ABOUT THIS BOOK

Are information and communication technologies (ICT) such as computers, mobile phones, radio, TV, video and the Internet effective instruments to empower people, reduce poverty and improve lives? Or are ICT just deepening already existing inequalities and divisions in the world? In this book, key innovators, leading CEOs, top-level government leaders and grass-roots practitioners offer new and often surprising answers to these questions. It makes their valuable insights and knowledge available to a wider audience and identifies critical areas to be addressed. In addition to providing an overview of the actual state of the debate and the opportunities and risks of ICT for development (ICT4D), the book includes lists of toolkits, web resources and publications related to concrete implementation. It is intended to stimulate the interest and awareness of people beyond the immediate ICT4D circles, particularly those who are still sceptical.

"The issue is whether we accept that the poor should, in addition to the existing deprivation of income, food and health services, also be further deprived of new opportunities to improve their livelihood. The strategic choice is whether to accept the rapidly growing gap caused by a very asymmetric architecture of opportunities or whether to use ICT in a creative manner to level the playing field in economic, social, cultural and political terms."

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Swiss Agency for Development and Cooperation (SDC)
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Global Knowledge Partnership (GKP)
The GKP is the leading worldwide multi-stakeholder network committed to harnessing the potential of information and communication technologies (ICT) for sustainable and equitable development.
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Weigel & Waldburger (eds.) ICT4D – CONNECTING PEOPLE FOR A BETTER WORLD

ICT4D – CONNECTING PEOPLE FOR A BETTER WORLD

Lessons, Innovations and Perspectives of Information and Communication Technologies in Development

Edited by Gerolf Weigel and Daniele Waldburger

Swiss Agency for Development and Cooperation (SDC)
Global Knowledge Partnership (GKP)

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ict4d@deza.admin.ch

Global Knowledge Partnership (GKP)
Lot L2 - I - 4, Enterprise 4, Technology Park Malaysia
57000 Bukit Jalil, Kuala Lumpur, Malaysia
http://www.globalknowledge.org/ict4d
gkps@gkps.org.my

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Gerolf Weigel and Daniele Waldburger

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FOREWORD

No doubt, information and communication technologies (ICT) have drastically changed the way individuals, organisations and enterprises interact. But, are they a priority for development cooperation, empowerment and poverty reduction?

The potential and impact of ICT application in development has been broadly discussed, by the United Nations system, the G8, the OECD, civil society, business networks around the world, and especially by the World Summit on the Information Society (WSIS) which focused primarily on the technological and economic dimensions.

There is a growing recognition that ICT are indeed very powerful tools that can make development effective on a large scale for disadvantaged people. As a result an increasing number of development organisations in all parts of the world use ICT to promote development, poverty reduction, empowerment and participation. Echoing this recognition are the loud voices from developing countries at all levels that ask for a stronger emphasis on the use of ICT in development cooperation.

The ICT for Development Platform organised by the Swiss Agency for Development and Cooperation (SDC) and the Global Knowledge Partnership (GKP) was a response to this recognition and to an ever growing demand for information and coordination.[1] The ICT4D Forum brought together in a comprehensive conference programme key innovators and world leaders from government, private sector and civil society to debate lessons and perspectives in ICT for development.

The Platform demonstrated the enormous potential, the capacities and concrete programmes in using ICT for development: The more than 250 organisations and projects which made up the exhibition part of the Platform were an indication of the enormous dynamics and innovation at work. The more than 35,000 recorded visits, which included more than twenty heads of state or governments, proved the strong interest.

The Platform – reflecting many years of conceptual and implementation experience – left no doubts as to the relevance of ICT for effective development. Not only can information and communication technologies greatly facilitate the flow,

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[1] For more information on the ICT for Development Platform, its structure and its relationship to the World Summit on the Information Society (WSIS) see pp. 9–14; or visit http://www.globalknowledge.org/ict4d.

dissemination and appropriation of information and knowledge at all levels of society, they also provide cost-effective means for building interactive, demand-driven communication networks that enable people to voice their concerns and to actively participate in political decision making in a local, regional and global context. A vital component of ICT for development is the media which plays a key role in development, peace and stability. Information and communication technologies have not only substantially influenced the way the media functions, but further increased its importance.

This book aims to make the outstanding wealth of knowledge compiled during the ICT4D Forum available to a wider audience. It is also intended to stimulate interest and awareness beyond the core ICT circles, and especially to reach those development organisations which are still sceptical about ICT4D because of its perceived technical focus.

Based on what has been learned so far, at least three areas spring to mind, where immediate action is required:

First, there is a need to integrate ICT systematically into poverty reduction strategies. The OECD – for one – has recognised this and has taken some promising steps towards this end.

Second, we need to move beyond small pilot projects to a larger nation-wide or even region-wide implementation of ICT programmes. A case in point is a UNESCO-supported initiative announced in Geneva by the Presidents of Mali, Mozambique and Senegal to up-scale Community Multimedia Centres (CMC) in Africa.

Third, we have to continue to create new types of partnerships involving all major stakeholders – government, civil society and the private sector. Many examples have shown that combining the particular competencies and resources of the different actors on the basis of shared risk, cost and mutual benefit leads to the most innovative and sustainable of solutions.

Walter Fust
Director-General, Swiss Agency for Development and Cooperation (SDC)

R. Abdul Rahim
Executive Director, Global Knowledge Partnership (GKP)

EDITORS' INTRODUCTION

THE ICT FOR DEVELOPMENT PLATFORM: SHOWCASES, DEBATES AND ACTION

by Daniele Waldburger and Gerolf Weigel

The ICT for Development Platform, a combination of exhibition and forum which took place from 9 to 13 December 2003 in Geneva, was a unique event in several respects. For one thing, it was by far the biggest event organised within the framework of the World Summit on the Information Society (WSIS). Over five days it attracted more than 35,000 visits; among them some twenty heads of state or government. Even more significantly perhaps, it was the largest ever event to discuss and demonstrate the role of information and communication technologies (ICT) for development. It was a true multi-stakeholder gathering bringing together actors from all sectors of society – international organisations, governments, civil society, business and science.

The Platform was organised jointly by the Global Knowledge Partnership (GKP) and the Swiss Agency for Development and Cooperation (SDC). Its major goal was to showcase the human and development dimensions of ICT and thus enrich and complement the political part of the World Summit.

In this it was successful. Adama Samassékou, former Minister of Education of Mali and President of the WSIS Preparatory Committee, summed up the general feeling at the closing ceremony: "The ICT for Development Platform was the heart of the WSIS. It has made clear to everybody that we need to start sharing knowledge and information at once if we want to bridge the many divides which separate rich from poor, urban from rural, men from women, majorities from minorities and young from old. And it has shown that information and communication technologies have a huge potential to facilitate and accelerate this process." Samassékou's assessment was echoed by the participants. In a survey taken after the event more than 70 per cent of the participants rated the Platform as "very good" or "excellent".

Pertinent results of the Platform were also fed into the political summit in various forms. For instance, Walter Fust, the Director-General of the SDC and Chair of the Executive Committee of GKP, and Rinalia Abdul Rahim, the Exe-

cutive Director of the GKP Secretariat, reported to the plenary on 12 December, detailing some of the concerns and issues raised at the Platform.[1]

A New Formula: Exhibition and Conferences Combined

In order to make the ICT for Development Platform a success and guarantee its long-term impact, the organisers – guided by an International Advisory Panel (IAP)[2] – decided on a simple but effective formula. They combined an exhibition with a fully-fledged conference programme, the ICT4D Forum. The Platform aimed to raise the awareness of decision makers for the potential of ICT in diverse development settings and to contribute to the more efficient use of ICT. This was achieved by

- **Showcasing:** Present an overview of approaches, technologies and tools; showcase concrete projects, solutions, products, methods, experiences and lessons learned in the field.
- **Debate:** Reflect on perspectives, trends and potentials of ICT for development; discuss relevant political, technical, economic and financial challenges as well as innovative approaches and methods.
- **Action:** Stimulate concrete action-oriented partnerships, joint programmes and innovative financing models; create a marketplace for supply and demand in ICT for development; provide a platform for networking of public and private sectors.

The formula with its built-in multi-stakeholder approach turned out to be highly effective. At the exhibition, which was designed as a kind of a global information village, more than 250 governments, organisations and companies from 80 countries showcased several hundred real-life solutions.[3] It led to the creation of numerous partnerships and stimulated many projects and initiatives. Some examples of major global and regional initiatives launched at the ICT for Development Platform are:

- The initiative to up-scale Community Multimedia Centres (CMC) in three countries in Africa launched by the Presidents of Mali, Mozambique, Senegal and the UNESCO Secretary General.
- The Global e-Schools and Communities Initiative (GeSCI), a large scale multi-donor venture that emerged form the UN ICT Task Force context.
- The Open Knowledge Network (OKN), a global media network aimed at fostering the creation and exchange of local news and other content.

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1 For the full text of the statements see pp. 239–244.
2 For a list of the members of the International Advisory Panel see pp. 286–287.
3 For a full list of exhibitors and projects visit http://www.ict-4d.org.

ICT4D Forum: Fifty Debates on Eight Key Themes

A large part of the Platform was dedicated to debating major issues related to the use of ICT for development. Within the framework of the ICT4D Forum some 50 interactive panels, discussions, workshops and seminars took place.[4] High-profile participants including key innovators, leading CEOs, top-level government leaders and grass roots practitioners discussed the role, potential and limits of information and communication technologies (ICT) for development.

Also within the framework of the ICT4D Forum, the World Bank and the Swiss State Secretariat for Economic Affairs (seco) held the two-day annual symposium of InfoDev, a major World Bank programme dedicated to promoting ICT for development. This important event has been documented separately. Several key documents have been integrated into the further reading chapters of this book.[5]

Like the exhibition, the ICT4D Forum debates centred on five central and several cross-cutting themes and sub-themes, which had been identified by the organisers and the International Advisory Panel as being at the core of ICT for development:

- **Innovating for equitable access**
  Access/connectivity, first/last mile innovation (including wireless) – Financing of ICT for development (financial mechanisms) – Affordable solutions – Open solutions / Open source software
- **Fostering policy and implementation**
  e-Strategies and policies – e-Governance (including security) – e-Commerce and e-Business
- **Enhancing human capacity and empowerment**
  Capacity building (formal and non-formal education/skills, development/ e-learning) – Women/gender – Youth – Indigenous communities/ people – Health
- **Strengthening communications for development**
  Enhancing communication through media – Intercultural communications – Humanitarian aid and disaster information systems – Conflict prevention and resolution
- **Promoting local content und knowledge**
  Local culture, knowledge and content – Indigenous knowledge – Local media
- **Cross-cutting themes**
  Multi-Stakeholder Partnership/Networks – ICT and Poverty Reduction – ICT and the Millennium Development Goals, Entrepreneurship/sustainability/replicability & upscaling potential – Innovation – women/gender – youth

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4 For the detailed programme of the ICT4D Forum visit http://www.globalknowledge.org/ict4d.
5 For more information on the InfoDev annual symposium visit http://www.infodev.org.

Lessons Learned from the Organisation of the ICT for Development Platform

The organisers of the Platform were overwhelmed by the positive feedback from all sectors and all levels. Many expressed a keen interest in the organisational aspects and the major success factors of the Platform. Put simply, the combination of broad conceptual ownership and linkages, lean operational structures and efficient leadership were probably most important in ensuring the Platform's success. The key success factors were:

- **Broad ownership:** It is essential to bring on board the major players from all stakeholder groups at an early stage and to establish dynamic linkages to existing knowledge, experience, processes and action. Both the Global Knowledge Partnership and the International Advisory Panel (IAP) were essential in this regard. The IAP was established immediately at the start of the planning process. It included leading personalities from major international organisations, civil society, governments and business organisations. The active participation of Adama Samassékou, the President of the Preparatory Committee of the WSIS, provided valuable links to the official WSIS process. The conceptual guidance of the IAP included for instance the definition of core themes, priorities, information on key organisations and the ICT4D Forum programme.
- **Easy access to global, regional and local knowledge:** There is a tremendous demand for access to tangible information and knowledge on specific themes. The arrangement of knowledge around the five thematic streets of the exhibition and the related priority areas of the ICT4D Forum made access easy and attractive.
- **Open platform for networking and showcasing:** The approach of the Platform, which was essentially demand- and market-driven, provided ample space for innovation, creativity and spontaneous contacts and partnerships within a broad thematic framework. Considering the big differences regarding the resources available to the different stakeholder groups, it was crucial to balance the market mechanisms with well targeted support to grass roots organisations, small entrepreneurs as well as governments from developing countries.
- **Effective leadership and facilitation:** With the pressures of time and the complexity of the organisation, effective and visionary leadership proved to be of major importance. This was provided by Walter Fust, the SDC Director-General and Chair of the GKP Executive Committee. He had quick and personal access to relevant decision makers and was able to make efficient decisions regarding funds and capacities required.
- **Efficient, dynamic and lean operational management:** The time frame for the preparation of the ICT4D Platform was very tight. Therefore, the

operational management structures and processes had to be highly efficient and flexible. The ICT4D Division mandated the whole logistical organisation to a private sector company.[6] Intensive, focused and flexible cooperation mechanisms between the SDC Director-General, the SDC ICT4D Division and the logistics partner were essential for successful implementation.

About this Book and How to Use it

The ICT4D Forum and its preparation have resulted in a compilation of state-of-the-art knowledge. Through this book the organisers of the ICT4D Forum want to make this knowledge readily and generally accessible to a wider audience. Both the thematic chapters in Part II and the synthesis in Part I of this book are intended to provide an introduction to those who are not ICT specialists and to give an up-to-date overview to specialists dealing with ICT for development. The compilation of a broad body of background information, tool kits and other material on the key topics gives a basis for more in-depth analysis and practical work.

The four-part structure of the book reflects these concerns:

- **Part I** provides an overview of the debate with a particular emphasis on the development and poverty reduction perspective. It serves also as a quick introduction for the general reader, details the major themes and the major challenges ahead.

- **Part II** is the centrepiece of the book. It is organised around the key themes listed above. Each theme is illustrated by way of one or two panel discussions, the proceedings of which are reported in some detail. The debates were selected because of the importance of the subject matter and the quality of the panel speakers. A total of twelve debates are chronicled in this way.

  Each theme is preceded by a section called Key Findings, which very briefly summarises the state of the debate under the following headings: Lessons Learned, Trends and Innovations, Priorities / Potential for Action, Burning Questions. The Key Findings should serve as a quick entry point to the topic in question.

  At the end of each thematic chapter a list of selected references is provided. This will be further expanded and updated in the online version of this book at http://www.globalknowledge.org/ict4d.

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6 The company selected was Otto Frei AG, Berne, Switzerland. For more information visit http://www.ottofrei.ch.

- **Part III** contains the reports delivered by Walter Fust and Rinalia Abdul Rahim to the plenary of the WSIS on 12 December 2003.

- **The Annex** lists all the participants of the panel discussions chronicled in Part II and the members of the International Advisory Panel (IAP). It thus serves as kind of "Who's Who?" for the ICT for development area. Here you also find more information on the GKP and the SDC, the organisers of the ICT for Development Platform.

The full content of the book is also available on http://www.globalknowledge.org/ict4d and will regularly be updated and expanded. Comments and additions to the book, especially to the references are most welcome. A search mechanism helps to find the relevant texts, people or references quickly and easily.

PART I
ICT4D TODAY– ENHANCING KNOWLEDGE AND PEOPLE-CENTRED COMMUNICATION FOR DEVELOPMENT AND POVERTY REDUCTION

ICT4D TODAY – ENHANCING KNOWLEDGE AND PEOPLE-CENTRED COMMUNICATION FOR DEVELOPMENT AND POVERTY REDUCTION

by Gerolf Weigel

This part of the book provides an overview of the latest status and findings regarding opportunities and risks of information and communication technologies (ICT) in development and poverty reduction. It starts with a glance at the turbulent history of the so-called digital revolution and its relation to the debate on the role of ICT in poverty reduction and development programmes. Looking at the controversial question 'bread or computers?', it draws attention to the vital issue of whether a technology-centred and supply-driven or a people-centred and demand-driven approach should be followed. It also explains why the question of the definition of ICT directly impacts on its relevance for poverty reduction. The second section provides in-depth information on how ICT contribute to poverty reduction and development, and highlights what has really changed as a result of the digital revolution. It also relates the characteristics of ICT to the key challenges of development cooperation. Section 3 summarises the current role and approaches of bilateral development agencies in ICT for development (ICT4D). Section 4 provides conclusions and selected references.

1. INTRODUCTION

The Impact of the "Digital Revolution" and the "Dot-Com Crash" on Poverty and Development

Digital technology affects the lives of an increasing number of people all over the world in many ways. Information and communication technologies were not only a key factor at the macro level as in the globalisation process, but also at the micro level where the increased use of mobile phones, for instance, changed daily communication patterns everywhere in the world. Impressed by the so-called digital revolution, a wave of enthusiastic statements on the alleged effects of ICT on development and poverty reduction emerged. At the end of the 1990s and the beginning of the 21st century many debates at in-

ternational, regional and national levels concluded that access to information through ICT would directly eliminate poverty and allow low-income countries to 'leapfrog' to the level of rich industrial countries.

While participation in this debate broadened, it still remained largely dominated by ICT specialists, representatives of telecom ministries, ICT companies, technology-centred international organisations and a growing number of top-level politicians. Gradually, more development organisations from civil society, especially in the south, and development-oriented international organisations joined in the debate, emphasising the importance of ICT as powerful tools for development.

As a reaction to the technology-centred enthusiasm, sceptics increasingly intervened in the debate, questioning the relevance of ICT for development and poverty reduction. Whether the poor need 'bread or computers' was one of several hotly contested issues. Closely linked to the debate on the digital revolution was a new emphasis of the World Bank on "Knowledge for Development" and the "Knowledge Economy" that pointed to the success of the so-called 'New Economy' as a core process for world development. The president of the World Bank, J. D. Wolfensohn, declared the World Bank a "knowledge bank".

With the slowdown of the New Economy growth and the "Dot-Com Crash"[1], the debate on the digital revolution and bridging the digital divide became more realistic. As a result, the ICT industry and the application of ICT in development have since been growing more slowly, but are on a much sounder basis.

Today, there is growing agreement that the question of 'bread or computers' is based on a mistaken understanding of ICT for development. Still, it provides a useful starting point for a debate on how ICT can be effective tools for development and poverty reduction. The question was provoked in the first place by two characteristics of the early digital divide debate and action, i.e.

- the exaggerated focus on technology and the supply-driven approach,
- the too-narrow concentration on Internet connectivity and the number of telephone connections. Aspects like people-centred communication, relevant knowledge and the integration of 'old' and new ICT were neglected. Moreover, there was too strong an emphasis on the physical and financial input rather than the development impact.

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[1] The "Dot-Com Crash" stands for the downward spiral of the Internet-focused economy after unrealistic investment/growth and business practices failed to deliver the expected returns.

The issue is, whether we accept that the poor should, in addition to the existing deprivation of income, food and health services, also be further deprived of new opportunities to improve their livelihood. The strategic choice is whether to accept the rapidly growing gap caused by a very asymmetric architecture of opportunities or whether to use ICT in a creative manner to level the playing field in economic, social, cultural and political terms.

ICT are part of the day-to-day reality of a rapidly increasing number of people everywhere, independent of ICT4D programmes. Information and communication technologies provide new opportunities for those who are literate, have good education and adequate resources. Disadvantaged and marginalised groups have little chance to automatically benefit from tools such as the Internet. This further increases social divides, widens the gap between rich and poor countries, regions, individuals and even between men and women.

For the poor, the real issue is not whether ICT are desirable because the technology is already part of their broader context. The issue is whether we accept that the poor should, in addition to the existing deprivation of income, food and health service, etc., also be further deprived of new opportunities to improve their livelihood. The strategic choice is whether to accept the rapidly growing gap caused by a very asymmetric architecture of opportunities or whether to use ICT in a creative manner to level the playing field in economic, social, cultural and political terms.

"Over the last few years, a wide consensus has emerged on the potential of information and communications technologies (ICT) to promote economic growth, combat poverty, and facilitate the integration of developing countries into the global economy. Seizing the opportunities of the digital revolution is one of the most pressing challenges we face. [...] First, our efforts must be based on the real needs of those we are seeking to help. They must be fully and genuinely involved."

UN Secretary-General Kofi Annan,
General Assembly 2002

To make ICT work for poverty reduction and development, it needs both affordable, market-driven infrastructure and multi-stakeholder efforts at all levels to help poor, disadvantaged and marginalised people use the whole range of ICT according to their priorities and demands as described in section 3 below.

With regard to innovative approaches and concrete vision in using ICT for development and poverty reduction, many southern countries are far ahead of typical northern industrialised countries. India, Malaysia and Costa Rica are good examples among many. The strong presence and involvement of developing countries in the World Summit on the Information Society (WSIS) in Geneva in December 2003 demonstrated the overall importance which the developing world attaches to ICT.

Several resolutions of the UN General Assembly and statements by the UN Secretary-General Kofi Annan have endorsed the importance of ICT for development. The establishment of the UN ICT Task Force was a

further important step to draw attention to the global importance of ICT.

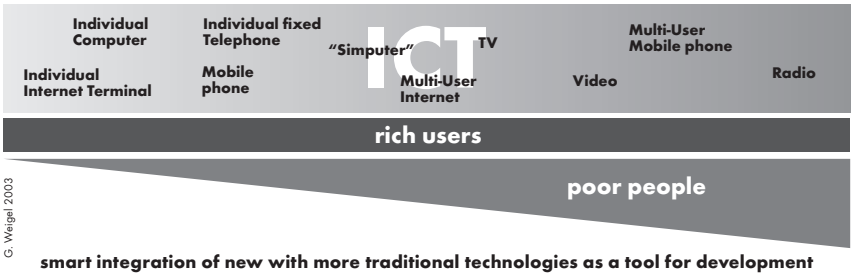
The "ICT for Development Platform"[2] at the WSIS in Geneva demonstrated the vast interest, practical experience and involvement of local, national and international development organisations and the private sector from both developing and OECD countries. It also showed in concrete terms that ICT4D has left behind the stage of theory long ago. Instead the more than 250 projects on display demonstrated the broad range of concrete action and implementation of ICT4D activities.

The World Summit on the Information Society (WSIS) is a UN summit in two phases, the first in Geneva in 2003, the second in Tunis in 2005. The International Telecommunication Union (ITU) has the lead for the WSIS. WSIS has stimulated a world wide debate and increased awareness about the transition to the information society. It helped to put ICT for development high on the international agenda of burning issues.

Concerning the definition of ICT, it is important to note that

- ICT include the whole range of technologies designed to access, process and transmit information in regard to text, sound, data and pictures. ICT encompass the full range from traditional widely used devices such as radios, telephones or television to more sophisticated tools like computers or the Internet.

Fig. 1: ICT for Development: Range of Technologies and Users Relevance



Definition: The term "Information and Communication Technologies" (ICT) refers to technologies designed to access, process and transmit information. ICT encompass a full range of technologies – from traditional, widely used devices such as radios, telephones or TV, to more sophisticated tools like computers or the Internet. The mix of technologies used should be determined mainly by the specific local context and demand.

[2] For more information on the ICT for Development Platform, its structure and its relationship to the World Summit on the Information Society (WSIS) see pp. 9–14; or visit http://www.globalknowledge.org/ict4d.

Knowledge, People-centred Communication and the Application of Technology

Access to information is vital. It is, however, not a magic bullet but rather just one element of the development dimension of ICT. It is important to differentiate between information and knowledge: Knowledge is based on information, but it is linked to a specific context, for instance to a specific local context from which it derives its value. It also has a human dimension of personal ownership. At the same time, it should always be kept in mind that knowledge is changing rapidly and that sharing knowledge is a two-way process. Knowledge in this broader perspective is one of the most important elements of development. Mere access to information in a narrow approach will not automatically lead to poverty reduction. It has to be embedded in a broader context of knowledge and development. The media has a key role to play, not only in providing relevant and diverse information, but also in facilitating the transfer of information into knowledge.

The broader understanding of knowledge has a close link to the second core element of ICT4D, namely people-centred communication. Using, producing and sharing knowledge requires effective communication at all levels. Information and communication technology provides a broad range of powerful tools to enhance both the knowledge and communication dimensions of development. Learning processes and knowledge sharing require a good deal of time. Both decision makers and poor people have very little time – poor people because of their struggle for survival, and decision makers because of their hectic schedule. ICT have a tremendous potential for increasing the efficiency and focus of knowledge sharing.

2. THE ROLE OF ICT IN DEVELOPMENT AND POVERTY REDUCTION

How Can ICT Contribute to Development and Poverty Reduction?

For several decades, information, knowledge and communication have been core elements of sustainable development efforts. So what has really changed over the last few years due to the dramatic development and spread of information and communication technologies?

The following is a list of the major changes with regard to information flows and communication effected by ICT:

- **Interactivity:** ICT facilitate dialogue. It is much easier and faster to put information for feedback on the Internet, compared to printing a book or writing a letter and asking for written reactions from the reader. Owing to

ICT, local radios can be made much more interactive and run more economically than a decade ago.

- **Speed:** Simultaneous information in writing, sound and picture can be exchanged within fractions of seconds around the clock. Moreover, the Internet allows real time 'many-to-many' interactions.
- **Lower costs:** Although the cost factor is still a challenge in general, the relative cost of ICT has greatly fallen over the past years and it continues to fall. As a result, innovative uses of ICT can facilitate information flows and communication much more cheaply compared to traditional means such as books or newspapers.
- **Integration:** ICT allow for the integration of different types of media. For instance, the combination of a local radio with the Internet allows access not only to a much wider range of information sources but also the efficient exchange of broadcasting modules, making e.g. censorship more difficult.

These new technological possibilities have had a large impact. They are at the core of the so-called ICT revolution from a development perspective. Interactivity not only concerns the Internet, but also the radio that has become much more of a two-way communication tool over the past decade, especially at the community level. The fact that the Internet allows interactive, fast and low-cost many-to-many interactions between people has given rise to powerful networks at all levels. In addition, these technological innovations have emerged in parallel with multifaceted globalisation and increased participation of citizens, of civil society organisations and of the private sector in policy debates, planning and action. Today, there is a clear trend towards a global 'network society'.[3]

Taking this into account, there is a strong relationship between information and communication technologies on the one hand, and development and poverty reduction on the other. This emanates especially through three dimensions: (i) **access** to information and knowledge, (ii) stronger **voice** of the people in democratic processes and decisions affecting their lives, and (iii) **networking** and communication among people and organisations. These dimensions will be explained in more detail in the next section.

The great number of projects, innovations and organisations at the exhibition of the ICT for Development Platform in Geneva demonstrated the broad range and extent of ICT applications which are already in existence in development.

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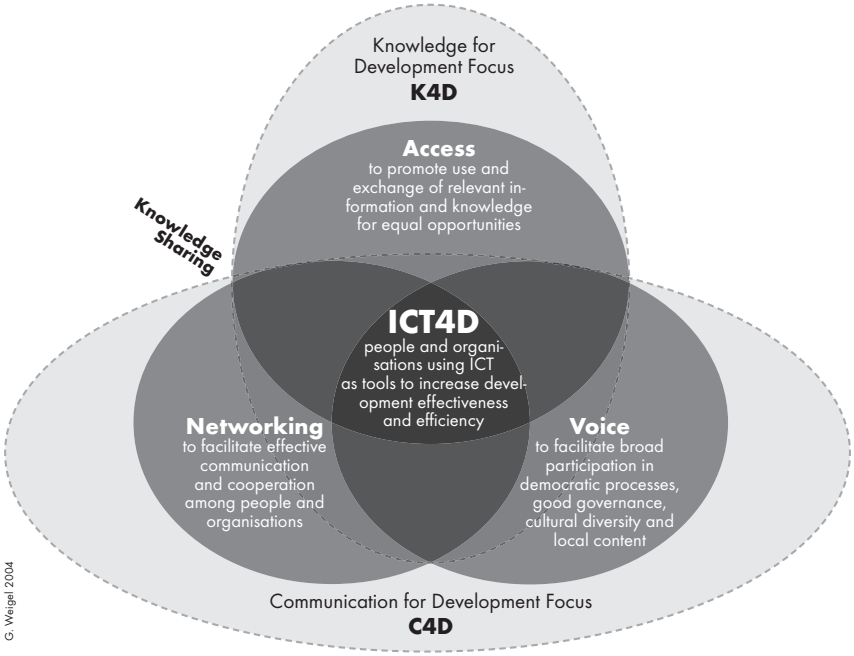
[3] Castells, Manuel (1996–98), The Information Age: Economy, Society, and Culture (three volumes): Volume 1: The Rise of the Network Society, Oxford and Malden, MA 1996; Volume 2: The Power of Identity, Oxford and Malden, MA 1997; Volume 3: End of Millennium, Oxford and Malden, MA 1998.

Fig. 2: ICT for Development (ICT4D): Key Dimensions and Main Goals



What's really new?
- interactivitiy
- speed, + 24 hours, many-to-many
- lower costs
- integration of different media

Cross-cutting Priorities
- Multi-Stakeholder Partnerships / Policy
- Poverty Reduction / MDG

Approach
- people-centred
- demand-driven

Levels
- local
- national
- global

Using ICT to Facilitate Access to Relevant Information and Knowledge

Access to relevant information and knowledge is crucial for empowerment and development. To be effective it has to be linked to the particular situation, needs and demands of the people concerned. Thus local knowledge is vital. The relevance of specific knowledge is changing rapidly and it varies with different contexts. Therefore, more dynamic and pragmatic approaches are gaining importance. It can be more effective to link people with relevant knowledge directly rather than accumulating knowledge in 'stores'. ICT facilitate such dynamic approaches greatly.

The most frequent application of ICT for facilitating access to information and knowledge refers to economic parameters like market prices, information on new products, alternative crops and potential clients. This concerns farmers as well as small and medium entrepreneurs. Relevant information can improve their income through better negotiation and more efficient and market-oriented production.

How can the poor and illiterate benefit from ICT? An illiterate farmer near Pondicherry, India, benefits from relevant information on the web as e.g. local market prices are announced through a loudspeaker or written in local language at the community knowledge centre. As there are always literate people around such centres, the farmer can get the information through them.

Governance, delivery of social services and the interaction between the state and its citizens are further key areas for using ICT to improve information flows and empower people. Quick and efficient access to information increases transparency and accountability of the government. ICT can also facilitate decentralisation: local media are able to adapt information to the local context. Owing to suitable information, the community is better able to monitor service delivery. Access to information on rights, facilities and services further empowers citizens.

In all the examples mentioned above it is important to select the right mixture of particular technologies most suitable within a particular context. User friendliness, cost effectiveness as well as power supply and power consumption are key factors which go into determining the choice of technology. For example, in an area of predominantly poor and illiterate people, the relative value of radio combined with the Internet might be more important than Internet access points. In some cases high-tech solutions may be more suitable, e.g. the quick establishment of a mobile phone network might be more appropriate than gradually building up a fixed telephone line.

Community Multimedia Centres (CMC) and telecentres are important for providing easy access in remote areas or in regions which are beyond commercial interest. Experience shows however, that the number of such telecentres established in a given area does not necessarily say much about their development impact. It is much more important how these centres are designed and function, what the roles and responsibilities of the local community – private sector, citizens, etc. – are. If a CMC is well integrated into the general structure and processes of a community, the infrastructure can be used more effectively. For instance, information from the Internet can be linked to or integrated with traditional information flows. If connectivity breaks down for hours, offline media and traditional knowledge sources and communication methods can be used. Programmes from satellites can be distributed through an existing community radio rather than a great number of receivers.

Affordable access to the global information system is essential for scientists and students in developing countries. In principle, the technological innovations offer an unprecedented opportunity for more equal access to quality information. However, many students and scientists in the South presently pay ten or more times the price for access to information than their colleagues in OECD countries.

Free and Open Source Software (FOSS) provides extensive opportunities to contribute to locally developed and owned solutions. It has considerable potential to stimulate business at local and national levels in developing countries.[4]

Strengthening the Voice of the Disadvantaged in Decision Making and Culture

A major constraint for poor people and citizens of low-income regions or countries is the lack of an effective voice in public life, and particularly in regard to decisions on policies and laws which directly affect their livelihood. Information and communication technologies can be powerful tools in promoting social inclusion. Again, it is the smart combination of different ICT that lead to empowerment and more effective participation of the poor in decision making processes. Often, radio, especially community radio, is a suitable channel for the voices of the poor. A radio station can send reporters to the communities and take their views for broadcasting to a wider audience. Listeners clubs may participate actively in shaping the radio programmes.

Both radio and the Internet are useful to amplify voices of disadvantaged people to defend their interests. This helps decision makers to be more responsive to a specific situation and demand at the local level. The provision of relevant information (e.g. on the budget available for primary schools in a village) can drastically increase transparency and accountability of government and organisations. If people have more pertinent information, they ask specific questions about where the money has been spent.

ICT can strengthen the voice of people with regard to their local culture and increase their contribution to the content of local media. Promotion of local content is crucial in a globalised world where information flows are typically one-way – from powerful countries to the poor parts of the world.

The example of using ICT to strengthen local content demonstrates that ICT can have a positive or negative impact depending on how it is used. As part of a

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[4] For a discussion of Free and Open Source Software in development contexts see pp. 60–76.

conscious effort, ICT can strengthen local content. As part of a specific reality, ICT are weakening the diversity of local content by e.g. flooding communities even in remote areas of the world with external cultural content, be it Hollywood or Bollywood movies, CNN, etc. The same technology can, however, be used to promote more cultural diversity, strengthening production, dissemination of local content and active involvement of local people.[5]

Using ICT for Networking and Human Communication

ICT, especially the Internet, have led to a dramatic increase in networking between people and organisations at all levels and in most areas of the world. They provide unprecedented opportunities and tools for low-cost, non-hierarchical networking at both the local level and over large distances.

The Internet provides a tool for effective sharing of knowledge and views. ICT-supported networks are effective tools for building alliances and interest groups. It allows for rapid and collective reaction to political decisions that affect lives of many people. Although much networking takes place through the Internet, the combination of the Net with community radio helps include those who have no access to digital technologies or who are illiterate. The Self Employed Women's Association (SEWA) in India, a large self-help network of women working in the informal sector, are using video effectively to enhance communication and networking among illiterate women.[6] After a short and appropriate introductory training, poor women use video cameras to document the views of other women in their community and then use the video documents to spread messages to other communities or to launch debates with policy makers and other partner organisations.

With regard to governance, ICT can facilitate improved communication between government, private sector and civil society.

An important aspect of ICT-enhanced communication for development is human communication in conflict areas. ICT can be used to promote intercultural dialogue and understanding.[7] It is important to note, however, that ICT-connectivity does not automatically mean intercultural connectivity. Particularly in this context, ICT are just tools that have to be well-embedded into a broader communication and development concept to ensure a positive impact on poverty reduction and peace. In conflict areas, unfortunately, ICT can also be used

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5 For a discussion of ICT and local content see pp. 162–193.
6 For more information on SEWA visit http://www.sewa.org.
7 For a discussion of the role of the media in conflict and post-conflict situations see pp. 136–149.

"Peace building in the first instance is all about rebuilding confidence; and the first step to rebuild confidence is to rebuild people's faith in the credibility of what they know is going on, and that means an independent media is essential. If people can't trust their media, they will not trust each other."

Shashi Tharoor,
UN Under-Secretary-General

to enhance tensions and promote hatred among ethnic groups. Here again, ICT are part of the reality. ICT4D intends to use the same tools to counterbalance negative consequences of ICT.

The media has a huge impact, both positive and negative, on peace, understanding and stability in areas of conflict. ICT provide the media with new opportunities for exchange of information and networking. They also provide new tools for integrating different types of media and for making the work of e.g. radio stations much more interactive.

ICT as Powerful Tools in Poverty Reduction Strategies and Programmes

The development and deployment of ICT in general bears the risk of reinforcing existing social and economic divides, as people with a better education, more assets and power tend to benefit more from new opportunities afforded by ICT. At the same time, however, ICT provide powerful tools for multi-dimensional poverty reduction efforts, as they can facilitate action in all three key aspects of poverty reduction:

- opportunity
- empowerment
- security

"ICT are being used to contribute to poverty reduction by building the leadership capacity of poor women, increasing their opportunities to participate in the media and decision making, strengthening their livelihoods and helping to secure greater access to social services."

Namrata Bali (Self Employed Women's Association, SEWA)

The selection and smart integration of different ICT tools according to the specific situation and priorities of the poor is crucial. Especially the community radio, in combination with the Internet, has a key role not only in informing the poor about income opportunities, but also about their rights and existing services. It contributes to effective education and health services.

ICT can strengthen the voice of the poor with regard to regulatory frameworks affecting their lives.

At the level of poverty reduction strategies (PRS) and national policies, ICT can facilitate and broaden consultation processes, as well as increase the overall efficiency and effectiveness of action.

There is a considerable risk that the Millennium Development Goals, especially regarding poverty, cannot be achieved until 2015, unless there is a substantial increase in progress and scaling up. The integration of ICT into poverty reduction strategies and the integration of the poverty dimension into ICT strategies at a national level can contribute substantially to the overall progress. Enhancing and broadening the communication dimension in the PRS processes through the use of ICT, positively impact the quality of PRS implementation.[8]

Therefore, ICT for development should not only be a key topic in the preparation for the important second phase of the World Summit on the Information Society (WSIS) in Tunis 2005, but also for the preparation process of the review of the Millennium Development Goals (MDG+5) by the United Nations General Assembly in 2005.

In light of the current UN emphasis on the Millennium Development Goals (MDGs), many people are now asking, "How can we apply ICT to achieve the MDGs?" However, in light of the massive nature of poverty in the world, a related question is, "How can we hope to achieve the MDGs without widespread and innovative application of ICT?"

Stuart Matthison, The Foundation for Development Cooperation, Australia

Key Challenges in Development Cooperation: Scaling up, Strengthen Local Ownership and Improve Aid Effectiveness in a Rapidly Changing Context

Key challenges to development cooperation in the 21st century are to scale up from limited projects to larger programmes, to increase the participation and local ownership of development activities and to improve the effectiveness of aid and cooperation. An additional challenge is that the overall context is changing rapidly, forcing development cooperation to adapt permanently to new situations while maintaining some continuity and a long-term perspective.

ICT provide tools that can help significantly in coping with all these challenges, for example by means of facilitating

- scaling up through efficient learning, capacity building, multiplying the reach of interventions and service delivery,

"ICT have tremendous potential to help us to achieve the MDGs, for example:
– ICT are vital for the process of scaling up investment to reach the masses.
– ICT can be employed to improve the quality of services at the local level.
– ICT can be employed to improve the productivity of the private sector."

Jeffrey Sachs, Special Advisor to the UN Secretary-General on the MDGs, in a message to the ICT4D Forum, Geneva 2003

[8] For a discussion of ICT and its potential for poverty reduction see pp. 101–109 and 206–227.

- fostering local ownership through interactive communication, broad based participation, and
- improving effectiveness of aid and cooperation by way of increased transparency, accountability, flexibility, productivity gains as well as a broader range of opportunities and choices.

3. THE ROLE AND APPROACH OF BILATERAL DEVELOPMENT AGENCIES IN ICT FOR DEVELOPMENT

Development Organisations

Bilateral development cooperation agencies and international development organisations – together with the private sector, government and civil society – have important roles to play in ICT for development.

The private sector's main function is to provide large scale infrastructure and innovation. This requires a regulatory framework that promotes innovation and investment, both by domestic and international private sectors. Large marginal areas, regions with low population density, low purchasing power, and specific social groups, however, are often beyond the commercial interest of the private sector. In such situations, bilateral and international development organisations can have a major role as catalysts for local innovation, policy dialogue and action.

Often, such support is necessary until the demand and attractiveness is sufficient for private sector involvement. Their activities should preferably build on existing local, regional and national initiatives, working through multi-stakeholder partnerships, promoting innovation, learning, and sometimes providing risk capital to enable the start of promising local action. In addition, and even more importantly, ICT should be integrated as powerful, cross-cutting tools into the overall development programmes at all levels. This will increase the overall efficiency and effectiveness of development cooperation. It is vital that at both the national and the international level of development organisations and agencies, there are not only

- strong efforts to mainstream ICT4D but also
- specific ICT4D units promoting, supporting and facilitating the cross-cutting ICT4D activities.

Several development agencies have elaborated ICT for development strategies and partly adapted their internal structure with regard to ICT4D. Among

others, these are the Swedish SIDA, the Canadian CIDA, the Danish DANIDA, the British DFID, the Norwegian NORAD and the Swiss SDC. Although the approaches and organisational setup in these organisations differ, they see information and communication enhanced by ICT as powerful tools to increase development effectiveness. The OECD-DAC (Development Assistance Committee) has prepared a matrix providing an overview of ICT4D activities of their member countries.[9] The compilation shows a remarkable list of ICT4D activities carried out and supported by bilateral development agencies.

Nevertheless, it is quite a challenge that most of the bilateral development agencies have not participated actively in the main process of the World Summit on the Information Society (WSIS). Still it should be noted that the development agencies of the UK, the Netherlands, Denmark and Switzerland participated as part of the BDO[10] presence in the ICT for Development Platform.

Several OECD-DAC events and activities in 2003 and 2004 focused on the role of ICT, knowledge and communication in poverty reduction and MDG advancement.

Both the ICT4D Platform and the OECD events were organised with the intention to broaden and deepen the debate and stimulate action on ICT4D from a development agency's perspective.

For development organisations, it is essential to consider that ICT can make development programmes more effective through

- expanding economic opportunities and job-creation and enabling existing small and medium producers to increase their efficiency and market access,
- facilitating scale up of programmes and activities,
- improving governance through increased transparency, accountability and increased efficiency in delivery of social goods and services, and
- promoting efficient knowledge sharing and learning processes to cope with complex development activities in a rapidly changing environment.

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9 See http://www.oecd.org/dataoecd/1/26/20721432.pdf.

10 BDO (Building Digital Opportunities) is the most important poverty-focused ICT4D alliance. Recently renamed to BCO (Building Communication Opportunities), it serves as an effective platform not only for knowledge sharing but also for pooling resources, knowledge and experience for effective action in ICT4D. Its membership consists of five development agencies, namely the Canadian International Development Agency (CIDA), the UK Department for International Development (DFID), the Dutch Directorate-General for International Cooperation (DGIS), the Danish Ministry of Foreign Affairs (DMFA) and the Swiss Agency for Development and Cooperation (SDC) as well as of the World Association of Community Radio Broadcasters (AMARC), the Association for Progressive Communication (APC), Bellanet, the International Institute for Communication and Development (IICD), OneWorld International (OWI) and Panos.

In addition, the ownership and relevance of development programmes can be increased substantially through improved communication and participation facilitated by ICT.

At the level of international development organisations, the World Bank and UNDP are key players. UNESCO, although not a development organisation in the strict sense, plays a leading role with regard to vision, knowledge and action in ICT4D. The International Telecommunication Union (ITU) with a clear focus on ICT infrastructure and technology is the key player regarding the WSIS, ICT regulation and infrastructure.

Multi-Stakeholder Partnerships: the Most Effective Organisational Setup for ICT4D Programmes and Processes

Due to the particular nature of ICT4D, all sectors of society, i.e. private sector, government and civil society, have to be involved in successful implementation and policy making. Whereas the need for multi-stakeholder partnerships is widely recognised, concrete action is still relatively weak and requires further improvement. The main challenge is the definition of a clear division of labour and roles and the creation of transparency with regard to the expectations by different stakeholder groups.[11]

Within the private sector a clear emphasis and trend towards more pragmatic and focused cooperation can be observed. One of the strengths of the private sector is the capacity to efficiently execute activities, demand-driven innovation, tremendous practical implementation experience and capacity. This is a great asset to contribute to the shaping of the policy and regulatory frameworks. For effective private sector involvement, it is essential to define the specific expectations, objectives and role of the private sector in each particular context.

A key role of the government is to provide a competitive enabling environment for

- attracting domestic and international investment while at the same time
- ensuring that the overall national policy framework and pro-poor goals are taken into account.

Civil society provides crucial links to the community level and contributes to a balance of social and market concerns in policies and implementation.

[11] For a discussion of the role of Multi-stakeholder Partnerships see pp. 194–205.

Development agencies and international organisations act as catalysts for

- innovation and action in areas currently beyond commercial interest and therefore not yet benefiting from private investment;
- strengthening platforms for knowledge sharing, networking, policy debate and capacity building;
- using ICT to enhance the general effectiveness and efficiency for poverty reduction and development programmes as described above.

4. CONCLUSIONS AND FURTHER READING

To sum up, ICT for development is not just an additional theme or fashionable tool. ICT have drastically changed access to information and knowledge and transformed the way people communicate and network. Developing countries and disadvantaged people must not be deprived of opportunities with the argument that other basic needs have to be satisfied first. To the contrary, ICT have to be used in a smart way to meet basic needs more efficiently.

To make ICT work for poverty reduction and development, it needs both

- an adequate ICT infrastructure at affordable costs, building on an enabling regulatory environment, innovations, domestic and international investment, and
- comprehensive multi-stakeholder efforts to support the poor, disadvantaged and marginalised people at all levels to use the whole range of ICT according to their priorities and demand.

The private sector has a massive role in terms of investment, innovation and partnership for multi-stakeholder solutions. Government is instrumental in shaping the enabling environment, attracting investment as well as balancing the ICT policies with other national policies and strategies. Civil society has a special competence and capacity in linking communities to the benefits of ICT.

Relevant content is essential to make ICT effective for development. This emphasis concerns content produced or demanded at the local level. The availability or building of adequate human and institutional capacities is an equally important requirement.

This part of the book has highlighted some general key elements of ICT4D today. The following chapters provide more in-depth information concerning particular thematic areas of ICT4D. Each chapter also highlights "Key Find-

ings" and provides a list of important publications, organisations and toolkits for further reading.

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The following list includes selected references to facilitate quick access to some key publications, web resources and toolkits. It is not intended to be comprehensive. All references are also listed on the website of this book on http://www.globalknowledge.org/ict4d and will be regularly updated and expanded. Additions and comments on further reference materials and links are most welcome. Please enter them directly into the open dynamic reference lists on http://www.globalknowledge.org/ict4d.

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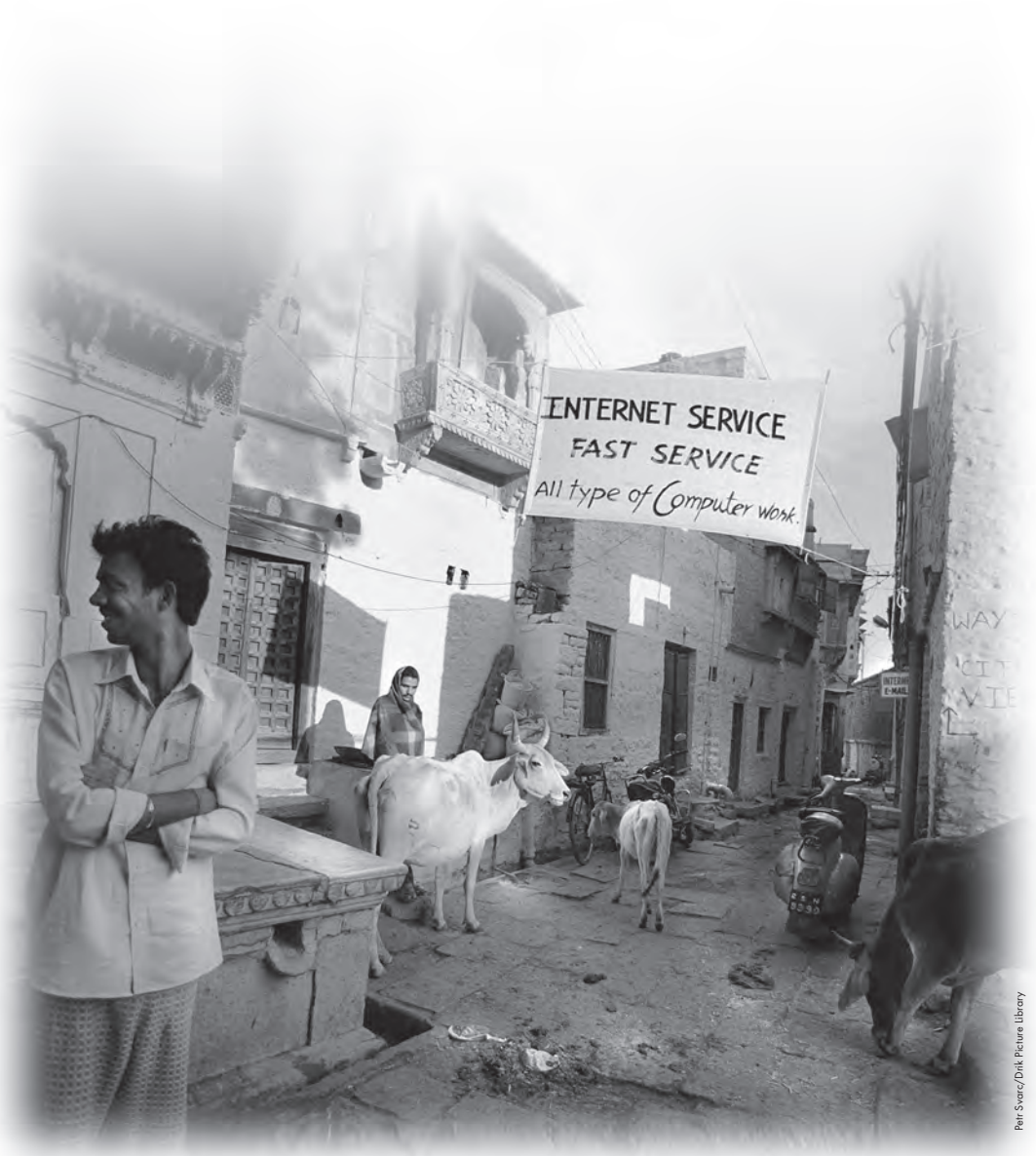
PART II
ICT4D FORUM PROCEEDINGS: THEMES AND PANELS

1. INNOVATING FOR EQUITABLE ACCESS



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KEY FINDINGS

Lessons Learned

- Equitable access involves a complex mix of technological, financial, economic, cultural and language factors. The perceptions about equitable access vary with the specific local context and environment. The existing information and communication flows of the communities have to be analysed strategically, in order to define where ICTs can contribute to their needs and demands in an integrated manner.

- The private sector, the regulator and the government have key roles in enabling equitable access. The communities have to become the owners of the whole process. People-centred innovation and learning further increases the effectiveness of technologies. If people have tools, they will use them often in a very creative and effective manner.

- Providing micro-credit support through local banks to young local entrepreneurs can stimulate innovative alternatives in establishing the infrastructure for access to information such as telecentres.

- Better access to information about rights, government services, voting processes, etc. can improve governance considerably. It contributes to empowerment of the disadvantaged, improved accountability, transparency and lower corruption. ICT can facilitate decentralisation, enabling the adaptation of information to the local context and the interaction between community and government. It provides tools for monitoring service delivery.

- Regarding the choice between Open Source Software (OSS[1]) and proprietary software, the main selection criteria are:
  - Cost: not only licence but total cost (installation, maintenance, etc.)
  - Transparency (access to source code)
  - Independence (not being tied to any single provider)
  - Flexibility (in adapting for local needs)
  - Compatibility (adhering to standards)
  - Impact on local business and capacity developmentin the specific local, economic, social and organisational context

- OSS facilitates developing countries to become producers of software solutions, strengthening local capacities in business and research, rather than mere consumers of foreign proprietary software. OSS needs to be assessed in terms of the needs and objectives of developing countries.

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[1] OSS = Open Source Software. A computer program whose source code is made available for use or modification as users or other developers see fit. Historically, proprietary software developers have not made source code available.

The ability to develop local capacity is as important as a country's ability to produce the software it needs to meet its development objectives. Open source helps developing countries to pursue their own path of development, regardless of ideology or political culture. Developing countries want to participate in shaping what is useful to them, and share it with other countries.

Trends and Innovations

- There is a clear trend towards cost reduction of the ICT tools. Poor people spend a large part of their income on communication. Reducing their costs of communication contributes directly to improve their livelihood. Innovations and cost reductions in wireless technologies increase the potential for connecting people in marginal and remote areas.

- Digital technology is increasingly used to facilitate access to information and communication by illiterate people and people limited to local languages. Pictures and sound can replace writing and intermediaries.

- On the Issue of OSS or proprietary software, there is a growing consensus on the need to consider multiple choices. The major disagreement is over the social and political implications of what constitutes best choice. Open source software is among the fastest growing and most competitive classes of software in today's market.

Priorities / Potential for Action

- ICTs provide an unprecedented scope of rapid up-scaling. In Africa, it took only 5 years to build as many mobile lines as it took 100 years for fixed lines. Combined with suitable broader efforts in the social sector and poverty reduction, this technological up-scaling potential has to be used well to contribute to the acceleration in the advancement of the Millennium Development Goals (MDG).

- There is a need for ambitious strategies for digital inclusion. This relates not only to broader access, but the social use and appropriation of digital technologies to meet needs, priorities and demand of communities. Accordingly, public policies stimulating competitive and pro-poor infrastructure investment, creation of appropriate knowledge and contents, and strengthening of individual capacities are necessary. Dynamic multi-stakeholder partnerships are required at local and higher levels. They are driven by win-win arrangements and each stakeholder has a role to play, collectively and in concert to reach the common goal.

Burning Questions

- How can a breakthrough be achieved in the up-scaling of ICT for development programmes?
- How can the dialogue and cooperation between the communities dealing with ICT and with development programmes be strengthened?

SMART SOLUTIONS: OVERCOMING THE BARRIERS TO EQUITABLE ACCESS

Although important, simply increasing the number of computers, Internet connections or telephone lines falls far short of solving the problem of equitable access. For a substantial impact of ICT on development, it is equally important to foster a favourable political and institutional environment, create sustainable financial mechanisms, mobilise community support and build local capacity. On the basis of innovative real-world solutions, this panel identifies key elements and success factors of a comprehensive access strategy. It discusses the potential and viability of existing and emerging technologies and indicates how obstacles to access may be overcome by using a broad range of technologies, from low-tech to high-tech. Generally, it highlights the importance of moving beyond a quantitative and purely technology-driven approach towards people-centred and demand-driven solutions.

EVENT	Panel discussion 1.1
DATE/TIME	Thursday, 11 December, 14.00–15.30, Conference room 1
ORGANISER	Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**Karin Delgadillo,** Executive President, Chasquinet Foundation, Ecuador **Shashank Kansal,** President, ITNTI, Nepal **Veli Sundbäck,** Executive Vice President, Corporate Relations and Trade Policy, Nokia Corporation **Hamadoun Touré,** Director, Telecommunication Development Bureau (BDT), ITU
MODERATOR	**Pete Cranston,** Network and Operations Director, One World International
RAPPORTEUR	**Aida Opoku-Mensah,** Team Leader, ICT for Development, United Nations Economic Commission for Africa (UNECA)
KEY QUESTIONS	▸ Who are the key players in providing equitable access to underserved areas? ▸ How can access be made affordable and sustainable? ▸ How can people-centred technological innovation be encouraged? ▸ What factors influence the appropriation of technology? ▸ When can access to ICT have a positive development impact?

by Paula Uimonen

Equitable access is central to the creation of inclusive information societies. Unless access to information and communication technologies (ICTs) is available and affordable to all, there is a risk that the digital divide creates yet another layer of social inequality between and within countries.

With participants ranging from grassroots activists to representatives from the private sector and regulatory bodies, a wide array of experiences and perspectives were exchanged in this panel debate. By applying a more people-centred and demand-driven approach to access, the panellists proposed the concept of digital inclusion to capture the complexity of issues at stake. Recognising that connectivity in itself is not enough, the focus shifted to questions of cooperation, sustainability and affordability. The role of governments and the importance of political willingness was a recurring theme, as was the necessity of defining integrated strategies based on the real needs of end-users.

From Equitable Access to Digital Inclusion: Towards a Common Vision

Karin Delgadillo, Executive President of the Chasquinet Foundation in Ecuador, and a pioneer of ICT for development in communities throughout Latin America, suggested that if ICT is to become a tool for development, we need ambitious strategies for digital inclusion. According to her, digital inclusion seeks to foster not only broader access but also the social use and appropriation of digital technologies to meet the needs of communities. This entails encouraging the establishment of public policies, the creation of appropriate knowledge and content, and the strengthening of individual capacities.

"People want to communicate and if provided with the tools to communicate, they will use these tools as effectively as they can to solve their immediate needs."

Pete Cranston

While noting that digital inclusion can help improve the economic, social, political and personal lives of the vast majority, particularly among the poorest and most marginalised sectors of society, Delgadillo underlined the need to find a common language. Each sector of society has its own strengths and weaknesses and the problems we are facing can only be overcome when all sectors cooperate in a concerted effort, she argued. To overcome the barriers to equitable access, networks and partnerships are needed. Moreover, Delgadillo noted, that if communication is a fundamental right, then

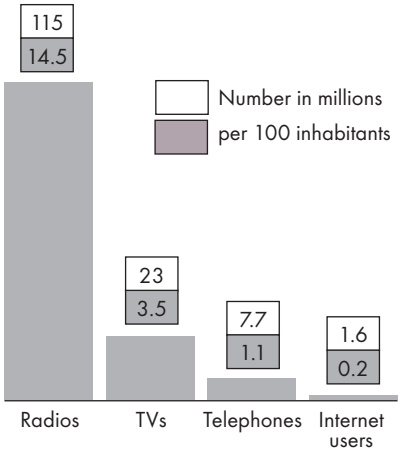
sustainability needs to be assured in an integral way – including not just financial sustainability but also social, political, cultural and technological sustainability.

Shashank Kansal, ICT entrepreneur and President of ITNTI, Nepal, remarked that access is key to development, since it represents the "lifeline of the world". He noted that communication and access to information flow has been the most important factor for people to be included on the "highway for development". Kansal said that if people have tools, they will use them. Nonetheless, he called for people-centric innovation to provide the tools which are necessary.

Veli Sundbäck, Executive Vice President of Corporate Relations and Trade Policy at Nokia, pointed out the importance of the mobile telecommunications industry in contributing to universal access. Information and communication technology is one of the most important building blocks of future economic and social development, he suggested, and the rapid development of mobile technology can provide new, more affordable solutions. Noting that there are already 1.2 billion mobile users worldwide, Sundbäck estimated that the figure could rise to 2 billion by 2008 and 4 billion by 2015. However, this would require that affordable access be made a political priority and that current obstacles be removed. Sundbäck also stressed that cooperation is a key question and the responsibilities of different actors and stakeholders need to be defined.

Information technologies: unequal access

The spread of ICT in the least-developed countries



Source: ITU Mobile Internet Statistical Annex 2002

Reflecting on the very rapid uptake of mobile communications, Sundbäck cited some statistics. Thus on a global scale, in a period of 10 years as many mobile connections were installed as fixed-line connections were over 100 years. In Africa, the figures are even more striking. Here it only took 5 years for mobile connections to equal the number of fixed-line connections built in the past 100 years. The development in terms of affordability has also been very rapid. When the mobile communications industry started around 1990, the cost for a mobile terminal was US$ 1,800. Today, the average price varies between US$ 100 and 150. The price decrease has been very significant, particularly given the fact that the devices today are not just mobile phones, but mobile devices that allow much more than voice communication.

Hamadoun Touré, Director of the Telecommunication Development Bureau (BDT) of the International Telecommunication Union (ITU), and with management experience in leading telecommunications companies, presented four key themes: vision, innovation, networking and information. What is needed, he suggested, is a forward-looking vision that goes beyond the Summit on the Information Society (WSIS) and seeks to ensure that the global knowledge-based economy and society will come true. Reflecting on the growth of wireless technology, he called for researchers, policy makers, industry, civil society and multilateral agencies to commit to the philosophy of "continuous innovation". Innovation, he suggested, should be adapted to local conditions. Using the example of mobile telephones and prepaid cards, he noted that such community-driven innovations are rapidly spreading telecommunications throughout the developing world.

"Equitable access is best achieved by bringing access through a multi-stakeholder partnership where there are layers of actors and each has a role to play, each collectively and in concert advancing things."

Aida Opoku-Mensah

In terms of networking and information sharing, Touré emphasised that international organisations play an important role. Moreover, he underlined that networking is essential among policy-making bodies in order to attain policy harmonisation at sub-regional, regional and international levels. Touré further pointed out that universal access is not an end in itself, but universal contributions are also needed to ensure that the information society is a two-way street.

Multi-Sector Cooperation: Different Roles for Different Stakeholders

Digital inclusion can only be achieved if all sectors of society work together toward common goals. Nonetheless, while all actors involved agree on the need for cooperation, it is not easy to achieve closer collaboration across sectors. Not only have different sectors different goals and objectives, but their modus operandi can differ in fundamental ways.

Citing Ecuador as an example, Karin Delgadillo pointed out some problems of multi-sector cooperation. According to her, 70–80 per cent of the population of Ecuador live beneath the poverty line. Basic food for a family of five costs US$ 150–200 per month while the basic salary is US$ 120. She estimates the monthly cost of a mobile phone at US$ 28–35 (with just 8 hours of access) plus the cost of the phone and cards at US$ 10. Fixed-line connections are expensive, because the government still has a monopoly and the regulatory system does not support equitable access. In rural areas, the big companies do

not want to invest – not even in radio stations – because it is not profitable. VSAT is absolutely unaffordable with a price of US$ 3,000 per month. "How can all sectors work together to achieve sustainable development under such circumstances?" Delgadillo asked and argued for a strong need to develop inclusive ICT strategies.

Veli Sundbäck agreed that it is important that all partners – governments, regulators, international agencies and civil society – work together to create an enabling environment. According to him, manufacturers have several responsibilities: first, they need to bring down the total cost of ownership (TCO). Now, the TCO for mobile telephony is approximately US$ 16 per month. If it can be brought down to US$ 8 the number of users can be increased to two billion; if it can be reduced to US$ 5, the number may even grow to four billion users. Second, manufacturers need to develop more user-friendly products. Third, they need to ensure the interoperability between different technologies. Finally, they need to partner with civil society, academia and others on projects on best practices.

"In an ever more globalised world, communication and access to information is not a luxury but a basic right that people must have for achieving integral human development."

Karin Delgadillo

Hamadoun Touré argued that the state also has an important role to play in facilitating access to ICT for all. Government has a role in creating a level playing field, he said. If government does not do it, the contrary is a blocking barrier. So government has an influence in any case, either positive or negative. But government has no business in being an operator. It cannot be a referee and a player at the same time.

Shashank Kansal agreed that governments necessarily play a role. But in some cases, especially in least-developed countries, non-obstructive governments indirectly help entrepreneurship. In many countries, governments do not actively participate in terms of fostering solutions. But by remaining non-obstructive to developments within society, to entrepreneurship and the business and technological communities they indirectly help the development of the society.

A member of the audience pointed out that one of the major problems was to give access to those living in remote areas. Referring to the experience in Ecuador he said: "It is easy to connect four million people, but it is not easy to connect four and one million people, if the latter live in the Amazon region out of reach of everything. Nobody is interested to connect these people, simply because they cannot pay for the services. As a result, the private sector does not see the financial potential in poor communities."

Commenting on the suggestion that the private sector is not seeing business opportunities in addressing less affluent people in remote areas, Sundbäck did not fully agree. "At least in our company we see that we can build viable business propositions by providing services and products at much lower cost than today," he said. "We clearly see huge potential."

He also pointed out the important role of the governments in bringing down prices. With Nokia working in almost all countries of the world, the company has good data on the tariffs of mobile calls, he said. In a number of countries the cost of a one minute mobile call in the lower category varies between 5 and 7 cents, but in many countries operators using exactly the same equipment at the same cost are charging US$ 1 per minute. "The government or the regulators have a very clear and prominent role to see to it that competition is created to push the prices down and that excessive taxes, levies and custom duties are done away with," he said.

"The rapid development of mobile technology can provide new, more affordable solutions. In favourable conditions these can increase the number of mobile subscribers to over 2 billion by 2008."

Veli Sundbäck

Touré agreed that competition is a key feature to bring down the cost of communication. However, leaving everything to the private sector alone may result in companies not investing in the rural or remote areas, because the required investments there are higher while the revenues are lower, he said. Governments have to formulate rules that will create incentives to invest in rural areas. This is a national decision that has been taken everywhere in the world, including Europe and the United States. There are different incentives for universal access; some collect universal access funds that are distributed back to operators, some put down operators in the rural areas or require it as a condition for a license. "In any case a clear strategy is needed, otherwise there will be no communication in rural areas," Touré said.

The Social Benefits of Digital Technology: Some Lessons

The rapid growth in mobile telecommunications is but one example of the widespread demand for ICT throughout the developing world. Moderator Pete Cranston of One World International noted that, "one of the messages we are hearing is that people want to communicate and if provided with the tools to communicate, they will use these tools as effectively as they can to solve their immediate needs". This demand for communication suggests that ICT can make a real difference in people's lives.

Touré took up the question why poor people decide to spend some of their money on telecommunication. "What is the alternative to a phone call?" he asked and pointed out that often the alternative in a small village is that someone has to spend much money and many days travelling to get news. Hence, if people have access to a mobile phone they use it. This is why the growth of the mobile phone market has even surprised the professionals in the industry. According to Touré this has to do with the fact that there are some categories of users that are not considered in economic indicators, e.g. people who live on one dollar a day and are not expected to spend money on a telephone. But there is a lot of informal trade going on and people use mobile phones to save money and lives.

"Information and communication technologies serve as the conduit to an information society as they permeate into every facet of human life and play a pivotal role in poverty reduction, healthcare delivery, trade facilitation, distance education delivery, and knowledge dissemination."

Hamadoun Touré

According to Sundbäck the primary reason why people want to spend so much money on communications is the individual need to be able to communicate with other people. And more and more the need to seek information and to learn through these devices. An advantage of mobile phones is that people have the freedom to communicate whenever and wherever they choose.

There are examples where people have been able to increase their personal income by using modern communication equipment. In Uganda, for example, a mobile communication network and data system was built for the benefit of farmers and fishermen. They can now very easily check the actual market prices of their commodities through mobile devices by simply sending a text message to a database which in turn sends back the requested information. This has resulted in substantially increasing incomes of the farmers, mainly because there are no longer middlemen who are not paying the right market prices.

Karin Delgadillo noted that the poor try to find their own ways to meet their needs and demands. In order to secure food, find employment, sell their goods and services etc. they will use the telecentre if it helps them to achieve their goals, she said. At the same time, this increases in an integral way other communication mediums within the community such as the woman in the local shop, the person in charge at the telecentre who takes a message etc. Delgadillo argued that we therefore need to analyse in strategic and precise ways what are the real information and communication flows that communities are using and how we can work out integral strategies to respond to the people's needs and demands. Unless this is done, development efforts will not have an impact, she said.

The fact that people with very low income still spend a sizable proportion of it on communications was partly attributed by Kansal to "the need to communicate". But there is also, he argued, the human psychology striving to earn more, to create wealth and to enhance one's lifestyle. "They use all the tools available to the maximum limit in anticipation that tomorrow's life will be better than today's."

Delgadillo pointed to the need to differentiate between the needs of people as perceived by outsiders such as development agencies and the demands as expressed by the people themselves. "One of the biggest lessons learned is that we don't need to interpret needs," she insisted. Instead governments and other actors should listen carefully to what the people themselves say. "ICT can be appropriated when the people in a community are going through a demand."

"Access is the key to development. Right from the invention of telephony by Alexander Graham Bell to the modern-age advent of the Internet; it has become evident at all stages that communication and access to information flow has been the most important factor for humanities to be included on the highway for development."

Shashank Kansal

Another lesson is that people usually already have their own information and communication flows. They do not use ICT but rather use their own chain among themselves. For ICT to make a difference it is important to analyse these communication flows to find out how tools like radio, telephone or the Internet can be used to improve access to and exchange of information.

Drawing on her experience with different development projects, Delgadillo pointed out that communication tools should meet real needs and demands. For this it is essential to know the cultural background of the region in question. This is the reason why Delgadillo does not believe in models and recipes. "Each region ist different. Yet, governments put multipurpose telecentres in communities which do not attend to the particular needs and demands of the community," she said.

Concluding Remarks

Summing up the discussion, the rapporteur Aida Opoku-Mensah, Team Leader of ICT for Development at the United Nations Economic Commission for Africa, concluded with a key observation: "Equitable access involves a complex mix of cultural, linguistic, technological, financial and economic solutions; and it means different things to different people, depending on what environment one looks at," she said. She noted that the panellists had highlighted the

role of the government/regulator and the private sector in enabling equitable access, while underlining the role of communities in becoming owners of the whole process.

In light of these different perspectives, equitable access is best achieved by bringing access through a multi-stakeholder partnership where there are layers of actors and each has a role to play, each collectively and in concert advancing things.

She further underlined the importance of vision and political will, which she found to be critical, particularly when talking about equitable access or democratising access from a rural perspective. "It does not matter if the private sector has the money, it does not matter if the technology is in place – if there is no political will, nothing will move," she concluded.

RAPPORTEUR'S SUMMARY

by Aida Opoku-Mensah

Karin Delgadillo, Executive President, Chasquinet Foundation, Ecuador, spoke of the need for developing ambitious and bold strategies for digital inclusion that seek to meet the linguistic/cultural, economic and technological needs and demand of communities.

Shashank Kansal, President, ITNTI, Nepal, defined how entrepreneurial innovation could create the conditions for reducing barriers and thereby enabling appropriate local technological solutions for rural communities leading to greater development opportunities for them.

Veli Sundbäck, Executive Vice President, Corporate Relations and Trade Policy, Nokia Corporation, emphasised the impact of mobile telephony on the information society and how as a result universal access can be achieved. He stressed the need for prioritising affordable access by removing obstacles, and ensuring open global standards for greater interoperability of emerging devices.

Hamadoun Touré, Director, Telecommunication Development Bureau (BDT), ITU, outlined five key areas (sector reform, infrastructure development, e-strategies, finance and human development) that his organisation recognised as essential for achieving equitable access. He, however, stressed that apart from

this, countries needed to have a vision based on partnerships and innovative solutions.

KEY RECOMMENDATIONS

- There is political will at the highest level to enable affordable access, ensuring that infrastructure issues in rural areas and for the poor can be addressed.
- Equitable access has to be contextualized and as far as possible based on local linguistic/cultural, economic and technological imperatives of communities – so as to bolster their local knowledge content and its ownership and management.
- A multi-stakeholder partnership is required more than ever for achieving equitable access with renewed and innovative approaches for enabling greater access by all groups, particularly those that are often prone to marginalization such as women, youth, the disabled, etc.
- Need for a new generation of devices that are compatible with each other, ensuring that they are user friendly and accessible by less educated people. Such initiatives need to be taken in collaboration with Civil Society Organizations (CSOs) and academia.

SPEAKERS' MESSAGES

Karin Delgadillo

In an ever more globalised world, communication and access to information is not a luxury but a basic right that people must have for achieving integral human development. In Latin America and the Caribbean, as in other regions of the world, digital technologies offer great opportunities for human development. Yet the costs and the conditions of access to these new technological resources are such that the marginalised and poor people who make up the great majority of society have very little ability to use and appropriate them. If we do nothing to change this, digital technologies will be no more than a tool at the service of a tiny majority.

Community telecentres which have been multiplying throughout the region, represent a new approach that seeks to narrow the so-called digital divide.

Yet since the digital divide is really nothing more than an expression of social, economic and political inequalities, the solution involves far more than simply setting up telecentres. What we really need are ambitious strategies for digital inclusion.

Digital inclusion seeks to foster not only broader access but also the social use and appropriation of digital technologies to meet the needs of communities, and to encourage the establishment of public policies, the creation of appropriate knowledge and contents, and strengthening of individual capacities. In this way, digital inclusion can help to improve the economic, social, political and personal lives of the vast majority, particularly among the poorest and most marginalised sectors of society.

In order to achieve digital inclusion we need to find a **common language.** To overcome the barriers to equitable access, we need networks and partnerships. Each sector of society has its own strengths and weaknesses and the problems in hand can only be overcome when all sectors cooperate in a concerted effort. But all too often when representatives of different sectors meet and discuss, the same words are used but they have for each representative a different sense. Often those who are 'champions' in closing the 'Digital Divide' represent in reality the biggest barrier to digital inclusion. The issue here is that each sector often uses a common language in order to shadow different and eventually conflicting interests.

Finally, if communication is a fundamental right, then **sustainability** needs to be assured in an integral way: not just financial sustainability, true sustainability means social, political, cultural, technological and financial sustainability.

Shashank Kansal

1. Access is the key to development – right from the invention of telephony by Alexander Graham Bell to the modern-age advent of the Internet; it has become evident at all stages that communication and access to information flow has been the most important factor for humanities to be included on the highway for development.

2. In the current fast pace world, leaders and Governments both need to apply what I term FORCE:
   - **F**acilitate easy investments
   - **O**pen markets for free competition
   - **R**egulate fairly
   - **C**reate basic infrastructure

- **E**ducate and **E**ncourage people on usage and benefits of access and information based societies

This is a proven way for development of societies at large. And also the correct form of constant economic corrections.

Veli Sundbäck

Mobile Connectivity – a Key Enabler for Economic Development

Information and communications technology (ICT) is one of the most important building blocks of future economic and social development. With almost 1.2 billion people already using mobile phones worldwide, the rapid growth of mobile communications is a good example of the new economic opportunities arising from ICT. ICT industries are developing new low-cost solutions that will provide access to communication networks for new groups of people who have traditionally been beyond these possibilities. The rapid development of mobile technology can provide new, more affordable solutions. In favourable conditions the new solutions can increase the number of mobile subscribers to over 2 billion by 2008.

International experience has shown that the social and economic benefits of ICT can only be seized in a favourable economic, political and regulatory environment. Each of the stakeholders – governments, development agencies, international financing institutions, consumers and business – has an important role to play in concerted actions to create the required conditions.

Consumers can benefit significantly from the development of ICT and low-cost access to communications networks. Mobile telephony offers convenience, greater personal security, and the ability to increase personal and national income. Mobile phones can for example revolutionize the village phone concept, allowing village people to improve their earning opportunities. In the corporate sector, instant connections to factories, suppliers and clients increase productivity significantly. The self-employed and small enterprises can enhance their business opportunities by being reachable even on the move. Finally, mobile communications allow the elderly, disabled or youngsters to feel secure and connected, improving their quality of life.

Hamadoun Touré

Vision, Innovation, Networking, and Information are four key themes that can adequately address the subject before us.

We have come a long way peddling past a host of development challenges heading for the information society. Sometimes we have moved fast and sometimes we have not been able to move as fast as we would have wanted. Notwithstanding all the constraints that we have encountered, we have made significant progress. What is needed now is a forward-looking vision that goes beyond this Summit on the Information Society, a vision that seeks to ensure that the global knowledge-based economy and society will come true.

Riding on this high visionary tide, our creative minds must generate ideas on new affordable and effective tools that will break global boundaries and bring technology within the reach of everybody irrespective of their geographical location. Today, the rapid growth of wireless technology and the low cost associated with its development and deployment serve as tangible evidence that smarter and more appropriate technologies are still yet to come if only all of us – researchers, policy makers, industry, civil society, and multilateral agencies are committed to the philosophy of continuous innovation.

A vision that is not transformed into action will eventually atrophy and lose its glow. It is for this reason that a focused and well coordinated approach aimed at developing the necessary information and communication infrastructure will fast-track our journey towards a networked or connected society. This networking is critical at various levels. First, it is required between those organisations that are involved in providing funding for ICT-related projects so that resources can be pooled together in order to maximize both resource allocation and utilisation. Second, entities involved in implementing projects should ideally work together so as to ensure the interoperability of networks, services, and applications, avoid duplication of efforts, and establish some kind of symbiosis and synergy. Third, networking is essential among policy-making bodies that are essentially governments so as to attain policy harmonisation at sub-regional, regional and international levels.

If our generation is visionary, if we can commit ourselves to the principle of continuous innovation, if we can build our strategies around partnerships and networks of a likeminded people and entities, and if we can transform all these into robust and ubiquitous ICT networks, then we can attain that Information Society that we are all craving for. In that society, smarter working methods will emerge giving impetus to even more innovation, creativity, and improvement. This way, there would be more hope for the attainment of the Millennium Development Goals recently set by the Millennium Summit. This is possible because information and communication technologies serve as the conduit to an Information Society as they permeate into every facet of human life and play a pivotal role in poverty reduction, healthcare delivery, trade facilitation, distance education delivery, and knowledge dissemination.

OPEN SOURCE SOFTWARE: PROS AND CONS FROM A DEVELOPMENT PERSPECTIVE

As an alternative to proprietary software, open source software is gaining in popularity and relevance. The ability to modify and freely distribute computer programs makes open source an attractive option for developers and end users alike. Countries using open source software also mention independence and security as positive factors. However, it also raises a number of issues ranging from compatibility to support and intellectual property. As a result, decision-makers in developing countries find themselves caught in the middle of a polarised debate between the advocates of the different approaches. This panel discusses the respective merits and shortcomings from a development perspective. Particularly, it looks at the different underlying business models and the potential of the different approaches for stimulating economic development, innovation and job creation at the local and regional levels.

EVENT	Panel discussion 1.2
DATE/TIME	Friday, 12 December 2003, 10.00–11.30, Conference room 1
ORGANISER	Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**Bildad Kagai,** Coordinator, Free Software and Open Source Foundation for Africa (FOSSFA), Kenya **Robert Kramer,** Vice President, Global Public Policy, Computing Technology Industry Association (CompTIA) **Edgar David Villanueva Núñez,** Congressman, Peru **Tengku Mohd Azzman Shariffadeen,** President and CEO, MIMOS Berhad, Malaysia **Pedro Urra,** Director, Infomed, Cuba
MODERATOR	**Vincent Landon,** Science and Health Editor, swissinfo/Swiss Radio International
RAPPORTEUR	**Ricardo Gomez,** Executive Director, Bellanet
KEY QUESTIONS	▸ What are the main advantages of open source for developing countries? ▸ Under what circumstances are proprietary systems more adequate? ▸ Why should decision-makers take open source into account in legislation and policy making? ▸ Are open source and proprietary systems mutually exclusive? ▸ Is the issue of open source more than just a question of technology?

by Paula Uimonen

With a strong representation from developing countries, this panel offered a rich and varied debate on open source software from a development perspective. Representing one of the most controversial issues of the World Summit on the Information Society (WSIS), it proved to be one of the best-attended sessions of the ICT4D Forum. In order to accommodate a larger audience the session had to be moved to the biggest conference room. The session was also prolonged to accommodate the many interventions posed during the interactive Q & A with the audience.

Open Source Software

A computer program whose source code is made available for use or modification as users or other developers see fit. Historically, proprietary software developers have not made source code available.

Open Source in a Development Context

From a developing country perspective, open source is inseparable from the broader development context. As argued by the panellists, open source has to be assessed in terms of the needs and objectives of developing countries. In this regard, the ability to develop local capacity is just as important as a country's ability to produce the software it needs to meet its development objectives. If anything, the panellists agreed that open source offers many opportunities for developing countries to pursue their own path of development, regardless of ideology or political culture.

To Pedro Urra, Director of the Cuban health network Infomed, the central issue of software is whether it can help social and economic development. For developing countries it is important not to be just consumers of software but to also actively engage in producing the software they need. Open source, Urra argued, is a challenge to the creativity and resources in a country. Without public goods that help promote development it is difficult to change development problems. With proprietary software it is difficult to promote development, since the business approach is not necessarily interested in it. Consequently, open source is central to development. "Access to information should be a public good," Urra argued, "and a key question is, can the market assure a software platform in a sustainable and equitable way?"

Dr Tengku Mohd Azzman Shariffadeen, the visionary of Malaysia's ambitious information and communication technology efforts and President and CEO of state-owned ICT company MIMOS Berhad, identified five main challenges to make development work: (i) being able to make choices and to chart a strategic direction for the future; (ii) capacity building in terms of building institutions and programmes to implement the strategic direction; (iii) making efficient use of resources, especially human resources; (iv) building self-sustaining programmes; and (v) acquisition, development and application of knowledge.

"In terms of open source, we have new opportunities. They come about because there is a new movement of sharing. And the open source system is just one manifestation of this culture. The networks we have created through the Internet allow this sharing to happen in a very efficient way. All countries, and especially developing countries, should make use of this new opportunity to make development happen efficiently and thus achieve their national development goals," he said.

Robert Kramer, Vice President of Global Public Policy of the Computing Technology Association (CompTIA), a leading global IT trade association, agreed that open source offers new opportunities. These, he noted, need to be added to the opportunities already available through closed source software. "Our principal position is that governments need not undertake to pass legislation or enact rules that limit their choices to one or the other. In fact, the idea of having a rich set of choices in software that adds both the opportunity of open source and those in the commercial software area is really the way to go," he argued.

"There is a new movement of sharing and the open source system is just one manifestation of this culture. The Internet makes sharing very efficient. All countries and especially developing countries should make use of this new opportunity to make development happen efficiently."

Tengku Mohd Azzman Shariffadeen

Edgar David Villanueva Núñez, a well-known congressman from Peru, underlined that the purpose is development, closing the digital gap and improving lives. If the state is to promote policies to improve social and economic well-being, then it cannot ignore options that will promote innovation and technological independence. Developing countries cannot be limited to being consumers of software but must participate in shaping what is useful to them, and share it with other countries.

Addressing open source from an African perspective, Bildad Kagai, CEO of a Kenyan open source company and Coordinator of the Free Software and Open Source Foundation for Africa (FOSSFA), stated that although Africa is poor, there is a huge ICT industry, mainly dependent on the government sector (about 70 per cent). The challenge and irony, he noted, is that billions of dollars are transferred to the US and Europe to procure solutions which can be produced locally.

"What we are asking for is that we want this money to remain in Africa to foster local capacity and wealth creation through local companies with local solutions, instead of being diverted through dealers and resellers who do little to foster local capacity building and training. Open source and free software is the way to go for us, but there are many challenges, including policy issues," he pointed out.

Open Source and the Role of Government

Whether or not governments should take open source into account in policy making and legislation is a hotly debated issue. A growing number of governments are actively promoting open source, not least in the procurement of software for the public sector. While their motivations and proposals vary, these governments are "considering or proposing rules or providing guidance in an effort to 'level the playing field' between OSS [open source software] offerings and those of proprietary providers".[1] To some industry leaders such policies are not necessary, since the market should determine the choice without government intervention.

When it comes to government policy, Kramer contended that procurement preference laws are not needed. "By almost any measure," he said, "the global software market is exceptionally vibrant and competitive. Open source software, hybrid, and proprietary options currently compete head-to-head in almost every market around the world. In fact, open source software is among the fastest growing and most competitive classes of software in today's market. If open source is already competitive, then you don't need to have government procurement policies that are targeted towards open source, or for that matter targeted towards any particular kind of software. We believe that procurement preferences or mandate rules actually weaken the local software industry development. In essence what we are saying is 'the more the merrier'. The richer the software options, the richer the software choices, the better for government procurement, for taxpayers and ultimately for the software sector."

Renowned for his proposal of open source legislation in Peru, Villanueva suggested an alternative approach, arguing that governments should opt for open source. "Each country is free to design the policies it chooses, and the advantages of adopting open source (free use, copy, adaptation, distribution) are undeniable," he argued. The state as a user of information and communication technology resources in a country should guide the society as a whole through the route of freedom and technological independence. Furthermore, the state should promote among its citizens the use of economically sustainable ICT alternatives.

In arguing for the use of open source solutions by public administrations, Villanueva identified four key democratic principles favouring such a stance: (i) free access to public information to citizens, (ii) preservation of public data,

[1] Dravis P. (2003), "Open Source Software. Perspectives for Development", World Bank, InfoDev, page 7.

(iii) security of the State and its citizens, and (iv) promotion and massive diffusion of public information. He concluded that the state cannot be tied to any single supplier, and use of software cannot be left to the whim of commercial businesses and their interests. Why should the public interest of the State be tied to the interest of private companies, he asked? The benefits of the information society should be made accessible to all.

Policies represent a challenge for open source in Africa, noted Kagai, because they are not pro-open source and tendering procedures tend to favour, and even be based on, proprietary system specifications. To address this imbalance, he underlined, "we need policies to be revised". Governments can adopt policies that ensure that both software alternatives are carefully considered in ICT procurement.

Open Source and Economic Development

Generally considered to be a more cost-effective solution, open source software is often promoted on economic grounds. Nonetheless, the cost of a given software option is not limited to licensing fees alone, but includes a range of factors including training and maintenance. In this regard, open source may not always be the 'cheapest' option available. However, open source can offer additional advantages, ranging from a higher degree of adaptability to local environments to the promotion of more competitive markets.

In terms of local economic development, Malaysia has had some interesting experiences with open source. Although open source systems are relatively new, dating back only some 5 or 6 years, Malaysia has not only localised existing systems, but also developed its own applications. For instance, MIMOS has developed a supply-chain management system for the agricultural sector, allowing farmers to sell fruits and vegetables over the Internet. The system has been running for some six months in a village environment, where they have tested their own thin-client system model.

In sharing the lessons from this experience, Tengku Azzman concluded, "the experience has been very, very positive. Open source is much better. I am not talking about cost, but it is functionally better."

From an economic perspective, Urra emphasized that free software is open, not necessarily at no cost. Just as there are norms that require industry to be environmentally clean, we need to require transparency in the tools that are used in ICT, he argued. We are going through a paradigm shift in the software industry. Applications are not monolithic any more, but made in components. Open architecture

and components cannot operate with pieces that are closed. Sometimes a more expensive choice needs to be made because it is more open and transparent. Open source is a more 'ecological' option, better suited for development.

When it comes to fostering growth of ICT structures, Kramer suggested that the focus should lie on development models and licensing models, rather than questions of freedom. Regardless of which system is used, the question we should ask ourselves is "Does the software allow us to accomplish what we want to do most efficiently?". In terms of cost, he noted that assessments should be based on the total cost of ownership (TCO), i.e. not only the cost of licensing fees, but also the cost of installing, servicing, staffing and staff training. These factors vary with each application and with each problem. When governments assess the suitability of a given system, total cost of ownership, efficiency and other factors that are important should determine which software in the marketplace is the better software.

"Developing countries cannot be limited to being consumers of software but must participate in shaping what is useful to them, and share it with other countries."

Edgar David Villanueva Núñez

Kramer also linked investment in software to growth in the overall IT sector: "Faster growth in gross investment in commercial software promotes faster development of a country's IT infrastructure, which increases accumulation of and balance in its total IT capital." Referring to CompTIA-sponsored analyses of developing countries, Kramer emphasised the importance of adequate investments in software and services, rather than just hardware, to promote growth in the IT industry.

While acknowledging that only a small proportion of the market (5 per cent) currently uses open source, Villanueva noted that most of the proprietary software in use in Peru is unlicensed. The cost of migration to open solutions is most likely lower than the cost of legalising the licenses of commercial software in use. He underlined that public administration should not buy into the fallacy of technological neutrality. The state uses public funds for its procurement and needs to be able to choose what is best for its needs and its interests.

In order to promote competition, Villanueva noted that "the state should also provide the transnational corporations and investors a clear and ordered environment where the market forces function democratically without monopolies or abuse of a dominant position derived from economic power". Similarly, Kagai emphasised that it is important for governments to find an approach that would balance both sides, avoiding disadvantages for either side and ensuring choice. "We don't want to be favoured, we actually want to be put in a market where we can compete equally."

Opting for Open Source: Some Challenges

While identifying the opportunities that open source offers for development, panellists also recognised some of the challenges involved. The relative novelty of open source, in terms of business and development models, requires a certain degree of adaptation by providers as well as users. Moreover, compatibility with existing systems can be problematic. Although panellists considered such challenges to be temporary, they are worth taking into consideration when assessing the pros and cons of open source.

With regard to practical difficulties, Tengku Azzman noted that the number one challenge is that the open source model is very new. Unlike the proprietary model that is already in place, the open source model is a completely different way of working, one that requires a lot of voluntary help. In the open source movement there is an "obligation to share", to "share alike". Developing countries may have difficulties in acquiring enough technical competence to develop their own software and to share alike at the same level as other participants. This is something that has to be worked on, because all developing countries aspire to reach this level of capability to innovate.

Another challenge is migration, which MIMOS, an organisation of 1,000 people, has experienced when moving from proprietary systems to open source. According to Tengku Azzman the greatest challenge is not technical, but human. "Most people don't like to change from one system to another: they just resist any change. But experience has shown that this obstacle can be overcome," he said.

"Having a rich set of choices in software that adds both the opportunities of open source and those of commercial software is the way to go. It should be up to the market, not governments, to pick the winners and losers."

Robert Kramer

When it comes to the question of compatibility, Tengku Azzman noted that the most serious aspect is related to data formats developed by proprietary system vendors, which sometimes appear to put obstacles in the way to compatibility. This is a temporary situation, said Tengku Azzman, while noting that there were ways of overcoming the problem, especially if the question is posed to the community of open source developers. The new open sharing culture ensures that answers are received from a community of thousands of volunteers around the world.

To address issues of compatibility, Kramer noted that both proprietary and open source communities are moving towards global standards for data formats, which is something that CompTIA welcomes. He further suggested that the market will ensure compatibility once open source becomes more widespread.

According to Kagai open source business models are not considered to be viable in Africa, a problem which he attributes to a lack of knowledge. At the national level open source companies are not considered to be active participants in the private sector. In order to help governments that are willing to use open source, it would be useful to develop regional standards and international certification, to assure the quality of the solutions, Kagai suggested.

Broadening the Debate: Q & A with the Audience

As the panel debate was opened to questions from the audience, many participants were keen to share their experiences and queries. Economic development was a recurring theme, along with standards, intellectual property rights and local adaptation. The panellists reiterated the need to view open source software as a tool for development in all its dimensions.

"One of the most concrete things we can do right now is to ensure that the money used in ICT, especially at the government level, is not leaving the country. That is, by producing software locally."

Bildad Kagai

An industry analyst and author of a study on open source and development: Seeing that software is a big marketplace, when looking at the market more tactically, what is the best way of getting leverage in your respective region?

Tengku Azzman: It depends on each country's development objective. In Malaysia, we are dealing with the entire value chain to develop multimedia content. This varies of course from country to country, some may be more interested in desktops, but in Malaysia we are interested in the whole value chain.

Kagai: The entire package should be looked at. For instance, if you are looking at educational products you are more inclined to work on desktop solutions. The experience of the open source industry in Africa shows that the profitability tends to be in server solutions. But it is a broad spectrum.

Kramer: It should be up to the market, not governments, to pick the winners and losers. All choices should be left open: and the choice should be based on the best option available on the market.

Evan Leibovitch, President of the Linux Professional Institute: What do you see as the role of standards, i.e. open, unencumbered standards in public policy?

Kramer: We would support standards as long as they can be truly complied with by all types of software. In the U.S. we have seen bills that create standards that

exclude proprietary software vendors. We would disagree or argue with such standards. But the kind of global standards being proposed for file formats etc. we find to be reasonable and we support that.

Villanueva: We do not exclude the participation of proprietary software in bidding for public contracts, but on the condition that their source code is open; this allows for flexibility and adaptation, and the transparency needed for public information.

Tengku Azzman: Standards are crucial to move forward. With the advent of the Internet, we see a new way of making standards, as we can learn from the work of the Internet Engineering Task Force (IETF). Standards are actually tested by co petent people, in a very open and transparent environment. We would like to be adopters of standards as well as participate in the development of standards.

"With proprietary software it is difficult to promote development, since the business approach more often than not has other priorities."

Pedro Urra

A representative of an open source company in Uganda: I read in the InfoDev report, that over 80 per cent of the profits from software go to one country, the U.S. Anyone with a basic knowledge of economics knows that export-driven economies are what we are looking up to. Countries like Uganda, Kenya and Tanzania are mainly importers. Open source is giving us a chance, a sort of leverage. Critics of open source talk about the government making sure that the field is level. But the very companies they are representing benefitted from government favouritism for 10–15 years.

Urra: Returning to the central question of the debate, "can open source help development?" I see a consensus toward a yes. Entry-level costs for development using proprietary systems are very high, while open source has lower entry costs. In open source there are no licenses for original software. The issue is not to reject proprietary software, but to open up to a 'cleaner', open IT industry that helps to promote development.

Villanueva: Software is just a tool, a means to transfer information and knowledge. Choose the best instrument to share knowledge in a way that is open, transparent and free, with access to the source code, which is not possible with proprietary software. Open source can be a powerful engine for development. If for a given need there are two options, and one of them is open source, governments should prefer the open source option. If there is only a commercial option, we have nothing against choosing it if there is not an equivalent open source alternative.

A European living in the U.S.: I think a lot of the tensions we feel in the discussions are probably linked to what is perceived by many developing countries as aggressive behaviour by industrialised countries. There are three main points: the money drain, the knowledge drain, and the short-lived character of the licenses and systems. Maybe we have to come to discussions similar to what's happening in AIDS drugs licensing. Maybe it's time for the rich countries to start saying, "yes you have a point, we have a certain obligation to help you out". If commercial companies started doing this there would be less need for this sterile division on open source or not.

Urra: This issue of openness is very important. The open source concept goes beyond no-cost license. There are parallel movements in keeping open access to knowledge, for example in knowledge about DNA code, which cannot be proprietary.

Kramer: We get to issues of innovation and intellectual property. The knowledge revolution is really an intellectual revolution and if you do not protect innovation, while at the same time sharing innovation, innovation will suffer. Yesterday, Mr Stallman [Richard Stallman, Founder of the Free Software Foundation] made the remark that sometimes freedom, in this case the freedom not to pay royalties, is more important than innovation. I think that in any country which aims to develop the software sector, this is exactly the wrong approach. If you really want to have a vibrant software sector in 5–10 years, a developing country has to protect innovation, it has to institute strong intellectual property protection.

A representative of commercial software companies: How can the adoption of open source software actually advance development goals? Most development goals have to do with balance of trade and increase in the exports from developing countries. If you devalue or de-commercialise software and a software developer creates a vertical market application for something that could be exported, haven't you in fact created a barrier to adjusting your balance of trade?

Tengku Azzman: ICT has two functions: (i) ICT as an industrial sector – you can create a vertical industry in ICT, going from chips to systems, but more important is (ii) ICT as an enabler of development. How does open source help that? Proprietary vendors are not addressing a lot of development objectives and applications, because the markets are too small.

Representative of Linux Institute, Pakistan: Resellers for open source are more on their feet when it comes to providing services. Pakistan has an average salary of US$ 1.5 per day, and commercial desktop software is about the same cost per day. Why not use this money to develop our own expertise instead of taking it out of the country? Meanwhile, we have a problem with proprietary software not being compatible.

Kramer: Resellers need to adapt to sell services and we need global standards for compatibility.

Kagai: Let me use the coffee industry to illustrate. The coffee you get here is grown by farmers in Colombia or Kenya, but the prices are dictated to them and they have to sell at prices which cannot even support the growth of that coffee. If we are not careful with the software industry, that will be our destination. One of the most concrete things we can do right now is to ensure that the money used in ICT, especially at the government level, does not leave the country. That is by producing software locally. I would rather even have proprietary software, but local within the country, instead of having this money transferred elsewhere. The whole point is to stop capital outflow at the national level.

Villanueva: I agree totally. We have to find a new model. After all, we are trying to create a new society, an information society.

RAPPORTEUR'S SUMMARY

by Ricardo Gomez

Key issues:

The issue is not favouring either Open Source Software or proprietary software, but allow a choice of the best solution for the problem at hand.

What is best is determined by multiple factors:
- Cost (not only license fees but total cost of ownership including installation, maintenance, etc.)
- Transparency (access to source code)
- Independence (not being tied to any single provider or vendor)
- Flexibility (in adapting to local needs)
- Compatibility (adhering to open standards)

Governments use public funds and their decisions should be in the best interest of the public. While all participants agree on the need to consider multiple choices, the major disagreement is over the social and political implications of what constitutes the best choice:

- **Cost alone is not enough:** Just as policy requires environmentally clean industry, it should require environmentally (i.e., socially and politically) 'clean' software alternatives, even if they are more expensive at first.

- **Open is not necessarily free:** There are costs associated with Open Source Software as there is with proprietary software even if this is given for free. There are many other issues that need to be considered when choosing software.

- **Development is about strengthening local capacity:** Rather than remaining just consumers of proprietary software, Open Source Software allows developing countries to become producers of software solutions that strengthen local capacities.

Open Source Software is here to stay and will continue growing. It offers clear potential to contribute to development.

SPEAKERS' MESSAGES

Bildad Kagai

The Relevance of Open Source Software to Africa's Economic Agenda

The Question
The question may be posed on what the use/deployment of Free Software and Open Source (FOSS) solutions in Africa and the world at large holds. Is it worthwhile to migrate from largely proprietary solutions, which are well understood and already in use?

In the face of rapidly changing technological advancement, and the exorbitant cost of proprietary hardware and software solutions, which discriminate against Africa in attempting to participate in information and communication technologies for development, the need for open source solutions has emerged. There is a global trend towards FOSS solutions, which have become viable, cost effective and sustainable options for Africa's participation in ICT for development.

There have been arguments from some quarters, notably the ones who believe and trade in proprietary software solutions that the FOSS is not a sustainable business model. However, the facts the 'pundits' ignore, reveal that the FOSS model is very sustainable, especially for the African continent. The opportuni-

ties presented by use of FOSS solutions are in line with Africa's poverty reduction strategy and also the vision of raising the standard of living and the quality of life in general.

The Opportunity
FOSS solutions provide the opportunity for African software developers to contribute to the development of software, especially that which is tailored to the continent's needs. This would have wide ranging implications: training and career opportunities will be boosted, thus raising national GDPs. Due to low or almost no cost for open software solutions, many people in the continent will be able to gain access to information technology solutions, especially that which are tailored for specific demands, to suit the people's needs. Also there will be much revenue saved since less money will be spent on software solutions. Moreover, the solutions will be easy to manipulate to suit the people's needs especially in education, health and government-related work.

The Impact
On a big scale, there would be significant cuts in national budgets, especially so in the cost of software solutions if FOSS companies compete equitably. On a micro/personal level, more people would have access to an array of opportunities which are presented by use of open source solutions. This contributes towards the vision of universal access to ICT solutions for Africa and the world as a whole. Solutions tailored with a local flavour, even incorporating local languages in them, will greatly raise the quality of life for all. Mass deployment of open software solutions will greatly bridge the digital divide between the north and the south. FOSS gives the opportunity to Africa to rise to the challenge of becoming an information society.

Robert Kramer

Investment in Software Sector is Critical for ICT Industry Development
Faster growth in gross investment in commercial software promotes faster development of the country's IT infrastructure, increases accumulation of and balance in its total IT capital, stimulates employment growth, improves productivity, and increases GDP. In order to more aggressively stimulate the economy, governments should target policies to enhance the growth of their commercial software industry. In most developing countries with existing software industries, such as those in Latin America, a strong majority of software developers, systems integrators and ASPs (Application Service Providers) produce or distribute proprietary software and collect royalty fees, allowing them adequate return on their investment and development costs. This model – which is the rule rather than the exception – helps the indigenous software industry thrive.

Procurement "Preference" Laws are not Needed
By almost any measure, the global software market is exceptionally vibrant and competitive. Open Source Software (OSS), hybrid, and proprietary options currently compete head-to-head. OSS is among the fastest growing and most competitive classes of software in today's market. Moreover, no law, rule or regulation stands in the way of any government from using the free market to make its ICT selections. Consequently, governments should avoid passing "preference" laws because they already have all the tools they need to make informed, merit-based ICT choices, looking to all models of development to satisfy their needs. Guided by competitive ICT markets, neutral procurement policies maximize the universe of options for government procurement officers, allowing them to find and employ the best, most cost-effective ICT solutions for the given need, thereby serving taxpayers and constituents alike.

Procurement "Preference" Rules Weaken Local Software Industry Development
"Preference" proposals stymie competition in government markets and represent a fundamental challenge to the principles that underlie the WTO Government Procurement Agreement. This signals foreign investors and local businessmen alike that the government market is closed to companies that develop and sell proprietary and hybrid solutions, regardless of their merit. Where this occurs, these investors and companies are unlikely to remain, severely undermining the competitive and innovative dynamic that drives the local software ecosystem and contributes substantially to the underlying economy.

Question
If OSS competes effectively in the private sector marketplace, and no law or rule currently prevents governments from purchasing proprietary, open source or hybrid solutions, what efficiency gains are achieved by limiting the universe of software selections through arbitrary mandated procurement directives? If no efficiency gains are achieved, how is development advanced?

Edgar David Villanueva Núñez

The State as a user of Information and Communication Technology (ICT) resources in a country should guide the society as a whole through the route of freedom and technological independence. Furthermore, the state should promote among its citizens the use of economically sustainable ICT alternatives, within the legal framework and truly avoiding the use of piracy software. The state should also provide the transnational corporations and investors a clear and ordered environment where the market forces function democratically without monopolies or abuse of a dominant position derived from economic power.

The use of Free Software and Open Source solutions (FOSS) by public administrations goes in that direction based on key democratic principles that can be summarized in four premises:

(i) Free access to public information to its citizens
(ii) Preservation of public data
(iii) Security of the state and its citizens
(iv) Promotion and massive diffusion of public information

- In order to guarantee free **access to public information to its citizens** by the state, it is indispensable that data codification shall not be linked to a sole software provider. The use of open and standard formats allows the state to guarantee this free access and also permits, if necessary, the creation of compatible software.

- To assure the **preservation of public data** it is indispensable that the utilization and maintenance of the software shall not depend on the good will of software providers or the monopolistic conditions imposed by them. On the contrary, states require systems that assure the possibility of further development thanks to the availability of open source.

- To guarantee **national security** it is necessary to have systems that enable the State to be in full control precluding the possibility to incorporate certain elements that might allow distance control or the transmission of information to third parties without its authorisation, thus avoiding 'spy codes'.

- To assure the **promotion and massive diffusion of public information,** it is necessary to use software with licences that allow the utilisation and further development by the state or the community as those provided by GPL (General Public License), thus achieving a balance between the legal copyrights of the original author and the need by the state to develop economically sustainable initiatives regarding, for example, massive education projects in developing countries.

- **Key Question:** Why should the state use proprietary software when this alternative does not guarantee the above-mentioned principles?

Tengku Mohd Azzman Shariffadeen

Question 1: What is the developmental context of OSS for developing countries?

Developing countries want to quickly expand the use of ICT by their citizens in order to meet national development goals. Open Source Software (OSS)

provides an alternative model of software development and distribution to the proprietary model. Both models have their respective roles to play. We should not see the situation simply as either OSS or proprietary systems.

Question 2: What are the advantages of OSS from a development perspective?

(i) We have greater access to technology. By having the source code and the right to modify and enhance it, developing countries can quickly become potential developers and producers of software, instead of being stuck as users only.
(ii) Developing countries typically have young populations. OSS provides wider opportunities for learning and training, and thereby increasing the overall skill and competence level of the population.
(iii) OSS allows countries to set their own agendas to support local languages and fonts. Over-dependence on proprietary systems may constrain the fulfillment of national language objectives.
(iv) OSS is only one manifestation of the open sharing culture enabled by the Internet that is so important in providing global development for all. The open sharing movement has expanded into many diverse fields such as healthcare and content, and should be encouraged.
(v) OSS is potentially cheaper to implement, although it is not a 'zero cost' solution.

Question 3: What are the potential downsides of OSS?

(i) It is not a mature technology and requires full participation to 'share alike' if we want to reap its full benefits.
(ii) OSS depends on good Internet infrastructure. Reliable broadband access is essential to download, develop and deploy OSS.
(iii) Data and document formats currently in use sometimes cannot be accessed by OSS. However, this may only be a temporary phase.

Question 4: What is our key message?

OSS provides wider choice in the development and application of ICT for development. Both OSS and proprietary systems can co-exist. By providing access to technology and intellectual property, OSS empowers developing countries and levels the playing field. Developing countries can thereby aspire to become innovators, and not to simply remain as adopters of technology.

Question 5: Key Question?

How do we make the OSS movement self-sustaining at the country level? Is the cluster approach the answer?

Pedro Urra

- Open source and free software have been crucial for the development of the Cuban health network, Infomed, as a smart and sustainable ICT project in an underdeveloped country.

- At the same time, open source and free software have been a challenge and an opportunity in terms of the development of the human resources.

- We have developed solutions for our problems with great flexibility thanks to the possibilities of the open source paradigm and we are part now of a nationwide community that empowers national capacity to use ICT for development.

- Infomed has used Linux as the operating system for all its servers since 1994 and the experience of this has been a viable network. (see http://www.infomed.cu see and http://www.linux.cu)

- We now have sustainable solutions that we can share with others coming from the open source and free software movement and we have a network that is part of any international effort in this sense and ready to solve problems.

- Question: Access to information should be a public good. Can the market assure a software platform in a sustainable and equitable way?

SELECTED REFERENCES

The following list includes selected references to facilitate quick access to some key publications and toolkits. It is not intended to be comprehensive. All references are also listed on the website of this book on http://www.globalknowledge.org/ict4d and will be regularly updated and expanded. Additions and comments on further reference materials and links are most welcome. Please enter them directly into the open dynamic reference lists on http://www.globalknowledge.org/ict4d.

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2. FOSTERING POLICY AND IMPLEMENTATION

Rogier Gruys/BluePeak Travel Photography/Drik Picture Library

KEY FINDINGS

Lessons Learned

- The use of information and communication technologies (ICTs) facilitates scalable, inclusive and integrated approaches. This is critical to the advancement of the Millennium Development Goals (MDGs). ICT also provides tools for cost-effective and timely tracking of the achievement of the MDGs and for facilitating collaboration between the different stakeholders.

- The benefits of the new technologies are the result not only of an increase in connectivity or access to ICT, but more importantly accrue from the facilitation of new types of development solutions and economic opportunities that the utilisation of ICT makes possible.

- Each country has to define its own path forward, based on its unique social, economic, political and cultural context. The development impact resulting from using ICT vary with the role assigned to ICT in development (ICT as enabler vs. ICT sector) and the integration of development priorities in key ICT for development strategies. ICT cannot be viewed as a quick-fix. Its contribution depends upon whether other critical factors are addressed and whether barriers to the use of ICT – skill and capacity constraints, funding, appropriate content, etc. – are overcome.

- The lack of ownership, transparency and relevance for the people concerned are often key challenges in ongoing development programmes. People-centred communication and genuine participation facilitated by ICTs can greatly contribute to addressing these issues.

- ICT access is not gender-neutral, particularly in traditional contexts.

- Broad and inclusive ownership is essential for the transition to the information society. ICTs help to address old social problems with new solutions. A clear focus is required on key entry points for ICT-based interventions towards national development. Leadership and bottom-up approaches have to be balanced, identifying strategic areas and methods of intervention, and ensuring the participation of all stakeholders and sectors.

Trends and Innovations

- Mobile telephony is making a big difference in enhancing access. The world's Least Developed Countries (LDCs) have surpassed the important threshold of one telephone subscriber per 100 inhabitants in the year 2001 and now have the world's fastest growing networks, due in large part to competition in mobile cellular markets.

- Transformations in the global division of labour associated most recently with the expansion in outsourcing of IT services and products are leading to renewed interest in ICT in developing countries.

Priorities / Potential for Action

- Both an ICT for development focus in development policies and poverty reduction strategies (e.g. PRS/PRSP) and a poverty focus in ICT and e-strategies has to be promoted. These strategies and policies have to be rooted in the specific priorities and demand of that country.

- A competitive regulatory environment needs to be combined with targeted pro-poor policies; clear and enforced legal frameworks; licences for operator and service providers including obligations contribute to services in disadvantaged areas.

- A shift from stand-alone projects towards strategic and costed programmes with an MDG focus that form priorities of nationally owned e-strategies.

- Combination of market-driven processes, development co-operation and public-private partnerships geared towards supporting the development and the implementation of nationally owned e-development strategies that seek to harness ICT to enhance development and the achievement of the MDGs.

Burning Questions

- How can the enabling role of ICT in economic processes and social development be enhanced most effectively?

- What are the approaches and key ingredients required to facilitate scaling-up of effective grassroots and social investment initiatives?

HOW CAN ICT MAKE A DIFFERENCE IN NATIONAL DEVELOPMENT EFFORTS? DEVELOPMENT POLICIES, ICT AND THE SHAPING OF THE FUTURE

Although faced with different challenges Bolivia, Malaysia, Mali and Finland have one thing in common: they have all developed visionary e-strategies and are in the process of implementing them. Government leaders from the four countries highlight key elements of their strategies and how they were tailored to meet their particular needs by a combination of top-down and bottom-up approaches. They discuss the major challenges faced in implementing e-strategies and how they may be overcome. The panel debates success factors and obstacles for policy making and the mainstreaming of ICT into development and poverty reduction strategies. It also reflects on the lessons regarding the inclusion of stakeholders, the reduction of social disparities and the safeguarding of national identity in the transition to a global information society.

EVENT	Panel discussion 2.1
DATE/TIME	Wednesday, 10 December, 16.30–18.00, Conference room 1
ORGANISER	Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
VIDEO MESSAGE	**Carlos Mesa,** President of the Republic of Bolivia, presented by Alvaro Moscoso Blanco, Ambassador, Permanent Representative to the UN and WTO of the Republic of Bolivia
PANEL SPEAKERS	**Rodolfo Castillo,** Executive Director, Agency for the Development of the Information Society in Bolivia (ADSIB), Representative of the Government of the Republic of Bolivia **Mamadou Diallo Iam,** Chief of Mission of Informatics and ICTs; Representative of the Minister of Communication and New Information Technologies, Mali **Paula Lehtomäki,** Minister for Foreign Trade and Development, Finland **Leo Moggie,** Minister of Energy, Communications and Multimedia, Malaysia
MODERATOR	**Walter Fust,** Director-General, Swiss Agency for Development and Cooperation, Chair of the Global Knowledge Partnership Executive Committee
RAPPORTEUR	**François Fortier,** Advisor in ICTs for Development, United Nations Development Programme (UNDP)
KEY QUESTIONS	▸ To what extent have good policies/strategies yielded good results? ▸ How can countries best learn from the experience of others while tailoring policies/strategies to their particular needs? ▸ Is the global information society a threat to national identity? ▸ What are the risks of not integrating ICT into national development strategies? ▸ Can digital inclusion be achieved without partnerships with all stakeholders?

by Paula Uimonen

In this high-level panel debate, government leaders from Bolivia, Finland, Malaysia and Mali shared their experiences of using ICT in national development efforts. The four countries were invited as 'special guest countries' by the organisers of the ICT for Development Platform. In addition to participating in the joint panel debate, they organised their own national events, with high-level representatives from government, private sector and academia. They also organised national pavilions in the exhibition area, showcasing some of their initiatives and approaches to ICT for development.

In the panel debate there was agreement that visionary leadership and strategic policymaking play an influential role in the successful transition to information societies. But it is equally important that all members of society can contribute to and benefit from this process of transformation. Finding a suitable balance between top-down and bottom-up approaches, identifying strategic areas and methods of intervention, and ensuring the participation of all stakeholders and sectors are but some of the challenges that countries are facing.

Reflecting current events in the country, Bolivia explored the use of ICT to create a better government, while stressing the importance of social inclusion and community participation. Representing one of the world's most advanced information society, Finland elaborated on the challenges of integrating the social underpinnings of the welfare state into the technology-oriented information society. Malaysia shared the experiences of her renowned Multimedia Super Corridor, while outlining ongoing efforts of nationwide ICT development through innovative initiatives such as the smart school programme. A strong believer in ICT as a tool for development, Mali illustrated how new technologies can be used to preserve cultural heritage, while offering certain shortcuts for social development.

Representing different models and levels of development, the experiences of Bolivia, Finland, Malaysia and Mali offer a variety of approaches for the construction of information societies. They illustrate an important point as the moderator, Walter Fust, Director-General of the Swiss Agency for Development and Cooperation (SDC), pointed out. "In the information society, there is no one single model that fits all. Each country has to define its own path forward, based on its unique social, economic, political and cultural context," he said.

At the same time, and the diversity of e-strategies notwithstanding, common elements can also be discerned. "All these countries look at ICT as a tool for development; as a necessity but not an aim in itself," Fust said. Another common feature is social inclusiveness, which translates into the use of people-

centred ICT tools. Moreover, all follow a multi-stakeholder approach. This needs capacity, infrastructure, access, human resources and financial means. It also needs leadership as well as projects and examples to showcase.

Bolivia – Addressing Old Social Problems with New Technologies

Carlos Mesa, President of Bolivia, was unable to attend the discussion in person but sent a video message. This was introduced by Ambassador Alvaro Moscoso Blanco, Permanent Representative to the UN and WTO. In his message the President identified social inclusion as one of the major challenges faced by Bolivia. To this end, the Bolivian government is in the process of developing various policy and technical tools to allow broader participation. "We want to use ICTs for social inclusion of all, in all parts of the country," he said. He also stressed that key to enable this uptake is the participation of civil society as well as of the private sector and international organisations. "It is important in the new century to address old social problems with new technologies," he concluded.

"It is important in the new century to address old social problems with new technologies."

Carlos Mesa

Rodolfo Castillo, Executive Director, Agency for the Development of the Information Society in Bolivia (ADSIB), designated to represent the President of Bolivia, expanded on some of the major themes of Bolivia's ICT strategy. In particular he drew attention to two challenges where ICT can contribute to a solution.

Social exclusion: The Bolivian government has developed a "Plan National de Inclusion Social", which aims to increase the availability of ICT and significantly improve the connection of the country by 2010. Four areas are particularly important. (i) access and connectivity: half of all schools and health centres to be connected by 2010; promotion of private initiatives for public access services; (ii) capacity building: there is a need in all parts of society; (iii) content: relevance and responding to the needs of communities ("It is for them to decide what is important"); (iv) sustainability: the participation of communities is essential.

Lack of governance (e-governance): There is hope that ICT will provide tools to address the transparency and corruption problems which Bolivia is facing.

Finland – Involving all Sectors in an Inclusive Information Society

Paula Lehtomäki, Minister for Foreign Trade and Development, in her introductory presentation drew attention to three separate, yet interlinked issues,

which are based on Finnish past experiences and the country's visions for the future.

Firstly, she said, building an information society is part of the overall development of a society. This means that the basic building blocks of an information society are the same as those of a well-functioning society as a whole: democracy, human rights, basic freedoms, a sound economy, good governance and the rule of law. Information societies cannot be developed in isolation from overall development of the whole society. For an information society to become reality all the people from all sectors must be involved.

On the other hand, building an information society is always influenced by the history and local conditions of each country. This means that an information society can neither be imported nor exported. What can be done is to share information, experiences and best practices. As a well-advanced information society, Finland is prepared to share its experiences with other countries and regions. In Finnish development cooperation the country has focused on the comprehensive nature of ICT. ICT as a field for development cooperation is relatively new for all actors. Hence, Finland warmly welcomes the introduction of ICT issues on the global agenda.

"The very basic building blocks of an information society are the same as of a well-functioning society as a whole: democracy, human rights, basic freedoms, sound economy, good governance and the rule of law."

Paula Lehtomäki

Secondly, the aim of the Finnish government is to build a functional, equitable and competitive information society. In Finland, a strong interdependence between an information society and the welfare society has been identified. Making this symbiosis work requires social and regional equality, strong mutual trust among the stakeholders, a high standard of education and strong support for research and development (R&D). All this creates an excellent basis for innovations and utilisation of ICT, with far reaching consequences for the entire society.

A sound and comprehensive policy environment is essential to ensure that these consequences are truly inclusive and to the benefit of all citizens. Nobody must be left behind. The Information Society has a huge potential in offering equal opportunities to all members of the community, to enhance their well-being and their quality of life.

Thirdly, building an information society requires a concrete plan on how to achieve these goals, a strategy involving the stakeholders, namely the governments, the civil society and the private sector. The prerequisite of a well functioning strategy

is that the stakeholders must be involved both in the planning and the execution of the strategy. This is the case in Finland where widespread cooperation covers all aspects of society. There have been information society programmes for a period of ten years. The new programme launched by the government this year includes several focus areas, the main ones being: improving the skills needed by citizens to operate in the information society, education, working life, R&D, electronic services of the public sector, social welfare and health care, e-business, e-contents and e-services, and rapid Internet access and digital TV.

Malaysia – Moving beyond the Multimedia Super Corridor

Leo Moggie, Minister of Energy, Communications and Multimedia, outlined the emergence and the major elements of Malaysia's ICT strategy and the rationale behind it. "Malaysia was a very successful primary producing country," he said. "Then we shifted into highly successful, basic manufacturing. But in the early/mid 1990s, we began to realise that our competitiveness in basic manufacturing was no longer there. Many countries around us could produce much cheaper goods and products. The government examined what to do to make sure that the country remained competitive.

We adopted the shift towards information technology and information society issues. In 1996, we launched a particular programme, the Multimedia Super Corridor (MSC). It is a 15 by 50 km corridor between the international airport in Kuala Lumpur and the city centre. Infrastructure investments were put in place (highways, a new airport) and a new administrative centre was constructed.

We asked global industry leaders what would attract them to invest in IT-related, knowledge-based industry? We came up with '10 Bills of Guarantees', which are promised to companies and industries, from outside or within the country, who are prepared to invest in these sectors and to qualify themselves under the MSC status. They include: freedom to source your capital wherever you are; 100 per cent ownership for foreign investors; free access to capital; sourcing of knowledge-workers; complete freedom of movement of capital; tax incentives for ten years; free import of equipment and products required for multimedia manufacturing; first-class communication infrastructure. The other important part was to have a high-power implementation council, chaired by the Prime Minister, in which relevant agencies, government and private sector participated.

We are very happy to say that we have succeeded in phase 1. We have achieved more than our initial target. Phase 1 is confined to this 15 by 50 km corridor. We are now going to embark on phase 2 of this program, which will extend it to other parts of the country.

We believe that no country can decide to leave itself out of the information age. Moving into the information age and the information society is not a matter of choice; it is a matter of necessity. Whether we want it or not, we need to move into it or else we will be completely left behind. This is the position we have taken. This position needs to be pushed and we are going to continue to push it.

"In the information society, there is no one single model that fits all. Each country has to define its own path forward, based on its unique social, economic, political and cultural context."

Walter Fust

To make sure that it is implemented properly, we still maintain the necessity of the combination of the government, the private sector and the community at large. There is always a risk when pushing this specialized zone that other sectors in the country may feel left out. That's why for us the first focus is to introduce a flagship programme, covering: (i) tele-health; (ii) electronic government; (iii) smart school programme. This not only uses ICT but involves modifying the way lessons are conducted and the way the teacher's role changes to facilitate the learning process. We are already completing 90 pilot school projects. We hope by the middle of 2004 to provide Internet connectivity to all 10,000 schools, primary and secondary, in the country."

Mali – Using ICT as a Tool for Development

Mamadou Diallo Iam, Chief of Mission of Informatics and ICTs; Representative of the Minister of Communication and New Information Technologies, presented several key projects illustrating his country's approach.

"The experience of Mali is somewhat different, because of our history, geography and position. Mali is vast, 1.2 million km^2, with 600,000 km^2 of desert, and 200,000 km^2 of Sahel, a very dry zone. But despite these difficult climatic conditions, what distinguishes Mali in Africa is her thousand years of history of knowledge and writing. Today, GNP per capita is US$ 280. We lack infrastructure and human capacity. But the authorities have quickly realised that in certain areas, ICT can permit us certain shortcuts. Some examples illustrate our vision and experiences.

Timbuktu is a historic city in the Sahara and a model of ICT use. Here, we have established a multipurpose community telecentre, sponsored by UNESCO, FAO (Food and Agriculture Organization of the United Nations) and others. There are many types of users, from religious leaders and scholars, to craftsmen and tourist guides who trade and communicate with their overseas clients over

the Internet. We want to replicate this experience in other cities and rural areas where there is no market value, but where subsidies are required to provide people with access to Internet and ICT.

Also in Timbuktu, there exist some 300,000 old manuscripts, dating from the 9th century A.D. to the present, covering all aspects of society. We have a project to save and archive these manuscripts. It is an example where our past and future meet. An institute has gathered about 20,000 manuscripts, with some 700,000 archived pages. We are scanning these pages to put them in databases that will be available online.

My third case is a good example of cooperation between the private sector (Swisscom, the major Swiss telecommunication company) and a school (the Lycée of Timbuktu). This project allows students in Timbuktu to collaborate, exchange and work with students from a Swiss school. Thanks to the willingness of the partners, this project was set up in only three months.

In health, we have a tele-medicine project between the University of Bamako and the University Hospital in Geneva, Switzerland. There is a lot of technology that can help us with diagnosis and intervention. But we also have expertise in tropical illnesses that are little known in Switzerland. Also in health, we have a project using locally developed software based on Linux. In developing countries, most competencies are concentrated in the capital, leaving other areas under-served. This project allows radiology to be taken on-site, the data is then compressed and sent to Bamako, where specialists can interpret the information and send back their diagnosis by e-mail.

These examples illustrate that our vision is to use new ICT uniquely as a tool for development. Mali is president of the PrepCom of the Geneva-phase and the African group of the WSIS. Over the last two years, we have harmonised negotiations and preparations for this Summit. We have also organised events in Mali to share our vision of an effective use of ICT for development."

Debate on the Building Blocks of the Information Society

In response to the experiences presented by the panellists, the debate was opened to the audience and broadened. A wide range of issues were addressed, from gender and disabilities, through e-government, to ICT in education. Great concern was expressed over the risk of widening social gaps and social exclusion. While illustrating some of their efforts and challenges to reduce digital gaps, panellists also stressed the importance of developing content, not least to maintain local

cultures. The electronic archiving of the ancient manuscripts of Timbuktu was presented as an example of the mutually reinforcing roles of technology, culture and development in the information society.

Representative of African Development Initiative, a German NGO active in Africa: In sub-Saharan Africa, women with physical disabilities are totally out of the game. We see technologies as a means for getting a job for these women, because they cannot do typical physical work. We are developing a pilot programme to train the women to work for instance as secretaries. Governments in Africa will never have enough money to support such programmes. Could Finland, as a developed country, help NGOs directly, without dealing with governments?

Paula Lehtomäki: In Finnish development cooperation we are trying to support African countries to use ICT and we also support NGOs. The position of women is of course a tremendous social issue in many countries. In general, ICT questions should be mainstreamed into poverty reduction strategies and then we can support those projects as donors.

Representative of a Swiss NGO and a professor of ethics: Referring to Bolivia, e-government can also be abused, if there isn't a whole set of measures to avoid e.g. corruption within elections. What kind of additional measures would you integrate in e-government so that it can serve the goals of transparent elections?

Rodolfo Castillo: The subject of e-government is very broad. It is the use and application of ICT for good governance. We have a problem in Bolivia with a lack of transparency that we have to deal with, but the final objective is to have a better government. How can we apply ICT techniques to have a better government? It's by enabling the government to provide better services. E-services can help to have a more efficient government; they can provide services quicker and with more transparency. By trying to systematise some procedures and services that the government provides, we can have a better government and reduce corruption.

The other aspect related to corruption is that sometimes we fail to inform citizens and companies of the dealings of the government. If we can provide better information through ICT at all levels. We will also improve the level of efficiency and transparency of government. We also need to give citizens the opportunity to call back. The Internet can be a means of informing and also gaining information from citizens.

Student from China, studying in Finland: Finland is a perfect example of the combination of an information society and a welfare state. How is it financed? It seems that taxation plays an important role, but the taxation level in Finland is already high.

Will that not cause a problem? A second question concerns the remote regions like Lapland. The majority of the population lives in the Helsinki area, but for the small communities in Lapland, job opportunities are getting scarcer. What do you do about the development of those regions?

Paula Lehtomäki: Yes, we have a high level of taxation to cover the expenditures of a broad scale of public services. We Nordic countries have this traditional welfare state model that we are trying to support and develop. Concerning the information society, it is not mostly financed by public money. Take for example investments in Research and Development (R&D) which are about 3.5 per cent of our GNP. The biggest part, about 73 per cent, comes from private companies. In developing the information society, especially access to networks, we have opened our market very early. We have several operators in our networks and this is keeping the prices down. Using the Internet is affordable for most of our citizens.

"E-services can help to have a more efficient government; they can provide services quicker and with more transparency. By trying to systematise some procedures and services that the government provides, we can have a better government and reduce corruption."

Rodolfo Castillo

Of course, we have not been able to create access to broadband connections to everybody and these remote areas are the special case. We have a new strategy for developing the information society. The market-oriented approach has been serving us quite well so far. But we need to find some special arrangements for the most remote areas. That's what we are working on right now. A final point on the knowledge of people and their capability of using all the electronic equipment at their disposal: we have also invested much in education. This has also brought us good results.

Representative from the African Development Bank: The development of telecentres is sometimes the only way of providing access to people living in isolated areas. Which measures have been taken to make the project sustainable in Mali?

Mamadou Diallo Iam: The first telecentre was put in place in partnership and with support from the outside as well as with contributions from the community. But it is difficult to sustain. Government sponsoring has had to continue until the present. Now, we have a different experience. A Dutch NGO, in partnership with Malians, came up with the idea of promoting young entrepreneurs to set up telecentres. They receive a loan that they have to pay back. Three have already been established; the aim is to have five. It is a very good example, because instead of giving money, we have micro-credit through local banks that allow young entrepreneurs to get started. They all find different niches for their businesses.

U.S. citizen: As one looks at the Finnish society over the next 5–15 years, do you see any downside of having such an intense network society (negative side effects: political, social or economic)? Secondly, as you have such a virtuous cycle of one element of network readiness feeding the others (education, healthcare, e-government, etc.), do you see any opportunity for catching up of highly impoverished or emerging countries, which are so far behind?

Paula Lehtomäki: We have shown pretty good performances in the latest indexes, but these indexes show what we have done in the past. This is why we are trying to think and be active in developing our own information society model day after day, because we cannot just leave it here. One big challenge, also in Finland, is the so-called digital divide. Although many people are connected to ICT, not all of them are. And the gap between the people active in networks and those who are not so active and not so interested and capable is increasing. We need to make special efforts to really make this an inclusive information society.

"ICT can offer shortcuts for development."

Mamadou Iam Diallo

Competition worldwide is extremely hard in this sector, but the government has decided to invest a lot of public money in R&D and we expect our private companies to do the same. The challenge in Finland is that we are engineers in our souls and we have a challenge to get content to these services and to get more content to this whole idea of information society. I don't see any dark clouds, but we need to compete every day.

Representative from the Iranian Educational Research Association: We are really cautious about how to prevent the gap between those who can learn and perform in order to advance and construct their knowledge and those who remain at the periphery. What are the strategic measures undertaken as part of the Malaysian smart schools programme to prevent the digital divide?

Leo Moggie: In Malaysia we are focusing on the school system for two reasons. First, providing connectivity to all parts of the country will take a long time. So we thought a more practical approach would be to focus on the school system. Once the school system is connected, at least the students will have access to information and be able to use ICT in a more proficient way. Second, we feel that the development of ICT must also involve change in the way education methodology is presented. In addition to connectivity and access, it must also involve examining the way curriculua are drawn, subjects are taught, and the way teachers become facilitators in the learning process, rather than merely being the wise men in front of the class room. We also believe that focusing on the younger generation will help us tackle the digital divide.

Representative of the Linux Professional Institute, Pakistan: I see a lot of development taking place in Malaysia, but what are you doing to preserve your social fabric and cultural heritage? Do you have some programmes in parallel supporting your social infrastructure?

Leo Moggie: There is obviously a need to increase local content. This is a challenge we all face.

From Vision to Reality: The Development Dimension of ICT

Access to ICT plays a fundamental role. Yet, the cost of access remains one of the greatest obstacles to the successful use and deployment of ICT. This holds especially true in developing countries where the cost of equipment and connectivity is often higher than in developed ones, not least when measured in terms of income levels.

Representative from Mali: How do you perceive the contradiction between all the efforts that have been deployed to make ICT a tool that can help developing countries solve their problems, while at the same time when you look at the other aspect of ICT, which is access, it constitutes a tremendous financial haemorrhaging of those same developing countries toward developed countries? Take communication satellites, for example: the African continent today has over 12 per cent of the world's population, but it doesn't have a single communication satellite. It is spending a tremendous amount of its resources just to be able to access those technologies, at a cost that is sometimes five to ten times that of communication in developed countries.

Mamadou Diallo Iam: Let me clarify the question in its entirety – it's not just a question of telecommunication. When I send an e-mail from Bamako to Timbuktu, it is routed through the United States, because we don't have servers. This is a representation of the dominance of multinationals and developed countries. It is not just a lack of political willingness, but also the continued deterioration of terms of exchange. We are the primary producer of cotton in Africa. But what does this cotton bring us? The price is determined in London, not by us, and American cotton is subsidised. It is with cotton that we will buy computers, satellites and the rest. It takes tons and tons of cotton just to buy a mobile phone. The problem is at this level, in the inequality between North and South which places our governments under the dictate of the IMF (International Monetary Fund) and the World Bank. Our hands are not free to decide fair policies for our population. You have seen all the social problems we have had, in education and health, and the ultra-liberalism that is imposing itself.

Leo Moggie: How do you make sure that the benefits of ICT can be enjoyed by everybody? We accept the premise that ICT is very important as an enabling tool; and yet access to ICT is so varied. Developed countries have cheaper access. Countries that are less developed do not have the infrastructure coverage and the cost is much higher. The ITU survey, Digital Access Index [1], identified one of the matters that prevent the use of ICTs in developing countries to be supportability, because the cost is so high.

Take the cost of software as an example. The cost of software sold in developed countries is the same as in developing countries. To a person living in the United States that cost is minimal compared to his income. But to a person living in Malaysia or Mali it is prohibitive. Isn't there a valid argument for industries to consider a differentiated level of costing, taking the level of income in different countries into account?

"The key for rapid development lies in building a knowledge-based society through national efforts in human capacity development."

Leo Moggie

The other aspect is a technology issue. Are there not means of technology development that can make use of cheaper technology? Isn't there a way industry can develop a cheap level of PCs that can be used to extend access?

Paula Lehtomäki: The contradiction that was raised is important and it shows the crucial role of access to infrastructure. There are no easy solutions. But it is important to bear in mind that there are also some domestic policy measures that can be taken. One that has appeared to be really effective is to open the market to competition. At least according to our experience, that has made the whole system work more efficiently and reduced price levels in many services.

Rodolfo Castillo: This subject about cost in small countries is very relevant. I attended a meeting in Rio some time ago. We discussed if it would make any sense for Bolivia, Peru and Brazil to get together for hardware requirements, say PCs for schools, and make a bid to hardware manufacturers to see if we could get a better deal. Brazil will need 10 million PCs for its schools, Bolivia will need 10 thousand. So if we can tag into Brazil, certainly we can get a better deal.

Perhaps it makes sense to collaborate – countries putting their resources and requirements together so that we can have more clout and perhaps get better conditions.

[1] International Telecommunication Union (ITU) (2003), Digital Access Index

RAPPORTEUR'S SUMMARY

by François Fortier

Three themes emerged from the discussion on "How can ICT Make a Difference in National Development Efforts": the importance of broad and inclusive ownership of the transition to the information society; the potential of ICT to address old social problems with new solutions; and a focus on key entry points for ICT-based interventions towards national development.

Panellists repeatedly underlined that ownership of the transition to the information society implies participation of all social sectors in government, civil society, the private sector and international organisations, both at the planning and implementation stages. When this is ensured, ICTs bring new ways of fighting social problems that have long preceded the digital age, such as corruption, low level of literacy and expertise, or social exclusions by gender, political power or remoteness.

Yet, challenges to the effective use of ICT remain from that old order, notably the persistence of unequal terms of trade and the debt burden, or the undifferentiated application of Intellectual Property Rights (IPR) and ensuing prices, that prevent many developing countries to invest in the hardware and software needed for their full participation in the information society. Other issues also need attention, such as the deficient long-term recording and archiving of digital content.

Many countries have already developed national strategies that use ICT for innovative contributions to their development, and the session heard presentations from Bolivia, Finland, Malaysia and Mali. Common entry points emerged, with focus on the education, health and governance sectors. Malaysia, for example, sees ICT as both an incentive and means of reforming its schooling system, while reaching the broader community through its youth. Mali has made use of ICT in several telemedicine projects that share advanced expertise and case studies across remote areas of the country and abroad with Swiss organisations. In both these sectors and e-governance, Bolivia has underlined the importance of public access and developing locally relevant content, driven by communities themselves. Finland's strategy also alerted, in the context of its advanced welfare state, to the role of professional skills, research and development, as well as e-services and e-business as elements of a comprehensive national development strategy.

SPEAKERS' MESSAGES

Rodolfo Castillo

Bolivia's governance and critical social situation was manifested in popular upheaval in the months of February and October 2003 and resulted in the resignation of the President.

Important causes of the crisis:
- Social exclusion particularly in the rural and semirural areas
- Inefficiency and lack of transparency of the government
- Sustained economic crisis and lack of job opportunities

Can the concept of the information society and the application of ICT help to solve the delicate solution? The new Bolivian government and the new President think so! Premises:
- The government alone can not resolve all the problems.
- The solution has to come in a combined effort of the members of the information society (the government, the productive sector, the citizens and international cooperation), i.e. all present in the WSIS.
- All members have to agree to respect the laws and the private property.

Social inclusion

National Plan of Social Inclusion: All Bolivians to have access and connectivity by 2010 (about 20,000 communities, education and health, new telecentres). Content and services have to account for local requirements in terms of pertinence, cultural factors and language as well as local commitment to ensure sustainability. Financing to come from PC donations and international organisations.

Inefficiency and lack of transparency of the government

The government will make an effort to be more efficient by:
- Installing an Intranet that will improve communications and coordination
- Reducing bureaucracy and corruption by digitising workflows and placing the principal paperwork online
- Improving transparency in the Government actions by informing citizens online

Support to business and job creation

- Facilitate and provide technical commercial and legal support to business, particularly small and medium enterprises (SME), by e-commerce initiatives and online services including tax payments, e-services, digital signature, etc.

- Employees and workers will receive ICT training in short technical and vocational courses via multimedia (Internet, radio, TV) to improve their job opportunities and increase their incomes.

Mamadou Diallo Iam

Mali, a country of vast territorial expanse (approx. 1,240,000 km^2) with no access to the sea and a development potential yet to be tapped, views the new information and communication technologies (ICTs) as a major opportunity to accelerate its process of socio-economic development.

It is no secret that our country's present position in terms of telephone infrastructure and coverage, the number of PCs per inhabitant, and the availability of competent human resources in this domain still leaves a lot to be desired.

And yet the political will to scale down these handicaps is present as has been manifested in the creation of a new ministry, the Ministry of Communications and New Information Technologies, in October of 2002.

The policy of utilising ICT as a tool for socio-economic development was clearly laid down in both the framework letter which the President of the Republic addressed to the government and in the Prime Minister's declaration on general state policy as adopted by the National Assembly. Our country has already undertaken specific actions to demonstrate its firm determination to enter forthwith into the information society.

Let us, for instance, point out the first Regional Conference on the Information Society which was held in Bamako in 2002. The Conference culminated in the Declaration of Bamako, a groundbreaking document which served as a blueprint for the representatives of our continent when drafting the documents for the WSIS [2].

Further to the success of Bamako 2002, the African nations conferred upon Mali the honour of designating it as president of the African group.

On the country level, a national strategy is in the process of being formulated with the help of international partners for the purpose of structuring the global promotion of ICT more efficiently. In the meantime, however, a good many projects have already been launched in the domains of education, the environment, health, and governance.

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[2] For more information visit http://www.wsis2005.org/bamako2002/Index-02.html

The administration's highly ambitious Intranet project to catalyse the development of ICT and their rational utilisation to bring the administration closer to the citizen is currently in the stage of implementation. A vast programme has also been undertaken in Mali to provide all of the country's towns and villages with telephone and Internet connections so as to truly popularise the use of new information technologies by the largest possible number of citizens.

Other projects have come to life within the framework of international cooperation thanks to the support of development partners: "Internet at School" in Timbuktu; the Timbuktu multi-purpose Community Telecentre; the Wireless Network at the University of Bamako; the Keneya Blonw health project and the telecommunications hook-up in certain towns.

It is Mali's desire to consolidate all of the undertakings listed above. Indeed, they are designed to bridge the digital divide not only between our country and those which are better endowed, but also that which exists between urban and rural societies in our own country. In presenting our situation to the World Summit on the Information Society (WSIS), we hope that our plea will be heard and that useful contacts may be established with new partners able to assist us in our endeavours.

Paula Lehtomäki

1. **Building** the information society is part of the overall development of a society. This means that the very basic building blocks of an information society are the same as of a well-functioning society as a whole: democracy, human rights, basic freedoms, sound economy, good governance and the rule of law. Information societies cannot be developed in isolation from the overall development of a society. For an information society to become reality, all the people and sectors of society must be involved. On the other hand, building information societies is always based on the history and the local conditions of each country. This means that an information society can neither be imported, nor exported. What can be done is to share information, experiences and best practices. As a well-advanced information society, Finland is prepared to share our experiences with other countries and regions.

2. **The Finnish** government aims to build a caring and competitive information society. This requires the development of the information society by taking advantage of the best features of the welfare society, the traditional Scandinavian model. These best features are, for example, social and regional equality, strong mutual trust of the stakeholders, a high level of education and strong support for research and development. All this creates an excel-

lent basis for innovations and utilisation of ICT, with far reaching consequences for the whole society. A sound and comprehensive policy environment is essential in ensuring that these consequences are truly inclusive and to the benefit of all citizens. Nobody must be left behind. The information society has a huge potential in offering equal opportunities to all members of the community, to enhance their well-being and quality of life.

3. **Building** information societies require a concrete plan on how to achieve these goals, a strategy involving the stakeholders, namely the governments, the civil society and the private sector. The prerequisite of a well functioning strategy is that the stakeholders must be involved both in the planning and execution of the strategy. This is the case of my country where widespread cooperation covers all aspects of society. We have already had information society programmes for a period of ten years. The new one includes several focus areas, the main areas being: improving the skills needed by the citizens to operate in the information society, education, working life, research and development, electronic services of the public sector, social welfare and health care, e-business, e-contents and e-services, rapid Internet access and digital TV.

Leo Moggie

- The intrinsic value of ICT lies not in its ease for communications and information but rather as an enabler for growth and development.
- The key for rapid development lies in building a knowledge-based society through national efforts in human capacity development.
- On the part of developing countries, governments should lead in embracing ICT.

The intrinsic value of ICT lies not in its ease for communications and information but rather as an enabler for growth and development. With one fifth of the global population surviving on less than US$ 1 a day, ICT offers a chance to empower these people and transform them into productive human capital.

Well-endowed human capital goes beyond having hard working, dedicated and diligent manpower. In the Information era, these qualities though necessary are not sufficient to ensure sustainable development. With the emergence of highly competitive production economies, the key for rapid development lies in building a knowledge-based society. The challenge is to be able to use ICT for the creation of new knowledge for all human endeavours. Traditionally, a nation moves through three stages of economic development, from agriculture to manufacturing and then to services.

However, in the current information era, it is possible to move in parallel and not necessarily follow the sequential development. But this would require national efforts in human capacity building. Fortunately, with ICT the task of human capital development can be less onerous. If advanced countries could provide greater assistance in human capital development programmes, such as through e-learning or hardware and software support for education and research, Malaysia believes it could lead to the narrowing of development gaps between countries.

On the part of the developing countries, governments should lead in embracing ICT and dispel any fear and misconceptions especially in using ICT and the Internet. For example our Multimedia Super Corridor has triggered the necessary societal desire and actions to embrace ICT. Similar government-led initiatives to evoke paradigm shifts have also hastened ICT for economic and social developments in other countries.

Next comes the task of providing ubiquitous connectivity to enable societal inclusion. In this regard, governments must have the courage and confidence to engage private sector in developing the necessary infostructure. This could be done through a gradual shift to a managed competitive environment that enables new service providers to thrive. The government's role will be to ensure social equity for those underserved communities by way of Universal Service programmes.

Question: In the context of the Global Information Society, the Internet is a vital common resource for knowledge and information sharing. Yet this resource is being abused and misused with detrimental effects to society, in particular children. What can the global community do to address the issues concerned?

USING ICT FOR REACHING THE MILLENNIUM DEVELOPMENT GOALS: MOVING FROM RHETORIC TO ACTION

The achievement of the set of eight development goals, commonly known as the Millennium Development Goals (named for the UN Millennium Summit in the year 2000 with which they are associated), is emerging as a key benchmark to assess development effectiveness and is providing a framework to guide priority setting and advocate for concerted action at the global and national levels. A focus on ICT in this context is relatively recent. This may be because many developing countries currently lack widespread and affordable access to ICT as well as the fact that many decision-makers are unaware of the full development potential of ICT and the ways in which it can facilitate new types of development approaches, cost-effective delivery of services and economic empowerment. The panel investigates the contribution that ICT can make to the Millennium Development Goals (MDGs), draw lessons from practical experiences and research and explore indices that can be used to track development impact of ICT.[1]

EVENT	Panel discussion 2.6
DATE/TIME	Thursday, 11 December 2003, 10.00–11.30, Conference room 2 + 3
ORGANISER	United Nations Development Programme (UNDP), Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**Namrata Bali,** General Secretary of SEWA (Self Employed Women's Association, India) **Ronnie Goldfarb,** Executive Director, Equal Access, Nepal **Dr. Indrajit Banerjee,** Professor, Nanyang Technological University, Singapore, Research Coordinator, Regional Human Development Report for APDIP/UNDP **Richard Simpson,** Director General, e-Commerce Branch, Industry Canada, Member of UN ICT Task Force **John Patterson,** Advisor, UNDP-Development Gateway Initiative on Capacity Development for MDGs
MODERATOR	**Radhika Lal,** ICT Policy Advisor, UNDP
RAPPORTEUR	**Radhika Lal,** ICT Policy Advisor, UNDP
KEY QUESTIONS	▸ Can ICT contribute to the achievement of MDGs? If so, which are the MDGs where it can have the most impact? ▸ How to move from project-level interventions to inclusive and results-oriented ICT-enabled development? ▸ What are the key challenges regarding the use of ICT for MDGs? ▸ What indicators should be used to capture the development impact of ICT?

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[1] See also chapter 6 "Multi-Stakeholder Partnerchips: Meeting the challenge of the Millennium Development Goals", pp.194–205.

by Radhika Lal

The panel not only brought policy and research perspectives to the table but also drew on the voices of the poor and those active on the ground to more effectively assess the case of ICT for achieving the Millennium Development Goals (MDGs)[2], assess progress to date and to identify challenges and priorities for action. The panel was well-attended and highlighted the important issues.

The Debate about ICT for Development

The role of ICT in fostering development and addressing the needs of the poor has been the subject of much debate in recent years. The dot-com crash and the contrast between the expense and the relative complexity of some of the technologies and basic needs of the poor have led some to doubt whether ICT for development should be a priority at all (i.e. Pentiums vs. Penicillin). This has been countered to some extent by those active in the development field, including those working directly with the poor such as panel member Namrata Bali, who argue that it is not a question of 'either ICT or basic needs' and that, used wisely, ICT can be quite effective in addressing development objectives including the economic and social empowerment goals of the poor.

More recently, this apparent dilemma has also been 'eased' to some extent with (i) falling ICT costs resulting from the declining cost of PCs, development of open source software solutions, the emergence of new cost effective technologies (e.g. wireless) and increased competition in the communications sector; (ii) greater clarity about the role of ICT in underpinning the growth and diversification of developed countries; and (iii) transformations in the global division of labour associated most recently with the expansion in outsourcing of IT services and products to selected developing countries. Interest in using ICT in the context of development and, in particular

[2] At the UN Millennium Summit, held in September 2000, representatives from 189 countries, including 147 heads of state adopted the United Nations Millennium Declaration that sets out principles and values that should govern international relations in the 21st century. Following the Summit, the Road Map that was prepared toward the implementation of the declaration, built on previous summits and conferences to outline the series of millennium development goals and associated targets to be reached by 2015 in the areas of poverty reduction and hunger, universal primary education, gender equality and the empowerment of women, reduction of child mortality, improvements in maternal health, combating of HIV/AIDS, Malaria and other diseases, environmental sustainability as well as commitments to reduce debt, increase technology transfers and build development partnerships. See http://www.un.org/documents/ga/docs/56/a56326.pdf.

the MDGs, is also growing. Critical to addressing this opportunity is the need for:

- Research that goes beyond the anecdotal and project-level examples to highlight the nature of interaction between ICT and economic development and the impact of increased access to and use of ICT with regard to health and educational outcomes in particular.

- Dialogue and interaction between the ICT and development policy makers to strengthen the enabling environment to support ICT expansion and affordable access and use by development sectors.

- Conceptual framework that can highlight areas of maximum impact and support approaches that include both top-down and bottom-up interventions to achieve scalable impact and sustainable delivery.

- Identification of suitable indicators to track development impact.

Identifying ICT Contribution in Achieving the MDGs

The recent trend in outsourcing of IT services and products has catalysed interest in the development of new kinds of market opportunities and the development of the IT sector in developing countries and also served to highlight the importance of ICT in strengthening the competitiveness of enterprises in existing sectors (including small and medium enterprises, SMEs).[3]

"ICTs can play an important role in providing underserved communities access to critical information."

Ronnie Goldfarb

However, important though these developments are they do not automatically address the needs of those who are already poor. Namrata Bali suggested that, contrary to popular thinking, the benefits of ICT in the context of production and employment opportunities are not limited to large enterprises in the 'formal sector' but can be extended to benefit the poor who depend largely on livelihood opportunities in the 'informal sector'.

[3] It is becoming clear that competitive advantage is not based on an advantage in direct labour costs alone. Amongst other things, ICT is increasingly 'embedded' in production, distribution, marketing and processes and developing countries not only need to keep up and provide similar advantages if they are to lure investment and remain competitive but they also need to foster learning and innovation within the enterprise so as to ensure survival and growth.

She based her examples on the experience of SEWA, a women's empowerment organisation in India with a membership of over 700,000 poor women active in the informal sector in livelihoods ranging from rag picking to rural production activities and one of the first to focus on ICT in the informal sector. She emphasised the role of ICT in scaling-up capacity and grassroots leadership development efforts (through SATCOM, a satellite-based communications network facility) and enhancing 'access to media'. She pointed out that SEWA had found it extremely valuable to build the capacity of poor women to use the new ICT so as to more effectively represent themselves and their issues and take on the mainstream media. This was critical not only from the point of view of countering negative stereotypes but also to influence policies with a major impact on their lives. ICT has also been important in increasing the sustainability and effectiveness of production cooperatives, micro enterprises (e.g. milk, embroidery and craft cooperatives) and thus for raising income levels of the poor women. The informal sector tends to be greatly underserved in terms of social security and services and ICT is also being used to make it possible for poor women to get access to social services (e.g. credit/banking and public services)[4] and to enable them to participate in public decision-making so as to ensure greater responsiveness to the needs of the poor (e.g. ICT to support participatory planning for disaster mitigation). Many of the women also see affordable telephony as critical for directly strengthening them in their livelihood activities.

"Radio is by far the most often cited source of knowledge about HIV/AIDS."

HIV/AIDS and Behaviour Report, June 2002, United Nations

Fostering Access to Information and Knowledge Resources Critical to Development

Access to and exchange of information and different kinds of knowledge as well as its role in improving accountability, transparency and social

[4] Credit is often unavailable to the poor or available at very high rates of interest. For example, local money-lenders charge 10 to 15 per cent interest per day. Even with non-profit microfinance institutions, they can still pay 40–70 per cent interest per year. Al Hammond and C. K. Prahalad give examples of how ICT can make a difference: PRODEM, a microfinance organisation in Bolivia, has used multilingual smart card ATMs to significantly reduce its marginal cost per customer. Standard Bank is also using a similar automated system to serve poor depositors in South Africa: customers can open an account with as little as US$ 8 and take advantage of a wide range of electronic banking services through ATMs, which keep paperwork and transaction costs down.

inclusion underpins the achievement of all of the MDGs. Also, critical is the networking role of ICT and its potential to be used in the context of a number of different MDGs simultaneously and thus to increase the benefits from addressing interdependencies between the goals.

Cost-effective ICT becomes even more important for communities that tend to be under-served or located in remote areas.

Ronni Goldfarb pointed out that ability of individuals to improve their economic and social conditions in the current environment is based as much on access to information as it is on access to economic assets and social services. ICT (particularly a combination of cutting-edge technology like digital satellite broadcasting, solar energy, with traditional communications technologies such as national and community radio) can be vital for effectively delivering a range of development information to vast numbers of people in remote communities that lack basic infrastructure like phone lines and reliable electricity as well as in facilitating an integrated response to development issues such as HIV/AIDS and poverty through networking the communities (and those working with them). In many developing countries, the HIV/AIDS pandemic is inextricably entwined with issues of disempowerment of women and girls; vulnerability of children; lack of basic resources like clean water, food and sanitation; high rates of illiteracy; and lack of health and other information needed to improve the family condition. To be effective, the response needs to address these related dimensions.

"ICT is being used to contribute to poverty reduction by building the leadership capacity of poor women, increasing their opportunities to participate in the media and decision-making, strengthening their livelihoods and helping to secure greater access to social services."

Namrata Bali

Goldfarb gave a very powerful example of how ICT helped to facilitate a change with regard to trafficking of girls and women: advocacy – using the radio programmes – as regards girl trafficking was combined with other initiatives (also networked by Equal Access) addressing alternative livelihoods opportunities in the villages from which the girls were traditionally trafficked so as to provide real options.

ICT has the potential to facilitate the development of integrated and scalable solutions in both the public and private sectors that can allow for streamlining and cost-effective the delivery of social goods and services, particularly in the case of healthcare and education. This result was borne out by research recently undertaken by UNDP/APDIP (Asia Pacific

Development Information Programme) in preparation of its Regional Human Development Report on the subject of "Promoting ICT for Human Development in Asia: Realizing the Millennium Development Goals[5]"). In presenting the findings, Dr. Indrajit Banerjee pointed out that the research had been focused on discovering the interdependencies between ICT and human development at a more macro level and on identifying indicators that could reflect the human development concerns.

The research covered nine countries in Asia – China, India, Indonesia, Malaysia, Mongolia, Pakistan, Sri Lanka, Thailand, and Vietnam. He pointed out that the strength of this research lay in its attempt to combine both qualitative and quantitative linkages between ICT and the eight MDGs. Amongst other things, the research study encompassed: (i) an exploration of the potential and promise of ICT; (ii) a mapping of the status of ICT use and diffusion in Asia; and (iii) an identification of challenges of ICT use, including the issue of digital divide, both between and within Asian countries; and (iv) documentation of case studies and best practices of ICT applications from the nine countries across each of the MDGs.

"The infant mortality rate shows a strong and negative correlation with ICT in Asia as well as the Arab States, Latin America and Africa suggesting that the development of ICT provides better access to health facilities."

Indrajit Banerjee citing APDIP Study

He indicated that their research findings suggested that the application of ICT appeared to have more of an impact on some aspects of human development than others. Significant here was health and, in some instances, education. Progress in ICT was found to contribute to the enhancement of human development across the countries of the world, as the correlation between them turns out to be highly significant. Lastly, the results of the report suggest that ICT cannot be viewed as a quick-fix and its contribution seems to depend upon whether other critical factors are addressed and whether barriers to the use of ICT – skill and capacity constraints, funding for modernisation, appropriate content, etc. – are overcome.

Developing Indicators to Track Progress

Thus far the MDG indicator for ICT has focused on 'access to ICT' (total number of telephone subscribers per 100 inhabitants; personal

[5] United Nation Development Programme (UNDP) (2004), "Promoting ICT for Human Development in Asia, Realizing the Millennium Development Goals".

computers per 100 inhabitants and Internet users per 100 inhabitants) indicators as a way of capturing progress in meeting Target 18 of Goal 8 (the only MDG to explicitly address ICT) which is "in cooperation with the private sector, make available the benefits of new technologies, specifically information and communications".[6]

Both Richard Simpson and Indrajit Banerjee's presentations addressed the issue of ICT-MDG indicators.

Richard Simpson's presentation covered the issue of the approach and the issue of indicators (which are illustrative at this stage) as a way of trying to capture the impact of ICT on the specific MDG targets. In work being undertaken for the UN ICT Task Force, the approach taken – to the extent possible – is, to outline a three-tier structure which will be applied in demonstrating the relevance of ICT for each particular MDG:

- a macro level ICT goal which would capture national elements, planning functions and global issues;
- a system level ICT goal to indicate the impact of ICT at the level of a hospital, a school board, a city, in designing and implementing services;
- an individual level to illustrate the impact of ICT on the citizen, with a focus on the poor.

A matrix mapping ICTs to the eight key spheres that comprise the MDGs is proposed as a guide to illustrate the relevance of ICT in achieving MDGs. The matrix provides a snapshot of how ICT relate to MDGs and suggests some ICT-specific indicators that can be used to measure progress in applying ICT to the development agenda.

A major focus of the APDIP study was to identify a selection of ICT indicators of relevance for human development; and to focus on the construction of a composite aggregate index that can be used to rank the nine countries on their ICT use for achieving human development goals. This ICT-for-HD index is the first such exercise for Asia.

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6 The role of ICT as an enabler of the MDGs is not adequately reflected in the indicators selected for the ICT target (Target 18 of Goal 8). To facilitate effective integration of ICT, in addition to the focus on ICT access and connectivity, there need to be indicators that can be used to track the impact that ICT has on the various development objectives. With regard to the MDG on education, for example, in assessing the role of ICT in enhancing enrolments and learning outcomes, it also becomes important to track the extent of use of ICT – the proportion of content available online or in easily replicable multimedia format, the number of schools or educational establishments with multimedia content and capacity, the cost reduction and timelier provision of educational materials.

To measure the overall ability of individuals to access and use ICT, the ITU has also recently proposed a Digital Access Index (DAI)[7] that combines eight variables, covering five areas, to provide an overall country score. These are availability of infrastructure, affordability of access, educational level, quality of ICT services, and Internet usage. The results of the Index can point to potential stumbling blocks in ICT adoption and be used to help countries identify their relative strengths and weaknesses.

The final presentation by John Patterson focused on the Development Gateway's initiative supported by UNDP and others to facilitate access to a variety of resources on MDGs – including information and resources on Data and Statistics, Documents and Reports, Events, How to/Tools, Organisations, Networks, and resource people can be an issue.[8]

Broading the Debate: Q & A with the Audience

The discussion was lively with the participants and the moderator touching on various issues, including:

- Highlighted the need to go beyond anecdotes to address the issue of how 'ICT for development' is different from 'ICT for MDGs' as well as to identify key policy, strategy (ICTD/poverty reduction strategy/PRSP) issues. There is a tendency to focus on a combination of connectivity and ICT applications (e.g. e-learning, e-commerce) without putting in place a framework for capacity development, needs assessment, content development, responsiveness, etc. and monitoring. Policy issues, particularly the intersection of telecommunications and development policies as well as the integration of ICT in poverty reduction strategies were not covered as well as was envisaged due to the absence of a key speaker.

- How to ensure that there is space for scaling-up of successful activities and ensuring that the approach of ICT for MDG initiatives does not use the issue of scale to work in a top-down fashion but combines both top-down and bottom-up approaches.

- Ensure that indicators focus not only on macro level but also capture vibrant activity by groups on the ground. The indicators presented were all

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7 International Telecommunication Union (ITU) (2003), Digital Access Index
8 For more information visit http://www.developmentgateway.org/node/403452/.

very macro-level and were perceived as missing out on successes at a more micro-level.

- Request for examples and advice on how a case could be made to more integrate ICT in ODA (Official Development Assistance) to address MDG issues. ICT, education, health, etc. tend to be seen as separate sectors by many development cooperation agencies.

- Address the issues raised by the research presented – how to increase the development impact of ICT in areas where one would expect a strong relationship to hold but where this is in fact not borne out by the data at present in part perhaps because of various kinds of barriers and misallocations in the way that ICT is introduced.

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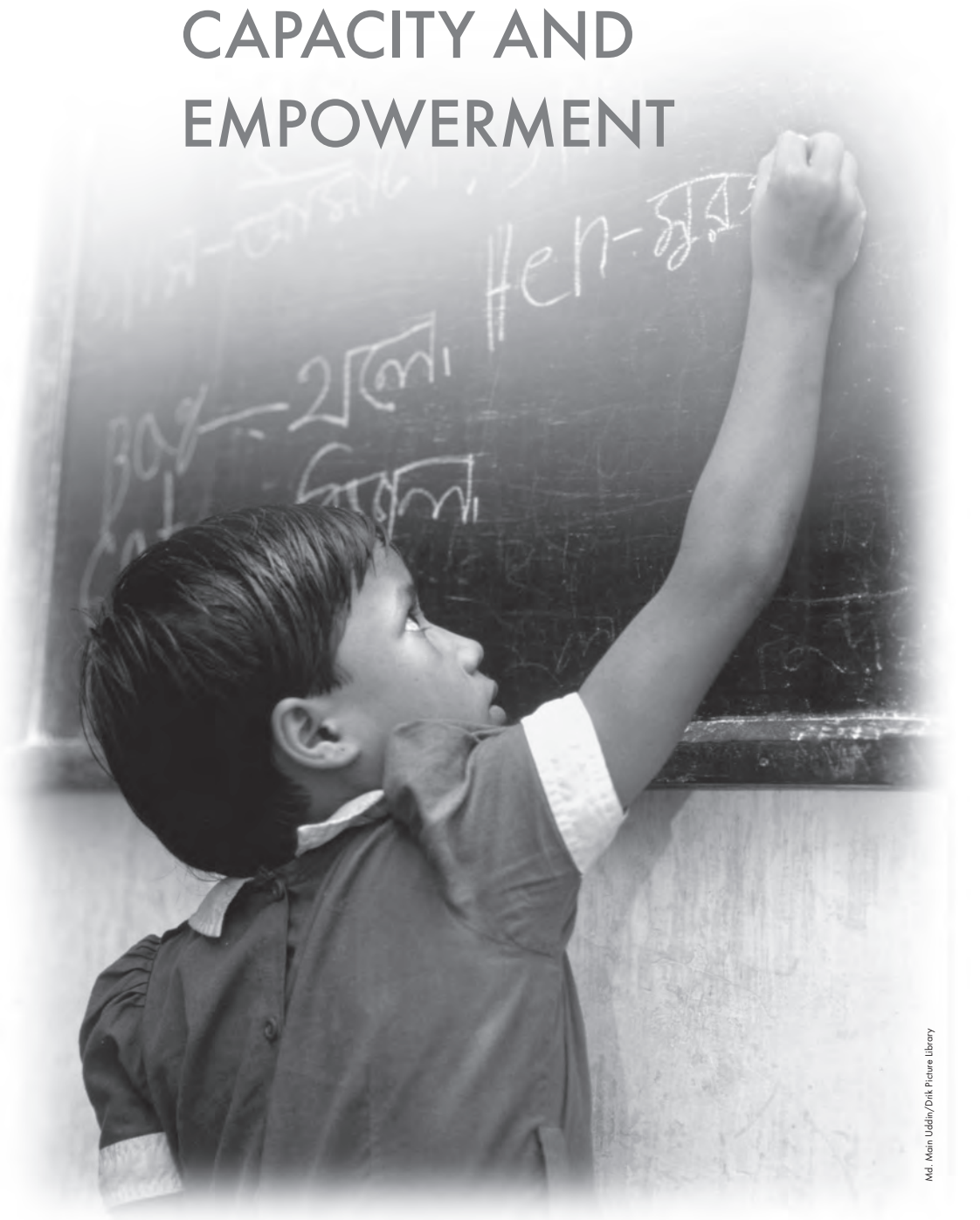
3. ENHANCING HUMAN CAPACITY AND EMPOWERMENT



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KEY FINDINGS*

Lessons Learned

- ICT for development and ICT for education projects that focus their investment on the deployment of technology have mostly been unsuccessful and unsustainable.
- Projects aimed to have learning and capacity building impacts must be designed, implemented and monitored with those objectives in mind.
- Successful ICT educational projects focus on developing capacities and cognitive skills as well as on providing access to and appropriation of technology.
- Much more than information is needed to appropriate knowledge and use ICTs for poverty reduction.
- Approaching the design and implementation of ICTs in education must be conducted in a holistic or integral manner if projects are to be successful.
- Resources need to be allocated for the development and training of leaders, as well as for follow-up, research and innovation, and support and maintenance activities.
- Good ICT for development and ICT for education projects require significant investments. Their cost-effectiveness cannot be measured in the short term.
- Successful projects are generally the result of multi-stakeholder initiatives involving government, NGOs, academia, communities, donor and funding agencies.

Trends and Innovations

- Innovative projects that use ICT for development or ICT for education are progressively oriented to redefining educational models and redesigning learning experiences.
- Innovative projects focus more on ICT-enhanced learning experiences and environments than on ICT-mediated traditional instructional processes.
- Free and open-source software (FOSS) combined with high-quality public domain content is a possibility for developing nations.
- The pedagogical and epistemological dimension in projects that aim at empowering and enhancing knowledge are important.
- Increasingly children and youth are addressed to attain more effective empowerment and more sustainable ICT for development investments.
- Corporations in the technology sector and multi-lateral banks are offering countries ICT projects with a strong pedagogical focus aimed at filling the gap established between the availability of ICTs and their productive educational use.[1]

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* Prepared with a substantial contribution from Clotilde Fonseca.

[1] This refers especially to the Latin American context. It is clearly a tendency, though not necessarily the best one for countries. Many governments tend to take these 'off the counter' solutions instead of developing their own.

Priorities / Potential for Action

- Removing gender barriers and promoting equal training opportunities for women and girls.
- Establishment of policies and support strategies to substitute techno-centric or info-centric implementation models with models focused on capacity development and empowerment.
- Providing funds and resources (meta-investments) to support the research and development (R&D) efforts of organisations and institutions doing effective capacity building through ICTs.
- Providing teachers and leaders with training and development experiences to introduce new ICT-enhanced innovative learning environments, resources and methods.
- Dissemination of case studies, research and development materials that can contribute to the design of forward-looking projects and initiatives in the developing world.

Burning Questions

- Are ICTs an imperative for the achievement of 'Education for All' objectives?
- Do countries and organisations have the leadership and vision to undertake the changes needed to make profitable use of digital technologies to improve learning and change education in meaningful ways?
- How can the education system re-consider and re-structure its function in knowledge preservation, creation and delivery to cope with the evolving needs of students in the fast moving technology world?

EMPOWERMENT THROUGH KNOWLEDGE: UNLEASHING THE POTENTIAL OF ICT IN EDUCATION, LEARNING AND CAPACITY DEVELOPMENT

Information and communication technologies (ICTs) have the potential to revolutionise the ways in which skills, knowledge and capabilities are acquired by individuals, organisations and communities. But how can this potential be harnessed to achieve development goals? Discussing the benefits and challenges of methods like distance education and e-learning, this panel identifies the lessons learnt from projects around the world. It shows that an effective use of ICT requires the development of a wide range of skills, from technical development through content management to usage. It stresses the importance of building adequate capacity throughout society, including marginalised groups, and the need to address educational imbalances in order to meet the demands of the information society.

EVENT	Panel discussion 3.1
DATE/TIME	Friday, 12 December 2003, 10.00–11.30, Conference room 2 and 3
ORGANISER	Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**Clotilde Fonseca,** Executive Director, Omar Dengo Foundation **John Gage,** Chief Researcher and Director, Science Office, Sun Microsystems **Shafika Isaacs,** Executive Director, SchoolNet Africa **Tarek Shawki,** Adviser for Communication and Information in Arab States, UNESCO Cairo Office **I. V. Subba Rao,** Principal Secretary, School Education, Government of Andhra Pradesh, Hyderabad, India
MODERATOR	**Pete Cranston,** Network and Operations Director, One World International
RAPPORTEUR	**Martha Burkle,** Researcher, Centre for Innovation and Educational Technology
KEY QUESTIONS	▸ To what extent have good policies/strategies yielded good results? ▸ How are teachers and trainers affected by the use of ICT in education and learning? ▸ What is different about 'e-learning' from 'learning'? ▸ How can ICT be used to achieve education for all? ▸ How does ICT influence the development of creativity and cognitive skills? ▸ What are the main capacity gaps for an effective use of ICT in education?

by Paula Uimonen

In a development context, information and communication technologies (ICTs) hold great potential for education, learning and capacity development. By providing new means for gathering, processing and disseminating information, ICT can be used in a variety of ways to strengthen the learning process. For instance, by offering creative tools for content management, ICT can improve the quality of teaching, while the delivery of content through multimedia interfaces can make the learning process more interesting for children and adults alike. By bridging the constraints of distance, ICT can also provide access to educational resources that are available in more advanced locations, while computerised information management systems can enhance the efficiency of school administration.

"Access is not just a question of the accessibility of the tool. It also implies the cognitive, social and technological capacity to appropriate the technology and put it to profitable and creative use."

Clotilde Fonseca

Nonetheless, using ICT in education also raises a number of issues, especially in light of the pressing problems faced by developing countries. Of immediate concern is the lack of access to ICT – the digital divide adding yet another layer of inequality to existing educational gaps. But ICTs represent additional challenges, ranging from the ways in which they affect teachers and trainers to how they influence the development of creativity and cognitive skills. After all, although ICTs should be used as a tool for education, rather than an end in itself, its introduction does result in a change from traditional methods. Moreover, in a context where extensive needs must be addressed with very limited resources, ICTs have to be used in a strategic manner. If they are to have a positive development impact, their use must be aligned with the goals of Education for All (EFA) and other Millennium Development Goals[1]. For this to happen, it is important to recognise the need to develop sufficient capacity throughout society, especially among marginalised and vulnerable groups.

A Holistic Approach to ICT in Education

Education is a fundamental building block of the information society, yet it also represents one of the greatest challenges for development. Given the state of education in many developing countries we are far from meeting the requirements

[1] Millennium Development Goal #2 (achieve universal primary education) states: "Ensure that all boys and girls complete a full course of primary schooling." (http://www.un.org/millenniumgoals/)

of a future society in which information and knowledge can truly empower people. Even without taking ICT into consideration, educational requirements are considerable in all too many countries. As summarised in a recent report:

"About 860 million of the world's adults are illiterate. Over 370 million of the 1.3 billion school-aged children in the world are not in school. These problems are concentrated sharply in the developing countries of sub-Saharan Africa, South and West Africa and parts of Latin America and the Caribbean. Many of those fortunate enough to even be in school in these parts of the world have limited access to books and other materials and share their teachers with 40 to 50 other children. The teachers themselves often lack an adequate training in how to teach." [2]

It is not easy to identify ways in which ICT can be used to address these problems, but the solution is clearly not limited to providing access alone. Unfortunately, efforts to use ICT in education have "largely assumed a 'technology-push' approach without due attention to the educational, pedagogical, institutional and financial sustainability dimensions", Shafika Isaacs, Executive Director of SchoolNet Africa, pointed out. Instead, debates have tended to focus on which technology solutions are most appropriate.

Such techno-centred approaches have a number of shortcomings, as Clotilde Fonseca, Executive Director of the Omar Dengo Foundation in Costa Rica, argued. It assumes that the solution to ICT-based learning is limited to 'infrastructure' and 'content'. The missing element in this equation is in fact the most important one, namely the human factor, i.e. 'the individual, the user, the citizen'.

"We recognise that young people are the future workforce and leading creators and earliest adopters of ICTs. They must therefore be empowered as learners, developers, contributors, entrepreneurs and decision-makers."

WSIS, Declaration of Principles, Article 11

Fonseca called for a more people-centred approach, according to which "the very concept of access needs to be redefined". She underlined that access is not just a question of the accessibility of the tool. "It also implies the cognitive, social and technological capacity to appropriate the technology and put it to profitable and creative use." In other words, capacity building, technology fluency, new learning tools and strategies, and commitment to equity and values are all crucial elements to be addressed.

[2] McKinsey & Company (2003), "Capturing the Promise of a Global Schools and Communities Initiative", Report to the United Nations Information and Communications Technologies Task Force.
See also http://www.gesci.org.

Similarly, Isaacs proposed a holistic approach, one that considers a range of issues in an integrated way, ranging from infrastructural, technology and policy issues to issues of technical and pedagogical capacity building, institutional awareness and preparation, and the development of locally-relevant content. As proposed by Shafika Isaacs, a "value-chain approach would be more appropriate, one in which the integration of rural and pro-poor bias as well as gender equality would play crucial roles".

"The evident revolution in both communications and information technologies suggest a parallel revolution in the ways we pass knowledge to future generations. The children of today receive and process information in significantly different ways as opposed to their parents and grandparents. They are 'multi-dimensional/multi-processor' receivers of knowledge which renders current education models almost useless. We are envisioning a future in which the education world will be forced to engage into major restructuring in order to meet the challenges of education delivery in the technology era."

Tarek Shawki

Nonetheless, based on her extensive experience of using ICT in education throughout Africa, Isaacs urged for caution. "Despite attempts at developing such an integrated approach and whilst there are a growing number of initiatives in the developing world to improve quality, access and efficiency in education through the use of ICT, the jury is still out on whether these have been achieved in Africa and the rest of the world," Isaacs noted.

Realising Digital Opportunities for the Acquisition of Knowledge

While a more holistic and people-centred approach to ICT is indispensable for their effective utilisation, it is also imperative to understand and appreciate the possibilities which new technologies offer. Although many actors prefer to use the term ICT to cover a broad range of information and communication technologies, including traditional ones, such a stance may be somewhat misleading. After all, digital technologies do differ from traditional technologies in significant ways.

Fonseca suggested that it might be useful to talk of digital technologies rather than ICT, to capture the "key revolution of our time", namely the "digital revolution". Citing the writer and historian Paul Levinson, Fonseca noted that by focusing on ICT in general, rather than digital technologies, "we move into the future with our eyes set on the past". She warned against "the distracting effect of looking at new technologies through the rear view mirror since it does not allow us to see what is really crucial and new".

By contributing new dimensions to human experience digital technologies allow for much more than long-standing technologies such as television and

radio. “Digital technologies provide new forms of production, representation, creation, expression and exchange,” Fonseca said. Some of the salient features include multimedia, interactivity, simulation and networking, aspects which are easily available to people from different countries and cultures, using different languages, communicating through different expressive and notational systems.

At the same time, to realise the potential of digital technologies, it is important to understand the process of knowledge acquisition in greater depth. Fonseca noted, “the development community has gone from restraint and scepticism about the role of ICT in education to almost irrational optimism.” She suggested that the rise of the Internet is probably responsible for this sudden magic. Referring to “our love affair with the Internet as a global library”, Fonseca warned against the misguided belief that “faster, cheaper, better distribution of information translates into improved knowledge”.

She underlined that information is not knowledge. “Knowledge is not the result of the accumulation of information,” she said. “Equating information with knowledge is a popular epistemological fallacy with the distracting effect of making us believe that the key issue is the development of content and the building of infrastructure. Meanwhile, we fail to recognise the complexity of knowledge, which involves: understanding, articulation of data and information, establishment of relationships, and application and effective use.”

Instead of focusing attention on the technologies, a holistic approach is imperative to promote ICT in education effectively. Consideration has to be given not only to infrastructural, technology and policy issues but in an integrated way, issues such as technical and pedagogical capacity building, institutional awareness and preparation, the development of locally relevant education content are all important dimensions.”

Shafika Isaacs

To move from data to information to knowledge, progressively higher levels of thinking, analysis and articulation are required. Higher order thinking requires the development of mental capabilities – not only technological competencies. “The capacities to think and understand are pre-conditions that homes and education systems have to provide in order for online learning miracles to occur,” Fonseca said. “Basic literacy and technology skills are simply not enough.”

Similarly, Tarek Shawki, Adviser for Communication and Information in Arab States for the UNESCO Cairo Office, noted that the effective use of ICT in education would require a “fundamental change in educational curricula and delivery methods”.

Aiming for the Future by Investing in Children

Given the novelty of digital technologies combined with their enormous potential for knowledge acquisition, it is important to have a forward-looking strategy for the successful integration of ICT in education. When looking to the future, the focus needs to be on children. As emphasised by Fonseca, "if we want to enhance human capacity and empower people, especially in the case of the poor, we need to focus on the young". This focus on young people is also reflected in the WSIS Declaration of Principles, which states, "we recognise that young people are the future workforce and leading creators and earliest adopters of ICT. They must therefore be empowered as learners, developers, contributors, entrepreneurs and decision-makers (Article 11)." [3]

"Despite attempts at developing such an integrated approach and whilst there are a growing number of initiatives in the developing world to improve quality, access and efficiency in education through the use of ICT, the jury is still out on whether these have been achieved in Africa and the rest of the developing world."

Shafika Isaacs

Fonseca offered a compelling reason for focusing on the young: children can be socialised to new technologies at an early age. This means that they can more easily learn to think, create, and interact in productive ways with and through technology.

If anything, children are the forerunners of what Shawki referred to as a 'parallel revolution', e.g. the revolution in ICT being complemented by a revolution in the ways we pass knowledge to future generations. "The children of today", Shawki noted, "receive and process information in significantly different ways as opposed to their parents and grandparents. They are 'multi-dimensional/multi-processor' receivers of knowledge."

According to Shawki the education world will be forced into major restructuring if we are to meet the challenges of education delivery in the technology era. "Given the changes in knowledge processing," he concluded, "current education models are almost useless." He suggested that we think/imagine a new education model where knowledge may be acquired by students from a multitude of sources (rather than a single collective model) while certification (leading to graduation) may be attained by universal examinations to evaluate universally acceptable 'knowledge norms'.

In order to empower children, Fonseca called for the need to "invest children with technology and invest in technology for children". Resources need to be allocated

[3] World Summit on the Information Society 2003, Declaration of Principles (http://www.itu.org/wsis)

not only for technology, but also for teacher training, follow-up, maintenance, research, and innovation, among other things. Moving beyond a technology-focused paradigm, children and youth also need to be provided with the opportunity to develop their minds through different kinds of interactions and creative contexts. They must therefore be allowed to forge new intellectual capacities.

Shawki underlined that ICT require great initial investments in resources, infrastructure and human capacity building. "Free and Open Source software (FOSS) combined with high-quality, public domain content appears to offer a very powerful solution to the needs of developing nations," he said. Nonetheless, an economic model is needed to make sure that developing nations, who, by definition, lack such resources but yet need this technology more than most, can enjoy the benefits of advances in technology. For instance, while a global creative solution, which opens the door for more useful FOSS developments, would be helpful, it is important according to Shawki that "the rights and interests of commercial software makers are not harmed".

Concluding Remarks

Unleashing the potential of ICT in education and learning to enhance human capacity and empowerment is a challenge of many dimensions. By applying a people-centred rather than technology-centred perspective, the panellists unravelled a complexity of issues, ranging from the necessity to approach ICT in education in a holistic manner to the need to reconsider educational models. While identifying some of the many obstacles to an effective integration of ICT in education, the panellists also identified ways in which these can be overcome.

Of particular importance is the need to focus on children. The panellists made it clear that if we are to achieve empowerment through knowledge, we must empower the young. After all, as concluded by Fonseca, young people of today will be the "citizens of a world that is progressively becoming technological and symbolic in nature".

The key role of children is also stated in the WSIS Plan of Action, which highlights the need to "ensure that young people are equipped with knowledge and skills to use ICT, including the capacity to analyse and treat information in creative and innovative ways, share their expertise and participate fully in the Information Society". "Removing the gender barriers" and "promoting equal training opportunities for women and girls" are also recognised.[4]

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[4] Plan of Action, World Summit on the Information Society 2003, chapters C4/d (http://www.itu.org/wsis)

Nonetheless, as emphasised by the panellists, focusing on children does not simply mean equipping all school children with computers. Empowering children requires an approach that takes a broad range of issues into consideration, ranging from the need to train teachers to new methods for the acquisition and transfer of knowledge.

SPEAKERS' MESSAGES

Shafika Isaacs

Integrating ICT in Education – Towards a Value-chain Approach

The introduction to the use of ICT in education, particularly in African schools, have largely assumed a 'technology-push' approach with less emphasis on the educational, pedagogical, institutional and financial sustainability dimensions. Even within the discussions on technology solutions, there has been considerable debate on which solutions are most appropriate for a developing country context.

Learning from the experiences to date, it is argued that instead of focusing attention on the technologies, a holistic approach is imperative to promote ICT in education effectively. Consideration has to be given not only to infrastructural, technology and policy issues but in an integrated way, issues such as technical and pedagogical capacity building, institutional awareness and preparation, the development of locally-relevant education content are all important dimensions. In an attempt to develop such an integrated approach, a 'schoolnet value chain' is proposed for consideration. Here the integration of rural and pro-poor biases as well as gender equality are also crucial.

However, despite attempts at developing such an integrated approach and whilst there are a growing number of initiatives in the developing world to improve quality, access and efficiency in education through the use of ICT, the jury is still out on whether these have been achieved in Africa and the rest of the developing world.

Question: Whilst ICT are purported to add value to education, the question within a development context remains: are ICT an imperative for the achievement of the 'Education For All' objectives?

Tarek Shawki

On the Economics of ICT in Education

Vast advances in both communication and information technologies have been breathtaking, to say the least. Such advances are viewed by many to offer a great potential for an improved, far-reaching and equitable education system. Most relevant is the potential offered to enhancing education in developing countries. On the other hand, the effective utilisation of such technologies requires great initial investments in resources, infrastructure, human capacity building besides a fundamental change in educational curricula and delivery methods.

Question: How can we craft an economic model through which we can enjoy the benefits of advances in technology in developing nations who, by definition, lack such needed resources but yet need this technology more than most?

On the Open Source Software and Public Domain Content for Development

The Free and Open Source Software (FOSS) combined with high-quality, public domain content appear to form a very powerful solution to the needs of developing nations when it comes to effective utilisation of modern technologies in education and many other areas. On the other hand, there is a need to develop general guidelines for publishing on the web or, at least, to rate the quality of available content. Furthermore, the long-standing copyright laws and intellectual property rights pose some difficulties when it comes to the large-scale utilisation of FOSS.

Question: How can we establish a global rating mechanism for 'quality/accuracy' of web publications (especially those which deal with scientific content) and how do we converge on a global creative solution which opens the door for more useful FOSS developments while not harming the rights and interests of commercial software makers?

The Future of Higher Education in the Technology Age

The evident revolution in both communications and information technologies suggests a parallel revolution in the ways we pass knowledge to future generations. The children of today receive and process information in significantly different ways as opposed to their parents and grandparents. They are 'multi-dimensional/multi-processor' receivers of knowledge which renders current

education models almost useless. We are envisioning a future in which the education world will be forced to engage into major restructuring in order to meet the challenges of education delivery in the technology era. We might even think/imagine a new education model where 'knowledge' may be acquired by students from a multitude of sources (rather than a single college model) while certification (leading to graduation) may be attained by universal examinations to evaluate universally acceptable 'knowledge norms'.

Question: How can the education system reconsider and restructure its function in knowledge preservation, creation and delivery to cope with the evolving needs of students in the fast-moving technology world?

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4. STRENGTHENING COMMUNICATION FOR DEVELOPMENT

Shahidul Alam/Drik Picture Library

KEY FINDINGS

Lessons Learned

- Because of their characteristics – e.g. multi-directional (many-to-many), non-hierarchical, interactive and more accessible than other technologies, at least in their technical characteristics – information and communication technologies (ICTs) can play an effective role in development communication. However, they cannot be, in and of themselves, technological fixes. To be relevant to development, technologies need to be adapted to the local context and appropriated by the people using them.

- Technologies have to be 'bent' to respond to the conditions and needs of poor users, and information services have to be developed which are wanted by the local communities, e.g. market intelligence, information about job opportunities, agricultural techniques, etc.

- A free media is at the core of equitable social and economic development. It can expose corruption, highlight government actions and it helps build public consensus.

- The media is an important space to develop political debate and to present a diversity of points of views. Competition among media firms assures that on average, voters and consumers obtain more unbiased and more accurate information and probably more responsible information than where the media is much more limited and controlled by one or two institutions, be they private or public

- The media can play an important role in conflict and post-conflict societies and in coping with the clash of cultures. It can help rebuild trust and confidence amongst communities. At the same time, however, the misuse of the media obviously often has a terrible impact in conflict and post-conflict situations. The instantaneous demands of the news cycle and the fact that war is news and peace very rarely is, leads the media to tend to depict the worst.

- Peace-building is all about rebuilding confidence. And if people cannot trust their media, they cannot trust each other. The best way to prevent the kind of media that spends its time inciting violence is by helping develop free and independent media in post-conflict situations, serving the needs of all parts of the society.

- In building a media system in post-conflict societies the focus has to be on securing long-term financing because ad hoc financing tends to perpetuate a tradition of buying editorial policy, on fostering domestic ownership and understanding of the standards expected of the media in modern democracy, and on reforming Public Service Broadcasting, and de-criminalising libel laws.

Trends and Innovations

- Increasingly traditional technologies such as radio or telephones are combined with new technologies such as PCs and the Internet in ingenious ways to reach as many people as possible. For instance, community radio can be made much more interactive, cost effective and inclusive by using the new possibilities afforded by modern technologies.

- Developing knowledge at the grassroots is essential. Working offline and combining online/offline approaches can help avoid prohibitive costs of connectivity for poor communities, while common metadata formats facilitate the sharing of knowledge files across communities, cultures and languages.

- The two dominant forms of ownership of mainstream media around the world today are: state ownership and ownership by concentrated private owners, financed by controlling families. This trend leads sometimes to crowding out local media outlets and content.

- Governments cooperating with free media are more likely to see support for economic performance and development in the country.

Priorities / Potential for Action

- Appropriation: To be relevant to development, technologies need to be appropriated, which does not necessarily imply designing new technologies or using sub-standard ones, but rather adapting existing ICTs to the constraining but also rich and diversified contexts and resources of the poor – sometimes using state-of-the-art solutions, when those are the most appropriate.

- Re-emphasising the value of 'traditional' media, especially radio, but used 'non-traditionally', interactively, providing adequate interfaces (for non-textual literacy in the form of oral and audio-visual media), and experimenting with newer developments such as Internet-enabled TV.

- Investing in technology and programmes that link online to offline media, circumventing the connectivity constraints ubiquitous in much of the South including 'bridge' technologies such as cheap network devices.

- Encouraging the diversity of content, especially the production, sharing and distribution of Local Content while at the same time guarding against 'cyber-condescension': recognising that freedom to choose implies the extension of mainstream, commercial brands and content.

- Systematically foster the use of media and communication technology for participation of the public in the formulation of national development strategies and, generally, in political decision making processes.

- Foster media reform in post-conflict societies based on (i) an independent and free press, (ii) the provision of quality information from diverse sources, (iii) as broad a reach as possible, (iv) effective, democratically legitimised regulatory mechanisms for both the broadcast and the print media.

- With regard to media in post-conflict areas, providing support to institution building and domestic ownership as well and fostering understanding of the standards expected by the media in a modern democracy.

Burning Questions

- Which ICT technologies, mix of technologies and approaches work best for effective communication in different contexts?

- What is required to make the effects of technology more transformative rather than simply accelerating (or indeed impeding) more traditional interventions?

- Is it possible to draw the fine line between responsible media and propaganda?

- How can professional, objective and reliable reporting by the media in conflict- and post-conflict situations be ensured while at the same time preserving its right to freedom of expression?

RE-KINDLING THE DIALOGUE: THE ROLE OF MEDIA IN RE-BUILDING POST-CONFLICT SOCIETIES AND IN COPING WITH THE "CLASH OF CULTURES"

Information and communications technology (ICT) in general and the media in particular can play a crucial role in the reconstruction of communities traumatised by violent conflicts and disasters. This has been shown over and over again, recently in Bosnia-Herzegovina and Sri Lanka. This panel will address the lessons learned from past experiences and discuss how different technologies (community radio, TV, Internet) can be best used to bridge political and cultural divides and to foster a better understanding between different groups. At the same time, it looks at the role and responsibility of the media in conflict situations and at its power to exacerbate or reduce tension.

EVENT	Panel discussion 4.1
DATE/TIME	Thursday, 11 December, 16.30–18.00, Main conference room
ORGANISER	Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**Faisal al Kasim,** TV Moderator, Al-Jazeera TV **Luis Barón,** Author of the Book "Internet and War", Columbia **Joseph K. Ingram,** Special Representative to the UN and the WTO, World Bank Group; former Director of the World Bank, Bosnia and Herzegovina 2000–2003 **Shashi Tharoor,** United Nations Under-Secretary-General for Communications and Public Information
MODERATOR	**Mishal Husain,** Anchor, BBC World TV
RAPPORTEUR	**Sharmini Boyle,** Editor-in-Chief, Young Asia TV

by Sharmini Boyle and Vincent Landon

Numerous examples of how the media has been abused to promote hatred suggest it can be an equally powerful tool in helping to bridge political and cultural divides. However, creating the right conditions for that to happen, poses significant challenges. This was one of the major lessons drawn at this well-attended panel discussion.

Joseph K. Ingram, Special Representative to the UN and WTO for the World Bank Group and a former Director of the World Bank, Bosnia and Herzegovina, drew attention to the landmark decision in Arusha, Tanzania, where a United Nations panel of international judges sentenced three Rwandan news executives to life sentences for inciting genocide. In passing judgement the court stated that the power of the media to create and destroy human values comes with great responsibility.

"A free media and a free press are at the core of equitable social and economic development."

Joseph K. Ingram

Those who control the media are accountable for its consequences. The prosecutor in the case said the media was every bit as responsible as weapons of war for the genocide in Rwanda. "The media's role can be just as important in rebuilding societies that have been through cultural and religious conflict and in minimalising the potential for future conflicts in culturally diverse environments," said Ingram.

This is well illustrated by the case of Bosnia-Herzegovina and the countries of the former Yugoslavia where abuse of the media helped foster the conflict in the first place and where, since the war, the international community and the governments have encouraged the media to promote dialogue amongst and between the countries' constituent communities.

Before the war, the break-up of the former Yugoslavia was preceded by the break-up of the old Yugoslav public broadcasting system. This enabled the Milosevic government to take control of the Serbian public broadcasting network and to use it very effectively as a tool for promoting a Serbian nationalist agenda while viciously attacking political rivals. Ingram added that the Serbs were not alone in doing this but were extremely effective.

Milosevic's people also took control of Bosnia-Herzegovina's television transmitters in Serb majority areas. "These particular broadcasts were arguably the worst examples of how the media was used to promote ethnic hatred during the conflict," said Ingram.

As a result, the international community and the government made media reform a key reconstruction priority following the war. That priority was based on the assumption that the media is more likely to promote and support economic performance when it is independent, when it provides quality information and when it has as broad a reach as possible.

At the same time, however, it was recognised that in societies where information has always been controlled by governments, and indeed often kept secret by governments, that nascent media faced huge challenges.

"Another basic assumption is that a free media and a free press is not a luxury," said Ingram. "Indeed as some of the latest empirical research has shown a free media and a free press is at the core of equitable social and economic development. It can expose corruption, it highlights government actions and it helps build public consensus."

"If people can't trust their media, they will not trust each other."

Shashi Tharoor

Media reform in Bosnia-Herzegovina had several main elements. First of all, the international community provided direct financial assistance. They helped set up new media. They directed action very forcefully against transgressors. They supported public service broadcast reform in which broadcasters were brought together in a single system outside political control and finally they supported the creation of effective regulatory institutions.

"One lesson we've learnt in Bosnia is that we were much more effective in regulating the broadcast media and far less effective in regulating the printed media and that has caused problems," concluded Ingram.

Shashi Tharoor, UN Under-Secretary-General for Communications and Public Information, repeated the adage that the first victim of war is truth. He quoted the German journalist who in the build up to World War Two, suggested that wars start because governments tell lies to journalists and then believe what journalists write.

"The misuse of the media obviously has a terrible impact on the conduct of wars or what happens within them," said Tharoor. The instantaneous demands of the news cycle and the fact that war is news and peace very rarely is, leads the media to tend to depict the worst. It is the old cliché "if it bleeds, it leads".

At the same time, he argued, the media can also help build peace. "We try and stress the media's responsibility for professional, objective and reliable reporting in these situations after conflict while at the same time preserving its right to freedom of expression."

"We believe that the best antidote to hate speech is free speech. The best way to prevent the kind of media that spends its time inciting violence is by helping develop free and independent media in post-conflict situations, serving the needs of all parts of the society."

Tharoor said that encouraging the growth of responsible media was an essential part of any international organisations' interventions to promote development and post-conflict peace. Combating hostile propaganda may also require some sort of intense response by the international community.

"Is there a case for information intervention on the part of the international community?" he asked. "Does the international community need to monitor hate media? Do we need to promote independent peace broadcasting? Do we need to assist the development of institutions and media outlets in countries driven by conflict, so that these things can be done differently?"

"Peace building is all about rebuilding confidence and the first step to rebuilding confidence is a credible media."

Shashi Tharoor

"Peace building in the first instance is all about rebuilding confidence and the first step to rebuild confidence is to rebuild peoples faith in the credibility of what they know is going on, and that means an independent media is essential. If people can't trust their media, they will not trust each other."

Tharoor cited examples of how the UN has acted on this principle, building radio and print units in many peace-building missions and staffing them with people who are experts in getting messages out quickly in less than supportive environments.

In Bosnia, the UN has built radio stations from scratch. In the Democratic Republic of Congo, the Swiss NGO, Fondation Hirondelle, has set up Radio Okapi[1] which has become the major source of objective news and information in the Congo today. The station serves a dual purpose, disseminating information about the UN mission but also trying to provide independent news to people.

Sounding a different note, **Faisal al Kasim,** moderator, Al-Jazeera TV, doubted whether in the Middle East, the media can do much to promote understanding without government and popular support.

[1] Millennium Development Goal #2 (achieve universal primary education) states: "Ensure that all boys and girls complete a full course of primary schooling." (http://www.un.org/millenniumgoals/)

He said that since September 11, the cultural and political divide between the Arab world on the one hand and the United States and Israel on the other has grown greater. He said the media has failed in the past to help solve the Arab-Israeli conflict.

"Good political action should go hand in hand with media efforts to bridge the gap."

Faisal al Kasim

He said that in the Arab world, semi-independent satellite television channels had been trying for ten years to bring the Arabs and Israelis closer by allowing both sides to exchange views on screen – a move which has been hailed as revolutionary by peace makers on both sides of the divide. But this process has angered millions of Arabs who regarded it as some kind of unnecessary and abhorrent normalisation.

Meanwhile, the Israelis launched a satellite TV channel to win Arab hearts and minds but it was recently closed down as it failed to achieve its goal. The Americans have in turn launched a new Arab language radio called Sawa to improve their image in the Arab world and they will soon launch a satellite TV channel for the same purpose.

"Good political action should go hand in hand with media efforts to bridge the gap between the Arab world on the one hand and the US and Israel on the other," he said.

Luis Barón, author of "Internet and War", Columbia, says war has acquired such a cultural relevance in Columbia that people are unable to see, live or understand other social practices. He said the mass media contributed to this perception.

"The social agenda of media is the war agenda. The most important subject for media is the war. Media reports international conflict in a bipolar way, presenting the good and the bad of the situation. This coverage emphasises the existence of victims and aggressors.

This way of reporting implies that there are saviours or political leaders or messiahs who will be able to restore law and order and peace."

"This bipolar way of covering conflict contributes towards polarisation in the thinking and action of ordinary people. The media also tends to show civil society as victims of war, without stories or cultural backgrounds or political activities. They are not usually portrayed as political, cultural or social agents."

"The role that the media has played is problematic because people and organisations don't believe or trust them. The media creates a generalised perception of

war, of drama, of victims, of blood. This media coverage is producing a sense of isolation, hopelessness, a sense of uncertainty among citizens. Media therefore has an important role to transform the culture background that they themselves are helping to build."

Discussion

The moderator of the panel, BBC journalist **Mishal Husain,** asked **Faisal al Kasim** whether there was a role for the media in conflict situations.

Faisal al Kasim: "There is definitely a role that the media can play but as far as the present situation is concerned, I don't think the media can bring people together. In the Arab world, for instance, the media is part and parcel of the political regimes and you cannot really separate them."

"In the past it was thought that the media in the West is independent and free, but sadly this is no longer the case. If we look at the America media, for instance, is there a free American media that can help bridge the gap between the Arab world and the U.S.? No, because it has become part and parcel of the U.S. administration."

Mishal Husain wondered whether there was a fine line between a responsible media and propaganda. She used the example of Radio Sawa, launched by the U.S. for the Arab world. "It has very low credibility. So when you say responsible media do you not just want a media that says what you would like to hear?"

"The media is more likely to promote and support economic performance when it is independent, when it provides quality information and when it has as broad a reach as possible."

Joseph K. Ingram

Shashi Tharoor said that we should promote media that is independent and free and will not incite hate. "Without being prescriptive, without telling media what they can do, by ensuring conditions of independence, we're in a better position to ensure that they don't do what causes damage and what causes the loss of life."

"Propaganda isn't particularly desirable because people will immediately discount it, the listeners will assume the propaganda comes tainted by an agenda. An independent media by definition is one that is not attached to a government or a political cause."

He said irresponsible newspapers in some countries had printed names and addresses of individuals and urged people to kill them. "That is irresponsible, that is incitement and most democratic societies have laws that punish people who

do that. When we support freedom of expression, we're not supporting invitations to murder."

Joseph Ingram described recent research on the relationship between the ownership and the variety of media, how much of it is available to the readers and viewers in a country and the development of democracy and stable societies politically.[2] It is clear that competition among media firms assures that on average, voters and consumers obtain more unbiased and more accurate information and probably more responsible information than where the media is much more limited and controlled by one or two institutions, be they private or public.

"When we support freedom of expression, we're not supporting invitations to murder."

Shashi Tharoor

The study covered 97 countries. Its basic finding is that the two dominant forms of ownership of media around the world are state ownership and ownership by concentrated private owners, financed by controlling families, like the Murdochs.

Government ownership of the media is much higher in countries that are poor, that have more autocratic regimes and where over all state ownership in the economy is higher. "That is associated generally with what we call bad outcomes associated with state ownership of the media, especially the press," said Ingram.

"The evidence suggests there is an important relationship between the structure of ownership, the extent to which it is diverse and the responsibility of the media in developing democratic societies."

Luis Barón said that the internet was a new place to build new ghettoes, new distances between people as different actors use it to point out the faults and shortcomings of others.

Questions to Panellists

Don't Al-Jazeera's repeated broadcasts of Osama Bin Laden and Al Qaeda members calling for jihad and urging murder against civilian populations not only in the U.S. but any country supporting the U.S. also contribute to worsening relations between the Arab and Western worlds?

[2] The International Bank for Reconstruction and Development, World Bank (2002), "The Right to Tell, The Role of Mass Media in Economic Development", Washington D.C., USA

Faisal al Kasim replied that in the conflict between the US and Al Qaida, it was important to give all sides a voice. "This is part of the media's job, and if a US channel got hold of a tape of Bin Laden, they too would broadcast it."

Mishal Husain commented that freedom of expression has limitations and asked if Al-Jazeera is right in broadcasting statements (e.g from Al Qaida) that are a direct incitement to violence.

Faisal al Kasim repeated that everyone wants a scoop and that even the U.S. media repeatedly broadcasts such statements from Bin Laden.

To a question on how important independent media really is, **Sashi Tharoor** said that it was indispensable. "Different voices are needed to reflect diversity. We should therefore make the world safe for diversity, not just democracy. A multiplicity of voices will make sure of that."

Joseph Ingram explored the difficulties of defining good media, good news, objectivity and the truth. "A key element of quality is first presenting a variety of sides to a story, searching out facts without political constraint and presenting those fairly and impartially."

"Deciding what is newsworthy on the basis of consistently applied news values, unaffected by a political agenda or biased by ideological premises or compromised by strategic or profitability considerations." "In a perfect world, that's what we should be striving for," he said, "but clearly there are some societies, some media environments where that's more the case than others."

Luis Barón said that in the Columbian context the media should be an important arena to develop political debate and to present all points of view.

Shashi Tharoor also praised a multiplicity of voices. "It is only in situations where one thought or one strain of thought commands the vast majority of the media that you whip up war hysteria." As consumers of news, faced with the choice of a range of media, we also have responsibilities, he said. "We can vote with our eyes and our pockets what we buy and what we choose to consume, so the question is what is the role of the consumers of media in societies where we have choice." He concluded that it would be good to see people turning off certain forms of reportage which they disagree with.

"The Media has an important role in transforming the cultural background that they themselves are helping to build."

Luis Barón

Faisal al Kasim added that consumers themselves are made by the media.

To a question about the role of regulation and international support in the case of Bosnia, **Joseph Ingram** responded that the first lesson was that ad hoc financing of the media does not work but instead created dependencies that cannot survive. "The second lesson is that ad hoc financing perpetuates a tradition of buying editorial policy where proprietors gave donors the multi-ethnic editorial policy that they wanted to hear to attract further international funding, even to the extent of undermining true editorial independency."

"In addition libel laws must be de-criminalised in a post-conflict environment and be a part of civil law. Otherwise, this puts tremendous constraints on press freedom and willingness of journalists to be open."

"Different voices are needed to reflect diversity. We should therefore make the world safe for diversity, not just democracy. A multiplicity of voices will make sure of that."

Shashi Tharoor

Shashi Tharoor: "Promoting values and ethics in post conflict societies is one way of trying to help heal the wounds caused by conflict and prevent new wounds from opening up."

Joseph Ingram: "In Bosnia, what we failed to do and it is one of the lessons we learnt is that early in the process as far as the media is concerned, you've got to focus on institution building, and the other thing you've got to focus on is domestic ownership and understanding of the standards expected of the media in modern democracy. That's a very difficult thing to do and it takes time."

"My personal view is that if the political class in a post-conflict society, in any country, doesn't understand the need for a pluralistic media beyond political control then the media ultimately will not survive the departure of the international community."

Asked whether media organisations need to do more to build trust with the communities they're broadcasting to before they can start reconstructing, Faisal al Kasim said: "Rapprochement between nations is the business of governments. Only they have the power and means to achieve that. The media is only one means they can use."

Joseph Ingram: "The information industry in which the media play a key role tends to develop faster in democratic societies that foster free information flows. However, the media industry can also promote greater degrees of freedom and stronger democracies over time."

Luis Barón said there was a tremendous distance between mass media and general civil society.

Shashi Tharoor said dialogue was an invitation to openness. "Intolerance is essentially an edict to keep the door shut and I think it is ironic that media has become in some cases in some societies a source of intolerance. Every conflict, small or big, begins with our inability to understand the other and our refusal to allow the fact that the other also has a case to make."

"Rapprochement between nations is the business of governments. Only they have the power and means to achieve that. The media is only one means they can use."

Faisal al Kasim

SPEAKERS' MESSAGES

Faisal al Kasim

How Can the Media Bridge the Growing Political and Cultural Gap between the Arab World on the one side and America and Israel on the other?

Of all horrible clashes of civilisations, the developing clash between the Arab world and the United States is probably the worst. Never has the cultural and political divide between the two sides grown as much as it did since the events of the eleventh of September. And instead of working to bridge the divide, certain figures in the American leadership have been accused by some Arab commentators of competing with Osama Bin Laden to fuel the conflict. Some have sarcastically observed that Bin Laden has succeeded in making the American Administration follow suit.

General William Boykin of the Pentagon has remarked callously a couple of weeks ago that Christians are waging a spiritual crusade against evil, that is Muslim terrorism. He was understood to echo President Bush when he remarked soon after the fall of the two towers that he will launch a crusade against the terrorists. Arabs were appalled by that statement as it reminded them painfully of western Crusades launched against the Muslim world during the 11th,12th and 13th centuries.

The situation between the Arab world and the U.S. has worsened ever since those comments to the extent that some Arab writers and thinkers started talking about a new Crusade by the West against the Arab and Muslim worlds especially after the American occupation of Iraq. Can the media on both sides alleviate the

tension and bridge the growing gap before it is too late? Have not the media failed before to help solve the Arab-Israeli conflict?

The Arab means of mass communication, particularly the semi-independent satellite TV channels, have been trying over the past ten years to bring the Arabs and Israelis closer by allowing both sides to exchange views on screens, something which has been hailed as revolutionary by peace makers on both sides of the divide. But this process has angered millions of Arabs who regarded it as some kind of unnecessary and abhorrent normalisation. It is still going on though. But to what extent can it succeed in bridging the divide when it is being torpedoed on the ground? It seems that politicians tend to spoil the efforts of the media. Just as the American leadership repays the openness and liberalism of certain Arab TV channels towards it with bombarding their offices in some countries, the Israeli government rewards Arab media efforts for rapprochement with Israel with more aggression on the Palestinians and others.

I am afraid that the media can not do much to better understanding between different groups, at least in our area, the Middle East. The Israelis for instance launched a satellite TV channel over a year ago to win Arab hearts and minds, but it was closed recently as it failed to achieve its goal. The Americans have in their turn launched a new Arab language radio called Sawa to beautify their image in the Arab world and they will soon launch a satellite TV channel for the same purpose. But to what extent can they succeed when their Middle East policies tend to turn the table upside down. Good political action should go hand in hand with media efforts to bridge the growing gap between the Arab world on the one side and the US and Israel on the other. Or am I wrong?

Luis Fernando Barón Porras

The Internet sites of the organisations linked to the dynamics of the conflict and peace in Colombia express a struggle for the social visibility, the legitimacy of speeches and practices, and the construction of identity. They are testimony of the political decision of confronting and debating mediated by the communication and language. Those are intents to resist and, at the same time, undermine and compete with the speeches of the media and the social mediation achieved for them.

The war is represented as a dynamic axe of the past, present and future social life, and as a factor that completely covers every time and place. Peace is seen as an ideal, a dream without its own referents and definitions, a correlate of war. The speech of war creates victims and aggressors, and identifies unfair facts that affect the dignity of the agents and are useful to justify or motivate their partici-

pation or isolation in war. The aggressors are the only responsible for the affronts, and by the victims side, the martyrs, saviours or messiahs emerge, called to respond to them and to construct a new social order. The dramatic speech about war shows the story without finals, or closures, but maintains a tragic fate permanent in time.

Within Internet: An Identity War

The web pages of agents involved both, within the armed conflict and peace processes, represented an extension of the conflict on the Internet, being converted by their protagonists and the organisations that worked for peace in a place of confrontation, like a scenario of identities struggle. In this sense, the pages allow the organisations differentiating from those who they point out as their adversaries; proposing speeches, ideas and significances about war, the country, the politics, life in society or culture; reconfiguring their identity in relation with themselves, with their enemies or sympathisers, and with the world, through strategies such as the hiding or assimilation of the other's image, or the resource of the organisation or country's history, among others. It is a continuous duel for legitimating their being and acting in contexts unlinked from war.

This identity struggle is concentrated on the pointing out of the other's errors, barbarity, and mistakes; and on their guilt about the history, the present situation, and the possible future developments of the country, and about the actualisation of the other as distant and irreconcilable enemy.

Challenges Ahead

To move the centre of the speech of war – axe of the present, past and future of the country – as well as to break the leading role of the actors in the conflict and its role as privileged narrators, it is important to create, retake, and position speeches that appeal to other actors, other facts, other places, other times, and other dimensions (economic, cultural, subjective, and emotive) of the armed confrontation. It is determining to include and configure other narrators and other voices that widen and diversify the speeches about the conflict.

The challenge is giving voice to other individual and collective actors, involved or not with the armed conflict, for them to narrate it from a perspective that undermines both the victimisation speech about construction of victims, aggressors, and saviours, and the language of pointing out, disqualifying, and blaming.

Informed Society

There is huge lack of spaces and organisations where the society can dialogue and interact with the mass media, with journalists and analysts of communication, and with the sites created on the Internet by agents of conflict and peace. Therefore it is necessary to reactivate and create nets of users, nets of leagues of media and organisations of receptors that allow widening the individual interactions and the construction of more fair, equal and criticising relations with the latter sectors.

Civil Society Organisations

The social organisations and movements require policies, strategies and organisational structures that respond to the challenges of communication and public information, as determining scenarios of the definition and construction of projects of society, citizenship and identity. They also require decisive scenarios in the definition of the present, the past and the future. That needs, in the same way, the reflection and formation of the rules and logic of the fields of the media, the generation of information on the Internet from a non-satanic or mythic perspective. It also requires to create and turn to other media, forms and methodology of communication that recognise the political and cultural value of the conversation and daily rumour, that are so effective for war and some of its agents. The conversation and rumour are practices that not only make the communication more effective and viable, but also allow creating other narratives about the life experiences and analyses on the local, national and global level.

Media and Journalists

Transforming the structure, the property, or the sense of the mass media and their informative policies is an ideal not very viable, given the political and economic interests in the field, supported, in an important way, by the apparent rating of the war, its dramatisation, and the victimisation. Nevertheless, it is possible to generate some understanding of the role of media information in the daily life of the receptors, and to show in a qualitative way their preferences and expectations.

Academics and Analysts of the Conflict and Peace

There are big challenges for the organisations and people dedicated to develop analyses, reflections and proposals about the armed conflict and peace in Colombia. In the first place, it seems necessary to have more dialogue among the diverse disciplines and visions that do these analyses, so that they become more

interdisciplinary lectures and studies that come from other forms of non-academic knowledge. In the same way, it is a big challenge to enrich the diagnoses and analyses of the causes of the conflict with proposals and alternatives that contribute to outline postures that are more political and roles of the academy and the analysts toward the analysed dynamics.

Joseph K. Ingram

Key Points

- As illustrated by what happened in Rwanda and subsequently in the Former Yugoslav Republic (FYR) and Bosnia-Herzegovina, the role of the media is decisive in building a politically stable and economically sustainable country.
- The control and manipulation of the media by the Milosevic government in FYR and Bosnia was decisive in creating hysteria, fear and ethnic hatred.
- As a result, it was imperative for the reconstruction of Bosnia and the countries of the Former Yugoslav Republic to ensure media reform which was based on
  (i) an independent press,
  (ii) the provision of quality information from diverse sources,
  (iii) as broad a reach as possible.
- Also imperative to put in place early on, effective regulatory mechanisms for both the broadcast and the print media.
- Over the past two years (in the process of formulating a country-wide development strategy) a country-wide dialogue has been developed through the media enabling the public to participate in the process of formulating the development strategy. This is unprecedented in this part of world.

Shashi Tharoor

- Peace building is all about rebuilding confidence and the first step to rebuilding confidence is a credible media.
- Reliable information is also essential for donors.
- Two key tasks of post conflict reconstruction – demobilisation and reintegration of excombatants and establishing legitimacy of authorities – are information-intensive programmes.
- That is why the UN emphasises radio and print in peacekeeping missions, and builds into the planning the maximum possible level of local participation.

CATALYSING DEVELOPMENT COMMUNICATION THROUGH ICT: INNOVATIONS AND CHALLENGES

The information revolution of the 21st century presents a tremendous opportunity for development. For one thing, ICT can greatly facilitate the flow, dissemination and appropriation of information and knowledge, irrespective of geographical distance. At the same time, it affords a cost-effective means for organising and sustaining highly dynamic networks, which are fundamentally demand-driven and allow for their members' interactive exchange and participation. This panel discusses how different media and communication technologies (community radio, TV, telephony, Internet) can contribute to more effective development strategies and looks at their role in voicing people's concerns and allowing more active participation in society – both at the local and at the global level.

EVENT	Panel discussion 4.3
DATE/TIME	Wednesday 10 December, 10.00–11.30, Conference rooms 2 and 3
ORGANISER	Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**Peter Armstrong,** Director-General of One World International **Shahidul Alam,** Managing Director, Drik Picture Library Ltd., Bangladesh **Fackson Banda,** Regional Director, Panos Institute Southern Africa **Kerry S. McNamara,** Information for Development Programme (InfoDev), World Bank Group
MODERATOR	**Rime Al Allaf,** International Writer and Broadcaster, London
RAPPORTEUR	**François Fortier,** Advisor in ICTs for Development, United Nations Development Programme (UNDP)

by François Fortier and Pete Cranston

There was a consensus among participants of this panel that information and communication technologies (ICTs) promise much for development. Other information technologies have, over the past centuries, been praised for their revolutionary values that never materialised, but ICTs may be different. They are said to be multi-directional (many-to-many), non-hierarchical, and more accessible than other technologies, at least in their technical characteristics. At the same time however, panellists and participants emphasised that ICTs cannot be, in and of themselves, technological fixes. To be relevant to development, technologies need to be adapted to the local context and appropriated by the people using them.

"Radio may not have been revolutionary, but because the 'way of doing radio' was not revolutionary. This is changing now with the combination of old and new ICTs. They give rise to new formats which allow for new types of interactivity between producers and listeners."

Fackson Banda

Fackson Banda, in his introductory comments pointed out that for ICTs to realise their potential in development communication a 'technologistic' approach will not do. Instead, solutions have to be tailored to the local context and various models taken into consideration.

Referring to challenges faced by modern information and communication technologies in Africa, Banda identified three major problems:

- operational challenges – lack of infrastructure and lack of expertise,
- contextual challenges – socio-cultural characteristics of each region need to be taken into account, e.g. there is a fear in Africa of imposition from the outside which may act as a destabilising factor,
- strategic challenges – policies on the local, national and international levels.

According to Banda, we should therefore refocus on conventional ICTs such as radios. He cited different examples of radio listening clubs which allow people to engage and reach out to poor rural areas. "It is a form of technological adaptation, an appropriation, where the technology is 'bent' to respond to the conditions and needs of poor users," he said.

Generally, Banda argued, there is a need to combine old and new technologies in ingenious ways. "Radio may not have been revolutionary, but because the 'way of doing radio' was not revolutionary," he said. This is changing now with the combination of old and new ICTs. They give rise to new formats which allow for new types of interactivity between producers and listeners.

Kerry McNamara stressed that there was a danger of focusing too much on

technology. "ICTs are only tools: what we need to focus on is the objectives," he said. And we need to ask ourselves what they are: those of development agencies, or the priorities and objectives of the target communities? Citing Amartya Sen's famous phrase "development is freedom" he argued that the objective of development should be about creating more opportunities to make choices. "Enable the unexpected: enable individuals to make new and unexpected decisions to create new lives for themselves," McNamara concluded.

"The key questions of the poor need to be addressed, not 'broadband access' per se, but how ICTs can address their issues. This means not starting with solutions before understanding the problem."

Kerry McNamara

Peter Armstrong began his introductory comments with a question: "If we assume that ICTs are beneficial, what can help achieving them?" According to him new and different technologies are not needed; rather existing technologies need to be appropriated by people developing information services that are wanted: for example on market, jobs, agricultural techniques, voices in governance, etc. This would be helped by agreement on standards: open knowledge licenses to cover IPR (Intellectual Property Rights) issues together with agreed metadata. "The World Summit on the Information Society (WSIS) can help by bringing together a 'coalition of the willing' to work together," he said.

Shahidul Alam showed photographs of two women: one who has access to information and communication technologies and one who has not.[1] The problems of unequal access to ICTs cannot , he argued, be solved by market mechanisms alone. "Instead, states and companies will have to go beyond power and profits, or else we will continue having this divided world, with technologies that continue not to serve needs, but rather demand," he said. Many NGOs will never make a decision that goes against their economic interest. Technology will therefore not address and solve any problem, policies will.

Discussion

Fackson Banda: One of the solutions for appropriation has been radio listening groups: producing and distributing tapes on specific issues, then recording comments and questions by participants and feeding back to policy makers for responses. They have discussed issues such as water supply, diet, political engagement, etc. and been replicated across the four Southern African countries.

[1] For more information see pp. 156–157.

Kerry McNamara: There have been so many failures in Official Development Assistance (ODA) because so many have imposed their own interests. New ICTs permit more interaction. Shahidul Alam's two photographs raise the question: how to make the private sector to come in and be creative for the poor? How do we reach those that are always to be left out by the private sector, whatever policy stimulus?

Shahidul Alam: I am sceptical. The development model has been experimented for three decades, and yet the funds are gone. For what? Transparency and accountability are not applied to the ODA sector itself. ICTs are non-hierarchical, self-regulatory, multi-directional in technology, but this is not being reflected in its applications. Official Development Assistance has another problem: should we use only 'appropriate technology' when at times edge technology is the most appropriate. ODA addresses poverty only in terms of resources, and not enough in terms of exploitation. This needs to be addressed through politics.

"New and different technologies are not needed; rather existing technologies need to be appropriated by people developing information services that are wanted."

Peter Armstrong

Peter Armstrong: The open source movement is a good example of self-regulatory and grassroots initiatives. The private sector is important in many functions (infrastructures, etc.), but software should ideally be open to allow grassroots appropriation and development. Open Knowledge Network[2] is about developing knowledge at the grassroots. It works off-line to avoid prohibitive cost of connectivity for poor communities, in order to share knowledge files, with a common metadata format, across culture and languages.

Questions to Panellists

How can you justify use of technology in Africa where Internet access can be more expensive than the GNP per capita and one e-mail represents a lunch for two in Africa.

Peter Armstrong: Hence the importance of working as much as possible off-line, getting around the huge cost of connectivity.

Kerry McNamara: Appropriate technology has often been used in a condescending way. We need to ask "appropriate to what?", and the answer is to find ways to be less expensive and more sustainable.

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[2] For more information on the Open Knowledge Network see pp. 185–189 or visit http://www.openknowlede.net.

Representative of Christian Aid UK: What about literacy as a problem to benefiting from ICTs?

Fackson Banda: Agreed. The problems in the application of ICTs include cultural issues, such as education, gender and literacy.

Shahidul Alam: This is also a class issue: how do we define literacy? What about other, non-written, forms of literacy, such as images, songs, and oral communication? We need to develop ICT kiosks that do not require textual literacy and can use voice and images for interaction.

"The problems of unequal access to ICTs cannot be solved by market mechanisms alone. Instead, states and companies will have to go beyond power and profits, or else we will continue having this divided world, with technologies that continue not to serve needs, but rather demand."

Shahidul Alam

Moderator: What is the impact of cheap satellite access?

Shahidul Alam: There is a lot of talk of freedom of the press, but media ownership is getting very problematic, with world media being increasingly used for propaganda. And this is penetrating all corners of the developing world.

Fackson Banda: The key problem has long been local content, rather than the dominant penetration of global content. Local content producers need to be able to address this situation. Today lots of users are demanding local media productions and they are becoming increasingly popular.

Peter Armstrong: Video production is now very much cheaper and a real opportunity for the production of powerful local content.

Shahidual Alam: How to address ownership issues of content? Work with children to train them, at the grassroots, at producing content that reflects their reality.

Kerry McNamara: We cannot be cyber-condescending. Diversity of content is crucial, but people must continue to have choice, even if it seems distasteful to some. If they want to consume Hollywood/Bollywood movies, so be it.

Representative of Technology University, Iran: Some tools are important for local content production, such as Unicode, text-to-speech, machine translation, etc. And yet the market is not investing in producing these. Maybe Official Development Assistance and others could invest in such development?

Shahidul Alam: Indeed, and with due appropriation of fonts and language, we see what users can use e-mails and e-forums. We therefore need to continue this appropriation. Language is still very important, and reproduces class structure. But we need to take this head-on, making alternative voices heard.

Kerry McNamara: The key questions of the poor need to be addressed, not 'broadband access' per se, but how ICTs can address their issues. This means not starting with solution before understanding the problem.

Peter Armstrong: There is a revolution happing, but it is complex. We need action on many fronts at once. So asking what is the top priority is not helpful. We need to work in partnership on a holistic vision, and move forward together to implement it.

SPEAKERS' MESSAGES

Fackson Banda

Talking points

A. Defining ICTs
- i traditional ICTs
- ii. conventional ICTs
- iii. modern ICTs

B. Challenges for modern ICTs
- operational (technical and economic);
- contextual (socio-cultural characteristics of each region); and
- strategic (local, national and international policy).

C. Radio in Africa: towards participatory and empowering communication
- outreach statistics
- the case of radio listening clubs in Malawi, South Africa, Zambia and Zimbabwe

Shahidul Alam/Drik Picture Library

Salma is a housewife in Norshingdi, Bangladesh. With the introduction of Grameen Phone in her village, she is now able to talk to her husband who is a migrant worker in Singapore.

Shahidul Alam

Fraud Band

The telephone allowed Salma access to her husband, a worker in Singapore, but for many, globalisation merely represents a wider net for exploitation. In another village, Lathika has never used electricity and needs her husband's permission to be photographed. Unlike Salma, Lathika doesn't fall within the 'target group' for Grameen Phone; and for those who rule the country, she only exists every election time.

Grameen's mobile subscriber base is well above the number of land lines. Internet Service Providers (ISPs) pop up in street corners, and though Internet telephony (VOIP) is illegal, the service is openly advertised. In between the tangled wires on every street pole in Dhaka is the attractive advert: **broadband, 24 hours, only taka 1000 per month,** perhaps prompting UNDP's Mark Mulloch Brown's mention at WSIS in Geneva, that Internet costs in Bangladesh was lower than that in the USA! The price tag of US$ 17 per month is attractive for broadband, until you realise that the bandwidth on offer is 1 Kb/sec. No wonder many users call it 'fraud band'. The VSAT on our rooftop delivers 512 Kb/sec. With that we cater to 200 dialup customers, another 200 leased line clients, and smaller ISPs running VOIP services. That is the only way we can pay for the US$ 3,500/month connection fee and a US$ 3,500/64 Kb/year license fee. Comparable access in Europe costs US$ 20–30. Much of this fee makes its way back to the U.S.

Shahidul Alam/Drik Picture Library

"Broadband" is advertised all over Dhaka city, but what is on offer is a connectivity of 1Kb/sec. A roadside foodstall used by day labourers is covered up by a "Broadband" banner, during Ramzan.

In 1994, we used a 286 computer to set up the first e-mail service in Bangladesh. The Net has since become our lifeline, and the area where the government has hit us the hardest. On 27 February 2001, we set up the country's first human rights portal http://www.banglarights.net. They closed down our telephone lines the next day. It took three years to get our lines back. However, our VSAT allows us an access that will not be easily stopped and our e-newsletter reaches a carefully targeted 11,000 worldwide. We walk a fine line. The government's ignorance can be used to find ways round the system. The import of a satellite phone by the BBC was allowed

on condition that it not be used to make calls outside the country. A new rule prevents CDs from being sent overseas while Internet transmission is legal!

Low cost opportunities that accompany globalisation can be best utilised in the majority world and the most innovative models have been developed in the south. We started using the Net for education early on (http://www.britishcouncil.org/education/conference/2001/saspeech.htm), but it is activism and survival needs that have led to our adopting new media. Our presence on the Net forced the university to investigate a rape in campus they had tried to hush up. The Net allowed us to contact activist organisations when Taslima Nasreen, the feminist writer, was under threat.

With media restrictions, and the soaring cost of publishing, media activists have turned to the Net where alternative viewpoints can be aired, while a skeptical, fossilised and corrupt bureaucracy is deeply suspicious of what it might do. Bangladesh rejected the fibre optic cable since "state secrets might leak out".

The festival of photography Chobi Mela (www.chobimela.org) will be using video conferencing. Our latest plans for setting up a 'public accountability site', promises to be problematic. The government has promised transparency, but once the public is empowered, those who made the ministerial speeches will be the first to shut us down. That too is a fight we need to win, and we'll use new media as our tool.

Shahidul Alam/Drik Picture Library

Lathika is a former member of the outlawed political party called "The Naxalites". Evolving from the "Tebhaga" peasant movement in British India, the Naxalites were a left wing group opposed to the rise of the bourgeoisie in liberated India and Bangladesh. Lathika was one of many women who had joined the party as it gave equal rights to women, and women often played leadership roles. With the dissolution of the party however, Lathika has gone back to her old life. When I asked to photograph her, she broke into tears, as today, she needs her husband's permission before her picture can be taken.

SELECTED REFERENCES

The following list includes selected references to facilitate quick access to some key publications and toolkits. It is not intended to be comprehensive. All references are also listed on the website of this book on http://www.globalknowledge.org/ict4d and will be regularly updated and expanded. Additions and comments on further reference materials and links are most welcome. Please enter them directly into the open dynamic reference lists on http://www.globalknowledge.org/ict4d.

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BBC Worldservice Trust
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http://www.crisinfo.org

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http://www.comminit.com

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5. PROMOTING LOCAL CONTENT AND KNOWLEDGE

Abir Abdullah/Drik Picture Library

KEY FINDINGS

Lessons Learned

- Information and communication technologies (ICTs) can disarm social stereotypes and prejudices and empower members of disadvantaged language communities or other minority groups.

- ICT4D projects that benefit local communities should engage partnerships based on ethical principles, while building capacities and ensuring local communities' involvement in all phases of the project.

- In today's information society traditional modes of living such as nomadic or indigenous cultural systems may be difficult to keep up. Adaptations of new technologies and applications permitting a suitable mode of information exchange have helped to maintain some of these traditions.

- Traditional lifestyles may imply different notions and anchorages of time and space affecting the design and use of suitable ICTs.

- The documentation of local knowledge can help to keep systems sustainable (availability to younger generations) and to strengthen these communities from within. Attention should be given to intellectual property rights. The communities should have the possibility to 'store and keep' their own knowledge. At the same time, the sharing of knowledge may help to improve livelihoods.

- Local content development is closely tied to human development, and the ultimate aim is the empowerment of local communities. Poor people must be able to express and communicate locally relevant knowledge in local languages if they are to shape decisions, which affect their livelihoods.

- Networking local content (like in the Open Knowledge Network – OKN) builds on existing activities and experience, following principles such as
  - build capacity in communities to support knowledge sharing
  - work off-line for free, but synchronise with the Net
  - peer-to-peer networking of existing Knowledge Workers
  - standards for metadata using Extensible Markup Language (XML)
  - agreed open content copyright licenses
  - sustainable business models adapted to different contexts

Trends and Innovations

- The focus of ICT for development is changing from setting objectives and content to the creation of solutions developed by local communities themselves. More specifically, there is a shift from one-way media, allowing local communities to receive information only, to a more interactive mode of communication.

- A new range of ICT tools supports literacy in stimulating interactive learning environments. User-centred learning is thereby changing our notions of literacy.

- Linguistic diversity on the Internet appears to be increasing. However, difficulties in finding funds for sites used by minority linguistic groups often results in the use of English.

Priorities / Potential for Action

- The use of cell phones is widespread as an economic and flexible means of communication at the local level and even in remote areas. Easy communication may improve economic opportunities, safety, or the sense of belonging to the larger community and the information society.

- Urgent action needs to be taken in order to introduce technical measures and tools to facilitate the use of non-roman scripts, domain names and e-mail addresses in the Internet.

- Policies should address issues like the standardisation and rise of status of local languages by supporting their use in education and on the Internet.

Burning Questions

- How can ICT4D projects aimed at linguistic and other minorities be made sustainable?

- How can the right of individuals to use their language in the Information Society be ensured?

- How can we foster cross-cultural/linguistic information flows?

- How can local and indigenous knowledge be shared avoiding negative economic, social or cultural impact on the local community?

LANGUAGE, LITERACY AND NEW TECHNOLOGIES: THE CHALLENGE OF CULTURALLY ADAPTED CONTENT FOR DEVELOPMENT

This thematic round table is structured around three consecutive sessions. The first session is composed primarily of experiences from developing countries that illustrate current efforts aimed at supporting literacy and development goals with the support of ICT, with a special focus on local language content. Best practices, lessons learned and case studies from these projects will consider past, present and future possibilities. Presentations will identify key challenges and opportunities for blending the best uses of language, literacy and information and communication technology (ICT) for the poorest populations in developing countries. The second session will consist of an interactive moderated debate between several panellists drawn from different sectors (governmental, intergovernmental, private, development agencies, media) and with a policy orientation. Modalities for overcoming challenges to effective project development and replication and creating initiatives supporting the Plan of Action of the World Summit on the Information Society (WSIS) will be examined. The third session will be in a 'break-out' format to facilitate small group discussions around specific projects.

EVENT Round Table Discussion
DATE/TIME Friday, 12 December, 14.00–18.00
ORGANISER UNESCO, African Academy of Languages (ACALAN), International Literacy Institute (ILI), Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)

PANEL SPEAKERS SESSION I – CASE STUDIES AND MODELS

A. Samassékou, President, WSIS PrepCom; **Dan Wagner,** International Literacy Institute, USA; **Salaam Diakité,** African Academy of Languages, Mali; **Andy Lieberman and Marleny Tzicap,** Enlace, Guatemala; **Sue Wright,** Aston University, UK; **Rod Grewan,** SchoolNet South Africa; **Monica Ward,** Dublin City University, Ireland; **Tamru Belay,** Adaptive Technology Center for the Blind, Ethiopia; **Juan Fernández González,** Ministry of Communications, Cuba

PANEL SPEAKERS SESSION II – SECTOR AND POLICY PERSPECTIVES

I. V. Subba Rao, Principal Secretary of Education, Andhra Pradesh, India; **Tim Unwin,** Imfundo Department for International Development, UK; **Kimmo Lipponen,** Director, Corporate Marketing, Nokia, USA; **Yao Hua Deng,** Mayor of Zhaoqing Province, China; **Carlos Leáñez Aristimuño and Daniel Prado,** Union Latine Intergovernmental Organisation

PANEL SPEAKERS SESSION III – PARALLEL BREAKOUT TECHNOLOGY DEMOS

Michael Cochran, SIL International, USA; **Professor Tarcisio Della Senta,** UNDL Foundation, Switzerland; **Leonela Relys,** Academic Advisor IPLAC, and **Juan Fernández González,** Ministry of Communications, Cuba; **Thomas Bearth, Hannes Hirzel, Chantal-Nina Kouoh,** General and African Linguistics, University of Zurich, Switzerland; **I. V. Subba Rao, Rod Grewan, Dan Wagner,** Bridges to the Future Initiative

MODERATOR **Elizabeth Longworth,** Director, Information Society Division, Communication and Information Sector, UNESCO
RAPPORTEUR **Paul G. C. Hector,** Information Society Division, Communication and Information Sector, UNESCO

by Paul G. C. Hector

The round table "Language, Literacy and New Technologies: The challenge of culturally adapted content for development" brought together a diverse panel of stakeholders involved in global development activities. Particular attention was given to presenting practical project experiences, examining how cooperation and partnership between actors in the various sectors (policy makers, donors, project implementers, private sector and communities) could be facilitated as well as to showcase technologies being used to tackle development challenges. Session participants strongly affirmed the critical role of literacy and educational activities in building human capacity and supporting overall development goals. Local adaptation of projects approaches, equipment, ensuring close involvement by communities in their development, implementation and the use of a range of media were among the keys to success identified by panellists.

Session I – Case Studies and Models

This session provided practical experiences and lessons from projects carried out in Africa, Asia, South America and the Caribbean on the use of ICT in addressing a range of development needs including handicapped persons and endangered language communities. The findings of researchers in areas of study such as trends in language use on the Internet among others were presented.

The idea for this round table was the brain child of Adama Samassékou, President of the WSIS Preparatory Committee (PrepCom) and a former Minister of Education in the Malian government. In his intervention he addressed the need for enhanced access to educational opportunities and the role that new technologies could play in supporting capacity building and human development activities particularly in developing nations.

Dan Wagner of the International Literacy Institute (ILI) drew on findings from his recent paper, "New Technologies for Literacy and Adult Education: A global perspective", co-authored with Robert Kozma[1] on work being carried out in the Bridges to the Future Initiative (BFI)[2]. Wagner advocated

[1] Kozma, R., Wagner, D. A. (2003), "New Technologies for Literacy and Adult Education: a global perspective", Research/evaluation report, National Technology Laboratory for Literacy and Adult Education, TECH21, http://www.literacyonline.org/products/wagner_kozma.pdf

[2] For more information visit http://www.literacy.org/bfi_ili

that (i) literacy and ICT access should target the poorest sectors as a priority group; (ii) learning technologies must have learning and content at their core; (iii) ICT tools need to be user-oriented and adapted to the context, culture and language and that (iv) private sector involvement should be harnessed to take advantage of the latest ICT tools.

In support of these views Wagner presented statistical data from India that showed an explosive growth in expected lifetime earning as the number of years of educational access increased. His cost/benefit analysis yielded annual rates of return of over 15 per cent on investments in education, with even higher gains for the most disadvantaged groups. This led him to conclude that advanced ICT tools may be relatively more cost-effective for the poor than for the rich. In light of these benefits he argued that ICT was now too cheap to ignore. Furthermore, the growing proliferation of ICT in all sectors of society, increasing interdependency between literacy and one's ability to use technology makes it even more urgent to ensure access and literacy among marginalised groups. He therefore cautioned against the use of a too strict definition of sustainability particularly in projects addressing the needs of the most disadvantaged. On the other hand he encouraged a need for focus in project selection and supported the wider use of ICT in reinforcing government structures and enhancing areas of public education such as teacher training where assistance is most needed.

"Advanced ICT tools may be relatively more cost-effective for the poor than for the rich. In light of these benefits information and communication technologies are now too cheap to ignore."

Dan Wagner

Salaam Diakite, of the African Academy of Languages (ACALAN), presented in his paper "African Development Perspectives on New Technologies, Language and Education" an analysis of development needs, challenges and opportunities for the continent. Among the challenges cited by Diakite were the non-implementation of language policies, low penetration and high cost of ICT, inadequate allocation of resources to education and human capacity building, Intellectual Property Rights (IPR) and equity/social justice issues.

Great Need for Local Language Content

The availability of educational material, development information and other resources in local languages would significantly improve their uptake, adaptation and innovation. While acknowledging the challenges of addressing the vast number of African languages, Diakite was of the view that the potential dividends in social, cultural and human capital justified at least an evaluation of

such an exercise. He proposed that as a first step efforts to facilitate the wider use of cross-border contact languages both off-line and on-line be pursued among African nations within such frameworks as NEPAD (New Partnership for Africa's Development) and ACALAN. Other recommendations included ensuring that before applying ICT on a large scale in the African educational environment experiences from other regions be evaluated to identify suitable models. He felt it would also be essential to prepare teachers through pre-service and in-service training, to ensure that teacher and learner roles are well defined and that good courseware/curricula development strategies were followed to take advantage of the technologies. In parallel, efforts to provide human capabilities for maintaining the ICT systems, to ensure that especially disadvantaged populations benefited and to stimulate the development and promotion of Internet content relevant to Africa would have to be implemented.

"New technologies can contribute to the survival of local culture by endowing them with new status."

Marleny Tzicap

The Enlace Quiché project in Guatemala which seeks to strengthen Mayan language and culture was presented by Andy Lieberman and Marleny Tzicap.[3] Their strategy involves integrating new technologies and bilingual intercultural education amongst communities in Guatemala's rural Western highlands, to promote (i) the creation of bilingual educational materials; (ii) sustainable access to new technologies; (iii) capacity building in the educational community and (iv) facilitating the interchange of resources, ideas and news.

To date, twenty Bilingual Intercultural Educational Technology Centres, ten of which are located in teacher training high schools, have been established by the project. This has facilitated the creation of a tremendous amount of material in local languages by teachers as well as students, and 14 resource CD-ROMs have now been published. An interactive multimedia course for literacy acquisition in five Mayan languages and a virtual community, Ebiguatemala, for sharing resources and experiences have also been developed.

Two main lessons have emerged: (i) the need to build on existing efforts and (ii) the realisation that new technologies can contribute to the survival of local culture by endowing them with new status.

According to Tzicap, "the use of CD-ROMs for language learning and publishing cultural information via the Internet has been empowering, and seeing

[3] For more information visit http://www.enlacequiche.org.gt.

new technologies use indigenous languages powerfully refutes the notion that 'holding on' to these languages is 'moving backwards'." While acknowledging the achievements of the project they fully recognise the challenges in widening the role that technology can play in development and in promoting local languages and culture. As Lieberman explained, "the high cost of access and lack of standardisation for many indigenous languages are indeed major challenges. In addition the lack of exposure to life and experiences outside their community can be a constraint as people tend to innovate only one step beyond what they have seen or experienced. So opportunities for them to be exposed to other possibilities are important. Production of print materials is difficult but the development of low-cost community printing centres could help. This would serve to boost production of reading material in local languages and further stimulate literacy efforts and dissemination of development information."

"The use of CD-ROMs for language learning and publishing cultural information via the Internet has been empowering, and seeing new technologies use indigenous languages powerfully refutes the notion that 'holding on' to these languages is 'moving backwards'."

Marleny Tzicap

Research on trends in language usage on the Internet, carried out under UNESCO's project Initiative B@bel and the "International Journal on Multicultural Societies", was presented by Sue Wright of Aston University, UK. The study examined the on-line language choices of 3,000 university students in France, Indonesia, Italy, Japan, Macedonia, Oman, Poland, Tanzania, the United Arab Emirates (UAE) and Ukraine.[4]

None of the students were native speakers of English but had learnt English for academic purposes. The study showed that while English content is widely available on the web it was only in a minority of groups and situations that these non-native speakers of English used English rather than their national language. This could be seen for instance when research for assignments was being carried out and where reliable and extensive material was not available in the national language.

In the case of students with a prestigious national language, large numbers of speakers and a strong economy capable of supporting and promoting this language on the Internet, there was little shifting to English as much of the information for their research could be found on-line in their language. However, using English on the Internet may be contributing to language shift for

[4] Wright, S. (editor) (2004), "Multilingualism on the Internet, International Journal on Multicultural Societies", Social and Human Sciences UNESCO and Initiative B@bel

small language communities that lack the economic resources to fund sites in more specialised areas of knowledge.

Overall however, the study seems to suggest a trend towards diversity on the Internet away from the perceived monopoly of English. Wright is of the view that the general assertion that English dominates on the Internet needs to be reviewed. Efforts to support the use of Internet domain names (URL) and e-mail addresses with non-roman characters coupled with investment by government and other sectors, Wright felt, would favour the development of local language sites and encourage greater linguistic diversity.

SchoolNet South Africa[5] and the Bridges to the Future Initiative in South Africa (BFI-SA) have been making extensive use of multimedia applications in local languages to reach the poorest sectors of society. As Rod Grewan pointed out in his presentation, the approach of coupling a rich, interactive, locally contextualised, intuitive interface had contributed to their success in developing a range of software tools that were being used to address development needs. The software ranges created include (i) literacy modules for out of school youths and adults; (ii) instructional and awareness raising content in areas such as health, micro-enterprise and agriculture; (iii) support tools for accessing e-government sites, and (iv) multimedia training tools for teachers and paraprofessionals such as HIV/AIDS health education workers. As Grewan explained, in light of South Africa's 11 national languages and its diverse ethnic population the provision of multilingual, culturally adapted content was of special relevance. There was thus an urgent need for additional resources that would allow the work to be scaled up and expanded to other townships particularly in rural areas.

Revitalisation of Endangered Languages through ICT

Monica Ward of Dublin City University in Ireland illustrated how computer assisted language learning could be applied to endangered languages and support their revitalisation and documentation. Ward cited two projects funded by her university, one in El Salvador focusing on the Nawat language and another in Mexico supporting literacy skills in Tojolab'a.

Ward credited careful planning, the enthusiasm and commitment of the communities, awareness of local political, historical and cultural sensitivities as well as the ability to build on previous work and involve other experts as ele-

[5] For more information visit http://www.school.za

ments critical to the project's success. Challenges of limited human and financial resources are significant projects constraints, for, as Ward explained, "many of these people are very poor, so time spent on the project means time lost for earning; so we must compensate them". She also pointed out that endangered language communities have small populations and those with the most intimate knowledge of the language are the elderly who are often ill with little time left to pass this on.

Ward recommends that links be established between endangered language communities to exchange experiences and knowledge and also with universities to facilitate skills transfer and research. However, Ward cautioned against large projects favouring instead smaller, more manageable efforts that build local capacities and closely involve the communities.

"Links need to be established between endangered language communities to exchange experiences and knowledge and also with universities to facilitate skills transfer and research."

Monica Ward

The presentation by Tamru Belay of the Adaptive Technology Center for the Blind (ATCB) in Ethiopia was perhaps the most moving of the entire session.[6] For most of the audience it was the first time that they had seen a Powerpoint presentation created and delivered by a blind person. ATCB has introduced computerised Braille printing technology that now provides an unprecedented quantity and quality of transcribed textbooks and other publications for blind students and other Braille users in Ethiopia.

ATCB's ICT skills training courses have also transformed the lives of blind civil servants and students who can now electronically manage their files, access information with their computers, carry out research on-line, removing their dependence on assistance for these tasks. These abilities have endowed them with a sense of empowerment, in addition, they can now keep private information they consider confidential. The media by publicising these advances have contributed to shifting public perception and engendering greater recognition and awareness for the capabilities of blind persons and the contribution they can make to society.

Belay, however pointed out that while the centre had succeeded in training many blind persons since opening in June 2000 there were several hundred thousand blind persons in Ethiopia. Although organisations such as the Canadian International Development Agency (CIDA), the International Telecom-

6 For more information visit http://www3.sympatico.ca/tamru

munication Union (ITU) and UNESCO as well as the Ethiopian government had provided generous support much greater resources were needed. Furthermore, as the text to speech and Braille translating programmes are not available in Ethiopian only blind persons with good English competence could benefit. There was thus an urgent need for Ethiopian versions of this software, additional resources as well as linkages with other groups.

Cuba has one of the highest literacy rates in the world. Juan Fernández González credits the development of an ICT-based methodology as an important contribution to this achievement. As he pointed out, one of the challenges that many developing countries face is an inadequate supply of trained teachers to ensure that each person has access to a quality education and the means for literacy acquisition. However, distance education harnessing the ability of radio and television provides a practical means for overcoming this limitation and provides an immediate multiplier effect. The methodology developed at Cuba's Latin-American and Caribbean Pedagogic Institute (IPLAC) has received several international prizes and takes the learner through a three-stage process of exploration, experimentation and extension which each learner follows with the aid of accompanying workbooks. Fernández González stressed the need for the results of the work to be more widely used and adapted in other countries where literacy rates are low and access to educational opportunities limited.

"For the disabled computers equipped with adaptive technology opens up a new world of information, confidence, and independence."

Tamru Belay

Session II – Sector and Policy Perspectives

In this session representatives from various sectors involved in global human development efforts namely governments, donors, inter-governmental agencies and the private sector presented viewpoints on how ICT could contribute to human development.

I. V. Subba Rao, Principal Secretary of Education in Andhra Pradesh, India, underscored the growing and important link between access to technology, information, better decision making and its contribution to overall human development at the individual and national level. To realise this potential it was crucial that both the digital divide and literacy divide be addressed. He showed how ICT was being used to overcome teacher shortages, to simulate learning, enhance the learning environment and to individualise the learning process. He highlighted the interdependency between ICT utilisation, literacy acquisi-

tion and content in terms of appropriate contextualisation, language and culture sensitivity. He emphasised the lead role of Government in providing the necessary supportive regulatory frameworks, in concert with other stakeholders in the development and implementation of language, literacy curriculum development and telecommunication policies. In closing Subba Rao provided examples of various national and regional multi-stakeholder projects being implemented in India.

Imfundo was created within the British Department for International Development (DFID) by the British Prime Minister in 2000, to support ICT use in the delivery of Millennium Development Goals for Education in Africa.[7] In his presentation, Tim Unwin focused on Imfundo's role in (i) shaping relevant, sustainable and appropriate partnerships and (ii) supporting local languages and capability building. According to Unwin, good partnerships can have an exponential impact enhancing both effectiveness and efficiency. To be sustainable they should be based on shared interests and trust, combine local and international strengths and also seek to build capacities at the local level.

"There exists interdependency between ICT utilisation, literacy acquisition and content in terms of appropriate contextualisation, language and culture sensitivity. The government has a lead role in providing the necessary supportive regulatory frameworks, in concert with other stakeholders in the development and implementation of language, literacy curriculum development and telecommunication policies."

I. V. Subba Rao

While personal relationships are important in the initial stages of cooperation he underscored the need for this to grow into systemic partnerships permeating the partner organisations. Equally important to achieving project goals is the ability to understand, gain credibility, communicate and offer programmes relevant to the target populations. In addition to the need for local languages it is essential that programmes be tailored to users who may have varying degrees of literacy, who may be blind, deaf or have other disabilities. Unwin was of the view that human capacity and literacy were not being sufficiently emphasised in many ICT development programmes but was encouraged by the growing awareness. With regard to governments, Unwin sees the identifying of priorities, establishing policy and facilitating partnerships as some of their key roles in the development process.

The BridgeIT programme being implemented in the Philippines is a global initiative involving the International Youth Foundation, Nokia, UNDP and Pearson. As Kimmo Lipponen, Director of Corporate Marketing at Nokia,

[7] For more information visit http://www.imfundo.org

USA, explained, BridgeIT is an innovative concept that uses mobile technology to provide digital multimedia learning material for the classroom. The system currently serves about 13,000 students, mainly 5th and 6th grade science students. Through BridgeIT teachers can access over 80 full-length science videos that enrich and add value to their science lessons.

BridgeIT, Lipponen explained, was designed to provide (i) ease of use; (ii) innovative and holistic approaches that consider technological needs, classroom environments, cultural factors, the goals of local and international partners; within (iii) a design that is scalable, replicable and sustainable which supports monitoring and evaluation to capture lessons learned. Lipponen credits the high level of cooperation with the government, strong support from its local partners, coupled with its demonstrated added value to the educational environment as important contributors to the project's success.

Experiences on the application of ICT in various aspects of social life and government administration in China were presented by Mr. Yao Hua Deng, Mayor of Zhaoqing city in Guangdong province. In his intervention he explained how in the technology city of Nanhai applying ICT in areas such as government administration, e-governance and environmental planning had contributed to greater awareness and the development of the information society in Nanhai. In addition these changes greatly increased local revenues, improved public services and decreased governmental expenditures. A key ingredient in the success of the project was ensuring participation by all sectors of the society. In particular, a special emphasis was placed on ensuring that the capacities and capabilities of remote and disadvantaged groups were addressed. According to Mayor Deng, perhaps the most convincing project outcome which has resulted in the wider use of ICT in surrounding municipalities is the significant increase in human productivity it has brought about.

Strengthening the presence of Latin and Neo-Latin languages in the information society will ensure that these communities can actively participate in and benefit from technological developments. This was the focus of a joint paper prepared by Carlos Leáñez Aristimuño and Daniel Prado entitled "Adapting content to culture: Some tools for modernising the Latin languages". The paper highlighted the role of the Paris-based intergovernmental organisation Union Latine[8] in supporting linguistic diversity in the information society.

At the policy level Union Latine has been working with its 35 member governments to develop policy initiatives and support for related activities. They have

[8] For more information visit http://www.unilat.org

established a number of networks to support research, exchange experiences and resources as well as focus on the development of standards, terminologies, dictionaries, automatic translation and a range of multilingual language resources and computational tools.

Leáñez Aristimuño felt that the rapid growth in technological innovation and information appears to be coupled in some quarters with a trend to unilingualism. He therefore felt that efforts to counter this trend and ensure information access and exchange among and within the various language communities of the world were essential. Without such actions existing social divides would be further exacerbated and our virtual information society would lack the rich larger cultural diversity of the physical one.

Session III – Parallel Breakout Technology Demos

Session III provided opportunities for participants to see various technologies developed to address development challenges and to interact one-on-one with the respective presenters.

Michael Cochran of SIL International, USA, presented a variety of technologies they have developed in the areas of language translation, analysis, content creation and field documentation of languages. For more information visit www.sil.org

Professor Tarcisio Della Senta of UNDL Foundation, Switzerland, presented an information kiosk on cultural heritage sites which provided output in six languages using a translation system based on the universal networking language (UNL) developed by the UNDL Foundation. The system currently provides support for translation in at least twelve languages. For more information visit www.undl.org

Leonela Relys, Academic Advisor IPLAC, and Juan Fernández González, Ministry of Communications, Cuba, provided a demonstration of the Radio- and TV-based distance education programme developed in Cuba.

Thomas Bearth, Hannes Hirzel, Chantal-Nina Kouoh, General & African Linguistics, University of Zurich, Switzerland, presented their work on Language, Gender and Sustainability (LAGSUS): a pluri-disciplinary and comparative study of development communication in traditional societies as well as their work on developing tools for content management with African languages.

I. V. Subba Rao, Rod Grewan, Dan Wagner, Bridges to the Future Initiative, showed a presentation on the multimedia literacy and development software created in South Africa and India under this project. For more information visit http://www.literacyonline.org/bfi_ili/description.html.

LOCAL VOICES: PROMOTING CULTURAL DIVERSITY IN THE GLOBAL VILLAGE (INCLUDING LAUNCHING OF THE OPEN KNOWLEDGE NETWORK)

Today's media technologies offer unprecedented possibilities for global interaction and communication. But they are only meaningful to the local community if its content reflects their local needs and conditions. This panel discusses how information and communication technology (ICT) can be used to promote, distribute and create local content, moving from one-way media in which poor and marginalised people are information recipients to interactive media, in which they participate actively in its creation and dissemination. Envisaging a future in which local and traditional knowledge contribute fully to global development, the panel unravels the wealth and empowerment of local content.

EVENT	Panel discussion with Video Clips / Short Cultural Show 5.1
DATE/TIME	Wednesday, 10 December 2003, 16.30–18.00, Conference rooms 2 and 3
ORGANISER	UN ICT Task Force (Working Group on Local Content), One World International / Open Knowledge Network (OKN), Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**Peter Armstrong,** Director-General, One World International **Ibrahima Bob,** Open Knowledge Network Coordinator for Francophone West Africa **Avri Doria,** Visiting Researcher, Electronics and Telecommunications Research Institute, Korea **Talib Hussain,** Project Manager, Van Gujjar people, Dehra Dun, India **Avdhash Kaushal,** Director, Rural Litigation and Entitlement Kendra, India **Paul Quek,** Scientist, Consultative Group on International Agricultural Research (CGIAR), Malaysia **Maria Udén,** Researcher, Luleå University, Sweden **M. S. Swaminathan,** Professor, Chairman of the M. S. Swaminathan Research Foundation, India
MODERATOR	**Aida Opoku-Mensah,** Team Leader for ICT for Development, United Nations Economic Commission for Africa
RAPPORTEUR	**Barbara Zatlokal,** Independent Communication Consultant, UK
KEY QUESTIONS	▸ How can local and traditional knowledge benefit from the information society? ▸ What can the North learn from the South in organising the local information society? ▸ How can we overcome barriers in realising the richness of local content – economic, social, linguistic? ▸ How can we promote local content and minority languages?

by Barbara Zatlokal and Britt Jorgensen

Local content as an essential element of the information society was represented at this panel discussion. It consisted of two parts. The first was dedicated to discussing the role of local content with regard to the spread of information and communication technologies (ICT) for development. In the second part the official launch of the Open Knowledge Network (OKN) initiative was celebrated.

In her introduction the moderator Aida Opoku Mensah, Team Leader for ICT for Development at the United Nations Economic Commission for Africa, emphasised that the focus was on an often overlooked issue: "If we are to democratise the information society, then it must start right here in local content."

"Consistent use of a formalised and legally binding recording process respects the knowledge of the local community or individual and formalises the collection process. Bringing traditional knowledge into the mainstream of international knowledge with the support of documentation gives it legitimacy."

Paul Quek

Content is the essence of all ICT activity – whether on the Web, on a battery-powered telephone or on a tape recorder. Without it, infrastructures, equipment and software have no meaning. Local content may be the knowledge recorded by local communities, for their own use, to share with similar communities or eventually globalise. It can take many forms, such as that of indigenous knowledge of the flora and fauna of the area, traditional knowledge on medicines made from local materials, or it can be music, dance or legends. Local knowledge is unique to the community and can be information that they wish to hand down to new generations or/and can be used to sustain their livelihood in a traditional way. Today development agencies are learning from local communities about the best crops for the local community to grow, how they protect their villages from flooding, or how they maintain a herding lifestyle in a bureaucratic world.

Introducing the participants the moderator underlined what was original about them: "The panellists are the actual originators of the local content and they are speaking for themselves," she said. "This is very significant in a world used to the perception of local content as being only a medium for an outsider's agenda, whether it is health, education or human rights."

Four concrete projects were presented illustrating the importance of traditional and local knowledge within the context of development processes. They show different aspects and phases in the use of ICT within communities and demonstrate how technology can answer to the particular needs of such communities.

Recognising local content through use of ICT was presented by Paul Quek of CGIAR who emphasised the importance of both recognising what the local community brought into the scientific knowledge as well as recognising the individuals and the community as being the owners of that information.

Maintaining local content through ICT was presented by the non-government organisation RLEK (Avdhash Kaushal) and a member of the Van Gujjar tribe (Talib Hussain) who showed how a traditional way of living, jeopardised by the encroachment of modern living, could be maintained by means of simple information technologies.

Shaping local content by dictating the type of technologies most suited to a local community and its lifestyle was demonstrated by the Saami Network which uses an Internet-based system to help them keep contact with society while they follow their reindeer herds with the changing seasons.

The Kyanika Adult Women's Group and the Sarawak Biodiversity Centre

Paul Quek, Scientist at the Consultative Group on International Agricultural Research (CGIAR), described how the Kyanika Adult Women's Group in Kenya and the Sarawak Biodiversity Centre's Traditional Knowledge Documentation Project in Malaysia integrated traditional knowledge for increasing knowledge bases and for local economic development.[1]

The Kyanika Adult Women's Group, from the village of Kyanika in Kenya and part of the Kamba people, felt that an essential item of their traditional lifestyle, the *kitete* (gourd), was being forgotten and undervalued by younger generations. Kamba culture is intricately intertwined with the *kitete*, which is made out of a particular plant. The loss of both the species and of the knowledge about its uses would be a great cultural loss. The women therefore wanted to record for future generations the various uses of their local gourd (calabash), as it had been used for centuries – whether for storage, music or art.

Conserving local varieties of *kitete* needed to go together with the transfer of knowledge from old to young. Most of this knowledge is part of the oral tradition of the Kamba people and not available to the outside world. Collecting

[1] For more information on the two projects visit http://www.ipgri.cgiar.org/regions/apo/ik.html. See also Morimoto Y. and Maundu P., "Local content documentation and exchange, Kyanika experience" in Ballantyne, P. (2002), "Collecting and Propagating Local Development Content, The Case Stories", International Institute for Communication and Development (IICD), Tanzania Commission for Science and Technology, UK Department for International Development (DFID).

kitete varieties, documenting its culture, sharing knowledge and generating income were carried out by means of community seed fairs, exploring markets for *kitete* items, documentation and demonstrations in farmers' fields. Traditional meetings and the transfer of oral knowledge played a major role.

"Because the Van Gujjars, together with huts and herds, go to new pastures every year, following the natural grazing patterns of the buffalo, the nomads were previously deprived of access to government programmes and any kind of protection from poachers. The use of mobile telephones permits them not only to protect each other, but also to contact authorities if necessary and use the telephone in case of medical emergencies."

Avdhash Kaushal

Eventually the women had important documentation in the form of photographs, tapes, writing and videos. In addition to storing it they also established a web site and developed a commercial outlet for their gourd art.

The *kitete* project documented indigenous knowledge for future generations, gave the community a concrete means of sharing its information and the opportunity to improve its livelihood through the sale of seeds and artefacts made from *kitete*. ICT played an essential role in the transfer of specific knowledge on the *kitete* which is still maintained through the oral tradition.

Sarawak, situated on the island of Borneo and politically part of Malaysia, contains more than half of the world's bio-species. The Sarawak Biodiversity Centre encouraged the local community to identify their local flora and add to the existing scientific knowledge for both enrichment of botanical records and for traditional medicine use. The project builds on existing traditional knowledge of plant conservation and helps local communities to maintain, document and share their knowledge on plant resources – both to transmit to the young and to enable the use of their indigenous knowledge in the sustainable management of biodiversity.

Paul Quek emphasised that when scientists go to a local farmer or a local community, they should be ready to make a 'paper copy' of the information in the local community's own language first. This can be in the form of a photograph, tape recording etc. This ensures that the scientist is not relying on translation of the material later. Without it the recognition trace is lost. "Such a citation is more binding than a mere acknowledgement, lasts longer and cannot get lost – it becomes a legal entity," Quek expained. The Traditional Knowledge / Indigenous Knowledge Register (TK/IK Register), where each plant and its information is maintained, is a formal system in the State of Sarawak that gives legal protection to any documents that are invested with the Sarawak Biodiversity Centre. Access by scientists is governed by rules set by the Centre which represents the Government of the State of Sarawak.

Consistent use of such a recording process respects the knowledge of the local community or individual and formalises the collection process. Bringing traditional knowledge into the mainstream of international knowledge with the support of documentation gives it legitimacy.

The Sarawak and Kenya projects were led by the same organiser, CGIAR, who provided advice and training. Many other groups, particularly other villages in Kenya, are now considering initiatives of their own.

The Van Gujjar People of the Himalayas

Avdhash Kaushal of the Rural Litigation and Entitlement Kendra, and Talib Hussain, a member of the Van Gujjar people, demonstrated how a traditional nomadic lifestyle, language and customs can be maintained in the face of encroaching urban civilisation through the organised use of ICT.

The Van Gujjars, whose natural home lies in the Himalayas, come down to the highlands in search of fresh fodder for their buffalo and retreat with the onset of winter into the proposed Rajadi wildlife park, a wildlife sanctuary in the region. Clinging fiercely to their traditional lifestyle, they are vegetarian, despite being Muslim.

Thanks to the efforts of RLEK, an NGO based in Dehra Dun in Northern India, which has been working with them since 1992, the pastorals have now tuned into the modern economy. RLEK sensed a unique opportunity to make adroit use of ICT to improve the living conditions of the Van Gujjars and also to enable them to make a connection with the mainstream of Indian life.

As part of the project the Van Gujjars were given wireless telephones. Each group now has two handsets to be used for the benefit of the community, one of which has to be with a man and one with a woman. They are connected to RLEK stations and eleven other centres, including mobile vans. To facilitate this the government's Ministry of Telecommunications allotted two special frequencies for the wireless communication.

Because the entire people, together with huts and herds, go to new pastures every year, following the natural grazing patterns of the buffalo, the nomads were previously deprived of access to government programmes and any kind of protection from poachers. The use of mobile telephones permits them not only to protect each other, but also to contact authorities if necessary and use the telephone in case of medical emergencies. Their children can maintain their schooling, they can show a united front in selling their buffalo milk and

they know where other members of their group are located at any given time, for both reassurance and security.

The adoption of the technology was facilitated by an adult literacy programme, run by volunteers. It helped the nomads to learn the necessary skills to make optimal use of the mobile phones.

The technology used has proven to be ideally suited to the peculiar needs and lifestyle of the Van Gujjars. According to Avdhash Kaushal, the use of ICT has enabled them to have interaction with the world outside while maintaining their nomadic lifestyle in a sustainable way. It has given them confidence because they feel empowered as a people. Today they also participate in sustainable management of forests to which they contribute their considerable traditional knowledge of the forest and the wildlife.

At the same time ICT also helps the Van Gujjars to make their voices better heard in the wider society. Their only commercial venture is the production of milk, but the milk market is cheating them. Their struggle against this by being united and consistent in their stance has been empowered by the wireless sets.

The Saami Network Project

The area of the Saami is known as Lapland (the northern areas of Sweden, Norway, Finland and Russia). The herds are moved from winter grazing to summer grazing ground. People work together in smaller and larger groups and sometimes alone. If possible they bring the children to introduce them to the needs, traditions and demands of Saami living.

According to Maria Udén, Researcher at Uleå University and a Saami native, The Saami Network Project was initiated by a group of native reindeer workers.[2] In the traditional way of living, most herders are men; however, the project was initiated by women. They were aware that something had to be done to increase their possibilities to remain within Saami society.

"In traditional herding the family unit stays together and follows the herd," Avri Doria, Visiting Researcher, Electronics and Telecommunications Research Institute (ETRI), Korea, explained. "All generations travel together. Today, herds still require the same organic organisation, but people have con-

[2] For more information visit http://www.snc.sapmi.net

straints to move within the times of the seasons, such as the beginnings of school years. Modern society requires stationary living. Everyone must have a particular address that defines them and the rights they have. Reindeer herding has thus ceased to be a family business and has become much more male-dominated and business-oriented. Today only ten per cent of professional reindeer herders are women."

The potential of ICT is to re-enable the people to return to a more coherent semi-nomadic life and to decrease the stress associated with such a lifestyle in a world which is stationary. "It is crucial for technology to try to help them overcome the boundaries of time and space that are constraining their semi-nomadic life," said Avri Doria.

"Technology can help the Saami to overcome the boundaries of time and space that are constraining their semi-nomadic life."

Avri Doria

For the few months that they reside in towns and communities, they can benefit from an Internet-based portal called SaamiNet at the Saami Educational Institute. It was originally created as an educational tool but is now much more than that and appreciated as a means of communication and dissemination of information. It is a venue for Saami culture and their own network of communication, which includes educational elements, social items and the Internet.

Because they are often out of reach of even a satellite connection, the networking technology had to be adapted to fit their needs. The basis of the SaamiNet is a technology called Delay Tolerant Network (DTN) which was developed by the US space agency NASA. It allows for the delayed transfer of messages and enables the Saami to maintain communication with each other and urban centres at their own speed and to fit in with their migration patterns.

Saami women were previously obliged to stay at summer grazing grounds close to towns and schools. Today, the Saami Network, with its strong educational and socially interactive element, will allow them to follow the herd, keep the family together and to maintain contact with each other in an otherwise difficult area for communication.

As Avri Doria pointed out, it is important to extend the notion of what it means to have local content. "Most of our knowledge pertains to a particular time and place. Once time and place are changed this notion changes as well. Working on this project has forced me to view the Internet and the fact that it is stationary very differently," she said. A different notion of time made her investigate how to provide capabilities. "The project shows that even if you

don't have the latest technology certain services can still be used and integrated into the Saami world."

The system is being extended continually. Currently, Avri Doria and her team are building a prototype of the delayed messaging system to develop education programmes and tools for local residents to use their own local content, and to enable the Saami to establish a local industry based on that technology. Education is key to this project for sustainability and locality. Another important approach is opportunism – using what is available and possible. "It must be kept inexpensive and sustainable," she said.

The project involves cooperation between social scientists, technologists and, of course, the Saami themselves. Explains Doria: "We are building upon the Saami lifestyle and culture. In fact, the Saami's nomadic knowledge will actually extend the Internet science of technology. There is a mutual advantage in this work and it is leading to further research on delayed messaging for communities on the move."

Broadening the Debate: Q & A with the Audience

What can the Internet community learn from this nomadic approach to knowledge?

Avri Doria: The kind of networking used is called a Delay Tolerant Network (DTN). One of the things developed is a way of passing messages from one opportunity to another using local relays. It requires adding new protocols and new architectural models to the Internet. Part of the collaboration is with NASA – we have discovered that the Saami problem of time and space is similar to the challenges faced in communicating across satellites. We are developing knowledge that we can hand back to NASA to solve their problems.

In a Delay Tolerant Network there must be a different notion of how one distributes, stores and delivers information. For instance, when one asks the Web for information but there is no direct connection to where it is stored, the data must be moved to some other place. The technology for distributing and storing information in various places is still being developed.

We are building on a lot of information that is in the public domain and we want to contribute to that public domain. Many working on this project have a firm belief in enriching the domain by protocols and new perspectives. We have a complete open source approach to projects. Once the network is created, there will be a need for standard intellectual property rights but now

we are borrowing so much from the public domain that we feel that we need to be open source as well.

The Saami Network project is an initiative originating from the Saami women and only ten per cent of reindeer owners are women. Is this initiative, which will benefit the whole group, able to raise the potential of women in reindeer herding?

Maria Udén explained that mastering technology and having access to the right types of connections is in itself a way for more women to participate. The most important thing for local women is that this is now an arena for them to have a say in their community, as well as the opportunity to run their own reindeer business.

"In fact, the Saami's nomadic knowledge will actually extend the Internet science of technology. There is a mutual advantage in this work and it is leading to further research on delayed messaging for communities on the move."

Avri Doria

What are the motivating factors for the traditional community to share their knowledge?
What are you doing to protect their knowledge?
How are you dealing with the loss of their knowledge?
How are you storing it?

Paul Quek: We ask members of the local community to list the plants which are useful, and they must then identify them as experts. It is important that we do not take the actual information (whether about a gourd or a plant) away from the indigenous community. Even if it is a traditional secret, we encourage them to hand it down and keep it. They can then pass it on to their grandchildren. They must also maintain the indigenous plant. The knowledge about the plant without the plant's existence has no meaning.

A member of the audience pointed out that ICT could also pose a danger if the information given out is not protected by Intellectual Property Rights (IPR). For example, Caribbean music has made a great deal of money for a few individuals, but the wider Caribbean community has not benefited. Local people are faced with the challenge of embracing technology while also being mindful of the threats it can pose, he said. He cited the practice of major pharmaceutical companies who patent plants that traditionally belong to the community. Once patented, the communities no longer have the right to that plant.

Launching the Open Knowledge Network

The second part of the event was dedicated to the launch of the Open Knowledge Network (OKN), a human network, which collects, shares and dissemi-

nates local knowledge and is supported by flexible technical solutions.[3] People can use the new opportunities offered by OKN to seek and contribute knowledge about health, local culture and practices, education, agriculture, government schemes, jobs and markets.

Local content development is closely tied to human development, and the ultimate aim of OKN is the empowerment of local communities. Poor people must be able to express and communicate locally relevant knowledge in local languages if they are to shape decisions, which affect their livelihoods.

OKN is not something new. It is a synthesis of tried and tested ideas, building on what is already happening in many different fields and joining up the dots. It builds on the following seven principles:
– Build on the experience of others
– Build capacity in communities to support knowledge sharing
– Work off-line for free, but synchronise with the Net
– Peer-to-peer networking of existing Knowledge Workers
– Standards for metadata using Extensible Markup Language (XML)
– Agreed open content copyright licenses
– Sustainable business models adapted to different contexts

How Does it Work?

Using the OKN system, people in Africa, Asia and Latin America can create digital content in their own language, which is then exchanged with others through networks of existing community Access Points staffed by what OKN calls 'Community Reporters'.

Community Reporters play a very important role in OKN, serving as 'infomediaries', and linking the community with OKN and vice versa. Reporters carry out content needs analyses in their communities, assist in content generation and dissemination, and link the OKN system to other community media as well as to key people and organisations in the community.

The Access Points channel their content to and from 'Hub' organisations for wider exchange. As most of the Access Points are not on-line on a regular basis, exchanging information with the Hubs happens with the help of a range of technologies including satellite transfer or short bursts of e-mail or Internet

[3] For more information on OKN visit http://www.openknowledge.net.

connectivity. The OKN technology is designed to be compatible with all kinds of information and communication technologies, both low and high tech.

The Hubs are located in existing organisations that support the exchange of knowledge at grassroots level, and are staffed by what OKN calls 'Knowledge Workers' (a mixture of sub-editor, electronic librarian and development worker). The Hubs are linked to each other through shared standards and open source software tools.

Using a wide range of community dissemination tools, such as radio, drama, puppetry and simple drawings (among many others), is very important to increase the impact of OKN. As of May 2004, the OKN communities in India are involved in producing a 15-minute radio programme broadcast every fortnight on the state radio. This programme is produced by local people for local people and about local people – realising the Indian tradition.

Using the Open Knowledge Network (OKN) system, people in Africa, Asia and Latin America can create digital content in their own language, which is then exchanged with others through networks of existing community Access Points staffed by what OKN calls 'Community Reporters'.

As Community Reporters build and exchange skills in handling and disseminating information, the value of the human network grows. In Kibera, Nairobi, the largest urban slum area in East Africa, OKN Community Reporters work on advocating for important issues like the rights of girls. Their success has led to members of that community confessing to girl child abuse, and subsequent court cases to prosecute offenders.

To extend the potential of this human network, OKN is also working with mobile phones as a new two-way channel to encourage communities to create and share vital, up-to-date messages cheaply and quickly. Mobile phones are booming in the global South and the technology is providing increased flexibility in reaching audiences within specific geographic areas. The mobile programme is funded by the Vodafone Group Foundation and is currently being piloted in Kenya.

OKN is not trying to reinvent the wheel, since many communities and projects in the South were working in similar ways before OKN. OKN can support and strengthen these local and regional knowledge networks, and offers the advantage of using global standards to organise and exchange local content. This gives Access Points the possibility of being able to share information with other Access Points locally, regionally or globally. OKN also offers its partners capacity building on local content creation and stimulation and other

related issues such as intellectual property rights and business planning. OKN is joining up the dots and working to enhance existing initiatives to create a knowledge network that is sustainable.

Examples of local knowledge exchange from the OKN Access Points:

- Different dissemination media – "When I came to know that someone in my village was trying to sell 100 bricks, I encouraged him to put an advert in the OKN newspaper generated by the village volunteers. The advert was processed by our content manager in Villianur and was circulated to all the villages connected to the OKN within hours. There were requests from other villages for the bricks on the same day, and the villager was able to sell those bricks immediately." Packialouchmy, an OKN Knowledge Worker, explains: "The power of being connected at the local level through the OKN with authorities, researchers, experts and our fellow communities makes us feel that we are indeed a part of the global society."

"The power of being connected at the local level through the Open Knowledge Network with authorities, researchers, experts and our fellow communities makes us feel that we are indeed a part of the global society."

Packialouchmy, an OKN Knowledge Worker

- Herbal medicine – at the Shinyanga Access Point in Tanzania the Community Reporter found information on OKN about a cure for livestock with ticks that neither he nor his community knew about before. "You take leaves from the tree, you soak in water and then you mix with the other tree species. The water is used to spray on the cattle and then the ticks die immediately. The people appreciate the method and are still using it," says the Shinyanga Reporter.

- Relevance across communities – Siaya, in the Nyanza district of western Kenya, is home to the Luo community and is an area where 32 per cent of the population is infected by HIV/AIDS. OKN Community Reporters there report that, on average they download 6 or 7 out of 10 items available on the OKN system which come from other Access Points. "There are many things in common like for instance the drug abuse in Kibera. We also have drug abuse by youths in Siaya, so the information coming from Kibera can be equally applied to the Siaya community," says one of the local reporters.

- Small scale business opportunity – the Community Reporter, Francis, gives a good example of how OKN has helped the community around the Mtaa Access Point: "We collected information from a nearby group which is making soap out of a local tree to sell it. We took the recipe and sent it to the hub who in their turn sent us another formula for making the same soap but in a different way. The community members used this information and tried

the new formula. They were satisfied because the quality of the soap had improved and the price of the soap has risen from 20 to 25 shillings and the people are happy to buy it, because the soap is better now."

Where Now and Next

Currently OKN is running in Kenya (with ALIN – Arid Lands Information Network, and AfriAfya – African Network for Health Knowledge Management and Communication), Senegal (with ENDA – Evironmental Development Action in the Third World), Zimbabwe (with SAFIRE – Southern Alliance for Indigenous Resources) and India (with MSSRF – M. S. Swaminathan Research Foundation). Next in the pipeline are Sri Lanka, Mali, South Africa and possibly Uganda. OKN is also exploring the possibility of going into Nigeria, Mozambique and Angola; and there is also activity in South America.

OKN Partners

Founding consortium: OneWorld International, International Institute for Communication and Development (IICD), International Development Research Centre (ICRC), M. S. Swaminathan Research Foundation (MSSRF), Accenture, Berman Centre of Harvard Law School. Hub partners: AfriAfya, ALIN, SAFIRE, ENDA, MSSRF. Funding partners: Department for International Development (DfID), UK, Industry Canada, Vodafone Group Foundation and Sun Microsystems.

SELECTED REFERENCES

The following list includes selected references to facilitate quick access to some key publications and toolkits. It is not intended to be comprehensive. All references are also listed on the website of this book on http://www.globalknowledge.org/ict4d and will be regularly updated and expanded. Additions and comments on further reference materials and links are most welcome. Please enter them directly into the open dynamic reference lists on http://www.globalknowledge.org/ict4d.

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6. MULTI-STAKEHOLDER PARTNERSHIPS

SAŠA KRALJ/GKP

KEY FINDINGS

Lessons Learned

- Multi-stakeholder partnerships (MSP) have shown themselves to have great potential. But effective MSP in both policy and implementation settings in ICT for development remain relatively rare – a testimony to the challenges inherent in building such partnerships. However, there exists a substantial body of experience in other sectors – and increasingly in ICT for development – from which to draw in the process and structuring of multi-sector partnerships.
- Achieving the Millennium Development Goals will require a change in the current progress and approach to development: both ICT and multi-stakeholder partnerships can help catalyse such a change.

Trends and Innovations

- There has been rapid growth in the promotion of multi-sector partnerships as a strategy for addressing development goals through using the potential of ICT, and the approach is prominent in the Declaration of Principles and the Plan of Action of the WSIS.
- Changes in the understanding of the role of government, the capacity of the private sector and civil society to finance and implement on the ground, and shifts in the mindset of organisations in all three sectors are progressively providing more fertile ground for such partnerships.

Priorities / Potential for Action

- There is a need to move beyond discussion and pilot programmes to begin large-scale implementation of multi-sector partnerships in ICT for development.
- The dual Summit format of the WSIS provides an ideal opportunity in which to initiate concrete partnership projects which can be showcased in Tunis 2005.
- Innovative ways need to be found to support and finance the early partnership exploration and building phases of such partnerships, which are unlikely to take place spontaneously.

Burning Questions

- How can multi-sector partnerships in ICT for development be scaled up more effectively from their current experimental base to meet the challenge of the Millennium Development Goals?
- How can such partnerships best be catalysed, structured and supported by governments, donors and private organisations? Who can best provide the required leadership and facilitation?

MULTI-STAKEHOLDER PARTNERSHIPS: MEETING THE CHALLENGE OF THE MILLENNIUM DEVELOPMENT GOALS

A more purposeful pursuit of multi-stakeholder partnerships (MSP) – i.e. strategic alliances that combine the resources and strengths of government, private sector and civil society – could hold the key to reaching the development challenges of the Millennium Development Goals (MDGs). While the importance of MSP has been widely recognised within the World Summit on the Information Society (WSIS), the Global Knowledge Partnership (GKP) and the ICT for development community, there are relatively few examples of truly successful MSPs within the ICT for development sector. This is an indication of how challenging it is to make such partnerships work, particularly when efforts are made to include civil society in partnership with government and private sector stakeholders.[1]

EVENT	Panel discussion 6.1
DATE/TIME	Thursday, 11 December 2003, 10.00–11.30, Conference room 1
ORGANISER	Swiss Agency for Development and Cooperation (SDC), Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**Jeffrey Sachs** (by video), Special Adviser to the UN Secretary-General on the MDGs **Sarbuland Khan,** Executive Coordinator, UN ICT Task Force **Mohamed Sharil Tarmizi,** Chair, Government Advisory Committee, ICANN **Sharifah Hapsah Shahabudin,** Board Member, ASEAN Confederation of Women's Organisations **Ashok Khosla,** President, Society for Development Alternatives
OPENING REMARKS	**Rinalia Abdul Rahim,** Executive Director, Global Knowledge Partnership (GKP)
MODERATOR	**Walter Fust,** Director-General, Swiss Agency for Development and Cooperation (SDC); Chair of the Global Knowledge Partnership Executive Committee
RAPPORTEUR	**Stuart Mathison,** Program Manager – Information and Communication for Development, The Foundation for Development Cooperation (FDC)
KEY QUESTIONS	▸ What are multi-stakeholder partnerships, and how do they differ from more conventional approaches? Why are they important for the achievement of the MDGs? ▸ How do we combine the MDGs (as goals), ICT4D (as a means) and MSPs (as a process) in the most effective way? ▸ What can be done to provide fresh and potent impetus in making MSPs work in meeting the challenge of the Millennium Development Goals, particularly in the area of ICT4D? Can the WSIS process – with its tri-partite format and dual Summit configuration – be leveraged to catalyse multi-sector partnerships? ▸ What are the constraints to effective multi-stakeholder partnerships, and what are the opportunities?

by Paul Greener[2]

Utilising the potential of ICT to enable progress toward the Millennium Development Goals (MDGs) requires a holistic approach: the strategic combination of policies, infrastructure, technology, human capacity, enterprise and content. This implies considerable complexity in ICT for development (ICT4D) programmes, and consequently the need for a wide range of resources and competencies to be brought together to develop complete solutions to specific challenges. In this case, the logic is strong for bringing together stakeholders from across society (from government, business and civil society) in both the design and implementation of solutions.

To a substantial degree the concepts of ICT4D and multi-stakeholder partnerships (MSP) are mutually reinforcing. On the one hand, multi-sector partnerships provide a powerful means to help realise the potentials and opportunities made possible by both new and traditional ICT. There is growing recognition that partnerships between civil society, government and business organisations offer substantial potential for innovative solutions to pressing development challenges. At the same time, ICT, and the sharing of knowledge that they have enabled, have in themselves increased both the need and the facility of building partnerships between organisations in different sectors, at different levels (global, national or local), and which operate in different geographic, cultural and social spaces.

The frequency with which the terms "partnership" and "ICT" have appeared in the vocabulary of the international development community has increased exponentially in recent years. At the same time, enthusiasm for these concepts as elements of a "new development paradigm" needs to be tempered with reality. In the context of poverty reduction, both are means to an end rather than ends in themselves. And realising the potentials presented by both concepts has proven to be a path strewn with challenges.

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1 See also the chapter "Using ICT for Reaching the Millennium Development Goals: Moving from Rhetoric to Action", pp. 101–109.

2 For this report material has also been drawn from two further events at the ICT4D Forum, and a third that was under the auspices of the ICT for Development Platform, that related to the topic of multi-stakeholder partnerships, i.e.

- "Multi-Stakeholder Approaches for the Information Society". A peer-to peer learning workshop organised by the UNDP, with backing from the Swiss Agency for Development and Cooperation (SDC) and Global Knowledge Partnership (GKP). (Wednesday, 10 December, 15.00–18.00, Conference room 12.)
- "Beyond the Rhetoric: Initiating a Pioneer programme of Multi-Sector Partnerships in the ICT Sector". A workshop organised by the Overseas Development Institute and the Foundation for Development Cooperation with backing from Swiss Agency for Development and Cooperation (SDC) and Global Knowledge Partnership (GKP). (Friday 12 December, 10.00–12.00, Conference room 5.)
- "The Way Ahead: Public-Private Partnerships for Digital Opportunity". A panel presentation organised by USAID. (Wednesday 10 December, 16.00–18.00, Conference room 5.) Speakers included Pamela Possman, Head of Corporate Affairs, Microsoft; Tae Yoo, VP Corporate Philanthropy, Cisco; Donald Abelson, US FCC; Ed Malloy, USAID.

The concept of partnership goes beyond a transfer of resources from one party or sector to another in order to implement specific programmes. Ultimately, partnerships for sustainable development are a means of increasing the alignment of the core objectives, programmes and capacities of all three components of society – public, private and "third sector" – to make more effective their combined impact on economic and social development and poverty reduction. Further, such a vision has profound implications on the way society defines good governance and good business conduct.[3]

"Today's development strategies can neither eradicate poverty nor strengthen ecological security. New modalities for development are needed and it is at this point that ICT for development and multi-stakeholder approaches enter the picture."

Ashok Khosla

The Challenge of the Millennium Development Goals

In order to give focus to the task of poverty reduction, the UN has defined eight Millennium Development Goals to be achieved by 2015.[4] Most of these goals have quantifiable targets against which progress can be measured, and they are designed to spur international development to achieve results on a much greater scale. The MDGs represent a broad view of poverty, covering areas such as income and consumption, education, gender equality, health, environmental sustainability and partnerships for development.

Each of the panel speakers emphasised that at the current rate of progress, it is highly unlikely that we will achieve the MDGs within the specified timeframe. Indeed, present efforts will not get us even halfway. Furthermore, since the MDGs are expressed in relative rather than absolute terms, even if the MDGs are achieved the problem of poverty will be far from solved. For example, MDG #1 is to "halve, between 1990 and 2015, the proportion of people whose income is less than US$ 1 per day". If India achieves exactly this, there will still be more than 150 million people living in poverty in 2015. Clearly, we need to do much better than we are at present if we hope to achieve the MDGs and make truly significant progress to reduce poverty in the world. In this context the enabling contribution of new information and communication technologies, and the coordinated power contributed by multi-stakeholder partnerships were seen as important elements of a new and more effective paradigm.

[3] Global Knowledge Partnership (2003), "Multi-Stakeholder Partnerships: Issue Paper". Prepared by the Overseas Development Institute and the Foundation for Development Cooperation.

[4] For more information visit http://www.un.org/millenniumgoals.

Appearing by video link, Jeffrey Sachs, Special Adviser to the UN Secretary-General on the MDGs, stressed that the MDGs were achievable goals, designed to spur international development to achieve results on a much greater scale. They are important because they are achievable, and there is a specific time-frame for their achievement. However, there is still a need for much greater concentration on arriving at these goals. ICT have tremendous potential to help us to achieve the MDGs, for example:

- ICT are vital for the process of scaling up investment to reach the masses.
- ICT can be employed to improve the quality of services at the local level.
- ICT can be employed to improve the productivity of the private sector.

And yet, despite talk for many years about the digital divide and in the face of growing evidence of the importance of ICT, we have not yet reached sufficient scale in the implementation of ICT for development to contribute significantly to the achievement of the MDGs. It is important now to focus on specifics. We need to identify specific modalities to achieve the MDGs. Multi-sector partnerships are needed to implement solutions that can be scaled up. He stressed that this is an historic opportunity to help people break out of poverty – let us get ICT mobilised for this purpose – noting that "… talk alone will not deliver".

"We need to up-scale successful ICT4D pilots to fulfil the promise that they can be used to reach the masses, and ultimately to contribute more significantly to the achievement of the MDGs."

Walter Fust

The Role of ICT in Achieving the MDGs

Sharifah Hapsah Shahabudin, Board Member of the ASEAN Confederation of Women's Organisations, argued that information and communication are fundamental to sustainable development and poverty reduction. The implication of this is that lack of access to communication mechanisms and to relevant information sources hinders people's ability to overcome poverty.

ICT are, by definition, technologies that facilitate communication and access to information. However, in spite of the potential of ICT, the challenges to their successful application for development are significant. ICT need to be affordable for the poor, in terms of both initial outlay and on-going costs. Information received needs to be relevant, contextualised and available in the local language. Communication needs to be timely, so that information is obtained or provided neither too soon nor too late. And people require the capacities to use information.

Mohamed Sharil Tarmizi, Chair of the Government Advisory Committee of ICANN, discussed the role of the Internet in development. Indeed, in the most

general sense, the Internet is designed for development. Many governments realise that the Internet will enhance economic activities and assist social development. It can and has been used effectively to improve health and education. However, unless the Internet is developed further, not least with respect to important issues relating to Internet governance, we will achieve much less than is otherwise possible. The international multi-stakeholder composition of ICANN is enabling it to operate more effectively. For example, the various interest groups competing for influence over the Domain Name and Addressing systems placed the previous administrative process under breaking strain. ICANN brings all of these stakeholders together to work through issues and attempt to find common ground and workable solutions.

"Multi-stakeholder partnerships need to be engaged as a key strategy at global, regional, national and local levels. Each sector of society has its own core competencies and strategic interests that can be combined to achieve positive development outcomes."

Sharifah Hapsah Shahabudin

Shahabudin suggested that, in light of the reality of the digital divide, using the Internet on its own to deliver information to the poor is not always the most effective option. 'Old' analogue technologies, including the broadcast mediums, continue to play a useful role. Where the Internet is used for specific development activities it will more likely involve community intermediaries in conjunction with other ICT such as radio or television.

Notwithstanding the significant challenges faced by ICT for development, emerging anecdotal and empirical evidence suggests that information and communication technologies do have tremendous potential to help reduce poverty. There are many examples of ICT4D initiatives throughout the world that have had very positive poverty reduction impact. However, many of these initiatives typically have small outreach, particularly relative to the scale and pervasiveness of poverty. This observation is in tension with the general understanding that the particular strength of ICT is that they can overcome the tyranny of distance and provide outreach to the masses. We need to up-scale successful ICT4D pilots to fulfil the promise that they can be used to reach the masses, and ultimately to contribute more significantly to the achievement of the MDGs.

Multi-Stakeholder Partnerships in the ICT Sector as a Modality for Achieving the MDGs

Poverty is multi-faceted and complex. A holistic approach to poverty reduction is required, and all stakeholders need to be involved. Multi-stakeholder partnerships need to be engaged as a key strategy at global, regional, national and local levels. Each sector of society has core competencies and strategic interests that can be combined to achieve positive development outcomes.

Ashok Khosla, President of the Society of Development Alternatives, contended that the MDGs are not going to be achieved if we take a 'business as usual' approach. It is not simply a matter of resources and effort; traditional economic instruments are not enough. Today's development strategies can neither eradicate poverty nor strengthen ecological security. New modalities for development are needed, and it is at this point that ICT for development and multi-stakeholder approaches enter the picture. New types of institutions are also needed that pursue triple bottom lines and blended value.

Actors in development include governments, academia, private sector, NGOs, and consumers. Each of these actors has their own strengths and interests. We need to develop new kinds of interactions that bring together the strengths of each one of these actors. MDG #8 refers to partnerships between developed and developing countries, and also recognises explicitly the role in development of civil society and public sector alongside government.

Sarbuland Khan, Executive Coordinator of the UN ICT Task Force, highlighted the fact that ICT are a key factor in the success of these partnerships, for it is not possible to have global, regional, national and local partnerships without the ability to communicate that ICT enable. In order to effectively combine the potential contributions from across the full range of society, a change of mindset and behaviour is needed in all three sectors:

- Governments legislate and regulate, but they need to approach this with an attitude not to control but to create opportunity.
- Private Sector entities seek profit and responsibility to shareholders, but need to adopt a change in culture that recognises that profitability is linked to social responsibility. Social responsibility needs to become a key aspect of their business model.
- Civil society is often focused on activism, opposition and criticism. However, civil society also needs to help develop positive alternatives, to participate in mobilising the social forces that will bring about achievement of the MDGs. We need to approach the MDGs with a common mindset and a complimentary approach.

"The Internet is itself one of the very first examples of a multi-stakeholder partnership in development. Nobody really owns it. It is a distributed network of networks that brings us closer together."

Mohamed Sharil Tarmizi

In subsequent discussion it was agreed that now is a window of opportunity for the formation of partnerships. The private sector and some developing country governments in particular, have moved substantially in the direction of the shifts in mindset outlined above. Many civil society organisations have done the same.

Sarbuland Khan challenged the international organisations, such as the UN, and the bilateral donor agencies, to adapt their own approaches and systems to support this shift in a meaningful way.

"Information and communication technologies are a key factor in the success of multi-stakeholder partnerships. It is not possible to have global, regional, national and local partnerships without the ability to communicate that ICT enable."

Sarbuland Khan

In conclusion, effective multi-stakeholder partnerships that combine the efforts and competencies of government, private-sector and civil society stakeholders are essential to increase the impact and extend the outreach of ICT4D initiatives. MSPs are in the vanguard of new approaches to development, and this 'road less travelled' presents many challenges. More effort is required to mainstream understanding of what MSPs are and what they offer, with associated capacity-building and facilitation to encourage stakeholders to move from small-scale local initiatives to large-scale strategies with lasting and far-reaching impact.

The meeting was challenged to use the dual Summit format of the WSIS as a venue to initiate a concrete programme of multi-sector partnerships in ICT for development that could be showcased in the second phase at the Summit in Tunis 2005, and from which lessons could be generated for scaling up other existing initiatives.

Other Sessions at the ICT4D Forum on Multi-Sector Partnerships

A focused workshop the following day[5] was designed as a practical session to introduce participants to tested principles and steps in partnership building, with a view to initiating programmes of result-based MSP projects in ICT for development for the period between the Geneva and Tunis Summits. The partnership model proposed was defined as:

- strategic alliances between parties from government, business and civil society,
- that aggregate resources of each party to resolve the key challenges of ICT for development, and

[5] "Beyond the Rhetoric: Initiating a Pioneer Programme of Multi-Sector Partnerships in the ICT Sector". A workshop organised by the Overseas Development Institute and the Foundation for Development Cooperation with backing from the Swiss Agency for Development and Cooperation (SDC) and Global Knowledge Partnership (GKP). (Friday 12 December, 10.00–12.00, Conference room 5.)

- are based on principles of shared risk, cost and mutual benefit.

During the workshop, participants identified the main challenges in ICT4D that they face, and sought to build consensus around concrete projects to address these. As tools to achieve this, they were introduced to the underlying principles of partnership and a systematic process that incorporates lessons learnt in exploring, building and maintaining partnership in ICT for development and other sectors.[6]

"In the face of growing evidence of the importance of information and communication technologies, we have not yet reached sufficient scale in the implementation of ICT for development to contribute significantly to the achievement of the MDGs."

Jeffrey Sachs

Earlier in the week, the UNDP organised a peer-to-peer workshop to look at MSPs in the context of the build-up to the WSIS.[7] In this session, MSPs were presented as one means of directly addressing a series of 'disconnects' – for example between:

- policy and implementation
- people with a developmental orientation and those with a technical IT orientation
- the views of the three 'sectors' of society

Through a series of six country case studies, the usefulness of multi-stakeholder and inclusive approaches to policy and implementation were examined. These initiatives have used the WSIS to create a momentum and catalyse new approaches, building on the tri-partite nature of the Summit and its configuration as a Summit with two peaks: Geneva 2003 and Tunis 2005.

At the same time, a panel of senior officials and experts from the private sector and government discussed how they had joined forces to apply world-class IT solutions in a development setting.[8] Looking ahead over the next decade, the largest source of new and additional resources for development assistance will probably come from the private sector. Many companies have joined with national and international donor agencies in new and innovative development partner-

6 See Global Knowledge Partnership (2003), op. cit.

7 "Multi-Stakeholder Approaches for the Information Society". A peer-to peer learning workshop organised by the UNDP, with backing from the Swiss Agency for Development and Cooperation (SDC) and Global Knowledge Partnership (GKP). (Wednesday, 10 December, 15.00–18.00, Conference room 12.)

8 "The Way Ahead: Public-Private Partnerships for Digital Opportunity". A panel presentation organised by USAID. (Wednesday 10 December, 16.00–18.00, Conference room 5.) Speakers included Pamela Possman, Head of Corporate Affairs, Microsoft; Tae Yoo, VP Corporate Philanthropy, Cisco; Donald Abelson, US FCC; Ed Malloy, USAID.

ships, particularly in the area of ICT4D. The presentations in this discussion centred on what the private sector is doing to promote development and on how governments can enable the private sector to play a lead role in economic development.

SELECTED REFERENCES

The following list includes selected references to facilitate quick access to some key publications and toolkits. It is not intended to be comprehensive. All references are also listed on the website of this book on http://www.globalknowledge.org/ict4d and will be regularly updated and expanded. Additions and comments on further reference materials and links are most welcome. Please enter them directly into the open dynamic reference lists on http://www.globalknowledge.org/ict4d.

PUBLICATIONS AND WEB RESOURCES

Ballantyne, P. (2003), "Multi-Stakeholder Partnerships for ICT-enabled Development: IICD Experiences", International Institute for Communication and Development, Netherlands
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TOOLKIT

Charles, C., McNulty, S., Pennell, J. (1998), "Partnering for Result, A User's Guide to Intersectoral Partnering", USAID, PPC/CDIE/DI/RRS, USA
http://www.globalknowledge.org/gkps_portal/view_file.cfm?fileid=372

ORGANISATION

Global Knowledge Partnership
http://www.globalknowledge.org

7. ICT FOR POVERTY REDUCTION

Md. Main Uddin/Drik Picture Library

KEY FINDINGS

Lessons Learned

- The poor have to be at the centre of poverty reduction efforts:
  - Technologies used must be adequate to the skills of the poor in order to exploit their potential effectively.
  - Content should receive as much attention as connectivity – it must be people-centred, demand-driven and in local languages.

- Attempts to use information communication technologies (ICTs) for poverty reduction are more effective when embedded and synchronised with other policies and resources:
  - A conducive environment, which includes freedom of expression, competitive markets, independent regulators, a universal service fund and other elements, is key.
  - National poverty reduction strategies or sector specific strategies for e.g. health or good governance allow for a targeted use of ICTs embedded in these other efforts.
  - In order to make use of information provided by ICTs, other resources must be available, e.g. job opportunities or access to credit or health services.

- Ownership by the local communities, partnership and networking are key to effective poverty reduction programmes: donors should not look for implementers of their visions but for partners with their own vision and encourage and support them in implementing it. Partners are required at the local and national level as are specialised institutions in all areas which matter in a specific context.

Trends and Innovations

- Integrated use and combination of different technologies: Internet and Community Radio or TV and local newspapers.

- Collaboration with/among providers of relevant information (local health clinics, research institutes, self-help organisations) to establish effective linkages.

Priorities / Potential for Action

- Give poor people a voice in decision making processes on all levels which affect their lives:
  - Local – information needs: priority areas for content are health, agriculture, weather, access to services. Women as key figures in information management deserve special attention.

  - National – conducive environment: freedom of expression, regulations for community radios, pro-poor service licences and integration of information needs in poverty reduction strategies.
  - Global – access to infrastructure and information: allocation of radio frequencies, Internet governance, intellectual property rights.

- Integrate ICT concerns in poverty reduction and sectoral strategies and integrate poverty concerns in ICT-related regulation and policies.

Burning Questions

- Poverty often has social and political roots – how can ICTs as technological tools be used to overcome social and political barriers?

- Poverty reduction is part of a broader development process and takes time – how can ICTs, as attractive tools, achieve measurable results/impact in a reasonable time frame?

- Poverty can be reduced by ICTs, there is enough anecdotal evidence – how can successful initiatives be scaled up and/or be implemented successfully in other regions?

ICT FOR POVERTY REDUCTION: MYTHS, REALITIES AND DEVELOPMENT IMPLICATIONS

Information is not a magic cure for hunger or poverty. However, the right information at the right time can help in finding a solution. ICT includes a whole range of technologies that facilitate communication and the processing and transmission of information by electronic means – from conventional radio and landline to computers, Internet and mobile phones. Most reports on telecentres in Asia, Africa and Latin America acknowledge that people use the phone and the photocopier, but rarely the computer and Internet facilities. They also acknowledge that those who use the computer and internet facilities are generally the most educated and the well off and not those most in need. Does ICT really contribute to the global effort to reduce poverty? This panel will discuss the myths, realities and development implications of ICT use for poverty reduction.

EVENT	Panel discussion 6.2
DATE/TIME	Thursday, 11 December, 14.00–15.30, Conference rooms 2 and 3
ORGANISER	Global Knowledge Partnership (GKP), Swiss Agency for Development and Cooperation (SDC)
PANEL SPEAKERS	**Richard Fuchs,** Director ICT-4D, Internationonal Development Research Centre (IDRC) **M. S. Swaminathan,** Director, M. S. Swaminathan Research Foundation (MSSRF) **Richard Gerster,** Director, Gerster Consulting **Clotilde Fonseca,** Executive Director, Omar Dengo Foundation
MODERATOR	**Martin Khor,** Director, Third World Network
RAPPORTEUR	**Stuart Mathison,** Program Manager, Foundation for Development Cooperation
KEY QUESTIONS	▸ What needs and rights do poor people have that could best be met by ICT (i.e., how is ICT contributing to the MDGs)? ▸ Has ICT helped to reduce poverty or just strengthened the power structure within societies in rural and under-developed areas? ▸ Has ICT increased relative poverty and placed valuable resources in the hands of a few, further perpetuating models of social, economic and political disempowerment and discrimination as it exists in the world today? ▸ Many micro-credit programmes and the World Bank have recognised that empowering women economically empowers the whole family economically. How can ICT play a more effective role?

by Stuart Mathison

Richard Fuchs started off the session by reporting on a forum which was organised in September 2003 by Canada's International Development Research Centre (IDRC) at Harvard University. Some thirty people from around the world were invited to discuss "Information and Communication Technologies and Poverty Reduction".[1] The participants included development specialists, academics, and Nobel Prize winning economists. The topics and key questions discussed included:

- the urgency of ICT access for poverty reduction: seismic changes are taking place, the availability and use of technology is no longer optional, and the cost reduction driving forces are working in favour of implementers;
- the importance of ICT governance and regulatory reform: proper regulation is critical and privatisation on its own has not been successful;
- social entrepreneurs; services and content for the poor: at the moment mobile phones are the quickest way to get out of poverty and content must make a difference to the daily life of the poor;
- the need for ICT alliances for gender equality, education, health, democracy: ICT can become a tool of reinforcing inequalities that already exist and alliances with other political agitators could make ICT more successful;
- donors: they face two big challenges, e.g. inertia within the organisation and scepticism of technologies.

M. S. Swaminathan: "There is much needless poverty in the world today. It is significant that the first of the Millennium Development Goals (MDG)[2] is about alleviation of poverty. We at the M. S. Swaminathan Research Foundation use information and communication technologies (ICT) for poverty reduction. Our work is guided by Mahatma Gandhi's principles of Anthyodaya ('unto the last') and trusteeship.

Four decades ago when India faced a major challenge on the food front we used biological technologies intelligently to transform a food-deficient country into a food-surplus country in a few years. Indeed, in the early 1960s experts had written off India as a hopeless case. But unmindful of what the experts said, Indian farm scientists worked hard to make the transformation possible. Of course, the

[1] A summary video, interviews with participants, and an extensive background survey of ICTs for Poverty Reduction can be found on http://web.idrc.ca/en/ev-46261-201-1-DO_TOPIC.html.

[2] MDG one stipulates: "Reduce by half the proportion of people living on less than a dollar a day; Reduce by half the proportion of people who suffer from hunger. For more information on the Millennium Development Goals visit http://www.un.org/millenniumgoals."

transformation was not brought about just by science and scientists alone; the farmers rose to the occasion and without their courage and fortitude and willingness to try out newer varieties and farm practices any amount of research could not have saved India from severe food shortage. Another equally important factor was the enlightened political leadership and the support of the bureaucrats; both Prime Minister Lal Bahadur Shastri and Food and Agriculture Minister C. Subramaniam took the right decisions and extended their full support to the research and extension programmes. Looking back, it is clear that without all of these falling in place, without robust partnerships of all key stakeholders, we could not have avoided certain disaster on the food front.

Today, food security in the developing world, especially in South Asia, is dependent less on resource-intensive agriculture and more on knowledge intensity. Millions of farm families and the rural poor need the right information and knowledge for their very survival. ICT can play a role in bringing about happiness to these people. Many developing countries remain poor largely because they had let the Industrial Revolution pass them by. They can ill afford to miss the information technology revolution.

"Many developing countries remain poor largely because they had let the Industrial Revolution pass them by. They can ill afford to miss the information technology revolution."

M. S. Swaminathan

Digital happiness requires:

- Technology and techno-infrastructure – not just computers and the Internet, but also landline telephones, cellular phones, radio, television, etc. What is needed is a judicious blend of traditional and modern technologies depending on what would work best in a given situation ('horses for courses').
- Content – value-added information that the people can use in the immediate context and that can make a difference to their day-to-day lives.
- The content must be in the local language so the people will find it easy to use.
- Gender sensitivity – Men and women may not need the same kind of information. It is important to operate on the principle of social inclusion including the poorest and the most underprivileged.
- Partnerships – information has to be sourced from different quarters. Expertise is available in different institutions. It is therefore important to partner with a large number of experts and institutions to be able to satisfy the information needs of a community.

The poor are often illiterate and have no assets like land, livestock, fishpond or productive skills. Often they survive on uncertain wage labour. Therefore, building assets has to be the major goal of any poverty alleviation effort. Facili-

tating a paradigm shift from unskilled to skilled work is basic to both poverty reduction and a healthy and productive life.

"Pro-poor effects are more likely if ICTs are embedded in larger, demand-driven efforts. Ownership in defining the problem as well as the solutions is essential to avoid ineffective supply-oriented interventions. Effective efforts combine a number of elements to deal with an issue holistically."

Richard Gerster

How can we use information and communication technologies (ICT) in poverty alleviation programmes? History has shown that technologies, left to their own devices, will only exacerbate existing differences. Information and communication technologies are no exception. As Jesse Jackson once pointed out, with time the digital divide in the United States is only increasing and it is acquiring the dimensions of a racial ravine, with the relative disadvantage suffered by Blacks and Hispanics in inner cities increasing all the time. It is essential, therefore, for us to use ICT in a way that would bridge rather than enhance the digital divide.

ICT should be used as a vehicle for imparting market-driven skills through the pedagogic methodology of learning by doing. We have seen in our work in Pondicherry and elsewhere in southern India that the poor are able to take to new technologies like fish to water, if they are enabled to do so through practical training.[3]

ICT skills cannot be imparted in a vacuum. Knowledge and skill transfer needs to be synchronised with access to inputs necessary to apply the knowledge. For example, there may be a need for easy and timely access to credit. Content should receive as much importance as connectivity. It must be user- and demand-driven. The priority areas are:

- Weather – short, medium and long-range weather forecasts should be converted into location and farming system specific action plans.
- Water – it is not only the most basic need but also the centre of sustainable agriculture and essential for a productive and healthy life. It is intimately linked to health, agriculture, energy, biodiversity and ecosystem maintenance. The threat of water famines looms large and it is possible that future wars will be fought for water resources.
- Energy – it is central to the lives of the poor and affects them in terms of food, water, health, income and jobs. Access to energy is important for poverty alleviation. Access to affordable and renewable energy services is critical for increasing agricultural productivity, encouraging economic ac-

[3] For information on the Information Village Research Project in Pondicherry and elsewhere in India visit http://www.mssrf.org.

tivity, generating employment and income opportunities, and improving the quality of life.

- Health – good health is basic to a productive and happy life. We should aim to create zones where preventable diseases are totally eradicated.
- Agriculture (production, processing, marketing) – agriculture is central to sustainable development. Most of the poor live in rural areas and are dependent on agriculture (including crop and animal husbandry, fisheries, forestry, and agro-processing).
- Biodiversity and Ecosystem Management – the ecosystem generates a wide range of goods and services on which the world economy depends. About 40 per cent of the world economy is based on biological products and processes. Biodiversity is the feedstock of the biotechnology industry.

Generic information should be converted to location-specific information by local-level knowledge managers. A cadre of rural knowledge managers should be created consisting mostly of women, since this will help bridge the gender divide in terms of self esteem and social status. Forward linkages with reliable information sources and backward linkages with markets, hospitals, etc. have to be built into the ICT programmes. Providing opportunities to landless labour families for value-added non-farm livelihood options should be given priority. The programme should aim to attract and retain youth in rural professions.

"History has shown that technologies, left to their own devices, will only exacerbate existing differences. Information and communication technologies are no exception."

M. S. Swaminathan

The programme should aim at creating a farmer participatory knowledge system with four kinds of symbiotic linkages:

- Lab-to-Lab – this will involve organising a consortium of scientific institutions and data providers.
- Lab-to-Land – this will involve symbiotic linkages between the providers of information and the users, so that the information disseminated is relevant to the life and work of rural families.
- Land-to-Lab – there is considerable traditional knowledge and wisdom concerning the sustainable management of natural resources, particularly water. Therefore, the technical experts should not only learn from traditional knowledge and experience, but also take steps to conserve for posterity the dying wisdom and the dying crops.
- Land-to-Land – there is much scope for lateral learning among rural families; such learning has high credibility because the knowledge is coming from a fellow farm woman or man who would have subjected the information to an impact analysis from the point of view of its economic and social relevance to the population.

Success Stories

ICT can provide tools for the conservation of local knowledge, which meets increased interest for exploitation. We have developed a Farmers' Rights Information Service that provides, among other information, a taxonomy of plants and details on usage, along with photographs and diagrams.

Let me give some more examples of benefits accruing to the local communities through our knowledge centres. The Kisan (Farmer) Credit Card Scheme enables farmers to obtain easy and timely credit. Village women and men are provided training in several micro-enterprises, such as mushroom cultivation, ornamental fish rearing, setting up of community-managed gene banks, seed banks and grain banks, production of handmade paper from banana waste, production of biopesticides and so on.

"We have seen in our work in Pondicherry and elsewhere in southern India that the poor are able to take to new technologies like fish to water, if they are enabled to do so through practical training."

M. S. Swaminathan

Women in these villages form self-help groups and borrow money from banks to lend among themselves for setting up and running micro-enterprises. The return rate is often more than 100 per cent, meaning they return the loan ahead of time. So far there has not been a single instance of default. People may be poor, but they are honest. In contrast, in the corporate sector there have been many cases of defaulting and bad debts.

Fishermen in coastal villages near Pondicherry are provided with wave height forecasts from information downloaded from a U.S. Navy website. The wave height information is put on the notice board of the local knowledge centres as well as broadcast over a public address system so everyone in the village could hear. Ever since this service was started, there has not been a single death in the sea.

In a remote village in central Tamil Nadu, volunteers of our knowledge centre have perfected a novel method of bringing in literacy to a remote village community. They use a touch screen PC, digital camera and a CD-writer to prepare lessons for each individual. People in the family and objects in the home are photographed and burnt on a CD-ROM. One-word descriptions are then written, letter by letter, using flash software and each letter and the word is articulated by the volunteer. When the illiterate person inserts his own CD, the pictures appear on the screen and as he/she touches the picture on the screen, the words start forming slow enough for the person to follow and the sound byte starts playing too. The net result is multimedia education of the person. More than 150 people have been made functionally literate in this vil-

lage. Now they are able to read signboards, price lists displayed in shops, and transact business in shops, post offices, etc.

We are now experimenting with Internet Radio and are testing exchange of information with rural communities in Africa through the Open Knowledge Network (OKN) project in collaboration with One World International.[4]

To sum up, information and communication technologies can be used for poverty reduction, but we need to be cautious. It is much more than mere use of technology. It is more a question of working with people, giving them a sense of ownership, building partnerships with a number of experts and institutions, and creating a large and inclusive network. In the end, technology is just an enabler. As the Bolivian writer Alfonso Gumucio is fond of saying, 'a knife is a knife, it can be used on your dining table or to hurt someone'."

Richard Gerster: "The following messages are mainly based on a Learning Study on Information and Communication Technologies (ICT) and Poverty Reduction in Sub-Saharan Africa.[5] The study was done on behalf of The Building Communication Opportunities programme (BCO, formerly BDO), funded jointly by the Department for International Development (DFID, UK), the Directorate General for International Cooperation (DGIS, Netherlands), the Swiss Agency for Development and Cooperation (SDC, Switzerland), and the Canadian International Development Agency (CIDA, Canada). The purpose of the programme is 'to identify and help remove some of the key barriers and develop genuine opportunities for poverty-focused ICT for Development'. The programme builds on the existing activities of the five organisations involved: World Association of Community Radio Broadcasters (AMARC), Commonwealth Telecoms Organisation (CTO), International Institute for Communications and Development (IICD), OneWorld International and Panos. It focuses on four main areas: policy and regulatory issues, capacity building and effective applications, local content and awareness raising.

"ICT are technological tools but poverty often has social and political roots. That poverty reduction is possible simply by the use of a new technology is the exception but not the rule. Often social and political change is needed as well."

Richard Gerster

[4] For more information on the Open Knowledge Network see pp. 185–189 or visit http://www.openknowledge.net.

[5] Gerster, R., Zimmermann, S. (2003), "ICTs and Poverty Reduction in Sub-Saharan Africa. A Learning Study (Synthesis)", Building Digital Opportunities (BDO) Programme, The Hague, Netherlands

Lessons Drawn

The lessons heavily draw on a multidimensional understanding of poverty which is more than material deprivation. It encompasses intangible aspects, such as lack of access to schooling or health care, vulnerability towards external events or being excluded from decision making processes. Also the information and communication technologies (ICT) are understood in a broad way that includes radio, television, fix-net and mobile telephony, fax, computer and Internet.

- ICT's contributions to pro-poor livelihoods, health and governance are feasible. In the scope of the Learning Study we came across several ICT-programmes which impacted on the lives of poor people in a poverty reducing way. This positive message also matters for achieving the Millennium Development Goals (MDGs). E.g. in Uganda, information received through community radios on improved agricultural technology, new farming methods, improved seeds and grass preservation contributed to higher agricultural production, leading again to increased food consumption (maize) as well as to income gains from the sale of milk and beans.

- An adequate ICT choice largely co-determines potential pro-poor effects. There is no such thing as technology neutrality. Distributional effects of different technology options have carefully to be considered. For example, in the context of Sub-Saharan Africa the use of community radio provides local solutions to local problems without referring a priori to external solutions. An intervention based on the Internet, however, enhances external 'solutions', if it is accessible at all by the poor. The combination of the Internet with other ICTs, radio in particular, has a significant potential for poverty reduction purposes.

- Pro-poor effects are more likely if ICTs are embedded in larger, demand-driven efforts. Ownership in defining the problem as well as the solutions is essential to avoid ineffective supply-oriented interventions. Effective efforts combine a number of elements to deal with an issue holistically. An example: ICT-supported information as such on AIDS-prevention or cure may not have the desirable effects if there are neither preservatives nor drugs available or people simply cannot afford them.

- Ownership by the local communities, partnership and networking are key to effective poverty reduction programmes. Donor agencies should not look for implementers of their visions but for partners having their own vision and encourage and support them in implementing it. No single agency can tackle poverty reduction by itself. Partners are required at the local and national

level, specialised institutions in all areas which matter in a specific context, be it health, education, agriculture or research, dissemination, monitoring or evaluation.

- ICTs are an effective means to increase the voices of the poor in (global) policy debates. At the national level ICTs facilitate networking and lobbying the Poverty Reduction Strategy Papers (PRSP). At the global level there are numerous networks in which it is essential to have a direct representation of the South. An example: during the preparation period of the World Summit on the Information Society (WSIS), the global discussion forum on the 'Information Society: Voices from the South' enjoyed a Southern participation of 70 per cent.

"Combating poverty through the use of digital technologies is not simply about hooking the poor to computer networks. The user of the technology or the beneficiary of the service has to be at the core of the design and implementation process."

Clotilde Fonseca

Conducive Environment

The national regulatory environments for ICTs are based on national visions of challenges, approaches and priorities. The significance of a conducive regulatory and policy environment can hardly be overrated. Key conditions which have to be combined with targeted pro-poor policies are

- Competitive ICT services markets – deregulation and liberalisation are inspired by economic thinking. They lower prices and increase quality. A competitive environment instead of a government monopoly is a necessary but not sufficient condition to achieve poverty reduction outcomes.

- Application of open source software – Open Source Software (OSS) is cost efficient, does not restrict adaptation to local needs like translations into local languages, reduces dependence from foreign firms, does not create barriers for local ICT experts but strengthens their training and keeps the jobs in-country.

- Establishment of an independent regulator – a clear and enforced legal framework, which should include an independent regulator, ensuring transparency and accountability, is again a necessary but not sufficient condition in view of pro poor outcomes.

- Freedom of expression – a clear and enforced legal framework should include respect for freedom of expression, diversity and the free flow of information.

Again, this is a necessary but not sufficient condition; in view of pro-poor outcomes it has to be combined with targeted pro-poor policies.

Mainstreaming Poverty Reduction

Markets are not enough. Governments need to declare poverty reduction a top priority and to mainstream it explicitly in ICT-related regulation and policies.

- All ICT-related regulation and policies, including community radio legislation – as far as radio is concerned, (i) the legal framework should provide a three-tier system for broadcasting: public radio, commercial radio, community radio; (ii) government support and policies pursued should clearly recognise and promote the special role of non-profit community broadcasting for, by and about the community, including them in their own communication strategy and allocating funds accordingly; (iii) open and participatory decision making processes need to be assured in order to allow for a fair allocation of the frequency spectrum to all broadcasters; (iv) as a source of revenue, community radio must be granted permission of commercial advertising to an appropriate extent; (v) the not-for-profit character of community radios should be honoured in taxation law.

- Pro-poor licence obligations for service providers and operators – licences should include specified obligations on how to contribute to the implementation of the universal service objectives; reduced rates for all community ICTs, including community radio; an e-rate for public schools as well as libraries, hospitals, and other public institutions.

- Universal service fund ensuring an effective service provision – in order to compensate for market failure, a national Universal Service Fund should be established to ensure an effective service provision, including local languages and local content for all; the fund must be transparently administrated by an independent regulator/body, financed by a levy on the operators and possibly by overseas development assistance (ODA). Independence and transparency are essential prerequisites for creating trust and goodwill also on the part of those who are taxed.

- Integration of ICT tools in Poverty Reduction Strategy Papers (PRSP) – in view of effective poverty reduction, the use of information and communication technology should become an integrated part of design and implementation of the PRSP.

Underestimated Challenges

Challenges often are underestimated. Just let us imagine who the poor are – they combine a number of barriers to reach and cooperate with them. The potential beneficiaries of ICT are unskilled, illiterate people, living in remote areas, mainly women, who may also speak a minority group language.

- ICTs are technological tools but poverty often has social and political roots. That poverty reduction is possible simply by the use of a new technology is the exception but not the rule. Often social and political change is needed as well.

- Most ICTs have an urban bias due to the connectedness requirement. A weak road network, non-availability of electrical power or a lack of fixed telephone lines discriminate against rural areas in reaping the full potential of ICT.

- Supply-led strategies carry the danger of neglecting needs and options of the poor. Many national as well as international ICT programmes are supply-led. Such a starting point carries an increased danger of non-sustainability and failure. The difficulties of many telecentres in Sub-Saharan Africa have to be seen in that light.

- ICTs are attractive tools but no development shortcuts. Poverty reduction takes time. Poverty reduction in the sense of empowerment is a learning exercise, which does not take place overnight. Moreover, it requires social transformation and learning processes not only of the powerless but also by the powerful. Sharing power and influence with the poor can be painful and includes a new vision of society."

Clotilde Fonseca: "In recent years, many experts and politicians have tended to view ICTs as the latest deus ex machina or magic solution for poverty reduction. This is, no doubt, one of the greater paradoxes of our time. Precisely when poverty had begun to be better and more scientifically understood as a complex and multifaceted problem, we seem to be allured by a new and unidimensional technological solution.

Even tough we are convinced that the potential of new technologies is real and that it can be successfully used to reduce poverty and foster development, in most cases, this power still needs to be unleashed. The very idea of the potential, however, has created new myths and misconceptions. The problem seems to arise from the belief that the poor will overcome poverty through access to information and that they will be able to rise from ignorance through access to the Internet, that is, the global or universal library. Within this view, then,

all that is needed to work the magic is to deploy the necessary technological infrastructure and to develop pertinent content, particularly local content that is made accessible in the local language. From there on, as it seems, developmental transformations will follow. Most unfortunately for the poor and for the development community, reason and reality have systematically proven otherwise.

"The process of integrating new technologies into development processes through education, empowerment, capacity building and productivity is not necessarily 'faster and cheaper'. It requires significant investments that must be sustained over time. This is one of the great challenges for governments, communities and international agencies."

Clotilde Fonseca

The following are some considerations and lessons learned from the implementation and evaluation of different programmes and projects using digital technologies conducted in the developing world. They are elements that need to be considered, if we really want to tap on to the potential of these technologies in more innovative and effective ways.

- Digital technologies are not just about information and communication – digital technologies are at the core of the present technological revolution. They are at the core of productive systems in contemporary society. They are much more than information and communication technologies. They are widespread productive and creative resources. They have changed the main production processes and the ways in which all types of services are delivered.

- Digital technologies are 'infrastructural technologies'[8] – the impact of these technologies has been so strong and widespread that they are today considered 'infrastructural technologies' just like electricity and transportation are. This reality needs to be well understood and taken into consideration when designing programmes for poverty reduction. They are no longer something nice to have but something fundamental to integration and inclusion.

- Empowering people – combating poverty through the use of digital technologies is not simply about hooking the poor to computer networks. The user of the technology or the beneficiary of the service has to be at the core of the design and implementation process. Projects of this nature have to be people-centred. Poverty reduction is about developing people, their minds, experiences and potential. It is about capacity building, about learning the skills and attaining the technology competency and fluency that will enable the poor to become better educated and more productive.

[8] Carr, N. G. (2004), Does IT Matter? Information Technology and the Corrosion of Competitive Advantage, Harvard Business School Press

- Breaking the inter-generational transmission of poverty – in order to break the vicious cycle of the intergenerational transmission of poverty, it is fundamental to introduce these technologies in ways that citizens – particularly the young – can use them to overcome the limitations they have inherited in view of the socio-economic limitations of their families and communities. This implies that the new generations have to be provided with access to them in situations and environments that are conducive to productivity, personal meaning and freedom.

- Building capacities and developing skills – most current ICT projects are techno-centric both in conceptual design and investment. People-centred projects need to consider the personal, social and economic needs of their beneficiaries while also taking into account the cognitive skills and learning demands necessary to be able to appropriate and use these technologies effectively. Digital inclusion will not take place unless the right experiences, knowledge and skills become a part of the human resource training and capacity building strategy. Techno-centric computer literacy approaches can be extremely risky and misleading if higher thinking, expressive and creative skills are not stimulated while working on the mastery of the technology.

- Need for sustained investment – the process of integrating new technologies into development processes through education, empowerment, capacity building and productivity is not necessarily 'faster and cheaper'. It requires significant investments that must be sustained over time. This is one of the great challenges for governments, communities and international agencies. Cost-effectiveness in this respect should not be understood as lower cost. Saving on key human development components can be quite costly in terms of time and money. There is cost and effort involved in democratising access and in articulating programmes that can generate effective appropriation and socio-economic mobility.

- Focus on the young – it is impossible to provide fruitful access to these technologies to everyone at the same time. Resources in developing countries are scarce and in high demand. Precisely for this reason, these nations should orient their initiatives to empowering the young. Countries that have opted for this policy have seen important changes in their productive structures in relatively short periods of time, particularly when these have been combined with good educational policies as well.

- Promotion of universal policies – countries and communities should aim at extending digital technology programmes for the young through general inclusion policies. Priorities can and should be established in this

process, but the design should foresee, from the onset, the planning for future, more encompassing phases. Projects that start as pilots – generally as small community telecentres – are valuable initiatives, but their frequently too focalised nature limits the development impact at a national level. Special attention should be given from the beginning to the rural and urban poor communities. Within them new technologies become extraordinary incentives and frequently yield significant non-technological developments and improvements.

- Provide ongoing development and support – the effective use of new technologies for development and poverty reduction depends to a significant degree on the ongoing support and follow-up given to all human development and training efforts. No one-shot training will ever be effective. The process of assimilation and appropriation on the part of underserved communities is often irregular and frequently needs constant support and follow-up before full command and use may be reached.

- Be sensitive to diversity – there is no such thing as a one-size-fits-all solution or design for this type of project. Sensitivity to context and cultural diversity are key to success.

- Plan and design for meaningful appropriation – planning projects and implementation processes must be based on thoughtful definition of target groups, purpose and objective. Techno-centric projects will not become fully enabling and transforming projects just because the technology is available. Powerful uses of technology for poverty reduction and empowerment require building a vision, developing human resources, integrating the community, establishing innovating learning environments, and building good follow-up and evaluation procedures. If meaningful appropriation is to be expected, the right strategies must be planned for, implemented and monitored. The miracle of appropriation will not just take place by spontaneous generation simply because it has been stated or expected.

- Take risks, take time, be flexible – there is no magic wand to guarantee results in the short term, particularly if initiatives are designed with a people-centred empowering approach. Different options imply different potentials and risks. Projects of this nature have to be defined and implemented in flexible ways. It is always important to be open to the changes that must be made and to have financial and organisational flexibility to introduce them. Changes and transformations that are meaningful require time to unfold and be perceived."

Debate with the Audience

If regulation is required first, then how can people in countries that lack enabling regulatory environments participate?
The lack of an enabling regulatory environment should not be a barrier to initiative. You don't need governance before you start, but it helps! There are other elements of an overall enabling environment, such as freedom of expression, which will make ICT more efficient and increase the leverage on the long run. The comments regarding regulation are also addressed to donors. They should integrate it in their discussions and can address the issue in multilateral bodies.

What can the private sector do to help facilitate the use of ICT by the poor?
Service providers in the North found that these technologies and applications are saleable. But, these services were subsidised by governments for years before they became sustainable and developed to the point where the private sector takes over. Elements that are needed are market linkages, investment, technical expertise and business acumen.

Are there any examples where there are measurable results of ICT resulting in poverty reduction?
A really well-known project is the Grameen Village Phone project in Bangladesh.[9] Now there are more than 30,000 telephone ladies providing the service. Their minimum income is US$ 50 a month net profit and it goes all the way to US$ 500 per month. However, it also has to be said that there is mainly anecdotal evidence. It is difficult to identify impact, because often ICT is just part of a broader process of development and poverty reduction. Furthermore in many of the projects there have been no baseline data so it is hard to show „hard facts", i.e. measured changes.

Governments have priority sectors for poverty reduction. Funds cannot be diverted from these sectors to ICT. How can ICT assist poverty reduction in these poorest countries?
Governments must address this basic need. However, by ignoring ICT the danger is that the digital divide will be widened and this will make the wealth gap even wider. But it is not a matter of either one or the other. Ideally ICT are integrated in an overall poverty reduction effort and are used where they are more efficient than other instruments.

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[9] For more information on the Grameen Village Phone project visit http://www.grameenphone.com/village.htm.

What is the trade-off between scalability and context?
There is a trade-off, the important factor is to be aware of it. A key element is to get people with context to do the scaling up. Also if you are serious about participatory development you have to live with these trade-offs.

How can ICT be used without electricity?
Electricity is a core element of ICT, so the question is probably more about the availability of electricity, i.e. the infrastructure. There are numerous ways to provide electricity, e.g. solar power or geothermal. Where there is a will, there is a way. One of the displays at the ICT for Development Platform at the WSIS was a low-wattage computer, powered by a foot-crank.

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The following list includes selected references to facilitate quick access to some key publications and toolkits. It is not intended to be comprehensive. All references are also listed on the website of this book on http://www.globalknowledge.org/ict4d and will be regularly updated and expanded. Additions and comments on further reference materials and links are most welcome. Please enter them directly into the open dynamic reference lists on http://www.globalknowledge.org/ict4d.

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http://www.eldis.org/ict/index.htm

Global Knowledge Partnership
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International Development Research Centre (IDRC)
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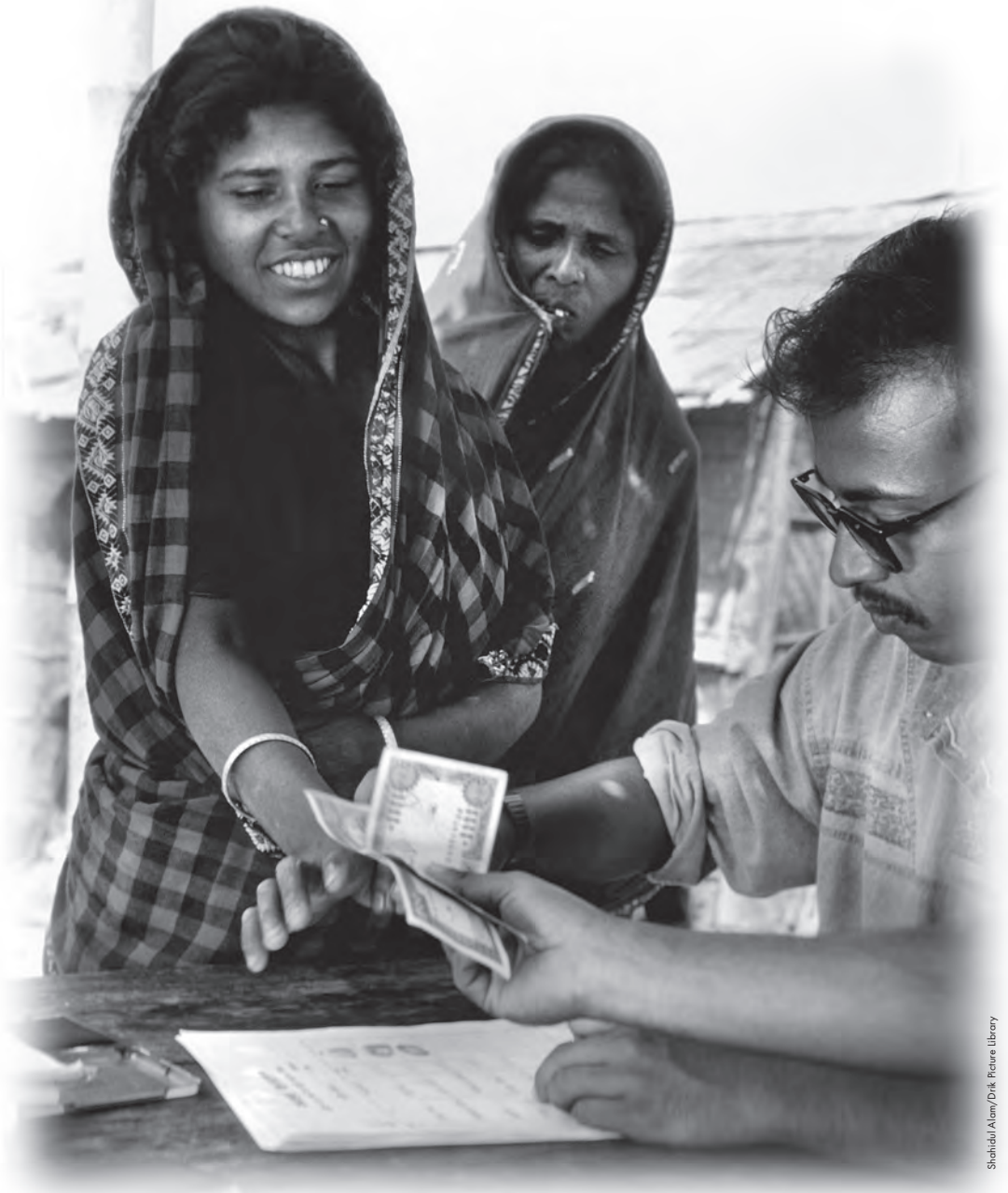
8. INNOVATIVE FINANCING MECHANISMS



Shahidul Alam/Drik Picture Library

KEY FINDINGS

Lessons Learned

- ICT for development (ICT4D) projects need to be expanded and replicated if they are to achieve their potential of impacting poverty on a wider scale, beyond the local context of the pilot.
- Many ICT4D pilot projects are hampered by what has become known as the 'forever pilot syndrome' – the inability to move from pilot to an expanding programme that has national and even regional significance.
- There is a "ICT4D innovation value-chain" that has four stages: ignition, pilot, prototype and rollout. The existence of this value chain suggests that financial mechanisms for ICT4D should be structured accordingly.
- The biggest current challenge for financing is the transition from pilot to prototype, 'death valley', the in-between period between pilot and large-scale deployment.
- Social enterprises that operate in poor communities and regions face very significant 'market risk' issues such as high costs, limited revenues and limited capacity of rural citizens. These risks result in the perception by potential financiers that social enterprises represent a high investment risk.

Priorities / Potential for Action

- A number of issues relating to finance and various players in the ICT4D sector were highlighted above. Specifically, there are suggested actions and 'changes of mindset' required from donors and foundations, intergovernmental organisations, governments, corporations and civil society organisations.
- Establish innovative financing mechanisms for ICT for development. Evaluate and, if shown to be successful, up-scale the financing mechanisms.

Burning Questions

- Specifically, how should a "social venture capital fund" for ICT4D projects be structured and managed? A global fund with management at regional level?
- How to encourage multi-stakeholders, especially private sector financiers, to become committed to and involved in financing of social enterprises?

INNOVATIVE FINANCING MECHANISMS FOR ICT4D: VENTURING BEYOND THE 'FOREVER PILOT SYNDROME'

Alternative and innovative models for financing ICT for development (ICT4D) initiatives are needed to promote broad access to and effective use of knowledge and information for equitable and sustainable development. Sources of funding to finance such initiatives exist at national, regional and global levels, but most are not really accessible as many barriers exist. Moreover, most of the funds are in the form of a seed grant, a one-time investment for proof of concept, which does not cater to issues of sustainability, replication and up-scaling of successful pilot projects. This panel discussion provides a common platform for ICT4D practitioners, donor agencies and grants/fund managers to examine existing weaknesses or shortcomings of conventional methods in financing ICT for development initiatives while seeking innovative solutions to the problem which will ensure that successful initiatives can be replicated and up-scaled on a sustained basis.

EVENT	Panel discussion 6.3
DATE/TIME	Thursday, 11 December 2003, 16.30–18.00, Conference rooms 2 and 3
ORGANISER	Global Knowledge Partnership (GKP)
PANEL SPEAKERS	**K. J. John,** Vice President (Strategy Intervention), MIMOS Berhard **Raymond Galluser,** Partner, Brand, Galluser and Partner Ltd. **Ranjit Khosla,** Chief Financial Officer, TARAhaat Information & Marketing Services **Mirjam Schoening,** Director, Schwab Foundation for Social Entrepreneurship
MODERATOR	**Mostafa Terrab,** Program Manager, InfoDev
RAPPORTEUR	**Stuart Mathison,** Program Manager, The Foundation for Development Cooperation
KEY QUESTIONS	▸ Why is up-scaling of ICT4D important in relation to achieving the Millennium Development Goals (MDGs)? ▸ What is the lifecycle of ICT for development projects and what is the 'forever pilot syndrome'? ▸ In financial terms, what are the factors that typically hinder up-scaling of ICT4D projects? ▸ What are the key issues surrounding Financing Mechanisms for ICT for development? What are the implications for various players in the ICT4D sector? ▸ How might a "social venture capital fund" for ICT4D projects be structured and managed?

by Stuart Mathison

The ICT for development (ICT4D) sector has emerged against the backdrop of both the global information revolution and the continuing reality of massive poverty in the developing world. The emphasis of the ICT4D sector is not so much on the development of a global information and communication technology (ICT) industry but on the application of ICT to human development. In light of the current UN emphasis on the Millennium Development Goals (MDGs), many people are now asking, "how can we apply ICT to achieve the MDGs?". However, in light of the massive nature of poverty in the world, a related question is, "how can we hope to achieve the MDGs without widespread and innovative application of ICT?". If the answer to this question is, "we cannot hope to meet the MDGs without information and communication technologies", then this gives additional urgency to the task of supporting the ICT4D sector.

The 'Forever Pilot Syndrome'

Hundreds of ICT4D initiatives have been implemented throughout the developing world. The great majority of these could be described as 'pilot' programmes or 'demonstrator' applications; showcase initiatives that are held up by both the development community and technologists alike as examples of how technology-based applications can be applied to achieve sustainable development and poverty reduction.

Funding for ICT4D pilot projects has been provided by numerous international, regional and national organisations. For example, in 1995 the World Bank established InfoDev (http://www.infodev.org) which, until very recently, operated as a global grant programme to promote innovative projects on the use of ICT for economic and social development, with a special emphasis on the needs of the poor in developing countries. Pan Asia Networking (http://www.panasia.org.sg) is an example of an Asia-wide regional grant programme. PAN's aim is to promote electronic networking, the development and sharing of information resources, and the research and development of Internet systems, technologies and policies. On a national level, for example, Malaysia's Demonstrator Application Grants Scheme (http://www.dagsclub.org.my) has provided seed funding for projects that contribute to community development through the application of ICT. Since 1998, the DAGS programme has been an important feature of Malaysia's national ICT strategy.

While these pilot programmes have captured the imagination of many, the question remains whether or not they actually have a significant impact on poverty. Very few have achieved a level of outreach so that poverty will be impacted on a wider scale, beyond the local context of the pilot. For example, suppose there

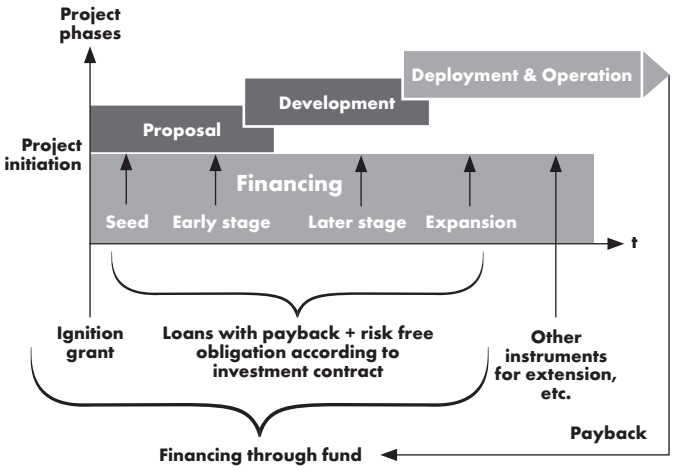
was an ICT4D initiative in India that was able to reduce poverty for 10,000 people (an achievement the ICT4D community would rightly consider spectacularly successful). It is sobering to realise, however, that such a programme would have to be expanded or replicated 30,000 times to reach all of the poor in that country. Clearly, small pilot programmes that reach only a few hundred or even a few thousand people are not going to have a very significant impact on poverty no matter how successful they are as local initiatives; poverty reduction efforts need to reach the multitudes, one way or another.

It is becoming increasingly evident that the ICT4D sector is hampered by what we might call the 'forever pilot syndrome' – the inability to move from research pilot to an expanding programme that has national and even regional significance. The 'forever pilot syndrome' is in contradiction to the assumed comparative advantage of ICT4D initiatives – that technology would overcome the tyranny of distance and facilitate a level of outreach that would result in a real and measurable impact for poverty reduction. It has become clear that one of the key constraints to up-scaling of ICT4D projects is the difficult challenge of financing this expansion.

The ICT4D Innovation Value-Chain

In his presentation, K. J. John described an "ICT4D innovation value-chain" that has four stages: ignition, pilot, prototype and rollout. The existence of this value-chain suggests that financial mechanisms for ICT4D should be structured accordingly to provide the necessary capital by the appropriate mechanisms in accordance with the stage at which the project is currently placed.

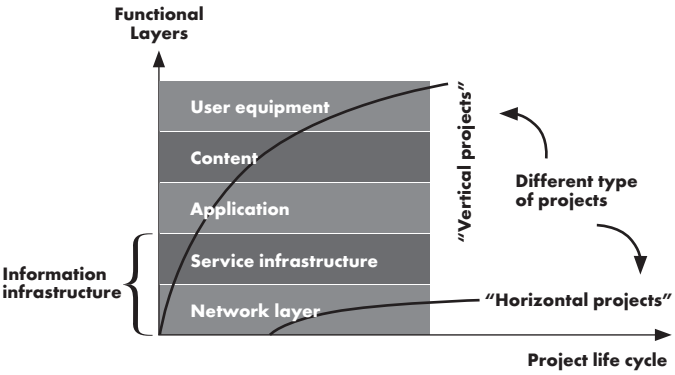
Fig. 1: The ICT4D Project Life Cycle (Galluser)



Raymond Galluser made similar observations regarding the evolutionary stages of ICT4D, and the financing challenges that relate to it (Fig. 1). The biggest challenge, according to Galluser, is the mid-stage of project development. This stage

corresponds to what venture capitalists sometimes refer to as 'Death Valley'; the in-between period between successful pilot and large-scale deployment.

Fig. 2: Functional Layers of ICT4D (Galluser)



TARAhaat is currently in that very stage of post-pilot upscaling, seeking to navigate its way through Death Valley. Ranjit Khosla suggested that the opportunities offered by up-scaling are great. In India especially, the economies of scale and the low cost of replication achievable through franchised enterprises is particularly compelling. Counterbalancing these opportunities however are a number of 'market risk' issues, namely high costs, limited revenues, and limited capacity of rural citizens:

Market risk 1: high costs
- costs set by the global economy (experts, staff, equipment, connectivity, power, services)
- costs increased by national policies (tolls and tariffs, lack of services to rural areas)
- costs added by the need to localise solutions (content, applications, language)
- costs multiplied by lack of infrastructure (connectivity, power, fulfilment systems)

Market risk 2: limited revenues
- revenues limited by the local economy (purchasing power of less than US$ 1 per day income)
- revenues limited by the size of decentralised markets (small, remote communities)

Market risk 3: limited capacity of rural citizens
- lack of familiarity with technology
- lack of management and marketing skills
- lack of access to the national economy

These market risks result in the perception by potential financiers that social enterprises represent a high investment risk. That is, the market risks faced by

the entrepreneurs are compounded by a real reluctance to finance these ICT for development operations.

ICT4D projects involve the use of information infrastructure, applications and content to distribute and collect information for improving the economic situation of the poor (Fig. 2). Therefore, in addition to the chronological complexity of the ICT4D innovation value-chain, this 'vertical' layering adds significant complexity to the design of ICT4D funding mechanisms.

Financing Issues

In recent times there have been numerous funding opportunities for ICT4D pilot projects. Prototyping and rollout are the current challenges, the point at which many projects flounder. K. J. John indicated that, from Malaysia's DAGS experience at least, government and business-oriented pilots have been relatively easier to up-scale and mainstream compared to community-based pilots. Government-backed projects have a lower investment risk, and business-oriented projects are able to attract commercial finance because of their potential for profit.

Ranjit Khosla raised a number of issues relating to finance and the various players in the ICT4D sector:

Donors and foundations need to

- understand that scalability and financial viability involve the generation of profits, which are necessary to raise market-based financing. Development agencies typically find it conceptually difficult to support entrepreneurial activities.
- improve access and response times.

Intergovernmental organisations need to

- improve outreach of programmes.
- improve access and response times.
- develop new tools for risk assessment of ICT4D ventures.
- support a commercial perspective.

Governments need to

- recognise the need for partnerships.
- eliminate tolls and tariffs on movement and/or import of equipment, software, etc.
- allow for easier certification for educational programmes delivered by ICT-based providers.
- use ICT ventures for the front-end delivery of e-governance services.

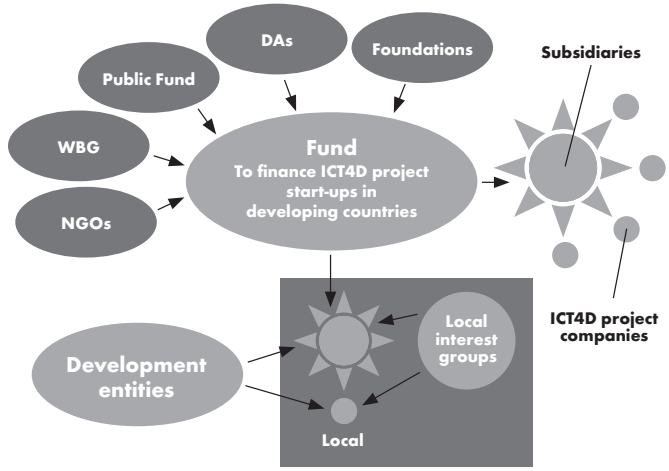
Corporations need to

- develop innovative mechanisms for vendor financing.
- establish special pricing mechanisms for ICT4D.
- provide mentoring and technical support.
- recognise the market potential.

Civil Society organisations need to

- recognise the importance and legitimacy of financially viable strategies to scaling up and ensuring continuity.

Fig. 3: A Multi-Stakeholder ICT4D Fund (Galluser)



Financing Proposals

Some ICT4D projects are inherently social welfare operations and these are not likely to be taken up by private sector interests for expansion. These are important and necessary, and they will always require grants to finance expansion. Grants for continuing operations might be sourced from either Official Development Assistance (ODA), private foundations or perhaps through the 'social conscience' grants of corporate entities. Ranjit Khosla suggested that a specific fund be established for such projects that have substantial social objectives but needed long-term support. These projects could also receive technical assistance so that they might become financially viable in the long-term. Khosla envisions that a separate fund would be established for those other ICT4D projects that have clear long-term prospects in relation to financial viability.

K. J. John suggested that a multi-stakeholder global social venture capital fund be established specifically to finance up-scaling of pilots into prototypes for future rollout. This fund would be managed at regional levels and would emphasise social re-engineering, entrepreneurship development, and contextualised solutions. Financing options would include grants (recoverable and non-recoverable) and soft loans (low or interest free). Raymond Galluser envisions a similar multi-stakeholder fund that would pool the resources of various funding bodies (Fig 3). This fund, according to Khosla, should proactively finance viable ICT4D projects, it should invest sufficiently so that market finance will be attracted to the fund and

the projects, it should be staffed with practitioners, not 'armchair experts', and it should develop Best Practices and Systems to support the projects.

Conclusions

The ICT4D sector is at a critical juncture. The focus needs to move from small, local 'demonstrator' applications to national and regional expansion and replication. This is, after all, the supposed competitive advantage of ICT – that it can overcome the tyranny of distance and reach, in theory at least, virtually unlimited numbers of people. Unfortunately, many otherwise successful pilot programmes are struggling to make the transition.

The major stumbling block to expansion and replication is financing. The ICT4D community needs innovative ways to finance the innovation process, and this means doing new things with new partners in new ways.

Broadening the Debate: Q&A with the Audience

Open discussion with the audience touched on the following issues and/or questions:

- Entrepreneurs do not always have the desire or ability to scale up, even though the projects are replicable and scalable.
- Many of the challenges faced by ICT4D are similar to those faced by microcredit. It might be useful to look at the experiences of that sector.
- Is it possible for donors to make special consideration for particular countries in Africa – donors tend to like to work through government bodies, but so often in Africa that funding does not reach those who will use it for development activities?

  K. J. John: "There is a need for regional funds that are transparent, above any kind of interference. This builds credibility. Entrepreneurs need to have access to these funds."

  Ranjit Khosla: "There are massive failures in the development process. Setting up a regional fund has the danger of being hijacked by bureaucrats. We need open forums with involvement from all stakeholders to ensure that the process is transparent and relevant. But, where are the corporations? In the end, they are going to benefit from the markets that are opened by social entrepreneurs."
- Could it be a useful resource to small enterprises to have access to students, on an intern basis, from prominent business schools, etc.? That is, we could build a volunteer, public interest advisor resource?

  K. J. John: "Entrepreneurship is not learned in classes. Cross-boundary capacity building would be very useful."

  Raymond Galluser: "Financing is not the only issue; start-up support is also required. Perhaps it is even more important than finance."

SELECTED REFERENCES

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PART III
REPORTS TO THE WORLD SUMMIT ON THE INFORMATION SOCIETY

On Friday, 12 December 2003, the organisers of multi-stakeholder events within the framework of the World Summit on the Information Society (WSIS) were invited to report the results in the WSIS plenary.

Walter Fust, Director-General of the Swiss Agency for Development and Cooperation (SDC) and Chair of the Global Knowledge Partnership Executive Committee, reported on the ICT for Development Platform. Rinalia Abdul Rahim, Executive Director of the Global Knowledge Partnership, reported on the ICT4D Forum.

REPORT BY WALTER FUST

The objective of the ICT for Development Platform in Hall 4 of Palexpo, jointly organised by the Swiss Agency for Development and Cooperation (SDC) and the Global Knowledge Partnership (GKP), was to realise a combination of Exhibition and Forum for Conferences in order to allow a true multi-stakeholder event.

The Platform focused on:
- showcasing
- debates
- action

A further objective was to put Information and Communication Technologies (ICTs) as a tool for development on the map of the Summit and on the mind of its participants and the public. It was meant to be complementary to the political sequence of the Summit.

These objectives have been reached:
- Until this moment over 30,000 people have visited the Platform.
- 245 Exhibitors from 80 countries have showcased their activities and solutions. More than 50 panels and 70 conferences have been held.
- Different initiatives and projects have been launched and a number of prizes have been awarded to ICT-Champions from all over the world.
- The number of Heads of States (20) who have visited the Platform was a positive indicator to confirm the complementarity to the political part of the Summit.

The results will be made available on the website WSIS-online and through GKP (http://www.globalknowledge.org). A special CD-ROM on the Platform

(exhibitions and the results of the conferences) will be produced. A number of follow-up activities will follow to enhance the continuation of our work in order to feed into the process leading to Tunis.

Allow me to conclude with 6 examples of numerous concerns and recommendations repeatedly experienced:

1) We should be well aware of the fragility of records of information. The historical documents of Timbuktu are thousands of years old. Will the records of this Summit still be available in 100 years from now?

2) Business as usual is not sufficient to address the issue of the information society. Social inclusiveness and shared access to technologies will be of utmost importance.

3) It is obvious that we need to pool all our resources and knowledge to better reach the Millennium Development Goals (MDGs). ICTs are tools to do so.

4) The time has come to go beyond the ever-piloting phase of projects. For up-scaling and mainstreaming we need true multi-stakeholder partnerships, innovative approaches and solutions, also with regard to financing ICTs.

5) To pool resources and to work together we need a more entrepreneurial spirit and a change of mind sets, cultures and rules. We have to go for opportunities and not for limiting the access to information and knowledge.

6) ICTs should not be seen as stand alone investments. They have to be seen in the context of the overall development of society. They are about "Connecting people for a better life" (tagline of the ICT4D Platform).

Thank you for your attention.

REPORT BY RINALIA ABDUL RAHIM

Mr. President,
Ladies and gentlemen

ICT4D Platform

The Global Knowledge Partnership is the world's first Multi-stakeholder Network in the area of ICT for Development.

As a global network, we bring together governments, civil society organisations, donors, private sector companies and intergovernmental organisations to share their knowledge and experiences. We also bring them together to catalyse collaborations and mobilise resources to address development challenges as well as to create new opportunities with information and communication technologies (ICTs).

The ICT for Development Platform which we organised together with the Swiss Agency for Development and Cooperation embodies the true multi-stakeholder nature, spirit and knowledge-action orientation of the GKP. We are pleased to offer the Platform as a contribution to the Summit to illustrate and emphasise the people-centred development dimension of ICTs.

It was extremely important for the overall success of this Summit that all stakeholders can come together and have the opportunity to interact, exchange information and learn from each other. This is precisely what the Platform has accomplished. More importantly, it has validated the tremendous potential of ICTs in development.

Drawing from our deliberations, debates and showcases, I wish to highlight four key issues.

First, the application of ICT for poverty reduction: The Millennium Development Goals (MDGs) give the world a clear focus for addressing poverty reduction. But, if we do not change the paradigms of development intervention, we will fail to meet the goals. In our experience, ICTs have proven that they can help reduce poverty when used appropriately, with the full participation of all stakeholders, especially the poor.

Beyond physical access, there are two major challenges in poverty reduction with ICTs: The first is to empower communities to create, contextualise and use

content and applications that suit local situations and needs. The second is to up-scale successful small initiatives without losing the ability to adapt content and applications.

The second key issue is the need for adequate financial resources to spread digital dividends and opportunities to more people: A common characteristic of small ICT4D pilots is entrepreneurship. Unfortunately, most donor agencies do not fund business-type ventures with social agendas. At the same time, venture capitalists and corporate investors are not attracted to small pilot projects because they do not necessarily see the commercial viability. There is a great need for funds to support the expansion of successful ICT4D pilots to spread digital dividends and opportunities further. This requires all financing entities to engage in dialogue and to work together.

The third key issue is the value of multi-stakeholder partnerships (MSPs): Multi-stakeholder partnerships are about creating lasting and meaningful impact at all levels. While many laud their virtues, most are struggling to make them work. This is evident throughout the Summit Process.

Multi-stakeholder partnerships promote a more holistic approach to development and participatory governance. Such partnerships are effective instruments for achieving development goals, particularly when different stakeholders pool their resources and assets in solving problems. What is needed is better understanding among stakeholders about each other's strengths and weaknesses. Processes must be in place to facilitate negotiations and collaborations among stakeholders for optional outcome.

Excellencies, the world's development challenges are immense. To fully harness and benefit from multi-stakeholder assets, multi-stakeholder partnerships or networks must be considered as a new category of accreditation to intergovernmental processes such as this World Summit. Without this mechanism for expanded engagement of stakeholders, you will not be maximising the use of existing resources in creating a better world.

The last key issue is on gender equality and the role of ICTs: We recognise that women and girls have very specific needs when it comes to the design and application of ICTs. Women need equality of access and opportunities to fully participate in the Information Society.

ICT initiatives for the realisation of women's rights need to take into account the ways in which women are different from men. We need to ensure that the differences, disparities and disadvantages are acknowledged and addressed by policy or legal interventions and programmes. Without a strong gender analysis,

we will not be able to realise the true potential of ICTs for women and girls who are the majority of the world's poor.

These are the four key issues which I would like to bring to your attention.

I would like to end by saying that it has been a great privilege for the Global Knowledge Partnership to be an integral part of the Summit. We will continue our work in enhancing the role of ICTs in development and in bringing forward the true benefits of the multi-stakeholder partnership approach.

Thank you.

ANNEX

NOTES ON CONTRIBUTORS

EDITORS

Weigel, Gerolf is the Head of the ICT4D (Information and Communication Technology for Development) Division of the Swiss Agency for Development and Cooperation (SDC), Swiss Foreign Ministry. As the focal point of the poverty reduction-focused ICT for development efforts of the Swiss Government and Chair of the "International Advisory Panel" of the WSIS-related ICT for Development Platform he is strongly involved in networks, policy development and programmes promoting the effective use of information and communication for sustainable development. Key areas of involvement are the Executive Committee of the Global Knowledge Partnership (GKP) and the development dimension of the World Summit on the Information Society (WSIS), Geneva 2003/Tunis 2005. Prior to joining the SDC Multilateral Cooperation and Development Policy Department, he was SDC Country Director for Pakistan/Afghanistan at the Swiss embassy in Islamabad (1994–1999), head of the SDC Pakistan/Afghanistan Desk (1990–1994), and Resident Coordinator for the Swiss Cooperation Programme in Bhutan (1987–1990). From 1982 to 1986 he worked in research and operational development programmes in Ethiopia, Haiti and Nepal. He studied science at the Universities of Berne (PhD), Basel (MSc), and Zurich and attended the programme on Macroeconomic Policy and Management at Harvard University.

Waldburger, Daniele is an independent communication consultant specialising in media relations, corporate publishing and interactive media. He has held national and international mandates from leading private sector companies as well as non-profit and government organisations, particularly in the fields of IT (information technology) and telecommunication, development cooperation, and science. Before establishing his own company, Waldburger Consulting GmbH, he worked in senior management posts in the media and communication industries in Switzerland. Daniele Waldburger started his professional career as a systems engineer in IT, later moving on to journalism where he worked for more than ten years as a science and technology editor for different major Swiss publications. He holds a degree in African history and social anthropology from the University of London's School of Oriental and African Studies (SOAS).

ALPHABETICAL LIST OF PANELLISTS, MODERATORS, RAPPORTEURS, IAP MEMBERS AND ORGANISERS

Abdul Rahim, Rinalia is Executive Director of the Global Knowledge Partnership (GKP), the world's first multi-stakeholder partnership in the area of ICT-facilitated development. Rinalia established the GKP Secretariat in Kuala Lumpur upon its transfer from the World Bank Institute in 2001. She now heads its operations and provides leadership and strategic guidance. She is currently an ex-officio member of the GKP Executive Committee and serves as a member of the International Advisory Panel for the World Summit on the Information Society's ICT4D Platform as well as UNDP's Asia Pacific Development Information Programme (APDIP).

Rinalia has a Master in Public Policy from Harvard University's John F. Kennedy School of Government and a Bachelor of Arts in Political Science from Princeton University. She began her career as a policy technologist in 1997 with the National Information Technology Council (NITC) of Malaysia, the primary advisor and consultant to the Malaysian Government on matters pertaining to ICT for national development. At NITC she was entrusted with managing the Council's Governance Agenda portfolio and has represented the nation at many international meetings and conferences.

In 1998, as Content Director for the 1st Virtual Commonwealth – a platform for discussing non-mainstream ideas and ideals of the Information Age – she organised a discussion panel on "Governance in an Internetworked World", which involved luminaries such as the Prime Minister of Malaysia, the Vice President of the World Bank Group, the President of the 51st UN General Assembly, the Secretary General of UNCTAD, the Commissioner of the European Commission, the Secretary of NITC Malaysia and the President of the International Movement for A Just World.

In 1998 she was part of the Malaysian Consulting Team engaged by the Regional Bureau for the Arab States of the United Nations Development Programme (UNDP) to share the Malaysian models and experiences in developing a national ICT strategy/framework.

In 2000, Rinalia was a lead architect of the Second Global Knowledge Conference (GKII), an international conference on "Building Knowledge Societies: Access, Empowerment and Governance", which was hosted by the Government of Malaysia on behalf of the GKP and involved more than 60 GKP member organisations from around the world as co-organisers. Simultaneously, she also co-chaired the GKP Working Group on Governance with Roger Dumelie from the Canadian International Development Agency (CIDA).

Rinalia's other major achievements include generating concept papers for establishing State IT Councils in Malaysia and a pilot project on networking

women for the National Council of Women's Organisations, conceptualising and co-editing a publication for the NITC entitled "Building Knowledge Societies: Access, Empowerment and Governance in the Information Age", preparing an organisational strategic management consultancy report for the Permanent Mission of Malaysia to the United Nations, and conducting a joint strategic management analysis for the Harvard Institute of International Development (HIID).

Alam, Shahidul is a writer, photographer and activist who has been an exponent of new media. Having studied and taught chemistry at London University, he took on photojournalism as a profession and was active in documenting the democratic movement in Bangladesh to remove General Ershad. He introduced e-mail to Bangladesh and played an active role in bringing full fledged Internet to the country. He was the publisher of Bangladesh's first webzine and setup the Bangladesh Human Rights portal, http://www.banglarights.net. He is the managing director of Drik Picture Library, and Principal of Pathshala, The South Asian Institute of Photography. He is an Honorary Fellow of the Royal Photographic Society and chair of the 2003 international jury for World Press Photo.

al Kasim, Faisal is a Syrian national holding a PhD in English literature. He worked for the BBC Arabic Service as broadcast journalist, producer and announcer for seven years. Then he moved to the BBC Arabic television to work as presenter of the main news rounds and anchor of panel discussions for almost two years. He has now his weekly show on Al-Jazeera Television called "The Opposite Direction", which is the most controversial political program on Arab satellite channels. He tackles the most sensitive and highly controversial Arab political and cultural topics. His programme is watched avidly by Arab viewers from Morocco to Saudi Arabia. Thousands of articles were written about the programme in Arab and International newspapers. It has also drawn heavy criticism from Arab governments some of which have withdrawn their ambassadors from the State of Qatar as a protest against the Opposite Direction.

Allaf, Rime is a writer, broadcaster and consultant specialising in Middle East affairs. She has published numerous political analyses and commentaries and appears regularly on international media, including CNN International, Sky News and BBC World. She has participated in many international conferences and workshops, and gives talks on issues related to the Middle East (Arab political and socio-

economic situation, media, gender, religion). Allaf also has an extensive consultancy background in marketing and research, having conducted projects for blue-chip clients in Europe, the US and the Arab world. She is also a company director and co-founder of Turn3D, a pioneer of interactive 3D communication technology. Fluent in six languages, Ms. Allaf studied Political Science in Switzerland before acquiring an American Bachelor of Arts in Management and a Master of Arts in Marketing.

Armstrong, Peter is a senior figure in British broadcasting and global new media and worked at the BBC for 20 years. As a Head of Department, he founded many path-breaking series in the area of development and human values, including Everyman and Global Report, which won the United Nations Association Peace Prize. In 1983 he created The Domesday Project, the BBC's first multimedia initiative, involving a million citizens in creating an interactive record of Great Britain. In 1986 as Director, Network Televison, Estree, he founded BBC Interactive. In 1989 he became Chair of the MultiMedia Corporation, later a public company. In 1995, with Anuradha Vittachi, he launched oneworld.net, bringing together 1,600 global justice sites worldwide. Peter is a policy advisor to governments and international bodies on the use of ICT4D. In 2004 he received the Berners Lee Lifetime Achievement Award from BAFTA for his work on interactive multimedia.

Bali, Namrata is General Secretary of SEWA (Self Employed Women's Association, India). SEWA is a registered Trade Union of informal sector women workers with a membership of 530,000 women. Namrata Bali's experience in SEWA consists of 17 years of organising urban and rural women into Handicraft Cooperatives. For the last ten years her main responsibility has been as the Director of the SEWA Academy, the main training center of SEWA, which consists of training research and communications. Her main specialisation is in textile designing and studies in labor and cooperatives. She is also a member of the core team of SEWA and works as the editor of a monthly periodical for young girls. She is a trainer as well as a director of various documentaries made by Video SEWA.

Banda, Fackson is co-author of "The Other Information Revolution: Media and Empowerment in Developing Countries", Global Civil Society 2002. Director of the Panos Institute, Southern Africa, is in charge of the overall running of the Institute in Southern Africa. Formerly Director of Communications and Social Justice at the Christian Council of Zambia and lecturer in Mass Communication at the University of Zambia, he is studying for a doctorate degree in communication with the University of South Africa.

Banerjee, Indrajit is the Secretary-General of the Asian Media Information and Communication Centre (AMIC), the premier of such centres which has spearheaded Asian media research, capacity building and documentation for over three decades. He is also an Associate Professor at the School of Communication and Information, Nanyang Technological University (NTU) in Singapore. Before working for AMIC and NTU, Indrajit held faculty positions in communication studies in Malaysia and Canada. He has published papers in many of the leading international communication journals as well as presented papers at many prestigious international conferences around the world. He holds a doctorate in Communications from the Sorbonne University in Paris.

Barón Porras, Luis Fernando has a background in Communication Studies and Anthropology. He is a writer and analyst on the relations between communication, media and peace, with an emphasis in the audience's perspective. He directed three researches during last two years: "No official" histories on "war and peace" (2004); "Internet, war and peace in Colombia" (2003); and "TV news war and peace" (2003). He has worked with CINEP, a Colombian NGO during last 13 years. He has participated in global, Latin American and Colombian networks. He is currently a member of the nets Somos Telecentros and IT Governance and the Politics of Civil Society, supported by SSRC of New York, USA. He was Research Fellow of the PAN programme of IDRC, Canada, in 1999, and he directed a national study about local and community TV in 1996.

Bearth, Thomas obtained his PhD in General Linguistics at the University of Geneva (Switzerland). Following an extended period of linguistic research and various types of applications in the fields of language development and Bible translation in West Africa, he is currently Professor of General and African Linguistics at the University of Zurich (Switzerland). His teaching and research interests include typologically oriented research on oral discourse in Akan, Mande and Swahili, the syntax of African languages, conversational pragmatics, information structure, inferential meaning, lexicography, intonation and tone, and the relevance of language to socio-economic development. Current emphases are on the promotion of e-learning in African languages and on local language as the missing link in sustainable development.

Belay, Tamru,
Adaptive Technology Center for the Blind, Ethiopia

Bob, Ibrahima,
OKN Coordinator for Francophone West Africa

Boyle, Sharmini has been working as a television director/producer since 1980. After starting her career as a news producer of the state owned SLRC/ITN, she established her own company, specialising in producing documentaries and other factual videos to raise awareness of social, economic and cultural issues pertaining to Sri Lanka. At present she is Chief Editor of Young Asia Television, an organisation that produces television programmes for youth audiences on issues of social justice and environmental conservation. Young Asia Television also produces weekly programmes focusing on Sri Lanka's on-going peace process, highlighting peace building initiatives and providing a much needed forum for people's views and concerns.

Browne, Stephen is Director of the ICT for Development Group of the UN Development Programme, New York. He joined the UN in 1976 and has spent some 16 years in field-work for the UN, including assignments in Thailand and Somalia, and – as UN Resident Coordinator – in Ukraine and Rwanda. From 1999 he became Director of the Poverty Reduction Programme for UNDP and moved to his present position at the end of 2002. Previously he worked in the European Commission (Brussels) and the Economist Intelligence Unit in London. Mr. Browne was educated at Cambridge University and the Sorbonne, Paris. His publications include "Beyond Aid: from Patronage to Partnership", London, Ashgate Publishing, 1999; and "Foreign Aid in Practice", London, Pinter Publishers & New York, NY University Press, 1990.

Burkle, Martha holds a DPhil in Technology Policies and Higher Education from the University of Sussex, England. She lectures Knowledge Management at the Monterrey Institute of Technologies University. A member of the National System of Researchers (SNI), Burkle is a pioneer in the research field of the use of technologies for development in Latin America. Currently, she writes a column for the Mexican journal "Reforma" on the social impact of technologies. She has written numerous articles on information technologies and is a member of a number of international organisations involved with research in this area. Her last written work was published by the MIT in the book "Women, art and technology" in October 2003. Burkle's research has been done in the UK, Canada and Mexico particularly.

Castillo-López, Rodolfo is Executive Director of the Agency for the Development of the Information Society in Bolivia (ADSIB). He was responsible for Bolivia's intervention in the WSIS including a successful participation in the ICT4D Platform. A member of the UNICT Task Force, INFOLAC (Latin America and the Caribbean Network), and UNESCO National Commission in Bolivia. He coordinates the Cyber Security programme in Bolivia along with other institutions. He has Engineering and MBA degrees from University of Texas and has worked mainly in the private sector: Fitch Ratings Co. representative, Bolholz's president, door manufacturing company, AESA's president, telecommunications industrial consulting company, Bolivia's Principal Executive of Andean Development Corporation (CAF), a large financial institution.

Cattaui, Maria was appointed Secretary General of the International Chamber of Commerce (ICC) in 1996. As chief executive of the world business organisation, she is responsible for overseeing global policy formulation and representing the interests of world business to governments and international organisations. Prior to joining the ICC, Mrs Cattaui was the Managing Director of the World Economic Forum (WEF), responsible for its annual meeting in Davos, Switzerland. She was educated in the United States and is an Honours graduate of Harvard University.

Cochran, Michael Patton is a US citizen living in Dallas, Texas. He has completed linguistics training at University of Texas at Arlington (SIL). Michael has a Masters in software engineering from University of Southern California in Software engineering (1992) and a BS in Mathematics from Biola University (1982). He worked for the Software Productivity Consortium helping to develop and validate generic systems engineering processes. Prior to this he worked with Northrop as a senior engineer on the B2 programme. Michael has been working for SIL International since 1995 and is currently the director of language software development. He directs the development of software that supports language survey, cultural anthropology, literacy, translation, sociolinguistics, and linguistics (e.g., dictionaries, grammars, etc.). The software deals with complex non-Roman scripts used by the minority language groups where SIL is working.

Cranston, Pete spent four years in the Middle East teaching and training English before he became a community development and outreach worker in London, working with migrant communities and refugees. Retraining in IT, he began 12 years of IT lecturing and managing teams in post-16 Public Sector Education in London and Oxford. After seven years in Oxfam, GB, leading teams responsible for IS&T support and a comprehensive upgrading programme in Oxfam's 130 international offices, he moved OneWorld International as Network & Operations Director. There he leads promotional, partnership and content management functions, support for the growing network of OneWorld Centres and support for OneWorld's ICD programme, including the collaborations in the Open Knowledge Network. He has recently completed an MBA, focused on the use of Internet technologies in the not-for-profit sector.

Delgadillo, Karin
Executive President Chasquinet Foundation, Ecuador

Della Senta, Tarcísio G., President of the UNDL Foundation, a non-profit organisation established in Geneva, has been with the United Nations University in Tokyo as Director of Planning and Development, as Vice-Rector and as the founding Director of the Institute of the UNU/Advanced Studies. In his professional life has been associated with the world of knowledge. With a Doctor degree from Harvard and a Master's from the Institut Catholique de Paris, he crosses various intellectual disciplines and cultural environments. He is the author or co-author of three books: "UNL, a Gift for a Millennium", UNU/IAS, 1999; "Access to Knowledge, the Emergence of the Virtual University", Oxford University Press, 2000; "No Matter, Never Mind", Johan Benjamin Publishers, Amsterdam/Philadelphia, 2002.

Deng, Yao Hua is the Mayor of Zhaoqing, Guangdong, China, as well as a member of China National Committee on E-Governance, China National Committee on Application and Demonstration of E-Governance, and China National Committee of Experts on Application and Demonstration of Internet Security. When Mr Deng was the Mayor of Nanhai, Guangdong, he applied information and communication technologies to all aspects of its daily operations including economic development, administrative management and social activities. Without causing financial burden to local people, his development of information society in Nanhai greatly increased local revenues, improved public services and decreased governmental expenditures. His successful experience in developing information society at grassroots level has been copied by a great number of municipalities, especially the economically vulnerable and geographically isolated communities, which significantly improves the lives of poor and marginalised people in China. Mr Deng is now in the process of promoting e-governance in the mountainous city of Zhaoqing where the UNESCO-MAB Biosphere Reserve of Dinghushan is located.

Diakite, Salam has been teaching English as a foreign/second language for more than thirty five years now. He received his first English Teaching Certificate for junior secondary schools in 1965. Five years later, he graduated from Ecole Normale Supérieure in Bamako (Mali) as a full secondary school teacher of English. Three years later, he entered Indiana University where he completed his Master of Arts degree in Applied Linguistics before registering at Teachers' College Columbia University where, after fulfilling the requirements for the Master of Science in Education, he was certified for the Doctor of Education degree in language teacher education in 1979. Mr Diakite returned to Mali in mid 1979 and has ever since been involved in language teaching methods and material development besides teaching English literature to undergraduate students. He is also serving as Director of the Documentation Center of the African Academy of Languages.

Diallo Iam, Mamadou is actually a physics teacher and senior researcher in atmospheric physics, and has progressively changed his major to computer sciences, the development of ICTs and Internet connectivity in Mali and in Africa. In 1982 he started his first Project including data acquisition through an analogue to digital conversion card plugged inside PCs placed on field. From Timbuktu to Bamako through Sévaré/Mopti, masts were placed in meteorological parks with 10 sensors for each sites. The data was collected continuously, averaged every 17 seconds and processed before being stored on the hard disk. Later on models were developped using the collected data. He left the university in May 1991 for a position of General Director at the National Center for Technological and Scientific Research for 10 years. Among others, in year 2K he designed and launched the electronic archiving project of the old manuscripts of Timbuktu, with funding from the Ford Foundation. This initiative was the first project dealing with e-culture in Mali, since the old manuscripts cover all aspects of our heritage: history, religion, medicine, sciences, commerce, literature, environment, in Arabic or local languages. Some manuscripts collected in the area of Timbuktu are 9 centuries old. In 1997 he was the first elected president of the Malian Internet Society Chapter, and started a challenging activity of Internet awareness and harnessing by a poor country like Mali. In January 2001 he was appointed Chief of Mission of Informatics and ITCs, a governmental body in charge of ITCs implementation and developement in the whole country. Till then, he is chairing the African Group of the WSIS process.

Doria, Avri, Visiting
Researcher, Electronics and Telecommunications
Research Institute, Korea

Dufborg, Astrid is a Swedish national and works presently at the Swedish Mission to the UN in Geneva, Switzerland, as a Minister and Special ICT for Development Adviser. Her main tasks are to represent her country in the WSIS preparations and foras, as well as in being a member of the UN ICT Task Force. Within the TF, she is chairing the Working Group on Low Cost Connectivity and Access. She has also, together with her Irish TF collegue, developed the Global e-Schools and Communities Initiative, which was launched at the WSIS I in Geneva. Her professional background is from Swedish development cooperation and she has served the Swedish Development Cooperation Agency (Sida) for more than 30 years, out of which about 10 years stationed in different developing countries

Fernández González, Juan has a Physics Degree from Havana University in 1975, MSc in Microelectronics from ISPJAE (the technical university of Havana) in 1983. He worked as a researcher and professor in the Microelectronics Research Center of Havana Polytechnic Institute from 1976 to 1984. In 1984 he went as Project Manager to EICISOFT, a software enterprise that developed applications in robotics, automation and image processing. In 1993 he was promoted to Technical Director of EICISOFT, task that he kept until 1995. From 1995 to 1996 he was CIO of CITA (Corporation of Information Technologies and Automation), a corporation of more than 20 enterprises. From 1996 to 1998 he was appointed CIO of SIME (Ministry of the Steel, Mechanic and Electronic Industry), an industrial group of more than 200 enterprises, with the task to lead the most ambitious informatisation project of a Cuban Ministry. Since 1998 he is Advisor for the National Directorate of Informatics of Cuba. From January of 1999 he is the Coordinator of the Cuban Commission for Electronic Commerce, the governmental body that design the Cuban strategy in this field. He is Advisor in the Ministry of Informatics and Communication since its creation in the year 2000. In 2001 was elected as member of the United Nations ICT Task Force. He has published more than 15 articles and is a very active lecturer in Cuba and abroad in various topics that include the Management of big software

projects, Internet applications and electronic commerce. He has the degree of Senior Researcher of the National Academy of Sciences of Cuba, and has received 9 technical or scientific awards. In 1994 he applied and received a Patent in Image Processing. He is also an International Chess Master.

Fonseca, Clotilde has a Master in Public Administration with emphasis on Education and Technology Policy by Harvard University. She completed graduate studies on mass media at the University of Navarre, Spain. Ms Fonseca is Executive Director of the Omar Dengo Foundation (http://www.fod.ac.cr), a Costa Rican non-profit organisation created to promote socio-economic and human development through the appropriation of new technologies. She was Executive President of the Costa Rican Institute for Social Assistance (IMAS), which is in charge of the country's anti-poverty programmes and has done consultancy work for UNDP, USAID and CABEI. At present she is a member of the Hemispheric Advisory Board to the Institute of Connectivity of the Americas. Ms Fonseca has published extensively on issues of education, technology and socio-economic development.

Fortier, François is currently Knowledge Management Advisor for the United Nations Development Programme (UNDP) regional office for Europe and Central Asia. He is political scientist having worked in development and research on knowledge society issues for 15 years. His recent assignments include knowledge and change management for development organisations, and has also been involved in the formulation, implementation, and evaluation of ICTs for development strategies and programmes in over 40 countries. Fortier also published articles and a book on the political economy of the Internet, taught graduate courses as guest lecturer, and delivered papers at a number of conferences on related issues.

Fuchs, Richard is Director of Information and Communication Technologies for Development. A Sociologist, he established North America's first system of rural telecentres and online services beginning in 1988 as the CEO of a Crown Corporation in Newfoundland (Canada) called Enterprise Network Inc. He also served as a Commissioner with the Newfoundland Economic Recovery Commission and, from 1996 to 2000 operated his own company, Futureworks Inc., which won the Canada's International Trade Exporters Award in 2000. In January 2001, Richard joined IDRC as its first Director of Information and Communication Technologies for Development. He has worked with ICTs and Development in Africa, Asia, the Americas, Europe, North America and Australia.

Fust, Walter, born in 1945 in Mosnang/St. Gallen, Switzerland, studied at the University of St Gall and graduated with a Master of Political Science. He entered the diplomatic service in 1975 and was assigned to Berne, Geneva, Baghdad and Tokyo. From 1976 to 1979 he was in charge of economic affairs at the Swiss Embassy in Baghdad. In 1979, he was transferred to Tokyo, responsible for economic, commercial and industrial affairs. In September 1983, he was appointed deputy head of the Integration Office, dealing with the Swiss government's relation with the European Community and the EFTA countries. From 1984 to 1986 he was appointed as personal advisor to Federal Councillor Dr Kurt Furgler, Minister of Public Economy. In 1986, he was elected as Managing Director of the Swiss Office for Trade Promotion. From 1990 to August 1993 he served as Secretary-General of the Ministry of the Interior. Since September 1993 he is Director-General of the Swiss Agency for Development and Cooperation (SDC). Mr Fust is Chairman of the Board of the Global Knowledge Partnership GKP, a network dealing with information and communication technologies (ICTs) for development. He is also a member of the UN ICT-Panel of Advisors. Mr Fust is married and has one daughter and two sons.

Gage, John is Chief Researcher and Vice President of the Science Office, Sun Microsystems, Inc. He is responsible for Sun's relationships with world scientific and technical organisations, for international public policy and governmental relations in the areas of scientific and technical policy, and for alliances with the world's leading research institutions. Gage attended the University of California, Berkeley, the Harvard Kennedy School of Government, and the Harvard Graduate School of Business. He did doctoral work in mathematics and economics at the University of California, Berkeley. He is a member of the Mathematical Association of America, the Association for Computing Machinery (ACM), the Institute of Electrical and Electronics Engineers (IEEE). In 1995, Gage created NetDay, a volunteer project to bring the resources of world high-technology companies to all schools and libraries to connect them to the Internet. Gage is a frequent host on Sun's "Digital Journey" – an ongoing series of Web-based multimedia programmes. He has also served on a variety of advisory panels in the United States and abroad.

Galluser, Raymond has a PhD in Physics and has been working for over twenty years in the telecommunication industry in various management positions with suppliers and operators, developing and deploying data networks and applications. In 1999 he founded a consulting company that provides services to technology start-ups and advises ICT sector companies in their international business development.

Gerster, Richard is a development economist and activist from Switzerland. He holds a PhD Econ of the University of St Gall (Switzerland). Up to 1998 he was the Executive Director of the Swiss Coalition of Development Organisations. Since then, he is Director of Gerster Consulting, an independent consulting firm for public policy and international development (see http://www.gersterconsulting.ch). From 1978 to 1994 he served as a Member of the Advisory Committee on Development Cooperation and Humanitarian Aid to the Swiss Government. In 2000, he was appointed a member of the Development Cooperation Advisory Council to the Minister of Foreign Affairs of the Republic of Austria. He authored numerous books and articles on development policy issues, such as ICTs and poverty reduction, patents and development, globalisation and equity.

Gilhooly, Denis,
UNDP Representative to the WSIS Executive Secretariat

Goldfarb, Ronni is a founder and Executive Director of Equal Access. In this capacity she has worked closely with the United Nations Development Programme (UNDP) to create the Equal Access / UNDP Digital Broadcast Initiative and to launch an Asia Pacific Regional Information and Education Network, the Equal Access Asia Development Channel. Ronni has been the Executive Director of Equal Access since its inception in 1999. Previously, as a Strategic Communications and Business Development Consultant, Ronni has over 16 years experience in creating and implementing communications initiatives and programs for Fortune 500 Corporations and the United Nations. Her work with the United Nations includes strategic consulting for the UNDP, Regional Bureau of Asia and the Pacific, the UN Conference on Women, Beijing, and the UN Earth Summit in Rio de Janeiro. Ronni holds a Bachelor of Arts Cum Laude from SUNY Buffalo and studied Cultural Anthropology and Media at New York University.

Gomez, Ricardo is a facilitator at heart. He is currently Executive Director of the Bellanet Secretariat at the International Development Research Centre in Canada. He enjoys communicating about complex issues in plain language, and he has pioneered on the use of photography, video, radio and, more recently, the Internet, as tools for community development and people empowerment. He has lived in Canada, Central and South America, and he holds a PhD from Cornell University and a Master's degree from Université du Québec à Montréal. An eclectic thinker, he draws from multiple disciplines to do what he likes best: help people learn and do their best thinking collectively.

Greener, Paul currently works with the Foundation for Development Cooperation (FDC) in Brisbane, Australia, as Program Manager, Development Partnerships. FDC is engaged in policy analysis, action research, networking and partnership brokering for sustainable development in Asia and the Pacific. Previously he has worked for the Australian aid agency, AusAID, the Aga Khan Foundation in Geneva, and as an independent consultant. He has a PhD in Geography, and has spent most of his career working on issues of rural development, sustainable livelihoods, capacity building, organisational development and development policy in more than 25 countries.

Grewan, Rodwyn has been at the helm of SchoolNet SA for almost two years. He was appointed in August 2001 to lead the transformation of SchoolNet SA from a project of the IDRC to a sustainable Section 21 Company. His challenge is ongoing given the dynamic nature of ICTs and the deep-rooted traditions of the education system. However, Rod comes well equipped for this challenge. Having lived, studied and worked in a number countries in Africa, Europe, the Middle East and the USA, Rod brings an interesting set of experiences to the challenges being brought about through the intervention of ICTs in education.

Gwynne, Beris is Executive Director of The Foundation for Development Cooperation (FDC) which is an independent international development think tank based in Brisbane, Australia. She brings wide-ranging experience in international relations and development to this position, having served with the Australian Department of Foreign Affairs and Trade (1974 to mid-1989) with postings in Vietnam, Poland, Mexico and Nauru, the Australian Agency for International Development (AusAID)

(1989–1993), and World Vision Australia (1994 to May 2000). Under Beris' leadership, FDC has developed a significant program on the role of information and communication in development and poverty reduction. Beris is a member of the Governing Body of the Global Development Network, a member of the council of the Griffith Asia Pacific Research Institute, Vice-President of the Australia Water Partnership and a member of the Queensland Committee of the ATSE Crawford Fund for Agricultural Research. Beris has an Arts degree from James Cook University and a Diploma in International Law from the Australian National University. She was a Rotary Foundation Post-Graduate Fellow at Silkiman University in Philippines in 1972–73.

Hapsah Shahabudin, Sharifah is the Director of Quality Assurance, Ministry of Higher Education Malaysia. She is responsible for assuring the quality of programmes in public universities and the development of the Malaysian Qualifications Framework. She was Professor of Medical Education at Universiti Kebangsaan Malaysia and was formerly the World Health Organisation Western Pacific Regional Advisor on Human Resources. She is the President of the National Council of Women's Organisations (NCWO) of Malaysia and Board member of the ASEAN Confederation of Women's Organisations (ACWO). She was appointed as a member of the National Information Technology Council (NITC) of Malaysia and was responsible for formulating strategies on e-communities and programs on Bridging the Digital Divide.

Hector, Paul, a Fulbright Fellow, was a civil engineer until his interest in new technologies led him to make a career change. In 2001, he joined UNESCO through its Young Professionals Programme and since then has been working in the Information Society Division of the Communication and Information Sector. Paul is involved in the Division's work of addressing legal, ethical and societal challenges/opportunities of ICT and promoting wider access to information content and technologies. Currently, he manages UNESCO's Initiative B@bel, a multidisciplinary project promoting linguistic diversity on the Internet. He is also implementing activities focusing on the development and educational needs of youth and disabled person with the support of ICT. Paul has been involved in organising international conferences and expert meetings and has represented UNESCO at various international forums presenting papers on ICT in development and multilingualism in cyberspace.

Hirzel, Hannes is a facilitator, programmer and researcher in using ICT in language development, language learning and linguistics. He holds a master's degree of electrical engineering from the Swiss Federal Institute of Technology (ETHZ) and an MBA from the University of Zurich. He was involved in developing CD-ROM and web-based Akan and Swahili language courseware. He is supporting dictionary making and literacy projects in West Africa. He is interested in developing software with a good usability for novice users. An example of this work is a lightweight simple text editor program he developed for easy writing of African languages and e-mail communication.

Hossain, Talib is a Nomadic indigenous living in the Shivalik hills of Himalayas. Being a Muslim nomad, he is a minority amongst minority. A strict vegetarian, lives in deep forest and a true follower of Gandhi. Firmly believes in the philosophy of practicing need, not greed. A strong propagator of Community Forest Management, he has intense knowledge about the wild life and Silviculture. He is a traditional, progressive leader of his Van Gujjar Community. A man with a clear perception, has visited Geneva to participate in the World Summit on the Information Society organised by the United Nations ICT Task Force, and he was also invited to Sweden to address about the community forest management.

Husain, Mishal is a news anchor for BBC World, the BBC's international channel that now reaches over 250 million homes worldwide. She has previously been a Washington correspondent for the BBC and a presenter of business and economic news. Mishal joined the BBC in 1998 from the business channel Bloomberg. She began presenting in 2000, focusing on business news, and became the first anchor of BBC World's "Asia Business Report", launched from the BBC's Asia headquarters in Singapore. Later she co-anchored "World Business Report" and anchored from New York in the aftermath of the September 11th attacks, charting market reaction. A year on, she covered the 1st anniversary commemorations at the Pentagon. As Washington Correspondent, Mishal was on air for the announcement from the White House, in March 2003, that the Iraq war had begun and presented numerous special programmes from Washington through the conflict.

Ingram, Joseph K. is Special Representative to the United Nations and The World Trade Organization, The World Bank Group, and former Director of the World Bank Bosnia and Herzegovina 2000 to 2003. He joined the World Bank's Middle East and North Africa region as Loan Officer/Economist in 1976. In 1979, he was transferred to Lagos, Nigeria, where he served as Deputy Representative. Then he returned to Washington as Senior Loan Officer for former Yugoslavia. In 1986 he served as Principal Country Officer and Deputy Division Chief for the Sahel group of countries in the West Africa Country department. In 1992, Mr Ingram became the Bank's Representative in Cameroon and then returned to the World Bank Institute in Washington as its Programme Manager and Deputy Director. From May 2000 until August 2003 he was Director of the Bosnia and Herzegovina Country Office in Sarajevo. Effective September 1, 2003, Mr. Ingram moved to Switzerland, as Special Representative in the Geneva Office. Prior to joining the World Bank, Mr Ingram worked for the International Development Research Center (IDRC) and taught for two years in the Ivory Coast.

Isaacs, Shafika is the Executive Director for SchoolNet Africa (http://www.schoolnetafrica.net). She formerly worked with the IDRC on gender and youth projects and was the director of the Trade Union Research Project (University of Natal), specialising in labour education. She authored numerous popular economics publications and founded the Primary and High Schools Tuition Programme in Cape Town. In 1996, she won the Mandela Scholarship Award to pursue her Masters of Science at the University of Sussex. In 2003 she was a finalist in the World Technology Network Awards. She serves on the Steering Committee of the UN ICT Task Force's Global e-Schools and Communities Initiative, the Board of OneWorld Africa, the Advisory Committee of the Southern African Network for Educational Technology and eLearning and as chairperson of the UNDAW Expert Group Meeting on gender and ICTs. She is a member of the WSIS Gender Caucus and is involved with the NEPAD eSchools Program.

John, K. J. is currently the Vice-President of IT Policy Development of the Malaysian Institute of Microelectronic systems (MIMOS) and heads the National IT Council (NITC) directorate. MIMOS is a government-owned company, which also provides the National Secretariat for ICT policy, strategy and development in Malaysia. Before joining MIMOS, K. J. John was the Director for Industrial Policy with the Ministry of International Trade and Industry and undertook the Second Industrial Master Plan for Malaysia. He has worked in public service for 29 years. He was National Di-

rector for the Global Knowledge Partnership (GKII) event hosted in Malaysia in March 2000. He currently serves on the Technical Advisory Panel for the World Bank InfoDev programme. He holds a doctorate in Organization and Management Theory from the George Washington University in Washington, DC.

Jorgensen, Britt works with OneWorld International as a Programme Support Executive for the Open Knowledge Network (OKN). Prior to joining OneWorld she worked with Forum for the Future, a sustainability development think tank in the UK where she did research into digital technology and sustainable development and she is the co-author of the book "Making the Net Work – Sustainable Development in a Digital Society" (Xeris Publishing, 2003). Britt holds a BA and MA in Information Studies – an interdisciplinary course about the influence of technology on people, organisations and society

Kagai, Bildad is the CEO, Circuits & Packets Communications Ltd, an Open Source Software Company based in Nairobi, Kenya. He also conceived and founded the Free Software and Open Source Foundation for Africa (http://www.fossfa.net) which is striving to create a level playing field for open source companies to thrive in Africa. Prior to joining Circuits & Packets, Bildad consulted for the United Nations. He holds a degree in Building Economics and Management from the University of Nairobi.

Khan, Abdul Waheed is Assistant Director-General for Communication and Information, UNESCO. He has extensive international experience in designing, planning and managing communication and information technology applications in the development of education, sciences and culture at the global level. He holds a PhD in Mass Communication from the University of Wisconsin, Madison, USA, MS in Agricultural Journalism, University of Wisconsin, Madison, USA, a MSc (Ag), Agricultural Extension from Agra University, India, and a BSc (Ag) from Agra University, India.

Kansal, Shashank is the President of ITNTI and board member of few IT, Telecom and Media companies in Asia and Europe. The first generation entrepreneur has been in business since more than a decade now. He has been owner and partner in many companies so far including ISPs, Paging Company and Technology Companies. He is an advisor to the Information and Communication Technology (ICT) In-

frastructure Development Committee of HMG Nepal. He is also an advisor of few other National committees on IT and envisages being the part of the team behind the Telecom and IT revolution. He is a keen reader and writer and is also a columnist to couple of magazines in the Business and Computer field. He has been actively involved with the community welfare ever since and earned the reputation among the development organisations. His knowledge in telecom & communications began with his ventures in Internet and IT businesses and has grown ever since. He has expertise as an ISP, a Telecom Services Provider, and as a provider of many IP and non-IP based services. He has been actively engaged in consultation among the leading development agencies both within Nepal and internationally. He has been associated with the UN, World Bank, National and Multilateral Agencies on Electronic Commerce, IT, Telecommunications and E-Governance. He is constantly head hunted by Global and Multinational Telcos and IT companies and currently resides in Europe.

Kaushal, Avdhash, a man of strong convictions, honoured with the esteemed "Padmashree", left his prestigious job at LBSNAA to devote his energies full-time to 'include the excluded and reach the unreached'. His efforts freed bonded labourers in Jaunsar Bawar and saw the first Environment PIL being filed in India. He heads Rural Litigation and Entitlement Kendra (RLEK), an NGO working in the fields of education, environment, community empowerment, human rights training, Local Self Governance with emphasis on women and the girl child. RLEK has been awarded the UNESCO-NLM award for innovative education campaign for the nomads that has been instrumental in empowering the nomadic community with wireless sets and it's training, a first intervention of it's kind in the field of ICT in India. He was declared "Man of the Year, 2003" by "Week" magazine for his contributions towards welfare of marginalised and exploited sections of society. Recently, Mewar Foundation felicitated him at the City Palace, Udaipur, with the national-level PannaDhai award, on his relentless services to mankind.

Khan, Sarbuland is the Director for the Office for ECOSOC Support and Coordination of the United Nations Department of Economic and Social Affairs. Mr Khan directed the preparation of the Ministerial meeting of the Economic and Social Council on ICT for development and has been responsible for its follow-up in the context of servicing the Secretary-General's Advisory Group on ICT and the establishment of the United Nations ICT Task Force. Among his twenty-one years of professional experience within the United Nations, he has held positions as the Branch Chief for the Policy Coordination and Interagency Affairs, Chief for the Office of the Under-Secretary-General of the Department for

International Economic and Social Affairs, and Special Assistant to Under-Secretary-General for Political Affairs and Decolonisation. From 1979 to 1981, he served as delegate to the Second Committee in the Permanent Mission of Pakistan to the United Nations. Prior to joining the United Nations, Mr Khan was the Director for the Economic Coordination in the Ministry for Foreign Affairs of Pakistan, and served in embassies in Morocco, Brussels and The Hague. From 1967 to 1969, Mr Khan was an Assistant Professor in the Department of Economics in Punjab University of Lahore. Mr Khan has a Master's degree in economics. He has authored a number of publications and various articles in economics for books, journals, newspapers and magazines.

Khor, Martin,
Director, Third World Network

Khosla, Ashok,
President, Society for Development Alternatives

Khosla, V. Ranjit is Chief Financial Officer of TARAhaat Information and Marketing Services Ltd, the ICT wing of the Development Alternatives Group, a major development venture dedicated to making sustainable development a good business. In this capacity, he is also a member of the Management Committee of the Group. The primary focus of Development Alternatives and TARAhaat is on the innovation and delivery of technology, marketing and financing systems aimed at eradicating poverty and regenerating the environmental resource base in India. They have their headquarters in New Delhi, India. Concurrently, he is President of Excelsior Ventures Management LLC, a private venture capital company based in New Jersey, USA, which is a major investor in TARAhaat.

Konare, Alpha Oumar, President of the African Union Commission, Former President of the Republic of Mali
– 1964, degree, Ecole Normale Secondaire de Katibougou
– 1969, Master's degree in History and Geography, Mali
– 1975, Doctorate in Archaeology, University of Warsaw, Poland
– President, International Council of Museums
– President, West African Archaeologist Association
– Member of the Board of Directors: Center for World Islamic Education; Afrique en Création
– Consultant to UNESCO, UNDP, Agency for Cultural and Technical Cooperation
– Member, International Council on Historical Sites and Monuments
– Founded "Jamana", a quarterly cultural magazine, and "Les Echos"

– 1978–79, Minister of Youth, Sports, Art and Culture
– 1979–80, Minister of Sports, Art and Culture
– 1992–2002, first President elected to the III Republic of Mali (re-elected in 1992, 1997)

Currently, Chairperson of the Commission, African Union. Author of numerous publications. Recipient of awards: Grand Commander of the National Order of Mali; Ordre du Mérite de l'Association Africaine des Comités Nationaux Olympiques.

Kouoh, Chantal-Nina,
General and African Linguistics, University of Zurich, Switzerland

Kramer, Robert is responsible for CompTIA's worldwide public policy efforts and initiatives. Prior to CompTIA, Kramer managed International Government Relations at Bank of America. Kramer has also served as chairman of the Coalition of Service Industries' Electronic Commerce Working Group, and on the Department of Commerce Services Industry and Electronic Commerce Trade Advisory Committees. He was a founding member of the Financial Leaders Group, which played a key role in the 1997 WTO Financial Services Agreement. He holds master's and bachelor's degrees in Foreign Service from Georgetown University as well as a master's degree in medieval history from The Catholic University of America.

Lal, Radhika is a development economist with a focus on technology, trade and macroeconomic issues. She is a policy advisor on ICT for poverty reduction at UNDP. Her work involves assisting countries seeking strategic guidance in formulating and implementing development-oriented national e-strategies and mainstreaming ICT into national development policies, strategies and programmes with a view to using ICT to enhance poverty reduction efforts, strategies to achieve the MDGs and benefit from globalisation. Recent publications include "Essentials of National e-Strategies" with Denis Gilhooly, and "The role of ICT in achieving the MDGs". She is also co-author of "Budgets as if people mattered: democratising macroeconomic policies". Prior to working with UNDP, she taught economics, and worked with civil society organisations and capacity development institutions on economic development and technology issues.

Landon, Vincent was named Internet Journalist of the Year in the European Online Journalism Awards 2003 for a series of articles on malaria in Tanzania. He has been at swissinfo/ Swiss Radio International since 1997, covering science, health and technology for the past four years. Landon moderated in workshops for the Swiss Agency for Development and Co-operation at the UN summit on Sustainable Development in Johannesburg. He has written for a wide range of newspapers and magazines since studying history at Oxford University.

Lanvin, Bruno was the Manager of the Information for Development Program of the World Bank (InfoDev) from 2001 to 2003. In 2000–2001, he was the Executive Secretary of the DOT Force, the initiative launched by the G-8 to bridge the Digital Divide. Until then, he was Head of Electronic Commerce in the United Nations Conference on Trade and Development (UNCTAD) in Geneva, after occupying several senior positions in the UN system, both in New York and in Geneva. Dr Lanvin holds a BA in Mathematics and Physics from the University of Valenciennes (France), an MBA from Ecole des Hautes Etudes Commerciales (HEC) in Paris, and a PhD in Economics from the University of Paris I (La Sorbonne) in France. He speaks and writes French (mother tongue), English, and Spanish.

Leáñez Aristimuño, Carlos Eduardo,
Union Latine IGO
– Carlos Leáñez was born in Caracas, Venezuela in 1957.
– Graduated in German studies at the University of Nanterre, France.
– Studied law at the Catholic University Andrés Bello of Caracas.
– Obtained his Magister in Contemporary Latin American Literature by the Simón Bolívar University of Caracas.
– Worked as a lecturer and is a writer of fiction.
– He has been representing the Union Latine since 1994.
– He has been Vice President of the Venezuelan Association of Terminology experts since 1998.
– As of 1999 is professor in the Department of Languages of the Simón Bolívar University of Caracas, specifically dealing with what has been happening with languages in the context of the globalisation.

Lehtomäki, Paula, Minister for Foreign Trade and Development, Finland
– Minister for Foreign Trade and Development and Minister at the Prime Minister's Office, 17 April 2003 onwards
– Master of Science (Economics and Business Administration), Bachelor of Social Sciences, Member of Parliament
– Centre Party
– Date and place of birth: 29 November 1972, Kuhmo, Finland
– Place of Residence: Kuhmo
– Member of Parliament, 1999 onwards
– Finnish Delegation to the Nordic Council, Member, 1999–2003
– Finnish Delegation to the Council of Europe, Member, 2003
– Acting Senior Teacher, 1995
– Research Assistant, 1998
– Kuhmo Town Council, 1997
– VR-Group Ltd, Member of the Supervisory Board, 2000–2003
– Audiator Oy, Board Member, 2000–2003
– Publishing House Lasten Keskus, Member of the Executive Committee, 2000–2001
– Finnish 4H Federation, Member of the Committee, 2001–2003
– Finland-Russia Society, Board Member, 2000–2003

Lieberman, Andrew E. is from San Francisco, California. He first visited Guatemala in 1990 to study Spanish and get a break from computer programming. He quickly fell in love with the country and one woman in particular. In 1994, he settled in his wife's hometown, Santa Cruz del Quiché. From 1994 to 2000 he earned the nickname of 'Teacher Andy' by teaching numerous English and computer courses. In 2000, he began the Enlace Quiché project with USAID and Academy for Educational Development that pioneered work with Guatemalan teachers in ICTs and Mayan languages, producing well-acclaimed local digital, audio, and print content. In 2003, he led the formation of the Enlace Quiché NGO, which he hopes will continue to help indigenous peoples make innovative use of ICTs. His professional interests include technology and indigenous populations, virtual communities, integration of technology into the educational process, and educational software development.

Lipponen, Kimmo received his MBA from the University of Alberta, Canada, in 1995 and his MSc from the University of Jyväskylä, Finland, in 1991. He joined Nokia in 1999 and is responsible for global Community Involvement programmes. Prior to Nokia he has worked for the Finnish National Lottery in different management positions from 1996 to 1999. From 1991 to 1995 he worked as a researcher and lecturer at the University of Jyväskylä. Mr Lipponen has been an active writer and speaker on corporate community involvement and sponsorships, and is the author of "The Counterpoint of Sponsorships" published in 1999 by the Association of National Advertisers in Finland. He is a current member of the International Advisory Board of the Center for Corporate Citizenship at Boston College.

Longworth, Elizabeth, a cyberspace-law expert from New Zealand, assumed duties in August 2003 as the Director of UNESCO's Information Society Division. Ms Longworth has extensive experience in the legal profession with specialisation in telecommunications and banking as well as information policy issues, e-commerce and global information infrastructure. She was also Director of Information and Communication Technologies (ICT) Sector at Industry New Zealand, a national economic development agency, where she was responsible for the development and implementation of ICT programmes. She is therefore fully aware of the potential of ICT technology to deliver benefits in education as well as in social and economic areas. She brings a wealth of experience in information policy issues, privacy, e-commerce, dispute resolution, bioinformatics and global information infrastructure. Her experience in working with international agencies such as OECD, WIPO, and UNESCO with whom she has collaborated in areas such as transborder data flows, copyright and patenting, global networks and e-commerce is a tremendous asset in her new post. Mrs Longworth was a member of the New Zealand National Commission for UNESCO and had been closely associated with many activities of the CI Sector, including chairing one of the expert meetings on the draft recommendation concerning the promotion and use of multilingualism and universal access to cyberspace. She has authored numerous articles in her fields of specialisation and was a contributing author to "International Laws of Cyberspace", published by UNESCO 2000.

Marcelle, Gillian is a citizen of Trinidad and Tobago who now lives and works in Southern Africa, after many years in Europe. She has been active in the ICT policy arena for the past 15 years and is currently engaged as the Special Advisor to the National Commission on ICT in Angola as well as providing strategic advisory services to a number of clients through her practice Technology for Development (TfDev). Dr Marcelle is a Visiting Fellow at Science and Technology Policy – SPRU, Sussex University (UK), where her research focuses on innovation studies, technology capability building and learning. Her new book "Technological Learning" will be published by Edward Elgar in Autumn 2004. She serves as a Bureau member on the UN ICT Task Force and continues to be an active leader in developing and implementing gender justice strategies in the ICT sector, including as the founding convenor of the WSIS-Gender Caucus.

Mathison, Stuart is currently Program Manager, Information and Communication for Development, for the Foundation for Development Cooperation, which is based in Brisbane, Australia. He has been engaged in International Development since 1996 in both the Microfinance sector and ICT for Development. He holds a Master's degree in International and Community Development and Bachelor degrees in Engineering and Applied Computing.

McNamara, Kerry S.
Information for Development Program (InfoDev), World Bank Group

Mesa, Carlos studied Literature at Universidad Mayor de San Andrés, La Paz, Bolivia. He founded and was Director of Cinemateca Boliviana. He was also Director of Channel 6 América Televisión (1986–1987) and Telesistema Boliviano (1988–1990). In 1990 he founded with other partners the PAT Televisión Network and was its first Director. In 1994 he won the Newsmen International Award "King of Spain" and in 2000 the Newsmen Award from the Manuel Vicente Ballivián Foundation. He is a member of the Bolivian History Society and was elected Vice-President of Bolivia in August 4, 2002 and President of Bolivia in October 17, 2003. He has written over 11 books and created over 50 videos.

Moggie, Leo is the Minister of Energy, Communications and Multimedia Malaysia. His political career began in 1974 when he was elected as a Member of Parliament and Member of the Sarawak Legislative Assembly. He served as a Cabinet Minister in the State Government of Sarawak from 1976 to 1978. He was appointed the Minister of Energy, Telecommunications and Posts Malaysia in 1978 until 1989. He became Minister of Works Malaysia from 1989 to 1995, after which he was re-appointed as Minister of Energy, Telecommunications and Posts Malaysia. The Ministry was renamed Ministry of Energy, Communications and Multimedia effective 1 November 1998. He graduated with an MA in History from the University of Otago New Zealand, in 1965, and an MBA from the Pennsylvania State University, USA, in 1973.

Opoku-Mensah, Aida from Ghana is the Team Leader for the UN Economic Commission for Africa's (ECA) ICTs for Development Programme, based in Addis Ababa, Ethiopia. She was formerly programme officer for Media, Arts and Culture in the Ford Foundation West Africa office in Lagos, Nigeria, and before then Zambia. When working as Regional Director for the Panos Southern Africa office based in Lusaka, Zambia, Ms Opoku-Mensah initiated a number of groundbreaking information and communication initiatives, including supporting community-based radio for development programmes for rural women, conducting Internet training workshops for Members of Parliament and the media. She is also a former journalist having worked with the BBC African Service and Radio Nederlands International. Some of her written work include publications such as "Signpost on the Superhighway: African environment"; "Up in the Air: the state of broadcasting in Southern Africa", "Democratising access to the Information Society".

Patterson, John is currently an Information and Communications Technology (ICT) Policy Adviser for the Bureau of Development Policy at the United Nations Development Programme (UNDP). In this role he supports the organisation in the areas of knowledge management, prescriptive content management, project management, and delivery of field-based programme and project management policies. In addition, Mr Patterson is a member of UNDP's Management Consulting Team, delivering management change to field-based operations. Prior to joining UNDP, Mr Patterson was a Partner at Accenture, where his professional focus was to support financial services clients with specialised expertise in planning, defining, managing, and delivering business-driven solutions. For four years Mr Patterson was assigned to the organisation in Southeast Asia, first as Director of

the Technology Group in the Philippines, followed by an assignment in Singapore to deliver a broad business change programme for a leading local bank. Mr Patterson received a Master's Degree in Computer Science from Northwestern University and a Bachelor of Science Degree from Iowa State University.

Prado, Daniel est le Directeur du Département terminologie et industries de la langue de l'Union latine, Organisation intergouvernementale composée de 35 Etats et qui a pour mission de diffuser et de faire la promotion des langues et cultures latines. Daniel Prado est chargé d'encourager la modernisation des langues parlées dans les pays latins par le biais d'actions de promotion des langues romanes dans la Société de la connaissance, en soutenant l'enrichissement des vocabulaires spécialisés en langues latines et en faisant la promotion des industries de la langue susceptibles de favoriser l'essor des langues parlées dans les pays latins.

Quek, Paul
Scientist, Consultative Group on International Agricultural Research, Malaysia

Relys, Leonela,
Academic Advisor IPLAC

Sachs, Jeffrey D. is the Director of The Earth Institute, Quetelet Professor of Sustainable Development, and Professor of Health Policy and Management at Columbia University. He is also Special Adviser to United Nations Secretary-General Kofi Annan on a group of poverty reduction initiatives called the Millennium Development Goals. Sachs is internationally renowned for advising governments in Latin America, Eastern Europe, the former Soviet Union, Asia and Africa on economic reforms and for his work with international agencies to promote poverty reduction, disease control, and debt reduction of poor countries. He was recently named among the 100 most influential leaders in the world by "Time Magazine", and is author of hundreds of scholarly articles and many books. A native of Detroit, Michigan, Sachs received his BA, MA, and PhD degrees at Harvard University.

Samassékou, Adama, aged 57, married with three children, completed his primary and secondary education in Mali. After obtaining a Master of Arts in philology and linguistics from Lomonossov State University in Moscow, Mr Samassékou continued his studies in Paris. After obtaining a DEA postgraduate diploma in African linguistics from the Sorbonne and a DESS specialist postgraduate diploma in organisational science from the Université de Paris-IX (Dauphine), he was subsequently head of the Linguistic Department of the Institute of Social Sciences of Mali, then director of the National Library of Mali and advisor to the Minister of Culture. Playing an active role in community life, Mr Samassékou was the founding president for Mali and Africa as a whole, of the Peoples' Movement for Human Rights Education. In the political sphere, he was the founding chairman of ADEMA-France. Having been Malian Minister of Education for seven years (1993–2000) and former spokesperson for the Government of Mali (1997–2000), Mr Samassékou was the President of PrepCom WSIS phase I and is currently president, with ministerial rank, of the African Academy of Languages.

Schoening, Mirjam, 1992, International Business, ESADE, Spain; 1994 CEMS Master, Stockholm School of Economics, Sweden; 1995, Business Administration, lic. oec. HSG, University, St. Gallen; 2000, Master in Public Administration, Kennedy School of Government, Harvard University; 1993–94, Royal Dutch Shell, Controlling and Corporate Planning, Sweden; 1996–1998, Associate Consultant, Bain & Company, Germany. Currently, Director, Schwab Foundation for Social Entrepreneurship. Expertise/interests: Social entrepreneurship, microfinance, social investing, appraisal of development projects, civil society; swimming, tennis, skiing, hiking, Latin American literature.

Shariffadeen, Tengku Mohd Azzman is the President and Chief Executive Officer of MIMOS Berhad. Prior to heading MIMOS, he taught at the University of Malaya (UM) and served as Dean of the Faculty of Engineering from 1975. He has played a key role in getting Malaysia on the fast IT track. He helped to catalyse the formation of the Multimedia Super Corridor (MSC) and contributed to the development of the National IT Agenda. He is a Fellow of the Academy of Sciences, Malaysia; Fellow of the Institution of Engineers, Malaysia; Senior Member of the Institute of Electrical and Electronics Engineers, USA; member of the National Council for Scientific Research and Development (NCSRD); member of the Board of Directors, University of Malaya, and is also a Fellow of the Center for

Global Communications (GLOCOM), Japan. He serves as Adjunct Professor at the University Utara Malaysia and also the International Islamic University.

Shawki, Tarek, Adviser for Communication and Information in Arab States UNESCO Cairo Office
Educational Background
- PhD, Engineering, Brown University, Providence, RI 1985
- MSc, Applied Mathematics, Brown University, Providence, RI 1985
- MSc, Engineering, Brown University, Providence, RI 1983
- BSc, Mechanical Engineering, Cairo University, Egypt 1979

Recent Employment History
- 1999–Present: Regional Informatics Advisor, UNESCO Cairo Office, Egypt
- 1992–1999: Associate Professor, Department of Theoretical and Applied Mechanics, University of Illinois at Urbana-Champaign, USA
- 1986–1992: Assistant Professor, Department of Theoretical and Applied Mechanics, University of Illinois at Urbana-Champaign, USA
- 1985–1986: Research Associate, Massachusetts Institute of Technology, Cambridge, MA, USA

Areas of Interest
- Applied Mechanics, Applied Mathematics, Information & Communications Technology
- Applications in Higher Education, Computer-Aided Instruction, Dynamic Plasticity, Machine Design

Simpson, Richard J. has worked in the field of communications and information technology for more than 25 years, occupying senior executive positions at the national and international levels. He is currently the Director General, Electronic Commerce, with Industry Canada, and is responsible for the development and implementation of Canada's electronic commerce strategy at the domestic and international levels. At the international level, he is currently the Chair of the OECD Working Party on the Information Economy, and Chair of the UN ICT Task Force's Working Party on ICT Indicators and MDG Mapping. In 2002, he was appointed as a member of the Commonwealth's Expert Group on Information Technology by the Secretary General, and played a prominent role in the work of the G8 DOT Force, which reported to G8 Leaders at their Summit in Kananaskis in June 2002.

Stuckelberger, Astrid is a Scientist and international expert in Social and Human Development and is currently both teaching for Masters of Public Health, at the Faculty of Medicine, University of Geneva, and international consultant for the United Nations governmental and non-governmental agencies. Her scientific expertise has led her to conduct several scientific reports and international policy reviews for the Swiss government and the European Commission and she stands on several UN expert panels. The Federal Government has also appointed her judge of the extra-parliamentarian commission on social welfare. Along the academic curriculum, she co-organised several international and UN events among which: the 1st International Conference on Sport and Development in 2003, the International Symposium on Volunteering in 2001, the UN Open Day in Geneva in 1999 and 2001, and the UN International Year of Older Persons in 1999 for which she received an award from the UN Secretary-General. She holds a master's degree and doctorate in psychology from the University of Geneva and has published more than 100 books, articles and reports.

Stückelberger, Christoph

– Professor of Ethics (Systematic Theology) at the Theological Faculty of the University of Basel
– Chairman of ECLOF International (Ecumenical Church Loan Fund), Geneva
– President of STEP – foundation for Fair Production and Trade of Carpets
– Founding president and now vice-president of Transparency Switzerland
– Forum against Corruption (the Swiss Chapter of Transparency International
– Member of the board of directors (2002 president) of the Swiss Coalition of Development Organisations (Swissaid/Lenten Fund/Bread for all/ Helvetas/Caritas)
– Member of the Swiss Ethics Committee on non-human Gene Technology (ECNH)
– Member of the Consultative Commission for International Cooperation of the Swiss Government and president of its sub-commission on WTO
– Regularly visiting lecturer for ethics in developing countries
– Education as theologian and reformed pastor
– Author of various books on economic ethics, environmental ethics, peace ethics, political ethics and ecclesiology

Subba Rao, I.V. is Principal Secretary, School Education, Government of Andhra Pradesh, Hyderabad, India. He has a PhD in educational policy from the University of Pennsylvania, USA. Dr Rao has been actively involved in a number of high level international panels on education and literacy and had taken a leadership role in various national programmes to improve quality of schooling and teacher education. Most recently, he has been associated with a number of policy dialogues organised by UN organisations and the World Bank on literacy, literacy assessment, life long learning, non-formal education, open learning, child labor, multi-lingual education, AIDS education and use of ICT in education.

Sundbäck, Veli, Senior Vice President, Corporate Relations and Responsibility, is responsible for government and public affairs, and Nokia initiatives aimed at achieving sustainable development and providing access and technology to emerging markets. He joined Nokia in 1996 after diplomatic career spanning over 25 years. Veli held various ministry positions in Helsinki, Brussels and Geneva, incl. Secretary of State at the Ministry for Foreign Affairs, 1993–95. He was chief negotiator for Finland's accession to the EU. Veli has been a member of the Group Executive Board of Nokia since 1996. He is chairman of the Board of Huhtamäki, a member of the Board of Finnair, and chairman of both the Finland-China Trade Association, and the Trade Policy Committee of the Confederation of Finnish Industry and Employers (TT). He holds many decorations, incl. Commander, 1st Class of the Order of the White Rose of Finland. Veli has a Licentiate in Law from the University of Helsinki.

Swaminathan, M. S. has been acclaimed by "Time Magazine" as one of the twenty most influential Asians of the 20th century and one of the only three from India, the other two being Mahatma Gandhi and Rabindranath Tagore. He has been described by the United Nations Environment Programme as 'the Father of Economic Ecology' and by Javier Perez de Cuellar, Secretary-General of the United Nations, as 'a living legend who will go into the annals of history as a world scientist of rare distinction'. He was Chairman of the UN Science Advisory Committee set up in 1980 to take follow-up action on the Vienna Plan of Action. He has also served as Independent Chairman of the FAO Council and President of the International Union for the Conservation of Nature and Natural Resources. A plant geneticist by training, Professor Swaminathan's contributions to the agricultural renaissance of India have led to his being widely referred to as the scientific leader of the green revolution movement. His advocacy of sustainable

agriculture leading to an ever-green revolution makes him an acknowledged world leader in the field of sustainable food security. The International Association of Women and Development conferred on him the first international award for significant contributions to promoting the knowledge, skill, and technological empowerment of women in agriculture and for his pioneering role in mainstreaming gender considerations in agriculture and rural development. Professor Swaminathan was awarded the Ramon Magsaysay Award for Community Leadership in 1971, the Albert Einstein World Science Award in 1986, and the first World Food Prize in 1987. Professor Swaminathan is a Fellow of many of the leading scientific academies of India and the world, including the Royal Society of London and the US National Academy of Sciences. He has received 45 honorary doctorate degrees from universities around the world. He currently holds the UNESCO Chair in Ecotechnology at the M. S. Swaminathan Research Foundation in Chennai (Madras), India, and Chairman of the Pugwash Conferences on Science and World Affairs

Tarmizi, Mohamed Sharil is currently the Senior Advisor in the Office of the Chairman, the Malaysian Communications and Multimedia Commission (MCMC), the regulator for the converged communications and multimedia industry in Malaysia. Sharil was responsible for leading new development initiatives in the MCMC. Internationally, he is actively involved in various international speaking and training engagements with various international intergovernmental organisations. He is the current Chairman of the Governmental Advisory Committee (GAC) in ICANN and a member of ICANN's Board of Directors. GAC is currently comprised of 91 governments, distinct economies and intergovernmental organisations in the world interested in domain names and internet matters.

Terrab, Mostafa,
Program Manager, InfoDev

Tharoor, Shashi from India, United Nations Under-Secretary-General for Communications and Public Information, has served the UN since 1978 and led the Department of Public Information since January 2001. Born in London in 1956 and educated in India and the United States, Mr Tharoor, who has worked for refugees, in peacekeeping, and in the Office of the Secretary-General, is also the author of eight books and the recipient of several journalism and literary awards.

Touré, Hamadoun I., Director, Telecommunication Development Bureau (BDT), International Telecommunication Union (ITU), is a citizen of Mali, possessing over 20 years of experience in telecommunications. He has held various management positions in the public sector in his native Mali, in intergovernmental institutions with INTELSAT in Washington DC, as well as in the private sector with ICO Global Communications. He holds an MD in Electrical Engineering from the Institute of Electronics and Telecommunications, St. Petersburg, Russia. Mr Touré was first elected Director of the BDT at the ITU Plenipotentiary Conference, in Minneapolis in 1998. Following a four-year mandate he was re-elected for a second term at the ITU Plenipotentiary Conference in Marrakesh in 2002. Mr Touré's goal is to initiate strong partnerships between developing and developed countries, private and public sectors and all stakeholders to boost the development of ICT and telecommunications worldwide.

Tzicap Tzunún, Marleny Nohemí is a K'iche' Mayan from Momostenango, Guatemala. She is finishing an advanced degree in Bilingual Education at the Rafael Landivar University. She also has certificates in Mayan Linguistics and Mayan Glyphs. Her experience is in linguistic research, education, and culture. Marleny is presently working for Asociación Ajb'atz' Enlace Quiché, coordinating a project that uses technology to strengthen bilingual education. She formed part of the commission responsible for standardising the use of vowels in Maya-K'iche'. Her interests include use of technology to create educational materials that respond to the multiethnic, linguistic, and social needs of Guatemala. She also aspires to be a professional who breaks ground for the Mayan population, especially women and children. She recently developed an interactive CD-ROM to help other K'iche' speakers learn the written form of their language.

Udén, Maria is an engineer who works with transdisciplinary technology studies and women's projects, especially those of importance to the Arctic parts of Europe. Predominantly engaged in development and activist projects, often such that involve changes in the relations between technical expertise and society. Theoretical area of interest is feminist approaches within the engineering sciences. Current projects 2004 include being Swedish part of The Arctic Council's project "Women's Participation in Decision-making Processes in Arctic Fisheries Management", and the Internet connectivity project "Sámi Network Connectivity" (http://www.snc.sapmi.net). Since 2000 a researcher at Luleå University of Technology, Department of Human Work Sciences, where she also earned her PhD.

Uimonen, Paula has worked with ICT for development since 1997, consulting United Nations and donor agencies on the development dimension of ICT. Dr Uimonen was one of the first scholars to treat the Internet as a tool for social development and her dissertation offers an innovative analysis of Internet, globalisation and modernisation in the developing world. Dr Uimonen is currently doing research on the impact of national ICT4D strategies, while advising on the mainstreaming of ICT in development cooperation. She is also conducting an ICT user study in Tanzania, covering the integration of ICT in education, training, cultural expression and local content development. Born in Finland, Dr Uimonen grew up in Sweden and lives in Geneva, Switzerland (http://www.i-connect.ch/uimonen).

Unwin, Tim is Professor of Geography at Royal Holloway, University of London, where he has recently established an ICT4D collective (http://www.ict4d.org.uk). From 2001 to 2004 he led the UK Government's Imfundo: Partnership for IT in Education initiative based within the Department for International Development. He was previously Head of the Department of Geography at Royal Holloway, University of London. He has written or edited 13 books, and over 170 papers and other publications, including "Wine and the Vine" (Routledge, 1991), "The Place of Geography" (Longman, 1992), as well as his edited "Atlas of World Development" (Wiley, 1994) and "A European Geography" (Longman, 1998). His research has taken him to more than 25 countries across the world, and he has worked on subjects as diverse as the role of banknotes as expressions of national identity, and rural change in Central and Eastern Europe during the 1990s.

Urra, Pedro is the founder of the awarded Cuban health information network, Infomed, and the director of the National Centre for Health Information. He has worked as advisor in many ICT projects in Cuba and Latin America and the Caribbean. He integrated the group of specialists that worked for the ICT strategy that was presented by the UN Secretary to ECOSOC, and other ICT national and international initiatives. He works very close with PAHO ICT initiatives. He is also a Professor of Havana University School of Information Sciences.

Villanueva Núñez, Edgar David studied Law and Political Sciences at the Universidad Nacional Mayor de San Marcos in Lima and graduated as lawyer. At present Mr Villanueva is Vice-President of Congress for the 2003–2004 legislature. On April 9th, 2002 Congressman Villanueva presented the Draft Bill Nº 2485 regarding the Use of Free Software for the Public Administration. The international expectations and interest derived from this Draft Bill have allowed Congressman Villanueva to participate in numerous debates on this matter at the national as well as at the international level (UNCTAD Experts Meeting on E-Commerce, UNDP, World Bank, etc.). From 1985 to 1992 Mr Villanueva served as legal advisor in the Peruvian Chamber of Deputies and the Senate specialising in parliamentary management. In 1996 he founded an independent political Movement named Todas las Sangres being elected as Mayor of Andahuaylas for two consecutive periods (1996–1998 and 1998–2001). In 2001 Mr Villanueva was elected to Congress obtaining the highest number of votes in his electoral circumscription.

Wagner, Daniel A. is Professor of Education and Director of the National Center on Adult Literacy at the University of Pennsylvania, which includes the federally-funded US National Technology Laboratory for Literacy and Adult Education. He is also Director of the International Literacy Institute, co-founded by UNESCO and the University of Pennsylvania. He received his PhD in psychology at the University of Michigan, was a two-year postdoctoral fellow at Harvard University, a Visiting Fellow at the International Institute of Education Planning in Paris, a Visiting Professor at the University of Geneva (Switzerland), and a Fulbright Scholar at the University of Paris. Dr Wagner has extensive experience in national and international educational issues. He has written or edited a dozen books and more than 100 professional articles and reviews.

Ward, Monica, Dublin City University, Ireland
– Current assignment: Dublin City University, Dublin, Ireland – Lecturer in the School of Computing
– 1998–2000: Association of Personnel Serving Overseas (APSO), San Vicente, El Salvador
– Lecturer in the Departamento de Informática, Universidad de El Salvador, San Vicente,
– 1994–1998: Goldman Sachs, London, UK – Senior Software Analyst
– 1991–1994 Goldman Sachs, Tokyo, Japan – Senior Software Analyst
– 1988–1991 Ricoh Software Research Centre, Tokyo, Japan – Software Engineer
Education
– MSc Computer Applications (Thesis: A Template for the Development of CALL Programs for Endangered Languages), Dublin City University, Ireland
– BSc Computer Applications, Dublin City University, Ireland
Research Interests
– Computer Assisted Language Learning (CALL), especially for Minority and Endangered Languages
– Integration of Computational Linguistics techniques with CALL
– Computer Assisted Learning in general

Wright, Sue is a senior lecturer in the School of Languages and Social Studies at Aston University, Birmingham, UK. Her research focus is the role of language in group formation. She has published extensively on nation building and language, globalisation and language, and human rights and language. Her most recent books are "Whose Europe?" (with D. Smith), Blackwell (1999), "Community and Communication: the role of language in nation building and European integration", "Multilingual Matters" (2000) and "Language Policy and Language Planning", Palgrave-Macmillan (2004). She has recently completed the first phase of a project on language use on the Internet for Unesco and B@bel.

Yeomans, Keith was a consultant Information and Communications for Development (ICD) Adviser to the UK Government's Department for International Development, where he led in this area on the Commonwealth, the European Commission, the OECD, UN agencies and Asia. In this capacity, he chaired the UN ICT Task Force Local Content Committee and is a member of the World Summit on the Information Society ICT4D International Advisory Panel. For the past five years he has worked with international agencies and UK Government departments on policies and programmes to promote social inclusion in the global information society. He had direct experience of ICT

for development in southern Africa, South and East Asia and the Pacific. His 30 years' experience in the use of communications technology for education, public service and development included public/private project management, strategic research into policy, the international communications and media industries, communications strategy and management development for NGOs, training development broadcasters and education programme production for the BBC. Keith Yeomans sadly passed away in early 2004.

Zatlokal, Barbara is a freelance consultant in communications and publishing for development. She has worked in Asia, the Middle East, South Africa and Eastern Europe. She is a consultant in publishing management, writing (promotional and educational texts to support development work for various audiences – from public awareness campaigns to teaching manuals for development workers) and preparing reports on various broader aspects of development. Her particular fields of interest are human rights, HIV/AIDS, gender, and ICT for development.

ABOUT THE ORGANISERS: SDC AND GKP

The ICT for Development Platform consisting of an exhibition and the ICT4D Forum conferences took place from 9 to 13 December 2003 in Geneva. The biggest event within the framework of the World Summit on the Information Society (WSIS) was jointly organised by the Swiss Agency for Development and Cooperation (SDC) and the Global Knowledge Partnership (GKP). The ICT4D Division of SDC commissioned the Consultancy Firm Otto Frei AG with the overall logistical and administrative organisation of the ICT4D Platform, and Waldburger Consulting GmbH with the media-related work.

SWISS AGENCY FOR DEVELOPMENT AND COOPERATION, SDC

The SDC is Switzerland's international cooperation agency and part of the Swiss Ministry of Foreign Affairs. The SDC manages its own development projects and programmes, contributes to programmes of multilateral organisations and takes part in funding action programmes of Swiss and international aid organisations.

The main fields of action are
– bilateral and multilateral development cooperation,
– humanitarian aid including the Swiss Humanitarian Aid Unit (SHA)
– cooperation with Eastern Europe.

The SDC also ensures overall coordination of development cooperation and humanitarian aid with other responsible federal offices. About 550 employees work in Switzerland and abroad to carry out these tasks. The annual budget is CHF 1,244 million (2003). The SDC Director-General is Ambassador Walter Fust.

The SDC has always considered knowledge as a core resource for development. People-centred communication is considered essential for effective development and peace. The role of knowledge and communication has been further enhanced by the potential for networking and information exchange offered by new information and communication technologies (ICT). Therefore, SDC set up the "ICT4D Division" (ICT for Development Division; http://www.sdc.admin.ch/ict4d) which supports networks and organisations with a focus on:
– strengthening the institutional and organisational basis for effective use of ICT,

– strengthening the voice of developing countries and disadvantaged communities in the global policy dialogue,
– empowering local networks and organisations and facilitating South-South cooperation through local knowledge and content.

Contact details
Swiss Agency for Development and Cooperation, ICT4D Division
Freiburgstrasse 130, CH-3003 Berne, Switzerland
http://www.sdc.admin.ch/ict4d
ict4d@deza.admin.ch

GLOBAL KNOWLEDGE PARTNERSHIP (GKP)

The Global Knowledge Partnership (GKP) is a worldwide network committed to harnessing the potential of information and communication technologies (ICT) for sustainable and equitable development. GKP's vision is a world of equal opportunities where all people can access and use knowledge and information to improve their lives. The network enables the sharing of information, experiences and resources to help reduce poverty and empower people.

Within the GKP framework, governments, civil society groups, donor agencies, private sector companies and intergovernmental organisations come together as equals to apply ICT for development (ICT4D). Such alliances are known as 'multi-stakeholder partnerships', a relatively new approach to forging collaborations among different sectors sharing a common vision and goal.

Founded in 1997, GKP now comprises more than 80 members from 34 countries covering all continents. It is governed by an elected Executive Committee and serviced by a Secretariat based in Kuala Lumpur, Malaysia. Since 2002 the GKP Executive Committee has been chaired by Walter Fust, Director-General of the Swiss Agency for Development and Cooperation (SDC).

Contact details
Global Knowledge Partnership (GKP), Secretariat
Lot L2 - I - 4, Enterprise 4, Technology Park Malaysia
57000 Bukit Jalil, Kuala Lumpur, Malaysia
http://www.globalknowledge.org
gkps@gkps.org.my

THE INTERNATIONAL ADVISORY PANEL OF THE ICT FOR DEVELOPMENT PLATFORM

The International Advisory Panel (IAP) includes key representatives from relevant ICT for development initiatives, networks and institutions. It provides conceptual advice and promotes effective links to key networks. It is chaired by Gerolf Weigel, Head of the ICT4D Division of the Swiss Agency for Development and Cooperation (SDC).

NAME	DESIGNATION	ORGANISATION	OTHER LINKS / RELATED INITIATIVES
Abdul Rahim Rinalia	Executive Director	Global Knowledge Partnership Secretariat	– Board Member APDIP
Boyle Sharmini	Chief Editor	Young Asia Television	– Asia – Media – Youth
Browne Stephen	Chairperson UN ICT Task Force; Head ICT for Development UNDP New York	UNDP New York	– UN ICT Task Force Member
Cattaui Maria	Secretary-General	International Chamber of Commerce (ICC), The World Business Organization	– UN ICT Task Force Member – Head of the ICC Special Event on Youth Entrepreneurship
Dufborg Astrid	Minister, Special ICT Advisor	SIDA/Swedish Mission to the UN, Geneva	– UN ICT Task Force Member – Head of the UN ICT Task Force Working Group "Low Cost Access"
Fonseca Clotilde	Executive Director	Omar Dengo Foundation, Costa Rica	– UN ICT Task Force Member
Gilhooly Denis	Executive Co-Coordinator	WSIS Executive Secretariat	– Liaison IAP/WSIS Executive Secretariat

NAME	DESIGNATION	ORGANISATION	OTHER LINKS / RELATED INITIATIVES
Gomez Ricardo	Executive Director	Bellanet International	– Latin America
Gwynne Beris	Executive Director	Foundation for Development Cooperation	– Oceania – ODI/FDC/WSIS Partnership Project
Khan Abdul Waheed	Assistant Director-General for Communication and Information	UNESCO	– UN ICT Task Force Member – WSIS Consultation Process
Lanvin Bruno	Executive Manager, InfoDev	InfoDev/World Bank	– UN ICT Task Force Member
Marcelle Gillian	ICT Policy Specialist	African Information Society Gender Working Group (AISGWG)	– ITU Task Force on Gender Issues – UN ICT Task Force Member – Head of Gender Caucus – South Africa – Caribbean
Opoku-Mensah Aida	Team Leader, Promoting ICT for Development	UNECA – Economic Commission for Africa	– Africa/Ghana – Media
Samassékou Adama	President, WSIS Preparatory Committee	World Summit on the Information Society	– Africa/Mali
Stückelberger Christoph	Secretary General and Professor (Ethics)	Bread for All Switzerland	– Swiss Coalition of Development Organisations
Touré Hamadoun	Director Telecom Development Bureau	ITU Geneva	
Weigel Gerolf	Chairperson of the IAP	Swiss Agency for Development and Cooperation (SDC), Swiss Foreign Ministry	– Head of ICT4D, SDC – Representing GKP Executive Committee Chairman Mr. W. Fust
Yeomans Keith †	IAP Focal Point on Local Content and Knowledge, ICT Advisor	Department for International Development, UK (DFID)	– Head of the Local Voices Working Group / G8 Dotforce – UN ICT Task Force Member