DFID Department for International Development

The significance of information and communication technologies for reducing poverty

January 2002
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and Lindsay Wallace

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challenging ideas tackling poverty

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Studies are likely to take 3-4 months and will be carried out by teams seconded for the duration of each study. Each study team will include at least one individual external to DFID. A Steering Group will provide guidance and suggestions but the study teams will retain editorial independence over the report they present. The study teams will present their reports to the Permanent Secretary of DFID who, in consultation with Ministers, will decide how the reports should be followed up.

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Acronyms

HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
DFID	Department for International Development
DOT Force	Digital Opportunity Task Force
ICT	Information and Communication Technology
InfoDev	Information for Development Programme (World Bank)
UN	United Nations
UNDP	United Nations Development Programme

Contents

Summary

1 This study sets out, for DFID staff, the fundamental principles underlying a proposed approach to information and communication technologies (ICTs) and development, and draws from those principles a set of recommendations for DFID's priorities in this area. For the purposes of this study, ICTs are defined as technologies that facilitate communication and the processing and transmission of information by electronic means. This definition encompasses the full range of ICTs, from radio and television to telephones (fixed and mobile), computers and the Internet.

2 The role of ICTs in combating poverty and fostering sustainable development has been the subject of increasing debate and experimentation within the international community. The contrast between the complexity and expense of some of these technologies and the urgent, basic needs of the poor has led some to doubt whether ICTs should be a priority for DFID and other development agencies, or for developing countries themselves. Others have hailed these technologies as holding out great hope for developing countries, and have warned of a growing "digital divide" between rich and poor that must be narrowed by concerted international action.

3 The study concludes that access to ICTs should not be seen as an end in itself; the measure of success remains progress towards reaching the International Development Targets, rather than the spread of technology or bridging the digital divide. However, addressing the information and communication needs of the poor and creating information rich societies is an essential part of efforts to tackle poverty. Properly deployed, ICTs have enormous potential as tools to increase information flows and empower poor people. DFID and other development partners should work closely with developing countries to maximise the contribution of the full range of ICTs to achieving the International Development Targets.

4 The study recommends that, in its approach to ICT issues, DFID should:

- Mainstream attention to the information and communication aspects of poverty and appropriate use of ICTs in the development process
- Address information and communication issues in national poverty reduction strategies;
- Focus on creating the right enabling environment for the spread of ICTs, for entrepreneurship and innovation, and the free flow of information
- Help the poorest address their information and communication needs;
- Improve and focus the response of the international community;
- Strengthen developing countries' voice in international negotiations on ICT issues.

5 DFID should build on the progress already made to mainstream consideration of information and communication issues for poverty reduction and the appropriate use of the full range of relevant ICTs as tools in development. Advisory Departments will need to provide advice and raise awareness in DFID to help staff consider information and communications issues in their work. This process should include providing, for interested staff, concise, evidence-based material drawing on research and experience about what works and what does not. Advisory Departments are also likely to be the appropriate 'home' for funds for supporting multilateral initiatives related to ICTs.

6 DFID's country and regional departments should consider the recommendations for action with partners in developing countries and determine whether these are priorities for action by DFID in a particular country or region. Advisory Groups will need to work with staff responsible for interactions with other development agencies to promote greater focus and effectiveness within the international development community.

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Information, communication and poverty

needs of the poor people

overty has multiple and complex causes. The poor are not just deprived of basic resources. They lack ccess to information that is vital to their lives and livelihoods: information about market prices for he goods they produce, about health, about the structure and services of public institutions, and bout their rights. They lack political visibility and voice in the institutions and power relations that hape their lives. They lack access to knowledge, education and skills development that could improve heir livelihoods. They often lack access to markets and institutions, both governmental and societal, hat could provide them with needed resources and services. They lack access to, and information bout, income-earning opportunities.

<< ACCOUNTABILITY

1.1 **Poverty has multiple and complex causes. The poor are not just deprived of basic resources.** They lack access to information that is vital to their lives and livelihoods: information about market prices for the goods they produce, about health, about the structure and services of public institutions, and about their rights. They lack political visibility and voice in the institutions and power relations that shape their lives. They lack access to knowledge, education and skills development that could improve their livelihoods. They often lack access to markets and institutions, both governmental and societal, that could provide them with needed resources and services. They lack access to, and information about, income-earning opportunities.

1.2 **These causes are mutually reinforcing.** There is a strong correlation between access to education and knowledge, particularly for girls and women, and such key poverty indicators as infant mortality, family size, and women's health. In poor communities, the scarcity of trained local personnel (teachers, health workers, agricultural extension workers) and the impediments they face in accessing vital information and enhancing their skills, perpetuate the low educational attainment and poor health of these communities and makes them less able to cope with new challenges (such as AIDS, drought, or natural disasters).

1.3 **These deprivations are compounded at the societal level.** Structural impediments to economic growth, and the often highly unequal nature of the growth that does occur in developing countries, perpetuate poverty and inequality. Weak, inefficient or non-transparent markets and societal institutions, including governments, hinder economic growth, deter private sector innovation and investment, and weaken the ability of society to respond to the needs of the poor. Lack of efficient internal information and communication, even of basic

automation of tasks and records, makes government institutions slow and unresponsive, and shifts much of the burden of administrative transactions onto citizens. Unequal access to, and control of, information creates opportunities for corruption and for the capture of the state by special interests.

1.4 **The poor have information, knowledge and communication needs as do all people, yet they are often unable to address them.** Information, knowledge and communication are the lifeblood of economic and social interaction. However, given the multiple constraints they face, the poor are either unable to meet these needs, or must do so in costly ways that may perpetuate their disadvantaged position. A rural nurse spends a day, and the cost of a bus fare, simply to travel to the regional capital to schedule a training session, for which he or she will have to travel again. A farmer sells goods to middlemen at a low price because of lack of information about prices at market. A mother watches her child die from diarrhoea because she has not learned about oral rehydration therapy.

1.5 **The poor often lack an effective voice in the institutions, policies and processes that shape their lives.** Not only do the challenges of their daily lives often leave poor people little time and opportunity to assert their rights and interests, but they are deprived of instruments for effectively articulating and aggregating their interests, learning about their rights and their entitlements to government services, and pressuring government at all levels to be responsive to their needs and interests. Their lack of effective voice perpetuates inefficient, and sometimes corrupt, forms of governance and service delivery that keep the poor in a subordinate position. The knowledge and experience of poor people is often undervalued, and their perspectives on their needs and on solutions to their own problems are often ignored.

1.6 **Poor people will benefit from improved information flows throughout society which improve the effectiveness of government, markets and other institutions that affect them.** In societies where information flows widely and access to communication services is widespread, markets and government institutions are likely to become more efficient, transparent and accountable. The institutions and organisations that serve the poor and defend their interests can be more effective. Information and knowledge that are vital to the poor can be more easily and widely accessible. On the basis of that information, and with tools to communicate with others, the poor can make their own choices, voice their opinions, demand their rights and have more power over their own lives. Increasing communication and the flow of information and knowledge in ways

that benefit the poor is therefore a critical component of poverty reduction and sustainable development.

1.7 **Improving information flows and communication services is a necessary but not sufficient condition to eliminate poverty.** The quality, diversity and relevance of information are as important as the sheer volume of information available in a society, or the scale of its communication networks. And even relevant information might not of itself be sufficient. A rural farmer could have the latest crop prices, but still be unable to get a fair price for his or her crop because of unequal power relations with middle-men or poor road networks. Information and communication can be used as tools to exert power over others, encourage violence or perpetuate inequality or prejudice. While improving information and communication flows, and infrastructures, within a society might foster economic growth at a macro level, the benefits of that growth can be distributed very unequally within society. Therefore, addressing the information and communication needs of the poor must form one important component of a wider strategy to tackle poverty.

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Information and communication technologies and poverty: impacts and impediments

nformation and communication technologies (ICTs) have an important role to play in reducing poverty y improving flows of information and communications. Much of the recent attention to the role of CTs in development has focused on new technologies, such as the Internet and mobile phones. Yet he full range of ICTs is relevant to the fight against poverty. Radio and television are important nformation tools that are much more widespread in developing countries than telephones or the nternet. Print media is vital both to the spread of information and to fostering participation and iversity of views in society. Computers, even if not linked to global networks, are an important tool o increase efficiency in all sectors of society. New technologies do not change the fundamental role

technology | communication

<< IMPACTS & IMPEDIMENTS

<< diversity of views >>

2.1 **Information and communication technologies (ICTs) have an important role to play in reducing poverty by improving flows of information and communications.** Much of the recent attention to the role of ICTs in development has focused on new technologies, such as the Internet and mobile phones. Yet the full range of ICTs is relevant to the fight against poverty. Radio and television are important information tools that are much more widespread in developing countries than telephones or the Internet. Print media is vital both to the spread of information and to fostering participation and diversity of views in society. Computers, even if not linked to global networks, are an important tool to increase efficiency in all sectors of society. New technologies do not change the fundamental role of information and knowledge as drivers of development and poverty reduction, nor obscure the role of more established information and communication technologies. However, they create new opportunities to expand the availability, exchange and impact of information and knowledge (see box 2.a). Boxes 2.b-e provide examples of the role ICTs can play in achieving the International Development Targets.

2.2 **The potential impact of ICTs on poverty can be seen at the micro, intermediate and macro levels.** At the micro level, ICTs can be used by the poor directly to address their information needs, develop their own strategies and solutions for improving their lives, and articulate their interests in societal processes and institutions that affect them. Properly used and broadly deployed, ICTs can increase the access of the poor to information on market prices for their crops and other goods, to health and educational resources, to information about government services and their own rights as citizens. ICTs can increase the voice and participation of the poor in policymaking, and help them express their needs and priorities to decision-makers. ICTs also enable poor people to share knowledge and seek solutions to their problems.

Box 2.a

New information technologies: old wine in new bottles?

Access to well-established technologies such as telephones, radio and television can transform the lives of poor people. Much remains to be done to maximise access to and effective use of these technologies. The vast majority of the world's poor have never made a telephone call, and do not have access to a telephone. Restrictive broadcasting and media regulations can limit the spread and diversity of media. Many companies, government ministries and local and regional government offices in developing countries have still not effectively deployed computer technology, despite its potentially vast impact on efficiency and productivity .

When these older technologies have so much untapped potential, do new technologies such as the Internet, which have received so much attention, really offer anything new? The short answer is, when used appropriately, yes. The Internet dramatically reduces the costs of making information available to others and accessing global information and knowledge resources. It facilitates forms of "many-to-many" communication and action that bypass traditional power relations and hierarchies. One important impact of this has been to increase substantially the ability of civil society groups to network, share information worldwide and form coalitions.

However, it is worth noting that for many users, the greatest benefits of Internet access derive from doing things that were already possible in better, quicker or cheaper ways (e.g., e-mailing relatives or obtaining government documents from a website). In developing countries, e-mail remains by far the most common application of Internet access, partly because it is a powerful and convenient communication tool, but also because surfing the web may be very expensive or unreliable because of poor infrastructure. Satellites and other advanced technologies will also make new things possible. Recent innovations in hand-held devices, in mobile telephony, and in satellite communications might lead to new and cutting-edge information and communication tools specifically relevant to the needs of the poor. For example, in some developing countries, rural health workers are using small hand-held devices to record health data from their clients.

New ICTs do not replace more established technologies but offer powerful additions to the 'toolkit' available to address information and communication needs. Intelligent combination of different technologies – old and new – can be especially powerful. The challenge for developing countries is to ensure that old and new technologies are used in the most appropriate ways, to combat poverty and empower the poor.

Box 2.b The International Development Targets and ICTs: Income poverty

Target

- Reduce the proportion of people living in extreme poverty by half between 1990 and 2015

Role of ICTs (examples)

- Increase access to market information and lower transaction costs for poor farmers and traders
- Increase efficiency, competitiveness and market access of developing country firms
- Enhance ability of developing countries to participate in global economy and to exploit comparative advantage in factor costs (particularly skilled labour)

2.3 **At the intermediate level, ICTs can help a range of intermediary institutions and agents work more effectively and be more responsive to the needs of the poor.** Health workers can access the latest information, get assistance with diagnosis, and more effectively target interventions and resources with the help of ICTs. Agricultural extension agents can more effectively access and share local and global knowledge on crops, pest management, irrigation and other aspects of small-scale agriculture relevant to the needs of the poorest. Teachers can access and share new training materials, continue their own training, and expose their students to the ideas and experiences of children elsewhere. Local government officials can get better information about the needs of the poor, communicate those needs more effectively to other levels of government, and be held more accountable by the local people they serve. ICTs can help local businesses be more productive, and more responsive to their customers. They can help local non-governmental organisations and community groups to mobilise more effectively, articulate the interests of the poor at the local level and share information and strategies with similar groups elsewhere.

Box 2.c The International Development Targets and ICTs: Health

Target

- Reduce infant and child mortality rates by two-thirds between 1990 and 2015
- Reduce maternal mortality rates by three-quarters between 1990 and 2015
- Provide access to all who need reproductive health services by 2015

Role of ICTs (examples)

- Enhance delivery of basic and in-service training for health workers
- Increase monitoring and information-sharing on disease and famine
- Increase access of rural care-givers to specialist support and remote diagnosis
- Increase access to reproductive health information, including information on AIDS prevention, through locally-appropriate content in local languages

2.4 **At the macro level, ICTs can help foster more efficient and transparent markets, more participatory processes of governance, and new forms of economic and social innovation that benefit the poor.** Broad and efficient information flows, and robust communications infrastructure, are vital components of well-functioning markets. Weak information flows and poor communications infrastructure constitute one of the major impediments to sustainable economic growth in developing countries. Lack of information, and thus lack of transparency, weaken the responsiveness and accountability of government institutions and create an environment where corruption can flourish. Conversely, when the poor have information about the programmes and resources of government, their rights as citizens, and the match between the declared objectives of government and the actual delivery of services and resources, they have greater opportunities to exert pressure and hold government accountable.

2.5 **ICTs are a valuable tool for information sharing and awareness raising within the wider development community, to combat poverty and advance the International Development Targets.** Multilateral and bilateral development agencies can work more effectively with each other and with their partners in developing countries. A broader range of views and voices from developing countries can be brought into the international debate on poverty and development, including the voices of the poor. NGOs and civil society groups can network world-wide and collaborate more effectively. Citizens in developed countries can be more effectively exposed to the realities of poverty and the importance of a concerted international response.

Box 2.d

The International Development Targets and ICTs: Sustainable Development

Target

- Implement national strategies for sustainable development by 2005 so as to reverse the loss of environmental resources by 2015

Role of ICTs (examples)

- Remote sensing technologies and communications networks permit more effective monitoring, resource management, mitigation of environmental risks
- Increase access to/awareness of sustainable development strategies, in areas such as agriculture, sanitation and water management, mining, etc.
- Greater transparency and monitoring of environmental abuses/enforcement of environmental regulations
- Facilitate knowledge exchange and networking among policy makers, practitioners and advocacy groups

Box 2.e

The International Development Targets and ICTs: Education

Target

- Enrol all children in primary school by 2015
- Make progress toward gender equality and empowering women by eliminating gender disparities in primary and secondary education by 2005

Role of ICTs (examples)

- Increase supply of trained teachers through ICT-enhanced and distance training of teachers, in-service support for teachers, and networks that link teachers to their colleagues both in-country and internationally
- Improve the efficiency and effectiveness of education ministries and related bodies through strategic application of technologies and ICT-enabled skill development and in-service support
- Broaden availability of quality educational materials/resources
- Deliver educational and literacy programmes specifically targeted to poor girls & women using appropriate technologies
- Influence public opinion on gender equality through information/communication programmes using a range of ICTs

2.6 **There are, however, some limitations and impediments which need to be addressed to ensure that ICTs have a positive impact on poverty.** At the macro level, the unequal reach of these new tools and networks could exacerbate inequality. There is a risk that the rich will have greater access to ICTs than the poor who will be excluded from the benefits of the 'knowledge economy'. This could perpetuate or increase existing disparities of income, knowledge, skills and measures of social development. This heightens the importance of positive measures to meet the information and communication needs of the poorest and assure that these technologies are deployed in a way that expands the information available to the poor, that increases their opportunities for effective voice in the decisions and institutions that affect their lives, and that increases the accountability and transparency of government institutions at all levels.

2.7 **At the micro level, there are impediments to effective use of ICTs by and for the poor.** Some ICTs, such as radio, can be widely accessed without specialist skills except knowledge of the language being spoken. Others, such as use of computers or the Internet, require skills both from users and for the maintenance of decentralised networks and the adaptation of software to local uses. Illiteracy can be a significant impediment to the use of many ICTs (although ICTs can also be used in creative ways to combat illiteracy, such as in the subtitling of television). Impediments to poor people benefiting from ICTs due to lack of skills can be reduced both by education and training to increase individuals' skills and by developing applications which are adapted to the needs of low skilled or illiterate users.

2.8 **Poor and disadvantaged groups, particularly women, may face special constraints in accessing ICTs and using them for their specific needs.** Women tend to be poorer, face greater social constraints and are less likely to be educated or literate than men. They are likely to use ICTs in different ways, and have different information requirements, to men. Women are less likely to be able to pay for access to ICTs, either because of an absolute lack of funds or because they lack control of household expenditure. Constraints on women's time or their movement outside of the home can also reduce their ability to access technologies. Similar constraints apply to other population groups who for historical, ethnic or cultural reasons are particularly marginalised or disadvantaged.

2.9 **ICTs are only helpful if users are able to make use of the information and communication opportunities they create.** It is important not only to assure that relevant information is available to the poor in their own languages, but also that

ICTs foster the availability of a variety of sources of information, and diverse approaches to the challenges facing the poor, so that they can decide for themselves how to meet their needs. Creating information-rich environments means not only assuring that information is widely available, but assuring that multiple voices (including the voices of the poor and traditionally disadvantaged groups) are heard.

2.10 **There are barriers to adaptation and innovation of applications of ICTs and content such as broadcast programmes.** Radio and television programmes, telephone based information services and computers are all highly adaptable to end users. In the right policy and regulatory environment, people tend to develop specialised products to meet local needs. However, in many cases, there are barriers to local innovation such as government monopoly of radio broadcasting. Under liberalised broadcasting regimes private broadcasters may be reluctant to invest in producing programming content relevant to poor people because of lack of interest to advertisers. In some countries, linguistic or other causes of fragmented markets reduces the commercial incentives for production of software applications or radio and television programmes in local languages. The rapid spread of open source software offers considerable potential to reduce the cost of software for users in developing countries and allow greater adaptation of software to needs in developing countries.

2.11 **Poor people depend on information and knowledge networks that they can trust.** Until they come to trust new sources of information poor people may not switch quickly to new technologies even if these allow quicker access to information. This is particularly relevant in countries where information is not freely available and where the media is controlled or heavily influenced by the state or concentrated in the hands of a small elite. These changes can, in some ways, be helped by ICTs, particularly given their power to bypass or provide alternatives to traditional lines of information and communication. However, the provision of ICTs neither accomplishes by itself, nor removes the need for, those deeper changes.

2.12 **The impediments to broad deployment of ICTs as tools of poverty reduction are not unique to ICTs as a sector.** They are impediments caused by poor governance, inadequate education and training, and poor enabling environments. These are issues that all countries have struggled to address for some time. ICTs can contribute to addressing these issues, but they do not replace them, and the international community's response to the ICT challenge must be organised in light of this principle.

3>

Meeting the challenge

he most important role in creating information-rich environments in developing countries, and making
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<< INFORMATION >>

challenge

3.1 **The most important role in creating information-rich environments in developing countries, and making ICTs effective tools for combating poverty and empowering the poor, belongs to developing countries themselves.** Developing country governments need to create enabling environments that will foster the free flow of information, the growth of information and communications networks, the widespread adoption of locally-appropriate ICT tools, and the empowerment of the poor and disadvantaged through the use of these tools and networks. They need to do so in close partnership with their citizens, with the private sector, with civil society, and most importantly with the poor themselves. In this sense, this challenge is an integral part of the broader challenge of fostering participatory and sustainable approaches to development. A number of developing country governments are already making efforts to realise the development benefits afforded by ICTs, either as engines of economic growth and international competitiveness or as tools of realising the International Development Targets in their country (See Annex 6 for some examples).

3.2 **An appropriate enabling environment for information and communication technologies, including effective regulatory mechanisms, is essential.** Demand for access to information and communication services in developing countries is substantial, even among the poor, and much of this demand is currently not met. There is considerable evidence that the poor are willing to spend some of their resources on information and communications services, if they are available, because they otherwise spend scarce resources (time, money or both) on meeting their information and communications needs in less efficient ways. Experience from the telecommunications sector around the world suggests that moving from public sector monopoly provision to a well regulated, competitive private market leads to rapid improvements in quality, cost and access to services. Through an

appropriate mix of market incentives and government efforts, access can be extended to the poorest and most remote communities.

3.3 **It is equally important that developing country governments implement policies that foster private sector investment and innovation more broadly.** For example, small and medium enterprises are a fundamental engine of job creation and economic growth, and they often serve as early adopters of innovation in business technologies and processes. Yet in many countries, there are enormous regulatory and financial barriers to enterprise formation, which hinder innovation and growth. The economic benefits of improved communication and information flows will be much greater when the enabling environment supports innovation and enterprise creation. In addition, micro, small and medium enterprises are vital providers of many services to poor people, including those related to information and communication. An effective and dynamic private sector will lead to improved services and cheaper goods for poor people.

3.4 **A third important element of the enabling environment is implementing policies to allow for the free flow of information, and permit and encourage diversity in broadcast and print media.** In many countries, restrictive broadcast regimes limit the variety of opinions and information that can be heard by the poor. Governments need to allow and encourage free expression and an independent media with diverse media ownership. For example, making radio licences available for local and community radio stations can increase options for making broadcasting more appropriate to the needs of communities. Highly concentrated ownership of media outlets can also reduce diversity of information sources and limit the production of local content. Government policies to promote transparency and accountability such as freedom of information legislation can also be important.

3.5 **Promoting ICT access for the poor, and particularly those in rural and remote areas, requires efforts by government, the private sector, and other partners.** The rural poor are typically the last to have access to these services and infrastructures because of technical and economic impediments. The challenge for developing country governments is to differentiate between those access impediments that could be addressed by private sector or community-led initiatives, given the right policy and regulatory measures, and those that (because of the combination of poverty and isolation) require the commitment of government resources, at least for a transitional period. For example, universal

access to telecommunications services – usually defined as access to a payphone within walking distance – is seen by many governments as a public policy goal. In most countries, the majority of the population can be served on a commercial basis, but government may need to take proactive steps to ensure services are available for the poorest and those in very remote areas. Chile conducted a very successful competition for subsidised private sector provision in remote areas which resulted in contracts being let at a lower than expected cost to the government (see annex 6 for more details).

4>

The role of the international community

the international community

projects

he international community has made a considerable effort in the past few years to understand the ole of ICTs in development and to mobilise their support for developing countries on these issues. hrough research, pilot projects, international dialogue, innovation funds and the increased ntegration of these technologies into development projects in all sectors, development agencies have ought to explore the potential of ICTs. They have also worked closely with developing country overnments, NGOs and the private sector to understand the relative roles of each sector, explore ew forms of partnership, and find the proper balance between private and public initiative in xpanding access to the ICTs, particularly for the poor.

4.1 **The international community has made a considerable effort in the past few years to understand the role of ICTs in development and to mobilise their support for developing countries on these issues.** Through research, pilot projects, international dialogue, innovation funds and the increased integration of these technologies into development projects in all sectors, development agencies have sought to explore the potential of ICTs. They have also worked closely with developing country governments, NGOs and the private sector to understand the relative roles of each sector, explore new forms of partnership, and find the proper balance between private and public initiative in expanding access to the ICTs, particularly for the poor.

4.2 **It is important that donors and governments resist the temptation to try to pick technologies and decide which are most appropriate for the poor.** The full range of technologies has applications at all levels of society. In areas where a range of services are available based on different technologies, the poor will choose the most appropriate and affordable services for their needs.

4.3 **DFID itself has given increased attention to the role of ICTs, with a particular emphasis on their potential to combat poverty and achieve the International Development Targets.** The White Paper on "Making Globalisation work for the Poor" discusses in detail the potential of new technologies to help realise the International Development Targets and empower the poor. Many of the DFID Target Strategy Papers, which define DFID's approach to working towards specific International Development Targets, cite the role that ICTs can play. A number of DFID departments have been working to mainstream ICTs as a tool of their work. The UK Government, represented by DFID, has been an active member in a range of international efforts devoted to

ICT and development, including the recent G8 Digital Opportunity Task Force ("DOT Force"), where the UK is actively involved in follow-up activities on the DOT Force Action Plan. DFID has sponsored, through its own Knowledge and Research programmes or through multilateral funds such as infoDev and the Public-Private Infrastructure Advisory Facility, a great deal of research, pilot projects and technical assistance on a wide range of ICT issues. Annex 3 has more details of DFID work on ICT, including ICT-related programmes.

4.4 **While these efforts by the international community have been valuable, they have suffered from several weaknesses.** There is considerable overlap among initiatives, and coordination and information sharing are often weak. There has been a tendency among development agencies to "rush to the high end", focusing on Internet access in environments where even more basic ICTs are still in short supply. Some development agency-led ICT projects have failed to take into account the different ways in which different cultures and institutional environments use and share information. Most prominently, many agencies have focused on a "digital divide" that needs to be "bridged", which, while valuable in calling attention to the urgency of the challenge and the potential of new technologies, has oversimplified the long-standing and complex challenges of addressing the root causes of poverty (see box 4.a).

Box 4.a **"Bridging the Digital Divide": Strategy or Sideshow?**

Much attention has been focused in the past few years on the threats from and policy responses to the growing "digital divide" within and between nations. Differential access to, and unequal ability to use, the latest information and communication technologies, it is argued, could make developing countries even less competitive in the global economy, exacerbate inequality within countries, and deprive the poor of opportunities to improve their lives. Bridging the digital divide is, in this view, an urgent priority for the international community and for developing country governments.

At first glance, it seems difficult to argue with this approach. ICTs are powerful tools of economic, social and political empowerment, and their unequal distribution would seem to risk deepening inequality and perpetuating poverty. However, as the G8 DOT Force report points out, the digital divide is a symptom of much more profound and long-standing economic and social divides within and between societies. ICTs, appropriately used, can be tools to combat those deeper divides, but they are just tools. Efforts to "bridge the digital divide" and increase access to ICTs, unless clearly rooted in, and subordinate to, a broader strategy to combat poverty, risk diverting attention and resources from addressing the underlying causes of poverty.

4.5 **If the international community is to help developing countries mainstream ICTs as tools of poverty reduction and the International Development Targets, it must organise itself more effectively to do so.** This does not mean new ICT initiatives at an international level. On the contrary, it means clarity on objectives, priorities and division of labour. It means focusing ICT efforts on their role in helping to achieve the International Development Targets and not on "bridging digital divides". It means sharing much more effectively and widely the lessons learned from experience thus far. It means being selective and strategic. Most importantly, it means focusing on enabling broader processes of development, not focusing on the deployment of particular ICTs.

5>

Recommendations for DFID

he fundamental conclusions of this study are that information, communication and knowledge are ritical elements of poverty reduction and meeting the International Development Targets. ICTs, used ppropriately, can be effective tools to advance DFID's mission. Our recommendations focus on ways hat DFID, by building on existing activities, can help to mainstream ICTs in the fight against poverty, eep the donor community focused on the International Development Targets in its approach to ICTs, nd creatively leverage the work of public, private and non-profit sectors to maximise pro-poor ntrepreneurship, investment and best practice in the use of ICTs.

Meeting the International Development Targets

ENTREPRENEURSHIP >> INVESTMENT

mainstream

<< DFID's mission >>

5.1 **The fundamental conclusions of this study are that information, communication and knowledge are critical elements of poverty reduction and meeting the International Development Targets. ICTs, used appropriately, can be effective tools to advance DFID's mission.** Our recommendations focus on ways that DFID, by building on existing activities, can help to mainstream ICTs in the fight against poverty, keep the donor community focused on the International Development Targets in its approach to ICTs, and creatively leverage the work of public, private and non-profit sectors to maximise pro-poor entrepreneurship, investment and best practice in the use of ICTs.

Box 5.a

Key messages from this report

1. Creating information rich societies is a key element of poverty reduction and sustainable development
2. ICTs can be effective tools to tackle poverty but spread of technology should not be an objective in itself
   (poverty is the problem, not a digital divide)
3. No single technology is a magic bullet or suitable to all needs - each ICT (old and new) will be appropriate in different circumstances
4. It is important to mainstream the appropriate application of ICTs as tools in efforts to reduce poverty.
5. The enabling environment is crucial to providing information and communication services, innovation and entrepreneurship and free flow of information
6. Giving voice to the poor and helping them apply their knowledge is a key element of combating poverty
7. Education and skills are key enablers of the effective use of ICTs
8. Addressing the needs of the poor and most marginalised, particularly women and girls is vital

5.2 Based on these principles, DFID should:

Recommendation 1: Mainstream through its work attention to the information and communication aspects of poverty and appropriate application of ICTs as tools to combat poverty

Recommendation 2: Encourage partners to address information and communication issues in national poverty reduction strategies.
DFID should consider the linkages between information and communication flows and poverty reduction strategies and policies with our development partners. This would have three components:

- Stress the importance of creating information-rich environments as part of the national poverty reduction process. Liberalised and diverse broadcast and press regimes, policies that encourage entrepreneurship, and support for multiple voices will increase the wealth and flow of information in a country and lead to increased poverty reduction;
- Promote the integration and subordination of national ICT strategies (or "e-strategies") to national poverty reduction strategies. DFID should discourage the development of separate "stand alone" national ICT strategies;
- Build capacity in developing country partners (both governments and non-governmental organisations and intermediaries) to engage substantively on ICT related issues as part of the process of developing and implementing national poverty reduction strategies. Support could include training, South-South dialogue and providing information resources.

Recommendation 3: Get the enabling environment right
DFID should help developing country governments to build an enabling environment conducive to increased information and communication flows. Specific areas to be addressed include:

- Creating well regulated, liberalised and diverse telecoms and broadcasting regimes, including tackling market failures and seeking to maximise market coverage to poor and isolated communities;
- Supporting measures to protect and promote the free flow of information;
- Promoting a local businesses environment conducive to investment, innovation and entrepreneurship. This is not only vital for encouraging local innovation in services and ICT related enterprises but also for assuring the broader spread and benefits of ICTs within the country.

Recommendation 4: Reach out to the poorest

DFID should work with development partners to address the information and communication needs of the poorest and most marginalised who are least likely to be able to access information and communication services. This would include encouraging intermediaries such as NGOs, educators, or local entrepreneurs to act as a conduit for information available via technologies such as the Internet, and the poor, through translation or more traditional means of communication.

Recommendation 5: Help improve and focus the response of the international system

DFID should promote greater co-ordination, effectiveness and a clear division of labour amongst multilateral agencies who deal with ICT issues. Over the next 12-18 months, DFID should push for agreement on clear roles and responsibilities for the various multilateral initiatives and organisations addressing ICT issues (eg. DOT Force, Global Knowledge Partnership, infoDev, The Public-Private Infrastructure Advisory Facility, the Global Development Gateway, the International Telecommunications Union, UNDP, the UN ICT Task Force, other UN agencies and the Development Banks) in order to minimise further duplication of efforts. To that end DFID should:

- Call on the multilateral agencies to sign up to a joint agreement outlining roles and responsibilities in ICT issues;
- Discourage the development of new multilateral institutions or fora on ICTs. Wherever possible, DFID should advocate that this issue should be addressed by existing institutions;
- Promote common research agendas and the sharing of project results throughout the development community on ICTs. This initiative should begin with an understanding of the strengths and weaknesses of previous attempts to share information;
- Lead by example though continued strategic cooperation initiatives with a manageable number of bilateral partners that energise and provide examples and motivation to larger multilateral initiatives.

Recommendation 6: Strengthen developing country voice

DFID should work to increase the capacity of developing country partners to engage substantively on ICT issues in international negotiations. In a similar way to recent approaches to trade policy capacity building, the international community should provide support for training, South-South dialogue and information resources for developing country decision makers and encourage their participation in international regulatory, standard setting and trade negotiations on ICT issues.

Implications of recommendations for DFID

5.3 DFID should build on the progress already made to mainstream consideration of information and communication issues for poverty reduction and the appropriate use of the full range of relevant ICTs as tools in development. Advisory Departments will need to provide advice and raise awareness in DFID, to help staff consider information and communications issues in their work. This process should include providing, for interested staff, concise, evidence-based material drawing on research and experience about what works and what does not. Advisory Departments are also likely to be the appropriate 'home' for funds for supporting multilateral initiatives related to ICTs.

5.4 DFID's country and regional departments should consider the recommendations for action with partners in developing countries and determine whether these are priorities for action by DFID in a particular country or region. Advisory Groups will need to work with staff responsible for interactions with other development agencies to promote greater focus and effectiveness within the international development community.

A>

Annexes

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Annex 2: Terms of reference

Programme for policy studies - Information and Communications Technologies (ICT) Study

This study is the first by the Programme for Policy Studies and will run from late June until the end of September, when the study team will present their final report to Sir John Vereker. The core team consists of:

- Kerry McNamara (seconded from World Bank)
- Lindsay Wallace (West and North Africa)
- Phil Marker (Development Policy)
- Temp (to be confirmed) - Administrative Support

The core team may call on others to carry out discrete tasks during the study. A Steering Group chaired by Richard Manning will provide oversight and guidance to the team (See Annex 6 for a list of Steering Group Members).

Terms of Reference

1 To consider, in broad terms, the significance of Information and Communication Technologies (ICTs) for achieving poverty reduction and DFID's Public Service Agreement and International Development Targets;

2 To assess the roles of public and private sectors and civil society in the field of ICTs. In this context, to consider in broad terms the current practices of DFID and other development agencies in harnessing ICTs for poverty reduction and the lessons learned.

3 In the light of this, to consider

- potential priority areas of DFID and
- the adequacy of our present arrangements for delivering advice on ICT issues in the above categories

4 To recommend:

- possible future arrangements reflecting the above analysis (including consideration of running cost and programme cost implications of any proposals)
- the possible role of country programmes and the case (if any) for continued central funding of ICT initiatives by DFID.

Annex 3: DFID activities related to ICTs

1 DFID has been involved in programmes related to radio, television and the use of media in development for many years. In many programmes ICTs are, rightly, fully integrated as tools in a broader approach to achieving a specific development objective. For example. information technologies have been a component in a number of institutional reform programmes. Table 1 in the second part of this annex lists DFID programmes with commitment of more than £100,000 and totalling some £47 million, as well as knowledge and research. There were also a further 34 programmes with a commitment of less than £100,000 representing a total commitment of £1.2 million. The list is not exhaustive and there will be many other DFID programmes which make use of ICTs that were not captured by our search. However, in common with other development agencies, DFID has developed a few, newer programmes, which aim to leverage a broader set of benefits for poor people from the use of ICTs.

2 In 1999, Infrastructure and Urban Development Department (IUDD), took steps to strengthen DFID's capacity to handle ICT issues and address the challenges and opportunities presented by new ICT technologies. IUDD now have three advisers working on ICT issues (Dick Jones, David Woolnough and Keith Yeomans). IUDD also created the ICT Group with the goal of enhancing the effectiveness of DFID to facilitate an increased availability of ICT to poor people, to improve their access to health, education and livelihood opportunities. The Group consists of staff working on, or interested in, ICT issues from advisory groups, IFID and geographical desks. The ICT group acts as a focal point for DFID's activities in this area and a forum for exchanging information and co-ordinating activities.

3 DFID's approach to ICTs, focused on their potential as a tool to reduce poverty, was set out the 2000 White Paper on Making Globalisation Work for the Poor. The White Paper sets out the principal challenges for the international community and developing country governments of using ICTs as a tool for poverty reduction. This report endorses and expands this approach. The emphasis on ICT as a tool is reflected in a number of Target Strategy Papers which set out how ICTs can help tackle different aspects of poverty.

4 DFID has made considerable progress with putting into practice the strategic approach set out in the White Paper, particularly through collaborative working with the Dutch to develop a common understanding on the issue of ICTs for development. DFID and the Dutch DGIS have jointly developed the 'Bridging the Digital Divide' programme which aims to: 'identify and help remove some of the key barriers and develop genuine opportunities for poverty-focused ICT for development'. The programme includes enabling agreements to help provide expertise to country programmes and other staff on ICT issues.

5 DFID has also been an active player in international fora dealing with ICTs such as the G8 Digital Opportunities Task Force (DOT Force), infoDev and discussions on the Development Gateway. We are supporting multilateral initiatives including Infodev, the Public-Private Infrastructure Advisory Facility and have been working with others to develop the Africa Private Infrastructure Financing Facility.

6 The Prime Minister's Imfundo initiative, based in DFID, is developing partnerships with the private sector to use ICTs to improve training and management of teachers in sub-Saharan Africa. The Imfundo Team has developed a Resource Bank which draws together skills and contributions from its partners to help Africa governments achieve the international development targets of gender equality and universal primary education. Imfundo is also developing a Knowledge Bank to share information about the use of ICT to enhance education across Africa.

7 An increasing number of staff in different parts of DFID are working on ICT issues. Social Development Department have been engaged on media and communication issues for many years and have produced several papers on information and communications and poverty, and ICTs, and Governance Department are preparing a paper on e-Governance (see annex 1 for references). Education, Enterprise Development and Health and Population Departments have also been working on these issues.

8 DFID has also developed its engagement with other Government Departments who lead on policies relevant to ICTs and poverty reduction. The Foreign and Commonwealth Office are represented on the DFID ICT Group which provides the basis for excellent relations on these issues. The Department for Trade and Industry (DTI) leads on policy discussions at the International Telecommunications Union, Organisation for Economic Co-operation and Development and the World Trade Organisation on ICT issues. The fora discuss trade, standard-setting and international regulatory issues which have an impact on developing countries. The DTI also represents the International Radiocommunciations Agency internationally. The Department for Culture, Media and Sport leads on international broadcasting issues, primarily focused on Europe.

Table 1: DFID programmes with a commitment of over £100,000 focused on or using ICTs

Full Title	Purpose	Country	Department implementing project	Start Date	End Date	Commitment (£)
Reforms in Budgeting and Expenditure Control, Bangladesh	To improve Government's financial management capacity through adopting modern budgeting and expenditures management and control techniques	Bangladesh	DFID Bangladesh	01/07/94	01/10/01	£10,464,000
Bridging the Digital Divide programme	To proactively address some of the key barriers and develop genuine opportunities for poverty focused ICT Development.	N.S.C.	Social Development, Infrastructure & Urban Development	01/12/00	01/11/03	£7,100,000
Imfundo: Partnership for IT in Education	To support teacher training and education sector management in sub-Saharan Africa using ICT and partnerships with business.	Africa Regional	Africa Policy and Economics	01/04/01	01/03/06	£7,000,000
Longer term response to floods – Reconstruction	To reconstruct communication links along the national highway in order to restore economic activity and enable people to sustain their livelihoods.	Mozambique	DFID Central Africa	05/04/01	01/12/02	£6,900,000
IN-Service Training Radio Learning Programme	To improve the quality of teaching in primary schools through the open and distance radio learning programmes especially in Kwa Zulu Natal, Eastern Cape and Northern Province	South Africa, Republic of	DFID Southern Africa	10/08/01	01/07/04	£5,050,408
Marshall Plan of the Mind Phase IV	To establish an independent public service Radio Production Foundation (RPF) producing high quality programmes for a mass audience	Russian Federation	East Europe and Central Asia	01/04/98	17/05/01	£2,220,000
Community Literacy Project	Enhanced literacy practices, communications and access to information in community interest groups.	Nepal	DFID Bangladesh	01/02/98	01/03/02	£1,900,000
Support to Soul City	Raise awareness and understanding of desired behaviours: Specifically including behaviours around safe sex in personal relationships.	South Africa, Republic of	DFID Southern Africa	01/0/00	01/01/02	£1,700,000
Bangladesh Rural Broadcasting	To increase the contribution of rural broadcasting to agricultural knowledge amongst all categories of farmers	Bangladesh	Bangladesh	01/05/98	01/06/01	£837,000
Media Development project (Training component)	To assist Government of Sierra Leone's development of broadcasting policy and general legislative framework for Sierra Leone Media (professional, management and technical areas in an independent radio, television, the Sierra Leone News Agency (SLENA)	Sierra Leone	West and North Africa	21/05/01	01/04/03	£800,000

Note: this is created from a keyword search of DFID's database and will not contain every programme which uses ICTs

continued >>

Table 1 continued

Full Title	Purpose	Country	Department implementing project	Start Date	End Date	Commitment (£)
Natural Resources Information System (NARSIS) and RLD Communications Programme	To establish improved communications which allow better uptake and promote lesson-learning where these include a major natural resources-based component or adopt livelihoods principles, and provide an assimilation of NR Knowledge	N.S.C.	Rural Livelihoods	01/04/95	01/07/02	£800,000
Communal Information Technology Project	To introduce marketable IT skills into the local economy and community at Welkom, free state.	South Africa, Republic of	DFID Southern Africa	01/06/96	01/04/01	£762,718
Support to ORINFOR (state media of Rwanda)	To develop a fair, accurate, informative and educational broadcasting organisation in Rwanda.	Rwanda	Africa Greater Horn	01/04/99	01/03/02	£728,119
Preparation and Implementation of a Participatory Sustainable Land Use Plan For The Semipalatinsk Test Site	To put in place a participatory land use planning process, providing accurate and accessible information to communities, industry and decision makers to allow consensual planning that ensures radiologically acceptable and sustainable land use in the Polyg	Republic of Kazakhstan	East Europe and Central Asia	01/02/00	01/04/01	£599,976
Moldova: Social Protection Communications Unit Project (MSPCUP)	Social Insurance system stakeholders to be better informed about reform, more satisfied with policies and services and acting in a way that is supportive of the overall reform process.	Republic of Moldova	East Europe and Central Asia	24/08/00	01/07/04	£568,831
Health Communications Partnership - Operational Plans for the Networking and Learning Programme	To draw up an Operational Plan and identify a work programme for the first 12 months of the partnership between DFID and the UK health communications community.	N.S.C.	Health and Population	01/03/00	01/09/03	£522,430
Straight Talk Foundation: Communication for better adolescent health.	Preparation for a new project which aims to fight aids through behavioural change. Reduce risk and improve outcomes for young Ugandans by providing them with facts, values as well as skills and outlets for self expression via communication projects.	Uganda	DFID Eastern Africa	01/03/98	01/03/01	£510,000
Core Contributions to INFODEV	Support for a World Bank programme to promote privatisation and use of telecommunications infrastructure in the developing world to improve national competiveness, technological competence and education.	N.S.C.	Infrastructure & Urban Development DFID	01/04/96	01/03/01	£507,400

continued >>

Table 1 continued

Full Title	Purpose	Country	Department implementing project	Start Date	End Date	Commitment (£)
Information Sharing For Development	To create virtual communities on the Internet that bring together the best information from the leading actors in sustainable development to provide a one-stop-shop for those who can most benefit from this shared knowledge.	Zambia	Civil Society Unit	01/04/99	01/03/03	£490,868
Radio and Television Support to Kosovo	To develop the public service broadcasting in Kosovo.	Fed Rep of Yugoslavia	Central and South Eastern Europe	01/07/00	01/03/02	£490,000
DFID/HPD and ID21 (IDS) Networking and Evaluation Services	To develop and deliver health communication networking and evaluation services.	N.S.C.	Health and Population	01/04/00	01/03/03	£460,339
Agricultural Information Centre Rural Radio Research Project : Phase II	To enhance rural livelihoods, especially for women, by providing Agricultural and other information through high quality radio programmes in local languages/ dialects.	Kenya	DFID Eastern Africa	27/10/94	01/12/01	£434,000
Rwanda Revenue Authority Local Costs	To cover local costs incurred by GoR on Computerisation of RRA.	Rwanda	Africa Greater Horn	09/04/01	01/03/02	£400,000
Ulwazi Educational Radio Project	To improve the quality and coverage of ABET through the use of radio programmes.	South Africa,	DFID Southern Africa	28/03/96	01/03/01	£382,000
Initiative on Pastoralists and Policy in the Horn of Africa	To implement a new communication initiative for pastoralists, which will assist groups within the sector to develop and take forward strategies for greater representation and communication.	Republic of Ethiopia	Africa Greater Horn	01/07/01	01/01/02	£332,283
Broadcasting of a soap opera through Radio Tirana, focusing on contemporary social issues	To tackle the problems of conflict and social division that have affected Albania since the collapse of Communism, particularly the tensions exacerbated by events in and around Kosovo.	Albania	Central and South Eastern Europe	01/07/99	01/04/02	£329,000
Communication for sustainable urban livelihoods	To increase the effectiveness of information exchange and communication between municipal level authorities and poor communities, devising strategies to improve communication in support of sustainable urban livelihoods for poor men and women.	N.S.C.	Infrastructure & Urban Development	01/03/02	01/06/03	£328,993
Panos Institute ID21 Development Research Project	The project is a continuation and expansion of Panos' component of the existing ID21 project, aimed at popularising and disseminating development research through radio and print media in developing countries	N.S.C.	Economics Statistics and Institutions Division	02/03/01	01/09/03	£306,802

continued >>

Table 1 continued

Full Title	Purpose	Country	Department implementing project	Start Date	End Date	Commitment (£)
Consumers and Public Utilities in Latin America - Central America component	To empower consumer organizations in Central America to become effective advocates on issues related to telecommunications, energy and water utilities.	America Regional	Latin America, Caribbean and Atlantic	01/03/00	01/02/03	£300,000
Global IDP Database, developed by the Norwegian Refugee Council	To develop a regularly updated internet-hosted database of information, news, facts, figures and trends relating to internally displaced persons.	N.S.C.	Conflict and Humanitarian Affairs	01/11/97	01/04/02	£267,986
Post Peace Radio Equip	Installation and survey of 10kw high frequency transmitter - short-wave and provision of VHF/HF equipment.	Sierra Leone	West and North Africa	30/05/00	01/10/01	£256,000
Truth Talking: Promoting Civil Society Through Electronic Media	The aim is to give a greater voice to, and increase the participation of, poor/socially marginalized people through the electronic media (TV and Internet) and public fora such as debates, hearings, community and educational video screenings, etc.	Asia Regional	Civil Society Unit	01/12/00	01/03/03	£250,000
CSCF 97 Healthlink Worldwide - Action, Communication, and Reflection : Strengthening HIV/AIDS Prevention and Care Initiatives in Latin America and The Caribbean	To increase the responsiveness of HIV and sexual health interventions in Latin America and the Caribbean to the needs of affected and vulnerable communities.	Latin America Regional	Civil Society Unit	01/04/01	01/03/04	£248,981
Emergency Telecommunications	To upgrade and enhance the island's early warning and response mechanisms.	Montserrat	Overseas Territories Unit	01/07/01	01/11/01	£240,164
Plan International: Regional Radio Initiative, Western Africa - CSCF 39	To achieve an understanding of and support for Child Rights among children and their guardians and facilitate regional communication on this issue in four countries in West Africa through a Regional Radio Initiative.	Africa Regional	Civil Society Unit	01/04/00	01/03/03	£230,619
IFH: African Regional Forum of Religious Health Organisations in Reproductive Health - CSCF 65	To improve the institutional capacity of religious-based health organisations to better serve the sexual and reproductive health needs of their clients and to engage more effectively in advocacy work on health and reproductive health rights	Africa Regional	Civil Society Unit	01/04/01	01/03/04	£228,643
Information and Communications Technologies and the Growth of Peri-Urban Informal Sector Enterprises	To assess the potential of and provide replicable models for using ICT's in conjunction with traditional 'downstream' media to provide crucial business information to informal enterprises on a cost recoverable and sustainable basis.	N.S.C.	Infrastructure & Urban Development	01/08/00	01/11/02	£215,208

continued >>

Table 1 continued

Full Title	Purpose	Country	Department implementing project	Start Date	End Date	Commitment (£)
Using ICT to increase the effectiveness of Community based non-formal Education for Rural People (CERP) in Zambia	Research to develop models for providing education using ICT in rural areas, using culturally acceptable paper, audio and web-based materials	Zambia	Education	01/04/01	01/08/02	£141,464
R7534. Hands On - It Works 2	An extension to the completed Hands On - It Works project, a multi-media communications package which provides information to people world-wide in order to alleviate poverty.	N.S.C.	Infrastructure & Urban Development	01/01/00	01/03/01	£135,440
E-commerce Options for Third World Craft Producers.	To take an overview of how craft producers and Alternative Trade Organisations (ATO's) are using e-commerce via the Internet and to recommend options to empower producer groups.	Asia Regional	Infrastructure & Urban Development	01/08/00	01/03/02	£134,897
Rural Broadcasting Enterprises - A Communication & Information Alternative for Rural Communities	Develop sustainable model of rural broadcasting aimed at improving livelihoods, strengthen local knowledge & reduce isolation of peasants in Andean communities.	Peru	Social Development	01/04/00	01/04/02	£125,000
Management Accountant to the St Helena Government	Provide technical Assistance and advice on a wide range of financial management and information technology matters to the Finance Department Management Team, in the St Helena Government.	St Helena	Overseas Territories Unit	03/03/00	01/03/02	£115,000
Computerisation of the Ministry of Education, Kigali	To provide technical assistance to the Director of Planning, in the Ministry of Education by the installation of a computer network to enable the key policy makers to have better access to information.	Rwanda	Education	01/11/00	01/10/01	£111,292
Multi-country action research project on strengthening basic education through open and distance learning	To increase understanding of how distance education and communication technologies can support basic education, especially for deprived and out-of-school audiences.	N.S.C.	Education	26/03/01	01/02/03	£110,895
The Cost of Internet Access in Developing Countries	To carry out case studies in five developing countries which will provide evidence of the international factors which affect the cost of Internet pricing.	N.S.C.	Infrastructure & Urban Development	01/01/01	01/04/01	£101,000
Use of ICT for Development of Science Teaching expertise in Developing countries	To encourage the development of Science teaching expertise in developing countries.	N.S.C.	Education	01/03/99	01/03/02	£100,000

Current programmes with a commitment of less than £100,000

Telecom:	3 Projects totalling	£121,000
Telephone:	1 Project totalling	£20,000
Computer:	6 Projects totalling	£225,000
Radio:	11 Projects totalling	£479,000
Software:	6 Projects totalling	£140,000
ICT:	7 Projects totalling	£172,000

Key words used	Telecommunications	Communications
	Information Technology	Telecom
	Telephone(s)	Television(s)
	Computer(s)	Software
	Radio	ICT

IUDD ICT Knowledge and research programmes

Programme	**Purpose**	**Partner**
Developing appropriate ICTs for sustainable development	This project seeks to provide a framework for the appropriate use of ICTs and other media within existing communication and knowledge systems for the enhancement of Sustainable Livelihoods	Reading University
Community telecentres for urban youth	This project seeks to evaluate the introduction of community telecentres in Soweto and Mexico City, and their impact on their communities	Big World Intermediate
ICTs and growth of peri-urban informal sector enterprises	This project seeks to assess the potential of, and provide replicable models for using ICTs in conjunction with traditional 'downstream' media in order to provide crucial business information to informal sector enterprises on a cost recoverable and sustainable basis	Technology Development Group
Would ICTs constrain or empower poor urban women?	This project seeks to understand how poor urban women's largely oral communications channels can be strengthened and ICT-based information made more accessible to lessen women's disempowerment risks	Intermediate Technology Consultants
E-commerce options for third world craft producers	This project will take an overview of how poorer craft producers and ATOs (Alternative Trading Organisations) are using e-commerce via the Internet, and recommend options to empower producer groups	Gamos Ltd
Micro-Media and the Poor	To identify good practice in the combined use locally based traditional media and ICT's (micro-media) to disseminate information to rural communities	Intermediate Technology Development Group
Distance support and technical training for poor rural women	Establishing an effective training and support mechanism for women in rural areas to allow them to develop technological capacity within their villages	Intermediate Technology Development Group
Factors Shaping Successful Public/Private Partnerships	To identify and inform public and private sector policy makers of the factors shaping successful information society partnerships between business, government, the public sector and civil society	Commonwealth Policy Studies Unit
Innovative Demand Models for Telecommunications Services	To promote sustainable investment in underserved areas through the development of models and tools for predicting demand for information and telecommunications services amongst rural and low income communities in Sub-Saharan Africa	Gamos Ltd
Digital Bridges for Vocational and Education Training (VET)	To develop a delivery model with open access content using ICTs for supporting conventional vocational practical skills training of the poor	Big World
Sustainable Information and Communication Technology Case History	To compile and disseminate selected case histories and income-generating models to show how a range of NGOs and CSOs are successfully and sustainably mediating ICTs to their wider, non-connected communities	Gamos Ltd

Annex 4: Donor information and communication technology initiatives

The OECD have compiled a table listing the main ICT initiatives of multilateral and bilateral donor agencies:
www.oecd.org/dac/digitalforum/docs/DO_Session1_Matrix.PDF

Annex 5: New information and communication technologies and economic growth

1 New ICTs such as the internet have facilitated the development of new products, services, business models, and methods of interaction that have led to increased growth and economic efficiency in developed countries over the past decade. However, how much of the impact of ICTs can be attributed the new technologies themselves and how much is a function of the pre-existence of an effective enabling environment is an issue that needs examining. New technologies have certain unique characteristics that increased their spread and amplified their impact on the economy of developed countries over the past 20 years. These include:

- **Positive Network Effects:** - The benefit that a user receives by connecting to a network is a factor of the number of people connected to that network. In other words there are increasing returns to increasing network size (Daly 2001). However the impact of this effect is limited in some countries by issues of language and content, particularly as it relates to the internet.

- **Increased rate of technological improvements.** Changes in ICTs over the past 20 years have encompassed two important trends: the exponentially increasing volume per unit amount of information that can be transmitted and stored and the rapidly declining per unit costs of doing so.

- **Commodification of information:** Information and knowledge can now be produced, copyrighted and sold worldwide in the same method as any other consumer good. This has also increased the value of intellectual capital to firms.

- **Reduced transactions costs:** Through the use of ICTs, information content can be separated from its physical location. In addition, new ICTs allow information goods, such as software to be replicated with minimal marginal costs.

2 **The introduction of these new technologies into these environments has lead to increased growth and employment at the national level as well as increased information flows and communications at the micro levels. Specific changes include:**

- **Increased efficiency within organisations:** New technologies can streamline supply and production chains, improve business processes and lead to substantial efficiency gains in production, distribution and markets. Many firms, especially those in data intensive industries can reduce their cost of production by doing the same things cheaper using network technology. Firms have been able to manage their supply chains more efficiently reducing the need to hold expensive inventories. These improvements have also occurred in other organisations such as governments and NGOs. In many countries governments pay their payrolls electronically and procure their goods and services on line. NGOs can manage their relationship with their donors and clients more efficiently.

- **Increased efficiency in interactions between and within organisations and individuals.** Increased competition and a reduced number of intermediaries between buyer and producer can reduce prices and lead to markets that more closely resemble the economists' textbook model of perfect competition, characterised by large numbers of buyers and sellers bidding in a market with perfect information. Similarly, ICTs offer new ways for Government to conduct business, offer opportunities to increase the speed and efficiency of transactions and increase transparency. ICTs also offer opportunities for empowerment and increased voice for individuals and civil society groups.

- **Increased access to new customers and clients.** The internet can lower barriers to competition by increasing the chances that a company anywhere in the world that develops a better product, process, or organisational structure can get into the market, win bids, sell products, and exert pressure on other competitors to improve productivity.

- **The development of new economic sectors:** The growth of the software industry in Ireland is a much lauded example of how new technologies can lead to economic growth through the creation of new jobs and increased exports.

The effects of increased use of ICT on employment

The International Labour Organisation's World Employment Report 2001 'Life at work in the information economy' explored the effect of ICT on employment and drew five conclusions:

- The net effect of ICT on employment is positive with jobs created in the service sector outstripping loss of jobs in the manufacturing sector;
- Productivity gains from ICT contribute to the creation of jobs;
- ICT potentially offer opportunities for developing countries to provide highly competitive low-cost services;
- For most workers, employment stability remains the norm as changes due to ICT and internalised within companies;
- However, there is a risk that changes in employment as a result of ICT will reinforce or accentuate gender and other inequalities.

3 **However, new ICTs developed in, or were introduced into, economies with conducive enabling environments.** Countries that have been at the forefront of new technologies are those which have highly educated workforces, open capital markets, well functioning private sectors, governments supportive of the development of small and medium sized business development and the free flow of information, and, in most cases, deregulated telecoms markets.

4 **ICTs hold out great promise for developing countries in terms of increasing information flows and market efficiency, increasing market access for locally produced goods and services and increasing employment.** Most developing countries now have at least partial access to high end ICTs including the internet. Whether or not their impact will parallel that of developed countries will depend to a large degree on the circumstances in the county, particularly the business and regulatory environment and on the level of inequality which exists in the country prior to their introduction. Studies on the impact of the spread of telephones in developing countries indicate that their introduction leads to overall growth, but potentially unequal growth in the short run which is reduced as telephone penetration approaches universal access (Kenny et.al, 2001). This suggests that government policies and regulatory and taxation environments are critical in ensuring that the introduction of new ICTs does not lead to increased inequality.

5 These lessons have been echoed in the attached case studies of developing country experience to date with ICTs.

Case Studies of Developing Country Experience with ICTs

Country **Chile**

Why is it interesting?

Chile successfully extended rural access of telecommunications services through a competitive bidding process (reverse-auction bidding)

Approach

Chile deregulated and liberalised its telecoms market in the late 1980s and today an important focus is to extend services to all the population.

Following liberalisation in the late 1980s, telecoms services spread rapidly in Chile with new services being regularly introduced, quality increasing and prices falling. However, by the mid 90s, 10% of the population still lived in localities without access to a public phone. In 1994, the government set up a special fund financed by the national budget and administered by the telecoms minister. A first round list of 1285 rural localities needing a phone was ranked and drawn up and grouped into 46 projects according to geographical proximity, technology and level of subsidy likely to be required. The government then invited competitive bids for provision of the services. Operating licences were accorded to the lowest bidder in each case, providing they met the minimum technical requirements and were within the maximum subsidy level. Licences were non-exclusive and the operator was to provide at least one telephone available to the public 24 hours a day in every locality for ten years.

Results

The process was a massive success. Bidders made 62 offers for 42 of 46 projects. The subsidies demanded were much lower than expected and hence the government committed only 48% of its 1995 budget for 90% of the program. Analysis has concluded that competitive entry was the main factor, which drove subsidies down. Overall only $2.1 million of public money triggered private telecommunications investments of $40 million.

With the completion of these obligations, 97% of Chileans should now have access to basic telecoms. A second round of bids is now being implemented.

Lessons

The case of Chile shows that in an open, competitive environment, with a limited government subsidy, the private sector will extend telecoms access to remote or low-income areas. This reverse-auction bidding mechanism seems to be one of the more successful processes as market forces determine which projects really need a subsidy and how much.

(Sources: World Bank, US International Trade Authority)

Country Costa Rica

Why is it interesting?

Demonstrates that when a government pursues a determined policy to develop an ICT sector and ensures all the enabling conditions are in place (e.g. stability, educated workforce, infrastructure), it can find a profitable niche in the global economy.

However, it also shows that alone this 'ICTs for growth' strategy doesn't necessarily contribute to broader based national growth or sustainable development.
Shows clear payoffs from investment in education and technology skills, both in facilitating economic growth and raising the educational level across the population.

Approach

Costa Rica's approach has been to develop an ICT production sector as an engine for economic growth through exports. There have been no explicit poverty-focused goals.

From 1996 onwards, the Costa Rican government has pursued pro-active policies to develop an ICT production sector focused on the export market. These have included business incentives such as Free Trade Zones and duty free and low-duty exports and a heavy investment in a modern infrastructure and telecommunications network (the national regulated monopoly, the ICE is responsible for electricity, basic phone services and high-level Internet access). Also, since the 1970s, the Costa Rican government has invested heavily in general education, literacy and technical skills development.

It is only recently that the government has recognised the wider development potential of ICTs and has been more active in expanding ICT use through public access points and the development of local and updated content e.g. the recently

launched national portal www.costaricense.com offers a wide range of government services, e-commerce applications and a private email account for every citizen.

Results

It is estimated that 8.3% of GNP in 1999 was attributable to Costa Rica's export-focused ICT strategy. Today, Costa Rica is one of the most attractive investment environments in Latin America for the development of hi-tech industries. FDI is high (5% of GNP) and numerous electronics firms have located there. Now an increasing percentage of exports are in software development and IT services as well as hardware and components. Today, Costa Rica has a very modern telecommunications infrastructure and is one of Latin America's most densely networked countries (1 in 5 people have a telephone line). It also has one of the most educated and IT literate workforces outside Western countries. The illiteracy rate was below 3.5% in 1999 and 18.5% of the population had completed tertiary education.

However, these benefits have not reached wider society and particularly the poor. There have been few significant linkages between this export sector and the rest of the economy and the ICE is lagging behind on the provision of remote telecommunication services.

Lessons

Although, the growth of the ICT export sector has contributed to national economic growth, the most direct impact on poverty reduction has been via the strong focus on education and skills development rather than through IT use per se.

Key success factors in the growth of the ICT sector have included a pro-active government, political stability, a prime geographical location, business and investment incentives, an educated population and good infrastructure.

However, Costa Rica demonstrates that specific measures are needed for ICTs to benefit the poor, including extending access to remote areas and stimulating local entrepreneurship and content development.

Further provision of quality affordable services is likely to need deregulation and liberalisation.

(Source: Digital Opportunity Initiative Report, US International Trade Authority)

Country **India**

Why is it interesting?

A case of a developing country successfully pursuing a policy to develop an IT sector which has contributed to economic growth, but also shows that benefits are not automatically distributed to poor.

There is currently a lot of entrepreneurial work in India on the development of pro-poor technologies, applications and content.

Approach

The Indian government has focused on developing its own IT sector to promote economic growth. It is only recently that there is more focus on using ICT for development projects and here the private and civil society sectors have key roles.

Following a focus on self-reliant industrialisation (70s and 80s), India increasingly looked outwards to position itself in the global economy. In 1988, it launched its World Market Policy focusing on software development for export, telecommunications policy reform (Regulatory Authority (TRAI) established in early 90s, privatising long-distance mobile phone markets in 1992, fixed services market in 1994, national long distance in 2000 and international telephony in 2004 – supported by World Bank) and developing an ICT strategy.
The government used pro-active policies to attract FDI including technology parks, tax breaks, duty-free imports of inputs, ensuring intellectual property rights protection and allowing 100% foreign equity. Today, India has both an IT Ministry and National IT Task Force.

Recently, the government has focused on stimulating domestic demand - particularly through high government spending on ICT related services. Many e-governance applications are available, particularly in states like Andhra Pradesh and Madhya Pradesh. For several decades, the government has also invested heavily in IT skills and education and domestic research and development.

Results

India has developed a highly successful software production and services industry, which has contributed massively to India's GNP (the software industry grew from $150 million in 1991-92 to $5.7 billion in 1999-2000). A recent trend has been the rise of domestic innovation, such as the development of low-cost technologies

(e.g. Simputer) and applications and content in Indian languages (e.g. new multilingual word processor). Many of these have been public-private and voluntary sector partnerships.

However, teledensity is still fairly low - only 3.5% of population have telephone access and rural access is a key challenge - with mobile services growing fastest and expected to overtake fixed line services. However, access is increasing and over 60% of Indian villages now have at least one phone (Public Call Offices are now run by local shopkeepers). Expansion of access remains a priority and, although India has an excellent pool of IT skills, wider IT education and literacy remains low.

Lessons

With the right strategy and policies, a developing country can successfully develop a domestic and export IT sector that contributes to economic growth.

However, specific measures need to be put in place to ensure the poor benefit. Key challenges are extending access to remote and rural areas, developing local content and widespread IT literacy skills.

Public-private and voluntary sector partnerships can be key in stimulating domestic innovation especially in appropriate technology and applications.

(Sources: Digital Opportunity Initiative, US International Trade Authority, World Bank)

Annex 6: Consultation undertaking during the study

1 This report has benefited from inputs from a wide range of people who participated in consultation meetings or took time to comment on the report in draft. The authors are extremely grateful for all these people for taking the time to offer comments and share their views and experience.

2 The following tables list those who took part in meetings and round tables, or who provided written comments on some or all of the report. The report was made available to all DFID staff by intranet and e-mail. Particular efforts were made to seek comments from staff overseas. The report was also widely shared with other donors and organisations working in this area.

ICT Study Steering Group

Name	Organisation/department
Richard Manning	Director General Resources (Steering Group Chair)
Owen Barder	Head, Africa Policy and Economics Department
James Deane	ICT Study Steering Group, Director, Panos Institute
Tony Faint	International Director
John Hodges	Head, Infrastructure and Urban Development Dept
Brenda Killen	Head, Americas and Transition Economies Policy Dept
Michael Schultz	Head, Social Development Department
Anne Steward	Director e-Government, Office of the e-Envoy
Roger Wilson	Head, Governance Department

DFID staff

Name	Organisation/department
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Adam Burke	DFID South East Asia
Susan Chandler	Knowledge Policy Team, Development Policy Department
Jonathon Hargreaves	Governance Department
Chris Hayes	International Financial Institutions Department
Lyndsay Hilker	ICT Study Resource Group
Dick Jones	Energy and ICT Adviser, IUDD
William Kingsmill	Private Sector Policy Department
Roberta McDonald	International Financial Institutions Department
Gavin McGillivray	Enterprise Development Department
Tony Polatajko	Enterprise Development Department
Andrew Skuse	Social Development Advisor, SDD
Tim Unwin	Head, Imfundo Team, Africa Policy and Economics Dept
Dylan Winder	Rural livelihoods Advisor (communications and extension), RLD
David Woolnough	ICT Adviser, IUDD
Keith Yeomans	ICT Adviser, IUDD

External

Name	Organisation/department
Angel Pascal-Ramsay	Accenture
Kit Burdess	Accenture
Andrea Khan	Child Rights Information Network
Sara Chamberlain	Christian Aid
Chris Gethin	Consumers International
Vic Bull	Containers of Hope
Philip Barton	Economic Policy Department, FCO
Tiffany White	Economic Policy Department, FCO
Colin Roth	Governance Consultant
Adrian Pinder	Head, International Telecommunications Policy, DTI
Peter Ballantyne	IICD
Andrew Archer	IIED
Carolyn Morrison	International Directorate, DCMS
Gary Hunt	International Telecommunications Policy, DTI
Mark Carvell	International Telecommunications Policy, DTI
Andrew Scott	ITDG
Rob Aley	ITDG
John Morton	Natural Resource Institute, University of Greenwich
Alex Lockwood	OneWorld International
Barbara Keating	OneWorld International
Beth Bolitho	OneWorld International
Pete Cranston	OneWorld International
Peter Armstrong	OneWorld International
Rob Denny	OneWorld International
Sophie Mack Smith	Oxfam
Julia Flynn	Oxfam International
Mike Flood	Powerful Information
Nick Tancock	Save the Children
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Merethe Borge	TVE
Patrick Clark	VSO
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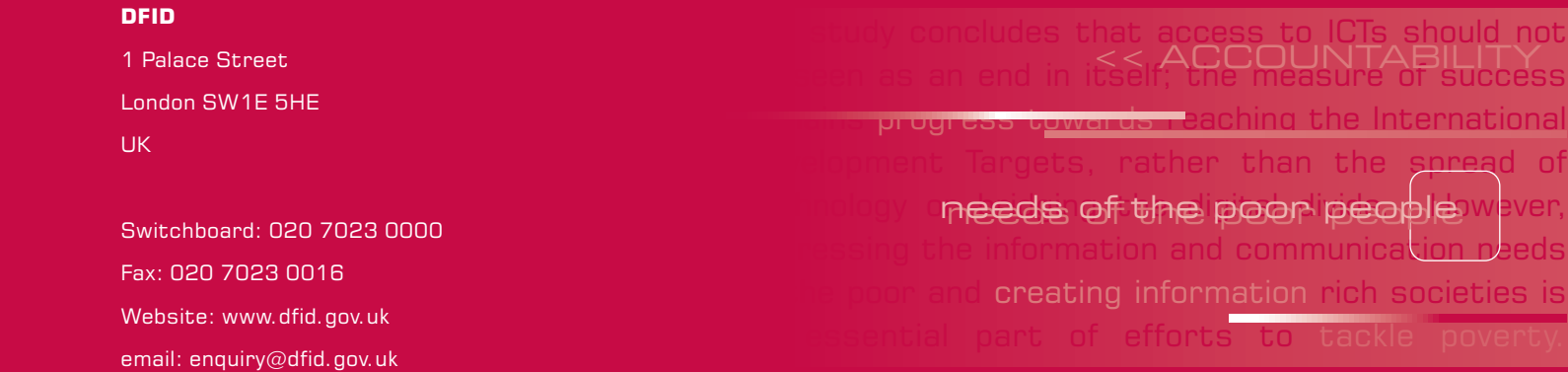

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