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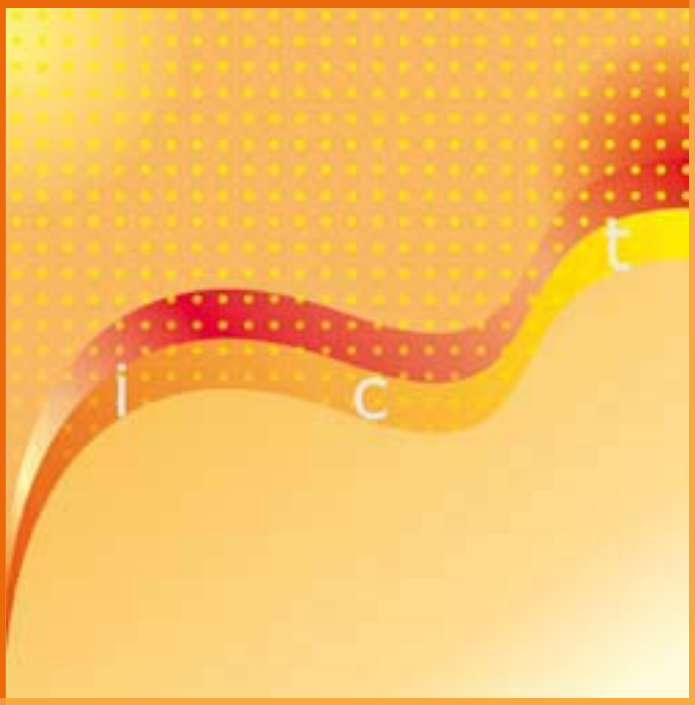
The Development Perspective



United Nations

CHAPTER 3

PRO-POOR ICT POLICIES AND PRACTICES

A. Introduction

Information and communication technologies (ICTs) have opened up new opportunities to alleviate poverty and have changed the way in which poverty reduction efforts take place.

There are many examples of how ICTs are enhancing the livelihoods of people living in poverty. In Bolivia, agricultural and market price information shared through the radio and the Internet is giving small producers more negotiating power and is increasing the efficiency of their production methods (International Institute for Communication and Development (IICD), 2005). ICTs are bringing valuable environmental information to rural populations, including weather forecasts for agriculture and fisheries or early warnings on natural disasters.

ICTs provide increased opportunities to access health and education services and are reducing the vulnerabilities to sickness and unemployment of people living in poverty. For instance, in Ginnack, a remote island village on the Gambia River, nurses use a digital camera to take pictures of symptoms for examination by a doctor in a nearby town (Harris, 2004). In Brazil's urban slums, the Committee to Democratize Information Technology[1] has trained more than 25,000 young students every year in ICT skills that give them better opportunities for jobs, education and life changes (Harris, 2004).

Governments and civil society organizations are becoming more effective in their poverty reduction efforts by using ICTs to manage knowledge, share best practices and communicate more effectively. In India, the computerization of land ownership is allowing farmers cheaper and quicker access to statements of land holdings.[2] Civil society organizations are, on behalf of the poor, mobilizing support through the Internet. ICTs are being used to draw attention to the needs of those living in poverty and to lobby policymakers. In Sierra Leone, women's groups are broadcasting their concerns and needs through radio (see box 3.5).

However, the extent to which ICTs can contribute to poverty reduction is contested. Different misconceptions surround the role of ICTs in poverty reduction and their contribution to the Millennium Development Goals: from "ICTs are not relevant for poverty reduction" to "Telecentres are reducing poverty" (see box 3.1). The aim of this chapter is to help clarify those misconceptions and review to what extent, and how, ICTs can help alleviate poverty.

Although ICTs offer vast development opportunities, those most in need of ICTs (low income groups, rural communities, women, people with no formal education) often have the least access to them. Women in almost every country fall behind in access to, use of and profit from the Internet. They "represent less than 10 per cent of the Internet users in Guinea and Djibouti, less than 20 per cent in Nepal, and less than one-quarter in India" (Huyer et al., 2005). People living in rural

Box 3.1

Misconceptions about ICTs and poverty

"ICTs are not useful for poverty reduction".

"ICTs for development efforts are supporting poverty reduction".

"Competitive markets will bring ICTs for all".

"Telecentres are reducing poverty".

"ICT policies are gender-neutral".

"Increased Internet penetration will bring an increased proportion of women online".

areas are also often neglected. "In 2004, only 1,000 of the 142,000 Senegalese villages were connected to the telephone network, and most fixed lines (63 per cent) were concentrated in its capital Dakar, which represents only a quarter of the population" (Sagna, 2005). And usually only the better educated have the most chances of using the Internet. For instance, "in Chile, 89 per cent of Internet users have tertiary education" (UNDP, 2001). Furthermore, if people living in poverty cannot benefit from ICTs, there will be another missed opportunity to achieve the Millennium Development Goals and halve poverty by 2015.

The following analysis looks at the latest thinking and practices regarding the use of ICTs for poverty reduction, focusing particularly on ICT policies and programmes aimed 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?

The chapter starts by examining the concept of ICTs for poverty reduction and pro-poor ICTs. Section C reviews current thinking, illustrated with best-practice examples, on pro-poor ICT strategies and actions, and analyses the validity of the above-mentioned ICT misconceptions. Section D critically reviews current institutional handicaps that prevent the stronger development and implementation of pro-poor ICT policies and programmes. Section E provides a framework to help policymakers and other actors include a strong pro-poor component in their ICT policies and interventions. Section F offers fundamental policy recommendations for institutional development to promote ICTs for poverty reduction. To illustrate the different concepts and the framework, two case studies will be used throughout the chapter: the TIC Bolivia Country Programme (see box 3.4) and the Development through Radio programme for women in Sierra Leone (see box 3.5).

B. The concept of pro-poor ICTs

Throughout history poverty has been defined and measured in diverse ways based on diverse assumptions. It is important to understand the different definitions, as they have different implications for poverty reduction policies and for how ICTs can contribute to poverty alleviation. Box 3.2 summarizes the definitions of poverty and the related policy approaches to alleviate it.

The monetary approach to poverty is often used in macroeconomic studies because it is easy to measure and to use in modelling. However, it leaves out of the analysis many other factors that influence poverty (education, health, political space, security etc.). The capability approach is valuable for considering these multiple variables, but its measuring is limited by the arbitrariness of the basic capabilities chosen and the sets of data available. Social exclusion approaches (which concentrate on understanding how individuals or groups are excluded from their community) and social institutions (which focus on designing and implementing policies according to beneficiaries' own perceptions of their needs) also attempt to address the various dimensions of poverty but both are difficult to compare across communities and countries – what works in one community will not necessarily work in another community. Participatory approaches, favoured in the design and implementation of poverty reduction programmes, are also questioned with regard to who participates, how representative they are and how to deal with disagreements (Ruggeri Laderchi et al., 2003; OU, 2005a).

Today (and in this chapter), poverty is broadly understood as multidimensional, not merely material, deprivation encompassing a lack of essential needs (lack of income, lack of access to health and education) as well as increased insecurity and vulnerability to external events, and powerlessness to voice concerns and introduce change (World Bank, 2001; SIDA, 2005). Poverty reduction involves expanding the "capabilities that a person has, that is, the substantive freedoms he or she enjoys to lead the kind of life he or she has reason to value" (Sen, 1999, p. 87).

Thus, this chapter will be based on the capability approach and will examine how ICTs can expand the capabilities of the poor. But it will also consider two major contributions from the social exclusion approach – understanding the process by which multiple deprivation occurs –, and the participative

Box 3.2

Key poverty concepts[3]

Four different approaches to poverty alleviation.

- *Monetary poverty*: A shortfall in consumption (or income) from a poverty line.

  Approach: Policies promoting economic growth and the distribution of income

  Measured by: People living on under $1 a day (extreme poverty)

  People living on under $2 a day (poverty)

- *Capability poverty:* Restriction of the "capabilities that a person has, that is, the substantive freedoms he or she enjoys" (Sen, 1999)

  Approach: Promote multiple capabilities (health, education, political space etc.)

  Measured by: UNDP Human Development Index

  UNDP Human Poverty Index

- *Social exclusion*: "Process through which individuals or groups are wholly or partially excluded from full participation in the society in which they live" (European Foundation, 1995)

  Approach: Understand the process by which multiple deprivation occurs

  Measured by: The "Poverty Audit" White Paper (set of indicators)

  The Millennium Poverty and Social Exclusion Survey

- *Participatory methods*: Get people themselves to participate in decisions about what it means to be poor and the magnitude of poverty (Chambers, 1997)

  Approach: Use participatory processes

  Measured by: Participatory poverty assessments

Two measures of poverty alleviation

- *Absolute poverty alleviation:* The position of those living in poverty improves
  Approach: Promote overall economic growth and development

- *Relative poverty alleviation:* The position of the poor improves at a higher rate than that of the general population
  Approach: Redistribution and reducing inequality

[3] For further examination of the concept of poverty see Maxwell (1999)

Source: IDRC (2003); Sen (1999); Ruggeri Laderchi et al. (2003); Lessof and Jowell (2000); SIDA (2005).

method, namely the importance of people who live in poverty participating in poverty reduction processes.

In dealing with the impact that ICTs have on poverty, it is crucial to accept that "Poverty is the result of economic, political and social processes that interact with each other and frequently reinforce each other … requiring a broader, more comprehensive strategy to fight it" (World Bank, 2001 p. 6). It is also crucial to acknowledge that efforts to reduce poverty must question who benefits as well as who is excluded from a policy or intervention (OU, 2005a, p. 89), and should be aimed at addressing power inequality by providing the poor with the necessary policy space. Policy space concerns institutions and discourses, as well as practices that influence decision-making and programme implementation (Engberg-Pedersen and Webster, 2002).

This chapter differentiates between development and poverty alleviation endeavours. Development efforts aim at enhancing the capabilities of a society at large, whereas poverty reduction goes one step further by aiming to enhance the capabilities of the poor. Poverty reduction efforts focus on reducing inequality, promoting economic opportunities and security for the poor, fostering their health and education, and empowering people living in poverty.

Moreover, within the capability approach to poverty alleviation, how these efforts take place is also important,[4] including developing the agency of the poor by nourishing participatory and people-centred approaches, promoting partnerships, and supporting sustainable, differentiated (characteristics of poverty and appropriate policy responses differ among different groups of the poor) and dynamic approaches.

What, then, is the impact of ICTs on poverty alleviation? The general impact of ICTs on development is now acknowledged. They provide access and means to exploit information and create knowledge. They are helping accelerate productivity gains and access to health information or educational services, and are modifying the way people learn and interact, and exchange and voice their interests. The question today is, how are ICTs expanding the capabilities of the poor? How can ICTs support poverty reduction efforts such as those related to the Millennium Development Goals or national poverty reduction strategies?

ICTs have the potential to contribute to poverty reduction, by:[5]

(1) Supporting general growth and development processes, such as increased productivity or improved labour utilization;

(2) Enhancing efficiencies in specific sectors, such as rural livelihoods or infrastructure;

(3) Complementing specific pro-poor activities, such as supporting rural health extension programmes or micro-credit activities;

(4) Directly enhancing poor livelihoods; and

(5) Helping address barriers to poverty reduction, such as corruption or natural vulnerabilities.

The first two dimensions refer to the general contribution that ICTs can make to general economic growth and social development, but it should be noted that "in some cases the poor benefit proportionally less than the non poor" (OECD, 2005). The last three dimensions, however, specifically deal with poor livelihoods (UNDP APDIP, 2005).

Governments have built up and put in place ICT strategies for development (**ICT4D**), which have focused on creating an enabling environment for the broad uptake of ICTs. But for ICTs to also accrue for poverty reduction, more specific actions are needed. These specific efforts directed at ensuring that people living in poverty can also benefit from ICTs and at ensuring that ICTs help reduce poverty are recognized as ICTs for poverty reduction (**ICT4P**) (IDRC, 2003). Within these efforts there are ICT policies and programmes aimed at groups of people living in poverty, such as rural communities, disabled people and women, which are known as **pro-poor ICT policies and programmes** (see box 3.3 for an outline of these concepts). While the borderlines dividing these three categories are blurred, it is important to point out that not all ICTs for development efforts address the needs of people living in poverty.

Developing a common understanding of what poverty and pro-poor ICTs mean is a first step towards alleviating poverty. Then, it is necessary to be familiar with which are best practices in pro-poor ICT approaches.

Box 3.3

ICT4D, ICT4P and pro-poor ICT policies and programmes

ICT4D: Harnessing ICTs for economic growth and broad development.

Example: Policies to develop ICT infrastructure.

- ICT4P: More focused efforts to bring ICT access and its benefits to poor communities (*Pro-poor ICTs*) and using ICTs in ways which support poverty reduction.

  Example: A programme that uses ICTs to share knowledge on poverty issues, such as an Internet website providing health professionals with valuable information on local epidemics.

  - Pro-poor ICT policies and programmes: Those ICT policies and programmes aimed at people living in poverty (rural communities, marginalized groups etc.).

    Example: Policies or programmes providing affordable ICT access, the necessary skills and relevant content to women living in poor communities.

C. Current thinking and realities regarding pro-poor ICTs

This section presents the current thinking on ICTs for poverty reduction based on a review of the existing literature and case examples. This review is complemented by a discussion of best practices in two areas of major concern for reducing poverty, namely gender and rural development, in order to offer more insights regarding the impact and experience of pro-poor ICT interventions and to test some of the theoretical thinking.

ICTs as a tool for poverty reduction

Literature and policy strategies[6] identify ICTs as a tool for poverty reduction, rather than an end in itself. ICTs have the capability to make poverty reduction activities more efficient. For example, by collecting and processing information in rural areas, health extension programmes can better assess and monitor health, and thus take the appropriate actions. The goal is to reduce morbidity and mortality, and to make citizens healthier through basic health education rather than having well equipped extension workers. Governments are responsible for fostering growth, reducing inequalities and providing security in the best way possible, and ICTs are a tool and strategy but not the objective.

ICTs are necessary but insufficient for poverty alleviation

To extend the capabilities of the poor and to ensure that they can benefit from ICTs other conditions are also needed. UNDP APDIP (2005) points to conditions that are needed both at the government level and at the level of programme implementers. Some of these conditions include the existence of an enabling environment, political will, and ICT and other basic infrastructure, as well as management and technical skills.

Pro-poor ICT efforts must be embedded in poverty reduction initiatives

If ICTs are to be a tool for development and poverty reduction, ICT strategies must be consistent with poverty reduction strategies. Pro-poor ICT policies make more sense if they are part of a national Poverty Reduction Strategy Paper (PRSP) or other national development strategies, which reflect the commitment that a national Government makes to reduce poverty. A PRSP, a concept promoted by the World Bank and the International Monetary Fund, is a long-term national strategy developed through broad consultation, which provides guidance to Governments and donors on a country's priorities for poverty reduction. Chapter 2 shows the case of The Gambia, whose national ICT strategy supports the objectives of its national PRSP. The UN system, as a major player in poverty reduction efforts, may also consider incorporating ICTs into its national assessments (Common Country Assessment (CCA)) and strategies (United Nations Development Assistance Framework (UNDAF)).

Mainstreaming ICTs into development and poverty reduction policies means looking at how ICTs can help achieve agreed poverty reduction objectives: how they can assist with the achievement of secondary education objectives, how they can support primary health care or the control of key infectious diseases, how they can help with the development of key economic sectors, how they can facilitate national governance, and so forth.

The World Bank, as part of its support to governments in putting in place PRSPs, has developed a number of suggestions about how ICTs should be incorporated into PRSPs, including promoting access to ICTs by reducing supply and demand constraints, incorporating ICTs into the broader governance reform agenda, prioritizing, and monitoring and evaluating in order to understand ICTs' impact on poverty reduction (World Bank PRSP Sourcebook, chapter 24).

However, in practical terms, it is not so straightforward to include ICTs in national poverty reduction strategies. For instance, the United Nations system's national assessments and strategies (CCA/UNDAF) have concentrated on social and humanitarian issues and their economic content, and the inclusion of ICT considerations has been limited, partly because of the excessively modest contribution of the United Nations entities with limited country-level presence, such as DESA, UNCTAD and the regional commissions (United Nations, 2004, para. 88).

Moreover, PRSPs' effectiveness in reducing poverty is still questioned. While PRSPs may have promoted improved policy processes, there are still practical issues – for example, the extent of participation, ownership, timing and resources provided – and substantive concerns (for instance, about the impact of the extended conditionality and the underlying

macroeconomic framework). There are also more fundamental questions about the actual ownership of donor-driven processes and the effectiveness of participatory processes in committing Governments to efficient poverty reduction policies (Booth, 2005).

ICT-related interventions should be based on poverty reduction principles

"ICT enthusiasts … must ensure that poverty-reduction good practice is incorporated into any ICT initiative" (OECD, 2005, p. 14) Good practice includes developing a comprehensive approach, promoting the participation of beneficiaries, making sure that the programme or policy is relevant to the local context, and guaranteeing the accountability of policymakers, donors and programme implementers. Multidisciplinary approaches involving different actors have the advantage of providing further resources and strength to the ICT policy or programme. Involving beneficiaries in the design, implementation and evaluation of ICT programmes can yield increased and sustainable results. Adapting good ICT programmes to the local context, needs and resources available is a way to help increase the impact and sustainability of the programme. And only when donors, Governments, the private sector and non-profit organizations are accountable to the beneficiaries for the policies and programmes they adhere to and implement (or not), will there be long-lasting results.

ICTs will not by themselves turn bad development into good development, but can reinforce good development practices (Harris, 2004). For example, establishing an online forum will not necessarily reinforce communications among different stakeholders, and hence development, if there is no interest in open dialogue.

Addressing sustainability: A major concern

The financial, technical, institutional and sociocultural sustainability of ICT programmes continues to be a major concern in the design of ICT policies and programmes and their impact on poverty alleviation. Financial sustainability concerns require that there be a focus on self-financing programmes so as to not distort competition, and in the hope that it will bring better services. However, the self-financing objectives clash with the very low income that poor communities have, in particular, for infrastructural programmes that require large investments. The fast pace of change in ICTs requires continuous investments to upgrade equipment and skills in order to continue to benefit from them. Culturally, the demands of working in partnership and involving beneficiaries as well as the competing objectives of donors, policymakers and other stakeholders also endanger the sustainability of ICT policies and programmes.

Governments and donors tend to promote ICT programmes that will ultimately be able to continue without external financial or staffing support.[8] And while the design, implementation and evaluation of policies and programmes should take into account programme sustainability, this should not jeopardize the primary objective of reducing poverty, by for example asking for fees that the poor cannot afford. Innovative approaches, such as sharing connection costs or providing multiple services, are often required in order to ensure financial sustainability and also that the poorer benefit from the ICT programme.

The choice of technology and software is crucial for the technical sustainability of ICT programmes. The use of low-cost, simple and traditional technologies is often recommended (World Bank, 2002; Gerster and Zimmermann, 2005), one reason for this being its advantages in building capacities, as well as the use of free and open source software (FOSS) since it allows the adaptation of the software to future needs and does not require an onerous upgrade of software or hardware (UNCTAD, 2003).

Different initiatives,[9] such as the Indian Simputer, the Jhai PC,[10] the $100 laptop supported by MIT Lab[11] and the Brazilian PC Conectado,[12] are developing or making available low-cost (even free[13]) computers. At first sight, these programmes appeal to pro-poor ICT efforts to offer affordable computers to poor people. However, a closer look shows that each model has substantially different objectives and strategies – from making computers commercially available to wholesaling them only to Governments for their use by schoolchildren, and from designing low-cost and durable hardware to providing incentives such as tax-free computers – and, therefore, the initiatives may achieve different results.

From a poverty alleviation perspective, the success of any of these schemes should be judged on the extent to which the production efforts are accompanied by complementary efforts aimed at making them available, affordable and meaningful to the poorest people. Cheap computers alone will not benefit the poor. Computers may not necessarily reach the poor and, without further support (to ensure that the necessary IT, reading or

language skills, relevant content and access to the Internet and electricity are available), they may not enhance the capabilities of a poor community.

The **Pro-poor ICTs Framework** (see section E) can help assess the extent to which a particular low-cost computer initiative may be supporting poverty reduction by pointing to major questions, including the following: Who will benefit? Who will retain control (i.e. regarding hardware/software development)? Who will provide training and support? How will it affect current power structures? How will it impact on the local ICT (both manufacturing and services) sector?

Different technologies contribute differently to poverty reduction

Different technologies have different characteristics and thus have different impacts on the poor. The impact that radio or television, for example, have on the poor is unlike that of the Internet. While radio and television are mostly one-way communication tools, the Internet allows for two-way, synchronous and asynchronous, interaction managed by the user. On the other hand, illiterate people may better benefit from mobiles, radio or TV educational programmes than from access to the Internet. For example, mobile phones have allowed telephone access for smaller entrepreneurs in Africa and are proving to be a valuable business tool.[14]

More significant is how innovative pro-poor ICT approaches are maximizing the impact of different technologies by combining them (Mathison, 2005; Girard, 2005). In low-income countries, as more people have access to radio than to computers, local development programmes aiming at serving rural information needs, such as the Kothmale Community Radio Internet Project in Sri Lanka,[15] use the Internet to search for information and the radio to disseminate it. In this project, listeners can send questions to the radio (i.e. via the post or telephone), and the radio station team looks for the answers on the Internet, translates them into the local language and broadcasts them.

Expand impact by scaling up thriving pro-poor ICT projects

There is now some experience of pro-poor ICT programmes at the micro level, and an increased interest in finding ways to multiply and scale up good practices and amplify the impact that successful pilot projects have in alleviating poverty. How can successful ICT programmes be replicated in other areas? What actions and policies can support the scaling up of ICT programmes for the poor?

Gerster and Zimmermann (2005) provide four basic recommendations for scaling up ICT programmes:

1. The promotion of an enabling ICT policy environment;
2. High priority assigned to ICTs for poverty reduction;
3. Appropriate technology choices; and
4. Mobilization of additional public and private resources.

Support needed at all levels

If ICTs are to contribute to poverty alleviation, action is needed at different levels. Governments are expected to provide the enabling environment for the uptake and use of ICTs by, inter alia, putting in place the necessary mechanisms to ensure that ICT infrastructure reaches the poor communities; the private sector is expected to contribute to the deployment of infrastructure as well as the provision of services; and civil society is expected to manage programmes, advocate, and promote grass-roots knowledge. Given the large costs involved, donor Governments also have a role in supporting ICT programmes that benefit the poor and in mainstreaming ICTs in their donor strategies.

In this regard, multi-stakeholder partnerships involving civil society, the private sector and Governments are seen as fundamental in being able to respond to the need for resources and the complexity of tasks (Gerster and Zimmermann, 2005).

Policies and programmes must be context-specific

The effectiveness and the sustainability of pro-poor ICT initiatives depend on their being able to consider and adapt to the sociocultural, legal, political and economic context. One-size-fits-all approaches for the uptake and use of ICTs run the danger of not being adapted to the reality of the poor and not serving their needs. Pro-poor ICT approaches have to be linked to the local context. A review by the Overseas Development Institute (Chapman and Slaymaker, 2002) of ICTs in rural development stresses the need

for flexible and decentralized models for using ICTs. As a study (Gov3, 2005) of government schemes to increase adoption of home computers shows, simply transferring an approach from one country to another does not guarantee immediate success.

Focused research on pro-poor ICTs is essential

Qualitative and quantitative research on the impact of ICTs for poverty reduction, and on which pro-poor ICT policies and programmes are most effective, help policymakers, donors and civil society in their decisions. Case studies have shown how ICT programmes work for the poor. Some macro analyses reveal the status of the digital divide. However, there is insufficient research focused on pro-poor ICTs.[16] More information is needed in order to understand how to scale up ICT programmes, what is the impact of ICTs on the lives of the poor, and what are the negative externalities that ICT4D initiatives may have on the poor. For a deeper and more thorough analysis, it is necessary to have empirical studies on the relationship between ICTs and poverty; to have information and research disaggregated by gender, rural/urban and other poor communities as well as by different types of technologies; to study the micro and macro impacts; and to examine the links and integration of ICT strategies with poverty reduction strategies.[17]

So far, we have discussed current views on pro-poor ICTs from a general perspective. However, the poor are a broad category. The following section will therefore provide further insights regarding how ICTs can enhance the capabilities of two categories of people living in poverty: the rural poor and poor women.

1. ICTs benefiting the rural poor

Most of the poor live in rural areas,[18] which are areas the least likely to enjoy access to ICTs. For instance, in 2002, 97 per cent of Internet users in Indonesia and 90 per cent in the Philippines lived in urban areas.[19] The newer ICTs arrive first in the main cities, and often never get to rural areas,[20] thus creating a tension between the opportunity to integrate citizens into global society which is offered by ICTs and the threat of exclusion through the strengthening of the hegemony of the elite and widening of the urban–rural divide[21].

Although a couple of pages cannot do justice to the existing knowledge about ICTs for rural development, the next paragraphs highlight various attempts to bridge the rural digital divide and current thinking in this field.

Populations living in rural areas particularly suffer from structural infrastructure deficiencies, which condition their access to ICTs. National Governments have been undertaking during the last decade a plethora of efforts to create an enabling environment and a competitive telecommunications sector, including the privatization of the incumbent telecommunications agency, the liberalization of the market and the creation of an independent regulator. Additionally, since it is clear that market mechanisms alone will not provide affordable universal access[22] (see Spence, 2005; OECD, 2004b), Governments have established different universal access mechanisms to ensure that non-profitable areas are also served. Regulation for universal access is yet to provide positive and wide-reaching results in many countries[23] for a variety of reasons: several countries are still in the process of fully adopting regulatory measures; implementation has been feeble, particularly because of weak institutions; and over-regulation is preventing alternative flexible options such as VoIP and radio bands for community radio (Spence, 2005) from operating efficiently. As telecommunications infrastructure will generally benefit the better-off first, ensuring that it also services the poor requires continued and progressive efforts, in terms of policy, regulation and implementation, to provide increased access, at affordable rates, to existing and newer technologies.

For the provision of universal access, one of the approaches receiving most attention is the so-called competitive bidding for Universal Access funds,[24] whereby operators bid to service rural zones and are compensated for doing so. This approach, already successful, in terms of meeting universal access targets, in several Latin American countries[25] and currently being tested in Uganda, supports a competitive telecommunications sector while at the same time ensuring that unprofitable areas are also connected. However, its implementation requires a strong institution able to administer the fund independently, with the knowledge necessary for designing the auction and identifying less attractive regions in order to bundle them with more attractive ones, as well as able to monitor and evaluate the services delivered, and take the necessary measures if the obligations are not fulfilled.

General recommendations to develop ICT infrastructure for poverty reduction include taking a rural-client approach that focuses on the needs of

rural communities, providing the necessary space for initiative to take place through decentralization, and encouraging experimentation with different mechanisms (ODI, 2002).

The other major instruments to provide universal access to ICTs are public access models such as telecentres or mobile access points. These instruments, developed by private entrepreneurs and by not-for-profit players, exist in a myriad of forms (from new for-profit telecentres to the integration of ICTs in existing community centres/programmes or the creation of a computer laboratory in a school), and they offer different types of services (communication, information, education and community development) to different extents. The advantage of public access models lies in their ability to bring ICTs to a larger number of users, but it is important to note their different approaches and impact on poverty reduction. Models range from private to community-owned telecentres:[26] at one extreme, private entrepreneurship models are promoted for encouraging financially sustainable projects through natural selection (Schware, 2003); at the other extreme, community-based networks "potentially [offer] significantly larger benefits, especially in a development context" (Ó Siochrú and Girard, 2005, p. 12) as they mobilize resources, require a lower return on investment, any surplus is reinvested in the programme, their services and applications are based on needs, and they contribute to further development activities (Ó Siochrú and Girard, 2005).

If telecentres are to be catalysts for poverty reduction they need to be used by and serve the needs of those living in poverty, including rural populations, women or illiterate citizens. A study of telecentres[27] in five African countries[28] (Etta and Parvyn-Wamahiu, 2003) showed that users only represented a small percentage of the population and that there were disadvantages based on age, gender, education, literacy levels and socioeconomic levels. The barriers to using the telecentres included the following: the high cost of services, particularly important for women, the unemployed, students and poor community members; inadequate physical facilities with no privacy; poor management of the telecentre, including lack of trained staff; limited opening hours; inappropriate location, which increases safety concerns and transport costs; poor publicity for the telecentres and the services offered; and the perception that telecentres are places for the educated, given that most Internet content available is in English. More importantly, telecentres were mainly used for social purposes (communication and entertainment), professional and economic purposes being of secondary importance. In this regard, if the objective is to bring the information economy to the rural communities, it will be worth considering where access to ICTs should be provided (for example, an existing agricultural information centre may be a more suitable option than the creation of a separate centre).

Thus, the notion that telecentres are reducing poverty is a misconception. Telecentres, and other ICT initiatives, can contribute to poverty reduction when accompanied by poverty alleviation efforts that open the telecentre to the poor, supply them with relevant and accessible content, provide additional support (such as ICT skills training) and ensure that the telecentre is well managed, maintained and sustainable. The expansion of ICTs through existing development initiatives and structures, such as the Grameen mobile phone scheme in Bangladesh, where local women earn an income from renting mobile phone services (Chapman et al., 2003, p. 19), is facilitating their uptake as well as more directly serving poverty reduction objectives by, inter alia, providing women with a job opportunity.

The poverty dimension should be included in the design and evaluation of telecentres and other ICT programmes. Are the poor using the telecentre? If so, for what purposes? How is it changing their livelihoods? What could be done to ensure that the poor benefit from the programme? Issues such as the location of the telecentre, who manages it, community ownership, opening hours, cost of services, and the content and format of material available have a direct impact on who can benefit from the telecentre. Moreover, perceptions and awareness are also important. Often telecentres are perceived as being relevant only to educated men. Evaluating[29] these aspects and introducing simple measures can make a considerable difference: allocating special times for women, employing female staff, having longer opening hours, having different types of materials, and, more importantly, materials of direct relevance to poor communities, and providing basic ICT literacy training increase the participation of the poor and the impact that ICT programmes have on alleviating poverty.

As mentioned earlier, scaling up good practices and successfully working at the meso level (that is, being able to efficiently work with other organizations between the micro and macro environments) expand the positive contribution of ICTs to reducing poverty and reduce inequality by increasing the opportunities to access and use ICTs. For instance, a study of information services in China found that it was "difficult for information services to produce large-scale effects because of

Box 3.4

The TIC Bolivia Country Programme (www.ticbolivia.net)

The TIC Bolivia Country Programme supported by the International Institute for Communication and Development (IICD) aims at helping local communities develop sector-wide ICT strategies, design and implement projects, and improve their ICT skills and knowledge. The programme comprises fifteen projects in three sectors (agriculture and rural development, education and governance) carried out by partner organizations. These implementing partners also collaborate with each other to share what they have learned and build an enabling environment for ICTs in Bolivia, without which the projects could not succeed. The main forum for this sharing of experiences is Red TICBolivia, a national ICT network. Through this platform, partners raise awareness about the relevance of ICTs for the country's development, lobby ministries about the importance of considering ICTs in their sector policies, and search for practical and affordable connectivity solutions in rural areas. The partners often undertake evaluation and training together in order to learn from each other's experiences.

The programme activities in the agricultural sector provide access to ICTs and agricultural information and help the Ministry of Agriculture develop and implement an ICT strategy for the agricultural sector. A users' questionnaire reveals that 58 per cent of respondents experienced a direct positive economic impact, mainly because better access to market price information had improved their negotiation position and also because it had increased the efficiency of their production methods.

Source: IICD (2005).

limited organisation among farmers" (Yongling, 2004). A recent review of an ICT programme in Bolivia (see box 3.4) working at the meso level and mainly in rural areas finds that building institutional and ICT capacities, that is complementing technical training with the development of management skills, is essential, and that involving end users early and often is necessary in order to ensure that the project meets the needs of the beneficiaries and to enable them to take ownership. Also, the review suggests that strategic alliances be cultivated with other organizations in order to pool resources (and, for example, share satellite services costs); that there be more effective lobbying and learning from each other; that there be engagement with policymakers and that elements of the projects (such as negotiating the expansion of telecentres and ICT training) be embedded at the regional and national levels to support long-lasting results and scale up good practice.

Some of the main challenges that the ICT Bolivia programme still faces, and which those developing pro-poor ICT programmes may take into account, are the following: reaching target groups (that is, the poorest communities and women), working with less experienced local partner organizations and managing the difficulties of working in a multi-stakeholder environment. Moreover, the programme constantly has to find and retain qualified staff and address financial sustainability.

This chapter will now discuss how ICTs can enhance the capabilities of women and men, and how women and girls continue to benefit less. It will also provide an overview of best practices to ensure that ICT policies and programmes include a gender perspective.

2. Women, gender and ICTs

Women are a central figure in poverty and its alleviation. Among poor people women are in the majority. But women are also one of the main actors in poverty reduction – empowering women means providing opportunities for them, and also their children and families. And because *"women are not likely to benefit equitably from such [ICT] projects unless special efforts are made to (i) identify their situation and needs and (ii) take effective action to incorporate their participation"* (Hafkin, 2002a), this section is devoted to reviewing the impact of ICT policies and programmes on women and poverty reduction.

ICTs can be a tool for the empowerment of women and gender equality. Women in post-war Sierra Leone are using the radio (see box 3.5) to express their needs and collectively find solutions to their problems. Through this medium, these women have been trained and sensitized regarding HIV/AIDS and have received support in establishing market centres (Wambui, 2005). ICTs are also offering women new working opportunities, enabling them to become small business owners or work in ICT-enabled services.[30] In education, new ICTs allow the adaptation of learning processes and contents to the needs of women.

However, the information society poses challenges as well as opportunities for women that are different from those for men, based on their different roles and positions in the family and society (UNCTAD, 2002).

Often, women continue to benefit less than men from ICTs. Women have less access to technologies,

Box 3.5

Development through Radio in Sierra Leone

In accordance with best practices in southern Africa, the Development through Radio (DTR) project in Sierra Leone uses radios to voice the needs of poor women with no access to community radio. It is run for and by women and the Forum of Conscience (FOC), a human rights NGO, is the facilitator of the project. Women meet to discuss education, health issues, entrepreneurship and democratization, as well as inputs to the Truth and Reconciliation Commission. The issues are determined, examined and agreed upon by the communities. The discussions are audio/video-taped and sent to the FOC's DTR coordinator, who writes a synopsis and contacts relevant policymakers and NGOs for responses to the specific issues raised. The taped discussions and responses are sent to commercial community radio stations, which edit and broadcast them at a discount price thanks to the support of Radio Netherlands.

ICT infrastructure in Sierra Leone is in dire need of reform. Internet cafes and mobile telephones, present in Freetown, have yet to arrive in rural areas. Moreover, Internet connection is slow, expensive and hindered by power cuts. FOC has computers in all its offices but suffers from a lack of Internet access and frequent power cuts. Nevertheless, Reuters Digital Vision Programme has supported the digitization of the audio and video recordings as well as the development of a dedicated website (www.dtronline.org), undertaken in the United States in consultation with FOC, for further dissemination. Regarding radio technologies, annual licences for single-channel radio stations cost $2,000, an exceedingly large sum for poor communities in Sierra Leone to be able to afford.

Sources: Wambui (2005), World Bank (2005); Government of Sierra Leone (2005); Caulker (2006); US Department of State (2003).

Box 3.6

Gender and FOSS

Only 2 per cent of FOSS developers are women, compared with an average 25 per cent in the software development industry. Consequently, the software developed may not satisfy women's specific needs.

The factors that exclude women from participating in the FOSS community are underwritten by a culture dynamic, which views technology as an autonomous field, separate from people:

- Women are actively (if unconsciously) excluded because of the importance given to individual agency.
- Women are treated either as strangers or are assumed to be male and thus made invisible.
- Using and developing FOSS requires lengthy learning time and long hours of work, and women face difficulties in devoting a large amount of unwaged time to learning and developing and tend to engage later in their lives with computers.
- FOSS rewards the production of code, and associated skills, rather than software; and thus attributes a lower value to activities in which women often engage, such as interface design or documentation.
- Aggressive talk accepted in FOSS projects as a way to develop reputation, is off-putting for newcomers, exacerbating the confidence difficulties women tend to have as a result of lower levels of previous computer experience.

How can Governments promote increased participation of women in FOSS projects? The following possibilities exist:

- Providing tangible resources to help women devote time to software development activities;
- Fostering the participation of girls in FOSS at an early stage;
- Supporting existing efforts in the FOSS community to increase female participation, such as specialized FOSS user and development communities for women (i.e. LinuxChix, Debianwomen and Ubuntuwomen);[1]
- Encouraging a greater variety of working methods in the production of software, including through the modification of procurement criteria;
- Creating a greater understanding, including among leaders, of women's contribution to technology.

[1] www.linuxchix.org, www.debianwomen.org, https://wiki.ubuntu.com/UbuntuWomen

Source: Cinco (2006); FLOSSPOLS (2006).

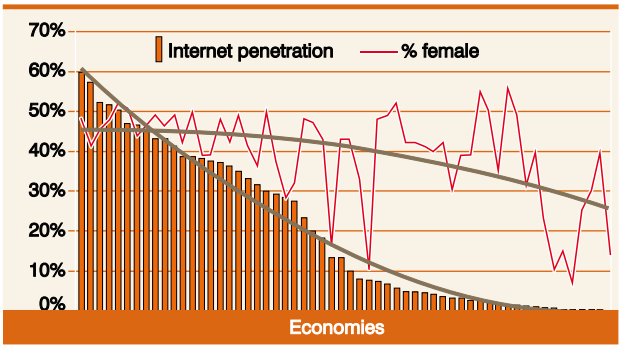
especially the newer technologies; they use ICTs less often, spend less time and engage in less diverse uses; and they are less likely to work in the ICT sector, particularly in higher positions (Huyer et al., 2005). For example, in Viet Nam, women represent 25 per cent of the software workforce, and their work is concentrated in execution tasks, while men concentrate in conception tasks, with a related pay differential (Le Anh Phanm Lobb[31]). Even in the development of free and open source software (FOSS), which is considered more appropriate for poverty reduction efforts,[32] the unequal participation of women is notorious (see box 3.6).

A recent and extensive study on women in the information society (Huyer et al., 2005) shows that "the gender [digital] divide is large and widespread … and is more pronounced in developing economies – although there are some exceptions" such as the Philippines, Mongolia and Thailand, where female Internet use exceeds male use. It also argues that the gender digital divide is specific to the context. For example, it explains the prominent female Internet use in the Philippines by the fact that English is the working language, Internet content thus being accessible, and that women participate actively in economic and political life.

Moreover, the gender digital divide is not necessarily linked to the overall divide. For instance, the proportion of female Internet users does not necessarily expand with increased Internet penetration. As chart 3.1 shows, the proportion of female Internet users varies enormously even in countries with similar Internet penetration rates. For example, the proportion of female users (40 per cent) in the Netherlands is identical to that for Brazil or Mexico despite the fact that the overall penetration in the Netherlands approaches 60 per cent, whereas in Brazil and Mexico it is less than 5 per cent (Huyer et al., 2005).

Chart 3.1

Relationship between Internet penetration and proportion of female Internet users



Source: Huyer et al. (2005, p. 144) based on ITU, World Telecommunications Indicators 2004, and selected national sources.

The barriers that women have to confront in order to participate in the information society are well known: women have lower levels of education and ICT literacy; sociocultural norms hamper their access to and use of ICTs; they have less access to technologies and finance; and the content available, including through media, is less relevant to women (UNCTAD, 2002; Hafkin, 2002b).

How these barriers can be dealt with depends on different world views and approaches to women and technology, which range from considering technology inherently neutral (women in technology) to viewing technology as part of the masculine project of domination and control of women (eco-feminist approach) through understanding the role of technology as cultural processes that can be negotiated and transformed (gendered approach). For a summary of the different approaches to women and technology, see box 3.7.

Because of its appropriateness to the capabilities approach for poverty alleviation, and in consonance with current discourses,[33] this chapter focuses on the gender approach and on how ICTs can expand the capabilities of poor women and girls. "*Engendering ICTs* is the process of identifying and removing gender disparities in the access to and use of ICTs, as well as of adapting ICTs to the special needs, constraints, and opportunities of women" (World Bank Gender ICT Toolkit[34]).

The roles of men and women roles and their relationships are socially embedded and institutionally constructed. Moreover, women, depending on their education, class, ethnicity, age or race, use and benefit differently from ICTs. Thus, ICT policies and programmes should be specific to the targeted women and men and adapted to the specific context of their roles and relationships. How can ICTs help women and girls living in poverty generate income or have better access to health in their particular context?

Efforts to reduce gender inequality in ICTs include the implementation of special programmes targeted at women and girls, and the mainstreaming of gender in overall policies and programmes. Mainstreaming gender in ICTs means doing a gender analysis and including a gender perspective across ICT policies and programmes. So far, "the vast majority of ICT applications that address gender are women-only

Box 3.7

Different views on women and technology

- Women in technology: Technology is inherently neutral.
- Marxism: Women's exclusion from technology due to the gender division of labour and the historical and cultural view of technology as masculine. Technology reflects male power as well as capitalist domination.
- Eco-feminism: Technology as part of the male project of domination and control of women.
- Third-world perspective: Challenges Western systems of knowledge and technology as these colonize and displace local knowledge and experience.
- Gender ICTs: Technology as cultural processes, which can be negotiated and transformed. Technology is neither inherently neutral nor masculine.

Source: Wood (2000).

projects" (Chamberlain, 2002, p. 12). Moreover, there is a difference between practical programmes that focus on providing women with further access to ICTs and more strategic programmes that use ICTs to empower women and change the roles and relationships of men and women. ICT activities for women have been most effective in addressing poverty issues "when they go beyond issues of access and infrastructure to consider the larger social context and power relations" (Gurumurthy, 2004), an example of this being the Development through Radio programme in Sierra Leone, where women are provided not only with access to radio but more importantly with a tool to make their voices heard.

ICT policies are not gender-neutral.[35] They impact (albeit to various degrees) on women and men differently. Gender issues include issues affecting access to and use of ICTs and specific gender issues in ICT policy, such as the extent to which a proposed telecommunications modernization provides infrastructure that is affordable for most women. For an elaboration of gender issues in ICT policy, based on the work of Jorge (2000), see annex 1.

The third meeting of the ITU Working Group on Gender Issues[36] identified five common priorities across all regions: affordability, training, content, local language and access. Other essential areas (Chamberlain, 2002) include creating awareness at all levels among policymakers and implementers; promoting female participation in ICT policymaking and ICT programme management, and involving women in the design, implementation and evaluation of policies and programmes;[37] and the development of industrial policy essential for encouraging women to further develop their careers in the ICT sector throughout their working life.

Although Governments have adopted gender policies at the international level, their implementation is not obvious. Many ICT activities and policies – of markets, governments and NGOs – are still gender-blind.[38] Only few countries have gendered their ICT policies, and there is no strategy for the implementation of most policies. Mozambique's ICT policy approved in 2000 included gender aspects, while its 2002 implementation strategy "proved disappointing on the incorporation of gender issues" (Hafkin, 2002b, p. 16).

To monitor and evaluate the impact of ICTs on men and women, it is important to develop indicators and collect data on gender and ICTs. Having data disaggregated by gender is one step, but it is also necessary to undertake studies (such as the FOSSPOLS study on FOSS and gender mentioned in box 3.6) to better understand how ICTs affect women and men differently. The Gender and Evaluation Methodology (GEM) for the Internet and ICTs is a tool for designing and evaluating ICT programmes focused on assessing the effect that an ICT programme or policy has on women's empowerment. Additionally, Heeks et al. (2005) are proposing a more holistic approach to evaluate ICT programmes promoting women's entrepreneurship that analyses ICTs' impact from three standpoints: gender, enterprise and livelihoods.

Gender and ICTs are an area that requires further exploration as well as critical analysis, and to which UNCTAD could continue to contribute. UNCTAD can help develop a greater understanding of the impact that ICTs and e-business have on women and men and

their economic activities through its analytical work and its work on measuring the information economy (see chapter 1). It can also support Governments in conducting a gender analysis and reviewing the gender aspects of their ICT policies. Furthermore, it can promote dialogue and awareness among policymakers regarding gender and e-business issues.

D. Institutional barriers

The current thinking on recommended ICT policies and programmes for poverty alleviation having been reviewed, this section looks at the obstacles to their implementation. Why are ICT policies not yet fully effective for poverty reduction? Why do many of the practices not mirror discourses?

First of all, **international debates and their outcomes are not focused on ICTs for poverty reduction**. When ICTs are discussed among other poverty issues, such as in the context of the Millennium Development Goals, their role is often seen as less relevant than other pressing concerns such as improving health or education. At the same time, issues of a technical/sectoral nature rather than poverty reduction efforts dominate the international ICT agenda. For example, the preparation, outcomes and follow-up of the World Summit on the Information Society (WSIS), while recognising the potential of ICTs to promote the development goals of the Millennium Declaration (para. 2 of the Geneva Declaration of Principles), do not have a focused discussion on poverty reduction. It centres rather on the role of stakeholders, infrastructure, access, capacity building, building confidence, the enabling environment, applications, cultural diversity, media and international cooperation.[39] Poverty alleviation is a multidimensional effort but because poverty is not a stand-alone issue for discussion, ICTs for poverty reduction efforts have lower visibility. An expanded analysis of the relevance of WSIS for poverty alleviation is provided in section E(c).

Secondly, the **cross-cutting nature of ICTs for poverty reduction**, where different disciplines are involved in the technological dimension (i.e. infrastructure, content, business, legal environment) and in the development one (health, women, rural development, poverty, human rights), makes it more difficult to have focused discussions, research and measurement on ICT4P.

Broad international commitments on ICTs and development, such as the outcomes of the WSIS, **have to be translated into national policy and practice.** Their impact on poverty reduction is shaped by local institutions as well as by the motivations and power of the different stakeholders. The WSIS commitments do not include an implementation strategy, nor have they been allocated specific resources. For example, while the Geneva Declaration of Principles endorses the promotion of gender equality and the empowerment of women, "the outcomes fall short of providing specific directions and action plans for the building of a gender-just information society" (Gurumurthy, 2004).

The implementation of pro-poor ICT policies and programmes is not easy. A gender analysis of various case studies of multi-donor ICT interventions reveals that all of the projects had gender issues, but these were rarely articulated in the product design and implementation. Even in a best-practice example of an ICT course that effectively trained women in ICTs, management and gender, the programme could not ensure that, upon their return home, they would be able to make use of their newly gained skills (Hafkin, 2002a). Ideally, the programme should make sure that women are able to access and use ICTs once the training is completed, and, where appropriate, provide them with opportunities to work/study using their new skills.

There is limited availability of quantitative measurement and qualitative assessments of ICTs for poverty alleviation (Gerster and Zimmermann, 2005). Strong evidence on the impact of ICTs on poverty reduction is limited, because of the cross-cutting reality of ICTs, because of the multidimensional nature of ICTs and because of the difficulty in measuring their impact. In general, ICT measurements are scarce: regarding gender and ICTs, for example, there is no comparable systematic measurement (Huyer et al. 2005). And qualitative research is also necessary in order to assess the (positive and negative) impact that ICTs have on poverty (Mathison, 2005). "Sector-wide or region-wide assessments of the ICT contribution to poverty reduction hardly exist or remain vague" (Gerster and Zimmermann, 2005).

Scaling up successful ICT projects to expand the impact of ICTs on poverty reduction **involves more than replicating good projects**. It requires taking successful projects to another level of commitment, adapting systems, structures and budgets, adopting new policies and changing practice (Klinmahorm

and Ireland, 1992). The TIC Bolivia programme exemplifies how scaling up the impact of individual telecentre requires working and learning with other organizations, developing management capacities, and obtaining political support and further resources, as well as lobbying ministries to adapt policies and create an enabling environment (IICD, 2005).

Institutionally, there is **little accountability or incentive to coordinate ICT strategies and poverty reduction policies**. For instance, at the national level many developing countries are preparing Poverty Reduction Strategy Papers (PRSPs) and, while some have now incorporated ICTs into their PRSPs, few have effectively mainstreamed ICTs into them (Gerster and Zimmermann, 2005; SIDA, 2005). As of January 2004, 34 PRSPs had been developed, of which only 13 considered ICTs a strategic component, 18 considered them a sector or tool and 3 did not mention ICTs at all in PRSPs (OECD, 2004a). Similarly, it is argued that "the mainstreaming approach to gender ... has had modest impact primarily because it is seldom well-resourced and non-compliance to gender policy is tolerated" (KIT, 2005, p. 17)

Contested discourses continue to influence policies and practices. The capability approach to poverty reduction is a different development paradigm from that proposed by the "orthodox market-based approach"[40]. While the latter relies mainly on development outcomes generated by the operation of markets, the former assigns a larger role to the collective action of Governments, communities and markets to expand the capabilities of the poor. And while there is a convergence of views on the role that different stakeholders can play in society, there are still conflict areas that continue to be negotiated. A case in point is the financing of the information society. There is still much disagreement about the financial mechanisms to support ICT4P and about the extent to which pro-poor ICT programmes need to be financially sustainable. For instance, if telecentres are to benefit people living in poverty, a financial sustainability objective should not jeopardize poverty reduction efforts. As stated in paragraph 17 of the Chennai Statement (2005), "The drive for up-scaling and sustainability can itself become a challenge, as it may cause a drift away from a focus on the poorest".

Working with other organizations is not easy. Multi-stakeholder approaches have many virtues, but practical implementation is not one of them. "Multi-stakeholderism" means cooperating with other organizations that have diverse economic and human endowments and whose own mission/vision may, at times, be contradictory. Working with others requires time and effort, leadership skills, financial resources, a shared vision and a great deal of confidence. Time is required in order to allow for discussions and participation, and to develop trust. As evidenced in the TIC Bolivia network programme, a major challenge in multi-stakeholder approaches is to manage the friction among the different parties.

Finally, but not less relevant, is the fact that the extent to which ICTs can empower people living in poverty depends upon **how power imbalances are dealt with.** For ICTs to make a difference, people with weaker positions must be able to participate fully in the negotiation and the implementation of ICT policies and programmes. They must be provided with the necessary means, including financial resources, time and support, to be able to organize themselves and advocate for their needs. For example, women or other groups of people living in poverty need to be given the chance and time to understand, experiment and learn about ICTs as well as to discover what ICTs can provide for them. In practical terms, this may be done by providing financial support over a longer period of time, by including early in the programme a phase to allow women to experiment with ICTs, and by providing women with a say in, and flexibility to modify, the programme after they have discovered what ICTs can provide for them.

There are different approaches to deal with power imbalances: from self-empowerment – when those in weaker positions mobilize themselves[41] – to outside support for those living in poverty through participatory and facilitative approaches,[42] or a combination of both.[43] Self-empowerment approaches focus on the beneficiaries, but they overlook the fact that those at disadvantage may have neither the possibility nor the capacity to create change. For instance, in the specific case of ICTs, poor communities may have never worked with a computer and it should not be expected that they will demand access to computers without being familiarised with them. On the other hand, participation and facilitation approaches are questioned about the extent to which those in a weaker position have the capacity to fully participate, and to voice and defend their needs, and those in a facilitative role can speak on behalf of the poor.[44]

Power may be formal or informal, is acquired from different sources and evolves over time, and a first step to address poverty issues is to discern who has power (formal or informal) and who has a voice, both

as groups and as individuals. For instance, within rural communities, residents of the main village may be able to access ICTs better than those in smaller villages. Some basic approaches to balance negotiations include acknowledging power imbalances and the benefits of balanced dialogues, setting concrete objectives, and providing the necessary means for participation.

Power imbalances are part of the larger socioeconomic environment. But power inequities in the area of ICTs do not exactly reproduce general socio-economic imbalances. For example, non-English speakers are more at a disadvantage in the information society than they may be in the context of society as a whole. Nor may the same approaches to deal with power imbalances be appropriate to follow. For instance, ICTs are not backed up by specific enforceable human rights legislation, such as the right to education established by the Universal Declaration of Human Rights. Moreover, ICTs are providing a new way to deal with power imbalances: open approaches, in terms of software and content, are changing power balances and providing the opportunity for more people to participate in the information economy.

These obstacles are institutional failures hampering the adoption of the best pro-poor ICTs policies and practices, and the conclusions of this chapter will provide some recommendations on institutional development to increase the impact of ICTs on people living in poverty.

E. Framework to understand, question and propose pro-poor ICT policies and interventions

This chapter has offered a review of current thinking on ICT policies and programmes for poverty reduction, including the need for an increased focus on ICT4P and for embedding pro-poor ICT efforts in poverty reduction initiatives and principles. This section presents a framework to examine the poverty alleviation focus of a given ICT strategy or policy, in the belief that questioning to what extent an ICT intervention is pro-poor contributes to the achievement of the Millennium Development Goals.

The framework, expanded from Rao's (2003) *8 Cs Framework for Analysis and Planning ICT interventions*, presents twelve parameters that define the extent to which an ICT policy or programme is effectively supporting poverty reduction, and which should be taken into account when designing or evaluating pro-poor ICT policies and interventions. Rao's original 8 Cs are Connectivity, Content, Community, Commerce, Capacity, Culture, Cooperation, and Capital; and four additional Cs have been added to review to what extent: (1) ICT policies and practices are adapted to the local context (Context); (2) the policy or programme is sustainable (Continuity); (3) beneficiaries have a say in the policy or programme (Control); and (4) the policy or programme is coherent with other poverty reduction policies and programmes (Coherence). Table 3.1 explains each of the parameters.

The framework is a tool to analyse current policies and practices and their impact on poverty reduction. It helps in the asking of questions. While the discussion in this chapter already offers some guidelines on what are desirable courses of action and institutional barriers, the framework does not impose or propose specific actions, as these are to be examined and negotiated within each specific context.

This 12 Cs framework (see chart 3.2) highlights the multiple influence layers that shape actions: macro (international/national), meso (interaction between organizations and institutions, the interplay between the macro and micro level) and micro (local). The macro level looks at how the international agenda (including the WSIS outcomes, trade agreements or development assistance policies) and national processes (such as Poverty Reduction Strategy Papers or National ICT strategies) influence each of the parameters. By way of example, to what extent does a donor's support influence the *continuity* of the TIC Bolivia programme or the cooperation among different stakeholders? Or to what extent does Bolivia's national ICT strategy support affordable technology (*connectivity*) for rural communities living in poverty? The meso level looks at the interaction between institutions and organizations and how their initiatives influence the expansion of pro-poor policies and practices regarding each of the parameters. For example, to what extent is the network TIC Bolivia (*cooperation*) supporting the poor in using ICTs for developing their capabilities? The micro level looks at how an individual programme features in each of the parameters. For instance, who benefits (*community*), and who does not, from a particular telecentre?

The framework also sets aside a space in which to question the assumptions, to reflect on what is the ultimate goal and to highlight the conflicts behind each parameter. Visions and assumptions frame

Table 3.1

The 12 Cs of the pro-poor ICTs 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? Do beneficiaries participate in the development of the content?
Community	- Who benefits? - Beneficiaries participate	Who should be the target group? How do the different stakeholders participate in the programme? Are beneficiaries taking part in the design and implementation of the programme? 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 beneficiaries have, or can they acquire, the capacity to participate in the programme? Do the organizations involved have the (financial and organizational) capacity to develop and implement the programme?
Culture	- Supportive culture - Learning promoted	Is there a forward-looking and supportive culture for using ICTs for poverty reduction?
Cooperation	- Stakeholders cooperation favourable	To what extent is the cooperation among 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 programme adapted to the local context? Is the intervention able to influence changes for a more favourable context for using ICTs for poverty alleviation?
Continuity	- Monitoring and evaluation - Flexible, promotes learning - Potential for increased impact - Socially sustainable	Does the policy or programme incorporate a monitoring and evaluation component? Does it promote learning and allow flexibility for adaptation? Could the ICT programme be scaled up? To what extent is it socially sustainable?
Control	- Beneficiaries' ownership - Stakeholders accountable	Do beneficiaries have ownership of the policy or programme? Do beneficiaries have a say in the design, implementation and evaluation of the policy or programme? Are the different stakeholders accountable?
Coherence	- Pro-poor	To what extent is the ICT policy or programme consistent with other pro-poor policies and interventions?

Source: UNCTAD, based on Rao (2003).

responses. For example, the TIC Bolivia programme's goal regarding the *connectivity* parameter (see chart 3.3) is to bring ICT access to the rural community on the assumption that the best way to do so is through existing agricultural centres. Being aware of the assumptions is an opportunity to review the extent to which the vision will be achieved and what are potential areas of conflict. In this case, where the agricultural information centres are, who uses them and how are used will have an impact on the programme. Often conflicts arise between two competing objectives, such as how to reach the poorest while having the widest possible impact. This frame, like the logical framework used in development interventions, tries to highlight the coherence between different levels of action and assumptions, and it can be used in a participatory manner. The additional features of this framework facilitate a comprehensive approach to ICTs for poverty reduction.

The advantages of this framework are the following: (1) it can be used at different levels, for specific contexts and specific target poor communities;(2) 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' cross-cutting nature; (3) it highlights linkages between different levels of action – macro, meso and micro;[45] and (4) it draws attention to assumptions, conflicts and visions.

Conversely, the disadvantages of the model are the following: (1) it is not structured as an e-strategy or in the way ministries or institutions are used to, (2) it does not provide solutions – it is up to the user to fill the matrix and to discover the assumptions and conflicts; and (3) its ambition to provide a holistic view makes the framework come across as rather dense.

The following three examples illustrate how this framework is useful for:

(a) Reflecting on how the ICT programme for rural development in Bolivia is addressing the needs of the rural communities (chart 3.3);

(b) Examining how the Development through Radio programme is addressing the needs of poor women in Sierra Leone (chart 3.4);

(c) Reflecting on the World Summit on the Information Society policy discussions, its outcomes and its links to poverty reduction.

(a) Agriculture and the rural development sector of IICD's Bolivia ICT Country Programme (chart 3.3)

The nature of the programme means that the framework is largely focused on the meso level. However, it also looks at how the macro level, that is the national context and international agreements and initiatives, has an influence on the impact of ICTs in rural Bolivia – for example, how the programme is aligned with the Millennium Development Goals or how intellectual property rights may be affecting the access to content. The micro level looks at the impact and characteristics of the individual projects and within specific communities. To what extent is the project on market access or the project promoting ecological

Chart 3.2 – 12 Cs pro-poor ICTs framework

Framework to understand, question and propose pro-poor ICT policies and interventions

	Connectivity	Content	Community	Commerce	Capacity	Culture	Cooperation	Capital	Context	Continuity	Control	Coherence
MACRO LEVEL												
MESO LEVEL												
MICRO LEVEL												
Vision												
Assumptions												
Conflicts												

Source: UNCTAD, based on Rao (2003).

Chart 3.3

12 Cs Pro-poor ICTs framework – ICTs and rural communities: The case of the TIC Bolivia programme

	Connectivity	Content	Community	Commerce	Capacity	Culture	Cooperation	Capital	Context	Continuity	Control	Coherence
MACRO LEVEL	ICT strategy: eTIC PRSP'01: ICTs not mentioned Basic telecom agreement? Telecoms liberalized in '01	Impact of intellectual property rights?			Supporting Ministry of Agriculture in designing sectoral ICT strategy		Supports Ministry of Agriculture in developing an e-strategy Donor assistance	Donor assistance				Supports pro-poor views in national ICT policy processes Supports PRSP MDGs
MESO LEVEL IICD's Bolivia ITC country programme: Agriculture & rural component National context	Combines computers and radio Uses innovative connectivity arrangements to bring costs down Software used?	Relevant to agricultural livelihoods Which content? Languages covered? Accessibility? Produced by whom?	Reaching target groups: women, poorer rural communities, smaller SMEs	Supports farmers' access to markets. Acknowledged impact	Developing organizational capacities Dependence on IICD	Has created a supportive culture	Promotes cooperation of many different stakeholders Managing stakeholders' relations	Dependence on IICD	IICD supports development of an enabling environment	Owned & run independently by well-established organizations Projects embedded by policymakers at the sector level Evaluation	Evaluation of impact on poor is limited	
MICRO LEVEL Local telecentres	Tries to promote women's access to telecentres	In the local language? Relevant to women? Relevant to small farmers?	75% of users are male Engages beneficiaries?	58% of beneficiaries have benefited from a direct positive economic impact	Development of org. capacities Finding and retaining qualified staff	Different cultures, similarities/ differences? Which programme elements need to be culturally specific?	Managing stakeholders' relations	Financial sustainability Users find costs high	Unstable politics	Integrated into existing organizations Evaluation per project?		Supports local initiatives
Vision	*Bring ICT access to rural community*		*Support rural livelihoods*	*Support agricultural livelihoods*	*Local organizations can make use of ICTs*	*Create supportive culture for use of ICTs*	*Organizations work together to maximize ICTs*	*Financially supportive*				
Assumptions	*ICTs in agric. Information centres best option*			*Access to information*	*Once trained, organizations will be ready*		*Organizations can work together*	*Creative ICT arrangements can work*				
Conflicts	*Where ICTs are located, who uses them and how are used impact on poverty reduction*	*Multiple languages* *High levels of illiteracy*	*Reach the poorest while having as wide an impact as possible*	*Whose livelihoods? Smaller, producers livelihoods? Women?*	*Retaining staff*	*Multiple different cultures and languages*	*Inter-organizational relations are not always straightforward*	*Time-consuming* *Trust is essential*	*Multiple different contexts. One-fits-all-solutions may not be appropriate*			

Sources: IICD (2005), Bolivia Poverty Reduction Strategy and UNCTAD analysis.

Notes: # = paragraph; blank spaces = parameters for which information is not available, and which may be worth exploring; yellow highlight with red font = achievements or areas that support poverty reduction; red highlight = areas that require attention if ICTs are to support poverty reduction.

exports increasing the capabilities of the poor? To what extent is the programme effective in a specific community? Managers of individual projects would be interested in reviewing the impact of their project in their own community. In chart 3.3 only the major benefits and concerns have been highlighted.

This framework, in addition to the challenging areas mentioned in the report (see earlier description in section C.1.), highlights two areas that may be worth acting upon:

- The introduction of ICTs into national poverty reduction strategies; for instance, the Bolivian Poverty Reduction Strategy (2001) does not include any reference to ICTs;
- Specific evaluation of how ICTs are impacting on the poorer groups in rural communities, and how they are affecting the roles and responsibilities of men and women.

Moreover, the framework highlights areas in which it would be worth having more information:

- Content: What content is available? Who produces it? Is it relevant to the smaller producers? Is it relevant to other people living in rural areas but not working in agriculture? Is it relevant to women's needs? Can they access it?
- Local context: How do the programmes deal with different communities and the various cultures and languages? When is a broad approach appropriate? Which interventions need to be customized?
- Connectivity: Which software is being used? Is it appropriate?
- How does the international agenda (trade agreements, intellectual property rights, etc.) affect Bolivia's use of ICTs for rural **development**

(b) Development through Radio programme in Sierra Leone: ICTs addressing the needs of poor women (chart 3.4).

The Development through Radio programme in Sierra Leone (see box 3.5 and chart 3.4) is an example of how basic but widespread and affordable technology can empower poor women by making their needs heard and influencing policymakers and donors. The case study shows many of the elements earlier described as best practice in pro-poor ICT programmes: it is based on an existing poverty reduction effort, in which women themselves participate; it uses basic and affordable technology; it drives to increase its influence by working through a network of women; and there is monitoring of the impact of the programme on poverty reduction (see following up of responses by policymakers).

However, there are questions about the national environment, including how current regulation (i.e. high licence fees) and the political climate hinder the use of new technologies for poverty reduction; about the sustainability of the programme (i.e. how the programme could be expanded or to reduce its dependence on the Forum of Conscience); and about the sustainability of the digitization of the information and availability on the web.

The framework also highlights the conflict regarding the role of men and their involvement in programmes aimed at addressing women's needs. While best practice in addressing women's needs suggests that both women and men should be involved, in this particular context experience suggested that it was best to develop a women-only programme.

Moving on from national perspectives, we will now examine ICT policy debates in a global setting.

(c) Outcomes of the World Summit on the Information Society and the needs of the poor

The second phase of the World Summit on the Information Society (WSIS) closed in Tunis in November 2005. While it is still too early say what its impact on development and poverty reduction will be, a preliminary assessment of the relevance of the policy discussions and the outcomes to poverty reduction can inform the follow-up to the Summit and its implementation.

Broadly speaking, the WSIS has developed a higher level of awareness of the opportunities and challenges that ICTs offer for development in general and provided a focal discussion forum for issues that are considered and negotiated in different international organizations. Moreover, the WSIS has introduced a new way of undertaking intergovernmental debates, where non-State actors – that is, representatives from the private and not-for-profit sectors – have also the opportunity to participate in the process.

The WSIS outcomes make reference to the contribution that ICTs can make to the attainment

Chart 3.4

12 Cs Pro-poor ICTs framework – Gender and ICTs, Sierra Leone

	Connectivity	Content	Community	Commerce	Capacity	Culture	Cooperation	Capital	Context	Continuity	Control	Coherence
MACRO LEVEL The national context: Policies and practices	No ICT strategy Radio regulation exorbitant licences fees Telecom: State monopoly ICT component in PRSP is vague		Already best practice in other African context	No enabling environment for e-commerce		Post-war reconstruction	Shift geography of aid. In war time: east & south regions. After: north reg. Cooperation very political		Pre-election period.		Post-war context	Coherent with national priorities MDGs, security, and governance quality
MESO LEVEL Development through radio (Sierra Leone) programme coordination	Provides access to those with no radio community access Website done abroad	Content produced by women Web & digitization brings visibility to FOC	Meets rural women's needs, both literate and illiterate Role of men widely discussed Expansion to areas with no radio access?	Programmes' vision: use ICTs for selling articles produced by women online	FOC seems to be well established No training provided to women for editing content	Supportive women's groups Promotion of learning but not on ICTs	Cooperation among FOC, commercial community radios, Radio Netherlands & Digital Vision Programme	Sustainable Some groups would require radio transmitter resources	Adapted to a context with low presence of new ICTs	Following up responses of policy-makers Scaled-up programme Overwhelming demand on FOC & DTRP coordinator	Women control their own groups No ownership of website What if external support is discontinued?	Support development efforts Use of the website when no access by women
MICRO LEVEL Individual women's group	Not all groups have radio transmitter	Produced by women locally and available in local content Benefit of web for women?	Women participate Men? Eastern groups: resent unmet promises	Received relevant assistance for productive activities Trained to do business East: Gained skills irrelevant to job opport.	Some groups (Rorinka) on early stages of mobilization	Some groups still need to develop			Programme adapted to local context and women's needs	Assistance for training centre	Local women control radio and ownership of their groups	Eastern groups lacking development support
Vision	*Affordable* *Widespread use & coverage*	*Relevant to women's needs*	*Community needs met*	*Increased food security*	*Women's group help bring development*	*Empowered women*	*Programme will develop through cooperation with others*	*Programme works with minimum resources*		*Move information online*	*Women manage & own the programme*	*Programme helps address women's basic needs*
Assumptions	*Radio available everywhere*	*Women produce relevant content*	*Women suffice*	*New business opportunities*	*FOC have the capacity*	*Women mobilize*	*Partner provides support*	*Minimal resources needed*	*Reconstruction will continue*	*PC access, ICT skills, literate, external aid, needs met*	*Women have the tools to manage the programme*	
Conflicts	*Radio still not everywhere*	*Management of different local languages?*	*Role of men*	*Livelihoods link missing sometimes*	*What if FOC's capacity ends?*	*Time needed for groups to develop*	*What if SLBS does not cooperate?*	*Resources still needed for radio transmit.*	*Political abuse vs. political support of the programme*	*Website sustainability*	*Ownership of digitization and website*	*Further support always needed*

Sources: Wambui (2005); World Bank (2005); Government of Sierra Leone (2005); Caulker (2006) and UNCTAD analysis.

Notes: # = paragraph; blank spaces= parameters for which information is not available, and which may be worth exploring; yellow highlight with red font = achievements or areas that support poverty reduction; red highlight = areas that require attention if ICTs are to support poverty reduction.

of the Millennium Development Goals and other International Development Goals, and take up poverty reduction concerns and the promotion of pro-poor ICTs. For example, paragraphs 20 and 23 of the Tunis Commitment state that "we shall pay particular attention to the special needs of marginalised and vulnerable groups of society" and that "we reaffirm our commitment to women's empowerment and to a gender equality perspective". However, the outcomes do not specifically address how this should happen, and this remains the contentious and unsolved issue of the debate. For example, how should all these commitments be financed? And how will powerless women be empowered? As these questions are left open, the risk of limited or biased implementation increases. Notwithstanding, the WSIS documents also make reference to some best practices on ICTs for poverty reduction, including the integration of national e-strategies into national development plans[46] and mainstreaming ICTs into official development assistance strategies.

While the WSIS outcomes acknowledge the fact that ICTs can be instrumental in supporting poverty reduction efforts, they do not indicate how this should be achieved, with what resources, and how it will be supported and enforced. The commitments are usually too general to deal with the specific problems of the poor. A serious problem is the lack of adequate financial mechanisms available for developing countries to benefit from the information society[47] in general, and for poverty reduction in particular. This makes the full implementation of the WSIS commitments more difficult.

The Tunis Agenda for the Information Society provides a guide for implementation and follow-up. For example, paragraphs 83, 97, 98, 101, 102, 105, 108 and 110 recommend a multi-stakeholder approach. However, in practical terms, while the WSIS outcomes acknowledge that Governments are not the only actors in poverty reduction, and the critical role that the private sector and non-governmental organizations have to play in promoting the information society, for civil society actors "governments have accepted 'multi-stakeholderism' in the texts but not in their hearts and practices" (NGLS, 2005).

A revised report on the WSIS stocktaking of ICT activities (WSIS Executive Secretariat, 2005) estimates that 70 per cent of the project activities are relevant to the goals of the Millennium Declaration. However, it should be noted that only 18.5 per cent are directly relevant to poverty reduction (Goal 1, "Eradicate Poverty and Hunger").

The above paragraphs provide some different views on the WSIS outcomes. WSIS stakeholders may wish to further use the framework to explore the extent to which the WSIS policy discussions and outcomes are relevant to poverty reduction.

F. Making ICTs work for the poor: Institutional development recommendations

ICTs are a tool for poverty reduction. ICTs are inter alia providing women with new working opportunities, enabling them to make their needs heard and helping agricultural organizations share knowledge. ICTs are necessary – as Amartya Sen puts it, "the availability and use of this technology is no longer optional"[48] – but insufficient for poverty alleviation: other efforts, including the provision of basic and ICT infrastructure, and developing organizational capacities and information management and technical skills, are also needed. Pro-poor ICT policies and programmes must be embedded in poverty reduction strategies and programmes, and be based on poverty reduction principles. For instance, telecentres provide benefits to people living in poverty when men and women can fully participate and benefit, and relevant content is accessible.

Different technologies, from radio to computers, have different contributions to make to poverty reduction, and innovative approaches opt for combining various technologies to maximize the benefits of ICTs. Financial and social sustainability issues continue to be major concerns because of pressures for self-financing, the high cost of technologies and their evolving nature. The market alone will not bring ICTs to the poor, and while creating an enabling environment is a major approach for addressing the needs of the poor it should also be acknowledged that additional financial provision is often still needed. Support is needed at all levels, from policymakers to create an enabling environment, to donors' assistance focusing on poverty reduction efforts, and civil society organizations taking up the challenge of using ICTs for poverty reduction. Similarly, research and evaluations are needed at all stages to understand what works and what does not.

Pro-poor ICT policies and programmes are most effective when they are context-specific and address beneficiaries' specific needs through the appropriate approaches. The implementation of best practices still requires that they be adapted to each context. At the

same time, to scale up the impact of ICTs, interventions must be able to change the status quo by embedding pro-poor ICT programmes in policies and by changing practices.

Strong institutions are needed so that significant benefit may be derived from best practices and lessons learned: institutions able to focus ICT debates, policies, actions and research on reducing poverty and able to understand and manage the cross-cutting nature of ICTs; public administrations able to translate broad policy commitments into specific commitments and action; organisations that are motivated and remain accountable for their action; institutions that are open to continued dialogue and that reflect on the real impact that ICT discourses, policies and practices have on the poor; organizations that work effectively with each other and develop a consensus about how to use ICTs for poverty reduction; and leaders able to encourage people living in poverty to participate in the design and implementation of interventions and effectively use ICTs for poverty reduction.

To make ICTs work for poverty alleviation, institutional development is required at all levels: "The potential for ICTs in future rural development strategies will depend on the ability of those strategies to transcend institutional boundaries and control, and therefore be inclusive of community level institutions, private sector organisations, NGOs and a variety of new and old media channels" (ODI, 2002).

What follows are some suggestions for institutional development addressed to policymakers and programme designers, including the donor community and civil society actors, which seek to make a difference with regard to using ICTs for poverty alleviation.

- Focus on ICTs for poverty reduction. Emphasize poverty alleviation in ICT dialogue, policies, assistance, interventions and research. Encourage and participate in pro-poor ICT debates and discourses, including in the context of the follow-up to, and implementation of, the World Summit on the Information Society and promote agreement on what pro-poor ICT means. 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 programmes, while being aware of the cross-cutting nature of pro-poor ICTs. Mainstream ICTs also into development assistance programmes, which may include building institutional capacities by training staff on ICT issues for poverty reduction and sharing best practices. 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 programmes. Carry out poverty and gender analysis of ICT policies and undertake country reviews of ICT4P policies and programmes across sectors and issues areas. In this regard, the 12 Cs framework can contribute to mapping the impact of policies and programmes on poor communities and indicate priority intervention areas. Additionally, collect data disaggregated by sex, age, education and geography to help identify who is benefiting or not from ICTs, and measure the impact of ICT interventions on the poor. Monitor progress and regularly evaluate the impact of ICT policies and programmes on the poor so as to revise strategies and improve their effectiveness.

- Promote the scaling up of successful programmes 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 programmes with long-term support and by allowing flexibility to adapt the programmes to the needs of the poor.

This chapter has demonstrated that, and how, ICT policies and programmes can contribute to poverty reduction. It has asked critical questions and provided instruments to encourage dialogues and practices with the aim of promoting ICT policies and programmes that contribute to the achievement of the Millennium Development Goals. Now, it is the turn of policymakers and other stakeholders to put these recommendations into practice.

Annex I

Gender issues in ICT policy

ICT aspect	Gender equality issue
Network modernization	• The proposed modernization will provide infrastructure that is affordable to most women.
Network architecture	• Equipment and service providers can offer cost-effective and appropriate solutions for the majority of women.
Network deployment	• Choices of network infrastructure can be made that cater for the majority, focusing on universal access to ICTs instead of expensive high-capacity specialized access. • Affordable wireless alternatives can ensure low-cost access. • Women need to be included in the training when new technologies are implemented. • The location of infrastructure will facilitate access for women.
Infrastructure	• Infrastructure needs to be developed throughout the country in areas where many women live. • Provisions need to be made for high-technology applications in areas where many women live outside the capital and major cities. • Gender awareness is essential in planning and implementing infrastructure because social, economic and/or cultural constraints may prevent women from accessing ICTs even when these are available in their communities.
Technology choice	• Affordability of service is a key issue for women. If technology choices are limited, this can keep new entrants out of the market and limit the introduction of technologies that might reduce costs (for example, many developing countries ban Wi-Fi Internet and VOIP (Voice Over Internet Protocol) telephony). • Limiting the choice of mobile standards (for example, GSM, CDMA) can prevent fragmentation of markets during the initial stages; however, continued insistence on such standards can block the entry of mobile technologies that are cheap and effective for underserved areas. • Assessments need to be undertaken to determine appropriate technology choices: who will use the technology and for what purpose. • It is important to promote and support user-friendly technology, particularly in the context of low literacy levels.
Sector liberalization	• Opening the telecoms and ICT sector to competition can bring in needed investment and force down end-user prices to make access more affordable, notably to women (however, monopoly system operators understandably dispute this fact).
Tariff policy	• High customs duties on mobile telephones and computer equipment, as well as high prices for telephone service, are deterrents to women users (this includes both import duties and taxes on computer equipment and pricing schemes for communication services). • Many countries are rebalancing international and domestic tariffs to eliminate existing subsidies, most frequently for local service. This rebalancing has meant higher rates for local calls in many places, which hit poor women the hardest. Although it is expected that competition will lower prices in the long run, in the interim many users cannot afford local service. Among the ways to compensate for rebalancing costs is the application of tariffs based on forward-looking costs and regional (rural versus urban) tariffs.

Regulation	• Regulators do not set policy but rather help in its implementation. Regulation is a vital area for advocates of gender equality in ICTs because it produces a set of rules for market behaviour: who can provide what service and under what conditions. Regulation also sets the framework for achieving desirable outcomes established by national policy, particularly in the two areas of the greatest interest to ICTs and the empowerment of women (universal access and affordable services). Gender proponents need to focus on regulation.
Independent regulators	• An independent regulator can compel profit-driven private sector players to meet social and gender-policy objectives such as universal access (see below). • In return for granting licences, regulators can compel service providers to offer service to underserved areas where women predominate. • Because regulators have the authority to set service priorities, gender-equality advocates need to lobby to ensure that service to poor women in rural areas is a priority. • Regulators can provide funds for research, development and testing of ICTs that will serve women. • Those that secure licences, particularly for cellular phones, are often required to fulfil community service obligations. Elements that promote gender equality could be written into these obligations.
Regulatory frameworks	• Regulatory frameworks can permit the resale of mobile phone services, which are often profitable businesses for women to establish. • Regulatory frameworks can reduce licensing fees, spectrum prices and interconnection charges, and can thus make ICTs more accessible to women.
Licensing	• If fees for telecommunications, Internet service providers (ISPs) and mobile service licences are high, these costs will be passed on to users, limiting affordability to women and the poor. High fees increase the cost of telephone and ICT services, discouraging women-owned communications businesses (including telecentres, phone-fax-Internet shops and mobile telephones). • A certain number of telecommunications licences need to be allocated to women-owned businesses or businesses with women in management positions. • A gender-equality licensing policy could waive licence fees for communications businesses run by women entrepreneurs or businesses that provide services to underserved areas, particularly where women are concentrated. • Fees could be reduced for operators with gender-equity and pro-handicapped employment policies. • Licences can obligate providers to offer discounted service to certain customers, such as poor women in rural areas. • Licensing procedures need to be transparent so that women applicants can have ready access to the information. • Licence awards can contain conditions that promote gender analysis and mainstreaming for the company.
Universal access	• Universal access concerns the establishment of telecommunications development funds and other programmes that are funded by carrier fees and other revenues collected by regulators, and used to facilitate the expansion of access to the underserved. Because telecoms development funds reflect important policy and set the rules for implementation of ICT projects in underserved areas, they deserve great attention from gender advocates.

	• Develop gender-aware universal access policies that stress public access points as an alternative to more capital-intensive choices (one line per home) and ensure that the locations of public access points are gender-sensitive (not in bars or auto shops).
Universal service obligations	• Universal service is a specific obligation that regulators require of operators in return for licences. Under universal service obligations, regulators can mandate the provision of telecentres in underserved areas. Telecentre plans need to take into account the different needs of men and women in the communities concerned. • Gender advocates could lobby to incorporate gender-based issues into universal service rules. In most places this has not yet happened. • Demands could include that service to underserved areas be delivered to reflect the male–female distribution in the population and that priority be given to disadvantaged women such as single mothers, widows and handicapped women. Service providers could be mandated to offer telephone subsidies or price packages targeted at rural women, the handicapped and the aged.
Radio frequency spectrum	• This issue also involves fees and licences. Lower fees will encourage applicants to provide services to new markets, including women. Licences need to be equally and transparently distributed, so that women-owned business and businesses that serve women have a chance to secure licences. In several African countries where the Government maintains a monopoly on radio frequencies, public–private access to radio frequency is still an issue. In a number of places, women-run community radio stations have obtained licences.
Research and development and innovation	• Incentives could be directed at encouraging women to engage in ICT research and innovation. • Tools and software need to be developed using local languages. • Research and development of technologies for the illiterate and neo-literate need to be encouraged. • Research efforts and programmes that promote women innovators could be subsidized. • Scholarships and grant programmes for women in science and technology could be created. • Technology programmes will promote and accept women's participation. • Technical programmes at universities could be created and supported by providing grants or scholarships for women students and researchers.
Systems for learning and training	• Women need to have equal access to technical training. • Programmes need to be supported to train women in technical and management programmes, and to provide internships.
Software and applications	• Women will have a say in what applications are being promoted in order to ensure that they are usable by and accessible to many women. Policies need to support open source software and operating systems that can make software available to communities with limited budgets.
Building technological capacity	• Opportunities will be extended to women as well as men. Mechanisms need to be provided to encourage women to enter these fields. Female teachers will act as role models for young girls. • Training opportunities need to be available not only for technology professionals but also for non-professionals to use ICTs.

ICT industry development and labour policies	• Encouragement and incentives need to be given to encourage women to enter all segments of the ICT labour force, not just the assembly-line positions they have dominated in the past. • Enabling policy can encourage the establishment of teleworking, which has provided jobs for many women.
ICT business development and e-commerce	• Enabling legislation for e-commerce will encourage women entrepreneurs. • Small ICT-related businesses that can be owned by women and women's groups need to be encouraged. • Telecentres can provide economic opportunities for women and need to be promoted as business opportunities for women owners. • A number of telecommunications licences need to be allocated to women-owned businesses. • Carriers could be obligated to do a certain percentage of business with women-owned businesses. • Training programmes could be promoted to establish ICT-related business opportunities (for example, e-commerce, telecentres, and wireless company ownership).
E-government	• Women can benefit from e-government services, such as on-line access to land and voter registration and licence applications, particularly when they would normally have to travel to the capital city to obtain these services.

Source: Based on Jorge (2000).

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Notes

1. A Brazilian non-governmental organization.
2. See the India project, ICT and Rural Development, at www.chathamhouse.org.uk.
3. For further examination of the concept of poverty see Maxwell (1999).
4. See Sustainable Livelihoods approach principles in Chapman et al. (2003).
5. Based on OECD's (2005) five dimensions in which ICTs contribute to pro-poor economic growth, but the dimensions have been broadened to emphasize poverty as multiple, rather than just economic, deprivation.
6. As an example see Brown (2001) in Nyaki Adeya (2002); Mathison (2005); WSIS Declaration of Principles (WSIS, 2003)
7. See Pereira Gomes et al. (2002).
8. Swedish International Development Cooperation Agency (SIDA, 2005).
9. See a list of different initiatives in www.infodev.org/section/programs/mainstreaming_icts/info_devices/devices_list.
10. For information on the Jhai Computer and the Indian Simputer see chapter 3 of UNCTAD (2003), p. 71–72
11. For an overview of the characteristics and critics of the $100 laptop see http://en.wikipedia.org/wiki/$100_laptop and http://wiki.laptop.org/index.php/OLPC_myths.
12. See www.softwarelivre.gov.br or Benson (2005).
13. See the Asiatotal computer in www.asiatotal.net.
14. For further information see chapter 1 in UNCTAD (2005).
15. See www.kothmale.org. and www.unesco.org/webworld/netaid/com/sri_lanka.html.
16. Spence (2003); Nyaki Adeya (2002).
17. See Michiels and Van Crowder (2001) in Chapman et al. (2003), who stress the need for improved monitoring and evaluation especially with regard to impact on the economic and social livelihoods of communities, or see UNDP APDIP (2005).
18. 800 million of the 1.2 billion of people living in extreme poverty live in rural areas (IFAD, 2001).
19. ASEAN statistics available at www.aseanconnect.gov.my.
20. Bridges.org, Spanning the Digital Divide: Understanding and Tackling the Issues.
21. For an example see the study of ICTs in Ghana carried out by Zachary (2004).
22. Note that universal access – where a telephone, and more broadly access to ICT services including the Internet, should be within a reasonable distance of everyone – is defined in different ways "from a telephone within less than five kilometre in Brazil to a thirty minute travelling distance to a phone in South Africa" (ITU, 1998).

23. See Report of the Task Force on Financial Mechanism on Universal Access "experience with Universal Access Funds to date is mixed" p. 54 or OECD (2004) for a summary of the results of different universal access mechanisms.

24. For further information on this and other universal access approaches see OECD (2004).

25. Chile, Peru, Guatemala, Colombia and the Dominican Republic.

26. For further elaboration of the importance of community-based networks see Ó Siochrú and Girard (2005) and for other examples on telecentre models and experiences see Badshah et al. (2003).

27. The telecentres studied were under private (individual) ownership, private NGO or CBO ownership or trusteeship. The study did not include public facilities.

28. Mali, Mozambique, Uganda, South Africa and Senegal.

29. For guidelines on how to evaluate telecentres see Whyte (2000).

30. For a review of e-commerce and ICT-related opportunities for women see UNCTAD (2002) and chapter 14 " The role of Information Technology in the promotion of gender equality", in UNCTAD (2004).

31. See Le Anh Phanm Lobb's Gender and Software Work in Vietnam presentation in http://siteresources.worldbank.org/INTGENDER/Resources/GenderandSoftwareWorkJan24.pdf

32. For further information on free and open source software, see chapter 4 Free and open source software: Implications for ICT policy and development, in UNCTAD (2002).

33. World Bank and UNDP.

34. The World Bank's Engendering ICT Toolkit available at *www.worldbank.org*.

35. Note here that ICT policies are classified as either gendered or gender-blind. Calling an ICT policy neutral is misleading because policies have an impact on women, which is different from that on men.

36. ITU (2004).

37. See, for example, how and to what extent the Government of Albania included women in the elaboration of its national ICT strategy in Gustainiene (2005).

38. See Arun et al. (2004) for a comparison of two ICT initatives in India, one gender-blind and the other gender-focused.

39. These are the action lines of the Geneva Plan of Action, www.itu.int/wsis.

40. See Fukuda-Parr (2003) for a comparison of both approaches.

41. See Freire's "conscientization approach" as reviewed in Open University (2005a).

42. See Chambers' proposition for those with relative power to hand over the stick as reviewed in Open University (2005a).

43. Such as Santos de Morai's "Organisation Workshops", which promote self-organization on the basis of support from outside facilitators. See in Castelo Branco Correia (2000).

44. See Rahmena's strong critique of participation in Rahnema (1992).

45. Arrows are used to question missing links or inconsistencies between different levels.

46. See paragraph 100a of the Tunis Agenda for the Information Society.

47. See, for example, APC (2006).

48. A Dialogue on ICTs and Poverty: The Harvard Forum, information available at http://web.idrc.ca/en/ev-46261-201-1-DO_TOPIC.html.