

# Chapter 1

## Introduction

### Questioning ICTs and development in Africa

For several years, many researchers have been showing particular interest in information and communication technologies (ICTs). According to the Committee on Science and Technology at the Service of Development, ICTs “will become crucially important for sustainable development in developing countries” (Credé and Mansell 1998: ix). For the past two decades, most developed countries have witnessed significant changes that can be traced to ICTs. These multidimensional changes (technical, financial and economic, cultural, social, and geo-political) have been observed in almost all aspects of life: economics; education; communications; leisure; and travel.

Furthermore, the changes observed in these countries have led to what is now referred to as “the knowledge society.” ICTs have made it possible to find fast access to, and distribution of, information as well as new ways of doing business in real time at a cheaper cost. However, a considerable gap exists between developing countries, notably African countries, and developed ones in terms of the contribution of ICTs to the creation of wealth. The gap has tended to widen between developed countries, the technology suppliers, and the receiving developing countries. At the same time, the gap between the elites and the grassroots communities within these developing countries is also expanding in terms of their access to ICTs. If measures are not taken to make ICTs both affordable and easy to use, access to them will be insignificant in developing countries.

Many initiatives have been taken at the international level to support Africa’s efforts to develop communication infrastructure and services that are connected to the world information highways. These efforts are designed to enable African countries to find faster ways to achieve durable and

sustainable development. However, although most of the actors agree intuitively on the positive role that ICTs can play in the development process, the links between development and the use of ICTs are yet to be clearly established and rigorously supported by empirical results from Africa.

There is no doubt that ICTs play an important role in developed countries, but does the economic structure of these countries favour this role of ICTs in development? Davison et al. (2000) do think so. They state that in developed countries, the evolution of ICTs has been linked closely to the power and economic boom of these countries, and that there has been a strong positive correlation between development levels and the adoption of increasingly sophisticated and complex technologies.

Although the new (digital) technologies may be impressive, they cannot determine the changes expected from their uses. They are no more than catalysts that facilitate these changes. Like any other technology, it is the social context in which they have been introduced and implemented that determines their uses and impacts. The digital revolution is relevant for Africa only if it takes into consideration the daily realities and aspirations of individuals (Uimonen 1997).

Davison et al. (2000) went further by arguing that ICTs have, to a large extent, been developed in the context of, and for the cultural and social standards of, a few rich countries (Western Europe, North America, East and Southeast Asia, and Australia). These innovations can help meet market pressures but not the needs of the poor, who have very weak purchasing power (UNDP 2001).

Another idea developed by the International Telecommunications Union (1997) proposes that factors that strongly influence the introduction and spread of the Internet are wealth, telecommunications infrastructure (quality and number), the number of microcomputers, the relatively low cost of communications (telephone and Internet), language, education, and training. Yet, Africa is known for being a continent with one of the world lowest growth rates in all types of infrastructure.

In this book, we concur with UNDP (2001) that even if sustainable economic growth facilitates the creation and diffusion of useful innovations, technology is not only the result of growth but can be used to support growth and development. ICTs are credited with the ability to transform, and deep and significant changes are expected from their widespread use in Africa. From this standpoint African countries can take maximum advantage of the new technologies even if major challenges remain. These challenges include

adapting ICTs to local conditions and uses in developing countries, and allowing each country to understand these innovations and adjust them to their own development needs.

Therefore, development in Africa depends on the continent's capacity to create wealth first to significantly reduce poverty and then to raise its capacity to create wealth to unprecedented and sustainable levels. The most optimistic observers estimate that with the era of new technologies and networks, African countries have an unprecedented opportunity to gain access to, to take advantage of, and most importantly, to contribute fully to this new world constructed on knowledge. Indeed, accurate and reliable information is a key element for sustainable development (Brodnig and Mayer-Schönberger 2000)

In June 1996, the United Nations Commission on Science and Technology for Development (UNCSTD) in collaboration with IDRC proposed five development indicators that focused on the improvement of the quality of life: education, health, income, governance, and technology (Credé and Mansell 1998). If we consider that these five indicators are key indicators of development for African countries, ICTs can be socially beneficial only if they contribute to: poverty eradication (higher income), improved health and education, better use and more equitable sharing of resources, and raising participation in the decision-making processes (and in this regard, access to information is crucial).

## **General framework**

For the past few years, development actors have shown increasing interest in the role that ICTs can play in development. However, there was a blatant lack of empirical data (mainly quantitative information) to verify this link. The scientific community that was interested in these issues conducted many studies, but most of the research dealt with "macro" and "meso" levels. The "micro" aspects, those that the grassroots communities are specifically interested in, were not sufficiently studied and documented.

By documenting the research conducted by the Acacia program in Kenya, Senegal, South Africa, and Uganda, this book, which is a synthesis of many evaluation reports, tries to demonstrate the potential of ICTs for development in sub-Saharan Africa. It also identifies the major challenges that confront the communities involved in the process of appropriating ICTs for development. Its purpose is to share Acacia's experiences in the processes, resources, products and behaviours that were drawn from the

research it supported with grassroots communities (individuals and organizations) in sub-Saharan Africa.

## **Methodology**

The methodological approach used in this study was mainly participatory and iterative. It was inspired by the approach of the Acacia program and its ELSA component (see Appendix 1).

## **Background to the study**

The study was prepared according to a participatory and iterative approach that necessitated consultation with different partners, researchers and development actors. In May 2000, at an ELSA meeting in Kampala, the need for this study was first expressed by IDRC representatives. Their concerns were summarized in the following question: What are the main lessons from the Acacia program and, more precisely, what are the impacts on the development of the targeted communities? In August 2000, a methodological workshop was held in Nairobi that brought together different Acacia partners who were drawn from various backgrounds, but who all shared an interest in ICTs. The purpose of the workshop was to agree on the evaluation methodology to be followed, given that this study would involve four countries (Kenya, Senegal, South Africa, and Uganda) and many researchers. An important output of this workshop was an evaluation matrix that was used to design the evaluation methodology and the quantitative and qualitative instruments for data collection. These tools were shared among all parties and adjusted according to regional differences. In September 2000, the study was launched in the four countries. A workshop was later organized in each of the countries to validate the evaluation results.

## **Evaluation problems and issues**

Using a participatory approach and process, all participants identified evaluation issues at the methodological workshop held in Nairobi in August 2000. On the basis of the study objectives, the participants first identified major issues or themes for evaluation. Next, they determined the main issues to be researched, identified specific issues, and determined for each issue the relevant information to be collected, the information sources, and

the appropriate methods of data collection. The main evaluation issues that were identified were:

1. Economic, technical, political and social environments in which ICTs have been introduced.
2. Community access to ICTs.
3. Community involvement in the process of introducing ICTs.
4. Community responses to ICTs.
5. Technologies introduced.
6. Applications and content developed along with the introduction of ICTs.
7. Impacts of ICT introduction and use by the communities.
8. Capacity building among different groups.

### **Methods and instruments of data collection**

This study analyses the content of various regional reports. For the preparation of these regional reports, data collection was done using the methods identified at the Nairobi workshop. The IDRC research and evaluation team in Dakar adapted the most appropriate methods, and as a result, identified the most suitable data collection methods. A range of data collection tools and instruments was then established. Quantitative methods were combined with qualitative ones. The choice between methods was determined by the nature of questions to be answered and, hence, the data to be collected. Questionnaires were chosen as the instruments for quantitative data collection, and (individual or group) conversation guides were the preferred method for secondary qualitative information.

The following conversation guides, targeting specific categories of respondents, were drawn up and used:

1. Information and communication infrastructure map designed for community representatives.
2. Social map designed for the same target.
3. Conversation guide designed for specific groups (e.g., women and young people).
4. Conversation guide designed for community organizations (e.g., GPF, SCA, and corporate bodies).
5. Conversation guide designed for technicians, specialists, and consultants.

6. Documentary analysis guide indicating all the documents that might interest the research team.

These data collection instruments were then translated into English and sent to colleagues in the other IDRC regional offices (South Africa and Kenya) involved in this study. Given that the contexts were different, it was up to each regional office to adapt the instruments to local conditions.

## **Sampling**

The unit of analysis is the communities benefiting from Acacia projects. In the reports used in this study, the projects constituted the program gateways into these communities; therefore, sampling was done on the basis of these projects. At the Nairobi workshop, a number of criteria were defined for project selection and for the sites to be included in the study. Stratification was chosen as the sampling method. First, projects were selected, then sites to be studied are chosen within these projects and in each of the sites, a sample of respondents was selected. The following criteria were agreed upon at the Nairobi workshop for project selection:

- Project maturity: more than one year of operation.
- Geographic location: rural, suburban, and urban areas.

The application of these criteria resulted in the following stratified sampling:

- Strata 1: project selection.
- Strata 2: site selection.
- Strata 3: respondent selection.

Based on this sampling, four projects were selected in Senegal, one in (Kenya), and two in Uganda. A project developed and implemented in South Africa was also included to help obtain a broader vision and to compare different aspects of the program.

## **Data collection and processing**

Data were collected using a participatory approach. Qualitative data collection required interviews with groups and individuals. Quantitative data were

collected using questionnaires. Given the objectives of the study, we classified respondents into two groups: users and non-users, and within each of these sub-groups, they were chosen randomly. Secondary data were obtained from community telecentres (e.g., statistics on users, types of requested services, and frequency of service use). Quantitative data were processed with statistical software (SPSS in Senegal and Kenya, EPI-INFO in Uganda); whereas, qualitative data were analysed using the content analysis method.

### **Methodological limitations**

The Nairobi methodological workshop had identified clear and relevant questions that would evaluate the process and impacts of introducing ICTs in the communities. One of the major difficulties encountered in this study was the differing maturity of the selected projects. Initially, it was agreed to conduct this study in Kenya plus the four countries where Acacia was concentrated (Mozambique, Senegal, South Africa, and Uganda). This selection was to include a fairly varied range of projects that were mature enough to provide answers to the questions raised by the evaluation. But only the four projects in Senegal had been active for 2 years. In Uganda and Kenya, the projects had only been in operation for a year and ICTs had not yet been introduced (at the time of data collection). The immediate consequence of this was that not all of the research questions could be answered and some of those that were answered were only partially answered. In addition, the research was exploratory and descriptive, and little concern was given to ensuring that the sample chosen was statistically meaningful. Therefore, the results should be read with caution.

### **Summary of projects**

#### ***Senegal***

**Youth cyber spaces in intermediate and secondary education in Senegal** (project number 065256, implemented by the Groupe d'études et d'enseignement de la population (GEEP)). GEEP is trying to sensitize Senegalese authorities to the need to include sex education and environmental issues in school syllabuses. GEEP has set up Family Life Education (FLE) clubs in some schools to help fill this gap in the curriculum. However, these clubs are

located far away from the main information centres and do not work often together. The youth cyber space project experimented with the introduction of ICTs into the network of FLE clubs to allow both for more frequent communication and for improved information flow. More specifically, this experiment attempted to improve the learning, facilitation, and sensitization model used by the FLE clubs to promote population, environment, and sustainable development issues. ICTs were introduced through the creation of youth cyber spaces (point of access to ICTs) in secondary education in Senegal.

**Use and appropriation of ICTs by community organizations in Senegal** (project number 065198, in collaboration with ENDA and local community organizations). This project was aimed at strengthening local participation in suburban and marginalized areas and districts of Dakar. A research-action methodology, which also included training, was implemented to enable the organizations concerned to use ICTs in ways that would encourage the development of sustainable patterns of ICT use through a network of community resource centres that were managed by the communities themselves.

**Introduction of ICTs to the Management and Rehabilitation of Village Communities** (project number 065226, in collaboration with the West Africa Rural Foundation (WARF)). This project was implemented in three rural communities located in the Tambacounda region of Senegal. It was prompted by the observation that community leaders living far away from the capital were called upon to take important decisions (e.g., formulating local development plans and negotiating with strategic partners), given the government's commitment to decentralization and decision-making by local authorities. However, most of the information needed for these decisions was disparate when available. The project aimed at taking actions that would favour the use of ICTs by different actors. It also sought to assess the impacts of ICTs on resource management and on economic and community education activities while investigating the factors influencing the acceptability and appropriation of these innovations.

**ICTs and Decentralization of Trade Point Senegal** (project number 065211, in partnership with Trade Point Senegal). This project was implemented in six communities in Senegal to demonstrate that ICTs could provide economic units with the same access to sources of information, and thus enabled



them to improve the decisions they make regarding activities and businesses. More precisely, the idea was to experiment with the provision of the services offered by Trade Point Senegal to economic actors doing business in locations outside Dakar (the capital). ICTs were provided through a network of community structures located at different community levels in two regions of the country (Saint-Louis and Thiès).

## ***Kenya***

**Enhancing women's participation in governance through increased access to civic information** (project number 055394, with the Family Support Institute). The main objective of this project was to develop the existing infrastructure at community documentation centres. These centres were the points of access to ICT resources (notably the Internet), which were used to provide information to the women of the Kakamega and Makueni rural communities and to promote their participation in governance. More precisely, the project tried to demonstrate that ICTs, when combined with traditional information systems and networks, allowed women to access civic information to develop their capacities to participate in political decision-making bodies, and in particular, in decisions concerning women's issues.

## ***Uganda***

**Economic empowerment of women through ICTs in Uganda** (project number 055449, carried out by the Council for the Economic Empowerment of Women of Africa). This project mainly intended to demonstrate how ICTs could enable female workers and women's organizations involved in the promotion of entrepreneurship to find ways in which women could be better involved in the economic life of the community.

**African Highlands Initiative** (project number 055297). The African Highlands Initiative (AHI) is a collaborative research program focusing on natural resource management in the highlands of East and Central Africa. Its ambition was to promote community development and the sustainable use of natural resources in the East and Central African highlands, an area of intensive agriculture. The objectives were to help farmers to enhance their knowledge and understanding of the technological choices that they had to make, to improve their decision-making capacity, take advantage of the

increasing opportunities available for marketing their production, and benefit from training in natural resource management.

### ***South Africa***

**The Msunduzi community network project** (project number 003981). This project was inspired by the belief that environment and development initiatives in the Pietermaritzburg area might be reinforced by enhancing the ICT capacities of local community organizations that were collaborating with the same NGO. The overall objective was to improve the environment around the Msunduzi River. The project was designed to facilitate access to ICTs by organizations and communities to improve their decision-making capacity. An efficient community model of electronic information and communication was established with points of access to link communities to an ICT network.

## **Conceptual framework**

By questioning the concept of community development, the definition of ICTs and the contributions of ICTs to the development process, this book has been able to look closely at the issues surrounding community development. Below is a brief summary of the concepts and terms used in the study.

### **Community development**

The use of ICTs is expected to bring about a change in the behaviour of the individuals and groups who make up the communities. Community development can be defined as a global, dynamic, iterative, and interactive process of change that constitutes the source of significant and measurable improvements in various aspects of life and provides some degree of satisfaction. In this specific context, we mean the sustainable satisfaction of basic needs, for example, in education, health, employment and entrepreneurship, natural resource management, and governance through the use of ICTs. Community development concerns individuals and organizations or institutions and their inter-relationships and inter-connectedness. It implies the participation of all community components in this process. It also implies capacity building in order to favour the creation of the conditions required for an increase in necessary resources.

## **Community**

The term 'community' here designates both the individuals and their communities, and organizations or associations that have access to ICTs or are potential users of ICTs. It does not matter whether they are women's organizations, youth associations, trade organizations in the informal sector, or groupings of arts and crafts workers and farmers.

## **Participation**

The use of ICTs for community development implies the participation of all components of a given community. Participation is understood in many ways but in this document it refers to an organized effort accomplished by the members themselves with a view to achieving the development objectives that they had assigned to themselves (Ziliotto 1989). Community participation is seen in this context as a process that creates the conditions required to speed up changes induced by, and expected from, ICTs.

## **Information and Communication Technologies (ICTs)**

Even if ICTs – mainly the new ICTs – often make us think of the Internet, they refer to the possibilities offered by the convergence of data processing techniques, electronic media, and telecommunications, a convergence that has become evident over the past few years. ICTs do not exclude traditional services such as radio and television, which can be broadcast through the same digital medium as the other services.

In this study, ICTs are grouped under two categories: 'traditional' and 'new'. Traditional ICTs are radio, television, fixed line telephones, and facsimile machines, which have been gradually ingrained in the daily habits and lives of people and communities. The 'new' ICTs consist of computers and specific data processing applications accessible through those computers (email, Internet, word processing, and other data processing applications). Although cellular phones and, more generally, wireless technologies, might be included in this category, they are not covered by this study.

## **Impacts**

Given the transforming capacity ascribed to ICTs, their use is expected to produce more or less significant impacts. This impact should be understood here as changes in behaviours, relations, activities, or intervention strategies that are influenced by projects which introduce ICTs to communities. These changes are expected to contribute to the achievement of a better quality of life for the population or communities.

## **Access**

Expected changes would be dependent on access to ICTs. Access should be understood in this study to mean the opportunity to use ICTs (e.g., availability, financial capacity, and technical capacity).