75% of the total population of Bangladesh (138.8 million) lives in rural areas, with about 43.8% still below the poverty line. There is a strong recognition that ICTs have an important role to play in agriculture, the predominant form of income generation in rural Bangladesh. At present, many of the national and international NGOs working with ICTs are developing community information centers to help transmit information to rural people with a special focus on agriculture. Some of them have started developing content on different aspects of agricultural activities and using different types of technologies to make this available to the rural poor. For example, the Rural Development Academy (RDA) has a video documentary on farm activities called "Mati O Manush," broadcasted through the national television channel (Bangladesh Television). Other NGOs, such as Grameen Communication, Amader Gram, Bangladesh Rural Advancement Committee (BRAC), Katalyst and DNet, have been working to develop content on agriculture and disseminating the information to rural communities using various technologies.

The current example examines how ICTs can help poor farmers judge the quality and value of purchased seeds, empowering them to demand good quality seeds from the market in rural Bangladesh under a project called the Good Seed Initiative (GIS). The RDA, a specialized national institution that carries out training research and action research in agriculture and rural development, is currently implementing the South Asian chapter of the GSI in Bogra, in northern Bangladesh, in association with the Centre for Agriculture and Biosciences International (CABI), Thengamara Mara Mohila Sabuj Sangha (TMSS) and the Agricultural Advisory Society (AAS). The technology being used to educate the farmers includes different types of videos on seed production and processing. CABI, an inter-governmental not-for-profit organization which improves people's lives worldwide by providing information and applying scientific expertise to solve problems in agriculture and the environment has pioneered the GIS as a platform for collaborative activities to develop farmer-centred seed systems around the world.

The overall objective is to develop the sustainable smallholder seed systems that improve food security for the poor and support *in situ* conservation of crop biodiversity. As economies develop, this becomes part of an evolving process moving from subsistence farming towards more market-oriented agriculture and non-farm activities.

Through wide stakeholder discussion, the working objectives and focus of the GSI have developed around three key areas:

1. Improvements to the quality (health, purity, viability and freedom from contaminants) and value of farmer-saved and farmer-traded seed (seed as a resource)
2. Building farmer-centred seed systems, enabling the poor to access and benefit from seed from sources external to the community (seed as a commodity) and
3. Taking forward learning from these into regional and national seed systems and policies.

In Bangladesh, the GIS started in January 2005 and will continue till December 2007, seeking to improve awareness among poor farmers through video programming on the value of good quality seed and how they can get the best from their own resources through good seed management practices. The initiative focuses on 28 remote communities in Bogra, north of Dhaka, where poor seed health has been associated with rice yield losses of 10% to 15%

and where many farmers and their families are living in poverty (source: Food Security for Sustainable Household Livelihoods, see the Bangladesh Report). The target groups are resource-poor smallholders (women farmers often have prime responsibility for seed management). About 80% of seed management is carried out by women. Improving seed quality therefore depends on successful communication to these women. While face-to-face communication is a very effective way of sharing knowledge, it is hard to reach every village; as women in Bangladesh rarely travel outside their village, information and experiences are often not shared. Recognizing this as a major issue, CABI and its partners embarked on this pilot scheme to see if video communication could help women save and store their seeds more efficiently, thus improving yields and livelihoods.

The approach does not require high-input technologies but combines local technologies with scientific methods to empower women to improve seed quality. The program has been developed through extensive discussion with national and international partners and directly addresses the needs of the poor across a range of seed management and supply systems. Women from each of the rural communities were selected to undergo training in seed management techniques and video production. After initial training from a production company, Countrywise Communication, a range of high-quality videos were produced by the women and then shown to resource-poor farmers in selected villages. These videos are being further validated on the basis of feedback from the field.

Results have been positive. In one village, one in two women surveyed had started to practice manual seed sorting after watching the video. Very few now dry seeds on the floor, with 20% building their own seed drying tables and 94% now aware of moisture absorption. Evidence showed that helping farmers to see for themselves the value of improving their own seed management led to 10% yield increases, as farmers became able to judge the quality of local and external seeds and began to establish appropriate market systems. The initiative thus strengthens, to some extent, the ability of farmers to guarantee food security and improve livelihoods. National broadcasting services have also introduced a program to disseminate the documentaries across the country. This project is one example of how CABI, drawing on its global experience and in collaboration with partners, is working towards enabling food security in Bangladesh by educating, informing and empowering women farmers on best practice techniques.

These videos as training and extension tools have great potential to address the difficulties faced by food insecure farmers in rural Bangladesh. It is expected that in the future, through a strong focus on community-centred systems and farmer-participatory learning over the entire seed cycle, this will empower the poor through knowledge of seeds, seed quality and varietal characteristics. It will therefore ensure the sustainable use of natural resources by improving the quality of seeds available to smallholder farmers, both as a fundamental resource and as a source of agro-biodiversity. Also, the initiative will support sustainable access by the poor to seed of both local and external germplasm, strengthening their ability to engage effectively with the formal sector.

However, since Bangladesh is a net seed importer, moving towards a trust basis for externally supplied seed also requires new systems of quality assurance based on formal certification of seed stocks and/or (as appropriate), quality certification or self-declaration schemes. Therefore, it is also important to share knowledge and experiences about international seed markets using a variety of ICTs, including the internet and other forms of media, making information understandable and useful for farmers.

Links

http://www.cabi.org/datapage.asp?iDocID=215
http://www.countrywise.com
http://www.foshol.org

Bangladesh – Pallitathya Kendra (Rural Information Centre) of DNet

Recognizing that the rural poor are often unaware of rights, unable to access information or cannot afford costly services, DNet has developed a unique approach – Pallitathya Kendra (PK) – to improving access to relevant information for rural communities. The idea was primarily concieved in 2001 and was implemented in 2005. The objective is to link target beneficiaries with information providers through a combination of mobile phones and computing. DNet, in partnership with other organizations, government, universities and experts, has generated easy to understand Bangla content. This content is housed on DNet's internal website and is disseminated to rural information centres in soft-copy form.

Yet, content without accessibility can serve little purpose. DNet has established rural information centres, termed Pallitathya Kendra (PK), and runs a Helpline, facilitated by a trained "infomediary" for each PK. Infomediaries use a mobile phone to contact the local PK office or Dhaka for answers to users' questions. With low literacy rates and without widespread availability of computers or training, the infomediaries provide a critical link between the content and the users. The infomediaries are women hired from the community who can guide users through the process of finding answers to their questions. The infomediaries receive 16 days of training from DNet's Dhaka office. There, they are trained in basic computer literacy and learn about what resources are available to the PK and what resources are available at the Dhaka office. They also learn what questions cannot be answered over the phone (such as certain healthcare questions which require direct inspection). The Nilphamari infomediary thinks the training she received was sufficient and that being an infomediary was "easy" once she had received training. Outgoing and entrepreneurial, she clearly enjoys her job.

DNet has four PK located in four remote villages under the districts of Netrokona, Noakhali, Bagerhat and Nilphamari, with a catchment population of 413,188. These work on a pilot basis to capture the process of learning and replication. The PK visited by Unnayan Onneshan is located in Babrijhar village, Bangmari union, Nilphamari Sadar Upazila and was established in November 2005. It is 21 kilometres away from the district town and the literacy rate is 29%. The infomediary travels by bicycle to serve the surrounding villages. Physical infrastructure available in Nilphamari district also varies seasonally. During irrigation periods (e.g. winter), a greater demand for electricity causes load shedding and loss of power to the PK. The local internet service can be erratic. On DNet's internal website and offline, users can browse content on a variety of issues. Content is currently divided into laws and legal issues, education, health, agriculture, awareness raising, sustainable technology, rural employment generation, disaster management, and other rural nonagricultural issues. The site seems to be well organized and designed with users in mind. For example, in the agriculture section, under the subcategory of crop diseases and pests, color photographs are displayed, and users can match their pest or crop disease to ones displayed on the computer. Furthermore, DNet updates its site based on the types of questions asked by the users. The majority of the content is the same for each PK. However, there is also localized content, such as local water quality issues.

DNet's Nilphamari PK also provides an array of other services. At the PK office, staff post weather reports, headlines from Bangla papers, government office contact numbers, tax rates and job announcements. They also test soil fertility, offer a weight and blood pressure machine, and take photographs and print them for villagers. The Bangla content generated by DNet is its most valuable resource and is considered to be of high quality. DNet has made

its content for the Abolombon legal aid project available publicly online. Currently, their other Bangla content is only available to its four PKs. Proprietary ownership of content, such as this, while arguably important for DNet's sustainability, limits the impact of ICTs on rural livelihoods in Bangladesh. Making content available as a public good could help ensure the sustainability of rural ICT centers.

DNet has established a sliding fee scale based on the timeliness of answers. Questions asked via mobile phone and answers given immediately by mobile phone are most expensive; answers given by mobile later are cheaper; answers given by letter are cheapest. Questions submitted by letter receive a free reply by letter. For example, for simple medical treatment, rural people near the PK no longer need to go to Upazilla Health Complex. The information centre can contact a consulting a doctor on a user's behalf via mobile phone. The PK also provides soil testing and advises local farmers on what kind of fertilizers are best for their soils.

At present, DNet offers a subsidized price for services provided through the PKs and the revenue covers only a portion of operation costs. For example, the Nilphamari office covers the cost of maintenance of equipment, primarily funded by charging for access to internet, working on outsourced computer composition, and taking photos. Charges for the Helpline cover the cost of phone calls made but do not cover the cost of the Dhaka office staff or the cost of generating content. As recouping the cost of the Dhaka office from the four PK sites is currently untenable, this results in lower prices for users and, ultimately, greater service provision.

Table 5: ICT service type and cost at PKs

Name of the service	Type of service	Unit	Unit price
Information service	Oral information service (using computer oneself or with the help of service provider)	First 10 min	Free
		Each 30 min	Tk10 adults and Tk5 students
	Printing charge	1 page	Tk5
	Design print	1 page	Tk6
Helpline	Instant response by mobile	1 min	First 2 min Tk4; each min Tk 3
	Response to mobile queries by post	1 min	Tk4 for question, Tk5 for answer
Soil test		1 sample	Tk25
Photography	3R size	1 copy	Tk10
	Passport size	1 copy	Tk5 (minimum 4 copies)
Computer compose	Printing with Compose	1 page	Tk10
	Only compose	1 page	Tk8
	Only print	1 page	Tk5
Email		1 email	Tk15 (Tk10 students)
Internet browsing		10 min	Tk8 (Tk5 students)
		Each 30 min	Tk15 (Tk10 students)
Government form	Print	1page	Tk8
	Fill up with the help of service provider	1 form	Tk15
Diversification visa form (US)		1 form	Tk50

The number of users at the Nilphamari PK is still quite low, in part because it is a relatively new service. Approximately 350 users asked questions during 2006. Users most frequently request information on health issues and legal issues and this information is the primary reason that respondents visit the PK. Women tend to ask the majority of health-related questions. Questions about legal issues are referred to the Abolombon project, another DNet project, which provides open-access to Bangla legal content on its webpage (http://www.abolombon.org) and for which a local advocate offers free legal advice two days a week at the PK. Additionally, infomediaries contact local legal aid organizations on behalf of their clients. The Abolombon project is quite popular, especially among women who have had little previous access to legal services. Farmers were pleased with the agricultural information available but desired more, particularly prices of inputs and outputs.

Users stated that information on health, legal issues, education and agricultural issues provided by the Helpline and the PK improved their lives by reducing vulnerability and by enhancing already available livelihood strategies. Md. Alauddin, a farmer of Babrijharh village said, "It was quite impossible for me to know the admission procedure on different universities. Pallitathaya Kendra provided information about university admission when my son got admitted to Dhaka University". Unemployed rural men and women obtain information about different non-farm economic activities from the PK. The centre provides information on handicrafts and small-scale business (e.g. tea stalls, grocery shops, etc.), which may help them to be self-employed.

Members of the focus group would also like to have access to training, particularly for students in their community. Most respondents believed that computing skills would improve students' employment opportunities. The Nilphamari PK could benefit from long-term skill development of its employees, with a goal of offering computer classes to interested local youth. Additionally, because of limited access to television programming, one farmer suggested that the PK could show videos on different agricultural innovations and ways to increase efficiency. Some of this material is already available from SAARC (South Asian Association Regional Cooperation) cooperative programming.

Users strongly support the idea of replicating the PK in other localities. They also believe that the PK provides information for a broad group of users, from farmers to students to housewives. There was concern that the costs associated with the Helpline would discourage poorer people in the community from using it. The Helpline does offer a free service by letter, however the turn-around time can be too slow for time-sensitive questions regarding health and agriculture. Many respondents would like a faster service for the same or a lower price. While the cost of using the PKs was a concern for respondents, overall the cost of using the PK and Helpline is still lower than many other forms of ICT. When asked about other forms of ICTs, such as television, computing and internet access, most respondents said that they did not have access to these forms, which were also considered too costly. In addition to the PK, for many respondents newspapers and televisions were other popular means of gathering information. Radio was not as popular, in part because radio programming did not seem to provide information demanded by the population. In Nilphamari, local government officials appreciate DNet's work but do not provide monetary or other forms of support. In our survey, many users said they relied on local government officials for information before the PK's arrival. Collaborating with local and national government could provide DNet's users with additional content.

The telecenter concept is new to rural areas. For the time being, profitability is not the main objective of these centers for DNet, as the mission is to maximize the welfare of users by increasing information access. Income opportunities in these locations are few and it is not yet viable to offer technological services at a price that would ensure profitability. Higher prices would discourage users from coming to the centres and there is a need to provide services free of charge to the the poor. However, DNet has plans to replicate the model across rural Bangladesh and expects to run profitably in the future, particularly once users' incomes improve and telecenters have more demand for their services.

Links

http://www.dnet-bangladesh.org
http://www.gpcic.org
http://www.braceducation.org
http://katalystbd.com
http://www.jeeon.com/pdf/Jeeon%20site%20map_english.pdf

ICT Policy and Strategy in the Agriculture Sector in Bolivia

In 2002, the Ministry of Agriculture began developing and implementing an ICT strategy for the agriculture sector. Representatives of various stakeholder groups, including grassroots organizations, CSOs and governmental institutions, all participated in the policy process, with IICD playing a facilitation and advisory role. A comprehensive ICT policy and strategy for the agriculture sector was finalized in 2003. In 2004, implementation began with a first step of strengthening the internal ICT capacities of the ministry, which included ICT infrastructure and awareness raising and training for the ministry's staff. All higher and lower staff were equipped and trained in technical skills and information management, resulting in an information culture, making ICT and information both a strategic component of the agriculture policy and a part of daily working practice. In 2005, efforts were extended to the regional branches of the ministry. This enabled them to set up regional knowledge exchange networks responsible for coordinating information exchange between producer organisations, CSOs and the private sector at regional level. The networks will be governed by a coordination committee with participation of all stakeholder groups.

To support information exchange between national and regional levels, the adopted ICT solutions focus on networked computer systems at the ministry and its regional departments and a structure of linked web portals at national and regional level. This approach promises to bring long-term benefits to the agricultural sector as a whole, which should in turn have a positive impact on Bolivia's national economy. It also inspires ministries in other sectors to adopt similar approaches in order to improve the flow of information to and from citizens.

For more details, see IICD (2006) and http://www.agrobolivia.gov.bo

South Africa – Government Access Initiatives

World Bank and other studies have highlighted that the most effective way to alleviate poverty is through effective acquisition and dissemination of knowledge. Information and development services thus form a critical factor for the improvement of the lives of the majority of South Africa's (SA) population who are classified as being poor. The capacity to use information and new ICTs effectively are deciding factors in SA's progress and prosperity in the new global knowledge-based economy.

The objective of government is to ensure active participation of citizens in changing their lives for the better by providing development communication and information to the public. This task was realised *inter alia* by the following three projects:

A. Public Information Terminals (PITs)

The Public Information Terminal (PIT) service represents a radical new step in bringing the benefits of information technology, e-government and e-commerce within everyone's reach. This project was launched in 1998 as a joint project between the Department of Communications and the SA Post Office. The issues addressed by this project are capacity building at the local level and building knowledge partnerships. Online information is made accessible to communities and, to a large extent, cyberphobia is being curbed.

- **Organizations involved:** The main implementing organization was the South African Post Office (SAPO), which installs machines and provides support and maintenance. The funder was the SA government (Department of Communication). The target group was previously disadvantaged and rural communities.
- **Locality:** All nine provinces of South Africa.
- **Dates and duration:** Ongoing since 1998.
- **Objectives:** Bridging the digital divide by providing cost-effective and easy access to online information for needy communities, as well as providing a platform for e-commerce.
- **Methods:** This is a robust computer system in the form of a kiosk, with the main purpose of providing the public with direct, easy and convenient access to online information such as government information and forms and that on job opportunities and schools, etc. Training is provided to postal office branch staff, and the staff helps those users who may need help. Businesses are encouraged to advertise to the locals. Local municipalities are also urged to bring in a link to their systems, as this might come in handy for the local community. This is non-profit-driven initiative and all the services on the PIT are free, except internet access. Income from voucher sales (R5 for one hour) for internet access is used for maintenance and support of the machine.
- **Technologies used:** Robust computer kiosks; internet connection; web browsing; and email.
- **Results:** To date, 825 machines have been purchased and installed in post offices all over SA with the infrastructure and capacity to offer such a service. A few

machines have been installed in the Thusong Service Centres/Multi Purpose Community Centres (MPCCs). Vouchers to the value of R15,000 were sold in the first week of March 2006 and 672 PITs were in operation.

- **Livelihoods impact:** The impact is both direct and indirect and entails a combination of economic, social and capacity-building elements:
    - Reducing vulnerability through access to appropriate information.
    - Making institutions more accessible (public and private) and thus enhancing service delivery.
    - Enhancing knowledge sharing.
    - Creating employment opportunities.
- **Critical success factors (CSFs):** Reasons that the project enjoyed success (if only partially):
    - The original focus was on people in disadvantaged areas and their needs and not only on the resources.
    - The existing infrastructural network of post offices all over SA was used.
    - The project is partly self-sustainable owing to charging for internet access. Income from the vouchers is used for maintenance of the PITs.
    - Support and assistance provided for users who are not computer literate.
    - The program has been evaluated and a feedback mechanism exists via user surveys.
- **Critical failure factors (CFFs):** Reasons contributing to failures in this program:
    - The focus gradually shifted from the people and their needs to resources and their management.
    - The project does not really reach the distant rural and most disadvantaged communities.
    - The project only provides services where internet connectivity exist, thus excluding a large portion of rural poor communities.
    - The success of the project is seriously hampered by the computer literacy level of the rural poor and the lack of expertise and training.

B. E-School Cyberlabs

The Universal Service and Access Agency of South Africa (USAASA) was directed to deploy the e-Schools Cyberlabs project in underprivileged areas, particularly rural, peri-urban and underdeveloped townships. e-School Cyberlabs are school-based facilities where science teachers are trained in basic computing. The training program focuses on the following four areas: i) promoting human resources development in ICT software; ii) providing a managed facility that enables students to understand and learn to utilize the internet and related network and software technologies; iii) educating students in the use of opportunities presented by the internet; and iv) providing universal access for students under controlled circumstances and in a regulated environment.

- **Organizations involved.** USAASA is responsible for the installation of network points and air conditioners and provision of security for the facility.
    - **Funder:** USAASA in partnership with Digital Partnership is rolling out refurbished computers to schools in disadvantaged areas, with a specific focus on rural areas. Each school own its Cyberlab and is responsible for all maintenance costs, except internet connectivity. For a 12-month period, USAASA is providing for internet costs; thereafter, the schools are fully responsible for all Cyberlab costs.
    - **Target group:** Under-serviced areas, particularly rural, peri-urban and underdeveloped townships. These school-based facilities, where science teachers and scholars are trained in basic computing, are limited to the school community only.
- **Locality.** Implemented in all nine provinces of South Africa.
- **Dates and durations.** Ongoing since 2002.
- **Objectives:** To provide ICT services and computer literacy training to teachers and school children.
- **Methods:** ICT services and computer literacy training are provided and the program focuses on the following four areas:
    - The promotion of human resource development in ICT software.
    - The provision of a managed facility that enables students to understand and learn to utilize internet and related network and software technology.
    - The education of students in the use of opportunities presented by the internet.
    - The provision of universal access for students under controlled circumstances and in a regulated environment.
- **Technologies used:** Computers, internet and email.
- **Results:** A total of 186 Cyberlabs are distributed among 101 municipalities (38.6% of all municipalities).
- **Livelihoods impact.** Indirect effect on social and capacity-related aspects of livelihoods, namely:
    - Knowledge sharing.
    - Access to information.
    - Skills development.
- **CSFs.** Factors contributing to success were:
    - Some computer skills and literacy training were provided to educators.
    - Computer equipment and internet connectivity was made accessible.
    - Skills transfer did take place.
- **CFFs.** Reasons for failure:
    - Inadequate training to educators.
    - Funding for maintenance and internet connectivity – a crucial success factor – places a heavy burden on schools and has a detrimental effect on the maintenance of the facility. Free internet connectivity was provided only at the beginning.
    - Not utilized by all students owing to time and funding constraints.
    - Limited to the school community only.

C. Thusong Service Centres or Multi Purpose Community Centres (MPCCs)
The task of making information accessible was also given to Government Communication and Information Systems (GCIS), which must use all appropriate media forms to provide information and produce two-way communication services (Comtask Report, Clause 65). MPCCs were established to provide government information, products and services right on the doorstep of the community, but also to train and add ICT skills, for instance in the use of the internet and other technologies which can be useful in local development programs.

- **Organizations involved.** The main implementing organization was GCIS. However, some of the Thusong Service Centres also include: the Department of Communications and USAASA Telecenters; the Council for Scientific and Industrial Research's (CSIR) Digital Doorway project; and SAPO's PITs project.
    - **Funder:** Governmental departments providing services at the MPCC and national and international donors such as the World Bank, SAFMARINE, De Beers Fund, the Development Bank of South Africa (DBSA), ESKOM, Old Mutual, Uniting Reformed Church, Embassy of Japan, CSIR, NDA, USA and World Library Partnership.
    - **Target group:** Previously disadvantaged communities.
- **Locality.** Throughout all nine provinces of SA. A total of 71 MPCC are distributed among 48 municipalities (18.3% of all municipalities).
- **Dates and duration.** Ongoing since 1999.
- **Objectives.** The objective of government is to ensure active participation of citizens and a better quality of life by providing development communication and information to the public. GCIS must use all appropriate media forms to provide information and produce two-way communication services (Comtask Report, Clause 65).
  The MPCCs should serve as a base for local, provincial and national government and other service providers and should increase accessibility for local communities to government information and services, improving communication between government and people.
- **Methods.** The MPCCs provide government information, products and services right on the doorstep of the community, but also train and add ICT skills, for instance using the internet and other technologies which can be useful in local development programs.
- **Technologies used.** Telephones, cellular phones, faxes, digital games, PITs, photocopiers, scanners, computers, digital libraries, internet and email.
- **Results.** Many of the MPCCs have telecenters. The range of services offered per telecenter, however, differs from centre to centre. Some even offer community radio. The major portion of the services used by visitors in the different centres consists of photocopying, telephone, faxing and printing. The numbers for computer training, PITs, the internet and digital games are still relatively small and insignificant.
- **Livelihoods impact.** The project has a direct and indirect effect on a combination of economic, social and capacity-related aspects:
    - Reducing vulnerability through access to appropriate information.
    - Making institutions more accessible (public and private) and thus enhancing service delivery.
    - Enabling knowledge sharing.
    - Making employment opportunities accessible.

- **CSFs:** The following were identified as important to the success of the program:
    - Computer skills transfer is a crucial success factor.
    - For any MPCCs to be sustainable, other ways than donations are needed for income generation.
    - Needs assessment of the community necessary in all phases of the project.
    - Coordination of services of service providers is required.
    - Measureable outcomes and timeframes are needed for evaluation purposes.
    - Maintenance and upkeep of equipment must be included in budgets and planning.
    - Centers need to have functional equipment.
    - A good communication strategy is needed to ensure that the community and other stakeholders are aware of the project and its activities.
- **CFFs:** The following factors contributed to the failure of the project in many instances:
    - Accessibility, affordability and availability of ICTs were not enough to ensure the use of the ICT by the community or the benefit thereof to the community. Much more will have to be done in terms of community involvement, communication, education and training.
    - No measurable standards (benchmarking) are set for the centre managers, leading to a great variance in quality between centres.
    - It seems as if either centre managers are currently lacking coordination skills or they have the perception that accountability lies elsewhere.
    - Unfortunately, it is not recognized that accountability lies not only via the hierarchical reporting structures but also with the beneficiaries of the project: the community.
    - Although training is provided in the telecenters, it seems as if the necessary focus and commitment are lacking.
    - Owing to distances to be travelled and the cost of travelling, the MPCCs are not accessible to all the rural poor.
    - Maintenance of equipment is not done well owing to lack of funding.

Reception at the Colesberg MPCC

Adults working at the MPCC

Children working in an MPCC

The Digital Doors Project housed at the MPCCs

Children learning about computers via the Digital Doors Project at an MPCC

From the above, it should be apparent that although the original ideas were good and some success stories are evident, there is considerable variation in operational quality resulting in many examples of failure owing to poor coordination and lack of commitment and training.

For more information, see the South Africa Report, Annexures 30 and 31.

Links

Public Information Terminals (PITs) http://www.pit.co.za http://www.postoffice.co.za
E-School Cyberlabs http://www.usa.org.za
Thusong Service Centres or Multi Purpose Community Centres (MPCCs)
http://www.gcis.gov.za/mpcc/

South Africa – Value Added Network Services

Knysna Municipal Uni-Fi project

The ICT industry has witnessed some dramatic changes over the past few years, with cellular operators now offering data services, certain internet service providers offering television services over the network and now some metropolitan councils looking to provide telecoms services to residents. Several municipalities in South Africa are presently working on extending internet access to its citizens by means of fibre optics, the electricity grid or wireless connections. Knysna Municipality, the first South African town to provide internet access to its 50,000 citizens, decided to go the wireless route (the Uni-Fi project), closely followed by Tshwane Municipality.

Organizations involved	Owing to the cost of the infrastructure, Knysna Municipality formed a public-private partnership with Uni-Net, which installed the network.
Locality	Knysna. However, Cape Town, Durban, Tshwane, Johannesburg and many others are in the process of forming public-private partnerships and rolling out internet access to their citizens.
Dates and duration	Ongoing since 2006.
Objectives	• To extend wireless communication across the municipal area to provide free or cheap internet access to all citizens and plough money normally spent on broadband connections back into the local economy. • To promote local economic development by improving communications for Knysna's business community, especially black economic empowerment (BEE) businesses, while also boosting tourism, one of the town's major industries.
Methods	Knysna first extended the service to municipal buildings to reduce costs. The pioneering move has been so successful that the municipality expanded the system by creating 200 hotspots across the towns of Knysna, Sedgefield, Karatara and Reenendal. Business districts, main tourist areas, black-owned businesses in informal settlements, and major routes were covered. Currently, around 90% of the coastal town and its surrounding areas, as far as 40km away, are covered by Wi-Fi. This coverage coupled with innovative service offerings has already had a significant impact on telecoms services in the region.
Technologies used	The wireless standard IEEE 802.11, popularly known as Wi-Fi.
Results	• Disadvantaged and unconnected areas are covered. Thus, the network helps to bridge communication gaps within society. • Although users in Knysna are afforded 45 minutes of free internet access a day via the Wi-Fi hotspot connections around the town, internet costs are still expensive. Uni-Net

	claims to have reduced broadband costs in Knysna by 50%. However, the full service, which costs between R250 and R799 a month, is still expensive by international standards and unaffordable to most, especially the marginalised. In South Africa, the economics are simple. A large portion of telecoms – cellular, cable and, unavoidably, wireless networks – are in the grip of Telkom (the partially state-owned telecommunications company) monopoly. Telkom and other ISPs were not thrilled at the prospect of losing a chunk of their revenue and heavily objected on the basis of the current Communications Act. • In Knysna the network contributed to the creation of job opportunities.
Livelihoods impact	• Municipal Wi-Fi is a means to bridge the digital chasm. If a start-up business has free or cheap internet access, it could use voice over internet protocol (VOIP), which is absolutely free when a call is made from one VOIP connection to another. VOIP is also cheaper than using landline or cellular phones. Thus, communication within the community is enabled. • Through the wireless network, people also have free access to all online municipal content, educational sites, e-government sites and local business directories.
Critical success factors (CSFs)	Reasons for the success of the project are: • Public-private partnership: Since ICT is not the core business of Knysna Municipality, Uni-Net brought the necessary expertise to enhance service delivery to Knysna citizens. • Universal access in the Knysna area: Although Knysna is a relatively wealthy town, all communities were included in the project. • Self-sustaining: The network is also designed to support tourism to the popular Garden Route and Knysan area, thus creating a model of sustaining itself. • Cost-saving: The municipality alone saved R4 million in telecommunication costs in the first financial year.

The Knysba Uni-Fi Project bringing internet and internet telephony to everybody	

Links

Knysna Municipality Uni-Fi Project http://www.knysnamunicipality.co.za/cgi-bin/knysna/software/template.htm?ts=27/02/078547&artid=126 http://www.uninet.co.za

Sri Lanka – Govi Gnana System Project

The Govi Gnana system (GGS) project established display screens at the Dambulla and Meegoda vegetable and fruit markets to broadcast live transaction prices of the products and then make them accessible through telephone and internet. This pilot project was implemented by e-Development Labs Interblocks Ltd. and Pricewaterhouse Coopers. The project was originally funded by the World Bank through the Information and Communication Technology Agency (ICTA) of Sri Lanka, and subsequently by USAID. The GGS enabled farmers, traders, buyers and sellers of agricultural produce to view live transaction prices at various trade stalls in their own markets as well as prices in other areas of the country. The main objective was to enable farmers to obtain the maximum price for produce by providing them with up-to-date information about trading prices. The prices of agricultural produce are collected at the point of trade from selected trader terminals. Personnel also collect information by conducting spot price checks using hand-held devices. These are projected on display terminals and kiosks and broadcast via the internet. The aim of sharing this live information is to reduce price volatility and bring stability to agricultural prices and to help farmers get into forward sales contracts which can be eventually used as collateral for financing from banks (ICTA, 2007).

Dambulla and Meegoda Dedicated Economic Centres (DECs) are considered to be large agricultural market towns. Dambulla is the largest wholesale market for vegetables and fruit in Sri Lanka, with recorded sales of US$300,000 a day (Harsha De Silva, Global Food Chain Partnerships). Dambulla act as a trading centre for the redistribution of products from many parts of the country. Trading takes place from evening till midnight or the next morning. Damulla was the first town in Sri Lanka to have banks operating at night, because of its central economic importance. Prior to the GGS project, farmers and/or collectors sold their products to traders at prices they felt to be reasonable, without any knowledge of current proper prices. There are 143 stalls for trading in the market and no transparency of price. Since there was no proper mechanism for obtaining price information, the chances for farmers to bargain were minimal.

With this as a background, the GGS project was designed with objectives as follows:

1. Capturing and disseminating live prices across the market so farmers and traders can negotiate the best prices based on accurate information.
2. Disseminating real time prices from outside markets in other parts of the country to allow farmers to decide whether to bring their next lot of products to Dambulla market or to find alternative markets.
3. Creating a platform for farmers and traders to enter into forward sales contracts through an e-bulletin board which provides demand and supply data from farmers and traders.
4. Enabling farmers to access credit by linking banks to the forward sales contract platform.
5. Improving extension services by linking with other agriculture-related portals and agriculture department initiatives (Harsha De Silva, Global Food Chain Partnerships).

The project so far has been able to convince traders to cooperate by supplying information, as they have seen that this improves their business (their original thinking was that this would be disadvantageous to them). Farmers now use this facility to obtain live prices and a few farmers also display anticipated prices. This has enabled them to bargain for better prices.

Live price information has been fed into http://www.ggs.lk/ and coupled with a fully automated voice and fax system in Sinhala and Tamil languages. Inquiries received by this system suggest that there is an increasing trend among farmers to use this information to take important decisions regarding cultivation, harvesting and marketing. The third and fourth objectives are yet to be achieved. According to researchers, there is high potential for these based on the experiences of forward sales contract introduced by the Central Bank of Sri Lanka and in operation since 1999. Many believe that the link established recently between the Dambulla DEC and the agriculture department can convert the fifth objective into a reality. The innovative ICT-based extension services being developed by the agriculture department (cyber extension) has high potential to impact farmers who come to rely on Dambulla information services.

One of the critical success factors (CSFs) of the project can be identified as the appropriate application of a combination of ICTs to meet the diverse needs of information collection and dissemination. The wireless devices used by data collectors to capture instantaneous prices, the outdoor Wi-Fi system (the largest in Sri Lanka), the 8x6 feet display screens at strategic places at the market, the GGS web page, and the Sinhala and Tamil language fully automated voice and fax system are the different modes of ICT used. The second CSF can be defined as the high literacy rate in Sri Lanka (90%), whereby most farmers are comfortable with accessing the information. The market information offered by the GGS is live, reliable and diverse. This is seen as another factor in creating demand.

Links

http://www.ggs.lk/
http://www.globalfoodchainpartnerships.org/cairo/papers/HarshadeSilvaSriLanka.pdf
http://www.icta.lk/Insidepages/downloadDocs/Nenasala/OutcomeEvaluation_of_PilotProjects.pdf

Sri Lanka – Evaluation of e-Sri Lanka Projects

The Sri Lankan government's ICT strategy for rural development is called the e-Sri Lanka initiative. The vision of the e-Sri Lanka program is to "take the dividends of ICT to every village, to every citizen and to every business & to re-engineer the way government thinks & works" (Withanage, 2003). Its goal is to use ICT to develop the economy of Sri Lanka, reduce poverty and improve the quality of life of people (ICTA, 2007).The e-Sri Lanka has a five-pronged program strategy, which encompasses:

1. Building implementation capacity;
2. Building information infrastructure and an enabling environment;
3. Developing ICT human resources;
4. Modernizing government and delivering citizen services;
5. Leveraging ICT for economic and social development, through public-private partnerships (ICTA, 2007).

Understanding the importance of testing the potential of ICT applications, the Information and Communication Technology Agency (ICTA) implemented selected pilot projects with selected partners. The projects and partners were selected from a list of proposals submitted by various organisations through an evaluation process. Around 10 pilot projects were selected for implementation.

After the first phase of implementation of the pilot projects, Ernst & Young (a consulting company) was assigned to evaluate pilot projects to find out whether the expected targets were reached, whether the pilot interventions had managed to create any impact on the target groups and to obtain recommendations for the improvement of delivery. The projects subjected to the evaluation were e-money order, Empowering the work place, the Govi Gnana System (GGS), National operations room, SME portal and three Vishwa Gnana Kendras.

The summary of the findings of the evaluation are as follows (Ernst & Young; Outcome Evaluation of Pilot Projects):

Pilot project	Implementing partner	Outcome	Impact on target audience
e-Money order	University of Colombo	Unsatisfactory	Modest
Empowering the workplace	Informatics Information (Pvt) Ltd	Satisfactory	Substantial
GGS	e-Development Labs / Interblocks Ltd / Pricewaterhouse Coopers	Satisfactory	Substantial
National Operations Room	Pricewaterhouse Coopers	Satisfactory	Substantial
SME Portal	National Chamber of Commerce of Sri Lanka	Unsatisfactory	Negligible
Vishwa Gnana Kendra (three units)	Three different institutes	Satisfactory	Modest

The evaluation found some useful information regarding the design and implementation of these pilot projects which can be drawn as lessons for similar future interventions.

1. It was observed that where needs analysis prior to project design is not carried out the response from the target groups to the services offered was very poor. Therefore, it is very important to find out the livelihood development needs of the particular subsector, locality and community. It is then necessary to analyse the role of ICT in making sure such service needs are available. Following these two initial steps, the ICT intervention(s) should be designed based on availability of infrastructure, affordability and appropriate technology or combination of technologies to suit the need.
2. In most instances, it was found that the lack of awareness among beneficiaries on the potential of ICT to improve their businesses was a major barrier for ICT interventions in getting off the ground. Thus, it is important to note that, among other important aspects, creating awareness among the target beneficiaries is equally important.
3. ICT interventions are used to create transparency among all market actors when targeted at market system development. Traditionally, traders and buyers believe that making information available on market demands, prices, supply etc. is a risk and can reduce profits. They lack knowledge on the potential of sharing of accurate information, to develop total market systems and there by increase their share. It is therefore worth taking the time to create a strategy to convince all value chain actors about the potential of the interventions and to come to a consensus on sharing accurate and up-to-date market information.
4. In all instances where projects did not provide complete and appropriate information in local languages, there has been failure. One of the critical success factors (CSFs) is the provision of up-to-date, accurate and complete information which can help in the successful achievement of a task in the production and marketing chain. The ability to directly and instantly apply information to take a decision or accompany a task is one of the CSFs of the ICT interventions.
5. In most cases, projects focus only on the ICT intervention and not on the delivery model. As such, all pilot projects are at risk in terms of financial sustainability. Targeting a service where a demand can be created and which can be valued and sold to the target groups (where appropriate) should be a key designing criterion of interventions.
6. Identifying the right combination of partners is another important aspect of ICT-based service delivery. Sustainability of such interventions will mainly depend on the interest and commitment of the implementing partners. Ensuring each partner has their own reward as an incentive to continue engaging in the said service is important.
7. In certain instances, the lack of trained ICT trainers at the service delivery level has implications forthe success of the project. The application/adaptation of ICTs depends on communities' ability to handle them. Thus, capacity should be available at rural level to guide and assist users till they become completely confident using ICTs for their livelihoods.

Links

http://www.icta.lk/Insidepages/downloadDocs/Nenasala/OutcomeEvaluation_of_PilotProjects.pdf
http://www.icta.lk/Insidepages/Projects/TheRationale.asp
http://www.globalfoodchainpartnerships.org/cairo/papers/HarshadeSilvaSriLanka.pdf

Tanzania – Vibanda Vya Simu: Rural Phone Kiosks

The Tanzanian government realizes the importance of telecommunication services in national development and, since its liberalization, the sector has seen broad growth, particularly in ICT infrastructure and applications services. The mobile telephone market has become fully competitive in Tanzania. Private operators are now providing mobile phone services, data services, paging and internet services. There are currently five mobile phone providers; Tigo, Zanzibar Telecoms, Vodacom, TTCL (CDMA), Celtel and two fixed lines (TTCL and ZANTEL). The number of mobile phone subscribers increased from 110,518 in 2000 to 5,718,641 in September 2006, whereas the number of fixed line subscribers decreased from 173,591 to 158,227 during the same period. The establishment of the Universal Communication Access Fund will increase penetration of ICTs to rural areas.

Rural telephone kiosks "vibanda vya simu"

Telephone kiosk have been very popular in both rural and urban areas, playing a great role in providing a service to communities, especially rural communities. Mobile services cover remote rural areas, such as villages in Bagamoyo district where there is no electricity; many people, even in poor communities, use kiosks wherever they are available. The mobile phone has become a symbol of the use of new ICTs in Tanzania.

Business model

These telephone kiosks are not franchises but rather private initiatives run by local residents as a form of business. Some of these set up "booths" at convenient places, e.g. bus stops, post offices, markets or restaurants, where people can easily access them. The phone kiosk services have also been offered as an extension service for other major businesses, shops or internet cafes. Most of these kiosks offer phone services, including landline phones where available, phone vouchers and airtime, and some even charge a fee to the telephone called. In Njombe district, about 10 kiosks offer the same service at the major bus stand. Most of the business owners buy voucher cards at a low price and sell these at a profit. Telephone service providers have been supporting this by providing different outlets. Vodacom (http://www.vocacom.co.tz) has "containers" reaching rural villages where Vodacom towers are available. These containers can be either purchased or hired by the rural community and are monitored to make sure only Vodacom products and services are offered.

Third Generation High Speed Downlink Data Packet Access (3G HSDPA) products – the 3G HSDPA Data Card offering broadband speed – encourage mobile phone usage among all sectors of the economy, including small businesses. Where infrastructure is unreliable, 3.5G technology is expected to provide a solution in terms of increasing demand for high-speed internet.

Livelihood impact

- Mobile phones have made communication easy and cheap, with savings on travel.
- They increase access to market information and lower transaction costs for rural farmers and traders.
- They create employment and entrepreneurship opportunities.

Critical success factors (CSFs) and critical failure factors (CFFs)

- The main constraint in the ownership of mobile telephone is cost – both the initial capital cost of a handset and the purchase of airtime.
- The lack of electricity and fixed line telephones makes it difficult for business people in many rural areas to invest in kiosks.
- There is a need for cooperation between public and private sectors to facilitate public accesss where both power and connectivity are required.
- Lack of incentives and support from government in terms of investing in rural areas has hindered development; this can be addressed by the establishment of the Universal Communications Access Fund.

Links

Vodacom Tanzania http://www.vocacom.co.tz
Celtel Tanzania http://www.celtel.com
Tanzania National ICT Policy http://www.tzonline.org/pdf/ictpolicy2003.pdf

Tanzania – Community Centers

Mkukuta and Community Centres

Tanzania has determined the need to develop into an information and knowledge-based society. To date, there has been remarkable progress in deploying ICTs, implementing ICT policies and regulations, and creating a supportive environment for adoption of ICTS.

The government of Tanzania approved the ICT policy in 2003, with the main objective of providing a national framework that will enable ICTs to contribute towards achieving national development goals and to transform Tanzania into a knowledge-based society through the application of ICTs. This links with the National Strategy for Growth and Poverty Reduction (commonly known as MKUKUTA).

The Millennium Development Goals (MDGs), Tanzania Development Vision 2025, and the Rural Development Strategy (RDS) established in 2001 together state that "*the government will promote the introduction of ICT in the rural areas through the creation of rural centres and such service includes basic communications such as fax, internet access, email, voice, tele medicine, distance education and access to information on market trends and crops ...* " The government has embarked on the establishment of a national fibre optic backbone network and is participating in plans for the Eastern Africa Submarine Cable (EASSy). It also recognizes the importance of e-business and has prepared the e-Commerce and Cyber Crime draft bill, establishing the Universal Communication Access Fund to increase penetration of ICTs to rural areas.

Community centres demonstrate how access impacts socioeconomic transformation and how it has influenced change and contributed to national development goals. The involvement of the government and other key players is important in implementing and sustaining the community centres.

Up to the 1980s, the ministry in charge of community development maintained community centres in almost all districts. The community centers were coordinated by community officers, «women officers were popular known as Mama maendeleo". The centres used to be popular with the community and offered different services including, newspapers, radio, up-to-date community information on government strategies (political issues, health, education, etc). Owing to political, social and economic changes, the community centres were taken up by district councils, which then rented them out. Bearing in mind the impact the centres had on communities, the Ministry of Community Development, Gender and Children is planning to repossess the centres and offer community-based services to society in line with MKUKUTA and the RDS.

Goverment, NGOs, the private sector and development partners have been supporting community centers in Tanzania. Sengerema Community Centre demonstrates the impacts of access to information and the usefulness of ICTs in terms of socioeconomic development in rural communities.

Sengerema multi-purpose community telecenter

- **Organizations involved:** Tanzania Commission for Science and Technology (COSTECH).
- **Locality:** Sengerema district, Mwanza region. This area is located along the shore of Lake Victoria. The main access to Sengerema is via a ferry across Lake Victoria and thereafter by road to Sengerema.
- **Funder:** Collaborative arrangement among international donors, national actors and the local community of Sengerema. (IDRC, UNESCO and ITU/OUT, TCRA, TCC, TLSB, PMO, TCCIA).
- **Target group:** Rural communities of Sengerema, including: schools, colleges, health institutions, fishermen, religious institutions, farmers, small-scale industries/miners, businessmen/women and public and government institutions.
- **Dates:** 2001, ongoing.
- **Description:** The project aims to set up a telecenters to promote the use of internet, photocopying and desktop publishing services, to develop appropriate local content, to influence national policy on telecenters and to promote information and communication services for the rural population. Relevant local information is posted on the website, including information on education (list of local secondary schools, computer courses), health, social issues, economic and political information, etc.
- **Results:** Over 1,000 people have been trained in information technology to a certificate level. Most of these are female, a group which has up to now been denied access to education and its privileges.

Livelihoods impact

The project has had profound impacts. The community has been observed to have changed owing to ICTs and availability of access to information in the following ways:

- Farmers and livestock owners and businessmen/women now opt to search for information on prices, markets, spare parts etc.
- There is improved performance in schools and colleges as students and teachers search for material on the internet.
- Overall community lifestyles have changed, as individuals have developed internet habits such as browsing for information, e.g. on diseases, preventative measures and cures, job opportunities and political information.
- The individual cost of communication is going down, owing to increased use of internet and email: these are relatively cheaper, faster and more reliable than traditional means.

Critical success factors (CSFs)

- Collaboration and a participatory approach are suitable for developing and managing community-based rural telecenters.
- Adaptation of existing infrastructure and involvement of the local community is useful in terms of working towards sustainability.
- Community and government ownership is critical.

Links

Sengerema community center http://www.sengerema.or.tz,
Tanzania Online http://www.tzonline.org
Tanzania National website http://www.tanzania.go.tz/

Uruguay – "Bernabe Rivera" Rural Intelligent Community

1. Organizations involved

The project was called "Intelligent Rural Community of Bernabé Rivera" and involved four main actors: An international donor (IADB), funding the project under the Pilot Program for ICT Diffusion in Social Programs; a CSO called "Funda Joven", a foundation based in Montevideo (Uruguay's capital city); Artigas Municipality City Council (IMA) – local government; and a significant amount of community members, particularly young students and teachers. These local actors were not previously organised in any CSO. During the last step of the project, they created a "commission" to ensure the project's sustainability.

2. Locality

The project was implemented in the rural village of Bernabé Rivera, located in the north of the country in the department of Artigas (close to the Brazilian border). This small village has a total population of 800 inhabitants, with a higher proportion of young people than the country's average. The nearest city is Artigas (the capital city of the province), situated 60km to the east and connected by an unpaved road. In cases of heavy rain, floods often cut access to the village. The village area does not have mobile phone coverage and possesses only a few fixed telephone lines, which quite often do not work properly.

3. Dates and durations

March 2003 – December 2006. Originally, the estimated implementation schedule was two years.

4. Description (objectives and methods)

The main objective of the initiative was to improve social inclusion of poor populations in rural areas through the use of ICT tools. Its intention was to cover the whole village population (800 people), out of which approximately 300 were children and young people under 18 years old.

This project had three specific goals:

- To provide internet connectivity to an isolated rural area;
- To install a set of computers and other ICT instruments in key community places (school, police station, community room and rural health centre); and
- To run basic computing training and ICT tools courses for students and adults from the village and nearby areas.

Although the project had a centralized (top-down) design, its implementation process was a more participatory one. In this regard, the community was not involved in the definition of the general goal and the specific activities of the project. However, once the infrastructure began to be installed in the village, the community was directly involved in deciding where to locate the computers and in the training content and schedule. The project suffered severe delays owing to the electoral cycle, when the local government, and thus its policy and approach, changed.

The project was finished towards the end of 2006, when local government transferred the entire management of the project to the local community through a cumbersome and weak process which, as of April 2007, was still taking place. For this purpose, a local "commission" was created, and this is currently in charge of maintaining the initiative.

5. Results

- The satellite internet connection was implemented and is currently working properly.
- There are 17 functioning computers connected to the internet, 10 of which are located in the community room, six in the school and one in the police station.
- 90% of Bernabé Rivera's high school students participated in the computing courses and currently use them as part of their regular educational process, both in classrooms and in doing their homework. It is, however, not clear yet whether new students starting the new academic year (i.e. by mid-March 2007) will be taught the same courses, as the contract of the computing teachers has not yet been resolved.
- All adults who showed an interest in taking the courses were also able to have access to them; this comprised around 20% of this group.
- A community-elected "commission" was created to manage the project and to ensure its sustainability. Among other members, this commission is made up of teachers, farmers, some of the adults who took the courses, policemen and a local government representative, with the high school director as general coordinator.

6. Livelihoods impact

- Members of the community, local authorities and some experts agreed that the project had generated enthusiasm in the community, and that it was extremely useful in enhancing local development capacity. Furthermore, the creation of the commission had empowered the community with the capacity to promote alternative kinds of development initiatives, not necessarily related to ICT.
- A community which was previously isolated in terms of internet connection is now connected and is using this access mainly for educational purposes. All high school students received training on computing use and internet search tools. It should be noted, however, that the training was basic and shorter than expected owing to severe delays in the project implementation process.
- Small countries like Uruguay are susceptible to cultural influence from bigger neighbours with stronger cultural production and powerful communication instruments, such as TV channels and radio stations. Most of the interviewees agreed upon the necessity of applying public policies to facilitate access to national mass media. The absence of local and national content on TV broadcasts in border regions can debilitate cultural identity in a small community like Bernabé Rivera. The incorporation of ICT instruments in such small rural communities, therefore,

allows their access to new information and knowledge. From a capabilities approach perspective, this constitutes an improvement in terms of the effective exercise of the basic human right to access to information. Access to new communication instruments and content can also trigger cultural changes and social interaction transformations inside rural communities, for example increase in women's empowerment, promotion of youth participation and enhanced social inclusion. This small rural community shows clear evidence of such impacts.

7. Critical success factors (CSFs) and critical failure factors (CFFs)

CSFs:

- Project **appropriation** was favoured by the village's demographic structure, given that it has significant proportion of young people as well as women who actively participate in the project's activities. That said, the **sustainability** prospects of this experience will very much depend upon the degree of this **appropriation** of the local community.
- According to the literature review and the lessons learned from this project, which were validated with the key stakeholders interviewed, it seems that women and young people are consistently more involved in rural ICT projects than any other groups. This includes not only their role as beneficiaries but also their position as promoters and key implementation stakeholders.
- Considering this particular feature, ICT projects could constitute an important channel by means of which other policies, related to fostering gender equality or promoting women's empowerment, can be implemented.
- In addition, policies which promote job creation and cultural inclusion for the younger population can also use ICT as a core instrument. In this regard, strategic coordination and articulation of ICT-related institutions at both national and local levels are even more relevant issues to ensure the **sustainability** and social impact of such projects.

CFFs:

- This was mainly a top-down project designed by a CSO based in the Uruguayan capital city of Montevideo – not previously related to the community – and the local provincial government, mainly to take advantage of the window opportunity presented by the IADB call for projects. The project design was carried out without the direct participation of the community until the project was ready to be implemented. This top-down feature inhibits full **appropriation** of the project and community involvement from the very beginning.
- The **replicability** of the initiative in other rural communities may be quite difficult because of the high cost of the technology used (satellite connectivity).
- Political conflict between central and local governments, as well as electoral campaigning during the project's implementation process (which left it on hold for nearly six months), constituted an important threat to its success. When local leaders, political parties or national authorities try to use projects as an electoral platform or as a publicity instrument, rather than as a truly social, cultural and economic development project, the results are generally far from ideal. The case study analysed provided some examples in this regard.

Uruguay – "Screen Uruguay" (Pantalla Uruguay) Online Livestock Auction System

1. Organizations involved

The "Screen Uruguay" project is carried out as a commercial initiative by a private auctioneer company that has long experience in livestock transaction markets. There are currently two other companies providing such a type of service. The company developed a system to sell and buy cattle through a multimedia communication system (internet and cable TV). The initiative was promoted (albeit not financed) by the government and livestock farmer associations as a way to promote cattle trading market without needing to move the cattle from the farms before it is actually sold.

2. Locality

The project covers every rural area in the country. Auction sessions used to take place in Montevideo, the capital city, or in the capitals of the different provinces, but now people are also able to participate in these auctions using the internet or the phone, i.e. from any point in the country (or even from abroad).

3. Dates and durations

Screen Uruguay was created in 2001, and it has been working since then.

4. Description

A prestigious auctioneer firm set up Screen Uruguay by creating a system that permits cattle trading through a multimedia communication system (internet and cable TV). The system broadcasts short videos taped at the selling farms (detailing cattle proprietary, place and date of birth, weight average, quantity of animals, category, reproductive state, etc) at meetings for potential buyers, which are normally held in Montevideo. The service is simultaneously broadcasted by three different systems: i) live through 59 cable TV points that cover the main cities of the country; ii) THD systems (Direct Television at Home); and iii) the internet.

The company was created in 2001 to attack the problem of cattle mobility restrictions arising from foot and mouth disease. This disease was spreading in Uruguay by mid-2000 and also affected Argentina, Paraguay and Brazil. It has strongly damaged the export capacity of these countries, as North American and European markets were closed to their exports owing to disease regulations.

The service finances itself from the commissions charged on every transaction that takes place through the system. The company has been consistently growing and it currently constitutes one of the largest technological transformation of livestock business activity, which is the country's main exporting good.

The system is directly related to a very important government initiative: the Animal Identification and Register System (Sistema de Identificacion y Registro Animal, SIRA) implemented by the General Division of Stockbreeding Services (Division General de Servicios de Ganaderia, DGSG) of the Ministry of Agriculture and Livestock. This project, defined as a strategic goal by the national government, is being implemented to fulfil the individual cattle identification requirements of the biggest international beef markets, mainly in the United States and the European Union. It is worth noting that Uruguay is the only Latin American country that implements a universal cattle identification and tracking system (as in Australia, New Zealand, Canada and the US). Argentina and Brazil

are currently using this only with cattle that will be sold abroad (i.e. 14% of their total beef production). It is important to note that Uruguay exports 75% of its beef, which constituted around $1 billon in 2006 (i.e. more than one quarter of its total exports).

5. Results

- An increasing number of cattle transactions are being made using this type of e-commerce system.
- The system has significantly contributed to a national strategy to fight against foot and mouth disease, by reducing livestock movement and thus the sanitary risks of the transaction process.
- Livestock farmers can have online access to cattle prices which are constantly updated, and this improves the market transparency.
- The cost of livestock transport is being significantly reduced, representing a reduction in total trading costs. This is especially relevant in the case of Uruguay, where fuel costs are significantly high.
- The project promotes foreign direct investment in livestock production by allowing online participation of international investors in auctions.
- It also promotes ICT incorporation into rural areas all through the country by means of its direct impact on farms' commercial prospects.

6. Livelihoods impact

- This particular project was not specifically designed to assist or enhance the livelihoods of the rural poor. Hence, it has not had a direct impact on them or, at least, not an easily measurable one. That said, the indirect consequences of economic development and job generation in rural areas are evident. The governmental and private initiatives and the export figures clearly show the importance of livestock production and the potentiality of ICTs to foster productivity and increase national exports. In 2006, beef constituted 25% of total exports which, adding cereals (9%), dairy products (8%) and wood (7%), means that almost half of total Uruguayan exports are in agro-industrial products (see Chapter 2.2. of the Uruguay Report).
- Economic growth derived from the increase in beef exports would directly or indirectly benefit the rural poor. Given that inequality in Uruguay is not too high compared with other developing countries, empirical evidence demonstrates that each point of economic growth has a relevant impact on poverty reduction. In addition, a more equal distribution of these increasing revenues will depend heavily upon the type and progressiveness of public policies for social protection of the rural poor. It is clear that the better the social protection regulations for rural workers, the greater the impact on their income.
- More research is needed regarding the correlation between ICT incorporation in the agricultural production system (productivity increase), export growth and, most importantly, its actual impact on the income levels of poor rural farmers.

7. Critical success factors (CSFs) and critical failure factors (CFFs)

CSFs

The main success factors are:

- The specific sanitary situation of foot and mouth disease severely restricted livestock movements for a significant period of time (almost two years);
- The technological infrastructure already installed in the country allows connection to auction sessions from different national and international locations;
- The confidence of the actors in the transparency and accurateness of the information provided by the system makes it possible to buy and sell cattle online;
- The country has relatively small territorial dimensions; and
- The implementation of a recognized certification system assures the sanitary status of cattle being sold.

CFFs

- As with any commercial project, sustainability prospects depend upon capacity to generate revenue. In the current international context of favourable commodity prices and exchange rates, beef exports, and thus ICT incorporation into the agricultural sector, are growing. However, within such a fluctuating international context, such market-driven ICT growth will probably face limits. Hence, public policies should take advantage of the current economic bonanza in order to maintain the necessary funds for continuing to expand ICT infrastructure and access levels in the long run.
- Such public policies can also assure a more universalised access to ICT infrastructure, particularly important in isolated rural areas. Policy instruments such as incentives or subsidies can then incorporate rural poor livelihoods of small farms which do not farm livestock on a great scale, i.e. those which cannot afford the connection costs, into the innovation process.

Links

http://www.pantallauruguay.com.uy/
http://www.lote21.com.uy/

Evaluation of UNESCO's International Initiative for Community Multimedia Centers (CMCs)

In a global effort to introduce equitable access to ICTs in the most marginalized communities, UNESCO has worked with existing radio and telecenter operations across the world to create **Community Multimedia Centres (CMCs)**. CMCs are community-based facilities offering both community radio broadcasting and telecenter services. The International Initiative for Community Multimedia Centers began in December 2003, and in 2007 it had 39 pilot CMCs established in communities across Latin America, the Caribbean, Africa and South Asia. Similar pilot projects have also been set up in Central and Eastern Europe.

Each CMC aims to provide significant support to community development by strengthening economic opportunities through information and training. Moreover, through access to and exchange of knowledge, views and beliefs, CMCs are designed to strengthen social inclusion, public participation, education, agriculture, health and other factors necessary for healthy and sustainable societies. The CMC project sought to achieve these goals through its hybrid approach, using radio and telephone communication mediums. More specifically, the centres use existing resources and systems, managed by community personnel, in local languages, to provide access to a range of services as well as computer training. Complementary activities within the project include network opportunities, management support tools, multimedia training, offline access, action research and evaluation.

The CMC project was evaluated in 2006. A rapid results evaluation method was pursued, involving an initial evaluation matrix, followed by document reviews, site visits to 13 CMCs and telephone surveys to the remaining 26 CMCs (with responses from 11), and 26 interviews with project stakeholders and key informants. Evaluation results are expected to lead future ICT work and develop models for scaling up CMCs.

Major findings from the evaluation include:

- CMC contribution to improving quality of life through direct access to information is confirmed. Equitable and expanded access to ICTS is promoted in many ways, such as subsidized training for special, marginalised groups, close work with schools, small businesses and the independent sector or providing information to more remote communities through radio.
- Further, the centres provide users with the capabilities to increase self capacity, income generating activities, funding channels, health, education, and other livelihoods aspects through linkages to markets, information, training and lessons learned.
- Longer term social benefits are already being realised within individual communities, such as the gradual removal of barriers to social inclusion, the stimulation of poverty alleviation through access to knowledge of better health, resource management and agriculture practices, through the establishment of listeners' clubs as self help groups, and the creation of new livelihood opportunities.

- CMC potential for long-run sustainability is already becoming evident through full integration and acceptance in local communities. Additionally, the success in rapidly implementing CMCs suggests ease of entry for future initiatives.

The evaluation identifies the following **critical success factors** for CMCs:

- Building on an existing facility and communication channels;
- Ownership and/or long term community commitment;
- Good integration of radio and telecenter components;
- An orientation to development;
- Diversification of content to meet community needs, including promotion of local culture;
- Access to tools and expertise developed by UNESCO and others; and
- Diversification of revenues, including capacity to approach local/national governments for delivery of services and the international donor community for project funding.

Various **areas of underperformance** were also recognised. These include:

- Lack of sufficient sharing of learning between the various forms of CMCs;
- Inadequate support for CMCs (with the exception of South Asia);
- Continuous benchmarking for assessing value of the centres;
- Transfer of resources from similar ICT initiatives;
- Underestimation of start-up costs and overestimation of operating revenue from user fees;
- Barriers in knowledge transfer between the high turnover of volunteers; and
- Lack of clarity regarding expansion of future UNESCO and community uses of the CMCs.

The evaluation points mainly to **two areas requiring further action**:

1. The first recommendation is that to become sustainable, CMCs need more training from UNESCO headquarters and field offices for longer-term strategic, technological, and financial planning, in particular involving full cost analysis. CMCs should be encouraged to develop a hybrid approach to financial planning, which includes income generating activities, possibly the selling of shares and memberships (the cooperative model) and not-for-profit programs and services that could be supported by organizations hosting the CMC, governments and donors. Skills for approaching governments and donors should be developed.

2. Secondly, UNESCO headquarters should accelerate efforts with its member states to create an enabling policy environment for ICT4D (ICT for development). Key national policy issues include:

- stable charges for rural connectivity;
- provision of reliable, affordable energy supply;
- easier licensing for community radio stations;
- ensuring freedom of the press;
- advancing e-government so that CMCs can provide access to government services to their communities;

- committing to the use of CMCs as a matter of policy for the delivery of agriculture, health and education extension services; and
- integrating development courses into tertiary computer, engineering and other technology oriented educational programs.

Links

- Full evaluation report http://portal.unesco.org/ci/en/files/22129/11477736959CMC_Evaluation_Final.pdf/CMC%2BEvaluation_Final.pdf
- Additional information on UNESCO's CMC project and its partners can be obtained from: http://www.unesco.org/webworld/cmc

IICD Projects Review: ICT Makes a Difference – Evidence from the Field

How can ICTs increase income of smallholder farmers in rural areas? To understand the relation between ICTs and rural livelihoods, the International Institute for Communication and Development (IICD) and partner organizations have monitored experiences and achievements of 35 ICT projects in nine countries in Africa and Latin America. The 35 projects supported by IICD were developed and implemented by a range of stakeholders, including farmers' associations, agricultural cooperatives, NGOs, research institutions and government agencies. Various development partners assisted in funding and sharing their knowledge, including DGIS, DFID, SDC, CORDAID, HIVOS, Cap Gemini, Ernst & Young and InterAccess. The projects were carried out over a six-year period and provide examples of the many ways in which ICTs contribute to poverty alleviation in the agricultural sector.

Description of projects

The projects are all set up to gain a better understanding of the use of ICT in support of agricultural development and rural poverty alleviation. They address a wide range of information-related problems of small-scale farmers in developing countries. These include lack of accurate information on prices and markets for agricultural products as well as limited access to information to solve problems in production and marketing processes. The projects are developed and implemented in a systematic, participatory and incremental manner. As "learning by doing" is critical to successful projects, the projects are always complemented by intensive capacity building, monitoring and evaluation and knowledge-sharing activities. Upscaling and mainstreaming of projects is promoted by supporting dialogues at organizational and national levels to create a policy environment conducive for the use of ICT in agriculture. In this way, the partners have been able to become a reference point for both the government and development partners in the formulation and implementation of larger rural livelihood programs on a national scale.

The projects search for appropriate technologies in each context by starting from the traditional means of communication, combining these with alternative ICTs where relevant and possible. In the projects studied, different and often unexpected combinations of various technologies are applied:

1. Rural radio and hand-held voice radio being the most used means of communication in most developing countries. A strong combination is found in internet access at the level of small towns to receive and send information to the main cities, combined with rural radio and hand-held radios to reach a larger group of rural users in many cases.
2. Laptops and projectors are used to present multimedia presentations with slide shows, pictures and video, to support farmer-to-farmer exchanges on indigenous and modern production techniques and sanitation in Burkina Faso (http://www.iicd.org/articles/iicdnews.2006-08-08.8406256517/view?searchterm=hygiene%20burkina%20faso) and Bolivia (http://www.agrecolandes.org/files/Libro%20Metodologia%20TIC-AGRECOL.pdf).

3. With drama being the most widespread form of awareness raising, a television program hosted by puppets to raise awareness on market prices among farmers

in Burkina Faso has become very popular. The progamme is combined with price information presented on billboards in key wholesale markets in Burkina Faso (http://www.iicd.org/articles/iicdnews.2007-01-02.2741496214/view?searchterm=radio%20agriculture).

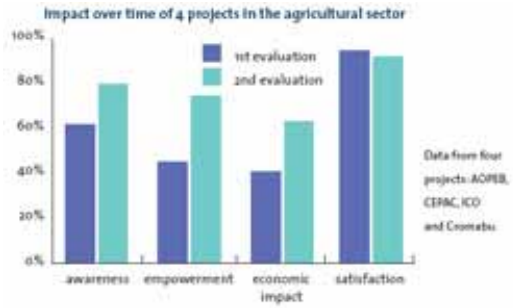
4. Internet supports the exchange of agricultural commodities through agricultural information centres in Uganda (http://www.iicd.org/articles/iicdnews.2006-04-20.1984570391/view?searchterm=Commodity%20exchange).
5. Shared connectivity: the sustainability of internet access has been increased using high-cost satellite links by sharing connectivity among several organisations in a community using mesh box technology in Bolivia (http://www.iicd.org/articles/iicdnews.2006-04-24.3282480478).

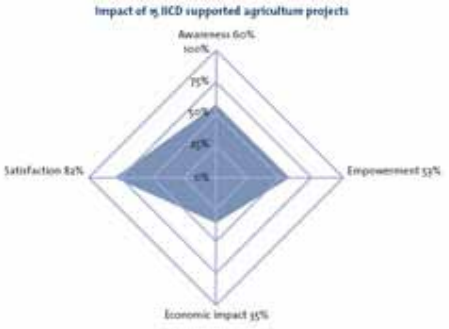
Nowadays, an estimated 100,000 users participate directly in the projects via some 200 agricultural information centers in Bolivia, Burkina Faso, Ecuador, Ghana, Jamaica, Mali, Uganda, Tanzania and Zambia. The users are trained in the development of local content and use of information and communication means and in maintenance of the applied technologies. Another estimated 1,000,000 people benefit indirectly from the information disseminated through the projects. The projects reach predominantly lower income users in rural areas. 30% of the users are female. Extra efforts are required to achieve a gender balance.

Evaluation of project impact on livelihoods

Analysis of the impact of IICD-supported projects indicates that ICTs can contribute to achieving the Millennium Development Goal (MDG) 1 to "eradicate extreme hunger and poverty" by raising the income of small-scale farmers and strengthening the agricultural sector. In the case of the projects described, the impact has been measured through an auto-evaluation approach, used as a learning tool, in which the users indicate the perceived impact. The approach is supported by questionnaires and focus group meetings during which users discuss results and lessons learned for the future. To get a more in-depth picture of the changes in impact levels, a representative sample of users is selected and followed over a time period of several years.

The approach has demonstrated that a poverty impact is reached through a variety of mechanisms and in different time-periods:





1. First of all, the evaluation indicates that the participants are in general satisfied with the information services and ICTs provided, and are now more aware of the use of ICT. This provides the basis for a more substantial impact on access

to information and communication. Most smallholder farmers find themselves in a disadvantageous position when they face the middleman who buys produce at the farm gate. When accessing ICTs, farmers indicate that they benefit from i) enhanced empowerment, enabling them to negotiate better input and sales prices with the middleman, and ii) increased income through lower input prices, higher sales prices, increased sales by access to new markets and higher productivity through improved production methods.

2. Evidence on 15 projects indicates that having an impact is not achieved overnight. In particular, it takes time before the human capacity, tools and content are developed to yield economic benefits. In the first year, the projects evaluated indicate that some 50% of people involved are more empowered, and 35% experience direct positive effects on their income (see graph). More detailed study of a selected number of projects indicates that after two years the levels of empowerment and economic impact have increased by some 20%.
3. A clear direct impact is registered by ICT projects focusing on increase profitability, price information and market access. Direct, but less strong, impacts on poverty are found in projects supporting efficiency and sustainability of agricultural production and in projects focusing on political empowerment. Developing national policies that include the use of ICT and streamlining agricultural information systems can contribute to a more conducive environment for agricultural development and a potentially high, but indirect impact on poverty alleviation (see table).

Direct and indirect impact of different types of interventions

MDG 1 'Poverty'		ICT supported interventions	Empowerment	Economic impact
1	Conducive policy environment	• ICT policy and strategy development in the agriculture sector • Coordination and systematisation of agricultural information	High direct impact	Low indirect impact
2a	Increased profitability	• Price information systems	High direct impact	High direct impact
2b	Increased market access	• Marketing and selling online • Facilitating contacts between producers and suppliers • Circulating information about market conditions and export requirements	High direct impact	High direct impact
2c	Increased production efficiency	• Enhancing access to information and expertise about effective traditional and modern production methods	Low direct impact	Low direct impact
3	Political powerment and social inclusion	• Enhancing social status by use of ICT • Increasing negotiating power of farmers • Access to information on land rights/cadastre • Rural access to ICT	High direct impact	Low direct impact

Critical success factors (CSFs)

The evaluation highlights a series of CSFs (and failure factors) which can support future activities in realizing the full potential of ICT in the development process. These factors were primarily based on the feedback of partner organisations and users of the projects.

1. Use a participatory and integrated project design. A participatory and systematic approach to ICT is evaluated positively by project users. These approaches should cover awareness raising, capacity development and a participatory monitoring system linked with knowledge-sharing mechanisms. Detailed lessons include:

- Identify clearly the information needs;
- Facilitate active participation of users in the formulation phase;
- Monitor the profile of the target group and if necessary re-direct project activities;
- Monitor the gender balance and ensure participation of women during formulation and implementation;
- Ensure that the project is aligned with the core business of the implementing partner;
- Build in a budget for maintenance of ICT;
- Ensure project support for at least two or three years.

2. Foster ownership. Ownership is crucial to the sustainability of development. The following lessons emerged from the evaluation:

- Take time to build relationships and develop a conducive working environment;
- Negotiate conditions of the partnership including roles, tasks and outputs.

3. Ensure availability of relevant content. Content should address key needs of end users:

- Provide information that addresses local needs. It should be context-specific, delivered in a timely and accurate fashion, and presented in an appropriate language and format;
- Develop and disseminate local content complemented with information from government sources, civil society and research institutions and networks;
- Carry out research of local socio-cultural attitudes towards ICT before implementation;
- Track information use through simple monitoring methods;
- Focus initially on one or two types of information in order to build up a relevant information service for the specific target group;
- Foster two-way information flows to validate content.

4. Include continued capacity development. Adequate human capacity needs to be developed to work with new technologies, and specific attention should be paid to institutional changes:

- Focus training on practical project-related tasks and the local situation;
- Address technical and 'soft skills', including project management. Relevant components are the use and management of information, developing and maintaining ICT systems and the use of ICT in the organisation and development process;
- Continue capacity development efforts during the project;

- Develop a mechanism for training and support to provide partners with access to knowledge and skills when external support ends.

5. Use various ICT options. Combining various ICTs can overcome problems of rural access:

- Seek suitable connectivity solutions and combine new and traditional ICTs where appropriate;
- Focus on the sustainability of ICT. Explore cost sharing options for satellite connectivity among various local groups. Fees from casual users may be used to subsidise services for farmers;
- Monitor new developments in ICT both in hardware, connectivity and information systems.

6. Include learning and knowledge-sharing mechanisms. ICT for Development (ICT4D) is a new and dynamic field and continued learning and sharing of experiences with peers and others is necessary:

- Document and share experiences on the impact of ICT on agriculture;
- Develop mechanisms for learning among partners and other practitioners by including a participatory monitoring and evaluation system that emphasises learning-by-doing; (http://www.iicd.org/evaluation/methodology/index_html/view?searchterm=evaluation%20approach)
- Sharing is found to be strongly supported by country knowledge and knowledge exchange networks for capturing and sharing lessons learned and innovations in the use of ICT4D;

  (http://www.iicd.org/articles/uniting-through-networks/view?searchterm=knowledge%20sharing%20networks)

- Cross-country learning allows for exchange and synthesis of information among various countries, supported by direct exchanges between practitioners combined with web-exchanges.

7. Integration of ICTs at organizational level. Projects require a certain amount of time before they are well established. It is essential that successful projects are sustained by integrating them at institutional and sectoral levels. Recommendations are:

- Address sustainability from the start of the project and ensure integration of strategic objectives and implementation programs;
- Set realistic targets and be aware that projects go through various phases;
- Start with content that is easy to produce and relevant for farmers and disseminate it via appropriate combinations of media. Meanwhile, build capacity and infrastructure for more advanced internet-based systems to support agricultural livelihoods;
- Involve decision-makers of the partner organisation in the process.

8. Mainstreaming ICT in the agriculture sector. A conducive policy environment is necessary to foster the use of ICTs to enhance rural livelihoods. Use of common standards and shared and compatible systems is necessary to make information easily accessible for end-users. Specific recommendations are:

- Raise awareness of governments and the international donor community on the potential impact of ICTs on poverty alleviation and provide experiences;
- Collect and document evidence of impact and on-the-ground experiences of ICT pilot projects as a basis for influencing and participating in the policy processes and integration of ICT in national policies and programs;
- Involve multi-stakeholder networks to bring experiences of ICT projects and end-user perspectives from the agricultural sector;
- Foster national interaction in an international context to harmonise standards and systems for sharing agricultural information.

Links

http://www.iicd.org/articles/booklet-impact-agric
http://www.burkina-ntic.org
http://www.ebrainforum.org.zm
http://www.ginks.org
http://www.ict4djamaica.org
http://www.iicd.org
http://www.i-network.or.ug
http://www.infodesarrollo.ec
http://www.mali-ntic.com
http://www.swopnet.org
http://www.ticbolivia.net

IICD's Auto-Evaluation Approach to Impact Measurement

When IICD started empowering people through ICT-enabled development in 1996, ICT was still a very new and unknown tool for development, particularly where poverty alleviation and rural access are concerned. Consequently, a sound **monitoring and evaluation (M&E)** approach needed to be developed to measure IICD's effectiveness and the development impact of ICT. IICD and partner organizations developed a M&E approach which has since then been improved. It focuses on being a learning instrument which is beneficial for all parties. The instruments used are the balance score card, progress reports, online questionnaires and focus group meetings.

This M&E system is part of a comprehensive method called the **project scorecard evaluation tool** developed by the International Finance Corporation (IFC). Besides IICD's effectiveness and development impact, IICD's financial contribution and the project and owner success are also measured on this scorecard. The input for the dimensions "project and owner success" and "project's financial contribution" is delivered by the progress reports produced on a quarterly basis by the local project managers.

The input for the dimensions "project's development impact" and "IICD's effectiveness" is more complicated. The two main instruments are **questionnaires** through an online evaluation tool and **focus group meetings.** The questionnaires provide invaluable qualitative and quantitative information on the user profiles; their level of satisfaction with the services; and their perceived impact. A demonstration version of the online M&E tool can be found at: http://testsurvey.iicd.org. Users are requested to rate several statements such as: "Through this project I now see more opportunities for Information and Communication Technologies for my sector" or "Through this project I have access to price information to sell my produce." The following dimensions are used to obtain an indication of the development impact:

- User profile. What is the user's age, income level, gender, education background, geographic location?
- Satisfaction. Are users satisfied with information services and the ICT provided?
- Awareness. Are users more aware of the possibilities of ICT?
- Empowerment: Do the users feel empowered through the project?
- Economic impact.: Do users gain or expect to gain economic benefits (such as income and employment)?
- Specific sector impact indicators: Does ICT contribute to or hamper market access?

In each country, the approach works with one **permanent local facilitator as a M&E partner**. These partners specialise in evaluating development initiatives in their respective countries. Their role is to collect and analyse data, facilitate focus group meetings and capture the lessons learned in annual evaluation reports. After collecting the questionnaires and analysing the data they contain, the M&E partner presents the findings to project managers, representatives of national training partners and coordinators of local information networks at biannual focus group meetings. Participants are briefed prior to the meeting on the main findings in order to prepare for the discussion. Focus group meetings give project partners and trainers the chance to discuss the causes of the identified problems of the data analysis and, in some cases, use these findings to adjust the focus of activities within a country program. In Ghana, for example, based on M&E feedback, project partners are now

given extra training in project management and finance to help them (re)formulate their ICT projects.

The tool also allows for **cross-country and cross-sector analyses** on all ICT projects. The overall analyses are continuously presented in annual M&E reports. Most of IICD's projects have participated in the M&E approach since 2005. Hitherto, over 13,000 questionnaires have been collected and regular focus group meetings are conducted in all countries. Some of these projects have been participating over a longer period, making it possible to learn about impact trends. As for livelihoods projects, an analysis has been made of 35 ICT livelihoods projects, and results have been published (see the global case study on IICD). As with any evaluation methodology, IICD's system presents challenges. Extrapolation of results of the evaluated user group (the survey sample) to a wider group of beneficiaries at community level may have its flaws. It is also unusual to measure impact after one or two years of implementation. Yet, the partners are using this methodology specifically to monitor progress and learn over time, and to allow adaptations to be made as early as possible in the program. As soon as the target groups of the projects are reached, they are able to air their opinions and indicate their perceptions on the impact. The evaluation process will continue, which will allow for a more in-depth analysis of the results and the linkages with poverty alleviation in the future.

8. Appendices

8.1. Acronyms

3G HSDPA	Third Generation High Speed Downlink Data Packet Access
AAS	Agricultural Advisory Society (Bangladesh)
AAT	Asociación Argentina de Teletrabajo
ADSL	Asymmetric digital subscriber line
AGRECOL	Agricultural Ecological Solutions
ANTEL	National Administration of Telecommunications (in Uruguay)
BASIS	Bangladesh Association of Software & Information Services
BEE	Black Economic Empowerment
BRAC	Bangladesh Rural Advancement Committee
CABI	Centre for Agriculture and Biosciences International
CDMA	Code division multiple access
CFF	Critical failure factor
CIGA	Centro de Información, Gestión y Agronegocios (Argentina)
Co Tel Be	Cooperativa Telefónica de Provisión de Obras y Servicios Públicos, Sociales, Asistenciales, de Consumo y de Vivienda de Belén Ltda
CORDAID	Catholic Organisation for Relief and Development Aid
COSTECH	Tanzania Commission for Science and Technology
CSF	Critical success factor
CSIR	Council for Scientific and Industrial Research's (South Africa)
CSO	Civil society organisation
DBSA	Development Bank of South Africa
DEC	Dedicated economic centre
DFID	The UK Department for International Development
DGIS	Directorate-General for International Cooperation (Netherlands)
DGSG	Division General de Servicios de Ganaderia (Uruguay)
DNet	Development Research Network
EASSy	Eastern Africa Submarine Cable
En Tel	Empresa Nacional de Telecomunicaciones (Argentina)
FAO	Food and Agriculture Organization of the United Nations
GCIS	Government Communication and Information Systems (South Africa)
GGS	Govi Gnana system (Sri Lanka)
GIS	Good Seed Initiative
GKP	Global Knowledge Partnership
HIVOS	Humanist Institute for Development Cooperation
IADB	Inter-American Development Bank
ICT	Information and Communication Technology
ICT4D	ICT for Development
ICTA	Information and Communication Technology Agency (Sri Lanka)
ICTAD	International Conference on Trade and Development (a UN body)
IDRC	International Development Research Centre
IDS	Institute of Development Studies
IFC	International Finance Corporation
IICD	International Institute for Communication and Development
IMA	Intendencia Municipal de Artigas (Uruguay)
INDEC	Instituto Nacional de Estadística y Censos (Argentina)
ISP	Internet service provider

M&E Monitoring and evaluation
MDG Millennium Development Goal
MPCC Multi Purpose Community Centre (South Africa)
NDA National Development Agency (South Africa)
NGO Non-governmental organisation
NMS National Media Survey (Bangladesh)
NSGRP Tanzanian National Strategy for Growth and Poverty Reduction (commonly known as Mkukuta)
ODI Overseas Development Institute
PIT Public information terminal (South Africa)
PK Pallitathya Kendra (Bangladesh)
PMO Prime Minister's Office (Tanzania)
PRSP Poverty Reduction Strategy Paper
RDA Rural Development Academy (Bangladesh)
RDS Rural Development Strategy (Tanzania)
SA South Africa
SAARC South Asian Association Regional Cooperation
SAPO South African Post Office
SDC Swiss Agency for Development and Cooperation
SIRA Sistema de Identificacion y Registro Animal (Uruguay)
SL Sustainable Livelihoods
SME Small or medium enterprise
TCC Tanzania Communications Commission
TCCIA Tanzania Chamber of Commerce, Industry and Agriculture
TCRA Tanzania Communications Regulatory Authority
TEDEL Teletrabajo y Nuevas Formas de Trabajo para el Desarrollo Local (Argentina)
THD Direct-to-home television
TLSB Tanzania Library Service Board
TMSS Thengamara Mara Mohila Sabuj Sangha (Bangladesh)
TTCL Tanzania Telecommunications Company Ltd
UNESCO UN Educational, Scientific and Cultural Organization
USAASA Universal Service and Access Agency of South Africa
USAID United States Agency for International Development
VOIP Voice over internet protocol
Wi-Fi Wireless fidelity

8.2 The Project Team

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8.3 Interim Outputs

Knowledge Needs Assessment

The key knowledge needs identified through the literature review, the donor review and the country case studies were as follows:

Priority knowledge needs of donors

- scalability and reliability
- the private sector
- impact assessment
- the enabling environment
- how ICTs contribute to development goals
- sustainability
- what kind of research is being carried out
- how Southern researchers can contribute

Priority knowledge needs of national-level policymakers

- how to generate and sustain local government interest
- how to generate political will on ICTs for rural livelihoods
- how to set up and implement a successful Universal Access fund
- how to coordinate and integrate ICT issues across policy areas
- other initiatives
- cost and funding options
- technology options

Priority needs of technology providers and the private sector

- which areas will be worthwhile to invest in
- government intentions

Priority knowledge needs of representatives and mediators to the rural poor, e.g. Civil Society Organizations (CSOs)

- how to integrate ICTs with development projects
- fund raising
- how to establish networks for coordination and knowledge sharing
- how to use ICTs

Priority knowledge needs of the beneficiaries

- ICT/livelihood projects
- how to use ICTs (especially the internet)

Click here for the full Knowledge Needs Assessment

8.4 Key Topic Areas

Key topic areas that emerged from the literature review, donor survey and country case studies, what is already known about them and areas requiring further work were as follows:

Enabling Environment and Public-Private Coordination

Current Knowledge base

On a national enabling environment

- The most suitable setting for ICT policies and strategies is unclear.
- Universal Access Funds are at an early stage, face bureaucratic and political hurdles and require support in implementation.
- Without advocacy, communication and localization, national strategies remain ineffective.
- Good communication skills of actors at all levels can enable ICT to support rural livelihoods.

On public-private coordination

- Policy that makes it easier to partner on connectivity will stimulate rural ICT access.
- Information services are enhanced when content owners form partnerships with organizations able to provide the technology and finance.
- Public-private and non-profit/for-profit partnerships can span rural-urban markets and lead to sustainable enterprises.
- Gap: Government content owners and private sector providers.

General comments

- Debate: Mainstreaming ICT policies.
- Debate: Subsidy or self-financing?
- Debate: The role of the private sector.

Areas for further investigation and research

- Knowledge sharing on national-level initiatives is needed
- What guidance can be given to national-level governments on the establishment and use of Universal Access Funds?
- How should donors seek to cooperate with the private sector? In particular, how should they seek to cooperate with the private sector in the exploding mobile phone sector?

Evaluation, and Linkages to Broader Development Priorities

Current Knowledgebase

On evaluation of ICT impacts on rural livelihoods

- There have been few if any systematic attempts to evaluate ICT-related policy impact on rural livelihoods.

- There is also a lack of systematic evaluation data on ICTs for rural livelihoods at project and program level.

On evaluation criteria and methods within a Sustainable Livelihoods framework

- Indicators for livelihood outcomes are inherently flexible.
- Livelihood evaluation focuses more on process and longer-term outcomes than immediate project outputs.
- ODI, DFID and FAO eight policy pillars: (1) share costs appropriately (2) ensure equitable access (3) address diversity, (4) contain a high proportion of local or appropriately localised content, (5) build on existing systems, (6) build capacity (7) use realistic technologies, (8) build knowledge partnerships.
- Despite widespread agreement around these evaluation criteria, it still seems difficult to implement them across projects and programs.

On linkages to broader development goals

- The Knowledge Needs Assessment revealed a widespread need for knowledge about how to bring about linkages and synergies between specific ICT-for-livelihood interventions and broader priorities for growth and poverty reduction in rural areas.
- In ad hoc case studies and examples

Comments

- There is a striking lack of systematic evaluation studies.
- The need to mainstream ICTs within holistic programs.
- Gap: Cross-disciplinary training.

Some areas for further investigation and research

- Appropriate evaluation criteria for ICT/rural livelihoods projects and programs have been established. However, there is a pressing need for systematic evaluations to be carried out.
- Nevertheless, reviewing the 'seven pillars' of the previous ODI/DFID/FAO work, two key questions arise: (a) Why is it so difficult to put these into practice, and (b) what would need to be added to them to ensure that donors were actually able to put them into practice?
- Ad hoc case studies and examples need to be collected and compared.

Sustainability, Scalability, and Replicability

Current Knowledgebase

On sustainability

- In poorer countries, local community control and participation is widely recognised as critical to the success of ICT projects such as centers and application development.
- Whilst community-driven initiatives work well, they are best supported by a high level of community institutional organisation.

- Multi-stakeholder partnerships and networks are recognised as an important aspect of the enabling environment and can support community-driven initiatives.
- Successful participation gives rise to multiplier effects.
- ICT interventions must build on existing systems, including information content (indigenous knowledge, local sources and databases, etc), information technology (TV, radio, telephone, internet, etc), processes (existing surveys, research and extension, etc), and policy environment.
- ICT-literate intermediaries have an important role to play in empowering rural communities to benefit from improved communication and information processing.
- Intermediaries should have a stake in the local community (should ideally originate from the community).
- Financing models for intermediaries need to be further explored.

On scalability

- The success of small-scale ICT projects may be determined by relatively unique combinations of actors, demands and conditions at the local level.
- Scaling-up initiatives should start by building capacity at the local level to generate content and to use new technologies (among intermediaries and knowledge brokers, practitioners and policy makers).
- In addition to scalable ICT solutions, it is equally important to have a "scaled up" view of community needs.
- Programs should share costs appropriately.
- Frameworks can be employed to "join up" macro, meso and micro levels and to understand social, political and technical aspects of the wider system.
- Similarly, a "diamond of alignment" approach can be used to analyse the interplay of institutions, the problem domain, available technologies and the governance environment.

On replicability

- Simple replication of successful models often fails to meet expectation.

Comments

- What tends to stand out in the existing knowledge in this area is that capacity and participation lead to the most favourable outcomes, and that appropriate technologies that interface well with existing communication preferences and knowledge sharing traditions follow.
- Gap: Scaling up and replicability systematised. Despite the existence of some analytical frames for helping to identify "what works where", not enough has been done to collate experiences and design tools which systematise the range of available case studies and experiences.

Some areas for further investigation and research

- Which rigorous, analytical case studies exist of projects or programs that have successfully been sustained over a longer period of time?

- Which rigorous, analytical case studies exist of projects or programs that have successfully scaled up or been replicated elsewhere?
- Is there more that can be learnt about the possibilities of scaling up and replicating?

Locally Appropriate Technologies, Including Mobile Phones

Current Knowledgebase

On locally appropriate technology

- Programs need to use realistic technologies that are affordable and that can be easily used, managed and maintained.
- More interactive media confer more livelihood benefits, but tend to be have heavier infrastructure and literacy demands.
- Blended media can enhance interactivity in useful ways.
- Rural information systems should contain a high proportion of local or appropriately localised content, both to maximise local usefulness and uptake, and to enrich local, national and international knowledge.

On local and equitable access

- Programs should ensure equitable access to all, especially women, the poor, the disabled, people living in remote areas and otherwise disadvantaged communities.
- Men often control access to radio and TV.
- More equitable access can be achieved through targeted programming and access.

On internet use

- Despite its perceived importance as an interactive information medium, the internet reaches few rural people and has relatively low uptake where it is available.
- Localisation of content is seen as an important process in enhancing the impact and acceptance of the internet as a useful medium.
- There are greater cultural sensitivity and "rural brain drain" risks associated with internet access.

On radio

- Radio remains an important and underrated technology in many rural areas.
- Community radio has additional livelihood impacts.
- Community involvement in station establishment, programming and evaluation promotes communication and reflection.
- Local government involvement can improve governance impacts.
- Television is likely to overtake radio as the preferred broadcast media as it becomes more accessible.

On mobile phones

- Access to telephony impacts and expands multiple dimensions of livelihoods.
- There is a demonstrated economic basis for advocating rural telephone use.

- Coverage data can be difficult to obtain for rural areas.
- Mobile telephony use in general is growing and spreading outside urban areas.
- M-banking has considerable potential to reach "unbanked" clients.
- Remittances can also be facilitated with communications technology.
- Telephony is a valued route to accessing market prices amongst business users.

Comments

- The field of ICTs-for-rural-livelihoods has clearly undergone an important shift in the last few years, from computer-based applications to mobile-based applications. This will have substantial impacts on how and to what extent ICTs can be incorporated into rural livelihoods projects and programs.
- The shift towards mobile phones will also have significant implications in terms of possible cooperation with the private sector.

Some areas for further investigation and research

- There is a need for knowledge sharing among donors and other stakeholders on the range of applications that can be used with mobile phones, and how local appropriation of these can be facilitated.
- Even in the mobile phone market, men have a larger share of access and use than women. How can this be mitigated in ICT-for-rural-livelihoods projects?
- Should donors now more actively seek to cooperate and/or coordinate rural livelihood initiatives with private sector actors, such as mobile phone operators?

Click here for the full Key Topic Areas document.

8.5 Expert Review Meeting

An Expert Review Meeting was held at the Overseas Development Institute (ODI) with around 20 participants on March 23, 2007. The objective of the meeting was to review the two Interim Outputs, i.e. the Knowledge Needs Assessment and the draft Key Topic Outline. The meeting resulted in the following key recommendations:

1. Participants commented that it is important to understand the changing context of ICTs-for-rural-livelihoods, such as the shift towards budget support, and the reduction of staff working in this area within bilateral donor agencies. Participants suggested that this should be addressed by the project. "Understanding the donor context" will be addressed in a new section of the Framework Paper.
2. Participants also commented that a good understanding of the local context will always be key to the success of an ICT-for-rural-livelihoods project, and that this should be highlighted more explicitly in the Knowledge Map. "Understanding the local context" will be addressed in a new section of the Knowledge Map.
3. Participants pointed out that we need to focus our attention on in-country donor staff, along with their counterparts (policymakers and practitioners). These are the agents who have the most direct influence over the design and implementation of rural livelihood projects. The project has already tried to engage these stakeholder groups through the country studies, though with varied success. We will continue to seek feedback and input from them, especially in the consultation and dissemination of the Framework Paper.
4. Participants suggested that a variety of user-friendly outputs would be more likely to reach these target groups (rather than a thick project report). Recommended outputs included checklists, flow charts, guidelines, and workshops. The project will ensure that the Write-Shop in May does not solely focus on the Framework Paper, but rather focuses on producing a range of user-friendly outputs that are likely to reach the target audiences.
5. Participants commented that the project should continue with its consultative approach, and even offered to facilitate some of this consultation, e.g. by eliciting and collating comments on project outputs from their own networks. The project will take participants up on their offer of helping with the consultation. Participants will be asked to distribute drafts of projects outputs to their networks (during May or June 2007?), and to collect and feed back the comments that they receive.
6. Participants requested that the Knowledge Map (and other outputs) should be made available on the web, and that it should be made updatable. The project will strive to find a user-friendly format for the Knowledge Map so that it can be kept updated after the end of the project.
7. Info Dev would like FAO to host a broad consultation meeting on this project, in June 2007, to further raise awareness and engagement from stakeholder groups. FAO has expressed willingness to do this. FAO is also organising a week of meetings on rural development in September 2007, where outputs from this project may be disseminated.
8. A number of more specific recommendations were made on different sections of the Knowledge Map (these have been listed in the Meeting Report). The project team will revise the Knowledge Map based on the recommendations and suggestions from the meeting.

For the full Expert Review Meeting Report,
see file:/documents/expert_review_meeting_report.doc

8.6 Online Consultation Results

A consultation was held between April and June 2007, using an online questionnaire. The questionnaire was disseminated to donors, international organisations and government stakeholders.

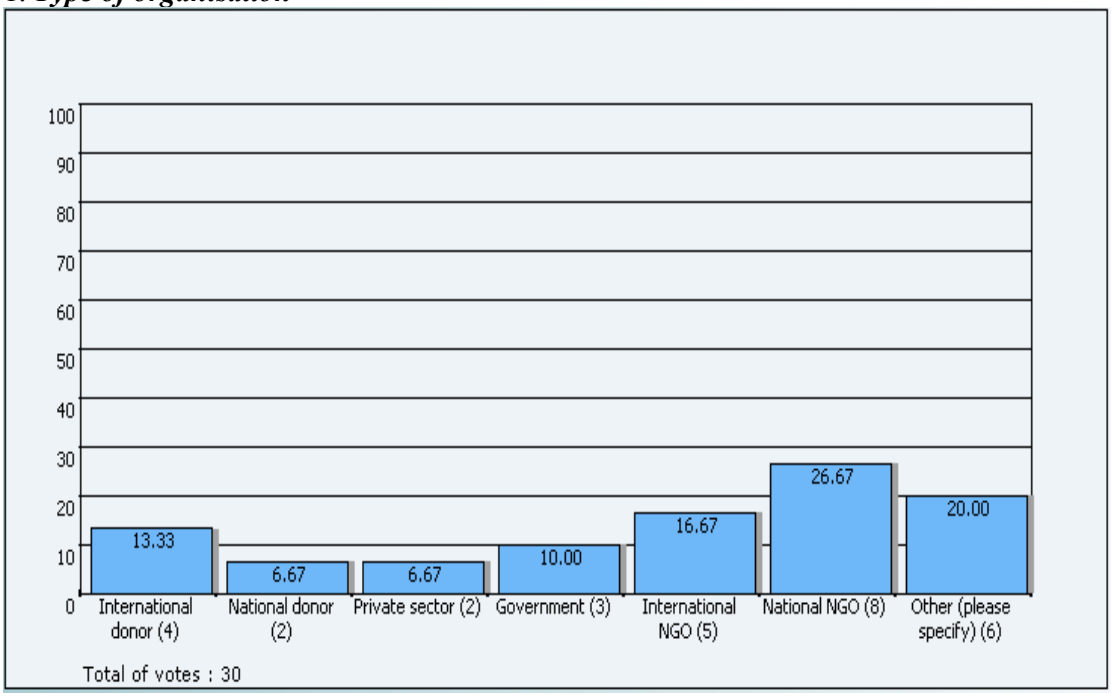
Questions included those on:

1. The respondent, their role, organisation and expertise;
2. Key issues that they perceive in relation to rural livelihoods work and the role of ICT;
3. The preferred format of the outputs of the study.

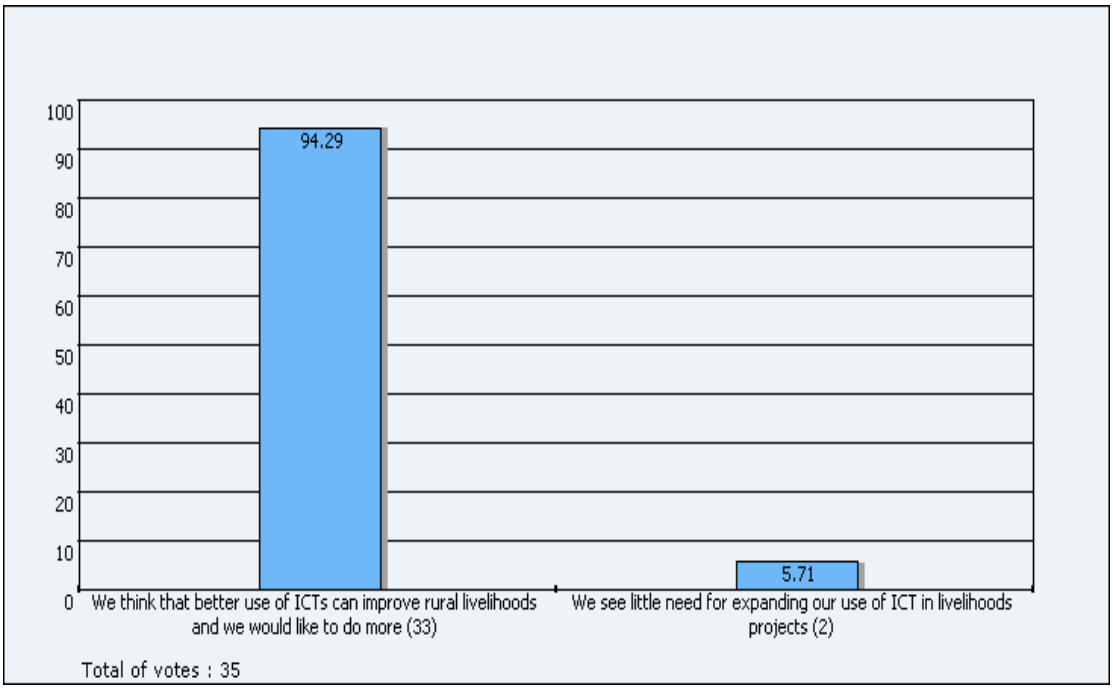
38 responses were received. The multiple choice question results are summarised below. The full text responses may be accessed through the links at the bottom of the section.

Multiple choice results

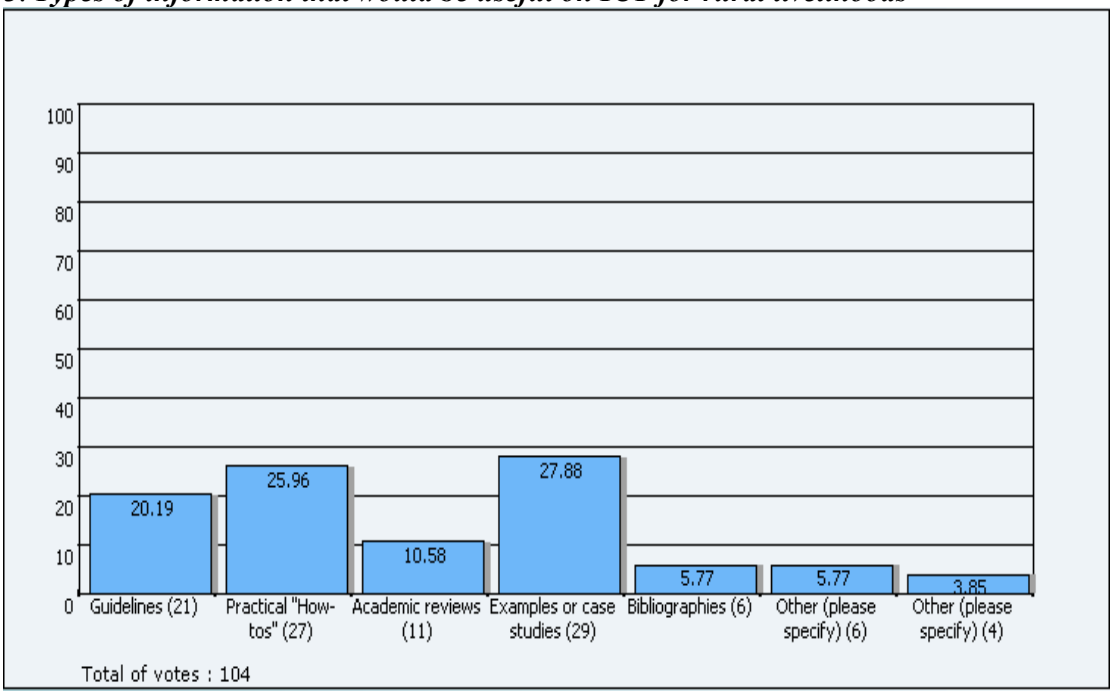
1. ***Type of organisation***



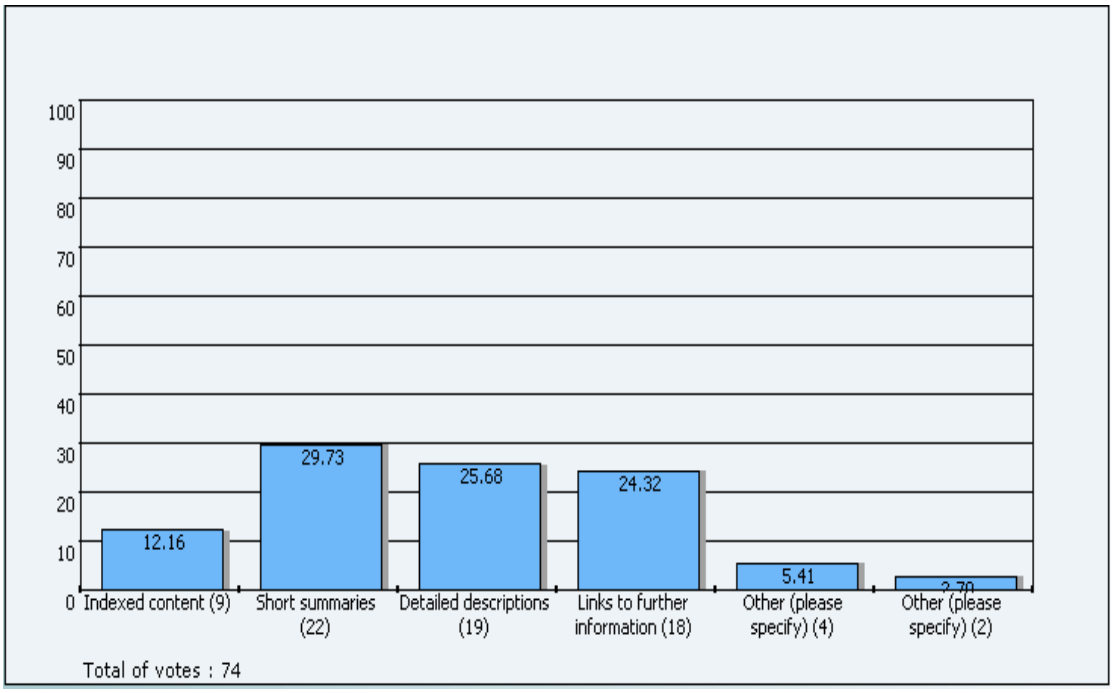
2. ***About the role of ICT in livelihoods work***



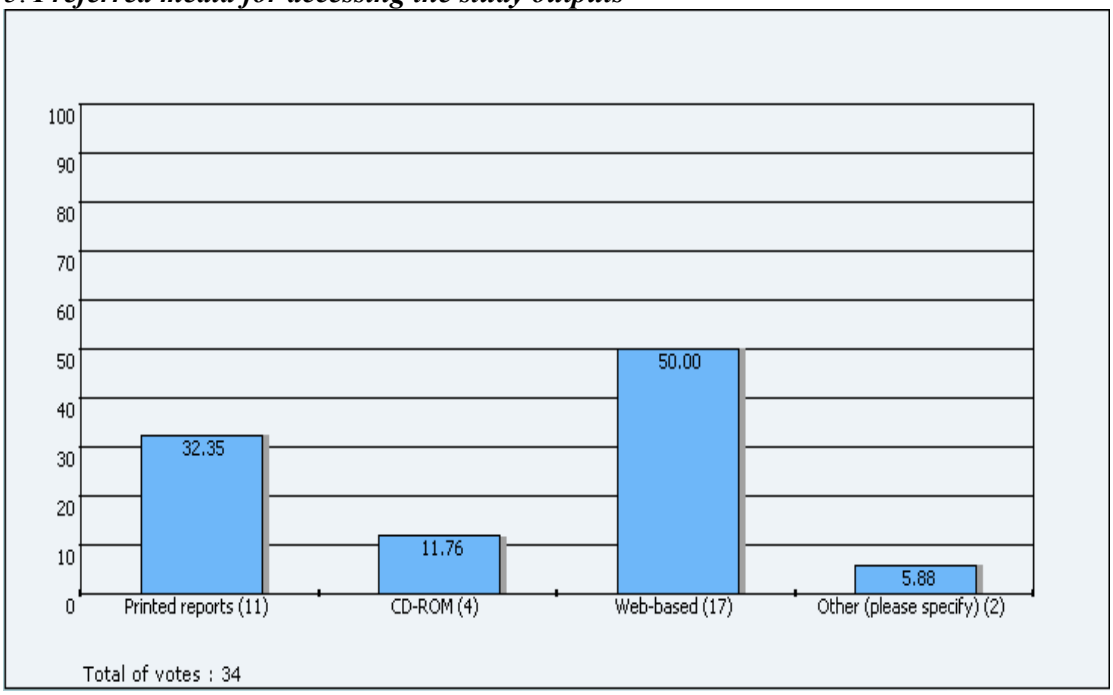
3. ***Types of information that would be useful on ICT for rural livelihoods***



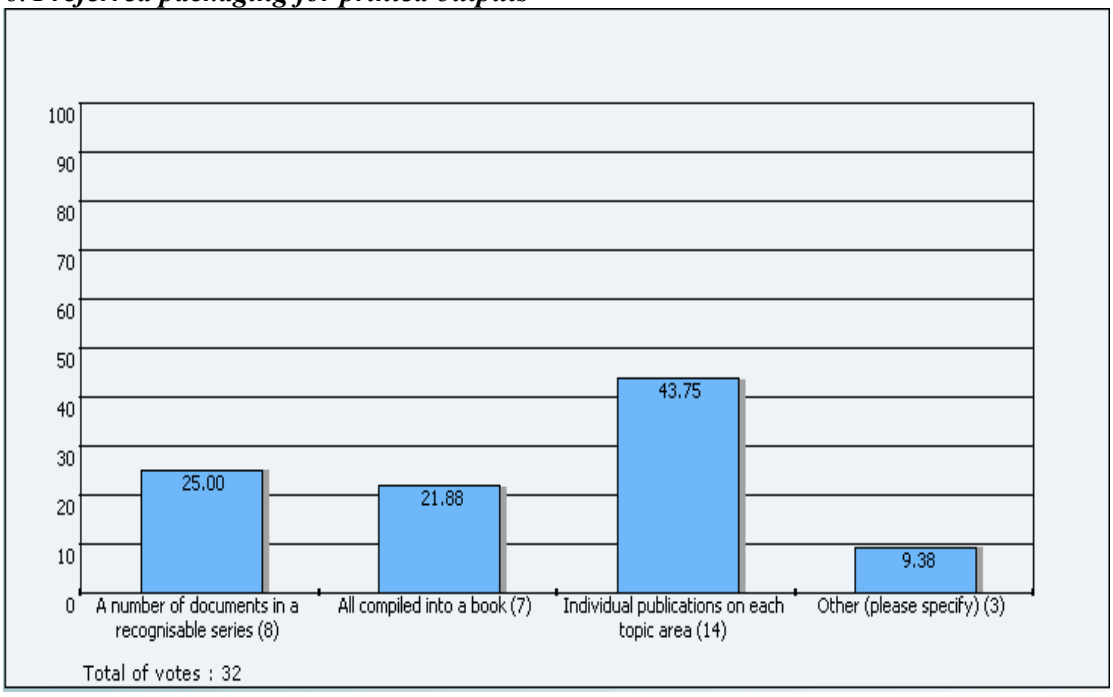
4. ***Preferred format for the study outputs***



5. ***Preferred media for accessing the study outputs***



6. ***Preferred packaging for printed outputs***



Full text responses

- Individual user responses Part1
- Individual user responses Part2
- Individual user responses Part3

8.7. Bibliographies and Other Sources

The project has collated a number of annotated directories of recent literature, useful web portals and sites, and key organisations. The sources that have been collected are:

- **Recommended Resources** – This section provides a list of around five key recommended resources for each topic (Enabling Environment; Evaluation; Partnerships; Sustainability; Scalability; and Local Innovation).
- **Annotated Bibliography** – The annotated bibliography builds on the review undertaken by ODI for the earlier DFID/FAO/WB study, and focuses specifically on documents which provide recent analysis or evaluation about the application and impact of ICT projects on Rural Livelihoods.
- **Key donors supporting ICT for rural livelihoods** – This section provides information on a small number of key donors who have been supporting ICT for rural livelihoods approaches over the last few years, namely the Asian Development Bank (ADB), the International Development Research Centre (IDRC), the German Agency for Technical Co-operation (GTZ), the United Nations Development Program (UNDP), the United States Agency for International Development (USAID), and the Department for International Development (DFID).
- **Organisations and programs involved in ICTs for rural livelihoods** – An annotated directory of further organisations and programs of special interest in the field of ICTs-for-rural-livelihoods.
- **Portals to further information** – An annotated list of web resources, focusing especially on portals and major sources of information.
- **ICT4RL Projects** – This section contains a list of other project-level case studies where ICTs are being used to improve livelihoods which were mentioned by informants during the course of the project, but which do not necessarily fit under the source sections on donors, organisations, programs or web portals.
- **References** – The full list of references for the project.

8.8 Knowledge Map Recommended Resources

Enabling Environment

1. APC Women's Networking Support Program (2005) 'Gender Evaluation Methodology for Internet and ICTs: A learning tool for empowerment. Association for Progressive Communications'. Available from: http://www.apcwomen.org/gem/
2. Development Research Network (2003) 'Access to Information for Improvement of Rural Livelihood', in collaboration with Research Initiatives in Bangladesh. Dhaka, October 22. Available from: http://www.pallitathya.org/en/pallitathya_research/palli_research/information%20need%20identification%20research.pdf
3. Disaster Report – Storm in the Coastal-belt September 19, 2006: Crises in the Life and Livelihoods or Coastal Fisheries in Bangladesh." November 27, 2006. Available from: http://www.coast.net
4. Harris, R and Rajora R. (2006). Empowering the Poor. Information and Communications Technology for Governance and Poverty Reduction: A Study of Rural Development Projects in India. Available from: http://www.livelihoods.org/static/RHarris_NN370.htm
5. ITU (2006). 'Acceso Universal en Latinoamérica: Situación y desafíos'. Available from: http://www.itu.int/ITU-D/ict/statistics/material/Acceso_universal_2006.pdf
6. National Information and Communication Technology Policy (2002). Available from: http://www.bccbd.org/html/itpolicy.htm
7. Raihan, A & Hasan M (2005) 'Peoples' Report on MDG: Bangladesh, Information and Communication Technology'. Available from: http://www.dnet-bangladesh.org/MDG_ICT_final.pdf Regulatel (2006). "New Models for Universal Access in Latin America". Available from: http://www.regulatel.org/miembros/ppiaf2.htm
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9. Richardson D., R. Ramirez, and M. Haq (2000) 'Grameen Telecom's Village Phone Program in Rural Bangladesh: a multi-media case study' Telecomms Development Group for CIDA. March 17. Available from: http://www.telecommons.
10. Sultana, Nazneen (2005) 'ICTs for Poor Women – Grameen's Experiences' Prepared for Gender Perspectives on the Information Society South Asia Pre-WSIS Seminar 2005. April 18–19. Bangalore. Available from: http://www.itforchange.net/WSIS/gis/papers/nazneen-sultana.do
11. Various. The Global Alliance for Information and Communication Technologies and Development (GAID). Available from: http://www.un-gaid.org/en/node/88
12. Various. United Nations Information and Communication Technologies Task Force. Available from: http://www.unicttaskforce.org/perl/showdoc.pl?area=enab
13. Various. Investment Support for the Development of Information and Communication Technologies to Reduce Rural Poverty in Latin America and the Caribbean. Available from: http://www.e-forall.org/projects.php
14. The World Bank (2003) 'Bangladesh: Review of Public Enterprise Performance and Strategy, Key Issues and Policy Implications', May.

Evaluation

1. CTA (2006) Smart Toolkit. Available from: http://www.dgroups.org/groups/leap/impact/docs/FINAL_DOCUMENT.pdf?ois=no
2. DFID (2005) Monitoring and Evaluating Information and Communication for Development Programs.
3. Available from: http://www.idrc.ca/uploads/user-S/11592105581icd-guidelines.pdf
4. IICD (2006) ICTs for agricultural livelihoods: Impact and lessons learned from IICD supported activities. Available from: http://www.iicd.org/articles/booklet-impact-agric
5. M&E Email Discussion Group. Available from: http://www.mande.co.uk
6. Parkinson, S. and Ramírez, R. (No date) Using a Sustainable Livelihoods Approach to Assessing the Impact of ICTs in Development. Available from: http://ci-journal.net/index.php/ciej/article/view/310/263
7. Pasteur, K. (2001) Tools for Sustainable Livelihoods:Livelihoods Monitoring and Evaluation. IDS. Available from: http://www.livelihoods.org/info/tools/Pas-ME01.rtf
8. Unesco. Enthnographic research. A user's handbook developed to innovate and research ICT applications for poverty reduction. Available from: http://portal.unesco.org/ci/en/files/13276/10672478597Ethnographic_Action_Research.pdf/Ethnographic%2BAction%2BResearch.pdf
9. Various. The Learning and Evaluation Action Program. Available from: http://www.dgroups.org/groups/leap/impact/
10. Various. Development Gateway. Available from: http://www.developmentgateway.com.au/jahia/Jahia/lang/en/pid/247 and http://www.developmentgateway.com.au/jahia/Jahia/lang/en/pid/247

Partnerships

1. Ulrich, P. (2003) Public-Private Partnerships and Financing ICT Developments. Asian Forum on ICT Policies and e-Strategies, 20–22 October 2003, Kuala Lumpur: UNDP-APDIP. Available from: http://www.apdip.net/projects/2003/asian-forum/docs/papers/session8.pdf [Accessed 3 May 2007] 2. Various. Pro-poor growth and the private sector. Availble from: http://www.gsdrc.org/go/topic-guides/pro-poor-growth/pro-poor-growth-and-the-private-sector
2. Various. Available from: http://www.businessenvironment.org
3. Various. Available from: http://www.partnershipresourcecenter.org/

Sustainability

1. FAO and Livelihoods Connect (2005). People Centred Development with a Livelihoods Perspective. Available from: http://www.livelihoods.org/info/pcdl/index.html
2. International Institute for Communication and Development (2006). ICTs for Agricultural Livelihoods: Impact and Lessons Learned from IICD Supported Activities. Available from: http://www.livelihoods.org/static/iicd_NN350.html
3. Pinter, L., Hardi, P. and Bartelmus, P. (2005). Sustainable Development Indicators: Proposals for a Way Forward. International Institute for Sustainable Development. Available from: http://www.iisd.org/measure/principles/progress/way_forward.asp

4. UNCTAD Secretariat (2006). Information Economy Report 2006: the development perspective. Available from: http://www.livelihoods.org/static/SUnctad_NN369.htm
5. Warnock, K.and Wickremasinghe, R. (2005). Information and Communication Technologies and Large-scale Poverty Reduction: Lessons from Asia, Africa, Latin America and the Caribbean. Panos. Available from: http://www.livelihoods.org/static/kwarnock_NN351.html

Web resources:

- Sustainable ICTs. Available from: http://www.sustainableicts.org
- Empowering through ICT. Available from: http://www.center.org/
- Challenges and Opportunities on Rural Telecenter Development in Malawi http://www.ictmalawi.org/Presentations/ISRD_SoustaineSeminar_%2029%20May_final.pdf

Scalability

1. FAO and Livelihoods Connect (2005). People Centred Development with a Livelihoods Perspective. Available from: http://www.livelihoods.org/info/pcdl/index.html
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Local Innovation

1. Badimo, A. (2005) 'Making Icts Work for the Poor: Pursuing the Millennium Development Goals through Icts'. In (eds). Vision or Halucinaton?, pp. 207- 218.
2. Barrantes, R. (2005) 'Analysis of Ict Demand: What Is Digital Poverty and How to Measure It?' In H. Galperin and J. Mariscal (eds). Digital Poverty: Latin American and Caribbean Perspectives, pp. Chapter 2: 29–53. DIRSI – IDRC.
3. Galperin, H. (2004) 'Wireless Networks and Rural Development: Opportunities for Latin America'. Paper presented at the LASA Meeting. 07–09 Octubre., Las Vegas
4. Kay, C. (2005) Perspectives on Rural Poverty and Development in Latin America. Working Papers Series No.419: Institute of Social Studies, The Hague, The Netherlands.
5. Proenza, F. J.;R. Bastidas-Buch and G. Montero. (2001) Telecentros Para El Desarrollo Socioeconómico Y Rural En América Latina Y El Caribe. Available online at http://www.iadb.org/sds/itdev/telecentros/Telecentros.pdf
6. Panosbrief, (2005) 'Telephones and livelihoods How telephones improve life for rural people in developing countries'. London: The Panos Institute.

7. Various. Community Driven Development. Khanya-aicdd. Available from: http://www.livelihoods.org/info/linksevents_sub/linksevents_khanya.htm
8. Various. Knowledge Network for Augmenting Grassroots Innovation. Available from: http://www.sristi.org/knownetgrin.html

8.9 Annotated Bibliography

This annotated bibliography builds on the review undertaken by ODI for the earlier DFID/FAO/WB study, and focuses specifically on documents which provide recent analysis or evaluation about the application and impact of ICT projects on Rural Livelihoods. There proved to be very few documents that do this. Those that were found are included below:

1. **Beardon, H., Munyampeta, F., Rout, S., and Williams, G.** (2004) ICT for development: empowerment or exploitation? Learning from the Reflect ICTs project, Action Aid. Summary
2. **Chand, A., Leeming, D., Stork, E., Agassi, A., and Biliki, R.** (2005). The Impact of ICT on Rural Development in Solomon Islands: The PFnet Case USP Project. Summary
3. **Creech, H., Berthe, O., Assubuji, A., Mansingh, I., and Anjelkovic, M.** (not dated) Evaluation of UNESCO's Community Multimedia Centres Final Report, International Institute for Sustainable Development (IISD) Summary
4. **Conroy, C.** (2006) Center Initiatives in Rural India: Failed Fad or the Way Forward? Natural Resource Institute. Summary
5. **Duncombe, R.** (2006) Analysing ICT Applications for Poverty Reduction via Micro-enterprise Using the Livelihoods Framework, Development Informatics Group, Institute for Development Policy and Management (IDPM) Summary
6. **Garai, A., and Shadrach, B.** (2006) Taking ICT to every Indian village: Opportunities and challenges, Open Archive Initiative, One World South Asia Summary
7. **Gerster, R., and Zimmermann, S.** (2005) Up-scaling pro-poor ICT-policies and practices: a review of experience with emphasis on low income countries in Asia and Africa, Swiss Agency for Development and Cooperation (SDC/DSC) Summary
8. **Greenberg, A.** (2005) ICTs for poverty alleviation: basic tool and enabling sector, Swedish International Development Cooperation Agency (Sida) Summary
9. **Harris, R., and Rajora, R.** (2006) Empowering the Poor. Information and Communications Technology for Governance and Poverty Reduction: A Study of Rural Development Projects in India, UNDP Asia-Pacific Development Information Program Summary
10. **IICD** (2006) ICTs for agricultural livelihoods: Impact and lessons learned from IICD supported activities, International Institute for Communication and Development (IICD) Summary
11. **Meera, S.N., Jhamtani, A., and Rao, D.U.M.** (2004) Information and communication technology in agricultural development: a comparative analysis of three projects from India, Agricultural Research and Extension Network (AgREN) Summary
12. **Molina, A.** (2006) The Village Phone Constituency in Bangladesh. A Case of a Sustainable e-Inclusion Enterprise, Paper for SPRU 40th Anniversary Conference. Summary
13. **Ó Siochrú, S., and Girard, G.** (2005) Community-based Networks and Innovative Technologies: New models to serve and empower the poor, A report for the United Nations Development Program (UNDP) Summary
14. **Panos / SDC** (2005) Information and communication technologies and large-scale poverty reduction: lessons from Asia, Africa, Latin America and the Caribbean, Panos / Swiss Agency for Development and Cooperation (SDC/DSC) Summary

15. **Parkinson, S.** (2005) Centers, Access and Development: Experience and Lessons from Uganda and South Africa, ITDG Publishing / Fountain /IDRC Summary
16. **Richardson, D.** (2006) ICTs: Transforming agricultural extension?, Technical Centre for Agricultural and Rural Cooperation (CTA) Summary
17. **Souter, D.** (2005) The economic impact of telecommunications on rural livelihoods and poverty reduction: a study of rural communities in India (Gujarat), Mozambique and Tanzania, Commonwealth Telecommunications Organisation (CTO). Summary
18. **Talyarkhan, S.** (2004) Connecting the first mile: a framework for best practice in ICT projects for knowledge sharing in development, Practical Action. Summary
19. **Torero, M., and von Braun, J.** (Eds.)(2006) Information and communication technologies for development and poverty reduction: the potential of telecommunications, International Food Policy Research Institute (IFPRI) / Johns Hopkins University Press. Summary
20. **UNCTAD Secretariat** (2006) Information Economy Report 2006: The development perspective, UNCTAD Summary
21. **Vodafone** (2005) Africa: The Impact of Mobile Phones. Moving the debate forward, The Vodafone Policy Paper Series, Number 3. Summary

1. Beardon, H., Munyampeta, F., Rout, S., and Williams, G. (2004) ICT for development: empowerment or exploitation? Learning from the Reflect ICTs project, ActionAid http://217.206.205.24/Initiatives/ict/home.htm.
[Summary adapted from authors:] This DFID-funded project is exploring potential applications of ICTs for poor and marginalised people, linking to existing Reflect groups in Uganda, Burundi and India. Reflect is an approach to adult learning and social change through which groups of people meet regularly to discuss and analyse local issues and devise action plans, using participatory techniques. The ultimate aim is to provide tools which any group, network or organisation can use to facilitate a participatory process for developing and ICT or communications strategy.
This analysis led to a planning process at community level, whereby choices and priorities were made about the use of a grant for technology and staff to be released in the second and third years. The resulting 'communications systems' are monitored according to indicators and objectives set by the communities themselves. This participatory approach led to challenges and lessons learned in methodology:

- Good communication and trust were essential in navigating the line between steering and overwhelming local creativity.
- Expectations and responsibilities need to be clearly established from the beginning in order to create an environment where it is easier to express concerns and clear up misunderstandings.

In each of the three pilots, poor marginalised people have thought and spoke about the potential role of ICTs in their lives, and in each case, the response has been overwhelmingly positive. People see the value of good quality, reliable information and want to find ways to improve the documentation of their knowledge. Beyond that, generalisations are few.
The perceived effectiveness of different ICTS depends not only on infrastructure and capacity, but on ingrained communication culture and political environment. There are no universals, 'off-the-peg' answers, but context specific outcomes:

- In Uganda where government policy is pro-ICT, the proposal includes more high tech solutions such as the internet, and depends on support and involvement of local government officials.
- In India, the focus is on lobbying government and other information providers to meet pro poor needs.
- In Burundi, most center-type solutions are not appropriate due to insecurity, lack of infrastructure and transport problems. The resulting communication systems includes an urban center and training centre for revenue making, staff training and information only, while the main focus is on a community newsletter with an existing distribution list.
- In all three pilots, radio was considered a very appropriate, accessible means of accessing communication.

Furthermore, these pilots suggest that:

- ICTs cannot create communication capacity. ICTs should be built into existing structures and should recognise the less formal existing communications arenas.
- In the long-term, our aim should be to consider ICTs part and parcel of all development work, never an aim in themselves.

2. **Chand.A, Leeming.D,Stork.E,Agassi.A and Biliki.R (2005) The Impact of ICT on Rural Development in Solomon Islands: The PFnet Case. USP Project.** **http://www.usp.ac.fj/jica/ict_research/documents/pdf_files/pfnet_report.pdf**
This research examines the impact of the use of the Internet on lives of grass-roots people in Solomon Islands, using **People First Network**(PFnet) as a case study. PFnet is a **community-owned** project operated by the Rural Development Volunteer Association, a registered NGO which has close links to the **Ministry of Rural Development** of Solomon Islands. A model of community leadership and operation was formulated and piloted to ensure grassroots ownership, community empowerment, and the security of facilities and equipment. The location of the email stations was decided on in consultation with community and PFnet Management working with the station committees.

The broad aims of the research project included:

• to investigate issues related to **differential access and utilisation** of Internet services.
• to find out the **impact** of the Internet services on **sustainable rural development** in the remote and rural Solomon Islands.

Within these aims the researchers examined:

• the main issues affecting community **uptake**
• **appropriation** of Internet services
• reasons for differences in **utilisation**
• which groups in the communities have benefited most
• whether utilisation has brought about **environmental awareness** and **sustainable resource management**
• whether utilisation has improved the well-being (including health and security) of people in the PFnet project;
• and whether it has in any way contributed towards peace-building and reconciliation after the violent conflict.

Key research findings highlight that:

• the main purposes of using PFnet are: email services (99%), news information (29%) and typing services (27%).
• the **location** of the email station within a building in the village, and the type of ownership (whether it is privately or community-owned) affect the utilisation of PFnet services.
• the **cost** of services has a slight impact on utilisation.
• PFnet has helped farmers to contact relevant agricultural authorities and NGOs to **get information and advice** on farming matters.
• **business activity*** was a major reason for respondents using PFnet services. Rural businesspeople use PFnet services to develop business customer contacts in Honiara and other towns, find out the price of goods in Honiara, supply stock, order cargo (e.g. for rural shops), receive agriculture information, find out shipping schedules, liaise with banks for financial transactions, and liaise with government offices in Honiara.
• **Education and health** were key reasons for using PFnet services.
• PFnet news service has contributed towards **security, peace-building and reconciliation** by providing objective and accurate information on the facts during and after the violent conflict in Solomon Islands. PFnet assisted in reducing the spread of false rumours and misinformation.

Based on the research findings, recommendations for the PFnet management include:

• **consultations and meetings** with the stakeholders, including the village leaders and elders, should be conducted in the surrounding villages before setting up an email station in the area.
• **monitoring** of the functioning and performance of PFnet station committees should be undertaken to improves access and services.
• **training** of PFnet station committee members and operators on their functions and responsibilities should be undertaken to ensure sustainability and improve services.
• **knowledge sharing** between PFnet Management and operators is needed to overcome challenges
• **raising awareness and training** people in new ways of accessing information and opportunities should be undertaken to increase business applications of PFnet
• **expansion** both within Solomon Islands and to other South Pacific Island countries should be implemented.

3. Creech, H., Berthe, O., Assubuji, A., Mansingh, I., and Anjelkovic, M. (not dated) Evaluation of UNESCO's Community Multimedia Centres Final Report, International Institute for Sustainable Development (IISD) http://portal.unesco.org/ci/en/files/22136/11477886901CMC_Evaluation_Final.pdf/CMC%2BEvaluation_Final.pdf.

[Summary adapted from the authors:] A Community Multimedia Centre (CMC) is a community-based facility offering both community radio broadcasting and center services. This hybrid approach is believed to provide significant support to community development by strengthening economic opportunities through information and training. Moreover, through access to and exchange of knowledge, views and beliefs, CMCs strengthen social inclusion, public participation, education, agriculture, health and other factors necessary for healthy and sustainable societies. This UNESCO initiative is in its fifth year of operation, with 39 pilot CMCs established in communities across Latin America / Caribbean, Africa and South Asia.

This evaluation assesses what can be learned from the pilot phase that will both strengthen the CMC model and improve UNESCO's programming for future CMCs, in particular through the scale-up initiative.
Major findings from the evaluation include:

- Their contribution to improving quality of life through access to information is confirmed. Equitable and expanded access to ICTS is promoted in many ways, such as subsidized training for special, marginalized groups, close work with schools, small businesses and the independent sector or providing information to more remote communities through radio.
- Longer term benefits are already being realized within individual communities, such as the gradual removal of barriers to social inclusion, the stimulation of poverty alleviation through access to knowledge of better health, resource management and agriculture practices, through the establishment of listeners clubs as self help groups, and the creation of new livelihoods opportunities.

The evaluation identifies the following success factors for CMCs: building on an existing facility and communication channels; ownership and/or long term community commitment; good integration of radio and center components; an orientation to development; diversification of content to meet community needs, including promotion of local culture; access to tools and expertise developed by UNESCO and others; diversification of revenues, including capacity to approach local/national governments for delivery of services and the international donor community for project funding.
The evaluation points to several recommendations of which include:

- To become sustainable, CMCs need more training from UNESCO Headquarters and field offices in longer term strategic, technology, and financial planning, in particular full cost analysis. CMCs should be encouraged to develop a hybrid approach to financial planning, that includes income generating activities, possibly the selling of shares and memberships (the cooperative model) and not-for-profit programs and services that could be supported by organizations hosting the CMC, governments and donors. Skills for approaching governments and donors should be developed.
- UNESCO Headquarters should accelerate efforts with its member states to create an enabling policy environment for ICT4D. Key national policy issues include: stable charges for rural connectivity; provision of reliable, affordable energy supply; easier licensing for community radio stations; ensuring freedom of the press; advancing egovernment so that CMCs can provide access to government services to their communities; committing to the use of CMCs as a matter of policy for the delivery of agriculture, health and education extension services; and integrating development courses into tertiary computer, engineering and other technology oriented educational programs.

4. Conroy, Czech (2006) Center Initiatives in Rural India: Failed Fad or the Way Forward. Natural Resource Institute. http://www.livelihoods.org/hot_topics/docs/CenterIndia.pdf
[From the introduction and conclusion:] This paper critically reviews a number of themes and issues relating to one type of modern ICT intervention, namely rural centers. After reviewing some of the literature on centers in general, it focuses on centers in rural India, providing brief descriptions or case studies of nine initiatives. In the final section it revisits

some of the themes identified from the general literature and relates the case study experiences to them. The sub-title of the paper poses a question – are rural centers in India "a failed fad or the way forward"? The paper concludes that information is important to rural people, including the marginalised; but suggests that a narrowly focused centers approach is not the best way to address information needs, as it tends to be technology-centred and supply-led. Instead, what is needed is a people-centred, demand-led approach, that focuses on developing the capacity of disadvantaged groups to identify and articulate their information needs and preferred media, access the required information, through whatever media and sources are most appropriate, and then manage and use it effectively to improve their livelihoods. It would be more appropriate to describe such an approach as being based on community information or knowledge centres. Experience has highlighted the need for a wide range of media in managing and supplying information, and the importance of traditional media as well as 'modern' ones. Radio is a popular and widely accessed medium in rural India and Africa that has not been prioritised by Indian development agencies to the extent that the internet has, and recent legislative changes in India may facilitate more extensive use of radio in development initiatives. Mobile phones have considerable potential too yet have also been relatively neglected by development agencies. There is still a role for the internet, however, particularly as several of the constraints experienced until now by many computer and internet-focused initiatives in India are being eased. Connectivity problems are being reduced, partly through increased broadband coverage; and the development of useful content and applications relating to social and productive sectors is rapidly increasing, including products in many local languages. Major national initiatives, such as Mission 2007, as well as local ones, are helping to drive forward this process.

5. Duncombe, R. (2006) Analysing ICT Applications for Poverty Reduction via Micro-enterprise Using the Livelihoods Framework, Development Informatics Group, Institute for Development Policy and Management (IDPM) http://www.sed.manchester.ac.uk/idpm/publications/wp/di/di_wp27.htm.

[Summary adapted from authors:] This paper seeks to provide a contribution to theorising ICT and development by applying a 'livelihoods approach' as a suitable framework of analysis, taking rural micro-enterprise as an important potential area of ICT application in a developing country context such as Botswana. The livelihoods framework has been chosen because it employs, at its centre, a broad and systematic analysis of poverty. The paper highlights how information systems concepts can be integrated into the livelihoods framework in order to aid analysis. A number of characteristics of information have been highlighted:

- information has both an analytical and functional role within the livelihoods framework
- information should be considered as part of a dynamic process of change (access, assessment, application and action) rather than as a static resource, dynamic information processes can be formal or informal and each is imbued with certain quality attributes
- information can fulfil both short-term and long-term needs
- dynamic information processes can be actionable at different levels (micro/meso/macro) and can serve to foster interaction between different levels of activity (i.e., linking structures and processes via assets to the rural poor themselves through channels of communication).

From the literature surveyed, three underlying factors are highlighted as being important for an analysis of ICT applications for rural micro-enterprise:

- Differing portfolios: rural entrepreneurs participate in a range of income generating activities. The ICT requirements of the rural poor are likely to cut across those activities and it may be difficult to separate one from the other.
- Differing vulnerabilities: the level and complexity of poverty experienced by rural entrepreneurs will differ significantly. Differing vulnerabilities will also impact upon how ICT can be accessed and used by the rural poor.
- Differing capabilities: the assets possessed by rural entrepreneurs will also vary. Potential for ICT applications will be dependent, not only on availability of financial assets and income, but also on a wide range of other capabilities associated with level of education, extent of social resources, advantages conferred through gender or ethnicity, access to infrastructure and availability of natural resources.

The author contends that in itself information and ICT can do little to assist the poor in reducing their vulnerability. However, there are two key enabling applications:

- an analytical role for information in assessing the vulnerability context
- a need to communicate that information to those who can act upon it.

Furthermore, the author suggests that it is evident that the rural poor need to build existing livelihood assets more than they need to access new information. In this respect, the poor need to build trust through their locally contextualised social networks more than they need access to information via ICT. Rural telecommunications via ICT and new radio formats will likely play an increased role in this regard. In addition, technologies that facilitate two way flows of information are of greater benefit to the diversification of livelihoods.

6. Garai, A., and Shadrach, B. (2006) Taking ICT to every Indian village: Opportunities and challenges, Open Archive Initiative, One World South Asia http://open.ekduniya.net/129/01/TICTEIV.pdf.

How can ICT be brought to 600,000 Indian villages? How is India empowering the poor and marginalised to participate in the emerging knowledge society? And how will India provide voice to the millions of citizens?

In an endeavour to tap the potentials of ICT for a holistic development of India, the nation-wide movement called 'Mission 2007' was launched in 2004. A project evaluation methodology based on the capability approach is proposed. The methodology looks at four indicators at the local community level:

- access to information from the state, market and civil society organisations
- ability to process and evaluate information
- to assimilate information in their own lives and produce information for others
- to advocate for local knowledge in public spheres

Some of the findings include:

- the development impact of ICT on society can be assessed using the capabilities approach since various forms of ICTs infuse knowledge and help human capability expansion

- ICT can assist in reaching the MDGs by amplifying citizen's voices, promoting quality in health and education services, and broadening the livelihoods base of the poor and marginalised
- rural areas are considered attractive locations for knowledge centres given high population density. The service provisioning however is challenged by poverty and illiteracy. However projects have demonstrated that people living in rural areas can acquire ICT skills quickly, even without high-levels of literacy.

Research recommendations include:

- integrating the human development approach to nation-wide ICT initiatives is essential for a successful outcome.
- building institutional linkages spanning across the horizon of social, cultural, economic, and political entities is efficient for poverty reduction.
- appropriate political, regulatory and governance mechanism be created that facilitates growth of shared ICT infrastructure in local communities.

7. Gerster, R., and Zimmermann, S. (2005) Up-scaling pro-poor ICT-policies and practices: a review of experience with emphasis on low income countries in Asia and Africa, Swiss Agency for Development and Cooperation (SDC/DSC) http://162.23.39.120/dezaweb/ressources/resource_en_24707.pdf.
[Summary adapted from authors:] This report looks at the use of ICT for poverty reduction and as its potential and limitations at the grassroots, national, and global levels. It identifies parallels and differences in the use of ICT for poverty reduction in Sub-Saharan Africa and low income countries of Asia. The key questions emerge:

- how to mainstream ICTs?: regulatory and policy environment, sector, facilitator in national poverty reduction strategies?
- how to give poor people a stronger voice at all levels of decision making by using ICTs?
- opportunity: how to enhance income generation by the poor through ICT?
- security: how to up-scale formal and informal education of the poor by the use of ICT?
- what pro-poor ICT regulations and policies (including free/open source software) are required for up-scaling ICT for poverty reduction?

The literature review indicates key lessons learnt in using ICTs for poverty reduction:

- A participatory approach to ICT4D and involvement of people in all stages – from the needs assessment to monitoring – makes a difference as to its usefulness and impact.
- Leadership matters, as does institutional ownership.
- Pro-poor effects are more likely to occur if ICTs are embedded in a larger, demand driven development effort.
- Adopting a community-based approach to ICT access has important strengths.
- A minimum level of physical and human infrastructure is required to foster effective and pro-poor use of ICT.
- An appropriate choice of technology largely co-determines potential pro-poor effects.
- Content should receive as much attention as access.

- Countries mainstreaming ICTs effectively into their productive sectors gain dramatically in competitiveness.
- Information and communication are not free; they involve costs.
- Mainstreaming ICTs also pays off for people in poverty, even when budgets are stagnating or stinking.

Furthermore, the basic requirements for successful up-scaling of poverty reduction through ICTs are

- an enabling ICT policy environment;
- a high priority assigned to ICT for poverty reduction;
- appropriate technology choices;
- mobilisation of additional public and private resources.

The way forward towards up-scaling pro-poor ICT policies and practices faces significant challenges during the transition phase in the development of national strategies. These include: retaining local ownership, capacity building in local communities, adaptation to the local contexts, developing sustainable business models, and defining the level of institutional and public sector support.
Successful up-scaling requires action at different levels:

- advocacy at all levels, particularly the bringing together of development and technology specialists, is key for up-scaling poverty reduction through ICTs. The added value of declarations and advocacy statements depends on the extent to which they are heard by governments, civil society and the private sector regionally, nationally and locally. In particular, the younger generation should be reached.
- global coalitions advancing empowerment, opportunity and security of people in poverty, including fostering gender equality, education, health and democracy, are an effective and efficient channel for taking up-scaling concerns forward. In particular, intensifying South-South networking and dialogue should be pursued.
- South-South exchanges and partnerships can be an efficient and effective way of learning. Comparable contexts and challenges create empathy and facilitate the transfer of knowledge. The MS Swaminathan Research Foundation is using a successful model: a travelling workshop that directly links the Indian grassroots experience with the experience of the workshop participants from other countries and continents.
- building multi-stakeholder partnerships to take advantage of the complementary roles of governments, the private sector, and civil society. Multi-stakeholder partnerships are a promising and appropriate response to the complexity of tasks, to the need for resources, to scaling up, and to the fact that development is a shared responsibility.

8. Greenberg, A. (2005) ICTs for poverty alleviation: basic tool and enabling sector, Swedish International Development Cooperation Agency (Sida) http://www.eldis.org/fulltext/sidaictpoverty.pdf.
[Summary taken from Eldis:] This report reviews the evidence on how (or if) ICTs should be used in support of poverty reduction exercises. There is one characteristic that is common to most of the ICT-related poverty alleviation programs. It finds that the most effective ICTs used are typically basic ones – telephone and radio are most common, and when computers

or the Internet are involved, they are for restricted, targeted uses. It finds several common characteristics of successful projects:

- the focus is on poverty alleviation and not on ICT use
- ICT components are kept as simple as practical
- ICT practitioners are involved in the design of the ICT components
- there is significant community involvement
- there is a focus on training to ensure success and sustainability
- there is consideration of a plan for success – how to replicate and scale project if it is successful

A number of lessons are identified:

- Communications and community access: radio and low-cost mobile telephone technology are key. In many rural areas, over 80% of households make regular use of the telephone, whereas five years ago, the figure was less than 5%. Both radio and telephone can operate regardless of the language spoken and do not require literacy, which helps explain the exceedingly high utility and utilization of both. Internet-based communications can be at least as effective, but the resource thresholds are far higher, typically requiring higher-quality communications, electricity, technology infrastructure, and literacy in a computer-supported language. Currently and in the foreseeable future, the number of developing-country people using Internet-based communications will be a shadow of those using telephone or radio, but there are selected areas where it will be important to utilize this newer technology.
- Education: there are two prime keys to success. The first is to ensure that pre-requisite resources are deployed – installing computers in schools makes no sense without teachers who know how to teach with them and without technical support to keep them working. The second is to deploy them widely enough to substantially benefit the country. This is an expensive and long-term commitment.
- Livelihoods: ICTs have been shown to be effective at both enhancing traditional livelihoods and at allowing the creation of new ones. Simple examples of enhancements include providing farmers with weather forecasts or crop information. New livelihoods enabled by ICTs include web-based businesses and telephone access resellers. The income improvements can range from a few percent to very substantial, depending on the specific details.
- Healthcare: there has been significant focus on using ICTs to actually deliver healthcare (telemedicine) and as a way of educating people on health issues. Both are valid and important mechanisms to improve healthcare. However, there are other uses of technology which have the potential for revolutionary improvements in the delivery of healthcare. In most cases, the technology is being used in its simplest forms, to aid in the collection, storing and retrieval of data and information. Despite this low-tech approach to using ICT, pilot projects have shown improvements such as a 50% reduction in mortality or 25–50% improvement in productivity.
- Government: most activity has been in the area of "computerizing" government operations and processes: aiming to streamline the operation of government, and even make it more transparent and open. However, it is unclear that there is a direct and relatively short-term impact on poverty. There is a significant role for ICTs in the collection, processing and retrieval of demographic data along with other related information (water, roads, electricity, telephone coverage, etc.). Once data is available, Geographic Information Systems (GIS) can be used to manipulate

and graphically display the data. Data collection and display systems can allow governments to understand poverty issues and ultimately address them.

In parallel with the basic level of ICTs used in most poverty alleviation programs, developing countries must also develop robust ICT sectors to enable (among other things) the support of ICT components in their poverty alleviation programs. This dual-path approach to the use of ICTs is critical. This may appear as contradictory: recommending the basic use of ICTs for poverty alleviation programs, while at the same time advocating an ICT industry capable of utilizing the most modern and sophisticated of ICTs. But in fact they are compatible and complementary. Although basic ICTs may be recommended for most poverty alleviation programs, there will be cases where the most sophisticated technology is appropriate. A robust and agile ICT sector is an enabler allowing the selected use of ICTs in poverty alleviation. Moreover, the ICT sector must address many other needs at all levels, and it is this enabler which allows the country to participate in the global ICT-based economy.

9. Harris, R., and Rajora, R. (2006) Empowering the Poor. Information and Communications Technology for Governance and Poverty Reduction: A Study of Rural Development Projects in India, UNDP Asia-Pacific Development Information Program http://www.apdip.net/projects/2003/in/.
This report sets out to examine the application of large-scale approaches to the use of Information and Communications Technology (ICT) for electronic governance and poverty reduction. We pose the question, if ICTs can be used to reduce poverty, why in India are they not being used more extensively to do so? The study examined 18 development projects in India that make use of ICTs in the form of community centers for the benefit of the poor.
The objective was to evaluate them along key constructs relating to their potential for scaling up. These were:

- Project Design
- Community Participation
- Project Outcomes
- and their contextual Political Economy (policy environment, social environment)

Questionnaires were completed by 2,156 users of the centers and interviews were conducted with project stakeholders and personnel. A typical survey respondent was a 30-something, male farm worker, with some schooling, representing a socially-marginalized community and earning close to US$ 2 per day.
The study sought to understand the factors that influence how and why the projects might or might not scale up into widespread implementations once they had established themselves as being capable of delivering beneficial outcomes in a sustainable manner. It was recognised that external factors such as political will, social awareness, business imperatives and the availability of resources will affect the rate at which ICTs are made available to wider audiences of poor rural populations. Projects have the ability to influence these external factors but at the same time they are not dependent on these factors being in their favour. However, the pre-condition for scaling up is to have a successful project, and the key component of that success in terms of scaling it up appears to be the extent to which the recipient community accepts the project within its day to-day life. Furthermore, it has emerged that the most effective way of achieving community acceptance lies in the quality

of the staff at the centres with whom the community interacts. Project characteristics which generated desirable outcomes:

- projects that were formed within public-private partnerships, where the center operator had a financial incentive to succeed, possibly under a franchise arrangement;
- centres that delivered a wider range of integrated useful services, including e-government, agricultural support, education, trade facilitation, health and entertainment;
- projects that participated closely with their beneficiary communities, in a bottom-up mode of design;
- projects that targeted low cost technology;
- projects that engaged in capacity building at all levels of stakeholder engagement, from institutional to local.

The implications for practice are that while useful information services are a prerequisite for successfully operating ICT implementations in the form of community centers, in themselves they are insufficient. The additional key ingredient seems to be the skills and characteristics of the staff in the centres in their dealings with the community. This may have been overlooked by project designers and operators. There is very little literature on how to manage the face-to-face relationship between community centers and their clients. In many projects it is left to chance; a low priority task sometimes assumed to be within the capabilities of local volunteers, even schoolchildren. Yet our evidence suggests a far higher priority for the selection, training, support and development of such personnel if it is intended that the project would eventually be scaled into a wider implementation. Technologies and the information they deliver are key ingredients, but centers act as conduits for community development and their social role in terms of fostering productive relationships with poor people appears to be at least as important as their substantive role of delivering information services. Scaling rural ICT projects for poverty reduction, then, depends on the project providing useful services, but it also depends on doing it with effective staff that can achieve high levels of community acceptance.

10. IICD (2006) ICTs for agricultural livelihoods: Impact and lessons learned from IICD supported activities, International Institute for Communication and Development (IICD) http://www.iicd.org/articles/booklet-impact-agric.

This booklet explores the potential contribution of ICT to the livelihoods of small-scale farmers and the efficiency of the agriculture sector in developing countries. It describes experiences and achievements of the International Institute for Communication and Development (IICD) and its partners with using ICT to enhance agricultural livelihoods through thirty-five projects over six years in nine countries in Africa and Latin America. These projects were developed and implemented by a range of stakeholders, including farmers associations, agricultural cooperatives, non governmental organisations, research institutions and government agencies.

Direct impact on agricultural livelihoods is registered by ICT projects focusing on price information and market access. Direct, but less strong, impact on poverty is found with projects supporting efficiency and sustainability of agricultural production and with projects focusing on political empowerment. Developing national policies that include the use of ICT and streamlining agriculture information systems can contribute to a more conducive environment for agriculture development and a potentially high, but indirect, impact on poverty alleviation.

Recommendations for implementation of projects and policy processes have been prepared

to support future activities in realising the full potential of ICT in the development process. IICD recommend to:

- Use a participatory and integrated project design
- Foster Ownership
- Ensure availability of relevant content
- Include continued capacity development
- Use various ICT options. (Options include Internet access through V-Sat systems or dial-up lines, local radio, two-way radio, mobile telephone, use of multimedia and drama.
- Include learning and knowledge sharing mechanisms
- Integrate ICTs at organisation level
- Mainstream ICT in the agriculture sector through a supportive policy environment

11. Meera, S.N., Jhamtani, A., and Rao, D.U.M. (2004) Information and communication technology in agricultural development: a comparative analysis of three projects from India, Agricultural Research and Extension Network (AgREN) http://www.odi.org.uk/agren/papers/agrenpaper_135.pdf.

[Summary from authors:] A study was conducted that examined the performance of three ICT projects in India. The projects have quite different origins and purposes, but all are concerned with improving the delivery of information to farmers and other rural dwellers. One project is managed by the government of Madhya Pradesh as part of an exploration of egovernance. A second project is run by sugar cooperatives (with some government support) in Maharashtra and attempts to expand services to growers. The third project is an experiment by a large private agricultural input supplier to provide information to farmers in Andhra Pradesh.

The study describes the organisation of each project; discusses the types of farmers involved and assesses their utilisation of the services; and looks at the backgrounds and performance of the functionaries who manage the projects. The projects studied varied with respect to the type of services provided, but these included marketing information, extension advice, information about rural development programs, and other information from government and private sources.

Research findings include:

- The ICT projects provided external and on-the-job training for personnel, although there were variations with respect to sufficient orientation towards ICT for agricultural extension.
- All projects reviewed had younger, better educated, male farmers as their primary users, but a government project in a marginal area was fairly effective at reaching poorer and illiterate clientele.
- In the state government project, users most valued access to market information, land records and information on rural development programs. In the cooperative project, question-and-answer services, accounting, and farm management information were valued most. In the private company experiment, participating farmers valued various types of information on practices, management of pests and diseases, and rural development programs.

Policy implications include:

- ICT projects to serve resource-poor farmers require qualified and well-motivated staff to serve as an interface with computer systems. Staff for agricultural extension projects should have adequate training in agriculture.
- Efforts should be made to ensure that farmers have faith in the ICT project personnel and that they are committed to the goals of the project.
- Before ICT projects are established in a region, rapid rural appraisals should be done to assess the type of information most in demand.
- Government should reorient its policies in order to harness ICT's potential for contributing to agricultural development.

12. Molina, A. (2006) The Village Phone Constituency in Bangladesh. A Case of a Sustainable e-Inclusion Enterprise, Paper for SPRU 40th Anniversary Conference. http://www.livelihoods.org/Smaller%20version%20VPC(Sept2006).pdf

The UN Millennium Goals have set challenging targets to humanity to improve the living conditions of millions of excluded people. This has resulted in a search for experiences that are pioneering the innovative use of ICTs to combat exclusion. The 'holy grail' is 'sustainable enterprises,' i.e., those ventures that are able to continue growing and creating wealth and employment following their emergence into the world. This paper examines how sustainable e-inclusion enterprises, the Village Phone Constituency (VPC), are making a difference in rural Bangladesh.

The VPC, formed of the Grameen Phone Joint Venture, shareholders, the Grameen Bank and Village Phone operators are able to provide mobile telephone services to rural customers. Through the Village Phone Program, an innovative value chain, they are able to purchase bulk airtime at a discounted price. This value chain has made it possible to mobile telephony to tend of millions of people in Bangladesh.

The benefits of the experience of mobile telephony have been reported in a number of case studies. Key benefits include:

- Substantial reduction of cost of communicating information, associated with savings of time and transport costs, as well as with more timely and speedy conveyance of information. Costly absence of productive members can be avoided, thus generating important savings on the direct and opportunity costs of travelling away from home.
- Better access to information helps improve both villagers' productivity and prices for their goods. In general there is a better and more efficient market pricing for villagers' products and inputs, associated with an increase in villagers' bargaining power vis-à-vis middlemen (who lose their information advantage), and a decrease in sharp swings in demand, supply and prices of commodities.
- Major reduction of the risks involved in remittance transfers, and possibility of obtaining accurate information about foreign currency exchange rates.
- The technology serves to link regional entrepreneurs with each other and their clients, bringing more business to small enterprises.
- Better and less costly access to health – villagers can contact clinics, doctors and ambulances in a timely manner, especially important in emergency situations such as natural disasters.
- Helps reinforce kinship bonding, particularly in poor families where people are working abroad (e.g., more than five million Bangladeshis live in the Middle East and Malaysia), but also among villagers and relatives that live in Dhaka or other villages..

- Women users feel comfortable using Village Phones because the phone operators are typically female and the phones are in their places of business, thus women can go unescorted by a male relative.

The "bottom of the pyramid" (BOP) approach recognises that there is a valuable market at the tier 4 of the global market pyramid. The development of the BOP market is associated with the creation of the capacity to consume by Tier 4 people. This can be pursued in a variety of ways that improve both the purchasing power of the potential consumers (demand) and the multinational companies' (MNC) product/service offer so as to match this purchasing power. On the first account, MNCs can help release spending power by:

- reducing the poor's cost of living through the displacement of expensive intermediaries and suppliers
- by improving income generation through the creation of jobs (not necessarily in the MNC-s payroll) or self-employment (micro-entrepreneurs)
- by stimulating access to credit.

On the second account, the MNCs offer must take into account that the available purchasing power of BOP people has specific cash-flow characteristics: low, available for short time, geographically scattered (in rural areas). Therefore, the MNCs offer must be:

- affordable (without sacrificing quality)
- accessible (taking account of the poor's living location and workpatterns)
- immediately available to satisfy a buying decision.

This in turn will call for innovative purchase schemes, single-serve packaging, aggregating demand and other inventive ways to respond to the cash-flow patterns of the poor. BOP authors, however, do not argue just for the existence of appropriate purchasing schemes, or unit packaging, or credit facilities, which is something that has existed for a long time in Tier 4 markets. The key is selling to the poor and helping them improve their lives by producing and distributing products and services in culturally sensitive, environmentally sustainable, and economically profitable ways.
The author argues however, that there is an aspect that the BOP approach seems to underplay. This is the issue of the length of time of sustained investment required before getting a pay back.

13. Ó Siochrú, S., and Girard, G. (2005) Community-based Networks and Innovative Technologies: New models to serve and empower the poor, A report for the United Nations Development Program (UNDP) http://propoor-ict.net/.
This research considers an innovative combination of community owned enterprises and the new wave of wireless and related technologies that together may have the potential to extend networks and offer new services to poor communities and to empower them to develop solutions that are more focused on their development needs.
In combination with a number of positive regulatory trends and ideas, these emerging ICT options could make a significant difference to:

- network access
- delivery of services
- economic and social opportunities for poorer rural communities.

In poorer countries, local community control and participation is widely recognised as critical to the success of ICT projects such as centers and application development. Three identified variations of a community driven approach are the user/community owned cooperative, the local authority owned network, and the hybrid entrepreneurial/community-driven model. Each might suit different circumstances. Community ownership in general, our research suggests, works best where there is quite a high level of community institutional organisation (NGOs, CBOs etc.), strong leadership for the initiative itself, significant support in the local political context (partly to negotiate openings at other political levels), and where the demand for ICTs emerges directly from the experience of community social, economic and other needs. However, elements of an enabling environment can be identified to enhance the prospects of implementation and success. These elements are: the national information communications policy; the regulatory climate; investment and financing, and resource and capacity building. Recommendations are offered for each element. *Supporting National Policy Strand.* Areas of national policy that would support the emergence of local community owned enterprises include:

- Identification of areas where current approaches are failing (reach and/or provision of affordable access);
- A suitable legal structure that would be flexible enough to support different partnership structures;
- Tax exemption or benefits for non-profit enterprises, and a means to ensure that surpluses are reinvested in local communities;
- A National Support Unit, or some such modality, to kick-start community owned initiatives, and to design, provide or oversee many of the proposals below.

*Regulatory Climate.*The following would create a regulatory climate generally favourable towards local network deployment and a few specific favouring a community owned approach, to be applied in areas identified as suitable.

- Technology neutral licenses, so that services use the most effective and cheapest available;
- Flexibility should be allowed in license award and conditions;
- License exempt spectrum for wireless use should be free of costs and administrative burdens;
- Interconnection pricing should be favourably set, including 'asymmetric' pricing;
- Universal service funds should be accessible for development of community owned networks, including at the application and content level;
- An 'open access' policy for connections to the national backbone could be promoted, that would also recognise the development benefits and higher conventional costs of services in rural areas;
- Local regulations could be developed to ensure that service and application initiatives embody significant elements of community ownership and control.

Investment and Financing. Mechanisms for communities to gain access to financing for viable network development might include:

- Tax and other finance mechanism reforms to give cooperatives and not-for-profit ventures fair access to existing investment mechanisms;
- Institutional mechanisms for low cost loans, including adapting existing donor mechanisms;

- Institutional structures that will attract local area investment, from users and others.

Resource and Capacity Building. This is one of the major areas for support. It is widely acknowledged that business and organisational skills are in short supply at local level. This could be addressed in a number of ways:

- Capacity building activities and materials developments;
- Establishing national pools of resources and expertise;
- Linking to experience and expertise elsewhere, through information sharing, peer-to-peer support, study visits, building networks and so forth.

Many of the above would best be provided as a coherent and sustained package by a national support institution, agency or initiative specifically charged with designing and implementing a supportive environment for community owned and community-driven networks.

14. Panos / SDC (2005) Information and communication technologies and large-scale poverty reduction: lessons from Asia, Africa, Latin America and the Caribbean, Panos / Swiss Agency for Development and Cooperation (SDC/DSC) http://162.23.39.120/dezaweb/ressources/resource_en_25250.pdf.
This SDC/Panos publication aims to contribute to the global knowledge sharing and learning process and to increase impact and synergies in ICT development and poverty reduction. The publication highlights that the enabling role of ICT in fighting poverty, especially in national Poverty Reduction Strategies (PRS) development and implementation is manifold, especially through:

- increasing the efficiency of efforts, reaching more people
- increasing effectiveness in terms of process, ownership, participation, more interactive communication and better service delivery in education, health etc.
- improving productivity and income of micro, small and medium enterprises through better access to markets and information, ICT enhanced micro finance programs etc.
- creating jobs and income through ICT as a sector – producing hardware, software and other components of the ICT infrastructure.

Over the past decade, lessons learned from ICT experience can be summarised around the following themes:

- Prioritising poverty reduction
- Creating an enabling ICTs policy environment:
- Appropriate technology choices
- Local Content development and the role of the media
- Mobilisation of financial resources and the role of micro credit

15. Parkinson, S. (2005) Centers, Access and Development: Experience and Lessons from Uganda and South Africa, ITDG Publishing / Fountain / IDRC http://www.idrc.ca/en/ev-87255-201-1-DO_TOPIC.html.
This study examines the role that shared access centres play in government strategies to provide universal access to information and communication technologies (ICTs). It also aims to shed light on the external factors that affect the performance of these centres. The analysis draws on the experiences of South Africa and Uganda in 2003, at the policy and community levels. Both countries have policies regarding universal access and have

taken steps to achieve their policy goals.
Four factors are posited as important to the success of shared access centres in achieving universal access and maximizing development potential: scalability, sustainability, reach and use. They cumulatively contribute to the development impact of such centres. The apparent impact of access centres is analysed in two ways. Firstly, the situation in communities is compared with the goals motivating universal access policy in each country. Secondly, characteristic usage of different access centres is analysed in the context of the livelihood strategies commonly used by different people within the case communities. The key findings and recommendations from this report include:

- Access centres are generally not adequate by themselves to build local demand. Policy makers should focus on creating an enabling environment for access centres, especially by focusing on liberalization of the national telecommunication market. Those with the task of setting up centres need to first assess the local situation, not just needs but also feasibility and potential risks.
- ICTs should be harmonized with larger rural development strategies. Stand-alone access centres should be pursued as an option only where local markets have demonstrated capacity to support them.
- Any attempt to implement ICT access centres will be strongly constrained (or enabled) by the national telecommunication market. This lesson reinforces the need for national telecommunication market liberalization and regulation.
- Universal access for telephone requires strategies different from those needed for other ICTs (especially computer-related), since the former usually enjoys immediate demand while the latter does not. Telephone access and use are issues best considered separately from Internet access and use, especially since Global System for Mobile Communications (GSM) cellular networks have contributed broadly to the spread of the former. Nevertheless, policy makers should maintain a holistic view that considers the possible relationship between the two.
- ICT access centres are an important but politically weak part of the access chain. Regulators should consider encouraging or supporting preferential telecommunication service rates (and possibly electricity rates) to agencies, whether public or private, which provide public access.
- Affordability is still a major barrier to accessibility in both countries. Since much of the affordability problem relates to lack of competition, the highest priority is to liberalize the market, and especially to allow different technologies, such as Vo IP. Independent regulation is obviously crucial.
- The popular view of ICTs casts computers as a tool for the educated only. This limits spontaneous appropriation of ICTs even where physical access is provided. Avoid assumptions about how people will choose to use ICTs; any policy that depends on people's interaction with ICTs should be based on evidence.
- Where ICTs are available and used, not all uses yield financial returns for their users or their communities. Since national universal access strategies should be monitored through indicators which, going beyond mere access, are tied to national development priorities.
- The relationship between the market and initiatives set up by external funders varies according to factors such as infrastructure and local economic activity. Any agency involved in implementing a not-for-profit access centre needs to assess the current and likely future market situation in the locale where the centre is to be located.

- Sustainability implies managing costs and complexity. Embedding ICT services within, and building upon, existing institutions is one of the best ways to do this. That strategy can also help maximize the development impact of services.
- One of the biggest impacts of ICT use appears to be the maintenance of links between geographically dispersed family members. The role of within-country migration and international Diaspora communities in maintaining and contributing to rural development, and the role of ICTs in supporting it, is an area requiring greater attention from both policy makers and researchers.

16. Richardson, D. (2006) ICTs: Transforming agricultural extension?, Technical Centre for Agricultural and Rural Cooperation (CTA) http://www.anancy.net/uploads/file_en/WD8034.pdf.

This summary report provides an outline of the main issues and trends in agricultural extension, as they relate to ICTs, with a special emphasis on improving rural livelihoods. The report draws on the presentations, case studies and discussions from the CTA Observatory. It highlights the potential for, and constraints to, using ICTs for agricultural communication and information exchange and identifies implications of these issues for CTA. Some of the issues addressed by the report are:

- what are the main constraints to using ICTs to improve rural livelihoods and agricultural communication and information exchange?
- what are the main policy issues related to the use of ICTs for agricultural extension?
- what ICTs are being used in agricultural extension, and how have they been used in specific agricultural sectors to improve rural livelihoods?

The rural livelihoods approach yields seven most appropriate ICT project themes for improving rural livelihoods:

- Improving universal access telecommunications policies and programs by empowering rural and agricultural stakeholder organisations so that they can participate in advocacy efforts on behalf of rural people
- Rural credit and rural financial services – improvements in access, reach and flexibility
- Louder rural and agricultural stakeholder voices yielding improved access to decision-makers to influence policies, regulations and procedures that have a direct impact on rural livelihoods
- More informed rural people and farmers who can use information to make relevant decisions about livelihood strategies, thereby reducing disaster impact (flood, disease, drought warning and mitigation), and increasing income diversification
- Improvements in efficiency and effectiveness of rural service delivery across areas of health, education, agricultural extension, training and knowledge resources
- Improved ICT planning capacities among civil society organisations – to plan, implement and integrate ICTs into their overall services
- Application of ICTs in land surveys and registration systems for more efficient recording of land titles, and registration and transfer of land holdings.

More important than the role of specific technologies or applications is the adoption of best practices in the field of ICTs for development. The following best practices build on lessons learned from the field of communication for development, and are focused on ICTs for rural and agricultural development:

- Build on existing technical and organisational systems before attempting to create new ones –how can the efficient use of ICTs lubricate or enhance systems that are already working?
- Ensure multi-stakeholder governance in project management and monitoring and evaluation – because ICT projects are, by nature, multi-stakeholder projects. If an ICT project is supposed to benefit the rural poor, make sure the beneficiaries have some stake in project governance
- Ensure participation of the user community in the design and management of ICT solutions that affect their livelihoods and work processes. If you are introducing ICTs into an agricultural or rural system, remember it is not only the technology that needs to communicate – project planners and implementers need to communicate and engage with user communities
- Exploit the full range of existing media, including both old (e.g. rural radio) and new ICTs (e.g. Internet kiosks, PDAs). It is always useful to look at what actually works well, and is financially sustainable, in the developed world context: newspapers, magazines, community meeting halls, coffee shops and telephones are still the 'killer' ICT applications for farm families in developed countries such as Canada. There is no reason to expect that rural farm families in Thailand will leapfrog those ICTs for high-tech devices that are not frequently used elsewhere
- Recognise that, in the context of ICTs and agriculture, women are twice as likely as men to be involved in agricultural activities, and that women have principal roles in smallholding subsistence farming, agri-business and food processing. This means involving the full community of ICT users, not just the male half of the community of users, in developing and implementing ICT projects.

Five key recommendations were derived from the CTA Observatory:

- engage in regional ICT policy awareness-raising workshops for managers and senior professional staff involved in extension services in ACP countries
- produce simple fact sheets on the successful use of ICTs in agricultural extension
- package multi-stakeholder planning approaches
- develop ICT problem trees for better bottleneck analysis
- facilitate studies on the current status of the regulatory environment in ACP countries.

17. Souter, D. (2005) The economic impact of telecommunications on rural livelihoods and poverty reduction: a study of rural communities in India (Gujarat), Mozambique and Tanzania, Commonwealth Telecommunications Organisation (CTO) http://www.telafrica.org/R8347/files/pdfs/FinalReport.pdf.

[Summary taken from Eldis:] Aimed at a policy audience this paper looks at the use of various communications technologies in villages in Gujarat, Mozambique and Tanzania. It reveals that in all three research countries:

- telephones are the preferred means of communications for emergencies and family networking – though they are less dominant in Africa than in India
- mass media are the preferred ICTs for general information such as news and weather – the television and newspapers being preferred in India, and broadcast radio in Africa
- face-to-face communications is overwhelmingly the main method of communications for specific information in all three countries, including information about education, farming, business and government services.

In particular the research shows that there was a consistent pattern of telephone behaviour in all three countries. Telephones were:

- considered very important for use in emergencies
- extensively used to maintain social networks, especially contact within the family
- valued more for saving money than for earning money
- valued more by richer and better educated people than by the poorer, less educated or more marginal members of society – especially where financial value was concerned
- considered unimportant for information gathering
- most telephone use in the Indian sample was of private fixed lines and telephone kiosks (however, the mobile market is growing rapidly in India)
- mobile phones were much more widely used than fixed phones in Mozambique and Tanzania
- telephone ownership is growing rapidly and is highly valued. In all three countries, at least 45% of phone owners had acquired their phones within the past year – and at least 33% of those without a telephone said that they wanted to acquire one within the next year.

The analysis suggests that, of the five main categories of livelihoods assets (human, social, financial, natural and physical capital), telephony is most closely associated with social capital.
Other findings include:

- the Internet was not used by any significant number of people with less than 2% of interviewees in the three country samples with any experience of Internet. This was in spite of the accessibility of Internet facilities to interviewees in local towns in most sample areas
- nearly everyone used a broadcast technology with 90 percent of respondents indicating that they either use the radio or TV. Furthermore, information from broadcast technology was the preferred means of information gathering and was highly trusted
- the use of telephony is substituting for mail services.

18. Talyarkhan, S. (2004) Connecting the first mile: a framework for best practice in ICT projects for knowledge sharing in development, Practical Action http://www.itdg.org/docs/icts/ict_best_practice_framework.pdf.
This study aims to develop a framework for best practice in ICT projects for knowledge sharing in development. It begins with a discussion of the role of ICTs in development and a review of literature about connecting the 'first mile'. It suggests that authors are polarised around key debates:

- Top down versus participatory solutions to development problems
- Global versus local solutions
- Technological versus social solutions
- Optimism versus pessimism about the role of ICTs in development

The study situates ITDG's perspective in the context of those debates and identifies the success factors highlighted in the literature. These can be divided into three dimensions:

- the environment
- the project level
- and the first mile.

For each of the success factors, the framework outlines activities that constitute best practice. Significant factors to address at the environmental level are the policy environment, infrastructure limitations, building a good relationship with donors and communicating project progress.
At the project level, success factors are identified as: starting from communities' development priorities; planning projects effectively; learning from monitoring and evaluation; forging strong partnerships; developing a sustainable business model and building capacity among all partners to deliver.
At the 'first mile' success factors are: building on existing knowledge systems; creating appropriate materials; using appropriate technologies to reach communities; working with infomediaries; building capacity of infomediaries and target groups; facilitating local content creation; making local knowledge visible; minimising social exclusion and strengthening social capital.
From this study however, it is clear that the success of many projects is 'situated success' in the sense that the project has worked due to a particular combination of factors such as a strong local champion, good timing or a conducive political environment. This means that it is difficult to isolate best practice or indeed to generalize much from reported project experience.
This framework aimed to offer practitioners a way of critically examining their ICT projects to ensure that they are adopting best practice and putting the needs of people living in poverty first.

19. Torero, M., and von Braun, J. (Eds.)(2006) Information and communication technologies for development and poverty reduction: the potential of telecommunications, International Food Policy Research Institute (IFPRI) / Johns Hopkins University Press.** To Order: http://www.livelihoods.org/cf/srch/live/orderdoc.cfm?dn=358
This book attempts to shed light in how ICT affect economic development in low-income countries, how it affects poor people in these countries and what policies and poverty programs facilitate its potential to enhance development and the inclusion of poor constituents.
Poverty is looked at from the perspective and "livelihood security" which comprises income – determined by physical and human capital, labour, social networks, rights and powers, and access to public goods – and risk (or vulnerability), which is a function of local and international conditions, human behaviour and the probability of shocks affecting income such as illness, loss of employment, natural disasters and so on.
Because telephony is the primary infrastructure that facilitates ICT access this volume largely focuses in telephony as a proxy for ICT more generally. The authors contend that ICTs may contribute to poverty alleviation through the following avenues:

- Making markets more accessible to both households and small enterprises.
- Improving the quality of public goods provision, such as health services.
- Improving the quality of human resources, primarily through education services.

- Allowing more effective utilization of existing social networks, or extending them.
- Creating new institutional arrangements to strength the rights and powers of poor people and communities.

Further findings suggest that:

- As social networks improve, the transmission and usage of ICT should have significant impact on urban-rural information flows, bringing in better trading opportunities for example, or greater credit availability.
- The reduction of the information gap at lower cost is of central importance to the poor. The welfare effect of rural telephone use is verified by the perceptions of rural users of its benefits, the high demand for service, the substantial consumer surplus associated with the telephone use, the willingness to pay for the service on the part of rural households, and results from econometric analyses. These positive effects can be expanded by increasing rural service access, adapting new technologies- such as those provided by telephone- more innovatively.
- Policy problems such as access and price remain and barriers to ICT effectiveness fall into three categories: barrier involving skill levels, barriers involving the ICT use for development related purposes and barriers related to content relevance. Given these barriers, rural ICT expansion may require complementary measures, such as computer and Internet skills training, web pages designed to direct users to locally relevant content, or access that targets specific groups. In many low-income-country contexts, access to telephones is the basis of pro-poor ICT growth because specialised skills are not needed and because telephone access forms a platform for more advanced ICT adoption.
- ICT can be a powerful tool for improving the quality and efficiency of government services, such as in health and education. However, a clear gap still exists in the use of ICT for the deliver of public goods. Some positive cases exist, however, poor people are still excluded from many public services, and ICT has not been adapted to the appropriate delivery of pro-poor public goods in general. On the whole, ICT is still developed by and marketed in high-income countries and innovation and adaptation are not occurring in low-income countries because institutions and markets lack the required capacity.

For potential benefits of ICT to be realised in developing countries many prerequisites need to be put into place: prompt deregulation, effective competition among service providers, free movement and adoptions of technologies, targeted and competitive subsidies to reduce the real gap, and institutional arrangements to increase the use of ICT in the provision of public goods. Access to information through ICT is not only a question of connectivity but also of capability to use the new tools and relevant content provided in accessible and useful forms. We should not overlook the needs for all three "Cs" progress in tandem.

20.UNCTAD Secretariat (2006) Information Economy Report 2006: The development perspective, UNCTAD http://www.unctad.org/Templates/webflyer.asp?docid=7576&intItemID=3991&lang=1&mode=downloads.

Chapter three of this report looks at the latest thinking and practices regarding the use of ICTs for poverty reduction, focusing particularly on ICT policies and programs targeted at the poor. It aims at informing policymakers about best practices and providing recommendations

for institutional development in order to further ICTs for poverty reduction. The leading questions are:

- What does the term "pro-poor ICTs" mean?
- Which are the best-practice pro-poor ICT policies and interventions?
- Which framework can be used to assess whether a given ICT intervention is pro-poor?
- Which institutional handicaps are hindering the use of ICTs for poverty alleviation?
- How can international organizations, national Governments and civil society further support pro-poor ICTs?

A framework is offered to examine the poverty alleviation focus of a given ICT strategy or policy. The framework includes 12 Cs and is applied to two case studies for elaboration. The Cs include: Connectivity, Content, Community, Commerce, Capacity, Culture, Cooperation, and Capital; Context, Control, and Coherence.
The advantages of this framework are the following:

- it can be used at different levels, for specific context and target poor communities
- it forces people to think about issues relevant to the poor, and not about functional ones, such as the legal framework and the budget, and takes into account ICTs' crosscutting nature
- it highlights linkages between different levels of action – macro, meso and micro.
- it draws attention to assumptions, conflicts and visions.

Key recommendations to make a difference with regard to using ICTs for poverty alleviation include:

- Focus on ICTs for poverty reduction. Design and implement sound policies, adopt and adapt best practices, and support approaches, including participation and decentralization, that enable the poor to be heard and participate actively. Mainstream ICTs effectively into national and sectoral poverty reduction policies and programs, while being aware of the crosscutting nature of pro-poor ICTs.
- Mainstream ICTs also into development assistance programs. Donors should also consider the importance of funding ICT infrastructure and other infrastructure favouring poor communities, particularly in least developed countries.
- Understand the poverty implications and gendered nature of ICT policies and programs. Carry out poverty and gender analysis of ICT policies and undertake country reviews of ICT4P policies and programs across sectors and issues areas.
- Promote the scaling up of successful programs by providing an enabling environment and encouraging the development of pro-poor ICT networks. Support local governments and sectoral agencies adopting pro-poor ICT policies and practices, including through fostering awareness of ICT and poverty issues. Promote the development of organizational capacities that help organizations work with other stakeholders in partnership. Support learning approaches by providing programs with long-term support and by the needs of the poor.

21. Vodafone (2005) Africa: The Impact of Mobile Phones. Moving the debate forward, The Vodafone Policy Paper Series, Number 3
http://www.vodafone.com/assets/files/en/AIMP_09032005.pdf.**
[Summary adapted from the authors:] This Vodafone paper aims to assess the economic

impact of mobile telephones in developing countries. The article, Mobile Communications in South Africa, Tanzania and Egypt: Results from Community and Business Surveys presents the results of research into socio-economic impacts of mobile communications on households, rural communities and small businesses in Africa. Some of the questions the research sought to address include:

- Who uses mobile communications services?
- What are the factors that influence ownership, use and non-use of mobile phones?
- What are mobile phones used for – as a consumer good, for business or employment purposes, or both?
- What role do mobiles play in the operation of small businesses in urban and rural areas?
- What social and economic impact are mobile phones having on communities and small businesses in Africa?

The results of the surveys suggest that mobiles have brought considerable benefits to communities and small businesses. People at all income levels are able to access mobile services, either through owning or sharing a phone; and gender, age and education do not seem to constitute barriers to access. While income certainly explains the level of usage, lack of income does not prevent mobile use. Even the absence of electricity does not present an insurmountable barrier, thanks to the sharing of mobiles and recharging batteries in the nearest town, or recharging locally by a generator or car battery.
For the residents of the rural communities, mobile phones have typically had positive economic and social impacts. Mobiles have reduced travel needs, assisted job hunting and provided better access to business information. Greater ease of contact with family and friends has improved relationships. These benefits were reported even though the communities surveyed were amongst the poorest in their countries.
Mobile phones have also become an essential tool for small businesses. A substantial proportion of small businesses have no alternative method of communication. The proportion is highest for black-owned businesses in South Africa and informal sector businesses in Egypt, suggesting that mobiles have become an important tool for disadvantaged groups. A large majority of small businesses said mobiles have brought higher profits, turnover and increased efficiency, although they are also paying higher call charges.

8.10 Donors Supporting ICT for Rural Livelihoods

A small number of donors who have been supporting ICT for Livelihoods approaches over the last few years were interviewed in early 2007 (see the Donor Review for more detail). For some (e.g. IDRC) it is a key research area of strategic importance, while for others work on rural livelihoods and ICT is integrated within other ongoing programs (e.g. UNDP, USAID). While some donors have their own operational programs, others (e.g. DFID, ADB) largely support other development agencies who are working in the area.

Asian Development Bank (ADB)

ADB recognizes that information and communication technology (ICT) is a powerful force in shaping the social and economic development of Asia and Pacific, potentially helping developing countries leapfrog stages of economic development. ADB has adopted a strategic approach to assist its developing member countries to seize the opportunities created by ICT. This approach will support ICT-related activities in ADB's developing member countries to enhance the impact of ADB's poverty reduction strategy and other development activities through three strategic thrusts:

- Creating an enabling environment through fostering: the development of innovative sector policies; the strengthening of public institutions; and the development of ICT facilities, related infrastructure and networks
- Building human resources to improve knowledge and skills and promote ICT literacy and lifelong learning through e-learning and awareness programs
- Developing ICT applications and information content for ADB-supported activities, e.g., poverty reduction and good governance

Ongoing work on ICTs and Rural Livelihoods includes:

Regional education on ICT, with UNESCAP (UNESCO Asia Pacific), ABC-ICT Asia, Asia Pacific Technology Community. Web link: http://www.unescobkk.org/index.php?id=171	Asia Pacific, based in Seoul
Study on rural development, ICT will be considered as part of it, ADB Technical Assistance program	Asia Pacific region
Developing ICT capacity building; ICT best practice notes	Asia Pacific region
Donor East Asia Trust fund set up by Korean government – two parts: ICT projects; knowledge transfer. Projects funded include ICT banking in Cambodia, customs modernisation in Mongolia. Web link: http://www.adb.org/e-asiafund/	East Asia
Improving e-governance of rural poor	Pacific Island
Community centres	South Asia – Bhutan, Nepal, Bangladesh, India (Sri Lanka completed)
Improving poor farmers' livelihoods through access to rice information with IRRI	South East Asia

Broadcast initiative – provide access to health information with Asia Development Community	Asian countries – specifics not known
Focus on ICT in educating in rural areas, training teachers	Central Asia
Rural education program with ICTs, community centres and e-governance	E.Asia – Mongolia, China

Links to further information:

- ADB ICT Strategy (November 2003): http://www.adb.org/Documents/Policies/ICT/

International Development Research Centre

From its creation in 1970, the International Development Research Centre (IDRC) has been committed to advancing the role of information in development. A tradition of innovation that began with an emphasis on building databases and information systems has evolved into a focus on the transformative nature of information and communications technologies (ICTs). IDRC was one of the first development agencies to embrace ICTs as a key means to foster development and alleviate poverty. With established programs like Acacia in Africa, and Pan Asia Networking in Asia, IDRC has acquired a breadth of experience on the impact of ICTs on the lives of people in the developing world.

Ongoing work on ICTs and Rural Livelihoods includes:

Picture Africa. Poverty and ICT research in East Africa. This is a network of four countries using a common methodological framework of micro-economic impacts. Also using an SL approach.	East Africa
West Africa Research Network that will use similar methodology as PICTURE Africa (above) in Senegal. Consortium, Centre for Research Economics in Senegal is managing the project.	Senegal
Research ICT Africa focuses on pro-poor policy and ICTs. Aims to develop effective indicators and ICTs (first rigorous demand side analysis of ICTs). African e-index. Web link: http://www.researchictafrica.net/	Africa
Gender and ICT research network. Web link: http://grace.gn.apc.org/	Not known
Lirne Asia Research network. Web link: http://www.idrc.ca/en/ev-69971-201-1-DO_TOPIC.html	Asia
DIRSI – Latin America ICT4D research network. Web link: http://www.dirsi.net/english/	Latin America

Links to further information:

- Information and Communication technology for Development home page: http://www.idrc.ca/en/ev-43441-201-1-DO_TOPIC.html
- An overview of ICTs at IDRC: http://www.idrc.ca/en/ev-48418-201-1-DO_TOPIC.html
- The Bellanet International Secretariat: http://www.idrc.ca/en/ev-45279-201-1-DO_TOPIC.html
- Connectivity Africa: http://www.idrc.ca/en/ev-85759-201-1-DO_TOPIC.html

- Institute for Connectivity in the Americas: http://www.idrc.ca/en/ev-85839-201-1-DO_TOPIC.html
- Canada's IDRC @ The World Summit on the Information Society (WSIS): http://www.idrc.ca/en/ev-45277-201-1-DO_TOPIC.html
- Pan Asia Networking: http://www.idrc.ca/en/ev-4509-201-1-DO_TOPIC.html
- center.org: http://www.idrc.ca/en/ev-64612-201-1-DO_TOPIC.html

German Agency for Technical Co-operation (GTZ)

ICT is a cross-sectoral theme for German development cooperation. The approach adopted by German Development Cooperation is to integrate ICTs into the various areas it works in, and thus to mainstream ICTs. Mainstreaming is accomplished by: supporting new projects with an ICT component from the project design stage through to the approval procedure at BMZ; elaborating strategic approaches and promotion concepts concerning the use of ICTs in the various fields of Development Cooperation; advising BMZ as part of the follow-up to the World Summit on the Information Society (WSIS); and maintaining existing networks, some of them informal, with national and international experts from civil society, business, administration, research and education. Development projects are implemented in close collaboration with local partners, above all from the private sector. By working with these partners we are able to optimise the results of our projects and achieve greater sustainability by developing, customising and maintaining ICT applications locally.

Ongoing work on ICTs and Rural Livelihoods includes:

Health projects with focus on access to health information e.g. HIV/AIDS	Tanzania
Rural Centers in Bolivia and Peru. Web link: http://www.gtz.de/en/themen/laendliche-entwicklung/15360.htm	Bolivia and Peru
Rural centers	Chile

Links to further information:

- Use of ICTs in GTZ programs: http://www.gtz.de/en/themen/uebergreifende-themen/8266.htm
- ICTs in priority programs: http://www.bmz.de/en/issues/Cooperation/germany/Information_technologies/ICT_Applications.html
- ICTs and Rural Development: http://www.gtz.de/en/themen/uebergreifende-themen/8337.htm
- Knowledge Systems for Rural Development: http://www.gtz.de/en/themen/laendliche-entwicklung/6688.htm
- Sustainet project website: http://www.sustainet.org
- Knowledge systems for rural areas project website: http://www.grz.de/agriservice
- FAO and GTZ book on what works well and what doesn't in rural communication 'Framework on effective rural communication in development': Final version on FAO and GTZ websites soon
- Summary of conference on media in rural development from 2003: http://www.grz.de/de/dokumente/en-newsletter10-2003.pdf

- Paper on the successful use of radio in Peru (in German): http://www.gipfelthermen.de/text/globalegemeinschaft/ uno_infogesellsch/ap_radio.shtml
- Network based on the internet (from AGRISERVICE Bulletin # 13, 05/2005): http://www.grz.de/agriservice
- Harmonisation of donor approaches on agricultural extension (ICT mentioned but not a core component): http://www.neuchatelinitiative.net/images/cf_en.pdf

United Nations Development Program (UNDP)

Since 1992, UNDP has been a pioneer in ICTD. It has gained substantial on the ground expertise and knowledge through global initiatives such as the Sustainable Development Networking Program (SDNP), the Small Islands Developing States Network (SIDSNet) and the Cisco-UNDP Network Academies program for 24 LDCs; regional initiatives such as the Asia Pacific Development Internet Program (APDIP) and the Internet Initiative for Africa (IIA); and national programs such as Ukraine's Free Net, Egypt's Community Access Centers and Cameroon's School Nets. UNDP's ICTD strategy includes both upstream policy advice to help countries design a strategic approach to ICT as an enabler for development, and support to the implementation of ICTD priority programs based on a multi-stakeholder approach. UNDP supports interventions in five strategic areas:

- National ICT for Development Strategies
- Capacity development through strategy implementation
- E-governance to promote citizen participation and government transparency
- Bottom-up ICTD initiatives to support civil society and SMMEs
- National awareness and stakeholder campaigns

Ongoing work on ICTs and Rural Livelihoods includes:

Enabling environment – ICT in PRSP (work on toolkit with detailed case studies of Sri Lanka and Tanzania). Web link:	Global
Shared access to ICT and ICT enabled services – centers in partnership with national partners or agencies such as UNESCO	e.g. Mozambique, Vietnam
Telecottages	East and Central Europe
Connectivity project with 14 linked rural community e-mail stations	Solomon islands
Community driven networks	Uganda, Kenya, Tanzania, Rwanda
E Governance programs – e-governance in Asia	Asia
Local poverty reduction initiatives – contributing to rural development, livelihood creation, livelihood development and pro-poor tourism, SMEs e.g. in Bhutan	Bhutan and elsewhere
Scale-intensive livelihoods initiatives – systemic application of ICT to support rural livelihoods creation, e.g. support to bottom-up approaches involving women in the rural and informal sectors through SEWA	India

Links to further information:

- The **UNDP Asia-Pacific Development Information Program (APDIP)** is an initiative of the United Nations Development Program (UNDP) that aims to promote the development and application of Information and Communications Technology (ICT) for sustainable human development in the Asia-Pacific region. It does so through three core program areas, namely: Policy Development and Dialogue, Access, and Content Development and Knowledge Management. APDIP delivers on its objectives through activities that involve awareness raising and advocacy, building capacities, promoting ICT policies and dialogue, promoting equitable access to tools and technologies, knowledge sharing, and networking. Strategic public-private sector partnerships and opportunities for technical cooperation among developing countries (TCDC) are the key building blocks in implementing each program activity. http://www.apdip.net/
- The **UNDP Europe and Commonwealth of Independent States ICT Theme** works to promote innovative ICT policies and initiatives to ensure that deprived social groups are not left behind or further afflicted in the transition to knowledge societies. The program draws on UNDPs worldwide expertise and best practices to develop strategies that expand access to ICTs and harness them for development and has developed a wide range of information products and tools for policy makers, and practitioners. http://europeandcis.undp.org/index.cfm?menu=p_practice&FocusAreaID=14
- The **UNDP ICT4D Stragtegy** Strategy focuses on policy advice to help countries design a strategic approach to ICT for development with links to Poverty Reduction Strategies (PRS). This is complemented by support to the implementation of ICT4D priority programs. Areas of focus include National ICT for Development Strategies, Capacity development, E-governance, Bottom-up ICTD initiatives to support civil society and SMMEs and National awareness and stakeholder campaigns. http://www.sdnp.undp.org/it4dev/

United States Agency for International Development (USAID)

USAID strategic approach to ICT in development has five principle elements: *Policy*: Promoting pro-competitive policy and regulatory reform in telecommunications and electronic commerce; *Access*: Fostering ICT access for under-served populations, particularly the poor; *Capacity*: Developing the capacity of institutions and individuals; and *Applications*: Demonstrate innovative ICT applications across all development objectives. USAID currently has no specific programs for rural livelihoods and ICTs – most work in this area funded by ongoing programs in other sectors.

Ongoing work on ICTs and Rural Livelihoods includes:

Mobile banking adapted to rural farmers so can make transactions using mobiles. Web link: http://www.bidnetwork.org/article-38042-en.html	Nigeria
Horticulture project, a private sector initiative funded by agribusiness company, which aims to build up horticulture to serve new middle class. Developing ways to use farmers extension services using ICTs e.g. digital photos to farmers so diagnose problems on farm. Farmers keep records on computer which produces information needed for traceability, to track which plot different products are from and what is used on plot. Web link: http://www.acdivoca.org/acdivoca/portalhub.nsf/ID/indiaGMED	India

PEARL project (or successor) helping coffee growers to reposition themselves in the international market. With support have differentiated and improved quality of coffee – and developed partnerships with co-operatives. ICT teams have helped to provide e-mail access in co-ops, using some internet access via mobiles. Also set up a cybercafé. Web link: http://www.pearl.org.rw/	Rwanda
Dozens of other projects that integrate ICTs to enhance rural people's livelihoods	Various
Last Mile Initiative – a specific ICT program (not only a component with a broader project) – to extend telecom access to 30 projects worldwide including radios, wireless. Web link: http://www.usaid.gov/our_work/economic_growth_and_trade/info_technology/last_mile_initiative_details.html	Unknown

Links to further information:

- USAID Information and Communication Technology (ICT) for Development Home Page: http://www.usaid.gov/our_work/economic_growth_and_trade/info_technology/index.html
- USAID Approach to ICTs: http://www.usaid.gov/our_work/economic_growth_and_trade/info_technology/approach/index.html
- **Leland Initiative** The Leland Initiative is USAID's program for bringing the benefits of the information revolution to the people of Africa. In 1996, almost no one in Africa had access to the Internet. In November 2000 Leland Initiative engineers activated the Eritrea national Internet backbone and Internet was brought to the last remaining country on the African continent: http://www.usaid.gov/locations/sub-saharan_africa/initiatives/leland.html
- The **Last Mile Initiative** is a global program to expand the access of the rural poor to communications,partnering with international and local private sector interests to establish sustainable Information and Communications Technology (ICT) services that extend connectivity from the edge of existing networks to the underserved. http://www.usaid.gov/our_work/economic_growth_and_trade/info_technology/last_mile_initiative_details.html
- The **Digital Freedom Initiative** (DFI) aims to harness the strengths of the US public and private sectors to help the developing world utilize information and communication technologies (ICTs) to resolve development challenges. The initiative involves multiple federal agencies, the private sector, non-profit organizations and universities: http://www.dfi.gov/

Department for International Development (DFID)

While DFID has played a leading role in developing ICT4D over the last few years, ICT4D work has now been mainstreamed into all DFID programs and is no longer a core area in its own right. There is no longer a core team working on these issues in the UK, but DFID continues to support other agencies that do this work.

Ongoing work on ICTs and Rural Livelihoods includes:

Research Into Use program – program aiming to maximise the poverty-reducing impact of the outputs of natural resources research in sub-Saharan Africa and South Asia, some using ICT4D. Web link: http://www.researchintouse.com/	Sub-Saharan Africa, South Asia
Support FAO on work on information management, standards, advocacy. Also FAO AGORA Access to Global Online Research in Agriculture website. Web link: http://www.aginternetwork.org/en/	Global
All research money funds are dedicated to IDRC ACACIA. WEb link: http://www.idrc.ca/acacia/	Global
Comprehensive Africa Agricultural development program, have research pillar with ICTs as part of that. Resource and engage with this. Web link: http://www.nepad.org/2005/files/caadp.php	Africa
Knowledge sharing websites e.g. Livelihoods Connect, Eldis. Web links: http://www.livelihoods.org/ http://www.eldis.org/	Global
Project: lesson learning about the processes of bringing national research, advisory agents and private sector together and communication pathways. WREN media. Web link: http://www.research4development.info/projectsAndPrograms.asp?ProjectID=50138	Kenya
Capacity building of journalists to research and research institutes to engage with the media. PANOS.	Global
Television drama series. Web link: http://www.research4development.info/projectsAndPrograms.asp?ProjectID=60313	Kenya, Uganda, Tanzania
Other radio, broadcast projects on research 4 development portal. Web link: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=Media%20and%20Broadcasting&SubTopicID=30&TopicID=6	Not known
Mobile phone banking project (partly funded by Vodafone)	Namibia, South Africa, Kenya
ATM and debit cards using biometrics (finger prints)	Malawi

Links to further information:

- DFID's Research 4 Development Portal lists all the research projects funded by DFID in the last 5 years on:
  - ICTs: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=ICT%20Research&SubTopicID=27&TopicID=6
  - The Internet: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=Internet
  - The Media and Broadcasting: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=Media%20and%20Broadcasting&SubTopicID=30&TopicID=6
  - International information systems: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=Media%20and%20Broadcasting&SubTopicID=30&TopicID=6

8.11 Other Organisations working on ICT for Rural Livelihoods

The Communications Initiative (CI) is a partnership of development organisations seeking to support advances in the effectiveness and scale of communication interventions for positive international development. The CI strategy includes providing the latest information on communication and development experiences and thinking, facilitating horizontal linkages between people engaged in communication action, peer commentary on programs and strategies and taking opportunities to promote strategic thinking on communication and development issues and problems. http://www.comminit.com/

The **Global Knowledge Parntership (GKP)** is the world's first multi-stakeholder network promoting innovation and advancement in Knowledge for Development (K4D) and Information and Communication Technologies for Development (ICT4D). GKP brings together Public Sector, Private Sector and Civil Society organisations with the goal of Sharing Knowledge and Building Partnerships in K4D and ICT4D. GKP activities and programs foster the innovative application of knowledge and technology to address and solve development issues in four strategic themes – Access to Knowledge, Education, Poverty Reduction and Resource Mobilisation. http://www.globalknowledge.org/

The **Institute for Development Policy and Management Development Informatics Group** at the Institute for Development Policy and Management (IDPM) seeks to maximise the contribution of information and ICTs to economic and social development. It focuses particularly on understanding, developing and managing information systems, including applications such as e-commerce, e-government, e-development and e-learning: all approached from a socio- technical perspective. http://www.sed.manchester.ac.uk/idpm/research/is/index.htm

Making ICT Work for the Poor is a UNDP program in East Africa aiming to promote pro-poor ICT policies, enhance the capacity of policy makers to integrate ICT into other policies for development (e.g. e-strategies, licensing), poverty reduction strategies and/or other relevant strategies (e.g. rural development, decentralization and strengthening of local government), and financing of ICT (e.g. universal access funds, local resource mobilization strategies, e-strategy/poverty reduction strategy), and to create the space for and strengthen the linkages with more downstream pro-poor access and community-based initiatives. http://www.propoor-ict.net/live/content/view/16/30/

Practical Action ICT4D Program aims to enable poor women and men to assess and respond to the challenges of new technologies, and to develop and adopt applications that increase their understanding and enable them to respond to the opportunities and threats presented by rapidly developing modern technologies, such as information and communication technologies (ICTs). http://www.ict4development.org/

Research ICT Africa! seeks to fulfil a strategic gap in the development of a sustainable information society and knowledge economy on the African continent by building information communication technology (ICT) policy and regulatory research capacity in Africa needed to inform effective governance. Through a network of African researchers it generates information and analysis to inform policy formulation and effective regulation of ICTs across Africa. The Research ICT Africa! partners include tertiary institutions and development agencies in Botswana, Cameroon, Ethiopia, Ghana, Kenya, Mozambique,

Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda and Zambia. http://www.researchictafrica.net/ http://www.researchictafrica.net/

Center Org is a community of people and organizations committed increasing the impact of centers around the world. We work together to create the resources centers need to succeed: Locally relevant content and services Support and learning opportunities Networks that help center people connect to each other With these things in hand, tens of thousands of centers will be in a better position to enrich the communities they serve. The center.org community includes grassroots activists, national center networks, content and service providers, governments, and organizations who fund center activities. Initial efforts to convene and resource this community were led by a consortium of Canada's International Development Research Centre (IDRC), Microsoft, and the Swiss Agency for Development and Cooperation (SDC). http://www.center.org/ http://www.center.org/

The **UNDP Asia-Pacific Development Information Program (APDIP)** is an initiative of the United Nations Development Program (UNDP) that aims to promote the development and application of Information and Communications Technology (ICT) for sustainable human development in the Asia-Pacific region. It does so through three core program areas, namely: Policy Development and Dialogue, Access, and Content Development and Knowledge Management. APDIP delivers on its objectives through activities that involve awareness raising and advocacy, building capacities, promoting ICT policies and dialogue, promoting equitable access to tools and technologies, knowledge sharing, and networking. Strategic public-private sector partnerships and opportunities for technical cooperation among developing countries (TCDC) are the key building blocks in implementing each program activity. http://www.apdip.net/

The **UNDP Europe and Commonwealth of Independent States ICT Theme** works to promote innovative ICT policies and initiatives to ensure that deprived social groups are not left behind or further afflicted in the transition to knowledge societies. The program draws on UNDPs worldwide expertise and best practices to develop strategies that expand access to ICTs and harness them for development and has developed a wide range of information products and tools for policy makers, and practitioners. http://europeandcis.undp.org/index.cfm?menu=p_practice&FocusAreaID=14

UNESCO's International Initiative for Community Multimedia Centres (CMCs) promotes community empowerment and addresses the digital divide by combining community broadcasting with the Internet and related technologies. The program aims to empower poor people to use information and communication tools to improve their own lives by combining community radio by local people in local languages with community center facilities (computers with Internet and e-mail, phone, fax and photocopying services). http://portal.unesco.org/ci/en/ev.php-URL_ID=1263&URL_DO=DO_TOPIC&URL_SECTION=201.html

The United Nations Institute for Training and Research (UNITAR) Technology and Information Systems for Sustainable Development Program aims to enhance the ability of LDCs to express their needs with regard to the role that information technology can play in alleviating poverty, supporting good governance and human rights protection. http://www.unitar.org/ict http://www.unitar.org/ict

The **USAID Last Mile Initiative** is a global program to expand the access of the rural poor to communications, partnering with international and local private sector interests to establish sustainable Information and Communications Technology (ICT) services that extend connectivity from the edge of existing networks to the underserved.

http://www.usaid.gov/our_work/economic_growth_and_trade/info_technology/last_mile_initiative_details.html

The **World Resources Institute Digital Dividend** aims to identify and promote sustainable solutions for bridging the global digital divide—catalyzing large-scale use of information and communications technologies (ICTs) to create social and economic "dividends" in poor communities throughout the developing world by providing information services, including Clearinghouse project data and analysis, full-length business case studies, news alerts, and strategy consulting to help and encouraging Companies to provide critical information, tools, and services to poor communities throughout the developing world--profitably, Development agencies to implement bottom-up strategies for improving the effectiveness of their services, and for providing services more sustainably, and Grassroots NGOs and entrepreneurs identify and refine promising business models as well as locate sources of funding and other support they need to go to scale.

http://www.digitaldividend.org/index.htm

8.12 Other Sources of Information on ICD4RL

The **ACACIA Initiative** aims to establish the potential of ICTs to empower poor African communities by demonstrating how ICTs can enable communities to solve their development problems in ways that build on local goals, cultures, strengths, and processes and building a body of knowledge capable of identifying the policies, technologies, approaches, and methodologies instrumental in promoting the affordable and effective use of ICTs by marginalized communities, such as women. http://www.livelihoods.org/info/linksevents_sub/Linksevents_ACACIA_ICT4D.html

CTA is an ACP-EU institution working in the field of information for development http://www.cta.int/index.htm. Based in The Netherlands, its mandate is to improve the flow of information among stakeholders in agricultural and rural development in African, Caribbean and Pacific (ACP) countries. It does this through providing information products and services, promoting the integrated use of communication channels, old and new, to improve the flow of information, and building ACP capacity in information and communication management (ICM), mainly through training and partnerships with ACP bodies. Useful subsites with information on ICD4RL include:

- ICT Update http://ictupdate.cta.int/
- Rural Radio Resource Packs http://ruralradio.cta.int/
- Information and Communication Management Skills and Systems http://www.cta.int/icmss/index.htm

DFID's **Research 4 Development Portal** lists all the research projects funded by DFID in the last 5 years on:

- ICTs: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=ICT%20Research&SubTopicID=27&TopicID=6
- The Internet: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=Internet%20Services&SubTopicID=29&TopicID=6
- The Media and Broadcasting: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=Media%20and%20Broadcasting&SubTopicID=30&TopicID=6
- International information systems: http://www.research4development.info/projectsAndProgramsResults.asp?search=simple%20List&Topic=Media%20and%20Broadcasting&SubTopicID=30&TopicID=6

Several departments of **FAO** http://www.fao.org have useful information about ICD4RL including:

- Sustainable Development Department on rural radio for community development, video and multimedia modules for farmer training, and the Internet for linking researchers, educators, extensionists and producer groups to each other and to global information sources. http://www.livelihoods.org/info/linksevents_sub/linksevents_fao_ICT4D.html
- World Agriculture Information Centre Portal on Information Management http://www.fao.org/waicent/st/level_1.asp?main_id=11
- ICTs for Sustainable Livelihoods http://www.fao.org/sd/CDdirect/CDre0055d.htm

- Bridging the Rural Digital Divide (BRDD) http://www.fao.org/rdd/background_en.asp
- BRDD ICD Approaches http://www.fao.org/rdd/ICDappr_en.asp
- Discovering the "Magic Box": Local appropriation of information and communication technologies (ICTs) http://www.fao.org/sd/2001/KN0602a_en.htm

The **Information and Communications Penetration in South Africa Portal** has been developed in order to share a wide range of information on ICTs within the country, regionally, continentally and globally. This information will be in the form of research reports, publications, articles and other sources of information. Five themes have been identified thus far, namely: Policies and strategies, Universal service and access indicators, ICT trends, Capacity building, and Youth and ICT. http://www.ictportal.org.za/index.php

The **International Institute for Communication and Development** (IICD) assists developing countries to realise locally owned sustainable development by harnessing the potential of information and communication technologies (ICTs). IICD works with its partner organisations in selected countries, helping local stakeholders to assess the potential uses of ICTs in development. It also strengthens the capacities of local partners to formulate, implement and manage development policies and projects that make use of ICTs.

The **Institute of Development Studies** (IDS) is a leading global organisation for research, teaching and communications on international development. http://www.ids.ac.uk. Units and Departments with information on ICD4RL include:

- Livelihoods Connect is a learning platform for creating sustainable livelihoods to eliminate poverty. It provides a suite of information sharing, learning and management tools for researchers, policy makers, consultants and practitioners working in a broad range of institutions around the world. http://livelihoods.org
- ICT for Rural Livelihoods Hot Topic Page http://www.livelihoods.org/hot_topics/ICT4D.html
- Eldis ICT for Development Resource Guide http://www.eldis.org/ict/index.htm
- The Strategic Learning Initiative aims to help strengthen existing capacity and commitment to implement information-based interventions that are strategic and accountable for their contribution to increasing social justice and reducing poverty http://www.ids.ac.uk/ids/info/sli.html

***info*DEV** works to promote better understanding and effective use of information and communication technologies (ICTs) as tools of poverty reduction and broad-based, sustainable development. infoDev's work focuses on three main themes: Access for All; Mainstreaming ICT; and Innovation, Entrepreneurship & Growth. http://www.infodev.org/en/index.html

- Livelihoods of the Poor http://www.infodev.org/en/Topic.10.html
- ICTs and Rural Livelihoods Knowledge Map http://www.infodev.org/en/Article.72.html
- Information and Communication Technologies for Development http://www.infodev.org/en/Topic.13.htm
- Quick Guide to FAO ICT and Rural Livelihood Resources http://www.infodev.org/en/Publication.183.html

- Quick Guide to ICT and Rural Livelihood Resources Online http://www.infodev.org/en/Publication.182.html
- Information And Communication Technologies, Poverty And Development. Learning From Experience http://www.infodev.org/en/Publication.17.html

The **Overseas Development Institute** (ODI) is the UKs leading Think Tank on International Development. http://www.odi.org.uk. ODI's Research and Policy in Development Program, has been working on ICD4RL issues for several years. Key on-line resources include:

- A Strategic Program for Information on Sustainable Livelihoods: A six month project to help FAO develop a strategic program to improve the effectiveness of FAO's information systems in influencing poor people's livelihoods. http://www.odi.org.uk/RAPID/Projects/R0093/index.html
- An annotated bibliography on ICD4RL http://www.odi.org.uk/RAPID/Projects/R0093/bibliography.html
- Livelihoods Approaches to Information in Support of Rural Livelihoods links to country studies in Ghana, India and Uganda and the final project reports http://www.odi.org.uk/RAPID/Projects/R0093/Final_Reports.html
- Livelihoods Approaches to Information in Support of Rural Livelihoods Final Publication (Pdf 1.3MB!) http://www.odi.org.uk/RAPID/Publications/Documents/SPISSL_WP_Complete.pdf

The GAMOS **Sustainable Initiatives Program** conducts research into Information and Communication Technology (ICT) sustainability factors. Funded by the Department of International Development (DFID), the program identified activities that sought to benefit the poor and had an ICT component. In particular it considered programs where ICTs had enhanced ongoing development activities, the ICT activity could be replicated without sizeable investment, and there was a measure of sustainability. Sustainability was taken to be more than financial cost recovery. http://www.sustainableicts.org/index.html

The **UNDP ICT4D Strategy** focuses on policy advice to help countries design a strategic approach to ICT for development with links to Poverty Reduction Strategies (PRS). This is complemented by support to the implementation of ICT4D priority programs. Areas of focus include National ICT for Development Strategies, Capacity development, E-governance, Bottom-up ICTD initiatives to support civil society and SMMEs and National awareness and stakeholder campaigns. http://www.livelihoods.org/info/linksevents_sub/linksevents_UNDP_ICT4D.html

The **World Bank Institute Knowledge 4 Development Community** aims to build a roster of experts from across the sectors, networks, and regions of the Bank to share knowledge work and strategies through e-discussion and face to face meetings; provide support and advice to people working on strategies to help countries make more effective use of knowledge for development; share knowledge and facilitate collaboration with the external community to who want access to World Bank thinking on knowledge related issues. http://www.livelihoods.org/info/linksevents_sub/linksevents_WBK4D_ICT4D.html

8.13 Other Project-Level Case Studies

This section contains a list of other project-level case studies which were mentioned by informants during the course of the project, but which do not necessarily fit under the source sections on donors, organisations, programs or web portals.

The **Arid Lands Information Network-Eastern Africa** (ALIN-EA) promotes the exchange of ideas and experiences among grassroots change agents as away of enabling them learn from one another through Capacity building and Innovative use of ICTs. http://www.alin.or.ke/default/index.asp

Farmersneeds is a demand-driven information system for life-long learning and improved food and livelihood security for farmers in Northern Nigeria. The Goal of farmersneeds.org is to increase life-long learning opportunities and improve food and livelihood security of rural farmers by facilitating access to information on food production, processing, marketing and rural enterprise development. It also helps to promote agroenterprises. http://www.farmersneeds.org/

Gamos – Remittances: A project website providing information about the impact of remittances and their role in development, the policy and regulatory environment surrounding remittances, and some of the alternative methods for money transfer. http://www.remittances.info/

Kenya Agricultural Information Network: Established in September 2006 with the support of FAO and DFID, the new Kenya Agricultural Information Network (KAINet) aims to improve the visibility, accessibility, and impact to Kenya's agricultural scientific outputs. http://iaald.blogspot.com/2006/11/kenya-agricultural-information-network.html

The **Knowledge Networking for Rural Development in the Asia Pacific Region** program, an IFAD-IDRC collaboration, leverages a growing body of useful information generated by development projects and made available on the Internet. The program, now in its second phase and running until the end of 2005, is designed to bring the benefits of accessing and sharing global information resources to IFAD-supported rural development projects in the Asia Pacific region. Effective use of Internet and electronic communication by project staff and, ultimately, by project communities will contribute to the empowerment of rural people and help them better address their development objectives. http://www.enrap.org/index.php?module=htmlpages&func=display&pid=5

One World – South Asia – Grassroots Communication: Grassroots Communication at One World South Asia is an effort towards easy flow of information at various levels through the use of information and communication technologies. It is an attempt towards building communication opportunities for the grassroots by facilitating knowledge sharing between and among communities. http://southasia.oneworld.net/article/archive/7152/

The **People First Network** is a rural networking project that promotes rural development and peace building by enabling affordable and sustainable rural connectivity and facilitating information exchange between stakeholders and communities across the Solomon Islands. It has established a growing rural communications system based on wireless email networking, in the HF band, and deployed with full community ownership. http://www.peoplefirst.net.sb/general/PFnet.htm

SANGONeT was founded in 1987, and over the past 20 years has developed into a dynamic civil society organisation with a history closely linked to the social and political changes experienced by South Africa during its transition to democracy. SANGONeT is still one of very few NGOs in Africa involved in the field of information communication technologies (ICTs) and continues to serve civil society with a wide range of ICT products and services. http://sangonet.org.za/portal/ http://sangonet.org.za/portal/

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8.15 Individual user responses

Part 1

ID: 1533 Date responded: 2007-04-20

Your Details
Job Title Senior Program Manger - Documentation & Information
Organisation SADC Plant Genetic Resources Centre (SPGRC)
Country of operation ZM

Type of organisation
Other (please specify) Regional Inter-Governmental

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
The SPGRC co-ordinates plant genetic resources activities in the 14 SADC Member States and promotes sustainable utilisation of plant germplasm by national and regional scientists. These include among others, the collection, conservation, documentation and utilization of the plant germplasm. For this to happen, SPGRC has developed a SPGRC Documentation and information System (SDIS) that avails a standard computerized databases in the SPGRC network. Inside the SDIS, geographic and cartographic representation of genetic resources in the region is done, i.e. SDIS and GIS are integrated. In terms of use of technology, SPGRC has a web site that is frequently improved and updated and most information shared through it. In each SADC member state, SPGRC has a collaborating National Plant Genetic Resources Centre (NPGRC) with which it works, shares information and products, particularly, the plant genetic materials. To ensure, a wealth of knowledge, SPGRC has a small but well-stocked and up-to-date library that serves the network.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Policy

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Problems include: 1. Non-affordability by many, of the ICTs; 2. Poor infrastructures; 3. Short of skills in many areas of expertise; 4. Little acceptance of ICTs (threat to transparency) by bureaucrats

2
Description Approaches: May not be suitable to users, esp. for those imposed on by donors (equipment, software, skills, etc.) may not command sustainability;

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Basic

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Short summaries
Detailed descriptions
Links to further information

What is your level of responsibility?
Policy /strategy

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
A number of documents in a recognisable series

ID: 1534 Date responded: 2007-04-20

Your Details
Job Title Editor
Organisation ILEIA
Country of operation NZ

Type of organisation
National NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
ILEIA uses magazines and websites to exchange information on low external input and sustainable agriculture. Our aim is to provide small scale farmers with options to improve their productivity and income in an ecologically sound way, and so contribute to the alleviation of poverty.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Livelihoods / rural development

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies

What level of complexity is needed
Intermediate

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Short summaries
Links to further information

What is your level of responsibility?
Operational

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
All compiled into a book

ID: 1535 Date responded: 2007-04-20

Your Details
Job Title Director Assistant
Organisation Institute os Sci-Tech Information, Guangdong Academy of Agricultral Sciences
Country of operation CN

Type of organisation
National donor

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
We focus on agricultual information resource development and service network building in Guangdong province, where citizen living quality varies significantly due to the distribution of geo-economic factors from The Pearl Delta at the south to the mountain areas across the easten, northen and westen territory. ISTI has now establied the largest database on Agricultual knowledge as well as an information service network in Guangdong and become the main consulting partner for the provincial goverment on Five-year Agriculture Development Planning. our information resource aare mainly served the endusers via Internet, Mobile phone, Tele-TV. some traditional printed stuff are also welcome by the endusers. by far the most welcome into type is the internet text-based expert consultation, printed copies and the face-to-face on-site trainning.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Policy
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Value-added information service,since the goverment cannot always invest money into this area.

2
Description the terminal must be easy to use, like a mobile phone and TV, any mobile-based

application seems too complicated to the people without enough education or to the people who think it is tedious if not a in-time response coulbe be experienced

3
Description it shoule be interesting and attractive

What types of information would be most helpful on these issues?
Examples or case studies
Other (please specify) risk-free
Practical "How-tos"

What level of complexity is needed
Basic
Comment interesting and attractive, encouragable

Which media are most useful to you
Printed reports

What is your level of responsibility?
Policy /strategy

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment but not significantly at current stage

How should the overall product be packaged?
All compiled into a book

ID: 1536 Date responded: 2007-04-20

Your Details
Job Title Sr. Agricultural Research Officer
Organisation GFAR
Country of operation IT

Type of organisation
Other (please specify) Global ARD Platform

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
The Global Forum on Agricultural Research (GFAR; http://www.egfar.org) is involved in improving information systems for agricultural research for development (ARD). Its main focus is on improving information management for ARD through strategic thinking, consensus building, sensitization and advocacy, supporting capacity development, improving integration of information and information systems and governance of information management for ARD at national, regional and global levels. Through improving information management related to ARD, GFAR is contributing to alleviation of poverty, eradication of

hunger, environmental sustainability and sustainable rural livelihoods.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Policy

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Key problem: Access to information on ICT related policies and strategies for agricultural and rural development. Issue: Many countries in the South do not have explicit policies for use of ICT for agricultural and rural development. This is a key starting point if ICTs are to improve rural livelihoods. Methods to improve access to this information: There is a need to support organizations to collect, collate and make this information accessible. GFAR can collaborate and take lead for managing this information related to agriculture and ARD.

2
Description Key Problem: Lack of investment in information and communication management through ICT for improving rural livelihoods especially those involving agriculture and related activities. Issue: Investments in the area are lacking because convincing evidence of impact of ICTs on rural/agricultural livelihoods is weak or not existent. Use of ICTs in rural areas is considered as costly by Governments and donors. Pilot projects for using ICTs in rural areas for development funded by donors have promised more than they can actually deliver. Method: There is a need to collect and collate information on National and Global investment in ICT use (infrastructure and information services such as in agriculture, governance, health and education) for rural development. There is also a need to identify successful private sector investment in ICT (infrastructure and services) in rural areas . There is a need to understand why pilot projects have not really delivered the potential for ICT use to contribute to rural livelihods.

3
Description Key problem: Content that is accessible, useful, relevant and timely that contributes to rural livelihoods that can be delivered by ICT. Issue: Most pilot projects in ICT use for rural development have focussed on technology rather that linking information to rural users. In agriculture information needed by farmers and farming communities now goes beyond just agricultural technology such as seed, fertilizer, pesticide etc. Farmers need information related to market participation and ability to solve their own unique problems. The information needed by farmers is not available from any global or national provider. Method: If ICTs are to contribute to rural livelihoods, content needed by rural people need to generated and made available and accessible. Rural people should also be able to share their information and needs. Such bidirectional flow of information, made possible by new ICTs, has to be central to generation of content and its effective use.

What types of information would be most helpful on these issues?
Guidelines
Academic reviews
Examples or case studies
Bibliographies
Other (please specify) Databases, GIS
Other (please specify) Simulation Models sch as of information flows for entrepreuners

Practical "How-tos"

What level of complexity is needed
Intermediate
Comment Depends on whom you are addressing.

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Indexed content
Detailed descriptions
Links to further information
Other (please specify) Maps
Other (please specify) Visualization of Simulation Models

What is your level of responsibility?
Policy /strategy
Operational
Administrative

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
In my opinion there has been a lack of support for use of ICT and improving ICM in agriculture and agricultural research for development. The global information base in the area of policy and strategies for improved ICM in agriculture and ARD is lacking. There is very little done to collate and make available information on generation of content useful for rural livelihoods. Donor strategies in the area of supporting ICT use and ICM in ARD have been dismal compared to the magnitude of issues being faced by agricultural research and development organizations of the South.

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
There cannot be one single approach. The aim is to mobilize a large community of actors, stakeholders and users. In my opinion this section of question illustrates the lack of understanding by donors of the issues related to use of ICTs to contribute to rural livelihoods.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment GFAR stakeholders from the South see ICT in ARD as a critical area to developing agriculture.

How should the overall product be packaged?
Individual publications on each topic area

ID: 1540 Date responded: 2007-04-20

Your Details
Job Title Manager
Organisation Center for Science Development and Media Studies
Country of operation IN

Type of organisation
International NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
We are committed to advocacy and developing knowledge solutions for under-privileged societies through the use of innovative and effective Information and Communication Technologies (ICTs). Our activities are targeted to meet the needs of society in the development sector through research in the field of ICT, undertaking development projects through the usage of knowledge-sharing tools and products like print and electronic media, and building capacity through training programs. Our multi-cultural team has expertise from across disciplines. Our publications i4d (i4donline.net), egov (www.egovonline.net), digital learnig (digitallearning.in, ehealth (ehealthonline.org)

Please indicate your area(s) of expertise concerning livelihoods and ICT
Policy
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description I have one serious issue to raise and that is relating to authenticity of infomation pertaing to daily market prices of agri-commodities. The info available on various sites is not real, nor reliable, nor up to date. Onus lies on whom to provide the right and complete information.

What types of information would be most helpful on these issues?
Examples or case studies
Other (please specify) Is there some one responsible to question the sate of affair and to ensure the availbilty of right information
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Indexed content

What is your level of responsibility?
Operational
Other (please specify) Organising and managing debates, conferences, networking

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment Yes, ICTs can work wonders, with proper solutions and right media which is customised to local environment.

ID: 1542 Date responded: 2007-04-20

Your Details
Job Title documentalist
Organisation FOFIFA-CENRADERU
Country of operation MG

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
As a National Center for APPLiiedd Research to the rural development, his search activities are : - agronomy - zootechnics - forest sciences - environment protection - soil conservation - pisciculture - agricultural hydraulics - technology - post-harvest conservation - agricultural mechanization - research - development

Please indicate your area(s) of expertise concerning livelihoods and ICT
Livelihoods / rural development

What types of information would be most helpful on these issues?
Guidelines
Academic reviews
Examples or case studies
Bibliographies

What level of complexity is needed
Basic
Comment Because weare only the beginner in english

Which media are most useful to you
CD-ROM

What format(s) and features would be most useful?
Detailed descriptions
Links to further information

What is your level of responsibility?
Administrative

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
As a responsible for a library, I and my staff in the library would like study thoroughly english langage

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
All compiled into a book

ID: 1551 Date responded: 2007-04-20

Your Details
Job Title PhD candidate
Organisation University of Guelph
Country of operation CA

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Teaching, research, extension, capacity development, service learning.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Policy
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Availability and access to ICTs, need to develop capacity through the use of ICTs. ICTs should be a source of innovation and competitiveness, not just an additional expense to rural communities.

What types of information would be most helpful on these issues?
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Web-based

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment Better locacte experty through online databases

How should the overall product be packaged?
Other (please specify) a dynamic piece of resource that can be updated regularly

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ID: 1552 Date responded: 2007-04-20

Your Details

Job Title Specialist in [Ag] Technology and Innovation
Organisation IICA
Country of operation CR

Type of organisation
Other (please specify) International technical cooperation

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Advocacy and capacity building for information management (and taking advantage of ICTs) is a growing field within technical cooperation services IICA provides.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Information access is not a key problem for us.

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Detailed descriptions
Links to further information

What is your level of responsibility?
Operational

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
--

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
Individual publications on each topic area

ID: 1553 Date responded: 2007-04-20

Your Details

Job Title Manager of web and distribution services

Organisation IFAD

Country of operation IT

Type of organisation

International donor

Please give a short description about your organisation's activities relating to ICT and rural livelihoods

First Mile Project In 2005, First Mile Project started working with small farmers in parts of Tanzania to improve their access to markets and market information. First Mile Project was implemented in collaboration with the Agricultural Market Systems Development Program (AMSDP) of the Tanzanian Government. The AMSDP is a seven-year IFAD-funded program which aims to increase poor rural people's food security and incomes by improving the structure and performance of the embedding ICTs in a larger, demand-driven◊country's crop marketing systems. development effort The project tackled the following challenges: • Facilitate learning among local groups to improve market linkages • Generate locally developed good practices in building market chains, through use of ICTs [demand-driven local content] • Empower small farmers to achieve for themselves greater access to market information and market intelligence, as their needs evolve This project embraced the paradigm of horizontal communication and recognized that no one could afford capturing and generating knowledge in isolation. It recognized that people have power because people create, share and use knowledge. It embraced two dimensions of knowledge management: the "collecting" and a "connecting" dimension. The collecting dimension involved linking people with information. It related to the capturing and disseminating explicit knowledge. The connecting dimension involved linking people with people - specifically people who need to know with those who do know. It was through human interaction and communication that tacit knowledge flowed and this is how knowledge is widely disseminated and not just held in the heads of a few. Knowledge was disseminated through Linking Local Learners network, which is more than a website as it is a way of working that combines face-2-face learning with peer-2-peer learning in which groups share knowledge and experience locally and over the internet. The network created demand-driven content and responded to local needs by creating locally relevant content. The district core groups shared lessons and good practices with farmers' groups and others throughout the district through mobile phones, face-2-face meetings, village billboards and importance of relevant and local content◊other channels such and the internet and converging of old and new ICTs The project concentrated on building the capacity of small teams of rural service providers in 14 districts. Known as district core groups, the teams played a key role in linking farmers with other participants in market chains and building partnerships. Sometimes, they also helped farmers broker better deals. The First Mile built the capacity of rural service providers to use modern ICTs like

mobile phones and the Internet to get the fast responses required to improve marketing. The project also started exploring how to build ICT services which were not yet available in the Adopt a community-based approach to ICT Through this project,◊districts. farmers were able to make new deals, by working in collaboration with others in market chains. Deals were often brokered with the assistance of AMSDP district core groups, and very often by using mobile phones. These experiences were shared between districts, through Linking Local Learners, inspiring others to Participatory approach – involving◊pick up on innovative ideas and practices. people at all stages – from needs assessment to monitoring For an initial investment of US$200,000 from Swiss Supplementary Funds, contribution in kind from IFAD, support of AMSDP, the First Mile activities have contributed to a gross increase in income among project participants of more than US$1.8 million. In just one season, some small farmers doubled and sometimes quadrupled marketed volumes and increased their income. For example, five farmers' associations in Songea and Namtumbo districts managed to sell 70 tonnes of maize at US$ 143 per ton in early 2006 by using mobile phones, price updates broadcast by radio and the market intelligence gathered by shushushus, or market spies. This was more than double the price obtained by other farmers' groups in the same period who didn't have access to near real-time market intelligence. Farmers in Hai district earned higher gross incomes because they were marketing commodities they had not sold before. For example, 156 producers earned US$32,000 selling Leadership◊safflower directly to the export company Quality Food Products Ltd. and institutional ownership, appropriate technology and trust First Mile project showed that poor rural people can come up with innovative solutions if they are given the support they need to be able to try out new ideas and exchange learning, relevant local knowledge and experience. To do this, they used new ICTs, especially the mobile phones that are spreading rapidly throughout the country, combined with face-to-face learning events, and use of the Advocacy at all◊Internet-based learning platform, Linking Local Learners. levels by bringing together development and technology experts The First Mile Project paradigm is now being replicated in IFAD projects and programs in Latin America. The catalyst for this replication was a South-South exchange. Last March a team of Peruvian farmers and producers from the IFAD-funded Puno-Cusco Coredor project joined the First Mile workshop in Morogoro. The Peruvian colleagues benefited from the discussion and could assess first hand the impact of the First Mile Project on the market chain development. They particularly found the core groups an innovative way of networking. As a result, back home, they shared their learning with other colleagues and consequently revisited the market access component of the project. As we speak, a member of the First Mile Project is visiting two projects in Ecuador and Peru with market access components. Although, the First Mile Project and other ICT initiatives have helped improve rural livelihoods, the development community still needs to address a number of challenges, such as: • Converge the interest of the developed world with those of the developing countries, converge interest of government, private sector, telecom incumbent and the rural poor people's needs in order to create synergies and partnerships • Include ICTs in PRS • Bridge the disconnect between on-the-ground efforts to address local information needs and policy processes • Understand importance of local context • Ensure policies and processes are grounded in real life experience and meet the real user needs • Disseminate transparent information in order to empower people to make better decisions • Promote convergence of old and new technology, by creating a three-tier systems: public, commercial and community

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Converages of old and new technology. ICT is not just internet and mobile phones, but also old technology such as radio.

2
Description Absence of ICTs from PSR process

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Other (please specify) What I find useful may not be the same as what the recipient finds useful We should have both electronic and print

What format(s) and features would be most useful?
Short summaries
Links to further information

What is your level of responsibility?
Operational

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
We need to pay special to: - Ownership and appropriation – participation at inception level and ownership of the entire process. This entails strengthening the local capacity to understand the importance of knowledge and networking in social development - Development of local content – localizing. Provide relevant information and allow farmers to develop their own demand-driven content - Language and cultural pertinence – language is a vehicle that communities use to communicate but also the essence of their identity - Convergence and networking – make world smaller and communities bigger - Appropriate technology – assess the real needs and provide the farmers with what they really need - Increase bargaining and purchasing power of rural poor by providing transparent, localized and relevant information - Ensure participation of rural communities in policy processes

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
Individual publications on each topic area

ID: 1556 Date responded: 2007-04-21

Your Details
Job Title Assistant Professor (Agrl. Extension)
Organisation Agricultural College and Research Institute, Tamil Nadu Agricultural University, Madurai, Tamil Nadu
Country of operation IN

Type of organisation
Government

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Tamil Nadu Agricultural University has been playing a significant role in the agricultural development of Tamil Nadu for the past three decades. The University is responsible to a great extent for the modernization of agriculture sector in the state and as the premier institution provides agricultural education, research and extension services at the state level. TNAU generates much needed quality human resources for the development of agricultural sector in Tamil Nadu, besides training thousands of farmers and development department personnel on improved farm technologies and practices it provides various extension services to all the stake holders. The Directorate of Extension Education of the University is responsible for transferring the new technologies developed by the scientists of the university to the farmers through State Departments of Agriculture, Horticulture, Sericulture, Agricultural Engineering, Seed Certification, Animal Husbandry and Forestry and other agencies. TNAU is using the state-of-the-art tools like, farm advisory services through on-line, video and audio conferencing, interactive multimedia for semi and illiterates, toll free phone enquiry, etc.,. The constituent unit of this Directorate are i) Communication Centre ii) Training Division iii) Information Centre and iv) Video Library. Further TNAU organizes a series of 'Farmers Day' annually in most of the college campuses and research stations to exhibit and demonstrate the technologies and transfer information to the farmers and get their feed back. The Communication Centre conducts distance education programs like Correspondence courses, farm school on All India Radio, Audio and Video cassette lessons for knowledge and skill upgradation of the farming community. During the past five years about 7500 farmers have been benefited through 52 correspondence courses and about 15000 registered farmers were directly benefited through 43 Farm School on AIR programs. The transfer of technology is effectively carried out by the fourteen Krishi Vigyan Kendras and five Plant Clinic Centres created in seven agro-climatic zones.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Policy
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Agriculture is the lifeline of Indian economy. The sustainability of agricultural growth has been the focuses issue of the nation over the years. Transfer of technology generally aims at speedy diffusion of novel agricultural information from the place of invention (lab) to the place of adoption (land). For about five decades the information and communication tool has been conventional and only Home visit and Personal approach has been adopted by the extension personnel to disseminate the technical information to farmers.

This method has been found time consuming and failed to disseminate the right technology to farmers at the right time who are spread across the country like India with diverse needs and interests.

2

Description Rural women form a very significant part of a productive work force in the agriculture sector in India and most of developing countries. Farm women continue to be the most important stakeholders in farming activity of India. “Presently, they constitute one third of the agricultural labour force and about 48 per cent of self-employed farmers”. Furthermore, management and involvement of Indian women in farming enterprises has been on rise in recent years especially in better endowed rural region. Still, they have been neglected in the process of communication of latest agricultural technologies. In essence, they have not been considered as potential extension clients.

3

Description Focus on brining back the rural youth to the farming activity. Majority of the rural youths expressed that, they are not interested in farm and related activities. They prefers leave their traditional occupation and aiming for city based jobs. This scenario warranted the use of ICT to build a knowledge enriched rural society and to ensure reaching the hitherto un-reached. This paves way for enhancing agricultural production and to achieve faster growth of the sector.

What types of information would be most helpful on these issues?

Guidelines
Academic reviews
Examples or case studies
Bibliographies
Practical "How-tos"

What level of complexity is needed

Intermediate

Which media are most useful to you

CD-ROM

What format(s) and features would be most useful?

Short summaries
Indexed content
Detailed descriptions
Links to further information

What is your level of responsibility?

Policy /strategy
Operational

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.

Collective effort is needed to put the various ICT experiences under one umbrella. Experimental research works to be carried out with different ICT components with sufficient financial allocations. Comprehensive sharing of successful models to explored.

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
I am operating a project entitled "Diffusion of Farm Technologies to Farm Women through User-Friendly Interactive Multimedia Compact Disc (IMCD) at the Department of Agricultural Extension and Rural Sociology, Agricultural College and Research Institute, Madurai. It has been sponsored by the Department of Science and Industrial Research, Ministry of Science and Technology, New Delhi. The project aims at identifying felt technological needs of rural farm women through application of Participatory Rural Appraisal tools; formation of Farm Women User Groups; developing Interactive Multimedia Compact Disc (IMCD); diffusion of farm technologies through IMCD to farm women; assessing the impact of IMCD on technology transfer and social development. The project is being implemented in two villages of different eco system namely wet land and garden land of Madurai district of Tamil Nadu. These eco systems were purposively selected based on the annual cropping pattern, irrigation facility and active participation of farm women in farm activities. Even though the project has many objectives, the main objective is to focus farm women as potential clients who are normally ignored in the process of transfer of technology. The research team made many visits to the villages of two ecosystems namely wet land and garden land and interpreted (out of observations and focused group discussions) that the contribution of farm women in performing agricultural activities are enormous compared to men who are involved in off-farm works (ie., procuring inputs, marketing of products etc). They are found to be very active, enthusiastic, co-operative and open to receive new and latest information on agricultural technologies. Hence, they were mobilized into user-groups for communicating the farm technologies through modern electronic gadget called 'Interactive Multimedia Compact Disc (IMCD)'.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment We are in era of digital divide. ICT tools really helping the neglected, downtrodden, deprived farmers, rural youth and farm women to get it timely information at their door steps. It bridges the gap between research system and user system.

How should the overall product be packaged?
All compiled into a book

ID: 1562 Date responded: 2007-04-21

Your Details
Job Title Community Media Specialist
Organisation Community Media Association
Country of operation LC

Type of organisation
National NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods

With the increase in commercial media, local communities have no voice in local media. Our organisation encourages communities to be producers of media rather than just consumers. We also are looking at the viability of multi-media centres that can improve the livelihoods of communities especially the underserved and disadvantaged.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Livelihoods / rural development

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Basic

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Short summaries
Links to further information

What is your level of responsibility?
Policy /strategy

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
Individual publications on each topic area

ID: 1563 Date responded: 2007-04-22

Your Details
Job Title Assistant Professor of Communication & Innovation in Rural Development
Organisation Haramaya University, Department of Rural Development & Agricultural Extension, Ethiopia
Country of operation ET

Type of organisation
Government

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
The primary task of my organization is education, research and outreach service to the rural and urban communities. This mainly focuses on agriculture and natural resources, and health sector. So far our scientists and practitioners communicate with the society mainly through

radio and printed media. Recently, through a tele-education program, the univeristy began to offer formal education. In the near future this facility would expand its scope to also conducting training program for front-line works working with the community and also bring the society closer to our technology center.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description On the scope of ICTs for development: It should be acknowledged that ICT cannot replace the human dimension of knowledge management as people construct knowledge in their day-to-day interaction as they struggle to meeting their ends. In this connection, the level and nature of poor people's knowledge, commonly referred as Indigenous knowledge, the culture, political system, bio-physical environment, and level of ICT infrastructure should be considered seriouly. One improtant issue in this connection is the influence of ICT on the local culture and knowledge. In the case of the latter, the intelectual property right issue might also arise as ICT involves multi-dimensional flow of information.

2
Description On policy issues for ICT:As most government tend to focus on on the urban sector neglecting the rural people, the political commitment must be in place in order to promote ICT for development that foucs on the poor and improvement of their livelihood.

3
Description On intergration of knowledge through ICT: Problems of rural people are now becoming more and more complex to be solved by a conventional technology transfer model, even if ICT is used in the process. Therefore, while efforts to increase the use of ICT for development should continue, effort should also be made to work on the content for the transfer, transmission and transformation via ICTs. Hence, parallel efforts is need on knowledge integration from various souces; from formal to indigenous system in order to ensure relevance of information to be communicated through a given ICT.

What types of information would be most helpful on these issues?
Guidelines
Academic reviews
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Short summaries
Links to further information

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
In my view, improvement of rural livelihood is not separable form the the overall development endeavours underway from national to international levels. For example, MDG, globally, an the NEPAD initiatives in Africa. Iorder to achieve our best intentions for development in general and raduction of rural poverty in Africa and elsewhere, we need a true paradigm shift in development. This view holds for the global development actors/donors such as multilateral, bilateral and NGOs. Hence, use of ICT for poverty reduction can best be achieved, and even accelerates the overall development if the international communities rethink about the development policies and strategies constantly by examining the process of change and theories, and assumptions informing them instead of waiting for dealines such us 2015.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more Comment Whereas we believe and are commited in using ICTs for improving rural livelihood, we would like to of course caution that one need to understand the knowledge dynamics in the society and its very livelihood in order to select an appropriate ICT form.

How should the overall product be packaged?
Individual publications on each topic area

Part 2

ID: 1564 Date responded: 2007-04-22

Your Details
Job Title Systems Architecture Manager
Organisation Oxfam GB
Country of operation GB

Type of organisation
International NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Oxfam has about 3,000 development projects with partner NGOs around the world. Of these about 30-40 have an ICT element, ranging from provision of information services, use of mobile for communications, use of community radio as part of education and health promotion projects etc. A few of these projects relate to rural livelihoods, for example information centres to provide a hub for support to producer organisations and provision of market access information. We are looking at making greater use of ICTs in the future in relation to scale up of some of our sustainable agriculture programs.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Successful models for multi-sectoral engagement (government, NGO and

private sector) in using ICTs to support rural livelihood in larger scale projects.

2
Description Examples of working with the private ICT sector to promote good, pro-poor practive in their delivery of services

What types of information would be most helpful on these issues?
Examples or case studies
Other (please specify) Contact with people involved in similar initiatives
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Detailed descriptions
Other (please specify) Contact with knowledgable individuals

What is your level of responsibility?
Other (please specify) I have a networking role in Oxfam on use of ICTs in our program

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
So far there seems to be limited engagement from the private sector in the debates and discussion forums for this topic. I think it would be good if there was more shared learning acrross the civil society and private sector.

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
I found the INARS dsicussion on strengthening rurl livelihoods last year very helpful.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment We see ICTs as potential tools in supporting wider reach and range of some of our rural livelihoods programs

How should the overall product be packaged?
Individual publications on each topic area

ID: 1573 Date responded: 2007-04-22

Your Details
Job Title Administrative Officer

Organisation Kenya Network of Centers
Country of operation KE

Type of organisation
National NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
KenTel is a network of centers in Kenya which was formed this year in February. The idea came about after some center organizations in Kenya participated in regional center activities namely, the East Africa Center Leaders Forum conference held in Uganda Kampala in October 2006 and the Benin Center Leaders Forum in November 2006. The Kenyan delegates who participated in these conferences continued interacting and exploring how to initiate center movement in Kenya. In February this year Ugunja Community Resource Centre through the support of Microsoft Corporation and UgaBYTES Initiative hosted the first meeting that brought together center leaders in Kenya, it is out of this three days workshop that KenTel was born. Our Vision community that has unlimited access to information for development Our Mission is facilitate affordable, accessible and relevant information transfer and exchange within the center community in Kenya and the rest of the world. Our objectives To facilitate knowledge and information exchange through training, education and professional networking. To engage in ICT policies formulation and development through advocacy and lobbying. To promote ICT continuous research and knowledge generation for community development. To promote use of ICTs for community development.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Connectivity Which are some of the affordable options available of connectivity that rural communities can have and be able to sustain while not comromising on bandiwth and speed. How can they share connectivity, talk about community ISPs to neigbour institutions for example. what technologies can they use to achieve this.

2
Description Sustainability Most projetcs are funded by development partners and ususally run for a given period of time after which they colapse, what approaches of sustainability can they embrace to ensure propagation of these good initiatives while mainatining affordability to the rural communities who most of the time are poor.

3
Description Content Developmet e-governance

What types of information would be most helpful on these issues?
Examples or case studies
Other (please specify) Exchange visits to successfull initiatives and forums or
Practical "How-tos"

What level of complexity is needed
Advanced

Which media are most useful to you
CD-ROM

What format(s) and features would be most useful?
Indexed content
Detailed descriptions
Links to further information

What is your level of responsibility?
Policy /strategy
Operational
Administrative

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
n/a

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment Much focus is in urban and many social investors are focusing rura, where the majority can reach them easily but there is a great potential in the rural, however multipurpose centers should strategically placed for access to the rural communities.

ID: 1595 Date responded: 2007-04-22

Your Details
Job Title Prof./Consultant, Agricultural Extension and Education.
Organisation BNational Agric. Extension and Research Liaison Service, Ahmadu Bello University, PMB 1067, Zaria.
Country of operation NG

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
To develop, collate,evaluate, and disseminate proven and relevant agricultural technologies and to research on extension methodologies and policies. Provide extension specialist support services, including capacity building to all grades of staff of the Federal, State and Local government Agricultural Development Projects responsible for extension services delivery at the grassroots.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Other (please specify) Participatory Technology Development (PTD) and dissemination.

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description 1.Little or no access to the Internet.

2
Description 2.Very poor ICTs infrastructural development in the rural areas,including power, communication lines and even computers, CD-ROM databases, VCDs etc.

3
Description 3. Illiteracy and limited opportunities for capacity building

What types of information would be most helpful on these issues?
Guidelines
Practical "How-tos"

What level of complexity is needed
Basic

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Detailed descriptions

What is your level of responsibility?
Operational

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
Capacity building and provision of facilities eg donation even of used but serviceable computers with CD-ROM and supply of CD-ROMS and VCDs.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
A number of documents in a recognisable series

ID: 1596 Date responded: 2007-04-22

Your Details
Job Title Prof./Consultant, Agricultural Extension and Education.
Organisation BNational Agric. Extension and Research Liaison Service, Ahmadu Bello University, PMB 1067, Zaria.
Country of operation NG

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
To develop, collate,evaluate, and disseminate proven and relevant agricultural technologies and to research on extension methodologies and policies. Provide extension specialist support

services, including capacity building to all grades of staff of the Federal, State and Local government Agricultural Development Projects responsible for extension services delivery at the grassroots.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Other (please specify) Participatory Technology Development (PTD) and dissemination.

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description 1.Little or no access to the Internet.

2
Description 2.Very poor ICTs infrastructural development in the rural areas,including power, communication lines and even computers, CD-ROM databases, VCDs etc.

3
Description 3. Illiteracy and limited opportunities for capacity building

What types of information would be most helpful on these issues?
Guidelines
Practical "How-tos"

What level of complexity is needed
Basic

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Detailed descriptions

What is your level of responsibility?
Operational

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
Capacity building and provision of facilities eg donation even of used but serviceable computers with CD-ROM and supply of CD-ROMS and VCDs.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
A number of documents in a recognisable series

ID: 1607 Date responded: 2007-04-23

Your Details

Job Title HEAD OF DOCUMENTATION AND PUBLICATIONS
Organisation INTER AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE IICA

Type of organisation
Other (please specify) International organization

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
IICA since 1943 has worried about a proper use and management of agricultural information. Our two main backbones are the Orton Memorial Library and the Agricultural Information Service of the Americas (SIDALC). Through them IICA has networked 21 countries in the region and 141 institutions willing to share services for the benefit of agriculture. This process is related with automatization of agricultural libraries collections, web visible them, creation of digital libraries, and development of software for better management of it.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Livelihoods / rural development
Other (please specify) Project management

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description New "knowledge management" methodologies and projects: A trendy word is around us in the region, but having access to real cases of use and implementation of strategies and methodologies related with KM will be of a lot of help.

2
Description Use of the actual information systems: Instead of building more ITC application and software, as well as any automated information collection, we should worry more in the use and impact of what we already have. Let´s us work on the systems we just finish building and bring them to the rural territories.

3
Description Communication-We need to work more in people. Assure that they are obtaining the information and that they are well trainned to disseminate it.

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Short summaries

What is your level of responsibility?
Policy /strategy
Operational

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
We need a clearing house where all the methods, tools, strategies, products, etc...are available.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment Digital divide is a problem to solve, but with the mix of tecnologies: radio, TV and extension- a lot more can be done.

How should the overall product be packaged?
A number of documents in a recognisable series

ID: 1614 Date responded: 2007-04-23

Your Details
Job Title project coordinator
Organisation BROSDI
Country of operation UG

Type of organisation
National NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
we use local and modern ICT for knowledge sharing to improve the rural farmers livelihood and food security.(www.celac.or.ug)

Please indicate your area(s) of expertise concerning livelihoods and ICT
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description How internet can be expanded to the rural poor at a lower cost.

2
Description More on alternative sources of power to the rural poor

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies

What level of complexity is needed

Intermediate

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Detailed descriptions
Links to further information

What is your level of responsibility?
Operational

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
ICT is so helpfull tot he rural poor but its rather so expensive to the majority.Once they manage to access it,its very effective to improve the rural livelihood

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
telephones

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment We need to expand use of ICT for improved livelihood

How should the overall product be packaged?
Individual publications on each topic area

ID: 1632 Date responded: 2007-04-24

Your Details
Job Title Team Leader Country Programs
Organisation IICD
Country of operation NL

Type of organisation
International NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
IICD supports 60 programs on ICT and livelihoods in 9 countries, Bolivia, Burkina Faso, Ecuador, Ghana, Jamaica, Mali, Uganda, Tanzania and Zambia, reaching over 250,000 farmers and SMEs users directly and 2,500,000 farmer families as beneficiaries. The programs include the support to ICT pilot projects in collaboration with grass-root organisations and NGOs. Furthermore, ICT policy formulation and implementation support is provided to the government. The content of the programs focus on 1) price information; 2) market demand and supply and regulations for certification; 3) information on inputs,

production techniques and harvesting and 4) agriculture research. In terms of ICTs partners apply locally appropiate combinations of 1) computers; 2) Internet via satellite, micro wave, ADSL, mesh box and WIFI; 2) rural radio, 3) voice radio; 4) television. A recent study is published on the results of these programs: 'ICTs for agriculture livelihoods, Impact and lessons learned from IICD supported activities, august 2006' published on www.iicd.org

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Policy
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Cases on practical and proven approaches to financial contributions by farmers and farmer organisations to sustain ICT projects and programs: 1) per hour payments for the use of services; 2) payment of monthly service fees; 3) integration of ICT related costs in general membership fees.. etc. We have discussed this with many partner organisations, but it remains an issue of concern.

2
Description Shared connectivity models at community level in Africa using WIFI, Mesh Box, etc. We have introduced this approach in Bolivia and Ecuador, but cannot find examples in Africa. See article on www.iicd.org/articles/iicdnews.2006-04-24.3282480478/view?searchterm=shared%20connectivity

3
Description Continuous training of users at rural level in information use and technical maintenance. We have introduced various training approaches, including train the trainer, on-the-job traiing. Yet, retention of local expertise is complicated.

What types of information would be most helpful on these issues?
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries

What is your level of responsibility?
Policy /strategy

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
The main request is to make thorough analysis of existing cases, and to deduct lessons learned beyond the basics.

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
Web-based is most accesible to a large variety and outreach to local partners. Much better than publications that will not reach partners. INFODEV and ODI can make use of publication (links) on local site os ICT4D and livelihoods networks to promote actual use by partner organisations. You can make directly use of the national ICT4D networks in the 9 IICD countries.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
A number of documents in a recognisable series

ID: 1636 Date responded: 2007-04-24

Your Details
Job Title Knowledge Mangement Facilitator
Organisation International Fund for Agricultural Development

Type of organisation
International donor

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
In April 2007 we have approved a grant for USD 1 million to IDRC for three years to conduct the third phase of the program called ENRAP, that stands for Knowledge Networking for Rural Asia and the Pacific. It is composed of two components, one which is supporting networking amongst IFAD projects within countries and across the Asia and Pacific Region. The other is for 5 sub-projects in applied research testing applications of ICT for Livelihoods developpment in projects for rural poverty reduction. These sub-projects will be contracted to interested institutions subsequent to a scoping study by IDRC and agreements with interested IFAD projects wo will host the sub-project.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Would like to know whether we can actually work to make the IFAD/IDRC project complementary to the IDS work, without having to encumber collaboration with a formal institutional mechanism. Could we set up (or join, if it already exists) a loose consortium to help each other?

2
Description At the moment we foresee working mostly on use of mobile phones and text

messaging for sharing information. Doubtless there are many, undocumented experiences out there that could help. Other areas for us in order of importance will probably be: Use of radio Wireless internet technology for remote areas Participatory GIS for mapping

What types of information would be most helpful on these issues?
Guidelines
Academic reviews
Examples or case studies
Bibliographies
Practical "How-tos"

What level of complexity is needed
Basic
Comment 'basic' for the guidelines and how to's

Which media are most useful to you
Other (please specify) All three are needed

What format(s) and features would be most useful?
Indexed content
Other (please specify) Annotated Bibliogrpahies

What is your level of responsibility?
Administrative

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment Our intent is to document findings on successfully tested technologies for upscaling and replications outside the scope of development projects

How should the overall product be packaged?
Other (please specify) Any format is ok, but it would be good to have one internet location to go to look for them

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ID: 1660 Date responded: 2007-04-24

Your Details
Job Title Professor
Organisation Unviersity of the Western Cape
Country of operation ZA

Type of organisation
Other (please specify) University/Higher Education

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
The University's main role relating to ICT and rural livelihoods is: * Constant research in its various faculties, e.g. Economic and Management Sciences (inter alia the IS Dept.;

Management Dept; School of Government), Health Sciences, and Science (inter alia Computer Science Dept). * Involvement of academics and the university in community projects.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Policy
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Community participation is crucial for sustainable ICT initiatives in rural areas. It would be beneficial to research their needs more extensively throughout South Africa, as well as how they could be involved more effectively. Very little information is available on this.

2
Description The successful coordination and involvement of different stakeholders are crucial in order to have an impact on the livelihoods of the rural poor of South Africa. It would be good to do a mapping of all stakeholders and their various initiatives. A central repository is needed where all relevant information and research can be made available to all different role players.

What types of information would be most helpful on these issues?
Guidelines
Academic reviews
Examples or case studies
Other (please specify) Knowledge map
Practical "How-tos"

What level of complexity is needed
Advanced

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Detailed descriptions
Links to further information

What is your level of responsibility?
Other (please specify) Research; Teaching

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
In South Africa most of the ICT involvement in rural areas are from Government or from the private sector e.g. the fixed line telcom company and three cellphone companies under the social responsibility. These efforts are very uncoordinated and often done where the most publicity is available. It appears as if international donors are involved on a relatively small

scale.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment Especially with regard to research

How should the overall product be packaged?
A number of documents in a recognisable series

ID: 1685 Date responded: 2007-04-27

Your Details
Job Title First Secretary
Organisation Embassy of Norway
Country of operation TZ

Type of organisation
National donor

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
We are supporting few programs directly I would consider as livlihoods-projects. The livelihoods programs would probably be programs run by NGOs we are supporting. -We are supporting the Local Government Reform Program where ICT is used for making databases like Local Government Monitoring Data Base; By-law database; different Management systems and financial managment like Plan-rep; Epicor etc. - We are supporting NGOs that have networks of organisations around in the country they share information with through use of email and internet. - We are supporting internet and computers in some schools - We have been supporting transelation of windows-program to swahili

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Problems: - Electrisity is a problem in rural areas. It is very unstable. - There is a lot of virus. Many computers have collapsed due to virus in LGRP. Difficult to get assistance to help with virus. - The knowledge of english is limited among staff in Local Government - Few have had trainining in working with computers - The cost per month for accessing internett is too high for primary schools and small local NGOs. It is 40-60 000 shilling pr. month. (monthly salary for a teacher: 100-150 000)

2
Description Possiblities: - A lot of people is using mobiles. I think it would be useful to set up networks between farmers, fishermen, seaweedfarmers, etc where they can receive information on prices on their products. In Tanzania along the cost you would f.ex. find very different prices on sea-weed. The seaweed is bought by agents for multinational companies. The poor women who sell the seaweed are very poorly paid. - GoT is putting a lot of data on expenditure on the net. We have also been supporting Tanzania Governance Noticeboard which give information on budget and expenditure, an audits for every district. The noticeboard will better the governance in districts. Problems: few know about the

noticeboard, downloading takes time in the districts.

What types of information would be most helpful on these issues?
Examples or case studies

What level of complexity is needed
Basic

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries

What is your level of responsibility?
Administrative

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
I know that GoT has a strategy. I also know that there is an international initative

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
I would believe examples that could be provided to NGOs we are supporting indirectly and direct

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment Since we are not into agricultural projects and do not work with rural development we have few livelihood programs

How should the overall product be packaged?
Individual publications on each topic area

ID: 1698 Date responded: 2007-04-27

Your Details
Job Title Faculty (ICT Studies)
Organisation Nantional Institute of Agricultural Extension Management (MANAGE)
Country of operation IN

Type of organisation
Government

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
MANAGE is a National body for providing policy research matters for Ministry of

Agriculture, Govt. of India. Apart from we will undertake CYBER EXTENSION is one of the activity. MANAGE see that ICT use in extension system and its role for the benefit for farmers. We work with industry, NGOs, Universities and Departments of State and Central Govt. to impart ICT as an effective extension tool. MANAGE conducts training programs on Cyber Extension based on experiences gain as said above to impart knowledge and information for the benefit of officials about ICTs by Cases, Research studies etc.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Policy
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description PROBLEMS: Most of the pilot projects in India are not susctained in performance. Once funding agencies left, pilots lost glory and performance. In India, non-availablity of power, misiing regional content, missing end-user participation, required services on time at affordable price etc are the key elements for the entire failures of ICT projects in India.

2
Description ISSUES: Local content and local language based codes were not present in the ICT sofwares which are implementing in India. Even exist, they are not able to conpatible and transferable from one format to other. No standards are maintining in india.

3
Description METHODS OR APPROCHES: Different technologies, business models are used in pilots in India. The acceptence and participation of people were not taken consideration while implementing these projects. Most of these are centralised projects, but not localised once. No through study on each project performance based on some scientific method has not undertaken till date.

What types of information would be most helpful on these issues?
Guidelines
Academic reviews
Examples or case studies
Bibliographies
Other (please specify) success methods from other part of the globe
Other (please specify) Standard unified model for implementing ICTs
Practical "How-tos"

What level of complexity is needed
Intermediate
Comment The stage has reached to know the specifics, as technology is going at faster rate.

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Indexed content

Links to further information
Other (please specify) Publications of jouranals
Other (please specify) Forum summaries

What is your level of responsibility?
Operational

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
Information base should start from the bottom up. Regarding donar agencies role in funding, in my opinion not provide financial & other support for few years in a streach. But provide it at the beginning and then stop till break-even achieved or project is going in that direction, then again provide the benefit of donor agencies blessings. Hope this hubrid mechanism may work better for these projects sustainability for long durations. Hope, one day ICTs will rule better than existing systems for the benefit of the poor.

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
As I am undergoing my Fellow Program in ICT studies, the more on academic material regarding the ICT enabled project impact studies are of great use. We have to evaluate a sandard method for study these pilots befor implementing in large scale. In my opinion, concentrating on economic benifit of rural areas is better than trying to implement poor elimination programs. Neither poor nor forums, research communities get benefit from them.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more Comment A commited implementors and acceptable technologies are key for usage of ICTs for betterment of rural livelihoods.

How should the overall product be packaged?
A number of documents in a recognisable series

Part 3
ID: 1703 Date responded: 2007-04-29

Your Details
Job Title Director
Organisation Centre for Development Alternatives
Country of operation UG

Type of organisation
National NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
We provide access to ICT through our one centre in Rural Jinja, provide traininmg in use of computers and internet to rural community members; Wwe also provide meeting space and create dialogue on anumber of topics and issues in our community. OUR ENTRY POINT HAS BEEN WITH THE YOUNG PEOPLE. tHE RESOURCE centre doubles as both a

library , meeting hall, internet service. we use Forum theatre to create dialogue on issues livelihoods +poverty and then link them with absence of infrmation which is accessable if we embrace ICt. Our challenge is creasting the relebvabnt information related to the needs of the communities in question

Please indicate your area(s) of expertise concerning livelihoods and ICT
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description we need to speed up the trainig of the people in communities to use the ICT but how do we do that when the technology is still expensive and scattered in between. There are weak policies in ensuring that ICTs are evenly introduced and adequyately maintained

2
Description We still need a suitable language. There is information about livelihoods but languages which are not suitable. it looks there will, for a long time, be an intermidiary between the reral people and the technology in an effort to secure infrmation.

3
Description ICTs need power. Although Uganda is trying sort this shortage of power we are still along way. Power supply is very irregular. Yet SOLAR poWER which would have provided an alreytative IS STILL VERY EXPENSIVE

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Basic

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Short summaries
Links to further information

What is your level of responsibility?
Policy /strategy

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
information is available globably but definitely it is not for the needs of the rural people . It A group of elites inthe middle. Secondly we need to demystify ICTs. Computers are widely 'feared'. Yet there are just any other machines. There should be a move towards creatiung local content which fits the the needs of the particular conmmunity

Please give any other comments about the types of product that could help you to improve

your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
Printed materials are basic but they need to be supported by visuals inn forms of films , pictures etc. In this regard cameras become essential; technolgies that are easily maintained by local technicians within the community should be considred etc. The biggest challenge has been adoption but the use of participatory theatre could be useful in bringing along change of attitudes,and conscienceness

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment We need to do more to ensure that communities take advantage of the ICTs. Thetre is more to gain than loose. Access to information becomes vital. we need to train people in rural areas to use the ICTs for their benefit.

How should the overall product be packaged?
Individual publications on each topic area

ID: 1706 Date responded: 2007-04-30

ID: 1707 Date responded: 2007-04-30

Your Details
Job Title proram assistant
Organisation junior achievement(Lagos Digital village)
Country of operation NG

Type of organisation
International NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
The Lagos Digital Village, located at the New Library Building in Ebute Metta (Lagos, Nigeria), is an Information Technology training and opportunity centre for Nigeria's youth. The vision of the village is to raise "a new generation of Nigerian youth who are well equipped with appropriate Information Technology skills and are well positioned for personal development, nation building and global participation." The project is key to bridging the digital divide and it will open doors for many underserved young Nigerians, improve their values and quality of life, and help them to attain greatest heights in the educational and job markets in which they would otherwise have never had the opportunity. The project is a multi-stakeholder partnership between Junior Achievement of Nigeria (www.janigeria.org), Microsoft (www.microsoft.com) and the Lagos State Government (www.lagosstate.gov.ng), and it enjoys support from volunteer tutors and the Lagos Mainland Local Government. The project was commissioned on the 28th of May 2004 by the Executive Governor of Lagos State, Asiwaju Bola Ahmed Tinubu and project delivery took off with the provision of a Lagos State-sponsored cyber café. Programs available at the village include First Steps (Computer Appreciation); Intricate Details (How to build your own Computer); Work Better (Office Productivity Tools); and Great Leap (Internet and the World Wide Web). Delivery

ranges from 3 weeks to 2 months and courses are taught by a faculty made up of volunteers who are qualified Information Technology instructors who wish to contribute their own quota to the emergence of a New Nigeria where young people can compete favourably with their peers anywhere in the world after they might have been equipped with appropriate Information Technology skills. It has been almost 3 years since we opened our doors to the eager young minds that sought their own share of intellectual capital that can help transform their lives. From the first call for applications, we learnt that this project could not have come at a better time. It has been great introducing young people to new technologies, explaining the role of computing in the workplace and highlighting the possibility of personal development. Training is the Lagos Digital Village's platform for impact – through which we provide capacity building, mentorship and opportunities. In the past few months, we increased our program reach, fine-tuned our selection procedure to ensure a greater student retention ratio, and introduced an online platform for student recruitment. Thanks to one of our dynamic volunteers, the village's website now allows students to register online – from getting to know about the various programs to submitting their application forms – without the need for any physical visit to the Lagos Digital Village (LDV) until they show up for the entry test with their reference letters in hand. While maintaining local expertise, the LDV continues in its bid to be globally relevant. Taking advantage of the ongoing global, regional and national ICT processes, we have continued to print an image of the village's works on the minds of industry stakeholders. Our outreach has also opened doors of evaluation for our programs – at the highest professional level possible but without any cost to the project. LDV staff facilitated sessions around ICT issues in various meetings, including the United Nations ICT Task Force meeting in Berlin; Heinrich Boll Foundation (Nigeria office) fora on youth participation in ICT processes; African Regional meeting on the WSIS in Accra; Preparatory meeting on the WSIS in Geneva; African Diaspora Youth Forum in Otta; United Nations Committee on Development Information in Addis Ababa; various Information Technology seminar meetings with Nigerian schools; and the United Nations Information Centre's one-day forum on the UN Crime Congress. These meetings were unique opportunities to introduce the Lagos Digital Village to new people and build relationships that will help the village's operations. We presently place strong emphasis on requesting support from industry players, foundations and grant makers towards the sustainability and effectiveness of the centre's programs. Our needs range from training infrastructure to administrative support. Please feel free to contact the Program Manager for additional details, and we would be glad to meet with you to discuss the possibility of raising a new generation of Nigerian youth who are well equipped with appropriate Information Technology skills and are well positioned for personal development, nation building and global participation. This project has been submitted to the Golden Book database.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description the role of ICT in microenterprise because microenterprise represents a viable route out of poverty through increased and more diversified income streams for poor households

2
Description how agricultural extension can harness ICTs for improving rural livelihoods, we

need to move beyond narrow understandings of agriculturally specific ICT applications.

What types of information would be most helpful on these issues?
Guidelines
Academic reviews
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Printed reports

What format(s) and features would be most useful?
Short summaries
Indexed content
Detailed descriptions

What is your level of responsibility?
Operational
Administrative

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
Information and communication technologies, and particularly the Internet, are transforming all human activities dependent on information, including rural development and food security. ICTs present new opportunities for individuals and communities to be not only consumers but also producers of information. Through media convergence, ICTs can also build on and integrate the capacities of other media (e.g. radio and television). This enables low-cost creation, access and distribution of information, which requires a networked rather than centralised approach. Yet, while there are numerous commercial initiatives, there is also a need for institutions in the public and non-profit sectors to seize the new opportunities presented by ICTs. there are six broad areas of intervention: ICT policies, sustainability, system design, capacity building, applications, and research.To achieve long-term results, ICT initiatives need to be financially sustainable. The workshop recognised that the development of open and proactive policies for the rural telecommunication sector is releasing considerable demand for expansion of service, which should proceed however within a social accountability context and with attention to the needs of deprived populations. A portion of revenue from telecommunications should therefore be used to support the expansion of ICTs in rural areas. In turn, there is a need for policies and investments to stimulate initial demand, thereby reducing investment risk for rural ICTs. This could include, for example, enabling the potential of e-commerce for rural producers.

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
research studies and findings by stakeholders.

In relation to your use of ICT in projects and programs:

We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
All compiled into a book

ID: 1708 Date responded: 2007-04-30

Your Details
Job Title Chairperson
Organisation ITRC Nepal
Country of operation NP

Type of organisation
National NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
ITRC Nepal "Information Technology Resource Center Nepal" is the actively working ngo in the field of ICT it has organized the many awareness program with co-ordanate Nepal government

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description in the contain of nepal rural area is suffering from food

2
Description we may think to improve there income

3
Description lunch new for ther job by the using ICT

What types of information would be most helpful on these issues?
Practical "How-tos"

What level of complexity is needed
Advanced

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Detailed descriptions

What is your level of responsibility?
Administrative

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
i am waiting for email i will reply in next

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
rural tele center change some how life hood

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
All compiled into a book

ID: 1715 Date responded: 2007-05-01

Your Details
Job Title Executive Director
Organisation Unité d'Appui pour la Promotion et Développement integral "Unad"
Country of operation ZR

Type of organisation
National NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Unad est une Organisation sans but Lucratif qui lutte contre la pauvreté en appuyant les actions de ses membres : Sécuruté Alimentaire et Protection du genre et de l'enfant.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description Pour aider les paysans à se développer et à gagner modestement leur vie, il est demandé aux amis de leurs donner des intrants et outillages pour la culture de céréales.

2
Description Fournir aux paysans, dans le cadre de l'élevage de poulets : l'aliment, les matériels: abreuvoirs, mangeoires; les madiments pour lutter contre certaines maladies qui attaquent les volailles.

What types of information would be most helpful on these issues?
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Detailed descriptions

What is your level of responsibility?
Operational

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
* La population vit avec 1 $ par jour. De fois certaine famille mange une fois les deux jours. Ce qui fait que beaucoup d'enfants se rendent sur la rue pour mendier et certaines femmes se prostituent ou sont violées faute de moyens pécuniaires suffisants. Il y a dépravations de moeurs. * Il nécessite de former la populations aux critères de gestion; * Informer les gens à travailler pour produire davantage envie de lutter contre certaines maladies nutritionnels et épidemiques.

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
La culture de céréales et bouture de manioc; L'élevage de volailles; Le microcrédit pour aider les petits commerçants.

In relation to your use of ICT in projects and programs:
We see little need for expanding our use of ICT in livelihoods projects

How should the overall product be packaged?
Individual publications on each topic area

ID: 1726 Date responded: 2007-05-02

Your Details
Job Title Principal Administrator
Organisation EC
Country of operation BE

Type of organisation
International donor

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
ICTs are for us a tool to reach the MDGs. If developing countries want to use ICTs in projects we accept that.

Key problems, issues or information gaps in the area of ICT and livelihoods
1

Description Our delegations are composed of generalists that are reluctant to move to a new domain involving ICTs.

2
Description Lack of demand from the developing countries themselves.

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies
Other (please specify) Interactive websites
Practical "How-tos"

What level of complexity is needed
Basic

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Detailed descriptions
Links to further information

What is your level of responsibility?
Policy /strategy

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
Lack of coordination between donors

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
Rural radio

In relation to your use of ICT in projects and programs:
We see little need for expanding our use of ICT in livelihoods projects
Comment Changing large organisations takes time

How should the overall product be packaged?
Individual publications on each topic area

ID: 1728 Date responded: 2007-05-03

Your Details
Job Title student
Country of operation ET

Type of organisation

Other (please specify) student

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
I am a distance student of rural development at IGNOU. This is way I am looking for rural related topics on ICT.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Other (please specify) student

What types of information would be most helpful on these issues?
Academic reviews

What level of complexity is needed
Advanced

Which media are most useful to you
CD-ROM

What format(s) and features would be most useful?
Detailed descriptions
Links to further information

What is your level of responsibility?
Other (please specify) student

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
thank you in advance

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
Individual publications on each topic area

ID: 1778 Date responded: 2007-05-08

Your Details
Job Title ICT Assoc. Secretary
Organisation Regional CCI Nish
Country of operation SI

Type of organisation
National NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Development of business opportunities for small and medium enterprises in rural regions,

creating new jobs and companies

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology
Policy
Livelihoods / rural development

What is your level of responsibility?
Policy /strategy
Operational

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

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ID: 1853 Date responded: 2007-05-15

Your Details
Job Title Associate Economic Affairs Officer
Organisation UNCTAD
Country of operation CH

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
UNCTAD carries out policy-oriented analytical work on the implications for developing countries of the adoption of ICT, Internet and e-business technologies. As part of this work, UNCTAD has conducted research on pro-poor ICTs (See Chapter 3 on Pro-poor ICT policies and practices in UNCTAD's Information Economy Report 2006, available at www.unctad.org/en/docs/sdteecb20061ch3_en.pdf) UNCTAD is currently conducting research on how centers are supporting men and women livelihoods.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Policy

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description I would like to have access to more empirical data, particularly on the impact of ICT in improving livelihoods, particularly in providing economic opportunities

2
Description I would like to have access to people carrying out ICT policies/ program for improving rural livelihoods in order to conduct evaluations/ explore different ICT for poverty reduction, and be able to make use of direct evidence when conducting research and analysis.

What types of information would be most helpful on these issues?
Academic reviews
Examples or case studies

What level of complexity is needed
Advanced

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
See UNCTAD's research on "Pro-poor ICT policies and practices" available at http://www.unctad.org/en/docs/sdteecb20061ch3_en.pdf

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
Individual publications on each topic area

ID: 1918 Date responded: 2007-05-23

Your Details
Job Title ICT advisor
Organisation Sida
Country of operation TZ

Type of organisation
International donor

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Sida supports the integration of ICT into development countries in all sectors. ICT is regarded as an enabler, a tool to improve activities and operations in different sectors. Capacity development has been a major area, both in terms of integrating ICT in all levels of education but also supporting ICT capacity on an institutional level

Please indicate your area(s) of expertise concerning livelihoods and ICT
Policy
Livelihoods / rural development

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description What kind of sevices are demanded in rural areas

2
Description Experiences and results on a larger scale from using ICT to improve rural livelihood

What types of information would be most helpful on these issues?
Academic reviews

Examples or case studies

What level of complexity is needed
Advanced
Comment There is a need to move from providing results frompilot project to larger scale intervention with recognised impact

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Detailed descriptions

What is your level of responsibility?
Policy /strategy
Operational

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment mBanking seems to be one of hte more interesting devloment which will probaly have an enourmous effect on rural livelihoods by giving access to banking services

How should the overall product be packaged?
Other (please specify) web library

ID: 1919 Date responded: 2007-05-28

Your Details
Job Title Technology Advisor
Organisation EDC
Country of operation ZM

Type of organisation
International NGO

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Use of radio to deliver education to rural out of school children

Please indicate your area(s) of expertise concerning livelihoods and ICT
Technology

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description sharing relevant information with the rural poor (market prices, etc)

2

Description delivering internet access at affordable rates to the rural poor

3
Description power solutions (both generating power and conserving its use)

What types of information would be most helpful on these issues?
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Links to further information

What is your level of responsibility?
Operational

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more
Comment but initiatives must be tempered by people's needs and constraints on the ground

How should the overall product be packaged?
Individual publications on each topic area

ID: 1920 Date responded: 2007-05-30

Your Details
Job Title Manager
Organisation Axe Formation
Country of operation ML

Type of organisation
Private sector

Please give a short description about your organisation's activities relating to ICT and rural livelihoods
Axe Formation is a private firm registered in Mali (West Africa). Our expertise is communication for development in training activities for national NGO and small businesses leaders, consultancy services in strategic communication, edition of web sites on development issues in Mali and Africa, and others. Agriculture, food security and food sovereignty, rural development, decentralisation, management of natural resources are major topics featuring on our web sites : Penser pour agir (http://penserpouragir.org) and The Country Gateway of Mali (http://initiatives.net.ml). We are promoting analyses, reflexions, positions of development leaders, as well as field initiatives that really make a difference for

local development. In 2005, we took part in consultation process for the elaboration of a national policy (orientation law for agriculture - Loi d'Orientation Agricole LOA) that would make agriculture the motor of Malian economy. The process involved 1500 farmers' representatives taking part in 49 meetings at local, regional and national levels all over the territory. The farmers' organisation in charge of this consultation process in partnership with the Department of Agriculture called Axe Formation as a communication expert to help them win this challenge. The mandate was to design and steer the methodology of the farmers' consultation process so that the farmers' contributions would be faithfully transmitted from the field to the decision makers and really used in the elaboration of the LOA. The methodology developed by Axe Formation is based on a social engineering reflexion to enable the farmers to make high quality and useful contributions for the elaboration of the law and to monitor how their contributions were taken into consideration by government and other stakeholders. It combines a pedagogic approach allowing participants to prepare and make useful contributions on issues of concern, with procedures and ICT tools to collect, analyse and transmit those contributions for a real influence with decision makers. All relevant information are available on the dedicated website – in french (http://loa.initiatives.net.ml) ; practical issues guide, facilitators' guide, terms of reference for the farmers' consultation process, thematic analyses, database of farmers' contributions, farmers' memorandum on the LOA, the different law projects, the LOA adopted and other information about the process. We are currently in partnership with the Malian Department of Agriculture for the implementation phase of the LOA. The object is to ensure a methodological coherence to all the reforms resulting from the adoption of the LOA and transparency in the implementation process.

Please indicate your area(s) of expertise concerning livelihoods and ICT
Policy
Livelihoods / rural development
Other (please specify) communication strategy for large consultation processes

Key problems, issues or information gaps in the area of ICT and livelihoods
1
Description We would like to know more about the economic model for durability in ICT. Many infrastructures (telecenter, community multimedia center, etc) are being developed in rural areas but do not find their ressources and are obliged to close down. A project will invest for the start of an activity, like websites and training for rural radio connected to internet, but once the project is finished, the local organisations have trouble maintaining it. Rural radio and ICT have a great impact on the ability of the populations to access information.

2
Description The cost of connexion is still too high in Mali for small private firms, telecenters, medias, and organisations who would like to make a living of ICT or simply use it for their everyday activities. Information on how the costs are established (what are the components, who are the stakeholders, commercial strategies, national policies) would be helpful to build arguments for advocacy and lobbying.

What types of information would be most helpful on these issues?
Guidelines
Examples or case studies
Practical "How-tos"

What level of complexity is needed
Intermediate

Which media are most useful to you
Web-based

What format(s) and features would be most useful?
Short summaries
Indexed content
Detailed descriptions

What is your level of responsibility?
Policy /strategy
Other (please specify) Independant expert

Please give any other comment relating to this area and the state of the global information base, public policy and donor strategies.
Donors should consider as a priority the activities already going on the field to help support, adapt or strengthen them, and not come and finance the creation of other services beside the existing ones. That is done to often and has a negative impact on economic durability of the services.

Please give any other comments about the types of product that could help you to improve your use of ICTs for the benefit or the rural poor, or examples of other resources you have found particularly helpful
Information available in french would be more accessible to local organisations in Mali. We would then be able to share it more largely with our civil society partners and farmers' organisations. The information gathering process should be the more open possible, welcoming case studies or analyses send by farmers' organisations, for example, and not only written by experts. An open platform would also be useful, such as a wiki.

In relation to your use of ICT in projects and programs:
We think that better use of ICTs can improve rural livelihoods and we would like to do more

How should the overall product be packaged?
A number of documents in a recognisable series

8.16 Other Project Documents

File	Description
General	
file:TORs.pdf	TORs for the entire project
Donor Review & Consultation	
file:infodev_donor_review_report.doc	Results of Donor HQ Questionnaire Survey
file:survey_issues.xls	Comments from the online survey
file:infodev_key_topic_areas.doc	Interim Output: Key Topic Areas
file:expert_review_meeting_report.doc	Expert Review Meeting Report
Country Reports	
file:knowledge_needs_assessment.doc	Interim Output: Knowledge Needs Assessment
file:Argentina_Report.pdf	Argentina
file:Argentina_Case_study.pdf	Argentina Case Study
file:Bangladesh_Report.pdf	Bangladesh
file:Sri_Lanka_Report.pdf	Sri Lanka
file:South_Africa_Report.pdf	South Africa
file:tanzania_report.pdf	Tanzania
file:Uruguay_Report.pdf	Uruguay

8.17 Image Library

Writeshop

 Writeshop	 Writeshop

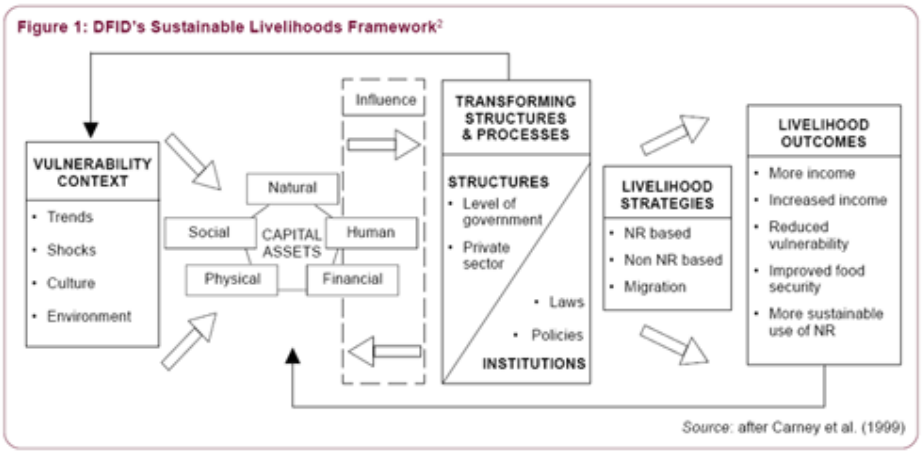
Argentina

 Public phone, Argentina	 Classroom PCs, Argentina	 Belen Telefonica Office, Argentina
 Belen public phone	 La Cienaga, Argentina	

Belen map

Argentina's provinces

Catamarca province



DFID's sustainable livelihoods framework

South Africa

Adults working at MPCC Project

Children working at MPCC

Children learning about computers via the Digital Door Project at an MPCC

The Digital Doors Project housed at the MPCCs

MPCC project reception

Teacher assisting students in Cyberlab

PIT project

PIT terminal

Knysna Uni Fi Wireless access project

E-schools Cyberlab Project

Uruguay

Bernabe Rivera

Bernabe Rivera bus

Bernabe Rivera school

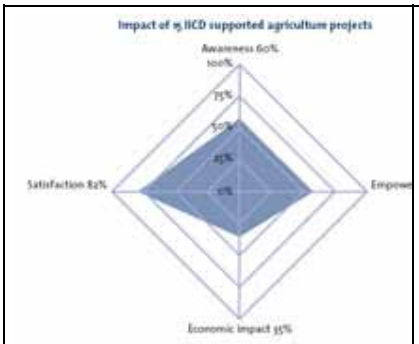
 Bernabe Rivera school	 Bernabe Rivera open air class	 Bernabe Rivera satellite internet
 Bernabe Rivera info class 2	 Bernabe Rivera info class	 Bernabe Rivera adults info class
 Bernabe Rivera mobiles	 Uruguay workshop	

Tanzania

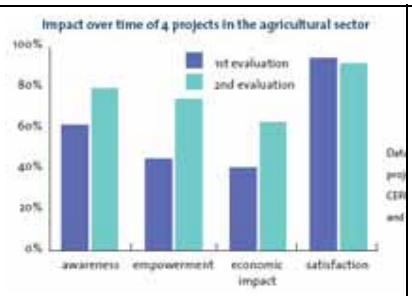
	 Sengerema multi-purpose community center, Tanzania

Telephone kiosk, Tanzania	

Global



Impact of IICD



Impact of 4 projects

Farmers using multimedia, Bolivia

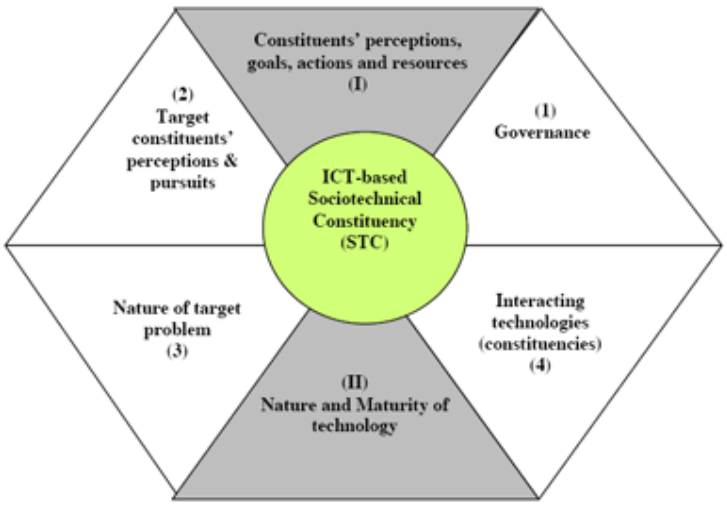
Direct and indirect impact of different types of interventions

MDG 1 'Poverty'		ICT supported interventions	Empowerment	Economic impact
1	Conducive policy environment	• ICT policy and strategy development in the agriculture sector • Coordination and systematisation of agricultural information	High direct impact	Low indirect impact
2a	Increased profitability	• Price information systems	High direct impact	High direct impact
2b	Increased market access	• Marketing and selling online • Facilitating contacts between producers and suppliers • Circulating information about market conditions and export requirements	High direct impact	High direct impact
2c	Increased production efficiency	• Enhancing access to information and expertise about effective traditional and modern production methods	Low direct impact	Low direct impact
3	Political powerment and social inclusion	• Enhancing social status by use of ICT • Increasing negotiating power of farmers • Access to information on land rights/cadastre • Rural access to ICT	High direct impact	Low direct impact

Direct and indirect impact

Knowledge map

CMC Benin	CMC Niger	CMC personnel



The diamond of alignment