MODULE 1: What is ICT4D?

"Many people have come to speak of new information and communication technologies (ICTs) as a magic bullet for developing countries to use to advance their social and economic development. .... Is the “leapfrogging” of development through ICTs feasible? The short answer … is Maybe. The slightly longer answer is We Are Trying to Figure This Out. And the most insightful answer from the people who devote their lives to these questions is We Really Hope So." (Geoffrey Kirkman, 1999).

While this quote is from a publication written in 1999 and this field is evolving fast, it still very much represents where we are....

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A Short History of ICTs: Wave of Events

New “issues” emerge on the agenda of the international development community on a regular basis. Whether it is the environment, gender, governance or some other topic, annual reports of international organizations such as UNDP and the World Bank illustrate well the changing priorities (fads) of the international development community. While some organizations engaged in activities related to communication for development issues have been pioneering and advocating the use of ICTs for many years (such as Canada’s International Development Research Center, better known as IDRC), the growth of organizations now entirely focused on ICTs for development or having developed new ICTs for development strategies within the past decade has been very impressive (and this is not necessarily a good thing). In addition, most development organizations, big and small, are now adding some ICT projects or programs to their portfolio.
The following is a short timeline of events demonstrating the growing presence of ICT4D on the development agenda.

1997 -- Global Knowledge Partnership Conference in Canada
1998/9 -- World Bank Development Report on Knowledge for Development
2000 -- Global Knowledge Partnership Conference II in Malaysia
2000 -- Creation of the DOT-Force
2001 -- Creation of the UN ICT Task Force
2002 -- Global Knowledge Partnership Conference III in Addis Ababa
2003 -- WSIS preparatory phases and December Summit in Geneva
2005 -- WSIS second phase summit in Tunis

For details of the items on this timeline, see this week’s supplemental reading by Barbara Fillip (pages 7-10).

What are ICTs?

Hamelink (1997) provides a useful and clear definition of ICTs indicating that ICTs are those technologies that enable the handling of information and facilitate different forms of communication. These include capturing technologies (e.g. camcorders), storage technologies (e.g. CD-Roms), processing technologies (e.g. application software), communication technologies (e.g. local area networks), and display technologies (e.g. computer monitors).

In this course, I will use the term “ICTs” to include old and new technologies that facilitate the storage and transfer of information. In the readings and other resources of this course you will find that people use different terms and often mean different things. Some people use the term IT (information technology). Others use the term “new ICTs”, often meaning the Internet. Some use the term “ICTs” and mean only the Internet and most advanced technologies. Finally, I recently encountered the term “eICTs” meaning “electronic information and communication technologies” referring to the Internet and associated advanced technologies.

My own perspective is that all ICTs, old and new, are important in this course. While the Internet and some very advanced technologies clearly have strong advantages and offer opportunities for leapfrogging, there will be circumstances in developing countries where old technologies (radio, television) will be more appropriate.

We will discuss this further since the distinction between old and new technologies may not really be appropriate as radio, television, satellite technologies and the Internet are being combined in innovative ways to reach a wide range of target audiences. In addition, the “convergence” of technologies and media makes traditional distinctions and classifications less useful. You can browse the web on your television or from your cell phone, make a phone call from your computer, etc…
Key Questions Addressed in the Course

- What is the true potential of ICTs for developing countries?

  How much can ICTs contribute to economic growth and sustainable development? Are we expecting too much of ICTs?

- What is the extent to which ICTs can contribute to sustainable development?

  To what extent is that potential being realized? Are there countries where ICTs seem to be significantly contributing to sustainable development? Are there other countries where ICTs don’t seem to be having a significant impact? Why are there differences in countries’ abilities to take advantage of ICTs? Is the potential of ICTs being realized evenly across countries as well as within countries? Are some segments of society not benefiting from ICTs? Why?

- How can that potential be realized more fully to benefit all more evenly, both within and across countries?

  If we look at the countries that are realizing that potential, how are they doing it? What are the countries not realizing that potential failing to do or doing wrong? Who is responsible for doing what to realize that potential? What are the respective roles of national governments and institutions, the private sector, the international development community and civil society?

Additional issues

The questions highlighted above cover the broad themes that will be addressed in the course. While I doubt that we will come up with definite answers to all these questions, we will review the existing accumulated knowledge and experience in this field. In particular, we will look at:

- The relationship between ICTs and Development: We often make assumptions regarding the relationship between ICTs and development. We will spend some time thinking about what are assumptions are and whether they are warranted.

- The debate around the Digital Divide: We will investigate the multiple dimensions of the “divide” and analyze the current discourse in the international development community regarding global efforts to bridge it.

- Strategies to address the digital divide: We will look at specific country strategies that are being developed and implemented.
• The dangers of such a “divide” in terms of leapfrogging and marginalization: We will look at examples of countries that appear to be “leapfrogging” and countries that are at risk of being further marginalized by ICTs.

• The issue of access: Access is a key issue and most discussions around the digital divide are focused on whether people have or do not have access to ICTs. We will see that ‘access’ is at least two things (availability and affordability). In other words, is the technology there and can people actually afford to use it. Some other key issues are “capacity” and “content”. Once the technology is there and people can afford to use it, do they have the capacity to use it effectively and is there enough content that is relevant to them and satisfies their information and knowledge needs.

• Beyond access, the need to develop relevant applications in key areas: For ICTs to truly have an impact on sustainable development, a concerted effort will be necessary to develop relevant applications. We will spend a considerable number of weeks looking at ICT applications in specific areas such as education, health, e-commerce, governance, agriculture, etc. Through these sessions, we will both learn about interesting pilot projects and innovations in specific counties and refine our understanding of the key necessary elements for the successful development and implementation of ICT projects for sustainable development.

• The utilization of ICTs for development knowledge and in development work: Most of the course focuses on how to use ICTs in developing countries. While there are clearly a lot of donor activities in this field, the issue of the utilization of ICTs within the international development community itself is separate and deserves some attention as well. Here we’ll touch on one of my favorite topics of discussion, Knowledge Sharing for Development.

• The complementary roles of the private sector, public sector, civil society and the international development community. Throughout the course, we will encounter multiple examples of activities that have involved collaborations and partnerships across organizations and across sectors. We will try to extract some lessons about what makes such partnerships work and how to nurture them.

CASE STUDIES

Digital Radio (WorldSpace Foundation)
While traditional AM/FM radio receivers are widely diffused in developing countries, there are a number of obstacles to their use. One has to do with the necessity for batteries (which has been addressed through crank mechanisms) and the other has to do with geography and the quality of reception in many areas. This second obstacle is now being addressed through the use of digital satellite radio systems managed by WorldSpace Foundation (WSF).

The mission of the WorldSpace Foundation is to help improve the lives of disadvantaged persons
in developing countries of the world by providing access to education and other information broadcast directly to radios from satellites. The satellites can broadcast both audio and visual signals in digital formats.

In 1999, the WorldSpace Foundation developed the Africa Learning Channel (ALC), which began broadcasting over Africa in December of 1999. The ALC addresses issues in basic education, health, literacy, conflict resolution, disaster relief, women and family development issues, environment, cultural heritage preservation, and vocational training. All radio material is collected from NGOs and other producers across the region. Initial broadcasts have been in English and French, but there are plans for programs in Arabic, Swahili and other local languages.

One drawback is that special digital receivers are required to catch the signals. These are still quite expensive ($250 per receiver). WorldSpace is therefore promoting the distribution of these receivers at reduced costs to NGOs, schools and churches and the groups that have receivers organize coordinated listening groups. Programs can also be rebroadcast by rural and community radio stations so that listeners can tune in with traditional FM receivers.

**Internet Radio Browsing (Kothmale, Sri Lanka)**

The Internet is increasingly used for broadcasting radio programs. The Kothmale Internet Community radio project in Sri Lanka demonstrates that this is a particularly interesting approach in rural areas. The Kothmale community is located three hours away from the capital of Colombo by bus. There is a community radio serving a target area of 20 km radius, covering a number of rural towns. The project uses community radio as an interface between the Internet and rural communities.

The project has three basic features:

1. **Radio programs to radio browse the Internet**
   The community radio broadcasts a daily two hour radio program in which community broadcasters interpret information from selective Internet sites. Listeners can direct queries to the radio station to find specific information from the Internet. The community radio provides the requested information in local language making the Internet information more accessible.

2. **Community radio function as a mini Internet Service Provider**
   Besides its own Internet Café the community radio has provided two free internet access points in community libraries.

3. **Community Database Development**
   The community radio develops its own computer database deriving information which are often requested by community members, from the Internet. This database in local language attempts to solve the problem of non-availability of packaged information in the Internet suitable to rural needs.

In this example, the combination of two technologies and some intermediaries, allows relevant
information to reach rural populations more effectively. This project has been supported by UNESCO.

**Village Phones (Bangladesh)**
The Grameen Bank of Bangladesh introduced cellular mobile phones that are leased to women member of micro-credit programs. The idea was 1) to give women an opportunity to make a living by selling telephone services; and 2) to benefit the villagers using the telephone services.

A study conducted in 1999 by the German Center for Development Research (ZEF) found the following:

Poor people account for ¼ of all phone calls made through village pay phones;
The availability of phones provides villagers with substantial benefits in terms of both economic and non-economic considerations.
The poor do benefit from the services;
The ownership of the phones by relatively poor households tends to raise their social status;
Villages with phones are better equipped to cope with natural calamities and to handle law enforcement problems.

Another study, done by The Telecommons Group (TDG) suggests similar results. A key use of telephones for Grameen bank members is for discussions of financial matters with family.

Bangladesh is a labor exporting country, primarily to the Gulf States. The Village phone helps to reduce the risks involved in transferring money to rural villages. The phones are also used very often to get prices and market information.

Rural telephone services in Bangladesh are very profitable in the existing regulatory environment. The current regulatory environment makes other technological solutions less financially viable, but cell phone technology is a high-cost solution for universal access.

Gender analysis is important in ensuring true universal access. The gender of the phone owner and the location where services are made available will impact usage by women.

The extent to which this experience is replicable in other countries is debatable. As mentioned earlier, the regulatory environment is in large part responsible for the profitability and feasibility of this approach. In addition, few countries have an organizational network similar to the Grameen Bank’s microcredit schemes that is the foundation for the village pay phone network.

**Digital Libraries (Humanity Libraries)**
The Humanity Libraries Project is meant to increase the diffusion of information to developing countries through low-cost libraries (CD-ROM libraries) to help solve poverty, to increase human potential, and to provide education to all. The goal of the project is to provide persons or groups in the South owning a PC/CD-ROM set access to a complete basic library of about 3000 essential books at the lowest cost possible.

The argument is that an average university degree of four years requires integrating about 10,000
pages of information and knowledge. The HDL library contains 160,000 pages, all accessible through one CD-ROM. The project supporters claim that in whatever developing country, a decentralized basis of 5,000 PCs with CD-ROM drives, dispersed over 1000 NGOs, schools and other places, will provide a continuous education base to 60,000 persons. They suggest that one PC could be used in three shifts of 32 hours during 13 weeks by three persons, under the supervision of one teacher per five to ten PCs.

This particular CD-ROM library is in English but they also have a similar library in French, an English Medical and Health Library, a Food and Nutrition Library and a World Environmental Library each containing about 35,000 pages.

“We see this project as a massive low cost vaccination campaign against lack of knowledge similar to a universal polio vaccination,” says the cover sheet I received with a free copy of the CD-ROM. (Copies can be ordered for US$6.00).

The project is implemented in cooperation with 70 organizations, including GTZ-GATE, the FAO, SKAT, BOSTID, Peace Corps, UNU, Tulane University, University of Waikato (NZDL), and World Information Transfer.