



Chapter 2

ICTs, POVERTY AND DEVELOPMENT: DEFINING THE ISSUES

Widespread experimentation in recent years with ICTs as tools to combat poverty and promote sustainable development has taught us much about their potential and about their pitfalls. All too often, ICTs have been deployed to address specific development challenges without adequate attention to the broader context, or sufficient understanding of the underlying conditions for success. This has led in many cases to ICT-for-development projects that have not met their expectations or proved sustainable in the long run. Given the severity of the development challenges facing the globe in the next decades, as symbolized by the disappointing progress on the Millennium Development Goals, it is increasingly important to imbed our approach to ICTs in a more complex and contextual understanding of the nature of persistent poverty and the impediments to sustained economic growth in specific countries and regions. A proper approach to understanding the role of ICTs in development and poverty reduction begins, therefore, not with attention to digital divides but with a closer look at the nature of poverty at the beginning of the 21st century.

*The Complex Nature of Poverty*⁸

There is much we still do not understand (or on which there is still considerable disagreement) about the nature and causes of persistent poverty. Yet recent

⁸ The discussion in this section has been influenced heavily by Sue Unsworth's analysis of the dynamics of pro-poor change (Unsworth 2003), and Cynthia Hewitt de Alcantara's work on the "development divide in a digital age" (Hewitt de Alcantara 2001). The discussion of poverty is influenced by Shaffer (2001) and the World Development Report 2000/2001, and mirrors in some ways the analysis in Marker, McNamara, and Wallace (2001).

progress in our understanding of the complexity and interdependence of the causes of persistent and widespread poverty offer an entry point for understanding where, and how, ICTs might help address those causes.

We know, to begin with, that the poor are not simply lacking in material and financial resources, nor do they perceive their poverty solely in these terms. While this resource-based understanding of poverty might help us define what poverty is, in static terms, it is less helpful in diagnosing poverty and developing strategies for combating it. This is particularly the case if we want to understand not only what analysts call poverty stocks (the number and specific characteristics of the poor at a given point in time) but also poverty flows (the transition of individuals and groups *into* and *out of* poverty.) It is increasingly clear that some individuals, families, and groups tend to remain in poverty, and the reasons for this need to be understood and addressed. In addition, there are, at any given time, significant flows into and out of poverty. In overly simple terms, flows into poverty are the joint product of economic decline and the shocks and vulnerabilities particular to the poor. Conversely, flows out of poverty are the result of some combination, particular to a country and time, of economic growth, opportunities for the poor, and mitigation of the risks and vulnerabilities that the poor particularly face.

The poor, then, lack not only material and financial resources. They lack opportunities to convert the resources they do possess (their labor, skills and experience, and the physical resources at their disposal) into value-creating activity (producing either cash income or other resources valuable to their particular livelihoods.) They lack information of many sorts. First, they lack information (about resources, tools, processes) that could help them be more productive, or about new opportunities to increase their income and improve their livelihoods. They lack information about markets and prices and about the availability and reliability of persons and institutions on which they depend in their economic exchanges.

The poor lack communication opportunities vital to their lives and livelihoods. The rural poor in particular, who comprise a substantial majority of the world's poorest, spend disproportionate amounts of resources that are valuable to them (time and money, in particular) for essential communications with family, trading partners and suppliers of economic necessities, health providers, government officials, and others.

The poor lack access to education and knowledge that could improve their lives and expand their opportunities. They have extremely limited access to the increasing stock of global knowledge on agriculture, disease-prevention,

environmental and resource management. They lack access to innovations in products and processes that could increase their efficiency, help them economize on their scarce resources, including labor, and make them more competitive in local, regional, and global markets. They lack access to the educational opportunities that are widely recognized to be one of the most important factors in ensuring the transition out of poverty for both individuals and families.

The poor lack access to capital and to financial resources and services that would permit them to enter into new value-creating activities. These impediments are compounded by weak access by the poor to the legal status and documentation for themselves and the resources they own (including clear title to their land) that would both enhance their economic opportunities and ensure full access to government services to which they are entitled.

More generally, the poor lack voice and power in the institutions that affect their lives, even those designed to help them. This not only deprives them of the opportunity to articulate their specific needs. It also makes these institutions less responsive and efficient, and more prone to corruption. Even when local government officials are well-meaning and hard-working, they often lack the resources (financial and otherwise) and skills to do their job effectively. In this and many other ways, as Amartya Sen has articulated, the poor lack the opportunity to make the choices that constitute freedom.⁹

The complex deprivations facing the poor are compounded by vulnerabilities to which they are especially prone. The rural poor, for example, who depend in large part on subsistence agriculture, are especially prone to environmental shocks (famine, drought or floods, pests, and even global climate change) because they have few or no reserves (food stocks, money, and other valuables) on which to draw when such shocks occur. For these reasons also, and because of their poor access to health care, the poor are especially vulnerable to disease. These shocks and vulnerabilities can significantly affect poverty levels in a country, both by pushing more people into poverty and by blocking the upward progress of those who, for other reasons, might have been on the verge of rising out of poverty.

The specific challenges facing a poor individual or family in a given community are then compounded at the societal level. With some exceptions, developing countries with large numbers of poor people are low-growth or no-growth economies plagued by persistent and systemic impediments to sustained

⁹ Sen (1999)

economic growth. Even where economic growth is fairly robust in some developing countries, the ability of the poor to participate in that growth is often highly uneven, and the subject of ongoing debate in development circles. The enabling environment for sustained economic growth is often seriously deficient in several dimensions in developing countries. Markets perform poorly because of poor policy frameworks, weak information flows, and poor incentives for risk and innovation. Governmental institutions that shape and regulate the market are often weak, inefficient, and prone to corruption or capture by special interests. The government more broadly may be ineffective in both its mobilization and use of societal resources.

The private sector in many developing countries provides a poor engine for growth for several reasons. Poor access to information and knowledge, and to capital, weakens the ability of firms in developing countries to innovate and compete in regional and global markets. Inefficient, overly burdensome, and sometimes corrupt government regulation of the private sector, including regulatory impediments to firm creation, slow the creation and weaken the chances for success of small and medium enterprises (SMEs). And the ability of these SMEs to grow into larger firms serving broader markets is hampered by poor access to capital, information, and communications access to new markets. Weak physical infrastructure (roads, telecommunications, ports, etc.) serves as a further impediment, particularly to firms outside major urban areas or far removed from major transportation nodes.

Finally, at the regional and global level, developing countries often have limited ability to shape trends, processes and practices that affect their economy and society. The combination of ICT-enabled global communications and the increase in global financial and trade flows, part of the broader process commonly called globalization, could provide new economic opportunities for developing countries. Yet weak governmental capacity relative to the overwhelming array of domestic and international challenges posed by globalization lessens the ability of developing countries to negotiate international rules of the game (in areas ranging from trade, intellectual property and financial markets to health and medicine, the environment and transborder natural resource management) in ways that are favorable to their sustained growth.

Furthermore, in a global trading system where primary commodities, the principal exports of many developing countries, have been consistently declining in price, while an increasingly larger share of global trade is made up of high-value-added and high knowledge-added goods and services, the ability of developing

countries to create sustained growth depends increasingly on their ability to tap into, and contribute to, innovation and high-value knowledge creation at a global level, an ability severely hampered by their resource constraints, institutional weaknesses, and poorly functioning markets.

Seeing Poverty through an ICT Lens

One of the reasons for the high degree of excitement in the last decade about the potential of ICT to combat poverty and promote sustainable development is that it is possible to discern an information, communication or knowledge component of virtually every development challenge articulated above.

It is widely understood that information plays a vital role in the proper functioning of markets. Yet information flows are crucial to society more broadly. When information flows poorly, and the poor lack adequate access to information about rights, services, and opportunities, public institutions are often unresponsive to the needs of the poor, inefficient, and subject to corruption. When the poor lack information and knowledge about basic hygiene and health issues and resources, disease deepens and perpetuates their poverty. When poor farmers lack information about crop prices, new farming techniques, and new markets, they remain excessively dependent on middlemen, unable to adapt to environmental and market changes, and unable to get the best yield from their own labor and that of their family.

When information flows poorly both within government institutions and between those institutions and their stakeholders, those institutions remain inefficient and more likely to make poor policies. Their lack of transparency makes them more susceptible to corruption and improper influence. When government institutions lack access to best practice, to information about their clients and their needs, and to knowledge about broader social and economic developments, government officials often make short-sighted or self-defeating decisions.

Economic growth is severely constrained in environments where markets and institutions perform poorly because of weak information, communication and knowledge flows. Where information flows poorly, and where communication is difficult, investment and innovation are also scarce. Without adequate information and communications infrastructure as well as good physical infrastructure, foreign private investment will be limited.

There is another important aspect to the relation between ICTs, economic growth, and poverty reduction. ICTs boost the productivity of individuals and firms, both by permitting greater outputs for a given input of scarce resources and by making available new information and knowledge about processes, products, techniques and markets. The poor typically spend a disproportionate percentage of their scarce resources (labor, time, money, land, water, and other resources) to secure the things necessary for themselves and their families because they have less access to the time-saving and productivity-boosting effects of technology. This is no less true with ICTs than with earlier technologies, from motors to tractors. Poor access to these efficiency-enhancing technologies and processes (and the innovations imbedded in them) cause developing countries to fall further behind the richer countries, in an increasingly global economy where this increased gap in productivity and innovation can be ruinous.

Where information flows poorly and communications are difficult, knowledge flows poorly as well. As the World Bank's 1998/99 World Development Report clearly demonstrated, effectively creating, harnessing, adapting and using knowledge is vital not only to growth and competitiveness in an increasingly global economy but also to addressing the needs of the poor and the root causes of persistent poverty. In information-poor environments, the poor are not only deprived of the benefit of rapidly expanding global knowledge on health, agriculture, environmental management, and other issues vital to their daily lives. They are also deprived of opportunities to develop new skills that can give them new opportunities, and of the empowerment that comes with understanding the functioning of their societal and governmental institutions and their roles and rights within them. Last but not least, they are deprived of the opportunity to share their own, often extremely valuable, centuries-old local knowledge, and to reap benefit from that knowledge, while also benefiting from the traditional knowledge of other poor communities.

The capacity of ICTs to enable global, rapid and efficient exchange of information and knowledge, and to facilitate instantaneous communication across distance, seems to hold out vast opportunities to address the crucial information, knowledge and communications dimensions of persistent poverty and low growth in developing countries. At the same time, the greater efficiencies and "imbedded innovation" contained in new process technologies in a variety of economic and social fields (agriculture, manufacturing, health care, delivery of government services) would seem to hold out hope for developing countries to benefit from, and catch up with, the progress in all these areas enjoyed by richer countries in recent years.

Poverty Traps and Digital Divides

Our understanding of the complexity of poverty's causes and characteristics, at both the individual and societal level, has led to increased attention to the problem of poverty traps. Poverty traps occur when a multiplicity of factors, each of which independently would lead to poverty, are compounded and feed upon each other, making poverty virtually inescapable. For example, a resource-poor, geographically isolated, small country with low per-capita income and low levels of education will often suffer as well from weak governmental institutions, poor infrastructure and very little access to foreign investment. Unable to generate new sources of economic growth, it is trapped in commodity-exporting sectors of the global economy, where prices are plummeting, global competition is increasing (particularly from those countries able to harness new technologies), and rich-country trade barriers and subsidies remain high. Not only are the root causes of the country's poverty virtually intractable, they are compounded by global factors over which the country has little control.

At the individual level, poverty traps are often just as intractable. A family with few physical or financial assets is dependent on markets and institutions that function poorly and on inadequate (or non-existent) public infrastructure. Their chances for advancement are limited by poor educational opportunities; persistent malnutrition, poor hygiene and sanitation, and the chronic and acute disease they engender; little or no access to capital; and, in many cases, discrimination.

It is obvious that the growth of an ICT-enabled global economy can exacerbate existing poverty traps by giving greater advantages — economic, social and political — to those who already have resources, opportunities and power. It is therefore often assumed that ICTs can provide the remedy to poverty traps by addressing the many deprivations that cause them.

The 2003 Human Development Report identifies six “policy clusters” for escaping poverty traps:

- Investing in human development
- Helping small farmers increase productivity
- Investing in infrastructure
- Developing industrial development policies
- Emphasizing human rights and social equity
- Promoting environmental sustainability and improving urban management.

Obviously there are ways that ICTs can help achieve each of these goals. Yet ICTs are instrumental. They *enable* change; they do not of themselves produce it. The magnitude of the challenges facing the poorest countries and families requires decisive and coherent action by developing country governments and societies and by their international partners, which need both to provide resources and to address structural issues in the global economy that have a particularly strong negative effect on poor countries. ICTs cannot replace these more fundamental tasks, and increasing access to ICTs will not of itself remove these deeper causes of the poverty traps in which many developing countries find themselves.

Yet, the impact that new ICTs and the growth of global information and communications infrastructure have on even the richest countries is still not fully understood and may be, for the time being, less profound than assumed. Furthermore, this impact is itself dependent on a complex set of resource endowments, human and institutional capacities, historical legacies and enabling environments. Simply providing ICTs where they are not available will not substitute for addressing the deeper economic, social, resource, and historical challenges faced by individual developing countries. Nor will simply measuring the relative presence or absence of ICTs in a given country or region tell us much, in itself, about what role ICTs can play in helping that country or region address its poverty challenges. The digital divide is a proxy, a measure (and sometimes a misleading one) of deeper challenges facing a developing country. The first step, therefore, in designing strategies for helping a country harness ICTs to combat poverty and foster sustainable development is to focus not on the proxy but on the underlying (and context-specific) challenges which that (inadequate) proxy reflects.

From Diagnosis to Action: ICTs as an Agent of Change

The point of departure for any strategy to combat poverty and promote sustainable development is to foster positive change, and particularly pro-poor change. This may seem a simplistic observation, but it provides an important frame of reference for any ICT-for-development strategy. The Millennium Development Goals offer a useful illustration of this perspective, since the MDGs are, in their own way, proxies for deeper changes. The MDGs point to a set of desired first-order changes in the situation of developing countries: fewer people in absolute poverty, fewer women dying in childbirth, more girls in school, etc. Yet they presume, and fundamentally depend upon, a deeper set of changes, such as higher and broader economic growth in developing countries, more capable and responsive government institutions, better policies, stronger voice for the poor, etc. These deeper changes depend in part on actions that are not directly associated with any one MDG but are fundamentally enabling of all the goals (improving the functioning of developing country markets, enhancing government capacity, mitigating the risks that particularly affect the poor, enhancing the efficiency, openness, and fairness of trade, etc.).

The same can be said about ICTs. It is clear that ICTs, properly adapted to local circumstances, can be a powerful tool to combat poverty and foster sustainable development. Yet the key to deploying ICTs as an agent of positive change in a given country is to begin *not* from measures of what ICTs that country lacks but

from a clear picture of that country's key development challenges and a rigorous analysis of where, and how, ICTs could make an impact on those challenges in a sustainable fashion, of sufficient magnitude to justify investment in ICT by donors or developing countries or both. In other words, one begins not with the question of what ICTs a given country lacks and what we can do about it (the implicit question underlying much digital divide analysis) but what specific types of change are required to make this country more sustainably prosperous, in ways that include even the poorest. ICTs are then brought into the analysis as possible instruments (among others, including both resources and policies) of these desired changes, not as a thing to be desired in themselves. For this reason, ICT-related indicative goals (e.g. a telecenter in every village over population X by date Y) are at the best misleading and at the worst bad policy.

There are a number of reasons for suggesting this more sober and instrumental approach to ICTs-for-development. First, the history of international development efforts over the past several decades should lead us to some degree of caution about our expectations that one factor or input is crucial to successful development. The history of development assistance is riddled with “gaps” (the infrastructure gap, the financing gap, etc.), the “filling” of which was seen as key to solving the conundrum of sustainable development. The digital divide risks serving as another uncausal explanation of development success and failure that diverts the attention and resources of the international community from the much more complex and context-specific challenges of development.

Second, especially in the context of constrained budgets for international development assistance (and even an increase in those budgets in coming years would leave them well below desired levels), priority-setting is vital to any successful development strategy. While even the more advanced ICTs have been steadily declining in price, and Internet bandwidth is becoming more widely available, ICT-based interventions are often very expensive in the first instance and entail ongoing costs that are difficult for the intended beneficiaries to meet in the long run. At the level of government policy and action, spending the time and human capacity of developing country governments on ICT-related policies and initiatives at the expense of other key areas of policy and action can be justified only if those ICT-related policies and activities promise substantial leverage for a core element of the country's development strategy. Yet a number of developing countries, including some of the poorest, now have several different e-strategies prepared and supported by different international donors or partners. Given scarce government resources and capacity, one can wonder whether these should have been a priority.

Third, many of the ICT-for-development experiments and pilot projects of recent years have not proved sustainable in the long run, because they have not been accompanied by (or failed to generate) the broader economic and social changes that would lead to sustainable demand for those ICT goods or services, especially relative to other demands on scarce resources. This unsustainability of ICT projects has been compounded by the frequent disconnect between ICT-for-development projects and the core sectoral work of most development agencies.

Fourth, in many cases the desired result for the sake of which ICTs are deployed is more fundamentally dependent on other changes over which ICTs have no influence. To take one example, using ICTs for teacher training may well increase the capacity of the teachers, which is a good thing in itself. Yet, if a developing country's education budget is so tight that over 95% of funds go to teachers' salaries (a common situation in developing countries), and the teacher corps is being ravaged by HIV/AIDS, it is hard to understand how ICTs can be a priority, unless they enable a significant decrease in another core cost in the education budget (e.g., the labor cost of teacher trainers).

Fifth, in most cases, ICTs do not *create* change; they only *enable* it. Change comes about because of the actions of individuals and groups faced with a given set of changing or unchanging conditions, incentives, resources and power relations. ICTs can make possible the emergence of new coalitions for change, and can adjust the incentives and opportunities facing certain individuals and groups, but any ICT strategy, sectoral or society-wide, needs to be more explicit about these broader dynamics of social and economic change in the context of a specific country.

Finally, in development as in so much else in life, one size does not fit all. The potential of ICTs as a tool of economic growth and poverty reduction will vary widely in scope and specifics across developing countries. In some middle-income countries, ICTs might well serve as a powerful engine for economic growth and global competitiveness, which combined with ICT interventions in specific sectors might lead to widespread poverty reduction as well. It is important to point out, however, that ICT-led growth does not of itself necessarily have any impact on poverty within a country. In some of the poorest countries, ICT might well serve as crucial tools in specifically targeted interventions designed to address key impediments to realizing the MDGs and breaking the cycle of persistent poverty. In every case, the key to success will be a clear and coherent national strategy for growth and poverty-reduction in which ICT is viewed as a tool for specific, explicit purposes, justified relative to other possible tools or strategies by their ability to leverage substantial change relative to their cost.

In devising such national strategies and the donor programs to support them, the first step is to learn, rigorously and critically, from past experience with ICT for development programs, both to identify the greatest opportunities for effecting change through ICTs and to avoid the costly mistakes of the past.

