UP-SCALING PRO-POOR ICT-POLICIES AND PRACTICES

A REVIEW OF EXPERIENCE WITH EMPHASIS ON LOW INCOME COUNTRIES IN ASIA AND AFRICA

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The Millennium Development Goals (MDGs), with a target date of 2015, have become the yardstick for measuring progress in a number of inter-related development areas. There is still a decade to go but it has become obvious that there will be mixed results, and even regression in some areas, if the world continues business as usual. To give the MDGs a strong chance to be achieved, innovative approaches and additional efforts are required.

An effective deployment of information and communication technologies (ICTs) in development and poverty reduction efforts has the potential to enable a more effective use of existing resources as well as to facilitate a more scaled-up and responsive approach to crafting solutions to meet key development challenges. The organisation of the second phase of the World Summit of the Information Society (WSIS) and a high-level event on the MDGs at the time of the United Nations General Assembly to take stock of the achievements five years after the Millennium Declaration in the second half of 2005 provides a unique opportunity for promoting synergies between a focus on the achievement of the MDGs and information society and ICT for development goals at a high-level.

The devastating Tsunami on December 26, 2004, has also brought the importance of information and communication technologies in addressing disaster prevention, relief and reconstruction to the fore. The experience of the MS Swaminathan Research Foundation (MSSRF), a partner in this study, highlights this vividly. MSSRF has set up knowledge centres in a dozen villages in Pondicherry, India and there is a marked difference in the way the four coastal villages with a knowledge centre coped with the disaster compared to other fishing villages. Within minutes of the first tsunami wave striking the fishing village of Veerampattinam, the volunteer at the local knowledge centre started appealing to the people, through the public address system, to withdraw to safer places and during the first attack, loss of life was restricted to three people. Nallavadu, another fishing village with a knowledge centre, is home to about 3,630 people. Although the tsunami destroyed 150 houses and 200 fishing boats, the early warnings prevented any loss of life. The villagers also used the databases stored in the knowledge centre computers in organising relief measures and for distributing aid and material received from government and other sources. This positive experience in a time of emergency demonstrated the power of appropriate communication technologies at the grassroots level. With the "Mission 2007" initiative, India is making an unprecedented effort to scale up and to bring such knowledge centres to each of its more than 600,000 villages.

Matching WSIS-MDG synergies is the everyday business of NGOs like the MSSRF and donor agencies like the Swiss Agency for Development and Cooperation (SDC). The practical experience, and the lessons learned around the globe, demonstrates the great potential of ICTs to enhance empowerment, opportunity and security. ICTs can make a difference in reducing poverty and reaching the MDGs. This potential, however, contrasts with the relatively modest role attributed to ICTs as a general enabler for reaching the MDGs and development goals in many cases. How do we explain this gap between the potential and the role assigned to ICT in poverty reduction and related development strategies? What key barriers impede the implementation of declarations? How can we multiply, up-scale, and replicate successful pilot projects and approaches?

This study, Up-scaling Pro-Poor ICT-Policies and Practices, looks into these issues in more detail. A first draft served as a background paper for an MSSRF/SDC-sponsored expert meeting in Chennai (India) from November 17–19, 2004 to discuss the recent lessons and trends in up-scaling propoor policies and practices. Based on these inputs, the authors further developed the arguments in this paper. During the expert discussions a "Chennai Statement" emerged, which presents – in a nutshell – the insights of the participating development practitioners and policy makers. The statement is intended to strengthen a multi-dimensional poverty reduction agenda for the implementation of the WSIS Principles and Action Plan, which is closely linked to the achievement of the MDGs.

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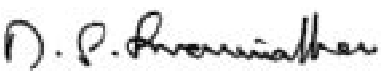

Chairman MS Swaminathan Research
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Richterswil, January 2005
Richard Gerster and Sonja Zimmermann

Front cover: Communication ranks high with the poor in Sri Lanka.

Back cover: A call office in Soweto, South Africa.

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Information and communication technologies (ICTs) can *make a difference* in reducing poverty and in contributing to reaching the Millennium Development Goals (MDGs). The pioneer of appropriate technology, E.F. Schumacher, said many years ago: "The gift of material goods makes people dependent. The gift of knowledge makes them free"[1]. Practical experience, as well as the lessons learned around the globe, demonstrates the great potential of ICTs for enhancing empowerment, opportunity and security. This potential, however, contrasts with the relatively modest impact attributed to ICT as a general enabler in reaching the MDGs.

Untapped opportunities exist to *multiply and scale up* successful pilot projects and approaches, by harnessing ICT's potential for dynamic knowledge sharing and networking, building on economies of scale, and drawing on a broad range of approaches that can be used as a catalyst for local adaptation. Up-scaling poverty reduction with ICT means increasing outreach and deepening impact.

This paper is the result of a literature review and discussions during a two-day workshop. A range of grassroots practitioners, as well as policy experts from different Asian, African, European and North American countries, participated in the workshop.

The objectives of this joint effort by the Swiss Agency for Development (SDC) and the MS Swaminathan Foundation (MSSRF) are:

1 to deepen knowledge regarding the use of ICT for poverty reduction and bot its potential and limitations at the grassroots, national, and global levels;
2 to identify parallels and differences in the use of ICT for poverty reduction in Sub-Saharan Africa (SSA) and low income countries of Asia (LIACs);
3 to contribute to an experience-based and poverty reduction oriented agenda for implementation of the World Summit of the Information Society (WSIS) principles and Action Plan in an Asian context.

The *lead questions* for the research in this study are:

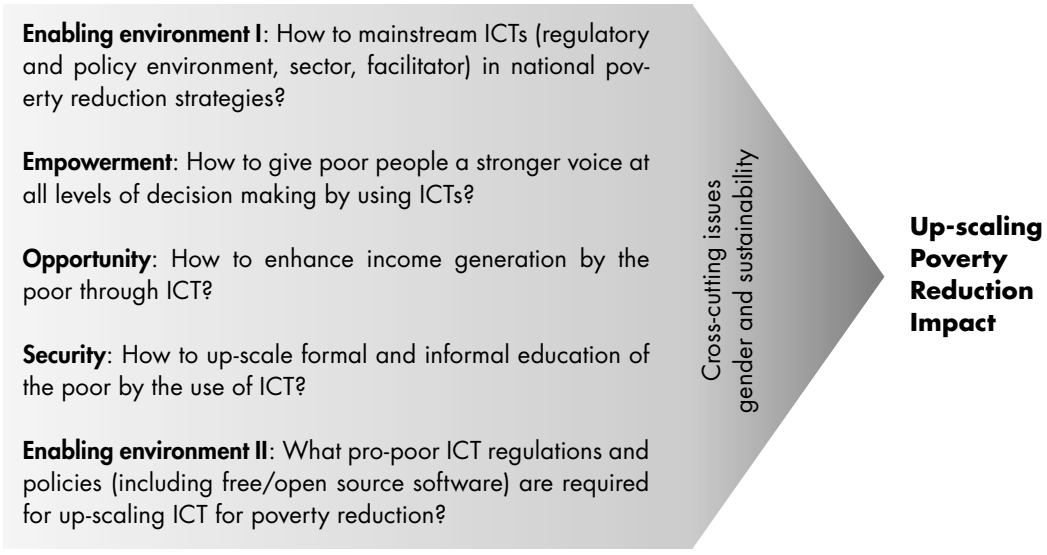


Figure 1: The lead questions of the research framework

In comparing the contexts for ICT deployment in Sub-Saharan Africa (SSA) and Low Income Asian Countries (LIACs), a few differences are particularly relevant:

- The governance situation is difficult in a number of African countries, with implications for the enabling environment, including that for ICT.
- The spread of ICT and capacities to use are somewhat dependent on literacy levels. In Asia over 70% of the countries have a literacy rate of more than 80%, whereas 45% of the African countries have a literacy rate below 80%.
- The impact and use of ICT is dependent on the extent and affordability of access. Access to ICT, as measured with the digital access index (DAI), is lower in Africa, where over 90% of the countries have low access, whereas in Asia over 56% have medium access.

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

- A participatory approach to ICT4D and involvement of people in all stages – from the needs assessment to monitoring – makes a difference as to its usefulness and impact.
- Leadership matters, as does institutional ownership.
- Pro-poor effects are more likely to occur if ICTs are embedded in a larger, demand driven development effort.
- Adopting a community-based approach to ICT access has important strengths.
- A minimum level of physical and human infrastructure is required to foster effective and pro-poor use of ICT.
- An appropriate choice of technology largely co-determines potential pro-poor effects.
- Content should receive as much attention as access.
- Countries mainstreaming ICTs effectively into their productive sectors gain dramatically in competitiveness.
- Information and communication are not free; they involve costs.
- Mainstreaming ICTs also pays off for people in poverty, even when budgets are stagnating or shrinking.

A poverty reduction and MDG-oriented agenda to implement the WSIS Principles and Action Plan and to contribute to the MDGs, calls for successful up-scaling of positive experiences. At the grassroots level, the capacity of community structures should be built upon and enhanced. The *basic requirements for successful up-scaling* of poverty reduction through ICTs are

1 an enabling ICT policy environment;
2 a high priority assigned to ICT for poverty reduction;
3 appropriate technology choices;
4 mobilisation of additional public and private resources.

Enabling ICT policy environment

This includes respect for freedom of expression, diversity and the free flow of information, competition in ICT infrastructure provision (including in the last mile), investment in service development, including local content, and the use of cost-effective and locally adaptable software including the promotion of free/open source solutions and open content where feasible.

Priority assigned to poverty reduction

Mainstreaming ICTs in national poverty reduction strategies (PRS) and related development strategies is a key issue if scalability, synergies across sectors and support for more downstream and grassroots initiatives is to be enhanced. ICTs can be used to facilitate a participatory approach to the PRS process itself, and should be mainstreamed into the implementation of sectoral components, complementing the poverty-reduction priorities of the national ICT strategy. Targeted pro-poor regulations and policies are also key.

Appropriate technology choices

Technological progress has helped to reduce costs dramatically and to expand the range of technology choices, and thus helped to lower access barriers. Choosing simple, locally appropriate solutions that may not require high connectivity or high-level human capacity is key. Focusing on a combination of complementary technologies, such as radio and Internet, has often proved to be particularly appropriate.

A moderator of the community radio in Moratele (South Africa).
Community radios provide information and communication opportunities adapted to the local context.

Resource mobilisation

Up-scaling the use of ICT to contribute to the achievement of the MDGs requires additional investment and resource mobilization. National ICT licensing obligations should be accompanied by funding mechanisms to mobilise finances for community initiatives, and to address the financing gap for small and medium ICT start-up businesses. It should be noted that the deployment of ICTs increases effectiveness and efficiency in reaching the MDGs whatever the resources available – mainstreaming ICTs pays off even when budgets are stagnating or shrinking.

The *way forward* towards up-scaling pro-poor ICT policies and practices faces significant challenges during the transition phase in the development of national strategies. These include: retaining local ownership, capacity building in local communities, adaptation to the local contexts, developing sustainable business models, and defining the level of institutional and public sector support. Successful up-scaling requires action at different levels:

– *Advocacy at all levels*, particularly the bringing together of development and technology specialists, is key for up-scaling poverty reduction through ICTs. The added value of declarations and advocacy statements, including the Chennai Statement (Annex 4), depends on the extent to which they are heard by governments, civil society and the private sector regionally, nationally and locally. In particular, the younger generation should be reached.
– *Global coalitions* advancing empowerment, opportunity and security of people in poverty, including fostering gender equality, education, health and democracy, are an effective and efficient channel for taking up-scaling concerns forward. In particular, intensifying South-South networking and dialogue should be pursued.
– *South-South exchanges* and partnerships can be an efficient and effective way of learning. Comparable contexts and challenges create empathy and facilitate the transfer of knowledge. The MSSRF is using a successful model: a travelling workshop that directly links the Indian grassroots experience with the experience of the workshop participants from other countries and continents.
– In view of the complementary roles of governments, the private sector, and civil society, building *multi-stakeholder partnerships* (MSP) is a priority in implementing an inclusive Information Society based on the WSIS' vision and inspired by the Millennium Declaration. Multi-stakeholder partnerships are a promising and appropriate response to the complexity of tasks, to the need for resources, to scaling up, and to the fact that development is a shared responsibility.

It is a *matter of economic survival* to make appropriate use of ICTs. Or as Nobel Prize winner Amartya Sen puts it, "the availability and the use of this technology is no longer optional" [2].

1.1 Rationale

The 21st century has been named the age of knowledge societies. Information and communication networks and tools have enabled people to access a diverse range of information and knowledge sources as never before and to use knowledge and ICT-enabled solutions to undertake new ways of doing business and development, delivering services, and organizing government, social and political life. Their importance and relevance for developing countries is increasingly being recognized. Can they also be beneficial for poverty reduction and contribute to improving the lives and opportunities of the poor and marginalized? Is their use critical for achieving the various development objectives more effectively?

A consideration of these burning questions has given rise to a number of studies.[3] The issues have been focused upon at a number of important fora at the global level, including the following: World Summit of the Information Society (WSIS) in December 2003 in Geneva (Phase I) and the parallel ICT4D platform hosted by the Global Knowledge Partnership (GKP) and the Swiss Agency for Development and Cooperation (SDC). The ICT4D platform provided an important occasion to take stock of knowledge about the role of ICT for poverty reduction and facilitated a sharing of approaches and lessons[4]; The UN ICT task force[5], created in 2001, with the goal of "firmly putting ICT at the service of development for all" by providing a multi-stakeholder fora and working groups for a consideration of these issues at a global level; the Development Assistance Committee (DAC) of the OECD has an ICT unit working under the DAC Network for Poverty Reduction (POVNET) which provides a forum for the exchange of experience and best practice on pro-poor growth, i.e. involving the poor in generating growth and benefiting from growth and globalisation. Information on how bilateral and multilateral donors have mainstreamed ICT in their development assistance programmes in order to achieve development goals, particularly the MDGs has been compiled and a matrix, which is periodically updated, has been constructed[6]. Good Practice Papers on ICTs for Pro-Poor Growth are also being prepared.

In 2005, two events are of particular interest with regard to the link between ICT and poverty reduction. Firstly, the United Nations General Assembly (UNGA)[7] will assess the progress made in reaching the MDGs, 10 years ahead of the deadline of 2015. This assessment and high-level event provides an opportunity to assess the role of ICT in achieving these development objectives as does the Phase II of the WSIS which will take place in Tunis[8].

The *objectives* of this cooperative effort[9] are to contribute to these ongoing efforts and fora by bringing a bottom-up grassroots perspective to the issue of up-scaling pro-poor ICT approaches and strategies and to draw some preliminary lessons from ongoing initiatives. In this context, the aims are:

1 to deepen knowledge about the use of ICT for poverty reduction and its potential and limitations at the grassroots, national, and global levels;
2 to explore parallels and differences in the use of ICT for poverty reduction in Sub-Saharan Africa (SSA) and low income countries of Asia (LIACs);
3 to contribute to an experience-based and poverty reduction oriented agenda for implementation of the WSIS principles and Action Plan in an Asian context.

The *outcomes* envisaged are a contribution to a better understanding on the part of policy makers of the action needed to foster the use ICT for poverty reduction particularly in the WSIS context. It has been argued by some that: "Never before in history have so many non-technical people exerted so much influence on the advancement, retardation, and movement of technology."[10] Decision makers therefore need not only to access to relevant indicators, numbers and statistics, but also to have an understanding of the possibilities that technologies offer in a variety of contexts. It has been recognised "that more could be done using ICT to achieve the MDG, but for a failure of imagination"[11].

The objective is also to focus attention on the *approach*. Today, there are few development projects that do not have an "ICT component". However, the benefits of ICT use do not flow automatically from increased access or from the introduction of ICT hardware and tools. Technologies provide opportunities, but it takes efforts by communities and/or countries to make effective use of them. Ultimately it is not the technologies which determine the successful use of ICT in development, but the context, i.e. "cultural, political, eco-

POVERTY
Poverty is the opposite of well-being[15]. Beyond a lack of income, the multidimensional concept of poverty also refers to disadvantages in access to land, credit and services (e.g. health and education), vulnerability (towards violence, external economic shocks, natural disasters), powerlessness and social exclusion.

nomic, social, and institutional processes determine which opportunities are accepted, and the degree to which they are utilized"[12]. This study therefore emphasises the importance of the political, economic and social context in which ICT use is fostered. Since people's priorities and livelihood strategies change from culture to culture, a comparative study can contribute to an increased understanding some of the critical issues at stake. While Asia is a very diverse region and provides a lot of insight into different contexts, some references to Sub-Saharan Africa (SSA) are made, in order to broaden the discussion of the issues and to consider the appropriateness of adopting particular approaches.

In order to arrive at a consolidated study, a *process* consisting of several steps was instituted. A first draft, drawing on desk research, was made by Gerster Consulting and shared with the partners involved. Based on their comments and additional desk research, a revised version was produced and presented to an international workshop, jointly hosted by MSSRF and SDC in Chennai, India, on November 17–19, 2004, with a wide range of experts participating, including grassroots practitioners as well as policy people. That workshop resulted in a "Chennai Statement" (see Annex 4), containing the main messages in a nutshell. Taking into account the insights of the workshop, this definitive paper was published and disseminated in 2005 jointly by MSSRF and SDC.

INFORMATION AND COMMUNICATION TECHNOLOGIES
ICTs facilitate the creation, storage, management and dissemination of information by electronic means. This definition includes radio, television, telephone, fax, computer and the Internet. Newspapers and other print media do not fall under that definition but are strongly influenced by electronic means (online news etc.).

1.2 Concepts

Poverty

The World Bank uses the standard of US$ 1 a day to draw the line of extreme, absolute poverty. At this level there are nearly 1.1 billion poor people in the world. At US$ 2 a day the figure approaches 2.8 billion[13]. Reliance on income terms alone, however, misses many facets of the everyday life of the poor and is therefore unsatisfactory. In recent years, the understanding of poverty has undergone significant changes. It is no longer viewed as being restricted to material deprivation, but encompasses intangible aspects, such as lack of access to schooling or health care, vulnerability towards external events, or being excluded from decision making processes.[14]

This approach to the conceptualization of poverty is also reflected in the MDGs, which address the multiple and inter-related dimensions of poverty and development. In line with the Human Poverty approach, and more specifically with the World Bank Development Report of 2000/2001, poverty reduction in this study will be looked at in terms of facilitating empowerment, promoting opportunity, and enhancing security.[16]

Empowerment

Achieving access to, and accountability for, public actions requires the collaboration of all groups of society. Specifically strengthening the ability of poor people to shape decisions that affect their lives and removing discrimination based on gender, race, ethnicity, and social status are central elements of facilitating empowerment.

Opportunity

Many material opportunities such as jobs, credit, roads, electricity, water and sanitation are side effects of economic growth. However, the quality of growth is crucial. Mechanisms need to be in place to stimulate local opportunities and to compensate for potential losses during transitions. Expanding opportunity for poor people means making markets work better for them, working for their inclusion, and building up their assets.

Security

Increased security means reducing poor people's vulnerability to sickness, economic shocks, crop failure, unemployment, natural disasters, and violence, and helping them cope when such misfortunes occur. This requires effective national action to reduce the risks, as well as building the assets of poor people by, for example, diversifying household activities, providing insurance mechanisms, or improving education and access to social security measures.

Information and Communication Technologies

Because mankind has long used technologies to meet its communication needs, one can argue that the omnipresent acronym of ICT has a his-

A Buddhist monk teaches users how to handle the computer in a village information centre of the Sarvodaya Shramadana Movement in Sri Lanka.

tory as long as mankind itself. However, with the advent of new technology, namely digitalisation, ICTs have gained a more prominent status and are now sometimes divided into "old" and "new" technologies, relying more or less on this technical distinction[17]. This paper defines ICTs as technologies that facilitate communication and the processing and transmission of information by electronic means[18]– digitalisation, therefore not being the criterion. This recognises the fact that currently the most widespread ICTs are not digital technologies, since radio and TV use primarily analogue techniques[19]. And, especially in relation to poor people, these media have a significant potential and impact[20]. Technological convergence brings new devices onto the market that will gradually render the distinction between old and new ICTs obsolete.

Five characteristics[21] describe these modern ICTs:

1 Interactivity: ICTs are effective two-way communication technologies.
2 Permanent availability: the new ICTs are available 24 hours a day.
3 Global reach: geographic distances hardly matter any more.
4 Falling costs: relative costs of communication have shrunk to a fraction of previous values.
5 Mutli-media: The digital ICTs permit the exchange of information in writing, sound and picture.

Millennium Development Goals

The Millennium Development Goals[22] (MDGs) are the result of the many development conferences that took place mainly in the 1990s. In September 2000, at the end of the UN Millennium Summit, 189 countries signed the final declaration and by doing so committed themselves to a specific agenda for halving global poverty by 2015. They outlined a vision that offers the opportunity to focus development outcomes and to coordinate efforts among stakeholders. The MDGs have become a frame of reference for almost all organisations working in development. They represent an agreement in the community to achieve measurable improvement in people's lives. Three new aspects of the MDGs set them apart from previous efforts. The MDGs are:

– *quantitative and time bound targets* – emphasising systematic measurement;
– *focusing on outcome* – shifting the focus from inputs and sector specific work to cross-sectoral approaches;
– *emphasising the role of both developed and developing countries* by making global partnership an explicit goal.

THE MILLENNIUM DEVELOPMENT GOALS

1 Eradicate extreme poverty and hunger.
2 Achieve universal primary education.
3 Promote gender equality and empower women.
4 Reduce child mortality.
5 Improve maternal health.
6 Combat HIV/Aids, malaria and other diseases.
7 Ensure environmental sustainability.
8. Develop a global partnership for development.

The United Nations General Assembly (UNGA) 2005 will review the progress made by the world community in pursuing the MDGs. It is becoming more and more obvious that at the current rate of progress, many countries and regions will not reach the MDGs by 2015. Other risks include the mechanical adoption of specific indicators and the neglect of sectors that do not have an explicit MDG goal. It is, therefore, important that the MDGs are adapted to country and regional conditions and include qualitative dimensions of development.

The eight MDGs, which comprise 18 targets and 48 indicators, cover both income and non-income related dimensions of well-being. Each of the first seven goals addresses a specific aspect of poverty, such as health or education. They need, however, to be viewed together, as they are mutually reinforcing and aim to reduce poverty in all its forms.

ICT is considered in the context of goal 8 on global partnership: "In cooperation with the private sector, make available the benefits of new technologies, especially information and communications." ICTs are tools for achieving social goals as spelt out in the MDGs and will play an essential role in this respect. Their contribution can be direct (e.g. greater availability of health information, training of health personnel, giving voice to women, creating new economic opportunities) or indirect (enabling good governance and transparency, supporting decentralisation processes). Whether as an important sector of economic activity, a platform for information exchange or a tool to implement applications, ICT can play a catalytic role as an enabler to development[23].

When trying to assess the impact of ICT on the achievement of the MDGs, *indicators* are needed. In view of the progress review of the first five years since the Millennium Summit, different organisations have contributed to the setting up of indicators. For Phase I of the WSIS, the UN ICT task force presented a matrix for discussion and a benchmark report is planned for Phase II. Apart from the UN ICT task force, a report by the International Telecommunications Union (ITU) examines specific issues of measuring access to ICT and it proposes a number of ICT specific indicators for each MDG[24]. It has been recognised that new indicators are needed, since limited infrastructure is not the only obstacle to improving access to ICT. The report also discusses the monitoring of the WSIS objectives and comes to the conclusion

ICTs have to serve the people. A village meeting of the knowledge centre (India).

that many of the indicators are chosen because of the availability of data and do not necessarily measure the extent to which individuals have access to, or make use of, technologies[25]. The ITU proposes a new indicator: the Digital Access Index (DAI), which incorporates adult literacy and overall school enrolment besides infrastructural numbers, such as telephone subscriptions and different numbers on Internet access.[26]

Low income Asian countries & Sub-Saharan Africa

For the purpose of this study, the definition of low income Asian countries (LIACs) was based on the regions as they are used by the UN Statistics Division for the reporting of the Millennium Development Indicators[27]. The three Asian groups that encompass South-East Asia (referred to as Eastern Asia, Southern Asia and South-Eastern Asia) were all included, with the exception of countries that fall in the upper-middle or high income class, and small island states. The focus is therefore on 19 countries[28], without any from the former Soviet Union or from the Middle East. For a full list of the countries refer to Annex 2, which also lists statistical data. This region covers some 3.312 billion people, a little over half of the world's population.

The countries of Sub-Saharan Africa (SSA) were defined in the same way, i.e. all countries of Africa except northern Africa, excluding all small island developing states and/or countries in the high or upper-middle income group. Six hundred and eighty-eight million people live in the region of SSA. The list of countries can be found in Annex 2.

1.3 Research framework

In order to realise the objectives of this study, a research framework was developed to sharpen the focus and to identify key questions. Evidence suggests that the effectiveness of poverty reduction can be strongly enhanced by a pro-poor growth strategy, instead of following conventional economic wisdom that relies purely on high growth rates and the trickle down to the poor. Fostering pro-poor growth requires an overall supportive enabling environment, which includes good governance and appropriate economic and social policies. It also includes the adoption of a deliberate poverty reduction strategy (PRS) and well designed pro-poor ICT regulations and policies.

This leads to two main questions that address indirect effects that are beneficial for poverty reduction:

1 How to mainstream ICTs (regulatory and policy environment, sector, facilitator) in national poverty reduction strategies?
2 What pro-poor ICT regulations and policies (including free/open source software) are required for up-scaling ICT for poverty reduction?

An overall pro-poor enabling environment facilitates poverty reduction. Given a multidimensional understanding of poverty, the process of poverty alleviation will include the facilitation of empowerment, promotion of opportunity, and the enhancement of security. This can be done in a number of ways. Due to the limited resources for this study, each dimension has been reduced to one lead question, which addresses direct key effects of ICT on poverty reduction.

3 How to give poor people a stronger voice at all levels of decision making by using ICTs?
4 How to enhance income generation by the poor through ICT?
5 How to up-scale formal and informal education of the poor by the use of ICT?

Strong inter-linkages between empowerment, opportunity and security are evident. A strengthened political participation of the poor will also affect opportunity and security. Moreover, some arbitrariness, as to where some issues are categorised "best" cannot be escaped. For example, the area of education is seen here in the perspective of its contribution to security. It is obvious, however, that education may also have considerable impacts on empowerment and opportunity and could be subsumed there with valid reasons.

THE TRADITION OF ORAL COMMUNICATION IN AFRICA

There are a number of indications that the telephone is a preferred ICT in Africa:

- "Rural communication has largely been oral, whereby people expect immediate feedback, […] the telephone could therefore be the technology of choice for the future as it embraces the African mode of communication."
- "Generally, many Africans would prefer to consult colleagues or friends rather than visit a library or documentation centre."
- A certain preference for phone communication in Africa can be deduced from another study that cited a statistic stating that 86% of people surveyed had used a telephone in the past three months. This is remarkable, since the sample was well balanced in respect to different criteria.

Sources: Nyaki Adeya, McKemey et. al. in Batchelor et al., 2003

2.1 Overall context

The following paragraphs are based on the insight that, ultimately, the specific technology that is applied is less relevant than questions about freedom of expression and inclusiveness, outreach and sustainability[29]. The presented topics are by no means exhaustive; they are rather illustrative in order to create awareness about issues that, in some cases, were found to have been relevant to the application of ICT. At the same time, it should always be kept in mind that in the end the technology is used by people; for them less tangible issues, such as motivation or preferences for certain ICT,[30] are often more relevant. Most of the specific indicators that are presented, are listed in Annex 2 under relevant data. All the sources are provided there as well.

Culture can be described as the shared knowledge, values, beliefs and history of a group of people. An important element that influences culture and is also key in ICT use, is *language*. Both Asia and Africa have a large number of languages, and not all people can communicate in English. (For Asia the numbers given are 2,197 languages spoken with about 20% of the population being able to communicate in English[31].) But while in Africa most scripts are based on the Latin/Roman alphabet or Arabic script (with the exception of the Horn of Africa), the situation is more complex in Asia, where Arabic, Indian, Chinese, Japanese as well as other scripts exist[32]. These not only have technical implications, but they also have effects on the way information is classified.[33]

Closely related to the question of language are the preferred modes of communication. Some scripts have not changed over hundreds, if not thousands, of years, which means that today's people are still able to read old documents. On the other hand, there are languages that have no script, which means that passing on information relies on oral traditions. In the end, new technologies have to fulfil the human need to communicate and, as the following example shows, the different features that modern ICT offers can be used imaginatively to create new modes of communication.

Another important element of culture are different *taboos*: not all issues can be discussed in public. In this respect many of the new technologies offer some degree of anonymity, which facilitates the exchange of information on sensitive issues. Earlier, when making a call with a fixed telephone from home and especially from shops, the phone set could not be moved. People could not talk about personal matters over the phone without others hearing them. But now they can take the mobile set in their hand and move to a private distance and "do mobile".[34] The fact that various ICTs enable anonymity has been mentioned positively in several projects dealing with HIV/Aids. Sexuality is very often associated with taboos; confidential counselling over telephone hotlines or anonymous interviews with HIV positive individuals address many taboo issues on the levels of individuals or communities.[35] Furthermore, taboos are influenced by gender: a study regarding use of the Internet conducted in several African countries found that "school girls primarily used the Internet to research for information that is banned or taboo in their cultures."[36] Another gender biased taboo is reported from Pakistan, where a woman visiting an Internet cafe by herself is "undesirable practice".[37] Taboos, therefore, relate not only to content but also to access.

From the point of view of ICT, the relevance of culture is expressed in the term "*localisation*", which is often cited as a key requirement for the successful use of ICT in poverty reduction. Localisation can happen with respect to a number of issues, such as language, social or organisational structures and content[38]. Community media[39]are key enablers of localisation, since they provide information that cannot be accessed through mainstream media. They know a community and its information needs and can serve them best. However, they also rely on other media as sources of information. Data on daily newspapers is scarce and even more difficult to obtain for comparison over time. For the period 1990 to 1999, a decrease in the number of daily newspapers per 1000 people was observed for 2 out of 3 countries in the Asian region and for 4 out of 5 countries in SSA[40]. In 2000, 4 countries in the Asian region had fewer than 10 daily newspapers per 1000 inhabitants. In SSA, more than half of the countries had fewer than 10 daily newspapers per 1000 inhabitants.[41] Though these numbers give no indication of the diversity of sources and ownership or the people's exposure to the media, they are an indication of information available on local issues and in local languages.[42]

Ghana vs. Thailand. A comparison 1975–2002

Country	1975 (GNP per capita 1995 US$)	2002 (GNI per capita US$)	2002 (GNI per capita in PPP terms US$)	Poverty (share below US$ 1/ day)	Poverty (share below US$ 1/ day)	Annual per capita growth rate 1965–98
Ghana	411	270	2000	36% (1992)	29% (1999)	–0.8%
Thailand	863	1980	6680	33% (1988)	16% (1999)	+5.0%

Source: World Bank, World Development Report 2004; World Development Indicators 2000; UNDP, Human Development Report 2000

The *economic and political setting*, the immediate natural and social environment, such as climate, vegetation, and ethnic or religious groups have a direct effect on people's livelihoods. They determine how people can earn their income. Serious constraints imposed by soil and climatic conditions, in particular in SSA, and their implications for communities and cultures can hardly be overcome by innovative policies. Such policy constraints will persist in the future, together with an unfavourable international environment shaped, in the age of globalisation, according to the priorities of the rich countries. Having said that, differences in governance and policies cannot be overlooked[43]:

– In SSA, the countries are only a few decades old, their boundaries have been arbitrarily drawn by the former colonial powers, personal loyalties dominate politics to a considerable extent: in a nutshell, nation states are often weak. In Asia a strong national leadership, committed to implementing a vision, is much more widespread.
– In an Asian context, this situation translates into self-conceived mixes of market and interventionist policies, a priority assigned to rural development involving taxing farmers and supporting rural re-investment, pro-poor redistribution (land reforms) a relatively equal income distribution, and investment in education, including women. In SSA weak governance often dominates: for decades farmers were taxed to keep urban consumers happy, no substantial redistribution corrected gross income inequalities, and investment – e.g. in education – remained insufficient.

Good governance is now seen as a fundamental factor for development. Governance focuses on the interaction between the state, the private sector and civil society and should enable a participatory, equitable and transparent management of public affairs. The links between governance and poverty can be seen in the vicious circle created by bad governance: it leads from imbalanced power to exclusion, which in turn reduces the capacity of marginalised people and their social and economic organisations to gain access to resources and this results. Full political participation is one of the three key elements that constitute the polity index. This number describes the degree to which a country is either autocratic (–10) or democratic (10). Almost half of the Asian countries (44%) have a negative index: all of them between –6 and –9. The countries that have a positive index display a wider variety, with half of them having an index of 8 or more. The situation is more difficult in Africa, where four countries have transitionary situations in their governments and 50% have a negative index.

A key factor when describing the broader context is the distribution of the population in *rural and urban areas*. Living conditions for the two differ drastically, but while poor people often live in remote areas, it is estimated that in the poorest countries as much as half the urban population lives in absolute poverty, with the numbers growing. The urban population of the South is expanding at double the rate of the overall population[44]. Urban areas are often associated with Western influences, while in rural areas more traditional communication prevails.

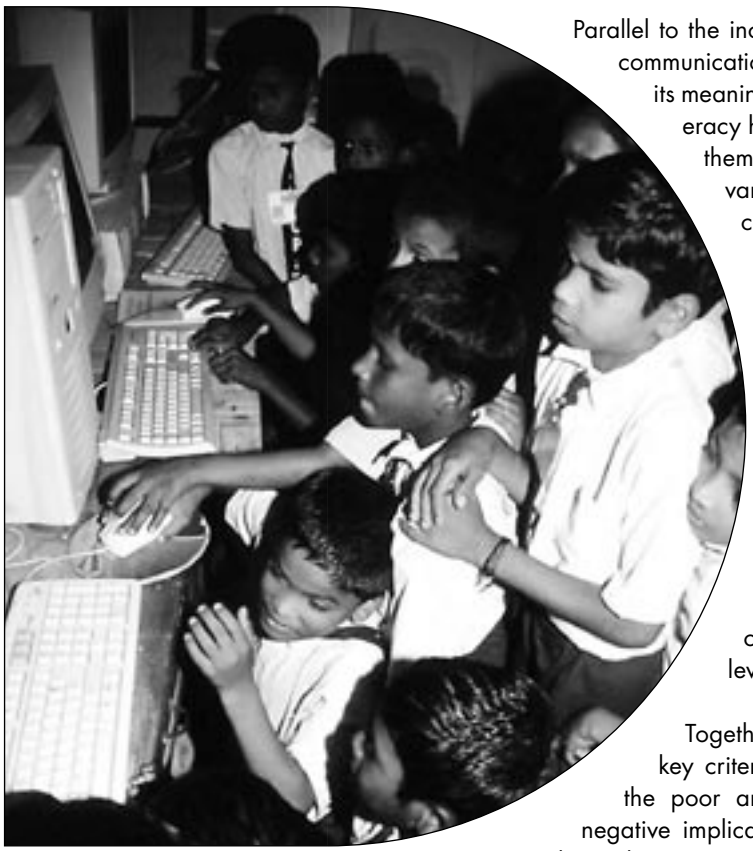
2.2 The challenge of MDGs

Human development mapping for Asia shows overall progress with respect to *poverty* reduction over the past two decades[45]. More specifically, the progress report 2004 on the MDGs shows that the Asian region is on track for the first tar-

CREATIVE COMMUNICATION

In Bangladesh mobile phone users start establishing a culture of "miss calls": "Me and Ahmed have an understanding between ourselves about communicating with mobile phones using miss calls. When either one of us gives a miss call that means 'I am at home, where are you?' If given two miss calls at one time it means 'I am at your house, where are you?' If Ahmed gives three miss calls at a time that means 'I am standing before the shop at the entrance of your street. Come out.' and I won't make mistake responding with a single miss call that means 'Right away!'"

Source: Chakraborty, 2004



School children spend their lunch break in the knowledge centre of Embalam (India). The creation of the knowledge centre has been facilitated by the MS Swaminathan Research Foundation.

CHRONIC POVERTY IN LIACs & SSA

While chronically poor people are found in all parts of the world, the largest number lives in South Asia (135–190 million). The highest incidence is in SSA, where 30–40% of all present "US$ 1/day" poor people are trapped in poverty – an estimated 90–120 million people. East Asia has significant numbers of chronically poor people, between 55–85 million, living mainly in China.

Source: Chronic Poverty Research Centre 2004

get of reducing poverty by half (SSA shows no change in this respect). Reliable and up-to-date data is rare. However, in four out of the fourteen countries that have some figures, more than a third of the population lives below the US$ 1 per day line. Two of these countries are Bangladesh and India, which might account for the fact that, in spite of unprecedented progress, the continent still accounts for three quarters of the world's poor.

With respect to the key issue of *education*, two indicators[46] of the MDGs are interesting: net primary school enrolment and the literacy rate. Asia is on track with respect to universal primary schooling: all countries have more than 80% enrolment in primary education; three countries have even more than 90%. There is some progress in SSA in this respect, even though much remains to be done: 20% of the countries have less than 50% enrolment in primary education. However an equal proportion has over 80%.

Literacy has also been said to be a major development issue for the 21st century and is also highly relevant for effective ICT use. However, when speaking of literacy what is often meant is verbal literacy – the ability to read and write.

Parallel to the increased complexity of human communication the term has also changed its meaning and different concepts of literacy have been developed, among them computer literacy. There are various definitions for each concept, most of which include the two elements of being able to understand and to use text/media/pictures.[47] Literacy, as it is measured for the MDGs (both sexes, between the ages of 15 and 24), is generally good in Asia, with only five countries having a rate between 50% and 80%; all the others are above 90%. In Africa there are some countries that have a literacy level below 50%.

Together with illiteracy, *gender* is key criteria of poverty. A majority of the poor are women. Furthermore, the negative implications of change often affect them disproportionately: environmental degradation increases their workloads; migration and consequent changes in family structures add to their burden. Any poverty reduction effort must, therefore, be gender sensitive. Since women's disadvantages are often closely linked to their lack of participation in decision making, the proportion of seats held in parliament is some indication of their status. With the exception of two parliaments, where women hold 26% and 27% of the seats, their representation throughout the Asian region is lower than a quarter. In almost half the countries their representation is even 10% or lower. In Africa, three countries have a third or more women holding seats in parliament. Rwanda is leading the world ranking (before all Scandinavian countries) with 45%. However, almost half of the countries have 10% or less. But a more empowered woman who is knowledgeable and confident empowers those around her by facilitating decision making processes at various levels[48]. Benefits from ICT, through distance education for example, affect not only one person, but through her[49] reach larger groups.

2.3 The ICT context

In addition to good governance, which has been discussed under paragraph 2.1, *press freedom* is another indicator that has an important influence on the potential impact of ICTs. On a scale from 1 (absolutely free) to 100, only around 10% of the countries in both regions have a free press. Considering that this index claims to measure the degree of freedom in the flow of information (rather than press responsibility), this is a major hindrance to the effective use of ICT. With regard to the remaining 90%, the proportional distribution is similar for both regions. Asia is lagging slightly behind, as there are two countries (Myanmar and North Korea) with a value of over 90, while in Africa no country has a value of over 90. Also the amount of a partly free press is higher in Africa (32% versus 24% in Asia).

Regulation is needed for telecommunications, broadcasting and the Internet. Universal service and competition are based on an adequate *regulatory framework*. The creation of an independent regulator is seen as one of three key elements in reform programmes[50]. Data on national regulators is not available for all countries, making the following numbers indicative rather than descriptive. Out of all countries in Asia, a third have an independent regulator. Looking only at countries for which information is available (i.e. nine out of nineteen countries), the percentage goes up to two thirds. In Africa more than half of the countries have an independent regulator. Where regulatory environments for certain media are absent, other options have to be considered: "In the absence of local community radio in India, cable audio is worth exploring as a viable option to teach people in their homes. Cable also opens up interesting possibilities for video and multimedia."[51] However, such an option will bypass the people in poverty who would be the prime audience of community radio.

A direct benefit from efficient regulation is *competition*, which is important for enabling better services and prices that are affordable for poor people as well. Competition varies widely not only between countries, but even within a country there are different situations, depending on the service offered. Only a minority of the countries have full competition in all three areas of local services, international long distance calls, and Internet service providers (ISP). Most countries have some degree of competition; generally the ISP area is more competitive than telephony.

ICT *infrastructure* and use have been growing explosively, even in developing countries. The growth is such that, in relative terms, the gap between rich and poor countries is closing – e.g. with respect to Internet use and telephone penetration. Over the last 25 years, the latter has been expanding faster in low income countries, and considerably faster in middle income countries, than it has in high income countries[52]. Developing countries now account for 49% of total telephone subscribers in the world – up from 19% in 1990. There is reason to believe that this growth has made some contribution, however modest, to the achievement of the MDGs.

However, in absolute numbers the situation is still bleak: Only 23% of Asian countries have more than 200 radios per 1000 people, 55% have fewer than 100 phone connections per 1000 people and, apart from Thailand, no country has more than 50 people per 1000 who use the Internet. There are some notable differences between the two regions. While Africa is lagging behind Asia in respect of phone lines and Internet users, it has a much higher number of radios. The average for the region is 238 per 1000 people, while in Asia it is only 145. Half the countries in Africa have more than 200 radios per 1000 users. In spite of the impressive growth of mobile phone lines in Africa, the total of phone lines is still very low. At the end of 2003, 52 million Africans had a mobile phone, about twice the number of fixed-net phones. If South Africa, which has over 400 lines per 1000 people, is not taken into account, the average for the region is 39 phone lines per 1000 (the number goes up to 47 if South Africa is included).

Infrastructure is also a key issue in measuring progress with respect to the MDGs. In its World Telecommunication Report 2003, the ITU discusses the indicators to help measuring target 18 of the MDGs[53]. All of the three indicators used are focused on infrastructure. Differentiating between economies that are getting richer and those that are getting poorer, the report looked at the respective ICT performances between 1990 and 2001. It found that for fixed-line networks the richer had a growth rate that was almost three times that of the poorer. For mobile networks the poorer had a marginally higher rate than the richer economies; for Internet services the richer were in the lead

FAVOURABLE ICT POLICIES ON A REGIONAL LEVEL

ICTs are increasingly integrated into the development programmes of African countries. On a regional level the priority of ICT is confirmed by their prominent position in the NEPAD. NEPAD established the e-Africa commission, which is responsible for developing the NEPAD ICT programme and implementing its projects. Recognising the need for a strategic approach in the extension of infrastructure and promotion of ICT use, e-policies and strategies are one of the priority areas of the commission.

See: http://www.nepad.org

TELEPHONY IN SUB-SAHARAN AFRICA

- Sub-Saharan Africa has about 10 per cent of world's population (626 million), but only 0.2 per cent of the world's one billion telephone lines.
- Fifty per cent of the available fixed lines in Africa are concentrated in capital cities, where only ten per cent of the population lives.
- In 2001, the ITU reported about 350,000 public telephones in the whole of Africa, of which only 75,000 were in Sub-Saharan Africa – or about one for every 8,500 people, compared to a world average of one for 500 people.

Source: ITU

again, though not by as much as for fixed lines. The ITU proposed that the role of the state is the critical factor in explaining the difference in performance: For historical reasons, the government is usually closely involved in fixed-line telecommunications (through state-ownership of incumbents and regulation). It is not so involved in mobile communications, where the private sector usually plays the dominant role, typically in a more competitive environment. Internet is half way between

A centre to „eradicate the digital divide" in front of the Kataragama milk temple in Sri Lanka.

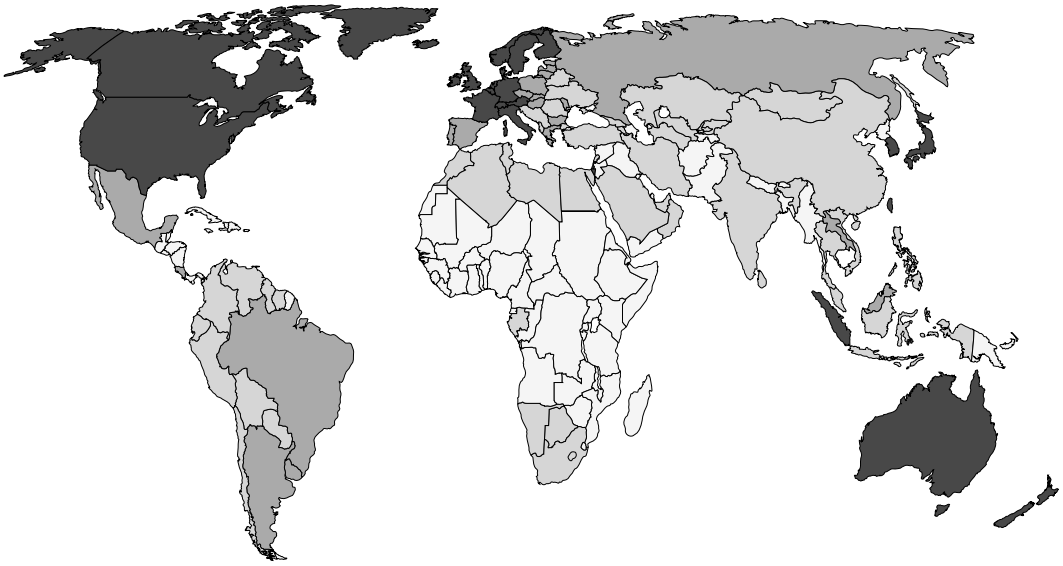
the two, with the state often involved in providing the dial-up network, but the private sector involved in acting ISP.

However, the backbone of ICT infrastructure is beyond national reach, though it is still relevant for, and influences, national policy making. Within Africa, a regional telephone and Internet network only exists in a rudimentary form. Africa lacks the financial means to install direct connections, even though detours are extremely expensive. The African users are fully charged for the costs of cable capacities and connections. African telephone companies annually pay US$ 400 million to European and North American providers for internal African connections. These costs strongly influence effective access and are reflected in differing costs of local phone calls in the two regions. While in Asia no country charges more than US$ 0.07 for three minutes, differences in Africa are much higher (between US$ 0.02 and 0.43), resulting in an average that is also far higher than in Asia (US$ 0.11 compared to US$ 0.03). The financial implications of making local phone calls are therefore much higher in SSA.

The reasons for the higher phone costs of inner African connections are mainly due to monopolistic prices. While international telecom rates are not fixed based on distances, in the case of Africa the post-colonial routeing of intercontinental detours via Paris and London adds to the unfavourable cost level. As an example[54], an inner-African phone call from Porto Novo (Benin) to Lagos (Nigeria), with an air distance of 86 km, costs around US$ 1 per minute – it passes through Paris and London making a distance of over 10,000 km overall. The costs for comparable international calls between Calcutta (India) and Dhaka (Bangladesh) with a distance of 242 km or Chennai (India) and Colombo (Sri Lanka) with a distance of 600 km vary between US$ 0.24 and US$ 0.40[55]. Even cheaper than that are inner-European calls: between Geneva (Switzerland) and Lyon (France) – a distance of 114 km – a one minute call costs US$ 0.09.

Infrastructure is a prerequisite for *access* to ICT.[56] Social and/or personal barriers do not matter if there is no infrastructure to be used. On one hand, infrastructure refers directly to ICT (e.g. the number of radios/TVs/PCs that are available per 1000 people). On the other hand, it also includes prerequisites for the use of ICT, such as electricity. Furthermore, roads and railways or schools and hospitals, as well as a number of other measurable elements, "have all been seen as essential precursors to, or components of, growth and development."[57]

A combination of indicators has been integrated into the newly created *digital access index* (DAI). While it "deliberately omits variables subject to qualitative judgment such as the regulatory environment"[58], it acknowledges that it takes more than infrastructure to enable access and gives weight to affordability and education. When looking at the regions in terms of the DAI, almost all countries (with the exception of a few island states, Malaysia and Hong Kong and Macao as special regions of China) have a DAI of less then 0.5 (with 1 signifying highest access). Out of the 55 countries that are classified as having least access, eight are in Asia and 42 in Africa.



high (0.7–1)
upper (0.5–0.69)
medium (0.3–0.49)
low (0–0.29)

(1 equals highest access)

Figure 2: Digital access worldwide (Source: ITU)

Apart from Lao PDR and Bhutan, only African states have an index of 0.15 and less. The above map shows the worldwide extent of the DAI, with darker colours symbolising better access[59].

The potential for local adaptation and cost effectiveness are also important. It is for this reason that there has been growing interest in exploring policies and capacity building strategies in support of *free and open source software* (FOSS)[60]. It is of special relevance to poverty reduction. FOSS provides opportunities for tailor-made solutions, training and career opportunities and for dealing with budget cuts. There are a number of countries in which governments (usually different ministries, but also some local entities) encourage the use of FOSS[61]. Seven Asian countries have a number of policies proposed or approved that deal with the issue of FOSS. In Africa there are only two countries that do the same.[62] Furthermore, a regional initiative in Asia plans to create a northern-Asia open-source operating system. This involves China, Korea and Japan[63]. However, these numbers say nothing about private initiatives, which are considerably higher. Worth mentioning as an example in this context is the translate.org initiative, which has expanded from South Africa to Uganda[64], and FOSSFA, the Free and Open Source Software Foundation for Africa, which supports and promotes open source software in Africa.

TEN REASONS FOR NGOs TO USE FREE/OPEN SOURCE SOFTWARE (FOSS)

NGOs should take a closer look at FOSS, because

1 They need stable quality software that is tailored to their needs.
2 They can determine when they need changes or an update.
3 Its acquisition costs are lower (regarding training and administration costs there is no agreement).
4 It empowers computer users and encourages them to cooperate.
5 It multiplies skills.
6 It creates local jobs.
7 It provides more security.
8 NGOs receive and disseminate a lot of information. Ideally they are able to access information in digital format without having to break the law or spend money to purchase the relevant applications.
9 Freedom in its many forms is fundamental to much NGO work. In the software world it is a real option and can be taken with some efforts.
10 It includes an ethical component. If NGOs do not subscribe to the principles of sharing freely – then who will?

Compilation based on Noronha, i4d, Vol. II, No. 10

TEN GOOD REASONS WHY THE INTERNET BYPASSES THE POOR

Poor people face a number of obstacles to using the Internet:

1 A low literacy rate sets limits to using a medium that requires specific literacy.
2 The information needs of rural and urban poor differ from the information accessible on most of the existing websites – relevant content is lacking.
3 Available content may not be accessible in the required language – 70 percent of the websites are still in English.
4 Existing software, including search engines, is targeted towards the needs of better-off people and regions.
5 There is limited connectivity in rural areas.
6 The poor suffer from barriers in mobility to reach centres.
7 The poor cannot afford sufficient time and incur income losses to attend training.
8 Costs of hardware, software and connectivity are still considerable for poor people.
9 The poor lack knowledge of how beneficial and powerful the Internet could be in their hands.
10 Marginalisation by ethnicity, caste or gender may add to the barriers.

Compilation based on Banuri in UNDP/APDIP 2003; Slater/Tacchi (A) 2004; own research

3.1 Introduction

Several *case studies*, spanning the African and Asian continents have found concrete evidence of the impact of the use on ICT on poverty reduction[65]:

– One World International/Op de Coul used the framework of the World Development Report 2000/2001 and worked with the concepts of opportunity, empowerment and security. Op de Coul found the first two concepts to be most relevant: Computer skills increase people's opportunities with regard to education and employment. Furthermore, they facilitate empowerment on different levels (individual, organisational, national) and increase the efficiency of organisations. With respect to the influence of the wider context, she concluded that the political environment, as well as the status of infrastructure, was most favourable in Central America. Circumstances were less favourable in South Asia and least in Africa.[66]
– InfoDev/Batchelor used the framework of the MDGs and found most impact with respect to MDG 8 – which is not surprising, considering that it includes the only explicit reference to the use of ICT. Considerable impact has also been made on MDG 1, specifically for Target 1. Goals 2, 4, 5 and 6 have been furthered through such indirect contributions as increased information access, and social mobilisation[67].

In contrast to these positive but selective references, *sector-wide or region-wide assessments* of the ICT contribution to poverty reduction hardly exist or remain vague[68]. Assessment of the effect of ICT on poverty reduction efforts is usually done with respect to some indicators, ideally defined before project implementation, even though it has been found that this was often not the case[69]. Apart from methodological problems of assessment and attribution, other limiting factors suggest that greater access and use and hence direct impact of modern ICTs has been "largely restricted to the urban elite and large businesses. Beyond this, it is difficult to discern significant direct impacts on human development"[70]. It may be assumed that a number of indirect impacts occurred because of the expanded use of ICTs by government, the private sector, and civil society entities. More specifically, "ICTs are not yet playing a major role in getting livelihood information to the urban poor"[71]. This similarly modest overall assessment also points to the fact that there are differences between the urban and rural contexts. It should not be overlooked that "there is a natural tendency for technology to benefit the rich and the already well-endowed, as they are better equipped to assimilate and take advantage of the technologies"[72].

If technological progress is to benefit marginalised people, *targeted pro-poor efforts* are required. The extensive global debate on ICT4D and the role of ICTs in poverty reduction is in stark contrast to the very limited on-going activities in marginalised poor rural and urban areas. Often the political will for pro-poor regulations and policies is weak. Reaching the unreached[73] is still the exception, not the rule. Telecentres, multi-media and public access information centers are few in number, are dispersed, typically able to offer minimal local content, and have often have sustainability problems. Initiatives other than telecentres are still relatively rare. In some regions, privately run-phone shops which also often offer fax and Internet services have been growing. However, while they are often used by poor people for communication services, they do not provide development content and rarely strengthen the capacities of poor people to use these services to facilitate empowerment. Up-scaling the positive, project-based experience at programme (sector and/or regions) and policy level is thus more urgent than ever.

Poverty reduction is the *result of complex processes*. "The central lesson learned […] is that it is counterproductive to look for direct impacts of specific ICTs on specific poverty conditions. The most promising poverty reduction processes often arose from combinations of different media and channels of communication; and these processes are often indirect and subtle, mediated through different social networks, organisations and attitudes"[74]. An alluring prospect is the often repeated phrase "leapfrogging the traditional stages and cycles of progress"[75]. Not only is progress rarely a one-dimensional, linear matter, which can be sped up or slowed down by one variable such as modern ICT, but supporting infrastructure and human capacity are key if tangible results are to be achieved. The provision of such infrastructure and capacity building requires time and other resources, but it is necessary if the benefits of telemedicine or distance education are to have a noticeable impact.

3.2 Crosscutting themes

Gender equality

The crosscutting concern of gender equality is based on the fact that the majority of the poor are women. Gender equality refers to equal opportunities, life chances, rights and responsibilities for women and men. Promotion of gender equality is not only concerned with women's issues, but with broader social relations requiring action to be taken by both women and men. An essential requirement for gender equality is that women participate in decision making and political processes on an equal footing with men. In order to achieve this participation, empowering women is crucial.

Several pilot programmes confirm the *positive potential* for gender equality if ICTs are deliberately used for improving the gender balance. This involves reaching out to women as well as enabling them to be empowered. The case of Grameen village phone demonstrates greater usage by women where women themselves are the ones to sell phone services, undertake outreach or consultations with other women. The selling of phone services has also created a new livelihood and empowerment opportunity for women in rural Bangladesh[76]. The approach of adopted by MSSRF in its knowledge centres is described as being pro-poor, pro-women, and pro-nature. The experience of MSSRF in improving the gender balance in a rural Indian context has been a very positive one[77]: Having relevant knowledge, e.g. about the services of government administration, or earning additional income raises the status of women and increases their self-confidence. UNESCO reports, in relation to telecentres, that communities or individuals somehow became empowered to operate outside of their traditional spheres of activity[78], or to challenge restrictive social norms. None of the male users mentioned any change in terms of raised confidence, while every female user mentioned that one of their major changes has been this increase of self-confidence.[79]

Sustainability

A sustainable project or institution will be able to continue to deliver benefits in the long term, even after external assistance has lapsed. Sustainable development considers the sustainability of the development process holistically, taking into account the economic, social and environmental dimensions of development. In that way the sustainability concern is multidimensional, relates to the context, and is dynamic over time. Different stakeholders may have a different vision of sustainability. Criteria to assess sustainable outcomes should be set in a transparent and participative way.
Key questions related to the three dimensions of sustainability:

– *Economic sustainability*: How is the financial viability of ICT components in development programmes ensured? How can commercial initiatives be developmentally upgraded? Are

Women of the fishing village of Veerampattinam (India). The knowledge centre is managed by the villagers themselves, and only minutes after the first Tsunami wave they had warned the local people. Many houses and boats were destroyed. The death toll of the people could be kept at a low three.

A TV-antenna is being repaired in a slum area (Sri Lanka).

the commercially viable parts separated from the economically non-viable but public interest parts (microfinance pattern!)?

- *Social sustainability*: Does (community) ownership extend beyond a few individuals? Do staffing conditions (including volunteer reliance and competitiveness of employment conditions) permit a build-up of knowledge with a longer term perspective? Does the political environment provide a stable overall context?
- *Environmental sustainability*: Do the activities cause any environmental damage? Are there any intergenerational concerns where the next generation(s) will have to pay for today's benefits?

3.3 Poverty reduction strategies and ICT

Lead question
How to mainstream ICTs (regulatory and policy environment, sector, facilitator) in national poverty reduction strategies?

For many poor Southern countries, particularly the least developed countries, (LDCs), the development of national *poverty reduction strategies* (PRS) have become a priority in recent years. Some started to work on a PRS on their own initiative, while others have developed them in the context of securing concessional HIPC and IDA funding. Almost 50% of the LIACs have a PRS in place, whereas in SSA the majority do (almost 70%). In the African region the share of eligible countries for concessional finance is higher than among the LIACs. Beyond the question of facilitating access to resources for implementation, the PRS indicates a country's commitment to reducing poverty. On the basis of a description of the country's macroeconomic, structural and social policies they outline programmes to promote growth and reduce poverty.

Many countries have begun to develop and implement national ICT or e-strategies (over 90 developing countries, with over 35 of them being in Africa alone) to promote the development of ICT infrastructure and put in place the conditions and capacities to foster its use and stimulate local content development, services and support priority initiative.[80] However, few countries have effectively mainstreamed ICT into poverty reduction strategies.[81] Increasingly, there is growing agreement that this is a priority and that there is a need to *mainstream ICTs in PRS* as a tool, but not an end in itself. ICT strategies must remain subordinate to broader PRS[82], which again should be part of an overall macroeconomic framework supportive of development with equity. "The need to embed ICT interventions in a broader development policy framework is critical, since by themselves ICTs can widen inequality and strengthen the already privileged and powerful as easily as they can do the opposite."[83] As an example, "Bhutan's development is guided by the philosophy of Gross National Happiness, emphasising a balance between material well-being and the spiritual, emotional and cultural well-being of the individual and society."[84] Such a national vision can also be used to make a clear link to a focus on achieving the MDGs.

Many of the more recent PRS include *ICT as a strategic component*.[85] This means that they discuss them as an independent item, which can be taken as an indication of a government's awareness of the variety of issues at stake for a successful use of ICTs. It is the basis for broad and integrated ICT policies, which do not only come from particular fields or applications, but which relate to wider, national concerns. In the interests of effective poverty reduction, the use of ICT should become an integrated part of the design and implementation of any PRS.[86]

In mainstreaming ICTs in PRS, *three dimensions* can be distinguished:

– How does the government shape the enabling environment for ICT applications, in particular those with a pro-poor orientation?
– How does the government perceive the development of ICT as a sector of the economy in relation to poverty reduction objectives, including hardware manufacturing, the software industry, and related outsourcing business?
– To what extent is ICT used to facilitate the design and production, as well as the implementation and monitoring, of the PRS in a participatory way?

Shaping a *pro-poor enabling environment* is a priority for ICT. Without clear leadership and appropriate regulations and policies it will be difficult to harness ICT for poverty reduction on a significant scale. One of the five key questions of this study is exploring how this concern can be taken further (see chapter 3.4).

ICT as a *sector* of the economy has gained in importance, particularly in the Asian context. Exports of ICT hardware or software create jobs. In the framework of a poverty reduction strategy, ICT as a sector can become relevant if it is integrated into an inclusive overall education system that also gives a chance to underprivileged people and regions, the software sector also serves the needs of the national economy and helps to reduce the cost of developing ICT applications, and it stimulates the development of ICT-enabled public services, which can be extended to reach the poor. Moreover, for countries exporting ICT services, rules and regulations of immigration into importing countries are important. When discussing PRSPs with donors – as potential importers of ICT services – the movement of persons and the donors' position on the General Agreement on Trade in Services (GATS) negotiations should be put on the agenda, with a view to facilitating market access.

The role of ICTs in the *PRS process* itself depends on the policies and practices for participation of decentralised parts of the administration, of civil society, and the private sector[87]. Provided that a culture of participation is in place, the poor can only use ICTs to voice their concerns and visions if infrastructure, connectivity, and capacity are there. In practice, in most of the economically weaker countries in Asia and Africa, these conditions are not (yet) fulfilled. so the added value of ICTs in the PRS process has been limited aside from the its information sharing role.

3.4 Pro-poor ICT environment

Lead question
What pro-poor ICT regulations and policies (including free/open source software) are required for up-scaling ICT for poverty reduction?

The national regulatory environments for ICT are based on national visions of challenges, approaches and priorities that are absolutely crucial for success.[88] However, in many cases, ICT regulation is not part of the solution but part of the problem. An overview on the actual state of ICT regulations and reforms can be found in ITU documents[89]. Governments committed to poverty reduction as a top priority should explicitly mainstream it in regulations and policies relating to ICT.[90] When allocating a frequency spectrum, regulating market entry, interconnection, tariffs and anti-competitive behaviour, the government is supposed to include a pro-poor window. The government can provide incentives for the private sector to take initiatives that it would not otherwise take. There are a number of options for moving into the direction of targeted pro-poor policies:

– *Freedom of expression*: A clear and enforced legal framework should include respect for freedom of expression, diversity and the free flow of information. This is a necessary, but not sufficient, condition; to achieve pro-poor outcomes it has to be combined with targeted pro-poor policies.
– *Building up an independent regulator*: A clear and enforced legal framework for ensuring transparency and accountability, which should include an independent regulator with reasonable capacity as well as financial resources to comply with its mandate is a necessary but not sufficient condition for pro-poor outcomes.
– *Competition in ICT infrastructure provision*, including the last mile, is key. A competitive system contributes to faster fixed line growth, higher productivity, and increased quality. Evidence of its impact on prices, net employment effects and capital investment is less clear-

A VOICE OF THE POOR IN THE PRSP PROCESS

Panos South Africa has taken an initiative to ensure that the voice of the poor is heard in the monitoring of PRSP. Village meetings have been held in Kalomo – an area of Zambia badly hit by drought and food insecurity – and interviews and discussions were held with community members, local government and councillors. Most had not heard of the PRSP or its process. Three radio programmes have been made and a TV debate was organised with representatives from the Programme Against Malnutrition, members of parliament, Ministry of Agriculture and the World Food Programme. No direct impact on the PRSP is reported. But further media coverage will follow and may influence the PRSP update in future.

Source: Gerster/ Zimmermann (B) 2003

cut[91]. A competitive environment, instead of a government monopoly, is conducive to, but not a sufficient condition for, achieving poverty reduction outcomes. It should be associated with investment in service development, including local content to drive the demand for infrastructure.

– *Application of cost-effective and locally adaptable tools such as free/open source software* (FOSS): FOSS is cost efficient, allows for flexible adaptation to specific needs (such as translations into local languages), and reduces dependence on foreign firms. It does not create barriers for local ICT experts but rather strengthens their training and keeps jobs in the country. Applying open source in the public sector and encouraging its application in the private sector and by civil society are important steps.[92]
– *Pro-poor licence obligations for service providers and operators*: Licences should include specified obligations on how to contribute to the implementation of the universal service objectives and reduced rates for all community ICTs, including community radio and an e-rate for public schools, libraries, hospitals, and other public institutions.
– *Making rural telephony profitable by supportive policies*:[93] These include: encouraging rural coverage by charging the calling party rather than the receiving party; allowing higher rural tariffs to cover costs and asymmetric interconnection rates for terminating rural calls that enable rural operators to make money from the often substantial incoming telephone traffic to rural areas.
– *Universal service fund (USF) ensuring an effective service provision*: In order to compensate for supply-side and demand-side market failure, a national USF should be established to ensure an effective service provision, including local content in local languages for all. The fund must be transparently administrated by an independent regulator/body, financed by a levy on the operators and possibly by overseas development assistance (ODA). Independence and transparency are essential prerequisites for creating trust and goodwill also on the part of those who are taxed. Different subsidy mechanisms may be used, including least-cost subsidy auctions[94].
– *Creating space for local initiatives and policies*: Deregulation in favour of local communities can strengthen the local level by, inter alia: (a) licensing of air waves to grass-roots level institutions; (b) the representation of grass roots level institutions on regulatory bodies; (c) fast-track licensing for innovative solutions such as Voice over Internet Protocol (VoIP), Wireless Fidelity (WiFi) and Very Small Aperture Terminal (VSAT), and licensing of community-based electronic media, in particular broadcast radio.
– *Enabling community radio*: (1) The legal framework should provide a three-tier system for broadcasting: public radio, commercial radio and community radio. (2) Government support and policies should clearly recognise and promote the special role of non-profit community broadcasting for, by and about the community. They should be included in their own communication strategy and allocated funds accordingly. More specifically: (i) the not-for-profit character of community radio should be honoured in taxation law; (ii) open and participatory decision making processes need to be assured, in order to allow for a fair allocation of the frequency spectrum to all broadcasters; (iii) as a source of revenue, community radio must be granted permission for commercial advertising to an appropriate extent.

The importance of an enabling ICT environment is widely recognised. For example, the International Institute for Communication and Development (IICD), on the basis of their extensive field experience, strongly argues in favour of embedding ICT-related activities in an enabling environment in order to influence the sector.[95] IDRC[96] has launched a global initiative for Pro-Poor, Pro-Market ICT Regulation and Governance. The initiative is to provide: (1) training for policy makers, regulators and researchers, (2) research support in government and outside, (3) advocacy and coalition building, (4) regional and international networking.

Establishing pro-poor regulations and policies is one thing, implementing them is an even greater challenge. The outreach of implementation is closely linked to the overall situation of governance. Poor people are in danger of becoming victims of corruption. Given such a divide between policies and practices, rules and regulations in favour of the poor would be among the first to be disregarded. Where there is political will behind an enabling ICT environment, targeted measures on the institutional side can be taken to enforce it, strengthening particularly an independent regulator and competition.

3.5 Empowerment: ICT and political participation of the poor

Lead question:
How to give poor people a stronger voice at all levels of decision making by using ICTs?

E-government harnesses ICTs for the government's work processes, information sharing and service delivery. Potential benefits are: making the government machinery more efficient and effective; improving service delivery and revenue collection; and empowering citizens by increased transparency and accountability. For example, the use of ICTs in land records' management[97] allows manual record keeping to be replaced by a computerised system, which is reliable, transparent and has an added value in accountability. An elementary condition is that Government communicates in the national languages and that these languages can be used on the Internet.[98] Technology is only a minor enabling factor for a successful transition to e-government: strong political and administrative leadership and professional change management are crucial[99]. However, only few countries have political support and central coordination. In practice, e-government reforms are often driven by individual reformist civil servants. "Overall impact on transparency and corruption is marginal."[100] Even more critically, it has been said that "e-government, rather than broadening the access of the poor to social services, has often narrowed it, accentuating the digital divide, and enhancing the access of the urban elite to public information and services."[101]

The deconcentration and *decentralisation of the public sector* can be greatly facilitated by the use of ICT. Effective decentralisation contributes to people's participation in the political processes of a country. Whether it also contributes to enhancing the material well-being of the people is a matter of debate. However, the effectiveness of ICT-based decentralisation and district level planning is mainly determined by the political will to truly decentralise and share power.

Government interaction with *citizens*: ICT can contribute to the empowerment of individual citizens as well as at the community level. People who are well informed about their entitlements and rights are different clients in service delivery. Citizens who cooperate in an organised way at the village level or nationally, like the Self-Employed Women's Association (SEWA), gain leverage in public and political processes. The use of ICT to strengthen poor people's voices is not primarily an e-government project; it rather serves to strengthen civil society in pressing for a transparent, participative and accountable government. Although many governments are clearly committed to facilitating ICT use by the private sector, government policies rarely explicitly encourage civil society organisations to integrate ICTs into their operations in order to become more effective and efficient. A pro-poor policy framework includes an enabling environment for ICT adoption by community-based organisations (CBOs) as well as non-governmental organisations (NGOs).

Second hand radio spare parts are attractive items for sale on a market in Central Asia (Kyrgyz Republic).

The long term goal of the *community multimedia centres'* (CMCs) approach is to enable communities to collect, produce, exchange and dissemi-

WHAT ARE THE BENEFITS FROM RURAL TELECENTRES?

"Many participants in ICT centres often started by looking for direct material benefits but found themselves engaged in processes of innovation and exploration whose benefits were more subtle and long term. […] For most participants, access to ICTs represents real or symbolic access to modernity, the future, education and knowledge, and therefore ICT centres constitute a space into which people can project and develop a sense of change and possibility. […] ICT centres themselves tend to be perceived as free spaces in which people can develop autonomy and confidence. […] Members of the community themselves draw widely different connections between poverty and ICTs, which also change over time and as they become involved with ICTs and ICT centres."

Source: Slater/Tacchi (B), May 2004

MISSION 2007 – A NATIONAL COALITION FOR INDIA

Under the leadership of the MSSRF in India a national movement is gaining momentum to create a knowledge centre in every village by 2007. Implementation is supposed to include infrastructure, locally appropriate and relevant content for the rural economy, in order to work towards sustainable livelihood opportunities and also serve as service providers for the most vulnerable groups in rural India. The MSSRF Chairman M.S. Swaminathan: "Establishment of 100,000 knowledge centres will lead to direct employment, income generation and entrepreneurship opportunities to more than 100,000 rural poor and indirect employment, income generation and entrepreneurship opportunities for about 1 million people" . A key role will be with public-private partnerships.

nate relevant information. UNESCO, which is the key driving force behind CMCs[102], defines them as a combination of local radio by local people in local languages with a public telecentre facility offering access to Internet, e-mail, computer training and a range of services and activities that meet development needs.[103] The simplest version is a portable radio station, plus a single computer for Internet browsing; the most developed is a centre offering the full range of ICTs. The key element is the community orientation through radio, while individual access is also available. Unlike other telecentres, CMCs are not developed from scratch, but by building upon existing infrastructure.[104] Other advantages, in comparison to telecentres, are reduced costs through community access[105] (rather than individual), the creation of social space for interaction within the community and increased awareness of what can be done with the Internet. A special browser, which can easily be customised by communities, was developed[106]. This browser facilitates the establishment of community databases, which is one or the two strategies often used in CMCs to facilitate the localisation and appropriation of ICTs. Another strategy is radio browsing of the Internet: the radio presenter gathers information on the Internet as requested by the community and relates it to the local context. Empowerment has been found to be "a useful term to describe the positive effects of the introduction of the CMCs."[107]

Appropriating modern technologies has impacts on the *social status* of individuals in their families and community. "ICT initiatives have shown a considerable capacity to overcome ethnic, religious and caste barriers. In these respects, the ICT initiatives have been as important as a social intervention as they have as a technical one"[108]. Such an enhancement of women's roles and status was observed in a particularly marked form in the Village Knowledge Centre Programme of MSSRF in Southern India[109]. The combination of social and technical confidence results in forms of empowerment.

ICTs are an effective means to increase the *voices of the poor in (global) policy debates*[110]. At the national level, ICT facilitates networking and lobbying the PRS. At the global level, there are numerous networks in which it is essential to have a direct representation of the South. An example: during the preparation period of WSIS the global discussion forum on the "Information Society: Voices from the South" enjoyed a Southern participation of 70%.

3.6 Opportunity: ICT and income generation by the poor

Lead question
How to enhance income generation by the poor through ICT?

ICTs are more than a sector of the economy. Under favourable conditions, they provide access to relevant information and knowledge, reduce costs of production and transactions, and enhance communication[111]. For employment and income generation, the stimulation of productivity is a key effect. In order to unleash their poverty reducing and development potential, the ICTs need to be mainstreamed in the productive sectors. ICTs can promote opportunities for livelihoods, such as increasing agricultural productivity, broadening the food crop basket, improving market access for cash crops, or the creation of employment opportunities and higher chances of finding jobs.[112] The benefits of ICT in the context of production and employment opportunities are not limited to the formal sector but can be extended to benefit poor people whose livelihoods largely depend on the informal sector.[113]

ICT as a *sector* of the economy has become increasingly important for a small number of countries, particularly in Asia. According to UNCTAD, the developing country share in hardware exports increased from 15% in 1990 to 35% in 2000[114]. In India, software and ICT services exports multiplied more than five times within five years: in 1997/98, exports amounted to US$ 1,759 million or 5% of total exports, whereas in 2002/3 it was US$ 9,500 million or over 20% of total Indian exports[115]. Such significant exports create jobs – in most cases, however mainly for well-educated people. The sector may have some indirect significance for the poor, through a flourishing economy, remittances from abroad and the extended family system.

An impressive and broad based success story of ICT opportunities is *Grameen Phone* in Bangladesh. "The quickest way to get out of poverty right now is to have one mobile telephone", says Muhammad Yunus, Chairman of Grameen Bank[117]. Many of these women had never seen a telephone in their life; nor had they had access to electricity. Through micro-credits of the Grameen

Bank, the women can buy the mobile and start business. The phones are connected to solar panels to recharge the batteries. The women quickly learned how to rent and use the phones. Having access to a telephone is attractive in Bangladesh because phone calls strengthen the social fabric when family members work abroad; a phone may also become a life saving device when floods are approaching. More than 30,000 telephone ladies make a monthly net profit of between US$ 50 and US$ 500 – in a country with an annual per capita income of US$ 350 (2001). The business is so profitable that Grameen Phone has emerged as the biggest taxpayer in Bangladesh.[118]

Over and above the case of the Grameen Phone, access to *microfinance services* is crucial for the poor. The efficiency of microfinance is enhanced by using ICTs[119] in the bank administration. More specifically, three areas have been identified for the use of ICT to improve operations: expansion of the customer base and the reach into underserved areas; establishing secure identities for customers; and lowering transaction costs. Traditional banking services, which used to depend on physical bank branches, are being replaced with smart cards and "handhelds" such as the simputer and modified ATMs. These instruments lower transaction costs, make microfinance operations financially sustainable, and expand the reach, and therefore the availability, of microfinance.[120] However, as of now, their use in microfinance has rather pilot character than it is widespread. The cooperative bank of the Indian Self-Employed Women's Association (SEWA) realised the potential of harnessing the power of ICTs more than 20 years ago. Poor, illiterate women could be reached by using video technology to convince them of the benefits of microfinance. Today, SEWA is a large cooperative enterprise with more than 200,000 depositors and makes use of ICTs not only at management level, but also accessible to the poor themselves as a useful tool to reach economic self-reliance.[121]

3.7 Security: ICT and education of the poor

Lead question:
How to up-scale formal and informal education of the poor by the use of ICT?

Education for All (EFA) is an international body committed to bringing the benefits of education to every citizen in every society. Partners comprise a broad coalition of national governments, civil society groups, and development agencies such as UNESCO and the World Bank. EFA was first launched in Jomtien, Thailand in 1990. After a decade of slow progress, the commitment was reaffirmed in Dakar Senegal in April 2000; then again in September 2000, when 189 countries and their partners adopted the MDGs, of the second is to "ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling". Achievements are measured by three indicators: the net primary enrolment ratio, the percentage of cohorts reaching grade five, and the literacy rate of the young (ages 15 – 24). This universal primary education[122] envisaged by the MDGs covers only some of the areas where ICTs may be of use to enhance education of the poor. Informal education, developing functional skills, matters as much if not more than formal education. In a number of African and Asian countries, radio and TV are widely used to reach large numbers of people with non-formal education programmes.[123] Soap operas broadcast on TV address issues such as HIV/Aids, gender issues, and human rights[124].

Education is a specific way of communicating information. Potential synergies to make use of ICTs in education are obvious. Their role in education can be perceived in very different ways:

– First of all, ICT can be taught as a subject in higher education to provide the necessary skills needed for formal employment. This may imply activities ranging from setting up computer labs to developing ICT curricula.[125]
– Second, ICTs can be used to improve teaching across subjects: e.g. multimedia and interactive tools enrich teaching and stimulate learning. ICTs are part of the pedagogy across all parts of the curricula.

The knowledge centre of Embalam (India) does not only use modern ICTs but also a loudspeaker and sirene, fixed to the temple roof.

– Third, the education system may aim at creating a knowledge society and perceive ICTs as a tool for lifelong learning. The teacher's role shifts from being primarily an information provider to that of helping learners manage and interpret information.[126]

The adoption of ICTs in education follows an evolutionary pattern, primarily determined by the overall level of ICT infrastructure, as well as the capacities of the teachers (see next paragraph). The introduction of ICTs in education has to be watched carefully, as the digital divide duplicates the educational divide. If not monitored and corrected by targeted pro-poor interventions, the use of ICTs will deepen and widen the imbalances in education.

ICTs have the potential to improve the quality of education – not for free though. Costs remain a major barrier for mainstreaming ICTs in educational institutions. One possibility for lowering costs is FOSS. Even though costs are a key argument, they are not the only one. Other reasons for favouring FOSS include:

1 Better performance, reliability and security.
2 Providing learning opportunities and by doing so building long-term capacity.
3 Promoting open philosophy and encouraging innovation.[127]
4 Providing an alternative to piracy.
5 Giving the possibility of localisation.[128]

More specific uses depend on specific applications in the education sector (level of schooling, use in administration or research etc.). The use of FOSS can be greatly enhanced by favourable policies with respect to procurement, curricula development, migration from proprietary systems, localisation of educational material, training and research grants.[129]

UNESCO Bangkok launched a meta-survey[130] to obtain information on the *state of the art of ICT applications* and models that have proved to be efficient or have the potential to contribute substantially to achieving the Millennium Development and EFA goals. Particular attention was paid to models that could be adapted and improved for large-scale use. The snapshot of the current state of ICT use in education throughout Asia and the Pacific is sobering. "Access to ICT appliances such as computers, communication networks, and Internet connectivity remains low or non-existent for the vast majority of educators in all but the most developed of the Asia-Pacific countries. Even when access is available, the staff of educational institutions typically lack the skills, knowledge and comfort level to make use of them."[131]

The following approaches have been identified as *opportunities* for up-scaling ICTs in education:

– The use of ICTs in education requires an appropriate prioritising of investment and current expenditure, as ICTs are comparatively expensive and have to be balanced against other educational needs. The most cost effec-

tive opportunity lies in deliberately choosing *appropriate technologies*, which often include "older" broadcast technologies, such as radio and television, before embarking on the latest and more expensive kinds of classroom connectivity. "'Older' ICTs like radio can be upgraded by using them in conjunction with the telephone or the Internet to create a communal interactive capacity."[132]

- *Communal telecentres*, based on the people's needs, can play an important role in non-formal education, as the village knowledge centres of the Swaminathan Foundation in Southern India demonstrate.[133]
- On the other hand, *shared school infrastructure*, such as computer labs, can be used in the evenings/weekends for other purposes of the community, including commercial concerns or further education.
- When developing programmes and choosing the use of ICTs in formal and informal education, it should be kept in mind that *girls' education* must be a priority. This is neither new nor specific to ICT, but improving the gender balance when addressing poverty reduction is absolutely crucial.

A number of *challenges* for up-scaling ICTs in education should be taken into account:

- A *gap between policies and practices is obvious*[134]. Often policies were developed by the Ministry of Education or even external consultants without any stakeholder participation. Integrating ICTs into the education system requires radical shifts in teaching and learning. Ownership for reform is absolutely crucial. Many initiatives still depend heavily on international donors who are said to pay little attention to assessing and sharing results[135].
- UNICEF's Asian meta-survey states that working in line with the MDGs and EFA objectives towards *gender equality*, and using ICTs systematically for this purpose, remains a challenge. Few projects promote the active enrolment of girls in ICT programmes.[136]
- One of the main challenges again is the lack of local content. An assessment of the Situation in India concludes: "The creation of content is the most crucial and, ironically often the most forgotten component of any ICT based intervention in education"[137].
- ICTs provide an opportunity for different ways of teaching and learning, which are foreign to most participants' general schooling experiences.[138] This makes change at the individual level difficult.
- Official recognition and certification of informal education and experiences (e.g. skills gained as a volunteer in a telecentre) are often difficult to organise but they are very important for the people trained.

4.1 Lessons learned[139]

A participative ICT approach, involving people from the needs assessment to monitoring, makes a difference[140]. When scaling up, this experience presents a major challenge, as the danger of embarking on a top-down and supply-driven expansion is ever present. The information gap lies not only on the poor people's side and the fact that they lack relevant information to improve their lives. Equally, there is an information gap with decision makers who are not sufficiently informed about poor people's situation and concerns. This makes participation in decision making mandatory.

Leadership matters, as does institutional ownership. A large number of successful pilot programmes using ICTs for poverty reduction are driven by committed individuals[141]. When up-scaling, this human component must not be lost and this may be the most difficult challenge. Making use of ICTs for poverty reduction results in more than a traditional business relationship. However, relying only on committed individuals significantly limits[142] the up-scaling potential, because there has to be an institutional base to extend outreach and to increase the number of people involved without moving away from the poor as the primary target group. Up-scaling may also imply increasing benefits.

Adopting a community approach in ICT access has a number of important strengths[143]. It is a cost-effective way of up-scaling connectivity outreach. It allows for the combining of a multitude of functions of public interest (media, banking, other) and facilitates the integration of traditional and new media. A collective learning environment is created and a social space for interactions provided. The Philippine model of community e-centres[144] provides a demand and content driven reference framework for linking up community services with private sector involvement. The UNESCO CMC programme builds on radio as a key facilitator for community access.

ICT centres expand users' social networks[145]. They do this in several ways: (1) They provide legitimate spaces to socialise and work with different people in free and interesting situations; (2) The centres act as "hubs" where different social networks can intersect; (3) Centres are connected to larger organisations and attract visitors, giving a sense that the locale is connected to a wider world. Restricted social networks reflect social norms that narrow people's mobility (often women's), access to information and resources, and their ability to interact with others to gain support and to organise themselves collectively. ICT access produces increased face-to-face communication within local social networks.

Multi-stakeholder partnerships (MSP) are a promising and appropriate response to the complexity of tasks, to the need for resources to scale up, and to the fact that development is a shared responsibility of all sectors of society. A successful partnership has clear and mutually understood objectives, is based on mutual respect and trust of partners, involves pooling of resources, responsibility and benefits, and combines the diverse strengths of partners[146].

Information and communication involve costs. Comprehensive and transparent budgeting provides a sound basis for decision making and sustainability. Public funds should focus on the production of public goods. Costing should distinguish between investment and operational costs, between pilot and replication costs, between commercially viable parts and the production of public goods. Eventually, community contributions in cash and kind are to be included. The design of cost recovery mechanisms should take into account the economic situation of the users.

A threshold level of physical and human infrastructure is required to make effective pro-poor use of ICT. For low income Asia and the Pacific it was observed that a country's income level, adult illiteracy and population density are guides to its capacity to adopt advanced forms of ICTs[147]. This lesson is also valid at the sub-national, e.g. the village, level. The low literacy level, as well as the weak infrastructure, in Sub-Saharan Africa puts this region at a clear disadvantage in adopting ICTs compared to Low Income Asian Countries. In decision making on public or private investment priorities, in project design, and in the choice of technology options (which are supposed to serve the poor) the physical and human infrastructures are determining factors.

An adequate choice of technology largely co-determines potential pro-poor effects[148]. There is no such thing as technology neutrality. The distributional effects of different technology options have to be considered carefully. For example, the

use of community radio provides local solutions to local problems without referring to external solutions. An intervention based on the Internet, however, enhances external solutions – if it is accessible at all by the poor. The combination of the Internet with other ICTs, radio in particular, has a significant potential for poverty reduction purposes. "What is needed is a judicious blend of traditional and modern technologies depending on what would work best in a given situation."[149]

Content should receive as much attention as access.[150] The poor have to be at the centre of all the efforts, which must be people-centred[151], demand-driven and in local languages. Physical access is just one element along the road to effective access and use. Investment in hardware should be matched by investment in local content creation and capacity building: as a rule, at least two thirds into software including capacity building, one third into hardware.

Pro-poor effects are more likely if ICTs are embedded in a larger, demand driven effort1[52]. Ownership in defining the problem, as well as the solutions, is essential to avoid ineffective supply-oriented interventions. Technology should follow community needs. One-sided ICT-driven programmes are likely to fail. Effective efforts combine a number of elements to deal with an issue holistically. An example: ICT-supported information on Aids-prevention or treatment may not have the desired effects if there are no condoms or drugs available or if people simply cannot afford them.

Those countries mainstreaming ICTs effectively into their productive sectors gain dramatically in competitiveness, often to the disadvantage of others. It is a matter of economic survival to make appropriate use of ICTs. Therefore, the application or non-application of ICTs in an economy affects people living in poverty, both directly and indirectly.

South-South exchanges and partnerships can be an efficient and effective way of learning[153]. Based on touring in South Indian villages, MSSRF has acquired a wealth of practical experience in sharing experience with interested partners in African, Latin American and Asian countries. It is an option to avoid the built-in bias towards Northern models. Moreover, MSSRF, together with OneWorld International, created the Open Knowledge Network (OKN), which connects villages on different continents by using World Space Radio. OKN is still in its experimental phase.

Negative impacts need to be taken into account[154]. As mentioned earlier, benefits of ICT supported interventions may be unequally distributed and deepen economic, social and cultural divides, instead of reducing poverty.[155] Moreover, an ITU report lists negative effects such as e-waste, environmental problems, and others (electromagnetic fields, muscular pain from poor posture, poor eyesight, "infostress", spam etc.). While some of these are mainly of concern to developed countries, spam has been described as "a significant and growing problem for users, networks and the Internet as a whole."[156] Apart from such negative effects as decreasing confidence and trust in online activities, losses in productivity and financial costs are felt by all alike, since "expecting that […] all become power users and keep up to speed with the latest user side filtering and MS [Microsoft] security patches is unrealistic."[157]

4.2 MDG implications

There is an explosive increase in publications on the relevance of the ICTs to reaching the MDGs and how to make use of them. Noteworthy is a pioneering stocktaking in Asian countries to promote ICTs for human development in view of the MDGs.[158] The UN ICT task force, in preparing the ground for the UN high level meeting in 2005 on the Millennium Declaration, has published a report on mainstreaming ICTs for the MDGs[159]. It is not the intention to repeat the findings of these major efforts but rather to add and underline selected specific effects that are important in relation to up-scaling poverty reduction through ICTs.

In order to maximise their targeted contribution to attaining the MDGs, decision makers (governments, donors, other) should *shift their attention from bridging the digital divide to pro-poor policies and practices*. The digital divide is a symptom of different levels and modes of development, not a cause. Bridging the digital divide, therefore, is treating symptoms. With limited public funds available, allocating ODA to bridge the digital divide carries the danger of crowding out com-

peting poverty reduction programmes. Focusing on the digital divide is as misleading in the information society as the trickle down assumption has been in economic growth.

Most of the (urban) *policy makers lack knowledge about the local context* of the rural and urban poor. Talk of a knowledge gap usually means that the rural poor lack access to information and knowledge. However, in terms of developing meaningful policies and programmes, related information is crucial. It is much more difficult to raise funding to remove the former divide than to refill the latter gap.

More *traditional ICTs are often considered to be less attractive* than the latest technologies, such as the Internet. Unfortunately, the basket of MDG 8 on partnership for development contains, under target 18, an explicit reference to new technologies: "In cooperation with the private sector, make available the benefits of new technologies – especially information and communications technologies." This might explain why radio especially has a more difficult position in the entire debate – despite its comparatively rich track record in poverty alleviation. The choice of an appropriate information and communication technology is directly relevant for poverty reduction.

The village knowledge centre of Veerampattinam (India) provides weather and wave foecasts. Since this information is available, no fishermen have died on the sea, the fisher Ramalingam Selvam reports.

Since the MDGs are the key framework for development cooperation, there is a need to *mainstream ICTs in all forms of programme assistance*, including sector-wide approaches (SWAPs), and poverty reduction strategies (PRS) based budget support. Mainstreaming[160] means that evaluating the ICT potential and incorporating ICT options is not left to the knowledge and preferences of individual desk officers (of government, donors or other organisations) but is built in at an institutional level. Mainstreaming includes explicit terms of references, training, and exchange of experience. At the country level, options should favour the involvement of local pro-poor ICT policy makers and NGOs.

The catastrophe of December 26, 2004 in South Asia highlighted the *life saving potential of using ICTs in disaster prevention and relief*. A warning system and communication network in the Indian Ocean similar to that in the Pacific could have reduced the death toll by thousands of people. Complementary to such international preventive measures, grassroots knowledge centres proved to be extremely well positioned to mitigate the effects of the disaster. Village knowledge centres, supported by MSSRF[161] disseminated the tsunami warning without delay once they had received the information. The fishing villages with such knowledge centres suffered a comparatively low loss of lives, despite an enormous destruction of fishing boats and houses. Again, the knowledge centres played a crucial role in organising relief measures in an orderly way. Ownership of the information and communication system by the village community is crucial, so that they are aware of the potential and know to handle it – in the case of these fishing communities, loudspeakers and sirens were more important than the Internet.

4.3 Messages for WSIS

The tangible products of the WSIS 2003 are the *Declaration of Principles* and the *Action Plan*. The principles expressed in the Declaration, however, are not always carried through to the policy proposals of the Action Plan[162]. Nevertheless, despite its weaknesses, it is politically unlikely that the debate on the Declaration of Principles and the Plan of Action will be reopened[163]. What matters now is how to address implementation and monitoring.

A successful up-scaling of poverty reduction through ICT flourishes on the basis of (1) an enabling ICT policy environment; (2) conducive conditions for poverty reduction; (3) appropriate technology choices; (4) mobilisation of additional public and private resources. This chapter follows in part the Chennai Statement[168] that reflects these requirements.

Enabling ICT environment

An enabling ICT environment for up-scaling includes respect for freedom of expression, diversity, the free flow of information, supporting infrastructure – such as electricity, Internet connectivity – and a reasonable level of basic education. The acceleration of the introduction of competition in ICT infrastructure provision, including in the last mile, is key. Competition lowers prices, which is of particular importance for the access of people living in poverty. It should be associated with investment in service development, including local content, to drive the demand for infrastructure. Enhancing the adoption of free/open source solutions (FOSS) and strengthening user groups are key.

The use of *FOSS* has impacts on all three aspects of the discussed poverty concept – empowerment, opportunity, security. It supports the notion that of all ICTs, software (and the Internet) are open to, and powered by amateurs in a way that other technologies are not. People can build technologies on top of existing ones and in doing so provide products for others to build on. One of the main hindrances to the spreading of FOSS seems to be a gap in communication (and understanding) between the FOSS community and CSOs[169] and governments, as well as a lack of awareness of the benefits of FOSS[170]. Since governments have a crucial role to play in promoting FOSS, informing and sensitising policy makers is key. Some of the issues that need to be addressed in this process are:

1 Procurement – equal opportunities need to be given to both FOSS and proprietary products.
2 Change management (migration) where existing proprietary software infrastructure is used.
3 Licensing and legal issues.
4 Localisation – opportunities and costs. The International Open Source Network (IOSN) is a regional centre of excellence in the Asia-Pacific region. Such initiatives should be strengthened. In South-South networking, cooperation with African institutions, such as the FOSSFA, should be encouraged.

To meet pro-poor outcomes, such an enabling ICT environment has to be combined with targeted pro-poor policies and measures.

Priority for poverty reduction

Targeted *pro-poor regulations and policies* as part of an enabling ICT environment may include

– Building up strong, independent regulators through capacity-building measures and the provision of resources to finance any resultant legal cases; supporting research and awareness raising throughout civil society.
– Transforming the policy environment through more deregulation in favour of local communities: (a) Licensing of air waves to grass roots level institutions; (b) Representation of grass roots level institutions on regulatory bodies.
– Fast-track licensing for innovative solutions, such as Voice over Internet Protocol (VoIP), Wireless Fidelity (WiFi) and Very Small Aperture Terminal (VSAT), and licensing of community-based electronic media, in particular broadcast radio.

A pro-poor emphasis is also required for the provision of *infrastructure and content development*. They should include:

– The introduction of lowest-cost and transparent demand- and supply-side subsidies to ensure that access costs are affordable.
– The use of voucher systems could be an appropriate option for promoting private partnerships in subsidised public access provision to address the needs of those in poverty.

Furthermore, mainstreaming ICTs in *poverty reduction strategies* (PRS) is a key issue. The implementation of PRS can play an important role in achieving the MDGs and empowering people living in poverty. ICTs can be used to facilitate the PRS process. ICTs should be mainstreamed into the implementation of sectoral components, complementing the poverty-reducing priorities of the national ICT strategy. PRS are more relevant in the African context. Most of the countries that have a PRS in place have included ICT as an independent strategic component, or they mention it as an enabling factor or a component of infrastructure. Most of the PRS date back to the last two to three years. Since there is agreement that much of the challenge of PRS lies in their implementation, the coming years will be crucial. Particular attention should be paid to the regular

WSIS – OPEN ISSUES FOR DISCUSSION

Debate around key issues in the use of ICT for development reached a first peak at the WSIS in Geneva – with a rather disappointing outcome for Southern governments. The two issues of Internet governance and a Digital Solidarity Fund[164], upon which no decisions were taken due to basic disagreements, are not the only ones that affect the disadvantaged. Equally relevant is the debate around issues of intellectual property, which was hardly addressed and was subsequently inappropriately treated in the official declaration of the summit. "Needless to say, it will return in a bigger way in future as questions are raised whether the Summit's aims and plans can be implemented if the current intellectual regimes continue and expand"[165].

Based on the unresolved conflicts of Internet governance and financing, the issues in implementing the action plan are therefore the following:

1 building infrastructure with no additional public funding;
2 securing human rights; and
3 extending global knowledge commons[166]. It seems that "civil society [... is] positioned best to advance a development and human rights agenda for ICTs. [... An agenda] not dominated by concerns of governance and profitability."[167]

SUSTAINABILITY AT THE HINDUKUSH?

In Hunza, Northern Pakistan, the Karakoram Area Development Organisation (KADO) aims at alleviating poverty. More than 50% of the population live on less than US$ 1 a day. Among many activities, this regional NGO established a Mountain Institute of Computer Sciences to promote computer education and related enterprises. This pioneering vision of the knowledge society at the Hindukush is faced with many challenges: Hunza is 800 km away from the next urban centre, villages are scattered, infrastructure cost is high. Half of the population of 50,000 is reached by the KADO institute through ICT training, distance education, increased sales, access to information, etc. Despite local contributions, investment costs of US$ 60,000 and annual running costs (including website updates) of US$ 60,000 are mainly covered by donor funding. Since this environment is not attractive to private investors, the KADO will have to continue to rely on external funding for some years to come. The yardstick of success will rather be poverty reduction, and social rather than financial sustainability, the private institute being part of the public infrastructure.

Source: Communication by Javed Iqbal, KADO, Pakistan

progress reports. Furthermore, the effects of the implementation should be followed closely, especially with respect to ICTs, in order to learn more about the different factors of the overall enabling environment and their effects.

Meaningful poverty reduction must be based on *participatory needs assessments* related to empowerment, opportunity and security of people living in poverty. ICT applications embedded in poverty reduction strategies should support demand-driven, solution-focused initiatives for, and with, disadvantaged people, characterised by applications and content that are highly contextualised.

Technology choices

Economic history shows that technological innovation has often exacerbated the rich-poor divide. Exploiting technology in the interests of poor people requires deliberate technology choices. In the field of ICTs, technological progress reduces costs dramatically and lowers access barriers, which is of particular importance to people in poverty. When making a technology choice, information about the latest technological developments is only as useful as remembering "old" ICTs. What counts is to choose simple, context-related solutions that may not require high connectivity or high-level human capacity. "Simpler technology often produces better results."[171] Flexible platforms, combining the strengths of complementary technologies, such as radio and Internet, have often proved particularly appropriate.

It has been stated repeatedly that ICTs are not only about technology and that people should stand at the centre of any ICT related activity. However, in order to maximise the benefits that ICTs can bring, sound technological knowledge is needed, especially by policy makers. Health interventions are only successful if specialised know-how on issues such as reproductive health or HIV/Aids is taken into consideration. Similarly, ICT interventions need to be based on solid expertise. This is not only necessary because of rapid technological progress, which constantly changes the available opportunities, but also because many of the issues raised in this paper, such as regulation, FOSS, or localisation, are interconnected with technical issues. The digital divide is not the only one that needs to be addressed, equally relevant is the *divide between development specialists and technologists*. A common understanding needs to be found between the worlds of MDGs, SWAPs, PRSPs and of TCP/IP, LAN and BCB.

An issue that includes all of the above mentioned elements – an enabling environment, a priority for poverty reduction and appropriate technologies – is that of *localisation*. It is a key issue in up-scaling, since up-scaling implies changing contexts, which in turn require localisation. On the one hand, this is very much a technical issue (translations in local languages depend on the availability of fonts and encoding as well as input methods). On the other hand, gender roles, cultures of communication and personal attitudes determine access to, and use of, ICTs. Whereas the first can be supported by specific policies (such as strengthening investment in the local ICT sector or ensuring that technological and linguistic pre-requisites are provided to developers), the latter is more complex. This is also reflected by the fact that localisation is very often reduced to the issue of language. However, up-scaling is not merely translating content. It is important, therefore, to learn from ongoing up-scaling activities (expansion of CMCs in Africa, Mission 2007 in India) what the key issues in localisation are from a cultural perspective.

Resource mobilisation

Up-scaling to reach the MDGs requires additional investment. *Public resources* are severely limited at the national, as well as the international, level. Despite the Monterrey Consensus, it is unlikely that official development assistance (ODA) will be increased substantially. The search for new sources of development financing (NSDF) is still in its initial stages. The options discussed include a byte tax, a licence fee on electromagnetic waves, a taxation of domain names, and other ICT-related sources[172]. Such NSDF are not likely to materialise in the near future. Other sources have to be tapped:

– In order to ensure the best use of scarce public resources, maximum mobilisation of private investment is vital. Depending on the enabling regulatory framework, the existing infrastructure and the development potential, *private investment* can be mobilised, to a certain extent, even in remote regions. The micro finance movement demonstrates that banking for people in poverty is feasible. Similarly, there is an untapped market for the private

The MS Swaminathan Foundation organises South-South Exchange Travelling Workshops on ICTs meeting the people in the villages.

sector in general and for social entrepreneurs in particular, to bring connectivity, services and content to those in poverty.

– National *ICT licensing obligations* should include funding mechanisms, resulting in a hybrid form of private-public sources, to mobilise finance for appropriate community initiatives, and to address the financing gap for small and medium enterprises (SMEs) interested in starting ICT businesses. Regulators must have the political backing and the capacity to enforce compliance with universal service obligations (USOs) and to evaluate the effectiveness of the use of funds.

Financial, social and ecological sustainability is the triple bottom line for successful ICT-supported projects. Sustainability is contextual and dynamic.[173] In a poverty-stricken rural context, appropriate technology choices favouring social sustainability are as important as financial sustainability and require a focus on local content creation. From a longer-term perspective, the question of profitability should be embedded right from the start when designing and planning poverty reducing projects with ICT use. 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.

Technological progress reduces costs[174] dramatically and lowers access barriers, which is of particular importance to people in poverty. When making a technology choice, information about the latest technological developments is necessary in order to choose simple, context-related solutions that may not require high connectivity or high-level human capacity. Flexible platforms, combining the strengths of complementary technologies, such as radio and Internet, have often proved particularly appropriate.

Mainstreaming ICTs pays off even when budgets are stagnating or shrinking. ICTs can be used as a strategic tool for development. They also merit, and receive, growing attention for their instrumental value in implementing pro-poor policies. The deployment of ICTs increases the effectiveness and efficiency of all endeavours to reach the MDGs whatever the resources available.

The way forward

There are significant *challenges in the transition* to scaling-up poverty reduction through the use of ICTs, in terms of retaining local ownership, capacity building in local communities, developing sustainable business models and defining the level of institutional and public sector support. Successful scaling-up, therefore, needs support from different levels:

- *National level advocacy* is key for up-scaling poverty reduction through ICTs. The added value of global declarations, including the Chennai Statement, depends on the extent to which they are heard by governments, civil society, and the private sector. In particular, the policy makers and the younger generation should be reached.
- *Global coalitions* advancing the empowerment, opportunity and security of people in poverty, including gender equality, education, health and democracy, are an effective and efficient channel for taking up-scaling concerns forward. In particular, intensifying South-South networking and dialogue should be pursued systematically, as this strengthens the voice of Southern countries in the international dialogue.[175]
- *South-South exchanges* and partnerships can be an efficient and effective way of learning. Instead of looking to the affluent Western societies and expecting solutions from the North, poverty stricken environments and challenges create empathy and facilitate transfer of knowledge while recognising the differences between SSA and LIACs, and even within the two regions. The MSSRF is implementing a successful model. in the form of a travelling workshop directly linking the Indian grass roots experience with the experience of the workshop participants from Asia, Africa, and Latin America.
- Recognising the complementary roles of governments, the private sector and civil society, building *multi-stakeholder partnerships* (MSP) becomes a priority in implementing and monitoring an inclusive information society based on the WSIS' vision and inspired by the Millennium Declaration. The GKP unites multi-stakeholder partners and promotes such partnerships as a priority.[176] At the grass roots level, the capacity of community structures, such as self-help groups and other intermediaries, should be tapped and enhanced.

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World Bank: The Drivers of the Information Revolution—Cost, Computing Power, and Convergence Private Sector note 118 by James Bond 1997, http://cbdd.wsu.edu/kewlcontent/cdoutput/TR503/pdf/infodrivers.pdf

World Bank: World Development Report 2000/2001, Washington 2000

World Resources Institute: Digital Dividend Case Studies, http://www.digitaldividend.org/case/case.htm (January 2005)

Name of Organisation	**URL**
SDC, ICT4D Division	http://www.deza.admin.ch/ict4d
MSSRF	http://www.mssrf.org/
GKP	http://www.globalknowledge.org/
UNDP, ICT4D	http://sdnhq.undp.org/it4dev/
OneWorld South Asia	http://southasia.oneworld.net
Asia-Pacific Development Information Programme	http://www.apdip.net/
WSIS: ICTs and MDGs	http://www.itu.int/wsis/documents/background.asp?lang=en&theme=im

Information on indicators, sources and footnotes

Abbreviations and explanations to the tables of the following pages.

Enabling Environment

Governance		**Media**	**PRS**	
Polity Index of Democracy-Autocracy	**Press freedom**	**Newspapers**	**Year in place**	**Inclusion of ICT**
		Daily newspapers per 1000 people		
–10 = fully autocratic 10 = fully democratic	1—30 = free 31–60 = partly free 61–100 = not free		year	yes = address ICT as independent strategic component partially = mention ICT as enabling factor or one component of infrastructure development no = not at all discussed
World Resources 2002–2004		WB, WDI		OECD
http://earthtrends.wri.org/datatables/index.cfm?theme=10		http://www.worldbank.org/data/wdi2004/pdfs/Table5_11.pdf		

MDG indicators

MDG 1	**MDG 2**		**MDG 3**
Poverty	**Education**	**Literacy**	**Gender equity**
Proportion of population below $ 1 (indicator 1)	Net enrolment ratio in primary education	Literacy rates, aged 15-24, both sexes	Proportion of seats held by women in national parliament
%	%		%
UN statistics	WB, dataquery	UN statistics	IPU
http://www.developmentgoals.org/Data.htm	http://devdata.worldbank.org/data-query/	http://www.developmentgoals.org/Data.htm	http://www.ipu.org/wmn-e/classif.htm

	ICT						
	DAI (Digital Access Index)	**Independent Regulator**	**Level of competition**			**Affordability**	**Open source**
	Combination of availability of infrastructure, affordability of access, educational level, quality of ICT services, and Internet usage	Countries with separate regulatoy authority	in local services	in international long distance	ISP	Telephone average cost of local call (US$ per three minutes)	policies or legislation from different governement branches, which mandate/ express preference/ encourage use/ commission research
	0 = no access 1 = full access	yes/no	m = monopoly p = partial competition c = full competition			US$	n = national level r = regional level l = local level (number of initiatives)
	ITU	ITU				ITU	CSIS
	http://www.itu.int/newsarchive/press_releases/2003/30.html	http://www.itu.int/ITU-D/treg/profiles/guide.asp				http://www.worldbank.org/data/databytopic/itc.html#pdf	http://www.csis.org/tech/OpenSource/0408_ospolicies.pdf

ICT indicators

Access to infrastructure		
Radio	**Telephone services**	**PC**
Number of radios per 1000 people	Total (fixed and mobile) phone subscribers per 100 inhabitants	Personal computers per 1000 people
WB, WDI	ITU	ITU
http://www.worldbank.org/data/wdi2004/pdfs/Table5_11.pdf	http://www.itu.int/ITU-D/ict/statistics/at_glance/basic03.pdf	http://devdata.worldbank.org/data-query/

na = respective country is not found in indicated data source
.. = no value provided by source
CAR = Central African Repulic
DRC = Democratic Republic of the Congo
interregnum = marks an interregnum period after the complete collapse of a centralized political authority
in transition = indicates a transitional or provisional government in control as new institutions is planned
I-PRSP = interim poverty reduction strategy

(a) = Based on own research
(b) = Document not available
(c) = In addition China is engaged in a multinational initiative with South Korea and Japan to replace proprietary operating systems
(d) = Based on income, all other data in this column based on expenditure

Data on the enabling environment

	Governance		Media	PRS	
	Polity Index	Press freedom	News-papers	Year in place	Inclusion of ICT
Year	2000	2001	2000		2004
LIACs					
Afghanistan	–7	..	5		
Bangladesh	6	63	53	(I-PRSP)	
Bhutan	–8	72	na	2004	partially (a)
Cambodia	2	68	2	2003	yes
China	–7	80	98		
India	9	42	60		
Indonesia	7	53	23		
Iran	3	75	28		
Korea, DPR	–9	96	208		
Lao PDR	–7	82	4	(I-PRSP)	
Mongolia	10	31	30	2003	yes
Myanmar	–7	96	9		
Nepal	6	60	12	2003	yes
Pakistan	–6	57	40	2004	partially (a)
Philippines	8	30	82		
Sri Lanka	5	63	29	2003	yes
Thailand	9	30	64		
Timor-Leste	na	na	na		
Viet Nam	–7	82	4	2002	yes
SSA					
Angola	–3	79	11		
Benin	6	30	5	2003	yes
Burkina Faso	–3	39	1	2000	partially
Burundi	–1	77	2	(I-PRSP)	
Cameroon	–4	68	7	2003	yes
CAR	6	69	2	(I-PRSP)	
Chad	–2	74	0	2000	yes
Congo	–6	53	8		
Cote d'Ivoire	4	66	16	(I-PRSP)	
DRC	interregnum	86	3	(I-PRSP)	
Djibouti	na	na	na	2004	partially (a)
Equatorial Guinea	–5	80	na		
Eritrea	–6	79	..		
Ethiopia	1	61	0	2002	partially
Gambia	–5	65	2	2002	yes
Ghana	2	27	14	2003	yes
Guinea	–1	74	..	2002	partially
Kenya	–2	67	10	2004	(b)
Lesotho	in transition	46	8	(I-PRSP)	
Liberia	0	77	12		
Madagascar	7	31	5	2003	partially
Malawi	7	54	3	2002	partially
Mali	6	23	1	2003	yes
Mauritania	–6	61	0	2001	partially
Mozambique	6	48	2	2001	yes
Namibia	6	34	19		
Niger	4	49	0	2000	yes
Nigeria	4	57	24		
Rwanda	–4	87	0	2002	yes
Senegal	8	39	5	2002	partially
Sierra Leone	interregnum	62	4	(I-PRSP)	
Somalia	interregnum	88	1		
South Africa	9	23	32		
Sudan	–7	87	26		
Swaziland	na	na	26		
Tanzania	2	49	4	2000	no
Togo	–2	68	2		
Uganda	–4	42	2	2000	no
Zambia	1	65	12	2002	no
Zimbabwe	–5	83	18		

	ICT						
	DAI	Independent regulator	Level of competition			Affordability	Open source
	2002	2003	2003			2002	2004
	na	yes	p	p	p	..	
	0.18	yes	c	m	c	..	
	0.13	no	m	m	p	0.02	
	0.17	na	p	p	p	0.03	
	0.43	na	p	p	..	0.03	n, l (8,1) (c)
	0.32	yes	c	m	c	0.02	n, r (2,1)
	0.34	na	m	p	c	0.03	n (1)
	0.43	na	m	m	m	0.01	
	na	na	m	m	..	..	
	0.15	na	p	m	c	..	
	0.35	no	p	c	c	0.02	
	0.17	na	m	m	p	0.05	
	0.19	yes	p	c	c	0.01	
	0.24	no	c	c	c	0.02	n (1)
	0.43	yes	c	c	c	0	n (2)
	0.38	yes	p	p	c	0.03	
	0.48	na	p	m	c	0.07	n, l (6,1)
	na	na	na	na	na	..	
	0.31	na	p	m	p	0.02	n (1)
	0.11	no	p	p	c	0.09	
	0.12	yes	m	m	..	0.28	
	0.08	yes	m	m	c	0.1	
	0.10	no	c	c	c	0.02	
	0.16	no	m	m	c	0.06	
	0.10	..	m	m	..	0.43	
	0.10	no	m	m	c	0.11	
	0.17	na	c	c	..	..	
	0.13	yes	p	p	c	0.22	
	0.12	yes	c	p	c	..	
	0.15	na	m	m	m	0.2	
	0.20	na	m	m	m	..	
	0.13	no	m	m	c	0.03	
	0.10	yes	m	m	m	0.02	
	0.13	yes	p	m	c	0.03	
	0.16	yes	p	p	c	0.03	
	0.10	no	p	p	c	0.08	
	0.19	yes	p	p	c	0.07	
	0.19	yes	p	p	c	0.11	
	na	na	p	c	..	..	
	0.15	yes	..	c	c	0.07	
	0.15	no	m	p	p	0.06	
	0.09	yes	p	p	c	..	
	0.14	yes	m	c	c	0.13	
	0.12	yes	m	p	c	..	
	0.39	yes	m	m	c	..	
	0.04	na	m	m	m	..	
	0.15	yes	c	p	c	..	
	0.15	yes	c	..	c	0.09	
	0.14	yes	m	m	c	..	
	0.10	na	m	p	p	..	
	na	na	na	na	na	..	
	0.45	no	m	p	c	0.09	n (3)
	0.13	no	m	m	c	..	
	0.37	na	m	m	..	0.04	
	0.15	yes	m	m	c	0.12	n (1)
	0.18	yes	p	p	c	0.1	
	0.17	yes	p	p	c	0.21	
	0.17	yes	m	m	c	0.09	
	0.29	yes	c	c	c	..	

Data on the MDGs and ICT infrastructure

	MDG indicators			
	MDG 1	MDG 2		MDG 3
	Poverty	Education	Literacy	Gender equity
Year	various	2001	2003	2004
LIACs				
Afghanistan	..	..	na	na
Bangladesh	2000 : 36.03	86.61	50.3	2
Bhutan	..	..	na	10
Cambodia	1997 : 34.07	86.17	80.8	11
China	2001 : 16.64	..	98.3	20
India	1999–00 : 34.70	..	74.8	8
Indonesia	2002 : 7.51	92.14	98.2	11
Iran	1998 : <2	86.54	95.1	3
Korea, DPR	..	..	na	20
Lao PDR	1997–98 : 26.33	82.76	80	23
Mongolia	1995 : 13.92	86.63	99.1	5
Myanmar	..	81.88	91.6	na
Nepal	1995 : 37.68	..	63.8	6
Pakistan	1998 : 13.36	..	59.6	21
Philippines	2000 : 14.64	92.98	99	16
Sri Lanka	1995–96 : 6.56	..	97.2	5
Thailand	2000 : <2	86.31	99.1	10
Timor-Leste	na	..	na	26
Viet Nam	1998 : 17.74	93.97	95.7	27
SSA				
Angola	..	..	na	16
Benin	..	..	56.7	7
Burkina Faso	1998 : 44.85	34.98	38	12
Burundi	1998 : 58.35	53.4	67.2	19
Cameroon	2001 : 17.1	..	91.6	9
CAR	1993 : 66.58	..	71.3	na
Chad	..	58.26	71.4	6
Congo	..	..	98	11
Cote d'Ivoire	1998: 15.53	62.61	64.4	9
DRC	..	..	84.6	10
Djibouti	..	33.96	86.5	11
Equatorial Guinea	..	84.61	97.6	14
Eritrea	..	42.51	72.8	22
Ethiopia	1999–00 : 26.33	46.16	58.6	8
Gambia	1998 : 59.31	72.87	61.6	13
Ghana	1999 : 44.81	60.19	92.7	10
Guinea	.. ..	61.49	na	19
Kenya	1997 : 23.02	69.94	96.1	7
Lesotho	1995 : 36.43	84.38	91.4	17
Liberia	..	..	71.9	5
Madagascar	1999 : 49.09	68.57	82.2	6
Malawi	1997–98 : 41.66	..	73.2	
Mali	1994 : 72.79	..	38.9	10
Mauritania	2000 : 25.93	66.72	50	4
Mozambique	1996 : 37.85	59.69	64	30
Namibia	1993 (d) : 34.93	78.22	92.6	21
Niger	1995 : 61.42	34.23	25.2	1
Nigeria	1997 : 70.24		89.4	5
Rwanda	1983–85 : 35.73	..	85.7	45
Senegal	1995 : 26.26	57.9	54	19
Sierra Leone	1989 : 57.03		na	15
Somalia	..	..	na	na
South Africa	1995 : 7.1	89.53	92	30
Sudan	..	..	80	10
Swaziland	..	76.69	91.7	17
Tanzania	1993 : 19.89	54.39	92.1	21
Togo	..	91.83	78.4	7
Uganda	..	..	80.9	25
Zambia	1998 : 63.65	65.99	89.7	12
Zimbabwe	1990–91 : 35.95	82.72	97.8	10

ICT indicators		
Access to infrastructure		
Radio	Telephone services	PC
2001	2002	2002
114	1.93	..
49	13.2	3.38
na	28.39	14.48
119	30.14	1.96
339	327.78	27.64
120	51.93	7.2
159	91.7	11.88
281	220.09	74.96
154	21.12	..
148	21.15	3.25
50	141.62	28.41
66	7.97	5.1
39	15.07	3.66
105	33.53	..
161	232.92	27.68
215	95.78	13.19
235	365.45	39.77
na		..
109	71.77	9.85
78	15.43	1.94
445	41.38	2.21
433	12.89	1.59
220	10.6	0.72
161	49.69	5.69
80	5.46	2.02
233	5.85	1.65
109	73.88	3.94
185	82.67	9.34
385	10.83	..
na	38.3	15.24
na	80.79	6.93
464	9.02	2.51
189	6	1.48
394	100.84	13.85
695	33.39	3.78
52	15.23	5.48
221	51.78	6.39
61	55.65	..
274	..	..
216	13.98	4.4
499	15.25	1.34
180	10.28	1.41
148	103.93	10.81
44	18.56	4.5
134	144.75	70.93
122	3.32	0.6
200	19.24	7.1
85	16.39	..
128	77.21	19.85
259	18.23	..
60	13.28	..
336	410.48	72.6
461	26.51	6.15
161	95.02	24.22
406	24.14	4.18
263	45.38	30.78
122	18.15	3.32
179	21.2	7.48
362	55.08	51.57

Title of study	**Digital Dividends for the Poor**	**ICT for Development – Contributing to the MDGs**	**Information and Communications Technologies and Development: Help or Hindrance?**
	GKP	infoDev	(AusAID)
URL	www.globalknowledge.org/gkps_portal/view_file.cfm?fileid=435	http://wbln0018.worldbank.org/ict/resources.nsf/0/4b6fa1c490ea367d85256e750061182e/$FILE/CaseStudies.pdf	http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN014679.pdf
Critical factors listed/ Lessons learned/ Guiding Principles	– Target Group: The poor. – Application: Critical issues for poverty reduction. – Impact: Demonstrate positive impact AND absence of negative social impact. – Outreach: Immediately expandable or replicable, at low marginal cost. – Inclusiveness: Gender-sensitive approach. Community engagement. – Sustainable: Organisationally and financially. – Partnerships: Government, civil society, private sector, academia, and networks. – Technology: Combine ICTs to construct a complete communication package.	– Lesson 1: Involve target groups in project design and monitoring. – Lesson 2: When choosing the technology for a poverty intervention project, pay particular attention to infrastructure requirements, local availability, training requirements, and technical challenges. Simpler technology often produces better results. – Lesson 3: Existing technologies—particularly the telephone, radio, and television—can often convey information less expensively, in local languages, and to larger numbers of people than can newer technologies. In some cases, the former can enhance the capacity of the latter. – Lesson 4: ICT projects that reach out to rural areas contribute more to the MDGs than projects based in urban areas. – Lesson 5: Financial sustainability is a challenge for ICT-for-development initiatives. – Lesson 6: Projects that focus on ICT training should include a job placement component.	– Why? Is the use of ICT-based project aimed clearly at achieving a specific poverty reduction goal? – Who? Is there a specified target group for poverty alleviation? – How? Is the form of ICT to be deployed appropriate in terms of cost, support, maintenance and compatibility with existing information flows? – How? Is the form of ICT to be deployed scalable to enable it to be replicated and expanded – How? Are appropriate intermediaries being used? – How? What scope is there for public private partnerships? – What? Is the content transmitted by the ICT relevant to the audience and is it in a language easily understood by the target audience? – How long? Is the project self-sustaining over what period? – How well? What performance measurement, monitoring and evaluation processes are in place? – What risks? Managing risk: "What unexpected events or situations might arise?" and "What should be done to manage these?"

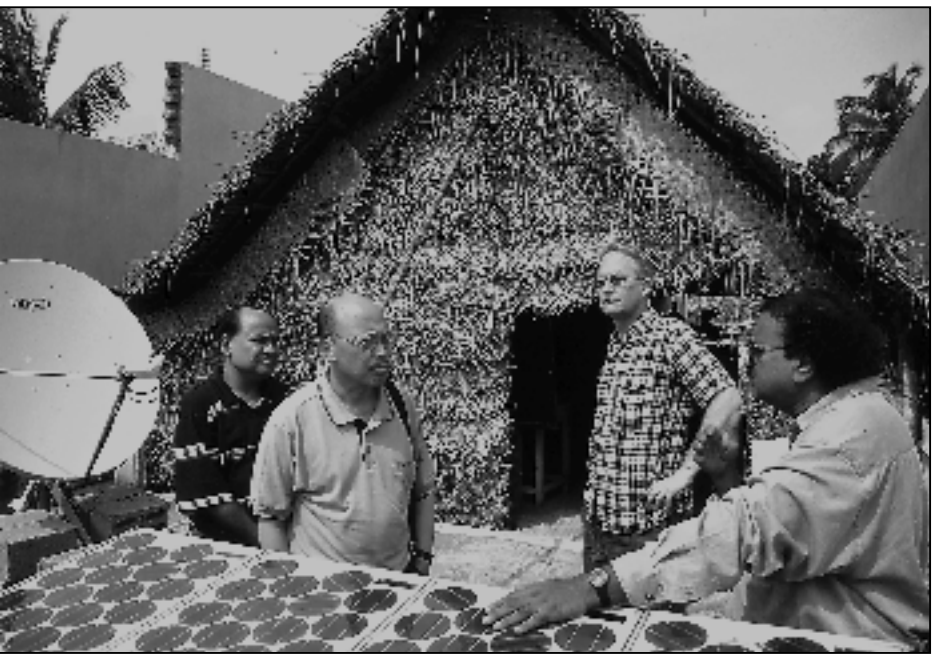
* With the exception of the UNESCO and the UNDP study, all points listed are taken directly from the documents. For the UNESCO study they are based on the Summary of Key Findings, for the UNDP study they are based on the Conclusion.

Information and Communication Technologies for Poverty Alleviation	**Information and Communication Technologies, Poverty and Development: Learning from Experience**	**Research – ICT Innovations for Poverty Reduction***	**Regional Human Development Report: Promoting ICT for Human Development in Asia 2004: Realising the Millennium Development Goals (Summary) ***
UNDP/APDIP	InfoDev	UNESCO	UNDP
http://www.apdip.net/documents/eprimers/poverty.pdf	http://wbln0018.worldbank.org/ict/resources.nsf/0/1e51786cd26a825585256e750063a3e7/$FILE/Learning%20From%20Experience.PDF	http://cirac.qut.edu.au/ictpr/downloads/research.pdf	http://hdrc.undp.org.in/APRI/Publication/PBriefings/summary-web%2008-01-2004.pdf
– ICTs alone are insufficient for significant benefits to emerge. – ICTs will not transform bad development into good development, but they can make good development better. – Effective applications of ICTs comprise both a technological infrastructure and an information infrastructure. – In rural settings in developing countries (where the vast majority of poor people live), it is always a challenge to install the technological infrastructure, but the task is relatively simple compared to establishing the information infrastructure. – The application of ICTs in the absence of a development strategy that makes effective use of them will inevitably result in sub-optimal outcomes. – While ICTs provide opportunities for development, desirable outcomes always arise from the actions of people.	– Poverty and uneven development have complex, interdependent causes. Addressing those underlying causes is the only way to combat poverty. – The 'digital divide' is a symptom (among many), not a diagnosis, and bridging or closing it is a slogan, not a strategy. – ICTs enable change; they do not create it. – ICT strategies are only effective, sustainable, and worth the effort if they are integrally linked to broader, more comprehensive development and poverty-reduction strategies. – "Mainstreaming" ICTs in donor programmes means subordinating them as tools of other, more fundamental objectives, not inserting them everywhere. – Newer is not necessarily better. – ICTs are, to some extent, social constructs. Therefore, they need to be adapted to different social contexts. – Priority-setting is crucial to successful development and poverty reduction. – Learning new lessons is good, but fully absorbing old lessons is just as important.	– Strong links between social and technical networks emerge as highly important for the successful development of community-based ICT initiatives. – Involvement in local content creation is a powerful way to engage people with ICTs, enabling them to have a voice. – Integrating new ICTs with established media has a positive impact on the sustainability. – ICTs play a crucial symbolic role in people's aspirations and ideas of what skills will be necessary for the future. – ICT initiatives are clearly valued for providing a different model of teaching and learning that stands in marked contrast to general experiences of schooling. – ICTs link to empowerment in extremely diverse ways. ICT skills link to aspects such as literacy, expression and access to information. – ICT initiatives have been as important as a social intervention as they have been as a technical one. – Successful development of the initiatives has proven to be a gradual process that works best when developed organically from both community demands and careful research.	– The degree to which ICT can influence the achievement of MDGs is conditioned by: a the inherent nature of a particular goal combined with the materiality of information and communication in achieving it; b three critical enabling factors – technological, access-related and human. – Even where ICT can have a critical influence, its role is largely a facilitating and complementing one to the more direct forms of intervention and service delivery. – The extension and sustainability of small scale and experimental applications of ICT depend on the commitment and resources that stakeholders are able to mobilise, and to a great extent on the creation of effective partnerships among all stakeholders: a Governments in developing countries continue to be major players in ICT initiatives, both in their capacity as policy makers and in their role as providers of ICT infrastructure and services. b NGOs are fast emerging as innovative and effective users and purveyors of ICT. c The private sector and its resources and expertise are relevant with respect to the provision of infrastructure and services, especially in view of increased deregulation and liberalisation of ICT industries.

Chennai Statement on Up-scaling Pro-Poor ICT Policies and Practices

Summary

ICTs can make a difference in poverty reduction. The lessons learned around the globe demonstrate the great potential of ICTs to enhance empowerment, opportunity and security. This potential contrasts with the overall modest impact of ICTs on the MDGs. Untapped opportunities exist for scaling-up poverty reduction using ICTs.



A staff member of the MS Swaminathan Research Foundation explains the hub of the village information network in Villianur (India) to a part of the Chennai Group. It is based on solar energy and satellite links.

At the grass roots level, the capacity of community structures should be built upon and enhanced. The basic requirements for successful up-scaling of poverty reduction through ICTs are (1) an enabling ICT policy environment; (2) conducive conditions for poverty reduction; (3) appropriate technology choices; (4) mobilisation of additional public and private resources.

An enabling ICT policy environment includes respect for freedom of expression, diversity and the free flow of information, competition in ICT infrastructure provision, also in the last mile, investment in service development including local content, and the adoption of open source solutions.

Mainstreaming ICTs in poverty reduction strategies (PRS) is a key issue. ICTs can be used to facilitate the PRS process, and should be mainstreamed into the implementation of sectoral components, complementing the poverty-reducing priorities of the national ICT strategy. Targeted pro-poor regulations and policies are key.

Technological progress reduces costs dramatically and lowers access barriers. Choosing simple, context-related solutions that may not require high connectivity or high-level human capacity is key. Combinations of complementary technologies, such as radio and Internet, have often proved particularly appropriate.

Up-scaling to reach the MDGs requires additional investment. National ICT licensing obligations should include funding mechanisms to mobilise finance for community initiatives, and to address the financing gap for small and medium ICT start-up businesses. The deployment of ICTs increases the effectiveness and efficiency in reaching the MDGs, whatever the resources available – mainstreaming ICTs pays off even when budgets are stagnating or shrinking.

Those countries mainstreaming ICTs effectively into their productive sectors strengthen their competitiveness. It is a matter of economic survival to make appropriate use of ICTs. Therefore, the application or non-application of ICTs in an economy affects people living in poverty both directly and indirectly.

Recognising the complementary roles of governments, the private sector and civil society, building multi-stakeholder partnerships (MSP) becomes a priority in implementing an inclusive information society based on the WSIS' vision and inspired by the Millennium Declaration.

Introduction

1 Upon invitation of the MS Swaminathan Research Foundation (MSSRF) and the Swiss Agency for Development and Cooperation (SDC), development practitioners and policy makers met in Chennai, India, from 17–19 November 2004, for a workshop to review experiences in Asia and Africa in the use of information and communication technologies (ICTs) for poverty reduction. The event was organised in coordination with and supported by the Global Knowledge Partnership (GKP), OneWorld South Asia and the United Nations Development Programme (UNDP). This meeting of experts provided valuable inputs into a more detailed draft Working Paper that will be published by SDC/MSSRF in 2005. In order to provide a more compact input into the processes of the World Summit of the Information Society (WSIS), Poverty Reduction Strategies and the Millennium+5 Summit, the participants decided to compile some key conclusions and recommendations in a statement. The purpose of the Chennai Statement is to stimulate the debate from a clearly poverty-focused perspective.

2 The Chennai Statement reflects the shared concerns of the undersigned participants from ten countries mainly in Asia and a number from Africa, Australia, North America and Europe. Among the participants were representatives from multilateral organisations, bilateral development agencies, civil society organisations and the private sector. The Chennai Statement is intended to serve as an input into the on-going global debate on the role of ICTs for development, particularly in view of the poverty reduction oriented agenda for the implementation of the WSIS Principles and Action Plan in the context of the Millennium Development Goals (MDGs).

3 The participants share the declared WSIS's vision of a people-centred, inclusive and development-oriented Information Society, where everyone can create, access, utilise and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life; the main challenge is now to implement the WSIS's Declaration of Principles and the Plan of Action. The need to translate the people-centred vision of ICTs for poverty reduction into action is intrinsically linked to the challenge of reaching the MDGs.

4 ICTs can make a difference in poverty reduction. The practical experience as well as the lessons learned around the globe demonstrate the great potential of ICTs to support poverty reduction efforts by enhancing empowerment, opportunity and security. This potential contrasts, however, with the overall modest impact of ICTs on the MDGs remaining well behind expectations.

5 In view of the massive up-scaling and replication of the use of ICTs for poverty reduction that is needed, the participants of the Chennai workshop on "Up-scaling Poverty Reduction through ICTs" hereby endorse the design, adoption, and implementation of ICT policies and practices at all levels. ICTs are a tool and should be understood in a broader perspective that includes the following elements:

Relevance

6 Building on the lessons learned, untapped opportunities exist for scaling up poverty reduction using ICTs, by harnessing their potential for dynamic knowledge sharing and networking, building on economies of scale and drawing on a broad range of approaches that can be used as a catalyst for local adaptation. The positive experience of using ICTs for poverty reduction is often linked to use of the new options by organised self-help groups and collective organisations. Up-scaling poverty reduction with ICTs means increasing outreach and deepening impact.

7 ICTs can be used as a strategic tool for development. They also merit and receive growing attention for their instrumental value in implementing pro-poor policies. The deployment of ICTs increases the effectiveness and efficiency of all endeavours to reach the MDGs whatever the resources available. Mainstreaming ICTs pays off even when budgets are stagnating or shrinking.

8 Those countries mainstreaming ICTs effectively into their productive sectors gain dramatically in competitiveness, often to the disadvantage of others. It is a matter of economic survival

to make appropriate use of ICTs. Therefore, the application or non-application of ICTs in an economy affects people living in poverty both directly and indirectly.

9 The basic requirements for successful up-scaling of poverty reduction through ICTs are (1) an enabling policy environment; (2) prioritising and creating conducive conditions for poverty reduction; (3) appropriate technology choices; (4) mobilisation of additional public and private resources. The Chennai Statement reflects these requirements.

Enabling Environment

10 A clear and enforced legal framework should include respect for freedom of expression, diversity and the free flow of information. A conducive environment for up-scaling includes supporting infrastructure such as electricity, Internet connectivity, and a reasonable level of basic education. To meet pro-poor outcomes, such measures have to be combined with targeted pro-poor policies.

11 The acceleration of the introduction of competition in ICT infrastructure provision, including in the last mile, is key. It should be associated with investment in service development including local content to drive the demand for infrastructure.

12 Enhancing the adoption of open source solutions and strengthening user groups are key. Application of open source software/products in the public sector and encouraging its/their application in the private sector and by civil society is cost efficient, does not restrict adaptation to local needs – such as translation into local languages – reduces dependence on foreign firms, and does not create new barriers for local ICT experts, but instead strengthens their training and keeps the jobs in-country.

Poverty Reduction

13 Mainstreaming ICTs in poverty reduction strategies (PRS) is a key issue. The implementation of PRS can play an important role in achieving the MDGs and empowering people living in poverty. ICTs can be used to facilitate the PRS process. ICTs should be mainstreamed into the implementation of sectoral components, complementing the poverty-reducing priorities of the national ICT strategy.

14 In a conducive environment favouring poverty reduction, targeted pro-poor regulations and policies are key elements. They may include:
- Building up strong independent regulators through capacity-building measures and the provision of resources to finance any resultant legal cases; supporting research and awareness-raising throughout civil society.
- Transforming the policy environment through more deregulation in favour of local communities: (a) Licensing of air waves to grass-roots level institutions; (b) Representation of grass-roots level institutions on regulatory bodies.
- Fast-track licensing for innovative solutions such as Voice over Internet Protocol (VoIP), Wireless Fidelity (WiFi) and Very Small Aperture Terminal (VSAT), and licensing of community-based electronic media, in particular broadcast radio.

15 Meaningful poverty reduction must be based on a participatory needs assessment related to empowerment, opportunity and security of people living in poverty. ICT-applications embedded in poverty reduction strategies should support demand-driven, solution-focused initiatives for, and with, disadvantaged people, characterised by applications and content that are highly contextualized. A pro-poor emphasis in infrastructure provision and content development applications is a priority. This should include the introduction of lowest-cost and transparent demand- and supply-side subsidies to ensure that access costs are affordable. The use of voucher systems could be an appropriate option for promoting private partnerships in subsidised public access provision to address the needs of those in poverty.

Technology Choices

16 Technological progress reduces costs dramatically and lowers access barriers, which is of particular importance to people in poverty. When making a technology choice, information about the latest technological developments is useful in order to choose simple, context-related solutions that may not require high connectivity or high-level human capacity. Flexible platforms combining the strengths of complementary technologies, such as radio and Internet, have often proved particularly appropriate.

17 Financial, ecological and social sustainability is the triple bottom line for successful ICT-supported projects. Sustainability is contextual and dynamic. In a poverty-stricken rural context, appropriate technology choices favouring social sustainability are as important as financial sustainability and require a focus on local content creation. The question of profitability should be embedded right from the start when designing and planning poverty reducing projects with ICT-use. 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.

Resource Mobilisation

18 Up-scaling to reach the MDGs requires additional investment. Public resources are severely limited at the national as well as the international level. Despite the Monterrey Consensus, it is unlikely that official development assistance (ODA) will be increased substantially. The search for new sources of development financing (NSDF) is still in its initial stages. The options discussed include a byte tax and other ICT-related sources, which are not likely to materialise in the foreseeable future.

19 In order to ensure the best use of scarce public resources, maximum mobilisation of private investment is vital. Depending on the enabling regulatory framework, the existing infrastructure and the development potential, private investment can be mobilised, to a certain extent even in remote regions. The micro finance movement demonstrates that banking for people in poverty is feasible. Similarly, there is an untapped market for the private sector in general and for social entrepreneurs in particular, to bring connectivity, services and content to those in poverty.

20 Resulting in a hybrid form of private-public sources, national ICT licensing obligations should include funding mechanisms to mobilise finance for appropriate community initiatives, and to address the financing gap for small and medium enterprises (SMEs) interested in starting ICT businesses. Regulators must have the political backing and capacity to enforce compliance with universal service obligations (USOs) and to evaluate the effectiveness of the use of funds.

The Way Forward

21 There are significant challenges in the transition to scaling up poverty reduction through the use of ICTs in national strategies, in terms of retaining local ownership, capacity building in local communities, developing sustainable business models and defining the level of institutional and public sector support.

22 National level advocacy is key for up-scaling poverty reduction through ICTs. The added value of global declarations, including this Chennai Statement, depends on the extent to which they are heard by governments, civil society and the private sector regionally, nationally and locally. In particular, the younger generation should be reached.

23 Global coalitions advancing empowerment, opportunity and security of people in poverty, including gender equality, education, health and democracy, are an effective and efficient channel for taking up-scaling concerns forward. In particular, intensifying South-South networking and dialogue should be pursued systematically.

24 Recognising the complementary roles of governments, the private sector and civil society, building multi-stakeholder partnerships (MSP) becomes a priority in implementing an inclusive information society based on the WSIS's vision and inspired by the Millennium Declaration. At the grassroots level, the capacity of community structures, such as self-help groups and other intermediaries, should be tapped and enhanced.

Follow-up

25 This statement is timed to inform the preparations for the second phase of WSIS 2005 in Tunis. The declaration will be backed by a joint MSSRF/SDC discussion paper to be published early in 2005. The participants will use their networks to influence the WSIS process accordingly. MSSRF, SDC and GKP will host a side event during the PrepCom II in Geneva in February 2005.

26 In light of the outcomes of the WSIS, MSSRF/SDC intend to convene a follow-up meeting on opportunities and challenges for up-scaling MDG implementation through ICTs, involving stakeholders from the public and private sectors as well as civil society, not later than 2007. The objectives will be to:

- Review the added value of the WSIS outcomes for ICT for poverty reduction (ICT4PR) and MDG implementation;
- Present the main ongoing and planned ICT4PR up-scaling programmes;
- Discuss the key challenges met in ICT4PR up-scaling efforts;
- Exchange information on lessons learned and good practices in ICT4PR.

List of participants and signatories (alphabetical order)

- Subbiah Arunachalam, MS Swaminathan Research Foundation, India
- Namrata Bali, SEWA, India
- Indrajit Banerjee, Asian Media Information and Communication Centre (AMIC), Singapore
- Robert Chapman, Overseas Development Institute (ODI), UK
- Tenzin Chhoeda, Department of Information and Technology, Bhutan
- Jayalakshmi P. Chittoor, i4d, India
- Celeste Cinco, Association for Progressive Communications (APC), Philippines
- Richard Gerster, Gerster Consulting, Switzerland
- Ravi Gupta, i4d, India
- Michael Jensen, Consultant, South Africa
- Senthil Kumaran, MS Swaminathan Research Foundation, India
- Radhika Lal, UNDP, USA
- Stuart Mathison, The Foundation for Development Cooperation (FDC), Australia
- Basheerhamad Shadrach, OneWorld South Asia, India
- Pavan S. Shakya, WorldLink Communications, Nepal
- Randall Spence, International Development Research Centre (IDRC), UK
- Nazneen Sultana, Grameen Communications, Bangladesh
- Swarna Vepa, MS Swaminathan Research Foundation, India
- Gerolf Weigel, Swiss Agency for Development and Cooperation, Switzerland
- Sonja Zimmermann, Gerster Consulting, Switzerland

January 2005

1 Schilderman 2001.

2 Sen 2003.

3 See Annex 3 for an (incomplete) overview.

4 See Weigel/Waldburger 2004.

5 The task force is the first body created by an intergovernmental decision in which members represent governments and civil society (from the private sector, NGOs and academia). Together with organisations of the United Nations system they have equal decision-making power.
See http://www.unicttaskforce.org.

6 See http://www1.oecd.org/dac/ictcd/htm/home.htm for the matrix as well as other links and documents.

7 September 1–5, 2005.

8 November 16–18, 2005.

9 The participating and contributing institutions are the following: The Swiss Agency for Development and Cooperation (SDC), the MS Swaminathan Research Foundation (MSSRF), a non-profit Trust based in India focuses on harnessing science and technology for environmentally sustainable and socially equitable development, the Global Knowledge Partnership (GKP), a worldwide network committed to harnessing the potential of ICT for sustainable and equitable development, OneWorld South Asia (OWSA), part of the OneWorld network, a civil society network with the mission of harnessing the democratic potential of the Internet to promote human rights and sustainable development, the United Nations Development Programme (UNDP), and Gerster Consulting, an independent company based in Switzerland.

10 Smillie 2000.

11 Daley 2003.

12 Daley 2003; Mathison 2003.

13 World Bank 2004 (B).

14 See for example the multi-dimensional concept of "human poverty" outlined by UNDP in the first chapter of its Human Development Report in 1997: http://hdr.undp.org/reports/global/1997/en/pdf/hdr_1997_ch1.pdf.

15 Gerster/Zimmermann 2003 (A).

16 World Bank 2000.

17 Mathison 2003.

18 Marker/McNamara/Wallace 2002.

19 Mathison 2003.

20 Gerster/Zimmermann 2003 (B); Beardon 2004.

21 The first four characteristics are drawn from Gerster/Zimmermann 2003 (A).

22 Details on the MDGs can be found at: http://www.developmentgoals.org/, http://www.undp.org/mdg/ and http://www.un.org/millenniumgoals/, http://millennium-indicators.un.org/unsd/mi/mi_goals.asp.

23 UN ICT task force, 2003; World Bank Group's Global ICT Department 2003.

24 ITU 2003 (B).

25 For a short discussion on the problems of selecting indicators and the limitations of existing data sources see also UNDP 2004 (A), pp.29–32.

26 See http://www.itu.int/ITU-D/ict/dai/ for more information on the DAI.

27 For a map of the regions please see: http://millenniumindicators.un.org/unsd/mi/mi_worldmillennium_new.asp.

28 It is close to GKP's selection based on UNDP's Human Development Index. The differences are with Malaysia and Maldives being included in GKP but not here, and with Iran and Mongolia not being covered by GKP but included here. See Mathison 2003.

29 Mathison 2003. See also Beardon who stresses that "ICTs are subject to, and must be understood in terms of, political and socio-economic context." (Beardon 2004, p. 11).

30 "Economic status of a country does count, but what counts more is the attitude of the population: this means that the population should be knowledge thirsty. If the population of the country does not want growth; technologically money cannot play a very big difference in the technological front." (Manzar and Bruckner 2004).

31 Hussain 2004.

32 For more information on different writing systems see: http://www.omniglot.com.

[33] The alphabetic classification that dominates everything in Western cultures, from phonebooks to dictionaries, is not as obvious in logographic scripts, such as Chinese, where a written character gives no indication to its pronunciation. A regional initiative in Asia that addresses this issue is the PAN Localization, see the website: http://www.panl10n.net for more information.

[34] Chakraborty 2004.

[35] See http://nigeria.usembassy.gov/wwwhxdec03i.html or http://www.aegis.com/news/ips/2001/IP010902.html for a description of a telephone hotline in Nigeria, and http://comminit.com/strategicthinking/stdigitalpulse/sld-1646.html for a description of Radio Oxyjeune in Senegal.

[36] Forman 2003, p. 18.

[37] Gul 2004. The author suggests separate visiting times or even separate locations for men and women in order to increase access.

[38] A number of interesting case studies focusing on organisational and sectoral context can be found in Information Technology in Context: studies from the perspective of developing countries, edited by Chrisanthi Avgerou and Geoff Walsham, Aldershot 2000.

[39] This approach is also taken up by UNESCO's CMC programme, which requires (community) radio as a key element of any CMC.

[40] Kaldor/Anheier/Glasius 2003.

[41] World Bank 2004 (B).

[42] The issue of print media is also interesting from the perspective of using a combination of different ICTs, as has shown to be effective in a number of cases. Among others see Gerster/Zimmermann (B).

[43] Thorbecke 1999.

[44] Smillie 2000.

[45] UNDP 2004 (A), which provides an in-depth analysis of poverty in nine Asian countries: China, India, Indonesia, Malaysia, Mongolia, Pakistan, Sri Lanka, Thailand and Viet Nam.

[46] For a brief discussion on ICT indicators for education see UNESCO – ICT for education under: http://www.unescobkk.org/education/ict/v2/info.asp?id=11086.

[47] This implies that literacy is different for each media and needs to be acquired for all of them. For an extensive definition of literacy see http://www.ivla.org/. Other definitions even include interest and attitude in addition to the ability of individuals.

[48] Ghose/Ghosh Ray 2004.

[49] It has been found that female participation in distance education outnumbers that of men in many countries, however most of the studies cited in the report were done in developed countries with notable differences, for which cultural differences have been suggested. One should therefore be cautious in transferring such results to developing countries. http://www1.worldbank.org/disted/Teaching/Design/kn-02.html.

[50] The other two being private sector participation and market competition. APC 2004.

[51] Nair 2004.

[52] Fink and Kenny 2003.

[53] "In cooperation with the private sector, make available the benefits of new technologies, especially information and communications."

[54] Gerster 2003.

[55] Communication by B. Shadrach, OneWorld South Asia, India.

[56] For a more detailed analysis of the differences in access to ICT in the two regions see also Pigato 2001.

[57] Smillie, 2000. Furthermore, supporting infrastructure such as micro-credits is needed when people want to make use of opportunities provided: "People have not always been able to materialize knowledge to opportunities and actions due to the absence of financial resources." (Nair 2004).

[58] ITU Internet.

[59] http://www.rfi.fr/Fichiers/evenements/smsi/monde.asp.

[60] The term "open source software" is often used synonymously with the term "free software", even though the two are today considered separate movements by some. The basic difference lies in their values: simply put, for the former the issue is a practical question, for the latter an ethical one. For

this paper the abbreviation FOSS (Free/Open Source Software) will be used in order to include both aspects but without emphasising one or the other.

[61] For more information on governments' preferences for free and open source see also: http://www.economist.com/business/displayStory.cfm?story_id=2054746.

[62] See also i4d, Vol. II No. 10, October 2004, specifically the articles on FOSS usage in Africa and FLOSS in Asia, available at http://www.i4donline.net/.

[63] Dickie, Nakamoto 2004.

[64] See the respective websites for more information: http://www.translate.or.za , http://www.translate.or.ug/ and http://www.fossfa.net.

[65] Op de Coul, 2003; Batchelor et al., 2003; World Resource Institute; the annex in Harris 2004; for a short evaluation of Lessons Learned from other ICT-for-Development Efforts see Annex 3 of Batchelor et. al. 2003, as well as http://www.sustainableicts.org for more of Batchelor's work, with a special focus on sustainability.

[66] Op de Coul 2003.

[67] Batchelor et al., 2003.

[68] E.g. the references to the evidence that access to basic communication infrastructure helps the poor in Curtain 2004.

[69] Batchelor et al. 2003; Gerster/Zimmermann, 2003.

[70] Banuri in: UNDP/APDIP 2003.

[71] Schilderman 2001.

[72] Oral communication Subbiah Arunchalam, MSSRF.

[73] Arunchalam 2003.

[74] Slater/Tacchi (B) 2004.

[75] UN ICT task force 2003.

[76] Details can be found in the Grameen Case Study under http://www.telecommons.com/villagephone/section4.html.

[77] Arunchalam 2004.

[78] Jayaweera 2004

[79] Slater/Tacchi (B) 2004.

[80] In the case of Africa, see for example UNECA's benchmarking of status of NICI strategies under http://www.uneca.org/aisi/.

[81] OECD 2004.

[82] McNamara 2003; Arunchalam 2004.

[83] Athreya 2004, p. 5. See also Beardon who argues for mainstreaming, if not explicitly with respect to PRS: "In the long-term, our aim should be to consider ICTs part and parcel of all development work, never an aim in themselves." (Beardon 2004, p. 22).

[84] Bhutan PRSP, available under: http://poverty.worldbank.org/files/cr04246.PDF.

[85] The most recent (January 2004) update of the OECD study on ICT in PRSPs lists 18 out of 35 countries that define or position ICT as a strategic component for poverty reduction. Only one year earlier, in January 2003, these numbers were much lower, with merely 4 out of 21 analysed PRSPs defining or positioning ICT as a strategic component for poverty reduction. This increase also reflects the importance attributed to ICT in national strategies.

[86] See selected country reviews of national e-strategies and ICT in poverty reduction strategies by UNDP (forthcoming in 2005).

[87] See also Chapman, Blench, Kranjac-Berisavljevic' and Zakariah 2003 for policy implications with respect to the promotion of cross-sectoral information and communication processes in planning process such as the PRSPs.

[88] Hanna 2003.

[89] ITU 2003.

[90] CATIA (Catalysing Access to ICT in Africa) focuses on policy and regulatory reform as an important component of the programme: "Catalysing informed ICT policy and regulatory reform" contains six of the nine programme foci, see also www.catia.ws; similar emphasis is made by IDRC (Spence 2004).

[91] Ure in: UNDP/APDIP 2003.

[92] An example is Cambodia. Section 3.15 of the draft ICT policy by the Royal Government of Cambodia reads: "Government will promote open source software in ICT: (1) to cut costs in the long run, (2) to broaden skills and capacities of ICT professions." http://www.nida.gov.kh/activities/ict_policy/ictdraft.pdf.

[93] Ulrich in: UNDP/APDIP 2003.

[94] Pioneered by Chile, in place in Nepal and under consideration in Sri Lanka; Ulrich in: UNDP/APDIP 2003. Also see Dymond and Oestmann, 2003.

[95] Hagen 2004.

[96] Spence 2004.

[97] An example is Pakistan, Ansari in: UNDP/APDIP 2003.

[98] For example, in Bhutan the national ICT policy obliges the Royal Government to provide content in the national language, which is Dzonghka. However, first major efforts were required to develop technological standards for Dzonghka. Oral communication by Tenzin Chhoeda, Bhutan. See also http://www.kuenselonline.com/article.php?sid=4531.

[99] Bhatnagar in: UNDP/APDIP 2003. Heeks 2002 and 2003.

[100] Bhatnagar in: UNDP/APDIP 2003.

[101] Banuri in: UNDP/APDIP 2003.

[102] UNESCO's pilot CMC programme was established in 2001 to address problems of the digital divide at the community level. Since then, the programme has been quickly developed and there are around 40 CMCs today in over 15 developing countries in Africa, Asia, and the Caribbean (UNESCO (A) 2004).

[103] UNESCO (A) 2004. This concept of building on existing infrastructure and combining different services under one roof is widely acknowledged today. See e.g. the conclusions of the Pacific Telecentre Workshop in Brisbane, 1–3 December 2004 at http://portal.unesco.org/ci/en/file_download.php/caf1b51e3805e60cef3ccee56624cd31Telecentre+Workshop+-+Communique.doc. This strength of combination is again its limitation: in quite a number of countries community radio legislation and practice is not (yet) as liberal as is needed to envisage a fast spreading of CMCs.

[104] For example, in the case of the Uganda pilot, four established multipurpose community telecentres and two community FM radio stations were converted into CMCs (UNESCO (B) 2002).

[105] See also Chapman, Blench, Kranjac-Berisavljevic' and Zakariah 2003 on community broadcasting and participatory communication techniques.

[106] The product is called eNRICH and was developed jointly by UNESCO and the National Informatics Centre of India. More information is available under: http://www.enrich.nic.in.

[107] Slater/Tacchi (B) 2004, p. 9.

[108] Slater/Tacchi (A) 2004, p. 90.

[109] Arunchalam/Senthilkumaran 2002.

[110] Gerster in: Weigel/Waldburger 2004.

[111] Hanna 2003, pp. 12–13.

[112] These were findings of a learning study by Gerster/Zimmermann 2003, based on experience from Sub-Saharan Africa. Also see initiatives such as the e-chaupal in India http://www.digitaldividend.org/case/case_echoupal.htm.

[113] One example is SEWA in India, see http://www.globalknowledge.org/gkps_portal/view_file.cfm?fileid=1391 or http://www.sewa.org.

[114] Teltscher in: UNDP/APDIP 2003.

[115] Teltscher in: UNDP/APDIP 2003.

[116] Oral communication by M.S. Swaminathan in MSSRF, Mission 2007, Chennai 2004.

[117] In "A Dialogue on ICTs and Poverty: The Harvard Forum" 19–20 September 2003, see http://web.idrc.ca/en/ev-46261-201-1-DO_TOPIC.html.

[118] Oral information by Thor A. Halvorsen, Telenor, Norway.

[119] Among others, see i4d January 2004 on Microfinance and new technologies, at: http://www.i4donline.net.

[120] Digital Dividend Analysis 2003.

[121] SEWA 2004. The following is an example of how poor women appropriate ATMs: After they have understood the workings of an ATM, they now want a similar machine to deposit their jewellery (oral communication by Namrata Bali).

[122] See e.g. OWSA, Towards Universal Primary Education, special issue of Mainstreaming ICTs, Vol. I/no. 2, November – December 2004.

[123] Farrell/Wachholz 2004.

[124] See http://www.comminit.com/experiences/pdskdv122002/experiences-1062.html for the description of a TV soap broadcast in Africa.

[125] This aspect becomes particularly important with respect to the formation of teachers. If ICTs are integrated into their formation, they will be more likely to use them in their classes once they work in classrooms themselves.

[126] Farrell/Wachholz 2004, p. 269.

[127] Or to put it in other words: "It is indeed a strange world when educators need to be convinced that sharing information, as opposed to concealing information, is a good thing. The advances in all of the arts and sciences, indeed the sum total of human knowledge, is the result of the open sharing of ideas, theories, studies and research." (http://edge-op.org/grouch/schools.html).

[128] Tong 2004.

[129] Tong 2004.

[130] Farrell/Wachholz 2004.

[131] Farrell/Wachholz 2004, p. 268.

[132] An example with a fifty-year history of how the progress of technological interventions was integrated in the delivery of educational content is the "school of the air – alice springs". For more information see the website of the school: http://www.assoa.nt.edu.au/.

[133] Arunchalam 2004.

[134] Farrell/Wachholz 2004.

[135] Farrell/Wachholz 2004.

[136] Farrell/Wachholz 2004, p. 271.

[137] Rahman/Jhingran 2004, p. 16.

[138] Slater/Tacchi (A) 2004.

[139] See Annex 3 for an overview of critical factors of ICT use for poverty reduction based on selected studies.

[140] Batchelor 2003.

[141] Beardon sees this also as a weakness of the bottom-up process: "There is an inevitable reliance on committed people with integrity to ensure that the participatory process is properly followed." (Beardon 2004, p. 20).

[142] Hagen 2004.

[143] Jayaweera 2004.

[144] Pena in: UNDP/APDIP 2003.

[145] Slater/Tacchi (B) 2004; Jayaweera 2004.

[146] Greener 2004.

[147] Curtain 2004.

[148] Gerster in: Weigel/Waldburger.

[149] Swaminathan in: Weigel/Waldburger 2004, p. 209. See also UNESCO (A) 2004.

[150] Swaminathan in: Weigel/Waldburger 2004.

[151] Beardon shows that the information needs of three communities in Uganda and Burundi are quite different and influenced by their surroundings (such as continuous conflict in Burundi). Furthermore the needs differ depending on gender and age (Beardon 2004).

[152] Gerster in: Weigel/Waldburger 2004.

[153] Arunchalam 2004.

[154] 2003 (B); Mathison, 2003.

[155] The example of Bhutan is well analysed in Faris 2004.

[156] ITU/WSIS 2004.

[157] Drake 2004.

[158] UNDP 2004 (A).

[159] UN ICT task force 2004.

[160] See also the mainstreaming checklist in Curtain 2004, pp. 50–54.

[161] See the remarks in the preface of this study by Professor MS Swaminathan, MSSRF Chairman, and Walter Fust, Director-General SDC, as well as reports on the MSSRF website: http://www.mssrf.org/.

[162] For example, the first article of the Declaration affirms "our common desire and commitment to build a people-centred, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and people to achieve their full potential in promoting their sustainable development and improving their quality of life." But in its first article, the Plan of Action limits this vision to "promoting the use of ICT- based products, networks, services and applications" to achieve development goals. Similarly, the targets contained in the Action Plan, to be attained by 2015, are almost all related only to ICT connectivity." In summary, most actors in the process will be able to find language that they can use as support for their agendas, and to leverage support from governments and international institutions, even though the documents are not binding […] the simple fact of having opened a space within the multilateral framework of the UN to initiate a debate on these issues is not a negligible step, at a time when there is an increasing trend towards the privatization of policy and the imposition on the rest of the world of agreements made among Northern governments." (Bruch, 2003).

[163] The website http://www.itu.int/wsis/gfc/index.html presents the process and documents originating from the Group of Friends to the Chair, leading up to the second phase of WSIS in Tunis. In the longer run, the power geography is likely to evolve. The recent agreement between the governments of India, Brazil and South Africa to co-operate on a broad range of issues after the failure of the Doha trade round at Cancun could be extended to include producing a global e-strategy. The three governments could work co-operatively with a number of leading ICT civil society organisations based in developing countries to formulate the global e-strategy (Currie 2003).

[164] A WSIS Task Force is exploring how to use existing financing mechanisms in a more effective way.

[165] Khor 2004.

[166] Böll Foundation 2004.

[167] Currie 2004. A similar concern was voiced in discussions among promoters of free software: "There was a clear message that the movement to them was about much more than software, and more about true sharing and partnerships, treating everyone as an equal, rather than one to be exploited in the name of market theories (and coincidentally making those on the top ridiculously rich and powerful", see http://wsis.ecommons.ca/node/view/156.

[168] See Annex 4.

[169] Schout 2004.

[170] Wong 2004.

[171] Batchelor 2003, p. 82.

[172] Carron 2004.

[173] Mathison 2004.

[174] World Bank 1997; Lal in: Weigel/Waldburger 2004; Aro and Campbell 2001.

[175] This is particularly relevant in the context of the WSIS where there seems to be a strategy divide between South and North. While developing countries may emphasise basic telecoms and access to the Internet, developed countries may be more concerned with privacy, broadband networks and intellectual property rights. This strategy divide needs to be taken into account when global priorities are created in international fora such as WSIS (Currie, 2004).

[176] See their webpage for more information: http://www.globalknowledge.org.

ADB	Asian Development Bank
APC	Association for Progressive Communications
APDIP	Asia Pacific Development Internet Programme
ATM	Automatic Teller Machine
BCB	Broadcast Band
CBO	Community Based Organisation
CMC	Community Multimedia Centre
DAC	Development Assistance Committee
DAI	Digital Access Index
EFA	Education for All
FOSS	Free/Open Source Software
FOSSFA	Free and Open Source Software Foundation for Africa
GATS	General Agreement on Trade in Services
GKP	Global Knowledge Partnership
HIPC	Heavily Indebted Poor Countries Initiative
i4d	Information for Development
ICT/s	Information and Communication Technology/ies
ICT4D	Information and Communication Technologies for Development
IDA	International Development Association
IOSN	International Open Source Network
ISP	Internet Service Provider
ITU	International Telecommunications Union
LAN	Local Area Network
LIACs	Low-Income Asian Countries
MDG	Millennium Development Goal
MSP	Multi-stakeholder Partnership
MSSRF	MS Swaminathan Research Foundation
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental Organisation
NICI	National Information and Communication Infrastructure
NSDF	New Sources for Development Financing
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
OKN	Open Knowledge Network
OWSA	OneWorld South Asia
POVNET	Network for Poverty Reduction
PRS	Poverty Reduction Strategy
SDC	Swiss Agency for Development and Cooperation
SEWA	Self Employed Women's Association
SMEs	Small and Medium Enterprises
SSA	Sub-Saharan Africa
SWAP	Sector Wide Approaches
TCP/IP	Transmission Control Protocol over Internet Protocol
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNGA	United Nations General Assembly
USF	Universal Service Fund
USO	Universal Service Obligation
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminal
WiFi	Wireless Fidelity
WSIS	World Summit of the Information Society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