

The Linkage Between ICT Applications and Meaningful Development

United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT)

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FOREWORD

Many countries in the Asia-Pacific region, developing and developed alike, are striking examples of the potential of information and communication technology (ICT) as an engine for accelerating economic growth and creating new opportunities for inclusive development. Through its effective use, ICT offers tremendous scope to deliver the gains of development to the most vulnerable and marginalized sections of society. For instance, local village artisans can bypass middlemen and realize higher income by marketing their craft online, or students in remote townships can access the latest knowledge resources and apply for higher education through the Internet. Such examples illustrate the power of ICT to leapfrog spatial as well as socio-economic barriers.

Unfortunately Asia Pacific continues to be a region of great disparities. Significant differences in ICT access exist between developed and developing countries. Japan and Korea account for 70% of mobile broadband

users. With 680 million poor in our region, the digital divide between rich and poor highlights the untapped potential of ICT for promoting more inclusive development. The Economic and Social Commission for Asia and the Pacific (ESCAP) has been actively promoting economic and social connectivity through ICT and intensifying efforts for regional cooperation in this area. Active national leadership and support is central to effectively implementing and sustaining ICT for development programmes that target the poor and vulnerable. For this purpose, building capacities at the national level and taking concrete steps for sensitization of policymakers and senior levels of government in use of ICT for development acquires critical importance.

The Asian and Pacific Training Centre for ICT for Development (APCICT), a regional institute of ESCAP, has been fostering greater awareness of the potential of ICT for socio-economic development through its 'Academy of ICT Essentials for Government Leaders' programme. The programme has been successfully rolled



Noeleen Heyzer
Under-Secretary-General of the United Nations
and Executive Secretary of ESCAP

out in many countries of the region and continues to gather momentum. To complement this effort, APCICT's Briefing Note Series aims to present a concise and useful resource to apprise decision-makers of current information and analyses relevant for framing policies in the domain of ICT for development. I trust this Series will serve to further the goal of bridging the digital divide.

Summary

This briefing note focuses on ways in which information and communications technologies (ICTs), particularly computer and Web-based digital technologies, can be used to promote sustainable social and economic development and achieve the Millennium Development Goals. A framework for understanding the linkages between and among various development sectors and ICTs is provided, followed by a discussion of the different roles that ICTs can play in reducing poverty, providing education and healthcare for all, promoting gender equality, and coping with environmental change and extreme climate events.

This briefing note is drawn from the first module of the Academy of ICT Essentials for Government Leaders (Academy). The Academy is a comprehensive ICT for development training curriculum that aims to equip policymakers with the essential knowledge and skills to fully leverage opportunities presented by ICTs to achieve

national development goals and bridge the digital divide. More information on the Academy is available at <http://www.unapcict.org/academy>.

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Module 1 - The Linkage between ICT Applications and Meaningful Development

Highlights key issues and decision points, from policy to implementation, in the use of ICTs for achieving the Millennium Development Goals.

The APCICT Briefing Note Series aims to provide at-a-glance information on key information and communication technology for development (ICTD) agendas for high-level policymakers and stakeholders. The series includes: 1) highlights of conventional research papers, assessment and survey reports

and publications; 2) policy considerations drawn from the Academy modules; and 3) key challenges and lessons learned based on analyses of best practices and case studies.

1 Introduction

The development challenge that the Asia Pacific region poses to the global community of donors, development agencies and practitioners is massive. There is no one-size-fits-all, and a solution that works admirably in one country can fail miserably in another part of the same region.

There is a need, therefore, for each country to find innovative approaches and solutions to address specific developmental needs. In the era of the knowledge society, cutting-edge applications of

information and communications technologies (ICTs) make possible such innovative approaches and out-of-the-box solutions, and can place developing countries on a path of rapid growth, as for example in China and India.

This briefing note discusses ways in which ICT applications, particularly computer and Web-based digital technologies, can be used to promote sustainable social and economic development and achieve the Millennium Development Goals (MDGs). Special attention is given to the meaningful application of ICTs in addressing the needs of island, mountainous, landlocked, and least developed countries.

2 The MDGs in Brief



(UN Photo/Devra Berkowitz)

Secretary-General Ban Ki-moon (front, second from left) presents "Keeping the Promise", his report for September 2010's High-level Plenary Meeting on the Millennium Development Goals (MDGs), at an informal meeting of the General Assembly in United Nations, New York. (March 2010)

The human development approach, which focuses on development within a human rights framework, is currently the globally accepted concept of development. This approach is embedded in the Millennium Development Goals, accepted by the global community as a plan of action. Further thinking on development policies has led to a focus on inclusive, equitable, improved quality, and participatory processes in development.

Poor governance, poor policy choices, corruption and denial of human rights are factors impeding rapid progress. For human development efforts to succeed, it is necessary to understand the various stakeholders in the development process and the linkage between these different sectors of society.

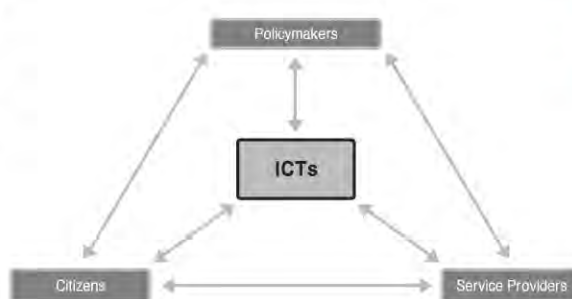


Figure 1: The link between ICTs and various sectors of government and society

Citizens, such as patients in a hospital, students in schools, and consumers of water and electricity, are the people that government exists to serve. They are the clients as they pay for these services, either through taxes or through user charges levied by the state.

The service providers are the agencies or offices (public or private) that citizens go to for services. Examples include the electricity, water and sanitation supply boards, schools, and hospitals.

Policymakers can be identified as elected officials and government officials who are in a position to set policies and determine courses of action, and who have supervisory, monitoring, and disciplining authority over service providers, including the mandate to reward or penalize based on performance.

The link between all three major players can be accelerated, improved, and made more efficient and effective through the use of ICTs. Indeed, within the last decade, the ability to effectively use computers and the Internet has become a key driver of the rapid development of several Asian countries. ICTs can be used to provide improved and equitable delivery of services; facilitate complex planning processes and coordination across sectors and enable increased information sharing, outreach, and monitoring of key efforts. When ICTs are used to facilitate integrated approaches and cost-effective scalable solutions, the total implementation and operational costs are likely to be lower.

3 Applying ICTs to Meet Development Goals

ICTs by their very nature are cross-cutting and their application may be multi-sectoral and multi-pronged. For instance, while ICT deployment for poverty reduction may focus on providing income-generating opportunities, it can also help bring women into the mainstream of economic activity, thus addressing a parallel development goal. However, for purposes of discussion, this section describes the various applications of ICT with special reference to their role in helping to achieve a specific development goal or target. The goals are segmented into sectors of development.

There are two approaches to the deployment of ICTs. The direct approach targets the ultimate beneficiaries and uses ICTs to directly link them with the service providers. The indirect approach is supportive - i.e. it targets the development of policies, infrastructure, support systems and content, which in turn is expected to benefit the ultimate beneficiaries. Both approaches are critical to the achievement of development goals, but each has a different design at the policy and implementation levels. An effort will be made to look at both types of interventions, within the context of the MDGs.

ICTs and Poverty Reduction. ICTs have an important role in spurring economic growth, which in turn impacts poverty reduction. There is evidence that business and industry have benefited the most from the information revolution. ICT infrastructure and human resources development have given rise to high growth rates in countries like China and India, transforming them into powerful economies.

Industry and private sector-led growth supported by ICTs has in some cases contributed to poverty reduction. However, the poor have benefited less from this type of development than the non-poor. Governments need to address poverty directly and not just through interventions in the economy to spur growth that will eventually benefit the poor.

Both direct and indirect ICT interventions - i.e. using ICTs to deliver services directly to

the poor are important poverty alleviation strategies. Equally important for addressing the multi-dimensional aspects of poverty are the creation of effective ICT-based systems for supporting large public programmes addressing poverty issues. Global best practices in using ICTs to address poverty reduction goals include India's Mahatma Gandhi National Rural Employment Guarantee Act

ICTs and Education. The impact of ICTs on education has been second only to their impact on business practices around the world. A broad survey of national efforts shows that the use of ICTs in education is as extensive as it is diverse. ICTs can provide marginalized groups access to schools and educational resources, enhance the quality of teaching and learning, and improve administrative and instructional efficiency.



Young women from Sri Lanka utilizing ICT at a local telecentre.

The potential benefits of ICTs are more likely to be realized when ICTs are introduced in the context of system-wide reform in educational policies and practices. Real learning gains and the improvement of an education system will take place only when all of the elements of educational change, from policies and practices, to teachers, learners and other stakeholders, come together.

ICTs and Gender Equality. Access to ICTs for women and girls remains limited even today. The widening technological gap between women and men has been observed to reinforce traditional forms of power dynamics. As ICTs are increasingly becoming a major tool of social participation and economic productivity, failure to equip women with ICT skills will marginalize them further.

It is true that some women have used ICTs

to directly engage in e-commerce, and access education and e-government, but the technology by itself cannot change the power structures that are deeply embedded in society.

Some initiatives have sought to empower women by building their capacity not only to access and use technologies, but also to participate in their design, influence their content, and shape their uses. ICTs can also facilitate women's participation in government and political affairs by providing a communications platform to exchange opinions, to articulate and aggregate interests, and to engage political leaders in women's issues. Women's advocacy groups can effectively use ICTs to network and connect with each other, and to mobilize public opinion.

ICTs and Health. There are two main categories of stakeholders in the health sector who can benefit from ICT support. The first category includes those for whom health services are intended. The second category includes health care providers; medical professionals such as doctors, nurses and caregivers; researchers and health managers; and policymakers in the area of health care. For the first group, ICT interventions can be direct, linking patients to expert medical services. For the second group of stakeholders, ICT interventions can be indirect and supportive through the creation of health monitoring systems or continuing professional education. Both types of ICT interventions are important.

Using ICTs to link doctors to poor patients in rural areas has a direct and significant impact on the quality and reach of a country's health services. But using ICTs to improve the quality of health care education and administration is equally important as health care education and administration impact upon the provision of health services. In many developing countries there is a lack of a critical mass of health care professionals, including doctor educators for teaching hospitals. Access to important medical literature is limited for both medical students and health workers who must keep abreast of the latest developments through continuing medical education and training. ICTs have a key role to play in meeting these needs. For example, an initiative started by a young doctor in India is providing medical content

in multimedia format both online and offline to a large clientele of medical students, aspiring doctors and practicing health professionals. Global networks are providing access to medical journals and to vast online libraries either for free or at a substantially reduced subscription fee. The World Health Organization (WHO)-supported Web portal (HINARI) is a global effort to provide support to health professionals and policymakers worldwide.

Another critical application of ICT in health is the deployment of ICT-based surveillance systems for the prevention, reporting and monitoring of diseases such as HIV/AIDS, malaria, tuberculosis and leprosy. The availability of such systems has enabled both international agencies and national governments to monitor outbreaks of diseases across international borders. For instance, addressing protection against and treatment of quickly spreading diseases such as SARS and the avian flu has been possible only because of ICT-based health surveillance systems.

ICTs, the Environment and Disaster Risk Management. ICTs have a major role to play in addressing environmental issues and reducing disaster risks, whether through GIS systems for the mapping of natural resources or to draw sharp attention to the consequences of deforestation. For island and other remote areas, integrated planning and management systems using ICTs could be very useful.

Further, the use of ICTs, hardware, tools and applications can go a long way in reducing the carbon footprint of many development and government sectors by enhancing their energy and material use efficiency. In addition, by using "green and cool ICTs", countries can reduce the carbon emissions of the ICTs, and thus contribute to climate change abatement through digitization and dematerialization.

ICTs and Good Governance. Among the most common and successful applications of ICTD are in e-Government, i.e. the use of ICTs to speed up, simplify, and improve the quality of service delivery to the citizenry. Online tax payments systems, and online procurement systems can go a long way to improve government efficiency while reducing corruption and increasing government transparency.

4 The Role of Policymakers

The high-target countries of the Asia-Pacific region have several common characteristics-small, isolated, and dispersed populations and markets, with limited human and technological resources. An increased vulnerability to the forces of nature on the one hand, and the winds of globalization, liberalization and privatization sweeping the world on the other hand, characterize these countries. Some of these countries are surrounded by economically and politically powerful neighbours and few are free from ethnic conflicts that threaten to destroy whatever small gains have been made over many decades of development.

Almost all of the conditions that pose severe challenges for development can benefit from the application of ICTs. No matter what approach a country takes to address its development goals, the usefulness of ICTs cannot be over emphasized. Yet successful and effective use of ICTs depends heavily on sustained political, policy, and administrative support from elected officials, and policymakers. It is they who will drive the agenda for development.

The experience with ICT interventions in different sectors - economy, education, health and disaster management - in developing countries shows that the role of policymakers is critical. Where success has been achieved, it has been made possible because of:

- Political commitment and leadership by the head of the government and senior policy and decision makers in government.
- An enabling policy and legislative environment delineating a clear ICTD policy and processes.
- Clarity in goals, and in an understanding of the role of ICTs in accelerating the planning and implementation of ICTD projects.
- The establishment of empowered committees of senior government officials who meet frequently and regularly to monitor progress, take decisions and resolve problems
- Public-private partnerships between the government who provides the guidelines and the industry that provides the services

- The setting up of special project implementation units in all departments
- Sustained training and capacity building of government officials
- Ongoing monitoring and review of the processes, and independent evaluations conducted by reputed institutions



Panel participants from developing countries present at the "Global Forum on Building Inclusive Internet Economy: Developing Countries Perspectives," organized by UN-APCICT/ESCAP as a lead-up event to the OECD Ministerial Meeting held in Seoul, Republic of Korea. (June 2008)

5 Conclusion

ICT-based development interventions are different from programmes that governments have attempted before. They include not just computers and the applications, but also new ways of thinking and doing things. They go beyond putting software and applications in place, and require large-scale reform and restructuring of government and how it works. In this restructuring, the sustained commitment and leadership of policymakers is an absolute must.

UN-APCICT / ESCAP

APCICT, a regional institute of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), was established and inaugurated on 16 June 2006 in Incheon, Republic of Korea. The role and mission of APCICT is to strengthen the efforts of the 62 ESCAP member and associate member countries to use ICTs in their socio-economic development through building the human and institutional capacity for ICT. In pursuance of this mandate, APCICT's work is focused on three inter-related pillars - Training, Advisory Services and Research. The Briefing Note Series is part of the research

pillar. Also under the research pillar is a Case Study Series that provides analyses and compilations of best practices and case studies on different aspects of ICTD and capacity building in the Asia Pacific region.
<http://www.unapcict.org>

ESCAP

ESCAP is the regional development arm of the United Nations and serves as the main economic and social development centre for the United Nations in Asia and the Pacific. Its mandate is to foster cooperation between its 53 members and 9 associate members. ESCAP provides the strategic link between global and country-level programmes and issues. It supports Governments of countries in the region in consolidating regional positions and advocates regional approaches to meeting the region's unique socio-economic challenges in a globalizing world. The ESCAP office is located at Bangkok, Thailand.

<http://www.unescap.org>

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