



# Digital Dividends for the Poor

## ICT for Poverty Reduction in Asia

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## List of Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ASEAN	Association of South East Asian Nations
CBO	Community-based Organisation
CIS	Commonwealth of Independent States
DFID	Department for International Development (UK Government)
FDC	The Foundation for Development Cooperation
GDP	Gross Domestic Product
GKP	Global Knowledge Partnership Network
HIV	Human Immunodeficiency Virus
HDI	Human Development Index
HPI	Human Poverty Index
ICT	Information and Communication Technology
IDRC	International Development Research Centre
IT	Information Technology
ISP	Internet Service Provider
MDG	Millennium Development Goal
MIS	Management Information System
NGO	Non-government Organisation
OECD	Organisation for Economic Cooperation and Development
PPP	Purchasing Power Parity
SAR	Special Autonomous Region
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Program
UNIFEM	United Nations Development Fund for Women
USD	United States Dollar
WSIS	World Summit on Information Society

## Executive Summary

Poverty in Asia is pervasive, massive, resilient and complex. Approximately 24 per cent of the population of developing countries in Asia, or about 760 million people, live in poverty. South Asia accounts for 61 per cent of Asia's poor. Even if poverty is reduced by 25 per cent in India over the next decade, there will still be more than 300 million people living in poverty in that country. A major threat to poverty reduction in Asia is a looming HIV/AIDS crisis. Poverty reduction efforts are therefore urgent and we need to do much better than we are at present.

In order to give focus to the task of poverty reduction, the UN has defined eight Millennium Development Goals to be achieved by 2015. The goals cover areas such as income, education, gender equality, health, environmental sustainability and partnerships for development. The WSIS Asia-Pacific Regional Conference (January, 2003) endorsed the important role that ICTs can play in achieving these goals. Accordingly, the case studies presented in this paper are organised into categories corresponding to these goals.

ICTs are defined as *'technologies that facilitate communication and the processing and transmission of information by electronic means'* (DFID). An ICT is a tool for poverty reduction when it is applied to meet the information and communication needs of the poor. However, the specific technology that is applied is less relevant than questions about freedom of expression, social and economic impact, inclusiveness, outreach and sustainability.

In statistical terms, the poorest people in Asia presently have no meaningful access to the Internet and limited prospect of gaining access in the short term. Therefore, using the Internet to target *directly* the information and communication needs of the poorest people is unlikely to be a successful strategy for poverty reduction. However, strategies that target community intermediaries can have significant impact.

Long before 'ICT for Development / Poverty Reduction' became fashionable, 'old' technologies like radio and television have been used to disseminate information among the poor. As a medium for delivering information directly to the poor, these technologies can achieve far wider outreach at much lower cost than Internet-based approaches. However, comparison of different ICTs should not be restricted to outreach and cost considerations. An important area of innovation in ICT for Poverty Reduction is to exploit the particular strengths of different ICTs by combining them to deliver a more complete communication package.

Since poverty is complex and multi-faceted, a cooperative approach from stakeholders in all sectors of society is needed to combat it. Government (enabling policy and regulation), civil society (connection to grass-roots), private sector (technical expertise, business acumen, product and market development), academia (research and dissemination) and networks (knowledge sharing, partnership building) all have important roles to play.

Impact analysis is crucial. Unless an initiative can demonstrate positive impact there is little point in allocating resources to expand or replicate it. However, impact evaluation of ICT for Poverty Reduction initiatives is problematic because most initiatives utilise ICTs as tools in a broader strategy rather than as 'solutions' in themselves. A key issue is the extent to which the application of ICT brings competitive advantage in comparison to projects with similar goals that do not use ICT in the same way. Pilot projects also need to demonstrate absence of negative social impacts.

Best Practices in ICT for Poverty Reduction include targeting the poor, expandability/replicability, sustainability, multi-sector partnerships, community engagement, gender sensitivity, cultural/social sensitivity, innovative combination of ICTs, and human capacity building.

## Introduction

Article 19 of the 1948 Universal Declaration of Human Rights states *that 'everyone has the right to seek, receive and impart information and ideas through any media'*. When Article 19 was formulated the mass media was print and, to a lesser extent, radio. Televisions and telephones were not yet popularised. Computers and satellites were objects of science fiction. In less than half a century since 1948, all of these technologies have become a part of everyday life for millions of people around the world. Humankind is in the midst of an information revolution empowered by Information and Communication Technology (ICT).

Over the last few decades, vast resources have been invested to extend the reach and application of ICTs. Many hope that ICTs will have a very positive impact for poverty reduction. These techno-evangelists proclaim ICTs as 'engines for growth' and 'powerful tools' for poverty reduction. In some parts of the world this is true; in other parts, the rhetoric is way ahead of reality. Furthermore, some commentators have expressed concern that the rapid emergence of ICTs is just as likely to widen the gap between rich and poor. The task of making access to ICTs a practical reality for all, including the poor, is becoming more urgent every day.

This paper discusses the role of ICTs in poverty reduction. It is organised into three sections. The first section focuses on poverty in Asia. The discussion begins by highlighting the important distinction between 'development' and 'poverty reduction'. The UNDP's Human Poverty Index is used as the basis for analysing poverty in Asia. There are a number of pertinent questions. How pervasive is poverty in Asia? Is poverty concentrated in certain countries or sub-regions? Is poverty being successfully reduced? Are there any particular threats to poverty reduction?

Poverty is a complex web of interacting dimensions. A holistic approach to poverty reduction is therefore required. In recognition of this, the UN has defined eight Millennium Development Goals, each of which relates to a different dimension of poverty. These goals are discussed.

The second section of this paper focuses on issues surrounding the application of ICTs for poverty reduction. Issues include the importance of focusing on information and communication needs rather than on technology, comparison of the different strengths and weaknesses of various ICTs, access and outreach, economic and social impact, the importance of multi-sector partnerships, etc.

Section two concludes with analysis of Best Practices in ICT for Poverty Reduction. 'Best practice' is a relative term because on-going experimentation continually informs our understanding of what best practices are. Best Practices are derived from a number of sources including reflections on the nature of poverty, community development principles, theories of communication and learning, and observations from ICT case studies.

The third section of this paper is a number of ICT for Poverty Reduction case studies, organised generally according to the categories of the Millennium Development Goals. Each case study describes the particular application of ICT and discusses targeting the poor, outreach, expandability/replicability, and sustainability.

# 1. Poverty in Asia

## Distinguishing ‘Poverty Reduction’ from ‘Development’

The United Nations Development Programme (UNDP) uses a number of indices to quantify human development and human poverty. The Human Development Index (HDI) was introduced in 1990. The HDI is a conglomerate measure of national achievement in the areas of health, education and income. Using this index, the UNDP categorises the nations of the world as high, medium, and low development countries. This paper focuses on medium and low development countries in Asia, which includes Bangladesh, Cambodia, China, India, Indonesia, Laos, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam.<sup>1</sup>

The HDI is a national average figure, which means that disparity within each national population is obscured. In part response to the limitations of the HDI, the UNDP introduced the Human Poverty Index (HPI) in 1997. The fundamental difference between the HDI and HPI is that, whereas the HDI quantifies national development *achievement*, the HPI gives an indication of the *deprivation* faced by the most disadvantaged members of each national population.<sup>2</sup> Since this paper is concerned with poverty in Asia, the HPI is used for analysis of the poverty situation in the region.

While the HDI and HPI both consist of longevity, knowledge and standard of living dimensions, the individual components that make up each dimension are different (Table 1).

DIMENSION	HDI COMPONENTS	HPI-1 COMPONENTS
LONGEVITY	Life expectancy at birth.	Probability at birth of not surviving to age 40.
KNOWLEDGE	Weighted average of two variables: 1. Adult literacy rate (Two-thirds weight). 2. Combined primary, secondary and tertiary gross enrolment ratio (One-third weight).	Adult illiteracy rate (% age 15 and above).
STANDARD OF LIVING	Adjusted GDP per capita (PPP USD).	Unweighted average of two variables: <sup>3</sup> 1. Population not using improved water sources (%). 2. Underweight children under age five (%).

Table 1 Components of the HDI and HPI

Development and poverty reduction are not synonymous. It is possible for a country to develop even while the poverty situation remains static. On the other hand, it is important to note that no country has been successful in reducing poverty without achieving development in the broader sense. Therefore, although this paper discusses strategies to reduce poverty in the immediate term, these strategies cannot be taken up in isolation from broader, long-term development strategies that are necessary if poverty reduction is to be sustained. Poverty reduction and development strategies need to be implemented in parallel.

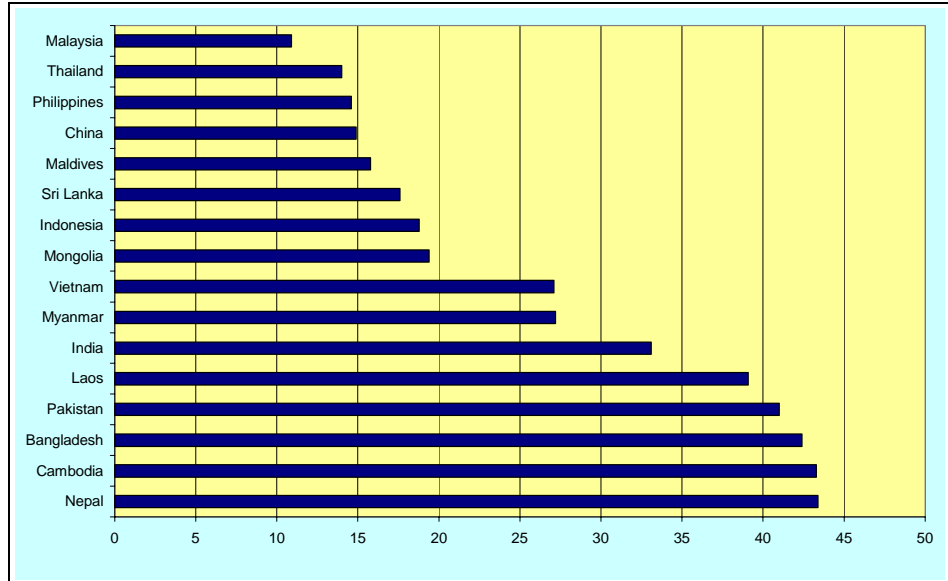
<sup>1</sup> Afghanistan, Bhutan, East Timor and North Korea are not included in the discussion due to lack of data. High development countries in Asia (Brunei Darussalam, Hong Kong SAR, Japan, Republic of Korea, Singapore) have not been included in the discussion.

<sup>2</sup> The UNDP employs two versions of the HPI. HPI-1 is used for non-OECD countries. HPI-2 is used for OECD, Central and Eastern Europe and CIS countries. HPI-1 and HPI-2 have slightly different components and HPI-2 has an additional dimension (‘social exclusion’ measured as long-term unemployment rate).

<sup>3</sup> The original HPI included a third factor in the ‘standard of living’ dimension – per cent of population without access to health services. This factor has been omitted since 2001 due to lack of reliable data. For an explanation of why ‘income’ does not figure in HPI-1, see: UNDP. 1997. *The Human Development Report*. Oxford University Press. New York. p18.

## Country and Sub-Regional Comparisons

Approximately 24 per cent of the population of developing countries in Asia, or about 760 million people, live in poverty. Nepal has the worst HPI at 43 per cent. All countries except Malaysia, Thailand, Philippines and China have a HPI greater than 15 per cent (Figure 1).

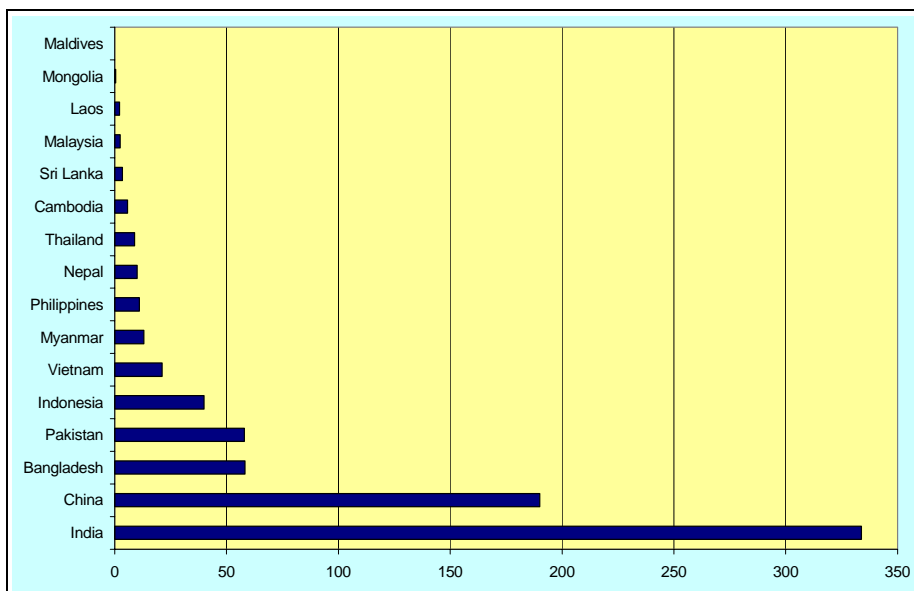


**Figure 1 Human poverty in developing Asia HPI %**  
(Source: UNDP. 2002. *Human Development Report*)

With respect to the individual components of the HPI:

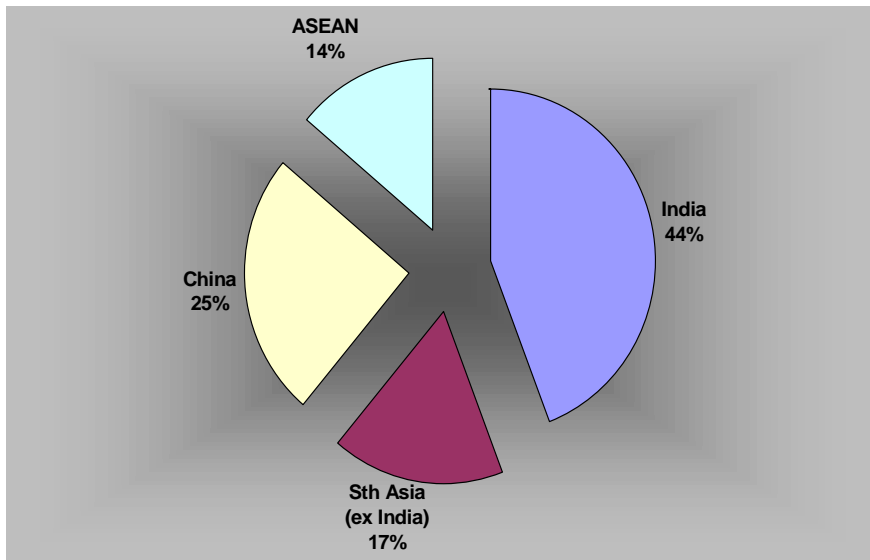
- 30 per cent of Laotians do not survive to age 40.
- 60 per cent of Bangladeshi adults are illiterate.
- 70 per cent of Cambodians are not using improved water sources.
- 48 per cent of Bangladeshi children under age five are underweight.

Another important perspective is the absolute number of people living in poverty (Figure 2). India is by far the worst case, with more than 330 million people living in poverty. South Asia accounts for 61 per cent of Asia's poor (Figure 3).



**Figure 2 Human poverty in developing Asia (millions)**  
(Source: UNDP. 2002. *Human Development Report*)



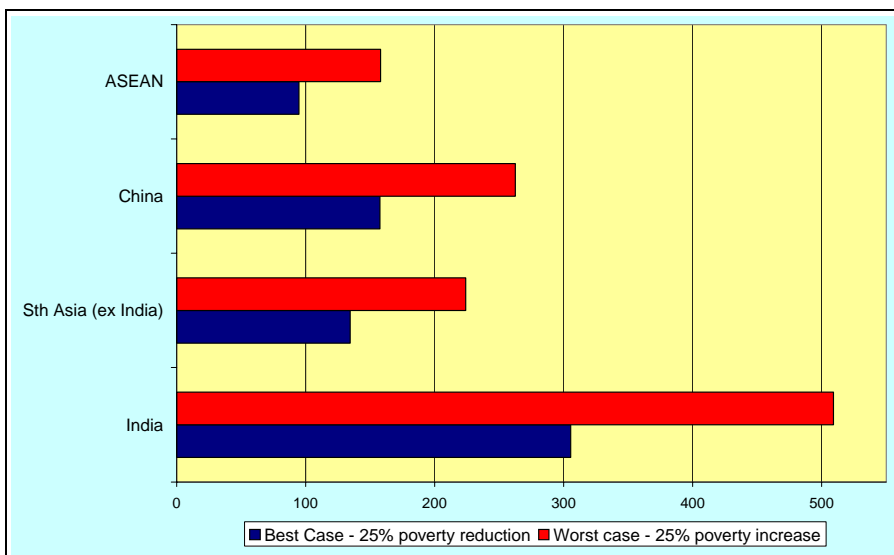


**Figure 3 Distribution of poverty in Asia**  
(Source: UNDP. 2002. *Human Development Report*)

### Poverty Projections to 2015<sup>4</sup>

While every developing country in Asia has exhibited improvement in its HDI since 1975, there is limited data to provide a complete and accurate indication of trends in the HPI. However, the data that is available suggests that, over the last five years or so, poverty in developing countries in Asia has been reduced by the order of 10 per cent.<sup>5</sup>

An important question is the likely rate of poverty reduction (or increase) in the years ahead. Figure 4 shows the projected number of people living in poverty in developing countries in Asia in 2015. Two projections have been made. The best-case scenario assumes a decrease in poverty of 25 per cent in the years leading up to 2015. This is in line with current poverty reduction trends. The worst-case scenario assumes an increase in poverty of 25 per cent.



**Figure 4 2015 projected poverty in Asia (millions)**  
(Source: UNDP. 2002. *Human Development Report*)

When combined with current population growth rates, the best-case scenario suggests that there will still be more than 300 million people living in poverty in India in 2015. The worst-case scenario makes that number in excess of 500 million. These figures give some indication of the resilience of poverty, the urgency of poverty reduction efforts, and the need to do much better than we are at present.

<sup>4</sup> 2015 is chosen because this is the sunset year for the Millennium Development Goals (see below).

<sup>5</sup> UNDP. 1995-2002. *Human Development Report*. Oxford University Press. New York.

## The Threat of HIV/AIDS

Perhaps the greatest threat to poverty reduction in Asia is the possibility of a HIV/AIDS crisis. In terms of per cent adult HIV infection, the figures for Asian countries are low in comparison to countries of sub-Saharan Africa.<sup>6</sup> Cambodia's HIV infection rate is worst at 2.7 per cent but most other developing countries in Asia have an infection rate of less than 0.5 per cent. However, the national average figures are misleading and should not be taken to indicate that HIV/AIDS is not a significant threat to poverty reduction in Asia.

Current predictions for the spread of HIV in India suggest that, although the national adult infection rate is projected to be 'only' four per cent in 2010, this would represent between 20-25 million people. In absolute terms, this is higher than for any other country in the world. Similarly, China is projected to have 10-15 million HIV-infected people by 2010.<sup>7</sup>

National average figures for HIV infection are of little significance in that it is localised trends within specific high-risk groups that give impetus to the spread of the virus. Indonesia is an example of this. Until 1999, HIV infection in Indonesia was less than 0.1 per cent, even among high-risk groups. Since then, infection rates among high-risk groups have been found to be as high as 40 per cent in some areas of Jakarta. While these figures have little impact on the national average, they represent the accumulation of momentum for spread of HIV in the wider community.<sup>8</sup>

Addressing the 2002 East Asia Economic Summit of the World Economic Forum, the UNAIDS Executive Director warned that:

*The epidemic in Asia threatens to become the largest in the world ... With more than half the world's population, the region must treat AIDS as an issue of regional urgency. The question is no longer whether Asia will have a major epidemic, but rather how massive it will be.*

Warnings such as this raise doubt as to whether current rates of poverty reduction in Asia can be sustained. The worst-case scenario mentioned above might be closer to reality in some countries.

## The Millennium Development Goals

In order to give focus to the task of poverty reduction, the UN has defined eight Millennium Development Goals (MDGs) to be achieved by 2015. Most of the MDGs have quantifiable targets against which progress can be measured (Table 2). The MDGs represent a broader view of poverty than does the HPI, covering areas such as income and consumption, education, gender equality, health, environmental sustainability and partnerships for development. The actual targets are a mixture of average *achievement* targets (e.g. adult literacy rates) and *deprivation* targets (e.g. proportion of population earning less than USD 1 per day). In this sense, some of the MDGs are, strictly speaking, poverty reduction goals rather than development goals.

GOAL	TARGETS	INDICATORS
1. ERADICATE EXTREME POVERTY AND HUNGER	Halve, between 1990 and 2015, the proportion of people whose income is less than USD 1 a day. Halve, between 1990 and 2015, the proportion of people who suffer from hunger.	Proportion of population earning below USD 1 a day. Poverty gap ratio (incidence x depth of poverty). Share of poorest quintile in national consumption.  Prevalence of underweight children (under 5 years). Proportion of population below minimum dietary consumption.

<sup>6</sup> For example, Botswana's infection rate is 38.8 per cent; Zimbabwe's is 33.7 per cent.

<sup>7</sup> D.F. Gordon. 2002. *The Next Wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India and China*. US National Intelligence Council. p3.

<sup>8</sup> MAP. 2001. *The Status and Trends of HIV/AIDS/STI Epidemics in Asia and the Pacific*. Monitoring the AIDS Epidemic. pp 2-3.

GOAL	TARGETS	INDICATORS
<b>2. ACHIEVE UNIVERSAL PRIMARY EDUCATION</b>	Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.	Net enrolment ratio in primary education. Proportion of pupils starting grade 1 who reach grade 5. Literacy rate of 15 to 24-year-olds.
<b>3. PROMOTE GENDER EQUALITY AND EMPOWER WOMEN</b>	Eliminate gender disparity in primary and secondary education preferably by 2005 and in all levels of education no later than 2015.	Ratio of girls to boys in primary, secondary, tertiary education. Ratio of literate females to males among 15-24 year-olds. Share of women in wage employment in non-agricultural sector. Proportion of seats held by women in national parliament.
<b>4. REDUCE CHILD MORTALITY</b>	Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.	Under-five mortality rate. Infant mortality rate. Proportion of one-year-old children immunised against measles.
<b>5. IMPROVE MATERNAL HEALTH</b>	Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio.	Maternal mortality ratio. Proportion of births attended by skilled health personnel.
<b>6. COMBAT HIV/AIDS, MALARIA, AND OTHER DISEASES</b>	Have halted by 2015 and begun to reverse the spread of HIV/AIDS.  Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.	HIV prevalence among 15- to 24-year-old pregnant women. Contraceptive prevalence rate. Number of children orphaned by HIV/AIDS.  Prevalence and death rates associated with malaria. Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures. Prevalence and death rates associated with tuberculosis. Proportion of TB cases detected and cured under DOTS.
<b>7. ENSURE ENVIRONMENTAL SUSTAINABILITY</b>	Integrate the principles of sustainable development into country policies and program and reverse the loss of environmental resources.  Halve, by 2015, the proportion of people without sustainable access to safe drinking water.  Have achieved, by 2020, a significant improvement in the lives of at least 100 million slum dwellers.	Change in land area covered by forest. Land area protected to maintain biological diversity. GDP per unit of energy use. Carbon dioxide emissions (per capita).  Proportion of population with sustainable access to an improved water source.  Proportion of population with access to improved sanitation. Proportion of population with access to secure tenure.
<b>8. DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT</b>	Develop further an open, rule-based, predictable, non-discriminatory trading and financial system.	

**Table 2 Millennium Development Goals**  
(Source: [www.developmentgoals.org](http://www.developmentgoals.org))

It is difficult to judge the extent to which countries in Asia are tracking against MDG targets because data is lacking for many countries and in many areas. Analysis of the data that is available suggests that progress is generally behind schedule and, in many cases, far behind schedule (Table 3). Furthermore, warnings concerning the prospect of a major AIDS epidemic in Asia raise concern that MDG #6 will not be met. If this is the case, it will impact negatively on efforts to achieve other targets.

The 2003 WSIS Asia-Pacific Regional Conference endorsed the important role that ICTs can play in achieving the MDG targets. The UNDP Special Advisor for ICT4D initiatives, Mr. Denis Gilhooly, stated that *'it is difficult to see how the MDGs will be achieved without innovative and widespread application of ICTs'*. In light of these endorsements, the ICT case studies presented in this paper are organised into categories corresponding generally to the MDGs.

COUNTRY	UNDER-NOURISHED PEOPLE	NET PRIMARY ENROLMENT RATIO	CHILDREN REACHING GRADE 5	FEMALE GROSS PRIMARY ENROLMENT RATIO	FEMALE GROSS SECONDARY ENROLMENT RATIO	UNDER 5 MORTALITY RATE	POPULATION USING IMPROVED WATER SOURCES
BANGLADESH	Far behind	.....	.....	.....	.....	On track	Achieved
CAMBODIA	On track	On track	.....	.....	Lagging	Slipping back	.....
CHINA	On track	Achieved	On track	Achieved	On track	Far behind	Far behind
INDIA	Far behind	.....	.....	On track	Far behind	Lagging	On track
INDONESIA	On track	On track	On track	On track	On track	On track	On track
LAOS	Far behind	On track	.....	On track	Far behind	On track	On track
MALAYSIA	.....	Achieved	.....	Achieved	Achieved	On track	.....
MALDIVES	.....	.....	.....	On track	Achieved	On track	On track
MONGOLIA	Slipping back	.....	Achieved	Achieved	Achieved	On track	.....
MYANMAR	On track	.....	.....	.....	.....	Far behind	Far behind
NEPAL	Far behind	.....	.....	On track	On track	On track	On track
PAKISTAN	On track	.....	.....	.....	.....	Far behind	On track
PHILIPPINES	Far behind	Achieved	.....	On track	Achieved	On track	Far behind
SRI LANKA	On track	.....	.....	On track	Achieved	On track	Achieved
THAILAND	On track	.....	.....	.....	.....	On track	On track
VIET NAM	On track	.....	.....	On track	On track	Lagging	Lagging

**Table 3 Progress towards achieving MDG targets by developing countries in Asia.**  
(Source: UNDP. 2002. *Human Development Report*).

## Summary and Implications

### a) Target the needs of the poorest.

Development and poverty reduction are not synonymous. It is possible for a country to develop even while the poverty situation remains static. This is because development is a conglomerate national average, whereas poverty represents the deprivation faced by the most disadvantaged people in a community. Poverty reduction initiatives target specifically the needs of the poorest people.

### b) Poverty in Asia is pervasive and massive.

Approximately 24 per cent of the population of developing countries in Asia, or about 760 million people, live in poverty. Implications of this include:

1. If poverty is to be significantly reduced, poverty reduction initiatives need to reach the masses of the poor. We continually seek opportunities to extend the outreach of successful initiatives through expansion or replication.
2. To be candidates for expansion or replication, poverty reduction initiatives need to demonstrate positive impact in terms of sustainable improvement in the lives of the poor.
3. Further experimentation and innovation is needed to improve effectiveness of poverty reduction efforts. This should include pilot programs, evaluation and dissemination of research findings.

**c) Poverty in Asia is resilient.**

Poverty is a resilient phenomenon that will not be overcome easily. In spite of some evidence that poverty is being reduced, it is not being reduced quickly enough for the millions of people that are burdened by it. Poverty reduction initiatives therefore need to demonstrate organisational and financial sustainability, so that their impact can be maintained. Initiatives that are here today but gone tomorrow are not particularly helpful.

**d) Poverty in Asia is complex and multi-faceted.**

Poverty is a complex web of interacting dimensions. Implications of this include:

1. Since poverty is multi-faceted, so are the responses to it. A holistic approach to poverty reduction is required. This is why the MDGs relate to eight different aspects of poverty, each with multiple indicators of progress.
2. A cooperative approach from stakeholders in all sectors of society is needed to combat it. Government, civil society, private sector, academia and networks all have important roles to play.

## 2. ICT and Poverty Reduction

### Digital Dividend or Digital Divide?

ICTs are a significant factor in the current trend of cultural and economic globalisation. Over the last few decades, vast resources have been invested to extend the reach and application of ICTs. Proponents of this 'information revolution' cite potential benefits in a wide range of areas and many hope that ICTs will have a positive impact for poverty reduction. This hope has been encapsulated in the phrase 'the digital dividend'. However, some commentators have expressed concern that effective exclusion from the information revolution will exacerbate the poverty of many. This concern has been encapsulated in the phrase 'the digital divide'.

### Defining ICTs

Although the Internet is not readily accessible to the majority of the world's poor at the present time, the advent of the Internet has focussed attention on the basic need of human beings to communicate relevant information with each other. Humankind has always applied technology to meet this need: from jungle drums to smoke signals, the print media, Morse code, telephone, film, radio, television, etc. In the broadest sense, all of these are examples of ICTs.

Recent discussions relating to ICTs are specifically concerned with electronic technologies that have emerged over the last century or so. However, common use of the adjective 'digital' is unfortunate because, at this point in time, the most widespread ICTs are not digital technologies. For example, radio and television are primarily analogue technologies. It would be wrong to restrict this discussion to digital technologies because innovative application of older analogue technologies can and do make a significant difference in the lives of poor people.

In this paper, ICTs are defined as *'technologies that facilitate communication and the processing and transmission of information by electronic means'*.<sup>9</sup> These are sometimes categorised into 'old' technologies (radio, television, telephone, etc.) and 'new' technologies (computers, Internet, satellite communications, digital radio/TV, etc.). The 'old' and 'new' qualifiers are, more or less, non-technical synonyms for 'analogue' and 'digital'. This is not to say that non-electronic media such as print are unimportant for addressing information and communication needs. This discussion, however, is restricted to electronic technologies.

### Information, Communication and Technology

When discussing ICTs, the 'I' (information) and the 'C' (communication) are fundamental whereas the 'T' (technology) is but a means to an end. An ICT is a tool for poverty reduction when it is applied to meet the information and communication needs of the poor. The specific technology that is applied is less relevant than questions about freedom of expression, social and economic impact, inclusiveness, outreach and sustainability. In order to take the focus off technology, some practitioners prefer 'IC for Development' rather than 'ICT for Development'. The focus should be on asking *'how can we apply ICT to help meet this need?'* rather than *'what need can we address with this ICT?'*

To be valuable, information needs to be relevant, timely and in the possession of people who are able to make use of it. There are three perspectives to this statement. The first relates to the importance of contextualised content, delivered in the local language. The second perspective is concerned with the fact that information needs to be communicated just in time, neither too soon nor too late. The third perspective is concerned with the human capacities that are necessary for people to receive and communicate information (such as functional literacy, IT literacy, etc.). These are the 'what', 'when' and 'how' questions of Information and Communication Needs Analysis, an emerging field for which there is need for further research.

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<sup>9</sup> P. Marker, K. McNamara and L. Wallace. 2002. *The Significance of Information and Communication Technologies for Poverty Reduction*. DIFD. London. p4.

The delivery of reference information from 'expert' sources may be of little consequence to a community seeking to address basic needs and pressing issues. In many instances it may be more important to get information out of a community rather than in. The human rights and environment movements have benefited from the instant and far-reaching communications made possible by ICTs.<sup>10</sup> In many cases, ICTs will benefit the poor more significantly when the poor participate as 'Information Sources' rather than as 'Information Recipients'.<sup>11</sup>

## Access to ICTs in Asia

Statistics relating to the diffusion of ICTs abound. Various UN organisations collect data concerning the number of radios, televisions, telephone lines, personal computers, Internet users, etc. As with indicators relating to human development, these ICT diffusion figures are national averages. Therefore, from these statistics it is not possible to conclude exactly how much access the poor have to each of these technologies. However, it would be safe to assume that access to ICTs by the poor is significantly less than the national average.

Figure 5 compares the number of telephone lines, Internet users and personal computers in developing countries in Asia. (Japan is included for comparative purposes). Of the 16 countries discussed in this paper, nine have less than one Internet user per 100 people. Only Malaysia (24), Thailand (6) and Maldives (4) have more than three Internet users per 100 people.

Given that Internet users are less likely to be counted among the poor, we conclude that, in statistical terms, the poorest people in Asia presently have no meaningful access to the Internet. Therefore, using the Internet to target *directly* the information and communication needs of the poorest people is unlikely to be a successful strategy for poverty reduction.

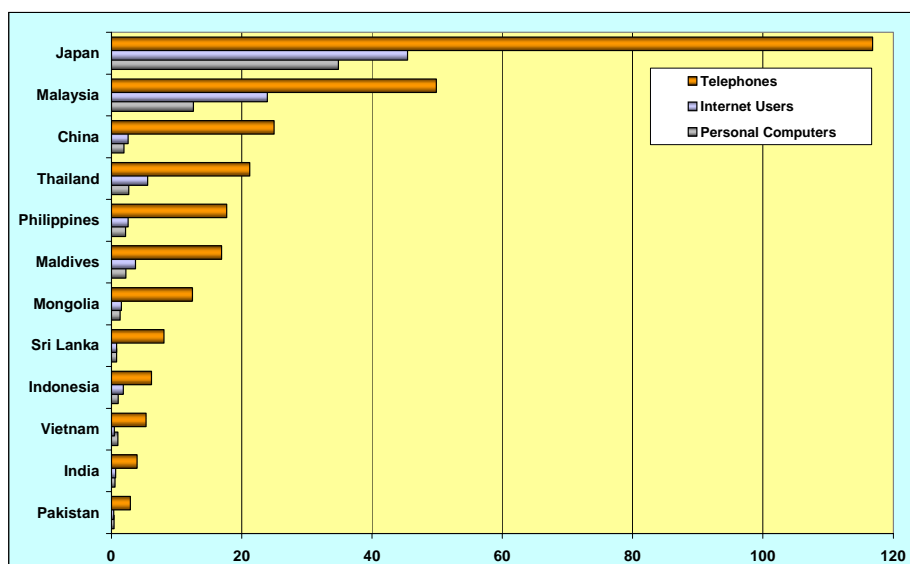


Figure 5 Telephone lines, Internet Users and PC's per 100 people

Source: [unstats.un.org](http://unstats.un.org)

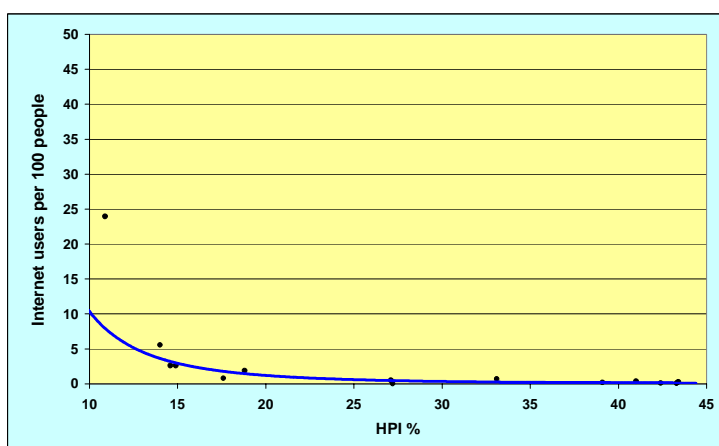
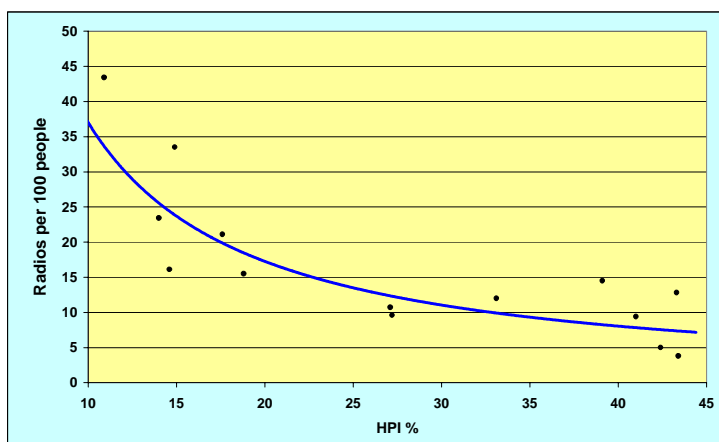
Barriers to equitable Internet access include lack of ICT infrastructure, restrictive government policy and regulation, high cost, low IT literacy, irrelevant content, etc.<sup>12</sup> The task of overcoming these barriers is huge. It will require the wholesale rollout of ICT infrastructure, enabling policies and legislation to ensure the availability and affordability of services, broad-based IT literacy programs, and efforts to ensure that content is relevant and appropriate. In countries where there are literally millions of undernourished children, it would be morally and politically difficult to divert limited public resources from basic health and education programs to the task of bridging the digital divide. It will require massive investment from the private sector to create demand and develop profitable markets. However, even in developed countries, the private sector has been reluctant to invest in rural and remote areas due to a perception that the potential for financial return is limited.

<sup>10</sup> M. Kemp, S. Mathison and J. Prasetyo. 2002. *Digital Dividend or Digital Divide? A World of Difference*. The Foundation for Development Cooperation. Brisbane. p6.

<sup>11</sup> R. Heeks. 1999. *Information and Communication Technologies, Poverty and Development*. Institute for Development Policy and Management. Manchester. p17.

<sup>12</sup> M. Kemp, S. Mathison and J. Prasetyo. 2002. Pp 55-59.

Overcoming the digital divide is a long-term objective that will, in all likelihood, take a generation or more to achieve for the poorest countries in Asia. However, while it is important for governments to implement policies and strategies to achieve this, a generation is too long to wait for today's poor. Alternative strategies are needed if the ICT for Poverty Reduction movement is to make a significant and immediate difference for the 760 million people living in poverty in Asia today.



**Figure 6 Radios and Internet Users per 100 population**  
 Source: [unstats.un.org](http://unstats.un.org), [www.uis.unesco.org](http://www.uis.unesco.org)

Long before 'ICT for Development' became official and fashionable, 'old' technologies like radio and television have been used to disseminate information among the poor. The two graphs of Figure 6 compare the number of radio receivers with the number of Internet users in developing countries in Asia. As a medium for delivering information directly to the poor, radio has potential to achieve far wider outreach than the Internet. Even in those countries with high incidence of poverty, radio receivers are relatively common. Furthermore, whereas an Internet user represents just one person, many people can listen to a single radio receiver. Table 4 lists the outreach potential of radio, based on the assumption that five people may listen to one radio receiver. (The estimation ignores the fact that radio transmissions are restricted by unfavourable terrain and weather conditions).

COUNTRY	RADIO LISTENERS PER 100
Nepal	19
Bangladesh	25
Pakistan	47
Myanmar	48
Vietnam	54
India	60
Cambodia	64
Maldives	65
Mongolia	71
Laos	73
Indonesia	78
Philippines	81
Sri Lanka	100
Thailand	100
China	100
Malaysia	100

**Table 4 Radio listeners per 100 people (5 per receiver)**

Source: [www.uis.unesco.org](http://www.uis.unesco.org)

Generally, there are about half as many televisions as there are radio receivers in each of the developing countries in Asia, although in both China and Thailand the count of each is about equal. Like radio, television far outstrips the Internet in terms of potential outreach.

## Comparing ICTs

As a medium for delivering information directly to the poor, 'old' technologies like radio and television have, at the present time, potential to achieve far wider outreach at much lower cost than the Internet. However, comparison of different ICTs should not be restricted to outreach and cost considerations. Whereas radio might achieve broader outreach, it is a uni-directional, one-to-many medium that can be used to transmit audio signals only. Listeners need to be aware of programming schedules, otherwise the communication is lost to the ether. Internet, on the other hand, is a many-to-many, multi-directional medium that can be used to transmit multi-media data. The information is available to recipients whenever they choose to access it. Table 5 provides a basic comparison of the key characteristics of selected ICTs.



ICT	COMMUNICATION FLOW			MEDIA			COST	
	UNI	BI	MULTI	AUDIO	AUDIO - VISUAL	TEXT - GRAPHIC	LOW	HIGH
Radio (SW, AM, FM)	✓			✓			✓	
Television	✓			✓	✓		✓	
2-Way Radio		✓		✓			✓	
Telephone		✓		✓				✓
Facsimile		✓				✓		✓
E-Mail	✓					✓		✓
World Wide Web			✓	✓	✓	✓		✓

**Table 5 Comparison of ICTs**

Note: The information provided above refers to the primary use of the ICT, rather than its full technological potential. For example, although telephone systems can carry any digital information when combined with modem technology, the primary use of telephones is to allow conversations between people and this is how it is described in the table.

An important area of innovation in ICT for Poverty Reduction is to exploit the particular strengths of different ICTs by combining them to deliver a more complete communication package. For example, while Internet-based initiatives may be irrelevant if targeted directly to the poor, they can be effective if targeted to community intermediaries that can obtain information from the Internet and communicate it using other ICTs (e.g. radio, television, video, etc.). While the poor *'will only reap the fullest benefits of ICTs when they own and control both the technology and its related know-how'*, the sheer magnitude of the digital divide means that targeting intermediaries is a *'currently-necessary mechanism'*,<sup>13</sup> and will remain so for the foreseeable future.

### Multi-Sector Partnerships

Since poverty is complex, a cooperative approach from stakeholders in all sectors of society is needed to combat it. Government, civil society, private sector, academia and networks all have specific roles to play (Table 6).

SECTOR	ROLE
<b>GOVERNMENT INCLUDING MULTILATERALS</b>	Define enabling policy and legislation. Allocate public resources.
<b>CIVIL SOCIETY</b>	Connection with the grass-roots. Implement participatory processes for IC needs analysis, strategic planning and evaluation.
<b>PRIVATE</b>	Technical expertise, business acumen (sustainability), market development (outreach). In a limited-resource environment, private-sector engagement represents the only real prospect for bridging the digital divide on a broad scale.
<b>ACADEMIA</b>	Impact evaluation. Dissemination of research results.
<b>NETWORKS</b>	Knowledge sharing, partnership building.

**Table 6 Role of Stakeholders**

<sup>13</sup> R. Heeks. 1999. p18.

## Evaluating Impact

Impact evaluation is important for all poverty reduction initiatives. Unless a pilot program can demonstrate positive impact there is little point in allocating additional resources to expand the program or replicate it elsewhere. However, evaluating the impact of ICT-based initiatives is problematic because most initiatives utilise ICTs as tools in a broader poverty reduction strategy rather than as a 'solution' in themselves. For example, an initiative that employs radio broadcasting as part of an AIDS awareness campaign needs to be evaluated in terms of its effectiveness in raising AIDS awareness among its target group. With respect to the impact of ICT, the question is the extent to which application of the ICT brings competitive advantage in comparison to projects with similar goals that do not use ICT in the same way. For example, competitive advantage might be achieved through:

- Facilitating increased outreach, e.g. satellite broadcasting of digital audio rather than AM/FM radio transmissions that have limited reach and less signal quality.
- Greater impact through the application of more effective communication mediums, e.g. audio/visual presentation rather than print media.
- Introducing additional benefits through access to new information sources, e.g. Internet access as a library resource for a community-based organisation.
- Cost reduction and efficiency gains that facilitate improved sustainability, e.g. a mobile portfolio management system for microfinance loan officers.

Another important but often-overlooked perspective in impact evaluation is that pilot projects need to demonstrate *absence of negative impacts* to be considered suitable candidates for expansion or replication. While ICTs can be considered neutral, the way they are applied is not value-free. Even the best-intentioned social intervention can have negative impacts. For example, an initiative that ignores the role of women in its design and implementation may intensify the exclusion of women. More generally, an initiative that neglects the needs of the poorest people may exacerbate their poverty. The fact that ICTs can be such powerful tools for change means that we need to be particularly cautious of the potential for negative impact. This means that ICT initiatives need to be designed and implemented in ways that facilitate meaningful and on-going participation of all groups in a community. These activities should include gender analysis.

## Best Practices in ICT for Poverty Reduction

'Best practice' is a relative term because today's best practice is inevitably tomorrow's second best practice. On-going experimentation continually informs our understanding of what best practices are. Table 7 lists some of the Best Practices in ICT for Poverty Reduction. Keywords and concepts include targeting the poor, expandability/replicability, evaluation of competitive advantage and impact, sustainability, multi-sector partnerships, community engagement, gender sensitivity, cultural/social sensitivity, innovative combination of ICTs, community intermediaries, and human capacity building. Best Practices are derived from a number of sources including reflections on the nature of poverty, community development principles and practices, theories of communication and learning, and observations from ICT case studies.

SOURCE	OBSERVATION	BEST PRACTICE
REFLECTIONS ON THE NATURE OF POVERTY.	<p>Poverty reduction requires specific targeting of the needs of the poorest people.</p> <p>Poverty is pervasive and massive. Initiatives need to be able to reach 'the masses'.</p> <p>Poverty is an immediate problem that needs to be addressed with urgency.</p> <p>Poverty is resilient.</p> <p>Poverty is complex and a cooperative approach from stakeholders in all sectors is needed to combat it.</p>	<ul style="list-style-type: none"> <li>Identify the most pressing needs in the target community and work to address one or more of those needs, OR</li> <li>Specialise in meeting a particular need (e.g. HIV/AIDS education) and work with specific groups who need this service the most.</li> </ul> <p>Initiatives should be readily expandable and/or replicable. Investment will be targeted to designing and testing an effective working model that can then be used to reach many more people at low marginal cost. Pilot initiatives need to demonstrate both impact and competitive advantage to justify efforts towards expansion/replication. Pilot initiatives also need to be able to demonstrate absence of negative social impacts.</p> <p>Initiatives need to be <i>immediately</i> expandable and/or replicable. This raises issues concerning access to ICT. (e.g. Initiatives that use Internet to target the poor directly could not be considered 'best practice' in countries that have manifestly inadequate ICT infrastructure).</p> <p>Initiatives need to be organisationally and financially sustainable.</p> <p>Develop working partnerships between stakeholders from government, civil society, private sector, academia and networks.</p>
COMMUNITY DEVELOPMENT PRINCIPLES.	CD emphasises the following principles and practices: inclusiveness, participation, ownership and empowerment.	Community engagement through participatory approaches to IC needs analysis, content development, strategic planning and evaluation. Including gender analysis. Emphasise the role of community-based organisations.
THEORIES OF COMMUNICATION AND LEARNING.	Often culture-specific e.g. Oral communication preferred to text; fear of being monitored by others.	Implement communication strategies and content development strategies that take into account cultural and social preferences in communication and learning.
OBSERVATIONS FROM ICT CASE STUDIES.	Many observations from these demonstrator applications confirm the 'best practices' described above.	<p>Exploit the strengths of particular ICTs by combining them in order to deliver a more complete communication package that takes into account the realities of ICT infrastructure.</p> <p>Consider whether the ICT initiative should target intermediaries or individual end-clients.</p> <p>Provide the necessary human capacity building (e.g. IT awareness, IT literacy).</p>

Table 7 Best Practices in ICT for Poverty Reduction

### 3. Case Studies

There are tens of thousands of poverty reduction initiatives throughout Asia and the great majority of them utilise ICT in some way or another. However, it would not be helpful to regard each one of these as an ICT for Poverty Reduction initiative. The case studies included in this paper are examples of initiatives where the innovative use of ICT results in significant competitive advantage in comparison to initiatives that have similar goals but do not use ICT in the same way.

The rationale for choice of case studies for inclusion in this paper is partly analytical and partly arbitrary. It is analytical in the sense that all of the case studies align (mostly) with the best practices described above. There is no suggestion, however, that these case studies are necessarily 'the best', although they are all good examples. Indeed, there are many more excellent examples of ICT initiatives that are not included here. On the other hand, the rationale for choice of case studies is arbitrary in the sense that they were selected to provide broad geographical representation, different examples of technology application (i.e. radio, television, telephone, Internet applications, etc.), and application to each of the MDG categories. The case studies are summarised below (Table 8).

The focus of each case study is on highlighting ways that the initiative can be considered 'best practice'. Consequently, each case study addresses issues such as strategic partnerships, targeting the poor, outreach, expandability/replicability and sustainability. More detailed analysis of impact and sustainability would only be possible if detailed evaluation reports were available.

SECTOR	CASE STUDY	FOCUS COUNTRY	KEY TECHNOLOGY	DESCRIPTION
ECONOMICS	<a href="#">Portfolio Manager</a>	India	Palmtop computers.	The Portfolio Manager is a mobile portfolio management system that operates on palmtop computers. It allows field officers of a microfinance institution (MFI) to offer better customer service through increased efficiency and accuracy. This will help the MFI to significantly reduce transaction costs, thus enabling it to offer financial services to its clients on a long-term, sustainable basis.
AGRICULTURE	<a href="#">TaniNet</a>	Malaysia	Internet.	TaniNet was created to enable the Malaysian agricultural community to use the Internet as a tool for communication and as a place to share information on agriculture and biotechnology. The TaniNet website disseminates relevant information to farmers and provides access to a panel of experts
EDUCATION	<a href="#">China Central Radio and Television University</a>	China	Radio, television and Internet.	CCRTVU is a dedicated open and distance education institution that offers, on a nation-wide basis, multi-media courses through radio, television, print, audio-visual materials and computer networks.
	<a href="#">Internet Learning Centres</a>	Laos	Computer laboratories with Internet access.	Jhai Foundation is installing computer laboratories in rural high schools in Laos, with emphasis on IT training including practical application. The project has a strong focus on self-sustainability.
DISABILITY SERVICES	<a href="#">E-pek@k</a>	Malaysia	Internet	The e-pek@k website provides information to the deaf community in Malaysia and links people with relevant services. It includes also an initiative to install computer laboratories in a number of deaf schools.

SECTOR	CASE STUDY	FOCUS COUNTRY	KEY TECHNOLOGY	DESCRIPTION
GENDER EQUALITY	<a href="#">Gender Evaluation Methodology</a>	Global, including Asia region	All ICTs.	GEM is a methodology for integrating a gender analysis into initiatives that use ICTs for social change to determine whether ICTs are really improving women's lives and gender relations as well as promoting positive change at the individual, institutional, and community levels.
HIV/AIDS	<a href="#">Digital Broadcast Initiative</a>	Nepal, Afghanistan, India, SE Asia	Radio (digital audio via satellite).	DBI delivers critically needed information to under-served regions through an information infrastructure that combines digital technology innovations (digital audio via satellite) with community collaboration, cultural appropriateness and interactive feedback.
	<a href="#">The Electronic Helpline on HIV/AIDS</a>	India	Telephone.	The Electronic Helpline on HIV/AIDS is an Interactive Voice Response System accessed through toll-free telephone lines. The system has pre-recorded questions and answers on HIV/AIDS.
GOVERNANCE	<a href="#">Kothmale Community Radio</a>	Sri Lanka	FM radio and Internet.	Converging community FM radio and the Internet to serve rural information needs in one rural district of Sri Lanka.
	<a href="#">Drishtee and The Gyandoot Project</a>	India	Internet, Information Kiosks	Community-owned, technologically innovative and sustainable information kiosks in rural India. Enables access to government programs and benefits, market-related information, and private information exchanges and transactions.

**Table 8 ICT for Poverty Reduction Case Studies**

## Conclusions

The primary focus of 'ICT for Poverty Reduction' is poverty reduction rather than ICT; the key objective is reduce poverty rather than to 'bridge the digital divide'.

Poverty reduction is not synonymous with development. Using UNDP definitions, development is a measure of average national *achievement* whereas poverty is a measure of the *deprivation* faced by the most disadvantaged members of a population. Development does not necessarily result in poverty reduction. ICT for Poverty Reduction initiatives specifically target the poor.

Targeting the poor is imperative because poverty in Asia is so pervasive, massive, immediate, resilient and complex. Although poverty has been reduced over recent decades, the absolute number of people living in poverty in Asia is still high and is likely to remain high. Furthermore, the poverty situation in Asia is threatened by a looming HIV/AIDS crisis.

Targeting the poor involves more than simply including poor people. It involves the development of applications and services that address the most critical issues for poverty reduction such as food security, HIV/AIDS, education, etc. These 'critical issues for poverty reduction' will be context-dependent.

In this paper, ICTs were defined as '*technologies that facilitate communication and the processing and transmission of information by electronic means*'. When discussing ICT, the 'I' and 'C' are fundamental whereas the 'T' is but a means to an end. An ICT is a tool for poverty reduction when it is applied to meet the information and communication needs of the poor.

In statistical terms, the poorest people in Asia presently have no meaningful access to the Internet and limited prospect of gaining access in the short term. Therefore, using Internet applications to target *directly* the information and communication needs of the poorest people is unlikely to be a successful strategy for poverty reduction. Overcoming this digital divide is a long-term objective that will, in all likelihood, take a generation or more to achieve for the poorest countries in Asia. Alternative strategies are needed if the ICT for Poverty Reduction movement is to make an immediate contribution to poverty reduction efforts. Innovative use of older analogue technologies can make a huge difference in the lives of poor people.

'Best Practice' ICT for Poverty Reduction initiatives will generally meet the following criteria:

<b>Target Group:</b>	The poor.
<b>Application:</b>	Critical issues for poverty reduction.
<b>Impact:</b>	Demonstrate positive impact AND absence of negative social impact.
<b>Outreach:</b>	Immediately expandable or replicable, at low marginal cost.
<b>Inclusiveness:</b>	Gender-sensitive approach. Community engagement.
<b>Sustainable:</b>	Organisationally and financially.
<b>Partnerships:</b>	Government, civil society, private sector, academia, and networks.
<b>Technology:</b>	Combine ICTs to construct a complete communication package.

Further research is needed in the following areas:

### Impact evaluation of ICT for Poverty Reduction:

- Identify and quantify competitive advantage achieved through use of ICT.
- Detailed evaluations of selected case studies.
- Identify case studies that have significant impact in terms of the Millennium Development Goals and associated targets.
- Identify case studies that demonstrate the efficacy of multi-sector partnerships.

**IC Needs Analysis:**

- Participatory approaches to identifying information needs.
- Developing contextualised content.
- Identifying appropriate and effective communication strategies.
- Identifying needs with respect to human capacities, e.g. functional literacy, IT literacy, etc.

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## Appendix 1 - Useful links

Asia Broadcasting Union	<a href="http://www.abu.org.my/main.htm/">http://www.abu.org.my/main.htm/</a>
Asia Development Bank ICT4D Strategy	<a href="http://www.adb.org/Documents/Policies/ICT/">http://www.adb.org/Documents/Policies/ICT/</a>
Communication Initiative	<a href="http://www.comminit.com/">http://www.comminit.com/</a>
Development Gateway (World Bank)	<a href="http://www.developmentgateway.org/">http://www.developmentgateway.org/</a>
Digital Opportunity Initiative	<a href="http://www.opt-init.org/">http://www.opt-init.org/</a>
e-ASEAN Task Force	<a href="http://www.e-aseantf.org/">http://www.e-aseantf.org/</a>
Global Knowledge Partnership Network	<a href="http://www.globalknowledge.org/">http://www.globalknowledge.org/</a>
iConnect online	<a href="http://www.icconnect-online.org/">http://www.icconnect-online.org/</a>
International Telecommunication Union	<a href="http://www.itu.int/">http://www.itu.int/</a>
Millennium Development Goals	<a href="http://www.developmentgoals.org/">http://www.developmentgoals.org/</a>
Pan Asia Networking	<a href="http://www.panasia.org.sg/">http://www.panasia.org.sg/</a>
TechKnowLogia Journal	<a href="http://www.techknowlogia.org/">http://www.techknowlogia.org/</a>
UN ICT Task Force	<a href="http://www.unicttaskforce.org/index.asp">http://www.unicttaskforce.org/index.asp</a>
UNAIDS	<a href="http://www.unaids.org/">http://www.unaids.org/</a>
UNDP APDIP	<a href="http://www.apdip.net/">http://www.apdip.net/</a>
UNDP ICT4D	<a href="http://sdnhq.undp.org/it4dev/">http://sdnhq.undp.org/it4dev/</a>
UNESCAP ICT Activities	<a href="http://www.unescap.org/escap_work/ict/">http://www.unescap.org/escap_work/ict/</a>
UNESCO ICTs for Education in Asia/Pacific	<a href="http://www.unesco.org/bangkok/education/ict/">http://www.unesco.org/bangkok/education/ict/</a>
UNESCO WebWorld: Communication and Information	<a href="http://www.unesco.org/webworld/">http://www.unesco.org/webworld/</a>
World Bank InfoDev	<a href="http://www.infodev.org/">http://www.infodev.org/</a>
WSIS	<a href="http://www.itu.int/wsis/">http://www.itu.int/wsis/</a>
WSIS Asia-Pacific Regional Meeting	<a href="http://www.wsis-japan.jp">http://www.wsis-japan.jp</a>

## Appendix 2 - Poverty Reduction and The Tokyo Declaration (WSIS)

The Asia-Pacific Regional Conference of the World Summit on Information Society (WSIS) was held in Tokyo from 13 to 15 January 2003. The primary outcome of this conference was 'The Tokyo Declaration'. This declaration is an important statement because it represents consensus reached by stakeholders from almost all countries and sectors of society in the Asia-Pacific region in relation to the role of ICTs in development and poverty reduction.

The WSIS process is not restricted to developing countries and many of the issues discussed at the conference were not specifically focussed on poverty reduction strategies. However, the Declaration promoted the role of ICTs in development generally and the underlying assumption was that development would result in reduced levels of poverty.

The Tokyo Declaration makes explicit mention of many of the issues raised in this report. These are outlined below:

### Reference to Tokyo Declaration

### ICT for Poverty Reduction Issue

- |       |  |
|-------|--|
| [1]   | The massive scale of poverty in the region.  |
| [2]   | The role that ICTs can play in achieving the UN's Millennium Development Goals. Mr. Denis Gilhooly, Special Advisor / ICT4D Special Initiatives, stated that <i>'it is difficult to see how the MDGs will be achieved without innovative and widespread application of ICTs'</i> . |
| [3]   | The importance of multi-sector partnerships. Recognition of the role of governments, civil society, and private sector.  |
| [4]   | The need to provide information and communication services targeted specifically to the poor.  |
| [5]   | Bridging the digital divide, through:  |
| [5.1] | Infrastructure development,  |
| [5.2] | Establishing enabling policies and regulation,   |
| [5.3] | Improving IT literacy,   |
| [5.4] | Developing locally relevant content, and   |
| [5.5] | Taking into account social and cultural factors.   |
| [6]   | The continuing importance of 'old' technologies such as broadcasting and print media.  |
| [7]   | Innovative combination of different ICTs to deliver a more complete communication package.   |
| [8]   | Social inclusion, including gender issues.   |
| [9]   | The application of ICTs to government, commerce, learning, health and community-based IC centres.  |

The following table links the above notes to the relevant sections of the Tokyo Declaration (underlines are mine).

**WSIS Asia-Pacific Regional Conference  
The Tokyo Declaration**

**Preamble**

Representatives of the governments of 47 countries, 22 international organizations, 54 private sector entities and 116 non-governmental organizations (NGO) of the Asia-Pacific region gathered at the Asia-Pacific Regional Conference, held in Tokyo from 13 to 15 January 2003, to develop a shared vision and common strategies for the "Information Society". The objective of the conference was to discuss how best to work together to contribute to the region's effective transition to an Information Society that will accelerate and enhance regional economic, social, cultural and technological development.

[5] The conference emphasized that a primary aim of the Information Society must be to facilitate full utilization of information and communication technologies (ICT) at all levels in society and hence enable the sharing of social and economic benefits by all, by means of ubiquitous access to information networks, while preserving diversity and cultural heritage.

[2] The Conference endorsed the important role that ICTs can play in achieving the United Nations Millennium Development Goals, which describe a fundamental set of principles and guidelines for combating poverty, hunger, disease, illiteracy, environmental degradation and gender inequality.

**1. Shared vision of the Information Society**

The concept of an Information Society is one in which highly-developed ICT networks, equitable and ubiquitous access to information, appropriate content in accessible formats and effective communication can help people to achieve their potential, promote sustainable economic and social development, improve quality of life for all, alleviate poverty and hunger, and facilitate participatory decision-making processes. The Information Society in the Asia-Pacific region must:

- [5.1] 1. Provide equitable and appropriate access for all to well-developed, affordable and easily-accessed information and communication network infrastructures.
2. Use ICTs as a driving force for the promotion of sustainable economic and technological development by enlarging the gross national product (GNP) through increased technological innovation and continuous research and development resulting in reduced levels of poverty through robust economic growth.
3. Enhance the sharing and strengthening of global knowledge for development by ensuring equitable access to information for educational, scientific, economic, social, political and cultural activities, leading to a vibrant public domain of information.
4. Preserve the rich and diverse cultural heritage and social values of the Asia-Pacific region in the information age.
- [4] 5. Provide information and communication services targeted at disadvantaged groups in society, in particular those from lower income groups, to contribute to the alleviation of poverty.
- [6] 6. Use ICTs to strengthen traditional media such as broadcasting and print, which will continue to have an important role in disseminating content in the Information Society.
7. Promote the use of ICTs for capacity-building and human resource development, including ICT literacy, with special reference to the requirements of people with disabilities.
8. Ensure the security and reliability of information and communication networks so as to build confidence and trust in the Information Society.
9. By providing a secure environment for communication, ensure that the use of information and communication services does not place vulnerable groups at risk.
- [3] 10. Facilitate the important role played by the private sector and civil society in the development of diversified information and communication technologies, networks and services in the Information Society. Concurrently, acknowledge the significant role of governments in terms of creating stakeholder partnerships that engender trust and confidence, promote fair competition, and encourage innovative private sector investment and new initiatives, and promote global and regional cooperation, while protecting consumers and safeguarding public interests.
11. Promote strategies to assess and deal with the environmental impact of ICTs.
12. Continue the ongoing spirit of cooperation and solidarity among the countries of the region.

**2. Recognizing the unique features of the Information Society in the Asia-Pacific region**

In building an Information Society for the Asia-Pacific region, we should take into account its unique features:

- [1] 1. Geographic and demographic diversity: The region comprises the earth's largest land mass and vast ocean as well as many small islands. The region has over 65 per cent of the world's population, including over 75 per cent of the world's poor. Many countries of the region have very low population densities spread over large percentages of their areas. Many rural populations are also inaccessible, and have limited contact with other communities.
2. Cultural and linguistic diversity: This region enjoys a richness of ancient and modern cultures, including diverse languages, social traditions and customs. Of the more than 6,800 languages in the world, 3,500 (51 per cent) are spoken in the Asia-Pacific region, including languages without written scripts.

	<p>3. Institutional stability: Generally speaking, the region is institutionally stable. Such stability will enable the region to attract more investors, including innovators, entrepreneurs, operators, manufacturers and vendors in the field of ICTs.</p> <p>4. Productive workforce: the region's economic growth depends on a large, productive workforce capable of fully utilizing ICTs. Given the strong integration of the region into the global economy, this would maintain and enhance the competitive position of its enterprises, leading to the growth of decent employment.</p>
[8]	<p>5. <u>Gender issues</u>: Unequal power relations and other social and cultural aspects have contributed to differential access, participation and status for men and women in the region. In this regard, more attention should be given to overcoming these constraints and ensuring that women can equally benefit from the increased use of ICTs for empowerment and full participation in shaping political, economic and social development.</p>
[8]	<p>6. <u>Disability issues</u>: There are an estimated 400 million persons with disabilities in the Asia-Pacific region. The majority are poor and have been excluded from the benefits of ICT development due to the lack of appropriate or affordable technology for persons with disabilities. More effort, including implementation of disability-concerned regional plans of action and programmes, should be made to ensure equitable access to ICTs for persons with disabilities.</p>
	<p>7. Youth issues: Youth forms the majority of the population in the Asia-Pacific region and is a force for socio-economic development. Equipping young people with knowledge and skills on ICTs to prepare them for full participation in the Information Society is an important goal.</p>
[5] [5.1]	<p>8. <u>Digital divide disparities</u>: In the region as a whole, there is a noticeable disparity in access to, and use of, the latest ICTs, including <u>Internet access and broadband availability</u>, between and within countries. It is recognized that the barriers to equitable access result from differences in education and literacy levels, gender, age, income and connectivity. In this context, particular attention should be given to least developed countries, economies in transition and post-conflict countries.</p>
	<p>9. Imbalance of information flows: While there is substantial internal international trade within the Asia-Pacific, North American and European regions, the same cannot be said for the flow of information between these regions. There is potential for growth in information flows between the Asia-Pacific region and the rest of the world, as well as between countries within the region.</p>
	<p>10. Pioneering role in selected ICT areas: Within the region, some countries have been pioneering, inter alia, broadband, satellite and mobile telecommunication services, among others, which are having a significant impact on the way people communicate and on the delivery of government and business services. The experience gained by those countries in this field can be shared with others to promote good practice at local, national, regional and global levels.</p>
	<p>11. Special circumstances of regional small island developing States: These countries, vulnerable to environmental hazards, and characterized by small, homogenous markets, high costs of access and equipment, human resource constraints exacerbated by the problem of "brain-drain", limited access to networks and remote locations, will require particular attention and tailored solutions to meet their needs.</p>
	<p><b>3. Advancing the region's Information Society</b></p> <p>In order to promote the development and advancement of the Information Society, it is necessary to address many issues, within and across sectors, while ensuring that the essential platform of ICT infrastructure and services, standards and innovation is established.</p>
	<p><b>(1) Priority areas for action</b></p>
[5.1]	<p>a) <i>Infrastructure development</i></p>
[5.2]	<p>The development of the Information Society must be based on <u>platforms of internationally interoperable technical standards, accessible for all, and technological innovation of ICTs, as well as systems to promote the exchange of knowledge at global, regional and subregional levels through any media</u>. In this regard, in addition to enhancing people's awareness of the advantages of using ICTs, reliable, advanced and appropriate, ICT technologies and services infrastructure are required.</p>
	<p>As a sharp increase in the volume of international and regional Internet traffic is anticipated, it is important to strengthen regional and international broadband network infrastructure by using new technologies to enhance network efficiency and provide the capacity to match the needs of the countries in the region.</p>
[5.2]	<p>Working towards <u>open and flexible international and interoperable standards</u> is an important issue for all countries so as to ensure that all can utilize the technology and associated content and services to their maximum potential. Development and deployment of open-source software should be encouraged, as appropriate, as should open standards for ICT networking.</p>
	<p>b) <i>Securing affordable, universal access to ICTs</i></p>
[9]	<p>In order to achieve affordable and universal access it is important to enable existing and new technologies to provide connectivity to all, in particular <u>through institutions accessible to the public such as schools, libraries, post offices and multi-purpose community centres</u>. <u>Special attention should be paid to how ICTs can benefit the disadvantaged, through innovative initiatives</u>.</p>
[4]	

[9]	<p>High-quality access, attainable through broadband, has great potential to help better deliver essential services required to meet basic human needs through <u>applications such as e-education and e-health, as well as e-business and other ICT applications</u>. Also, new technologies, such as wireless and satellite networks can assist remote areas, including small island nations, to gain access to information and knowledge.</p> <p><i>c) Preserving linguistic and cultural diversity and promoting local content</i></p>
[5.4]	<p>Linguistic and cultural diversity enriches the development of society by giving expression to a range of different values and ideas. It can <u>facilitate the spread and use of information by presenting it in the language and cultural context most familiar to the user</u>, thereby further encouraging the use of ICTs.</p> <p>Promoting broadband networks in the Asia-Pacific region could not only support research, business and personal activities, but also help to preserve cultural diversity and indigenous knowledge and traditions. In this context, an effort should be made to support multilingual domain names, <u>local content development</u>, digital archives, diverse forms of digital media, content translation and adaptation. The development of standard and recognized character sets and language codes should also be supported.</p> <p><i>d) Developing human resources</i></p>
[5.3]	<p><u>In order for people to make the most of the Information Society, they must have enhanced levels of ICT literacy and ICT skills</u>. To achieve this, relevant education and training should be promoted at every level, from primary to adult, to open up opportunities for as many people as possible, and especially for the disadvantaged. The capacity of developing and least developed countries to apply ICTs effectively must be enhanced through regional and international cooperation.</p> <p>ICTs can contribute to enhancing the quality of teaching and learning, and the sharing of knowledge and information. Teachers act as a gateway to the Information Society, and their skills development and curriculum resources need increased support.</p> <p>It is also important to improve both basic and advanced education in science and technology. This will help to create a critical mass of highly qualified and skilled ICT professionals and experts that will continue to serve as a foundation for the region's ICT development. It is recognized that education in network infrastructure development and operation is of particular importance, and is critical to the availability of efficient, reliable, competitive and secure ICT network services.</p>
[5.2]	<p><i>e) Establishing legal, regulatory and policy frameworks</i></p> <p>The transition to the Information Society requires the creation of appropriate and transparent legal, regulatory and policy frameworks at the global, regional and national levels. These frameworks should give due regard to the rights and obligations of all stakeholders in such areas as freedom of expression, privacy, security, management of Internet addresses and domain names, and consumer protection, while also maintaining economic incentives and ensuring trust and confidence for business activities. In order to secure prompt settlement of disputes, alternative dispute resolution (ADR) should be considered along with normal judicial proceedings.</p> <p><i>f) Ensuring balance between intellectual property rights (IPR) and public interest</i></p> <p>While intellectual property rights play a vital role in fostering innovation in software, e-commerce and associated trade and investment, there is a need to promote initiatives to ensure fair balance between IPRs and the interests of the users of information, while also taking into consideration the global consensus achieved on IPR issues in multilateral organizations.</p> <p>Copyright holders and distributors of content should be cognizant of the need to ensure that content is accessible for all, including persons with disabilities. In this connection, access requirements should be included in legal, regulatory and policy frameworks, where appropriate.</p> <p><i>g) Ensuring the security of ICTs</i></p> <p>Among the challenges to the region are the general lack of awareness of information security issues, the rapidly evolving complexity, capacity and reach of information technology, the anonymity offered by these technologies, and the transnational nature of communication frameworks. Recognizing the principle of fair, equitable and appropriate access to ICTs for all countries, special attention should be paid to the fact that ICTs can potentially be used for purposes that are inconsistent with the objectives of maintaining international stability and security, and may adversely affect the integrity of the infrastructure within States, to the detriment of their security in both civil and military fields. A multi-pronged approach is needed to address these challenges, and cybercrime, on all fronts, with emphasis on preventive approaches, national guidelines and regional and international cooperation. At the same time, action to address cybercrime and to ensure a safe and secure Information Society must respect the sovereignty of nations and maintain respect for the constitutional and other rights of all persons, including freedom of expression.</p> <p>All stakeholders concerned with ICT issues should take the necessary steps to enhance security, user confidence and other aspects of information and system/network integrity in order to avoid the risk of wholesale disruption and destruction of the network systems on which they are increasingly dependent. Effective information security could be guaranteed not only by technology, but also by education and training, policy and law, and international cooperation. In the long term, development of a "global culture of cybersecurity", based on a common understanding of regulations and appropriate mechanisms for information and technology exchange and international cooperation, should be promoted.</p>

[3]	<p><i>h) Fostering partnerships and mobilizing resources</i></p> <p><u>The private sector plays an important role in the development and diffusion of ICTs, while civil society, including NGOs, works closely with communities in strengthening ICT-related initiatives. Increased cooperation and partnerships are needed between governmental and intergovernmental organizations, the private sector and civil society, for effective design and implementation of various initiatives, by giving priority to locally-available human resources. All stakeholders are urged to mobilize resources for the development of the Information Society, including through increasing investment in telecommunication infrastructure, human capacity building, policy frameworks and the development of culturally sensitive local content and applications. International and regional organizations, including financial and development institutions, have an important role to play in integrating the use of ICTs in the development process and making available the necessary resources for this purpose.</u></p>
[9]	<p>(2) <u>Cross-sectoral priority programmes and activities</u></p> <p>To make significant progress, all countries of the region will need to mainstream ICTs, with special reference to gender, within their national and regional development strategies, and across all sectors.</p> <p>In this context, the following initiatives can support social and economic development, including the emergence of e-communities, while at the same time ensuring that traditional models are recognized and respected, so that the non-users of ICTs are not marginalized.</p> <p><i>a) e-government</i></p> <p>ICT networks can offer better public services to citizens by more efficient and effective dissemination of information and delivery of essential government services. E-government can also generate a greater sense of community participation, and improve informed decision-making and development programme implementation.</p> <p><i>b) e-business</i></p> <p>Through the application of ICT, businesses in all sectors can achieve increased productivity and profitability, reach wider markets, lower their transaction costs and control inventories more effectively. On the consumer side, ICTs can bring to consumers greater satisfaction through their interaction with many potential suppliers, beyond the constraints of location.</p> <p><i>c) e-learning</i></p> <p>Access to education and knowledge is essential for economic, social and cultural development, and as a means of personal empowerment, community development and business efficiency. ICT networks have the potential to offer unprecedented educational opportunities to all groups in all areas of the Asia-Pacific region. Implementation of affordable and universal educational programmes, content, broadband networks and hardware should be promoted.</p> <p><i>d) e-health</i></p> <p>Access to healthcare information and services is a basic right. Many countries lack adequate healthcare facilities and personnel, particularly in rural and remote areas. The use of ICTs promotes social inclusion of all members of society by enabling equitable access to healthcare services, as well as empowering citizens to better manage their own health and to participate more effectively in the healthcare process.</p> <p><i>e) Community information and communication centres</i></p> <p>Community information and communication centres are critical to ensure inclusive access to information and social services, particularly in rural areas.</p> <p>(3) <u>National and regional e-strategies</u></p> <p>Comprehensive ICT strategies that have been endorsed at the highest political levels and that include clear goals need to be formulated at community, national, regional and global levels in order to create the Information Society. These strategies will be encouraged to be designed and implemented through collaboration and participation of all stakeholders. In this regard, awareness of the vast potential of the positive use of ICTs should be promoted among all concerned.</p> <p><b>4. Conclusion</b></p> <p>This Declaration was adopted at the conclusion of the Asia-Pacific Regional Conference and will be submitted as the Asia-Pacific region's input to the WSIS process. Furthermore, the Conference recognizes the importance of the declaration and plan of action resulting from the WSIS process, taking into account <u>internationally agreed goals, including those of the Millennium Declaration.</u></p>
[2]	

## Appendix 3 – Case Study Details

### A. PORTFOLIO MANAGER

PRIMARY FACILITATOR:           **BASIX**

(<http://www.basixindia.com>)

BASIX is a rural livelihood promotion institution based in Hyderabad, India. It was established in 1996. BASIX's mission is to promote sustainable livelihoods among the rural poor through the provision of integrated financial services and technical assistance. BASIX strives to yield a competitive rate of return so as to be able to access mainstream capital markets and human resources on a continuous basis.



BASIX is a 'new generation' microfinance institution. Unlike traditional microfinance institutions that have a relatively narrow product base delivered through standard mechanisms (e.g. via solidarity groups), BASIX provides a wide range of products through a variety of innovative mechanisms, to a range of individual, group and organisational clients. BASIX collaborates with various entities including agri-business companies, small private firms, commodity cooperatives, NGOs and Government agencies. This collaboration helps to reduce the cost of lending, reduce risk, and increases access for potential clients.

PROJECT FOCUS:                   **Promoting sustainable rural livelihoods**

COUNTRY:                           **India (Andhra Pradesh)**

#### BACKGROUND:

Microfinance is concerned with providing financial services to poor clients for the purpose of promoting economic development. Microfinance institutions (MFIs) seek to provide these services on a financially sustainable basis. That is, they seek to recover all of the costs of lending, including those associated with delivering their services, the costs of raising loan capital in mainstream financial markets, depreciation of loan capital and losses incurred due to loan default. Some MFIs, like BASIX, seek to make a profit for their investors as well.



While MFIs have found their clients to be a very good credit risk, they have nevertheless struggled to reach the point of financial sustainability. One of the reasons for this is that, in comparison to the amount lent, the transaction costs of lending to the poor are so high. MFIs have introduced specific lending practises such as group-based lending in order to outsource some of these transaction costs. This has brought self-sustaining financial services within reach of the poor. Unfortunately, however, many MFIs struggle to reduce transaction costs to the point where the institution becomes profitable. It is a case of 'close, but not quite close enough'.

Another strategy that MFIs employ is to expand outreach in order to reap the benefits of scale. This is a productive strategy but one drawback is that portfolio management becomes more difficult and costly as the number of clients increases.

Therefore, any innovation that will help MFIs to significantly reduce transaction costs and at the same time allow for expanded outreach without introducing new costs or compromising portfolio management will be of significant benefit. This is the underlying goal of the Mobile Portfolio Management System developed by Saven Technologies and BASIX.

## PARTNERS:

## **SAVEN Technologies**

(<http://www.saventech.com>)

Saven Technologies is an Information Technology Services Provider that specialises in planning, managing and implementing Information Technology solutions for its clients around the world. Saven Technologies has developed the mobile portfolio management system for BASIX.



## TECHNOLOGY:



### **PSION Series 5MX Palmtop Computer & Printer**

- Weight: 354g with batteries.
- Dimensions: 170 x 90 x 23mm.
- Operating temperature: 0-50°C.

The PSION Series 5MX Palmtop computer<sup>14</sup> is portable and robust, and has sufficient processing power, memory and communications capabilities to operate the Mobile Portfolio Management System developed by Saven Technologies. It runs the EPOC operating system,<sup>15</sup> which has been specifically designed for small, portable computer-telephones with wireless access to phone and other information services. In addition to basic services, the operating system comes with an application suite that includes a word processor, e-mail handler, spreadsheet program, a scheduling application, general purpose database, sketch program, world clock, voice recorder, spell checker, calculator, communication programs, and a Web browser. E-mail and fax communication is via standard telephone connections and the system also supports SMS through GSM Capable Mobile Phone connection.

## THE MOBILE PORTFOLIO MANAGEMENT SYSTEM:

The Mobile Portfolio Management System is designed to reduce transaction costs and improve portfolio management by:

- Facilitating better customer service through increased efficiency and accuracy.
  - Automating all financial transactions at field level. The software checks for data entry errors before processing the transaction.
  - Allowing accurate receipt of financial transactions in the field. This allows immediate final confirmation by the client of the transaction data that has been entered.
- Facilitating fast and effective data flow to regional offices. Transaction data is collected by BASIX agents and periodically uploaded to the central management information system (MIS) located at the regional office
- Reducing workload and improving accuracy at regional offices (e.g. no data entry relating to field transactions by office staff).



**Uploading transaction data to BASIX regional office**

<sup>14</sup> Specifications for the PSION Series 5MX Palmtop computer: <http://www.series5mx.com/welcome.html>.

<sup>15</sup> Details about EPOC: [http://searchnetworking.techtarget.com/sDefinition/0,,sid7\\_gci212068.00.html](http://searchnetworking.techtarget.com/sDefinition/0,,sid7_gci212068.00.html).



### TARGETING THE POOR:

This initiative targets the poor in an indirect way, by providing valuable services to an organisation that directly targets the poor. While IT has been an integral part of microfinance efforts for many years, this has generally been restricted to office-based MISs and has necessitated long-winded and error-prone data entry procedures. The field-based mobile computing solution has the potential to be the key innovation that allows microfinance institutions to get over the last hump in their efforts to reach financial sustainability. This will be very significant for the clients of microfinance.

### OUTREACH:

After successful testing of the system, BASIX has taken a decision to roll out the system across the organisation. More than 300 BASIX agents are expected to use the system.

As of April 2002, BASIX had over 26,000 rural clients. Around 1000 of these clients were self-help groups – this represents an additional 15,000 clients, most of whom are women. The estimated number of person years of employment generated over the last year stands at nearly 52,000.

### EXPANDABILITY / REPLICABILITY:

There is capacity within BASIX to use a further 300 units, given current staffing. Furthermore, the system could be developed fairly easily to provide additional functionality such as registration of clients in the field, automating loan appraisal, and other mechanisms that will further take banking to the doorsteps of the rural poor.

With respect to replicating the system at other microfinance institutions, the overall concept is sound but the software would need to be modified significantly to match the existing MIS at those institutions. Indeed, a number of other microfinance institutions are already developing and implementing similar Palmtop computer solutions.

### SUSTAINABILITY:

In as much as many microfinance institutions count their client base in the hundreds of thousands, or even in millions, systems such as this mobile portfolio management system could make a very significant contribution to reducing the transaction costs of providing financial services to the poor.

## B. TaniNet



(<http://www.taninet.com.my>)

PRIMARY FACILITATOR: **TropBio Research**

(<http://www.tropbio.com.my>)

PROJECT FOCUS: **Agriculture**

COUNTRY: **Malaysia**

### BACKGROUND:

The Asian economic crisis of 1998 and the associated fall in value of the Malaysian Ringgit caused a dramatic increase in the cost of agricultural commodities imported into Malaysia. In part response to this, the Malaysian Ministry of Agriculture developed the Third National Agricultural Policy 1998-2010, the goal of which is to guide and enable the development of the local agricultural sector. The policy encourages the use of ICT to increase the competitiveness of the sector.

There are numerous agricultural websites available on the Internet, published by national, regional and international organisations. However, most of these sites are tailored for countries with different economies, ecologies and levels of development. Furthermore, the language used is usually English, while the majority of Malaysian farmers read Bahasa Melayu.

### PROJECT DESCRIPTION:

TaniNet was created to enable the Malaysian agricultural community to use the Internet as a tool for communication and as a place to share information on agriculture and biotechnology. The project started in September 1999. Objectives include:

- To provide on-line information and services on agriculture and biotechnology.
- To increase local understanding of agricultural biotechnology and of local applications of new technology.
- To provide a forum for discussion among farming communities through a managed bulletin board and chat room.
- To provide access to expert advice and troubleshooting related to agricultural problems via the Internet.
- To educate the farming community with respect to the application of the Internet to access useful information and services.

The target group for the first phase of TaniNet was made up of the members of four Local Farmer Associations (LFAs) in Selangor. It is through these organisations that TaniNet has scheduled and delivered its community surveys, promotional activities, conferences, and IT training programs. While LFAs are NGOs, their supervising bodies - Farmer Organisation Authorities – are part of the Ministry of Agriculture. It was appropriate for TaniNet to work through these official channels and to locate the project within the policy framework of MOA.

The first stage of the project was to conduct surveys of farming communities in Selangor to assess their economic status, information needs and access to information especially using computer facilities. The study highlighted the following findings:

- Farmers received information from a variety of sources: government agencies, mass media, the private sector, LFAs and individuals. Thirty per cent of respondents felt they did not receive adequate agriculture information.
- Farmers are generally interested in accessing information from computers. About 15 per cent owned a computer and 20 per cent computer literate.

#### PARTNERS:

**Bionergy**

(<http://www.bionergy.com.my>)

**Malaysian Ministry of Agriculture**

(<http://agrolink.moa.my>)

**National University of Malaysia**

(<http://www.ukm.my>)

#### TECHNOLOGY:

TaniNet is a web-based system that includes the following features:

- *Main Article:* Focuses on some agriculture-related topic of interest. The editor is responsible for determining the topic and content of the article.
- *Bulletin Board:* An area where messages can be posted and replied to. Messages posted can be in the form of text, image or even voice. The bulletin board has three sub-sections: advertisements, current events and queries. The query component enables farmers to submit questions regarding agriculture. The editor passes the question on to an expert who is chosen from TaniNet's database of experts (see below).
- *On-line Survey:* Surveys provide information intended to improve the services offered by TaniNet. TaniNet offers gift incentives to encourage users to participate in surveys.
- *Membership Scheme:* A membership scheme has been devised to maintain a core of committed TaniNet users. Members are registered on a yearly basis and need to renew their membership accordingly. Certain services offered by TaniNet are classified 'members-only' to attract membership. These include:
  - Free access to the TaniNet database of articles and other agricultural information;
  - Participation in activities such as organised trips, seminars and conferences; and
  - Personal e-mail address and account with the [@taninet.com.my](mailto:@taninet.com.my) domain.
- *Archive System:* In each edition of the TaniNet home page, material such as the main article can be archived for future reference.
- *Expert Database:* One of the objectives of TaniNet is to function as a bank of experts. As one of its services, TaniNet can be consulted to assist in identifying experts who could offer advice or services. This service is provided commercially as a secure on-line service.

TaniNet provides each Local Farmer Association with one personal computer with a dial-up connection to the Internet. This enables access to the TaniNet system for the majority of farmers that do not have a computer. TaniNet hopes that as the system becomes more accepted and its benefits realised, more farmers will purchase their own computer.

Most of the target group are not IT literate. Consequently, an important component of TaniNet is IT training. Members of the farming community are given introductory training on the use of personal computers, Internet use and skills to access the information and services offered by TaniNet. Training is not just offered to farmers themselves but also to family members and to officials and office workers of Local farmer Associations.

#### TARGETING THE POOR:

TaniNet reaches farmers, which is a relatively disadvantaged group in Malaysian society.

#### OUTREACH:

TaniNet membership is currently more than 5000. The system is currently being implemented in conjunction with 50 Local Farmer Associations throughout West Malaysia.

TaniNet records website hit rates, the number of on-line survey respondents, the number of queries passed on to experts, the number of membership applications, and the number of business transactions. These are alternative, indirect measures of outreach. In its first year of operation (0-2000 members), the TaniNet website had about 18,000 hits, 350 survey respondents, and 400 queries for experts.

### EXPANDABILITY / REPLICABILITY:

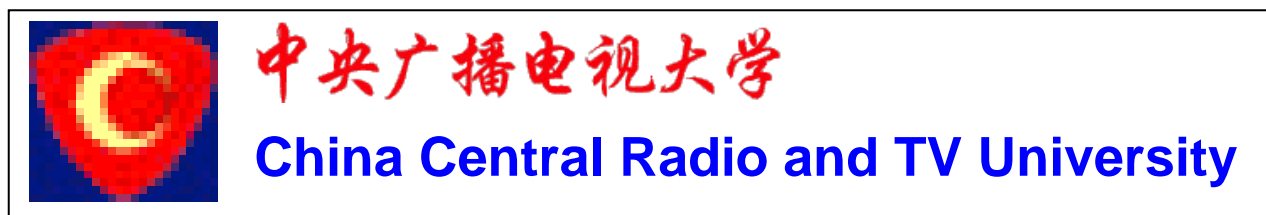
TaniNet is expandable throughout Malaysia because of the existing network of Local Farmer Organisations, the relatively good ICT infrastructure, and the government's commitment to developing the use of ICT in all sectors of Malaysian society. The project is located clearly within the policy framework of the Ministry of Agriculture.

### SUSTAINABILITY:

The initial pilot phase of TaniNet did not generate substantial income. Phase two has a greater focus on e-commerce whereby buyers will be able to purchase agricultural commodities directly through LFAs. The system will also place more emphasis on business-to-consumer sales. This includes not only advertising, but also on-line purchasing of farm inputs. For example, farmers will be able to purchase farm inputs through the system rather than travelling to a regional centre to make their purchase. It is hoped that this emphasis on e-commerce will increase income earned through the system so that TaniNet will be on a more secure financial footing.

The project managers do not envisage TaniNet to be a financially viable operation in the immediate future, primarily because they believe that it will take years for the required technology cultural transformation to occur. They therefore suggest that public financing is necessary for the immediate future. However, they do believe that TaniNet will be able to be financially viable in the future and they are working towards that goal.

## C. China Central Radio and TV University (CCRTVU)



(<http://www.edu.cn/20010101/21803.shtml> – 21808.shtml)

PRIMARY FACILITATOR: **Ministry of Education**

PROJECT FOCUS: **Distance Education / Open Learning**

COUNTRY: **China**

### BACKGROUND:

Distance education can reach people who, due to circumstances of geographical, cultural or social 'remoteness', would otherwise be deprived of opportunities for formal learning. In addition to the print medium, radio and television have been found to be effective and efficient media for distance education. Furthermore, the application of a combination of media has been found to be more effective than distance education via a single medium. While there has been some trend towards distance education delivered via the Internet, this is limited by the lack of ICT infrastructure in rural and remote areas, and also by other barriers such as cost and human capacity considerations. The more traditional mediums such as radio and television will continue to be at the forefront of efforts to deliver distance education to the widest possible audience.

PARTNERS: **44 Provincial RTVUs  
841 Branch Schools  
China Central Television  
China Education Television  
UNESCO**

### PROJECT DESCRIPTION:

CCRTVU began in 1979. It is a dedicated open and distance education institution that operates under the supervision of the Ministry of Education. CCRTVU offers, on a nation-wide basis, multi-media courses through radio, TV, print, audio-visual materials and computer networks. China Education Television transmits CCRTVU courses via satellite to all parts of the country. Local TV stations and relay stations re-broadcast the received programmes. Total course time transmitted amounts to 9000 teaching hours per year. The medium is reported to have an especially remarkable impact in remote and disadvantaged areas.

The CCRTVU comprises the China TV Teachers College; the Central Radio and TV Specialised Secondary School; the China Liaoyuan Radio and TV School, which offers practical agricultural courses; the Distance Education Research and Information Institute; the Library; the Press; the Publishing House for Audio-Visual Materials; China TVU Education Magazine House; and academic faculties, teaching management departments and administrative offices.

### TARGETING THE POOR:

The network of RTVUs reaches millions of people in rural provinces including the most remote areas. In addition to tertiary courses, CCRTVU produces other levels of instruction including practical open learning courses in agriculture-related subjects.

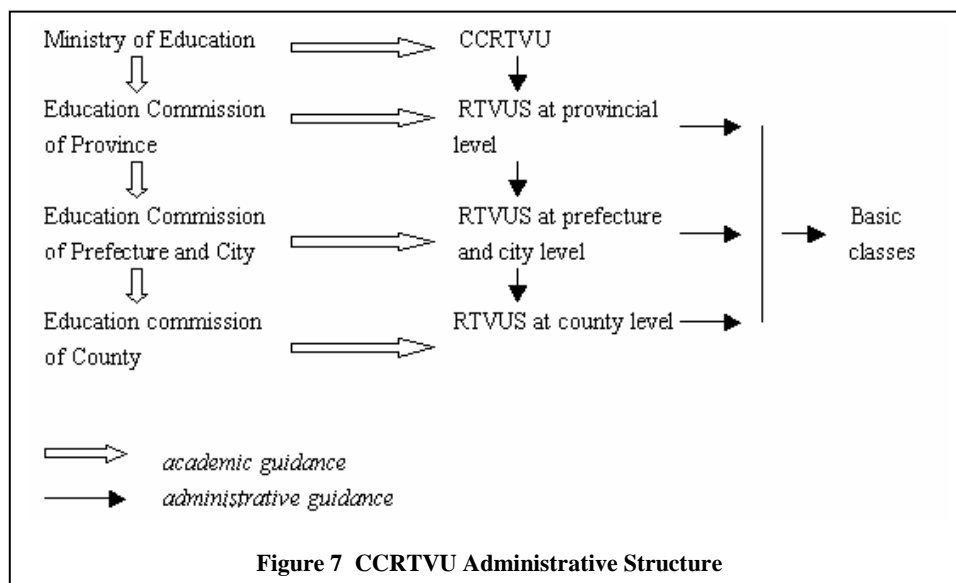
## OUTREACH:

To the end of 1999, CCRTVU has had:

- Graduates of 2-3 year college education: > 2, 600, 000
- Graduates of polytechnic schools: > 1, 000, 000
- Graduates of continuing education: > 35, 000, 000+
- Graduates of practical techniques for farming: Tens of millions
- Primary school teacher graduates: 710, 000 (China TV Teachers College)
- Secondary school teacher graduates: 550, 000 (China TV Teachers College)

## EXPANDABILITY / REPLICABILITY:

China's RTVUs are part of a nationwide framework that facilitates administration, sustainability and expansion at county, prefecture and provisional level.



## SUSTAINABILITY:

The preparation of distance education is a complex process, requiring highly developed skills and considerable investments at the outset. Its development costs are high. However, due to the large audiences reached by CCRTVU, these high development costs can be spread over many individual users so that the unit cost per learner comes still out very favorably in comparison with teacher assisted instruction.

## D. Maximum Possible Impact Internet Learning Centres

PRIMARY FACILITATOR:      **JHAI Foundation**      (<http://www.jhai.org/>)

PROJECT FOCUS:            **Secondary Education**  
**Adult Education**  
**IT Education**



COUNTRY:                    **Lao PDR**

BACKGROUND:                (<http://www.itu.int/ITU-D/ict/cs/laos/>)

“Lao PDR was one of the last South East Asian nations to adopt the Internet and the country faces great barriers in Internet access and use. These barriers include ICT infrastructure (especially outside urban areas), the regulatory environment, high costs and low incomes, relatively poor rates of literacy and educational attainment, and a shortage of Laotian content. As a result, the level of Internet access is low.



Despite these barriers, there is a growing interest in ICT and the government increasingly recognises the potential of the Internet for development. The Association of South East Nations (ASEAN), which Lao joined in 1997, has also been influential in encouraging the government to enhance Internet access in order to strengthen connectivity for several Pan-ASEAN Internet projects. Most ICT-related projects and initiatives within the country are spearheaded by the development community.”

PARTNERS:                    **Schools Online**                    (<http://www.schoolsonline.org/>)  
**Haughton Family Fund**  
**Individual donors**

### PROJECT DESCRIPTION:

Jhai Foundation has established four Internet Learning Centres (ILCs) in high schools since 2000. Three are situated in rural areas (Phon Mi, Souvannakhet, Pakse) and the fourth is in Vientiane. Each facility contains 10 new personal computers (Vientiane centre has 20 PCs) linked in a local area network together with a printer, a scanner, four microphones/headsets, and a digital camera. All facilities are renovated before they are occupied.

Each ILC offers an initial training period of a minimum of 10 weeks, during which it trains around 40 students and 40 adults in computer skills, simple Website design, and English for computer use. Of the adults, Jhai works with the schools to select two computer trainers, two English teachers, and a manager for the facility.

Jhai held a business training and planning session in March 2002 for two people from each ILC. The process included:

- A full day of directed visits to Internet cafes in the capital city of Vientiane, with lists of business-related questions to ask that were developed collectively by the ILC trainers.
- A full day of accounting and business record-keeping training with an end product of a budget and revenues/expense sheets on EXCEL for each facility.
- A full day of business resource assessment, skills-building, and planning with three end products: a fully developed cost structure for each ILC; a six-month work plan towards self-sufficiency for each ILC; and a commitment to communicate with each other in the Lao language at least one time per week.

### TARGETING THE POOR:

Three of the four ILCs are located in rural areas where incomes are around US\$150 per month.

### OUTREACH:

The program has provided IT training to more than 1000 students and a similar number of adults.

### EXPANDABILITY / REPLICABILITY:

The model is replicable, although each replication requires donor support during the establishment phase.

### SUSTAINABILITY:

Each facility is expected to open for for-profit activity after school and on weekends starting immediately after the initial training period. Jhai pays the staff for the first six months to one year of operations. After that, the staff are to be paid out of profits made by the ILC by private training, Internet calls, e-mail, photos, and business services. At this stage, the ILCs have been able to reach approximately 80 per cent self-sufficiency.





**PRIMARY FACILITATOR: The Malaysian Federation for the Deaf (MFD)**

MFD is an umbrella organisation for state deaf societies. There are currently 10 state deaf societies registered as members of MFD. Smaller 'deaf NGOs' are also part of MFD's community. The mission of MFD includes:

- To connect and support hearing-impaired persons in Malaysia;
- To advocate for the rights and needs of hearing-impaired persons with the relevant departments of the Malaysian government; and
- To raise awareness among the general public of hearing disabilities and the needs of hearing-impaired persons.



**PROJECT FOCUS: Services for the deaf**

**COUNTRY: Malaysia**

**BACKGROUND:**

Being a primarily visual application, the Internet can potentially provide hearing-impaired persons with a medium through which they can access information, services, job opportunities and peer support. It is also a medium through which their concerns, needs and abilities can be communicated to the wider community. MFD recognised this potential and consequently developed an ICT strategy to help achieve its mission. This is the genesis of the e-pek@k project. E-pek@k attempts to improve and extend the services that MFD already had in place.

MFD operates within a strong community of organisations and people, and MFD staff are themselves part of this community. This has meant that, when it comes to activities such as needs analysis, program design, project implementation, and training activities, etc, MFD has been able to secure the active participation of its client group. Furthermore, MFD's place within the deaf community means that there are both formal and informal mechanisms to receive critical feedback.

**PARTNERS:**

- Special Education Department**
- Social Welfare Department**
- Three local deaf NGOs**
- Six special schools for the deaf**

**PROJECT DESCRIPTION:**

E-pek@k began in November 2000. Since MFD staff are themselves hearing-impaired persons, and since MFD has strong links with various deaf NGOs and societies, needs analysis was a simple matter of consultation within the community that had already been organised.

E-pek@k has two components. 'D-administration', is a website that provides information, services and networking opportunities for the deaf community. The second component, 'D-schools', is the establishment of IT centres in a number of deaf schools, along with the provision of IT training and education.

### *D-administration*

The e-pek@k website provides access to the following information and services:

- E-register: allows clients to register with local deaf NGOs.
- E-interpreter: allows clients to request the services of sign language interpreters.
- E-job: a job network that seeks to place hearing-impaired persons in mainstream positions.
- E-counselling: allows clients to make appointments for confidential, face-to-face, peer counselling services.
- E-advertisement: allows clients to buy and sell personal items within their community.
- Links: for example, a link to the Department of Social Welfare, where hearing-impaired clients can register with that department.
- Forum: allows clients to discuss general issues faced by hearing-impaired persons.
- News and events: advertisement of upcoming events that are particularly relevant to hearing-impaired persons.
- Learning sign language: video presentations, rather than the more common pictorial presentations that are more difficult for a learner to comprehend.



As part of the implementation of e-pek@k, MFD staff provided training for representatives of the deaf NGOs. The expectation is that these NGO representatives would be able to provide IT support and training to their own members, as required.

### *D-schools*

This initiative is concerned with ensuring that deaf students are IT-educated so that they can participate in Malaysia's envisioned knowledge society. The project involves the installation of ICT hardware in schools for the deaf, and training / education for deaf teachers and students. As part of the first stage of e-pek@k, ICT centres have been installed in six schools for the deaf.



The first stage of the implementation process is to sell the idea to the school administrators, teachers, students and parents, by presenting awareness-raising sessions and offering hands-on experience. E-pek@k staff then work with the most enthusiastic school staff and students to install the hardware, which is supplied by e-pek@k. E-pek@k staff and NGO representatives provide training in the use of various popular software applications. Students are assisted to develop their own school website, which they subsequently use and maintain. All six of the schools have their own website and these include tutorials, public forums, chat rooms, quizzes, news and events, etc.

Once the IT centres are installed, it is each school's responsibility to maintain it.

### TARGETING THE POOR:

The d-administration initiative will be available only to those clients that have access to an Internet-connected computer. The initiative has been implemented on the assumption that access to the Internet (by whatever means) will increase over time. This is a priority of the Malaysian government and time will reveal the extent to which the assumption is correct.

### EXPANDABILITY / REPLICABILITY:

The program can be expanded nationally, within the framework of the Malaysian Federation for the Deaf. Establishment of similar programs in other countries will depend upon the availability of a similar network of NGOs and services for the deaf.

### SUSTAINABILITY:

e-Pek@k does not generate income directly. MFD's minimum financial requirements are met by public donations. Therefore, if the project is to be developed further, more funding is required. Similarly, while the program design is replicable, more funding is required to modify it for, and establish it in, other areas.

There are no financial provisions for maintenance and upgrade of hardware items that have been installed in schools. It remains to be seen whether the school communities commit to this inevitable expenditure in the future.

## F. Gender Evaluation Methodology (GEM)

PRIMARY FACILITATOR:

**APC Womens Network Support Program**

[http://www.apcwomen.org/eng\\_index.html](http://www.apcwomen.org/eng_index.html)



The Association for Progressive Communication (APC) Women's Network Support Program (WNSP) supports women networking for social change. Program work areas include training, participatory research, policy and advocacy in gender and information technology, information facilitation, and regional program support. Their goal is to challenge the inequities faced by women, especially in the south.

PROJECT FOCUS:

**Access to ICTs for women  
Promoting gender equality**

GEM is a methodology for integrating a gender analysis into initiatives that use ICTs for social change to determine whether ICTs are really improving women's lives and gender relations as well as promoting positive change at the individual, institutional, and community levels.

COUNTRY:

**All regions, including Asia**

BACKGROUND:

**ICTs & Gender Equity**

<http://www.apcwomen.org/gem/icts.htm>

Access to ICTs is typically divided along traditional lines of development. The main message of gender advocates working in the field of ICTs is that women are in the deepest end of the digital divide. Gender differences and disparities have frequently been ignored in policies and programs dealing with the development and dissemination of ICTs. As a result, women have benefited less from, and been disadvantaged more by, technological advances. The following issues need to be addressed if there is to be equitable access to ICTs for women:

- **Access and Control:** Women's access to, and control over, ICTs is not equal to men's. 'Access' is the opportunity to make use of technology, information and knowledge. 'Control' refers to the power to decide how ICTs are used and who has access to them.
- **Education, Training and Skill Development:** Training methods are often ad-hoc, alienating and not customised to women's needs. Education should be broadened (i.e. extended to girls and women) and deepened (e.g. for women as users, technicians, and policy-makers).
- **Industry and Labour:** In the ICT industry, labour is highly sex-segregated. Women are found in disproportionately high numbers in the lowest paid and least secure jobs. The gender dimension of ICTs also affects telework, flexi-time, and work from home arrangements where women have few rights, meagre pay, and no health, social or job securities.
- **Content and Language:** Women's viewpoints, knowledge and interests are not adequately represented, while gender stereotypes also prevail on the Web. Some of these concerns are an extension of those formulated previously in relation to sexism and the portrayal of women in the media. They also relate to a broader range of issues such as the need for women to systematise and develop their own knowledge and perspectives.
- **Power and Decision Making:** Women are under-represented in ICT decision-making structures including policy and regulatory institutions, ministries responsible for ICTs, and boards and senior management of private ICT companies. Representation is important in creating the conditions and regulations that will enable women to maximise benefits from ICTs, and ensuring the accountability of the institutions that are responsible for developing ICT policies.
- **Privacy and Security:** Privacy, security and Internet rights are important thematic areas for women. They include having secure online spaces where women feel safe from harassment, enjoy freedom of expression, privacy of communication and protection from 'electronic snooping'.
- **Trafficking, Pornography and Censorship:** The use of the Internet to perpetuate violence against women (or other forms of exploitative behaviour) is of great concern to women.

## PARTNERS:

**IDRC  
UNIFEM  
DFID**

(<http://www.idrc.ca>)

(<http://www.unifem.undp.org>)

(<http://www.dfid.gov.uk>)

## TECHNOLOGY:

GEM materials, including the methodology itself and associated learning / discussion materials, are delivered via the APC Women website. As far as the methodology itself is concerned, it can be applied to any ICT initiative, regardless of the technology employed.

## PROJECT DESCRIPTION:

GEM is a guide to integrating a gender analysis into evaluations of initiatives that use ICTs for social change. It is designed for ICT practitioners seeking appropriate gender analysis tools and frameworks for their ICT interventions. Potential users and applications include:

- ICT initiatives for social change.
- Project managers and staff using ICT in projects without a specific gender or women's focus.
- Evaluators working in the IT field.
- Donors and development agency staff working in the IT field.
- Gender focal points that support women's and IT issues.
- Policy makers.
- ICT planners.
- Consultants in the area of gender and ICTs.



GEM has four elements:

1. Setting the approach to evaluation.
2. Integrating gender analysis in to evaluation.
3. Designing methodologies.
4. Putting evaluation results to work.

For each of these elements, the GEM resource kit provides theoretical discussion of basic objectives, followed by practical 'how-to' approaches and worksheets to assist users to conduct an evaluation.

GEM is not a 'once-off evaluation tool' to be applied at the completion of a project. Rather, it is a project design and planning tool that can be applied at every stage of the project cycle to ensure that gender concerns are fully integrated and properly addressed.

## TARGETING THE POOR:

In as much as the ICT initiatives that use GEM target the poor, so does this initiative. In particular, GEM assists practitioners to highlight and work against the 'feminisation of poverty'.

## OUTREACH:

There are currently 24 GEM partners in Asia, Latin America and Africa. These partners are a combination of women's organisations, networks, resource centres, telecentres, training institutes, media and communications agencies and Internet service providers (for the non-profit sector). APC also has five other organisations and networks who will also be using GEM to develop evaluation plans rather than evaluate existing projects.

In Asia, GEM partners include:

**Regional:**

**Women's Electronic Network Training (WENT)** - An annual training workshop held in Seoul, Korea. The workshops aim to train women's information providers in the use of group communication, web development tools, and databases to be able to provide effective information and communication support to their organisations, networks and localities. The WENT Training Team uses GEM to assess what kind of values are being promoted by the training materials.

**India:**

**IT for Change (ItfC)** – The "Sustainable Access in Rural India - Information Technology Programme of Dhan Foundation" makes information technology accessible to rural communities through research and pilot activities.

**TARAAhaat Information and Marketing Services Ltd.** - TARAhaat promotes and supports rural entrepreneurs using ICTs.

**Malaysia:**

**Corpcom Services for Mothers (Mothers for Mothers)** - Mothers for Mothers is a network of homemakers. Its 'E-homemakers' project promotes working from home through ICT as an economic option for women.

**Mongolia:**

**InfoCon (ICT Consulting) Co.** – The "Introducing Internet Based Distance Education to Mongolia" project initiates selected Mongolian institutions into the processes of research, development and experimentation with web-based instruction methods and technologies for distance education.

**Philippines:**

**Foundation for Media Alternatives (FMA)**

The Community Building and Content Management (CBCM) Program assists partner Civil Society Organisations who have decided through community websites to network their collective knowledge and install and operate their ICT-based systems and tools to help achieve their objectives in information communication.

**Philippine Council for Health Research and Development (PCHRD)**

The "Connecting People and Organisations for Rural Development through Community Telecentres in Selected Philippine Barangays (Villages)" project aims to develop and test a pilot telecentre encompassing people, organisations, infrastructure and processes that will support rural communities in achieving sustainable development.

**Sri Lanka:**

**Centre for Women's Research (CENWOR)**

The Internet-based "Information Network initiative" aims to improve the situation of women in Sri Lanka and to facilitate their empowerment. CENWOR provides access to research information and databases on women through the CENWOR website and monitors the implementation of the National Plan of Action for Women in Sri Lanka.

EXPANDABILITY / REPLICABILITY:

There is a standing invitation to ICT4D practitioners and policy makers to join the GEM network. At each of the GEM regional workshops, members of WNSP have participated or worked as facilitators in order to train a core of GEM practitioners and trainers.

SUSTAINABILITY:

APC is developing a business plan for a GEM service that will be offered after the completion of the testing phase. APC has received requests from some organisations to conduct GEM training workshops and has also assisted a number of organisations with their evaluations and planning requirements.

## G. Digital Broadcast Initiative (DBI)



**PRIMARY FACILITATOR:** **Equal Access** (<http://www.equalaccess.org>)

Equal Access is a not-for-profit organisation dedicated to improving opportunity for communities in the developing world. Equal Access delivers critically needed information to under-served regions through an information infrastructure that combines digital technology innovations with community collaboration, cultural appropriateness and interactive feedback.

**PROJECT FOCUS:** **HIV/AIDS prevention**

Although the initial pilot program focuses on these issues, the technology infrastructure and community consultation processes associated with this project could be applied to address virtually any educational need.

**COUNTRY:** **Nepal (pilot program)**  
**(expanding into India, Afghanistan, and SE Asia)**

**BACKGROUND:** ([World Bank: AIDS in Nepal](#))

"Nepal's vulnerability to HIV/AIDS is fuelled by poverty, gender inequalities, low levels of education and literacy, denial, stigma, and discrimination. Though the absolute number of HIV/AIDS cases is still low (adult infection rate 0.5%), Nepal has entered the stage of a 'concentrated epidemic' with HIV/AIDS prevalence constantly exceeding five per cent in one or more high-risk groups, such as commercial sex workers (CSWs) and injecting drug users.

Increasing vulnerability of young people is mainly due to a widening generational and cultural gap between adolescents and the older generation. In many cases, even if girls and women have knowledge of STDs and AIDS their access to protection is restricted as a result of their lower status.

Seasonal and long-term labour migration to neighbouring countries, such as India, is necessary for the economic survival of many households in both rural and urban areas. Thousands of women and men live away from their families as migrant workers. Removal from traditional social structures, such as family, has been shown to promote unsafe sexual practices, such as engaging in multiple sexual partners and in commercial sex.

Nepal runs the risk of an increased epidemic due to an active sex trade and high rates of girl trafficking to India for sex work. It is estimated that there are approximately 100,000 Nepalese CSWs in India.

Immediate and vigorous action must be taken now to prevent further spread of HIV among high-risk groups and stop the infection from taking a foothold in the larger population. Without effective interventions, it is predicted that there may well be a generalised epidemic by the end of this decade."

**PARTNERS:** **WorldSpace** (<http://www.worldspace.com>)  
**Solaria** (<http://solaria.light.net/solarialn1.htm>)  
**UNDP** ([http://www.undp.org/business/examples\\_hiv.html](http://www.undp.org/business/examples_hiv.html))

Equal Access also works in partnership with community-based organisations (CBOs) such as Village Development Councils and community radio organisations, Communications Corner Independent Production House (<http://www.comconnepal.com>), Radio Nepal (<http://www.radio-nepal.com>), local solar energy systems providers Lotus Energy (<http://www.lotusenergy.com>) and international NGOs.

## TECHNOLOGY:

The majority of people living in the developing countries in Asia do not have regular or reliable access to telephony or the Internet. Consequently, Internet-based solutions have had limited success in achieving widespread impact. Even in areas where power and telephone services exist, the high costs of these services, slow connections, lack of relevant content, etc. limit the effectiveness of Internet solutions. Even the print media is of limited value, given the high levels of print illiteracy that exist. In order to overcome these shortcomings, Equal Access has established the 'Equal Access Asia Development Channel' (ADC) on the WorldSpace Digital Satellite System. ADC is a digital audio broadcast that can be received across Asia. The technology allows a clear digital audio signal to be received by an inexpensive, handheld portable receiver direct from the satellite. This technology is capable of providing, at low set-up and ongoing costs, information to even the most remote locations, independent of local telephony or electricity infrastructure. In selected locations where electricity infrastructure is lacking, the project's solar systems integration partners, Solaria Corporation and Lotus Energy, can provide solar power solutions to the project site.

ADC can therefore be a conduit for organisations to provide information to audiences anywhere in Asia on a common platform that is inexpensive, available in remote areas, culturally appropriate and allows communities to benefit from a wide range of content.

The receiver, when linked to a computer, also allows large files of data, video imaging, text and graphics to be downloaded direct from the satellite. Audio and multimedia data files are transmitted at rates of up to 128kbps (more than twice the speed of an average dial-up connection). Note that signal transmission is one-way only; there is no mechanism for clients to send information via ADC.

Digital broadcasting has the following advantages over, say, short-wave radio transmissions because:

- The digital signal contains no static. Signal quality is virtually independent of geographic location or topography, time of day, or weather conditions.
- The digital signal is identified by name, which means that it is easy to find on the receiver. There is no need to thumb through different bands and frequencies to locate the signal.
- The digital broadcast is not limited to audio - it can be used to download any form of digital information.
- Once the satellite channel is established, no further infrastructure is required. This makes the system highly expandable.



**BPL Celeste Receiver**

Digital Receiver provides the following features:

- Receives directly the WorldSpace Satellite Radio service.
- Cassette Player and Recorder
- 3 Band Radio receiver (FM/MW/SW)
- PC connection socket
- Cost in quantity, with accessories: ~USD 100 per unit

## PROJECT DESCRIPTION:

Three core teams carry out project implementation:

1. **The Content Group:** a coalition of NGOs, government, community leaders and People Living With HIV/AIDS produce, in local languages, culturally appropriate and entertaining content in a variety of formats including soap operas, facts of the day, interviews and music/song.
2. **The Outreach Team:** CBOs chosen for their depth of experience and established presence in the communities being served. These CBOs orient participants to the program, establish active listening groups and learning centres and conduct discussions following the broadcasts. Participants provide feedback and this information is fed back to the content group. In this way the participants have a direct voice in critical issues concerning their own development.

The CBO partners have participated in workshop training sessions in Kathmandu so that their staff can be fully trained in the use of the equipment. More importantly, with the assistance of experienced training staff these sessions have included multiple-day training on leading discussions on HIV/AIDS and Women's empowerment within a group context in rural Nepal.

3. **The Assessment Team:** independently assesses the efficacy of the projects and sets up feedback loops between community participants and the Content Development Group. The University of California, San Francisco Centre for AIDS Prevention Studies and an in-country assessment and monitoring group collaborate on project assessment. Feedback from participants will provide development organisations with a broadened basis for informed project planning.

### TARGETING THE POOR:

DBI targets the poor through the active participation of CBOs who count the poor as their primary clientele. Content is designed with the specific needs of the poor in mind. CBOs contribute to content development by testing, evaluating and providing feedback, and the poor are part of this whole process. CBOs also add value to the information that is transmitted by organising listening groups and facilitating discussion and action.

Although the cost of a receiver unit (~USD 100) is out of reach for most poor people, they are still significantly less expensive than computer equipment. This makes them affordable for CBOs. There is no reason why a poor person would be less able to benefit from DBI than any other member of the community.

### OUTREACH:

The first phase of DBI is operative in Nepal with over 400 community-based sites. Programming is also re-broadcast through Radio Nepal and a number of local community radio stations, with a combined audience reach of 18 million (over 80% of the Nepalese population).

Preparation for the expansion of DBI to India, Southeast Asia and Afghanistan is underway:

- In India, Equal Access plans to have an additional 400 community sites. Content Development Workshops have taken place and pilot episodes of two programs have been produced after substantial field research and testing. An initial workshop for potential community outreach partners has taken place.
- In South East Asia, a program-planning workshop was conducted in Kuala Lumpur, December 2-4, 2002. This involved representatives from Laos, Indonesia and Malaysia who have been studying the application of this technology and methodology in their countries. Planning is quite advanced in Laos in particular and Equal Access is now in a resource mobilisation mode in conjunction with partners in Vientiane.
- In Afghanistan, Equal Access has developed an initiative in collaboration with the Ministry of Education to provide basic education needs, including programming focused on literacy, teacher-training, rural health, water sanitation, and landmine awareness issues. Building on the local expertise of NGOs and Ministry professionals, programming will be broadcast in conjunction with UNICEF-led programs in schools and community centres and also re-broadcast on 17 regional radio stations. Equal Access aims to initiate the first year with 500 pilot schools, eventually scaling up to cover the bulk of the national school system with 4000 sites within 3 years.

### EXPANDABILITY / REPLICABILITY:

ADC is scalable in terms of client outreach. No further investment in physical infrastructure is required beyond the distribution of additional receiver units. Additional users can therefore be added at very low marginal cost. Furthermore, the pilot program has tested a content development methodology and a community outreach strategy that appears to be transportable to other contexts.

Equal Access has plans to expand content to cover topics such as Microenterprise, Sustainable Livelihoods, Nutrition, Literacy, and the Environment. Also, the functionality provided by ADC is not restricted to audio signals. Community organisations could benefit from other information presented in other digital formats.



## SUSTAINABILITY:

DBI provides digital broadcasting capacity, dedicated to a development and poverty reduction agenda, throughout Asia. As long as WorldSpace continues to provide satellite capacity to partners such as Equal Access, then the broadcasts will be available at no subscription cost to all people that have access to a receiver.

DBI requires on-going development of educational content. The on-going cost of this effort will need to be met by government and donor sources but this is no different to educational material developed for any other context or media. The large actual and potential outreach of DBI adds tremendous value to the development cost of this content.

DBI requires the cooperation of existing community-based organisations to make productive use of the programming. The availability of high-quality information sources will contribute to the effectiveness (and therefore sustainability) of these organisations.

## H. The Electronic Helpline on HIV/AIDS

PRIMARY FACILITATOR: Health & Social Development Research Centre (HSDRC)

PROJECT FOCUS: HIV/AIDS

COUNTRY: India (Rajasthan)

BACKGROUND: ([World Bank: AIDS in India](#))

“There are already localised epidemics within high-risk groups in India, and the virus is spreading to the general population. Nearly one per cent of the adult population (or four million persons) is estimated to be infected with HIV. Almost 90 per cent of the cases reported fall within the most economically productive age group of 15-44. Given India's large population, a mere 0.1 per cent increase in the prevalence rate would increase the number of adults living with HIV/AIDS by over half a million persons.

HIV/AIDS is already affecting India's children. By the end of 1999, UNAIDS estimated that approximately 160,000 children in India under age 15 were living with HIV/AIDS.

There are many risk factors that put India in danger of experiencing a widespread epidemic if prevention and control measures are not scaled up and expanded throughout the country. Only through vigorous and sustained action to improve and scale up prevention and control efforts will the country prevent the devastating effects of a full-blown AIDS epidemic.”

PARTNERS: **Rajasthan State AIDS Control Society  
Government of India**

TECHNOLOGY:

Interactive Voice Response (IVR) system through two toll-free telephone lines combined with custom software using Foxpro on a Windows-NT platform.

PROJECT DESCRIPTION:

The service began in June 2000. The IVR system operates 24 hours per day, 365 days per year. The objective of the service is to disseminate technically sound information on HIV/AIDS, as well as details of related health and support services, to as many people as possible while maintaining the anonymity of the client. It is loaded with a number of options and pre-recorded messages relating to the following topics:

1. What is HIV/AIDS, how it is caused, prevention possibilities.
2. Symptoms.
3. Testing & treatment facilities.
4. Support to HIV Positives.
5. Personal queries & responses (Connection to a counsellor).

HSDRC has found that this IVR system attracts more callers than similar call centres that use only counsellors. Their conclusion is that clients are more confident to call this service because it is less personal and the IVR system gives a greater sense of anonymity. The IVR system is also cheaper to

FOR ALL THAT YOU WANTED  
TO KNOW ABOUT

**AIDS**

**DIAL 1097**

**(TOLL FREE TELEPHONE)**

**ASK ANY QUESTION**

**ANONIMITY & PRIVACY**  
**ASSURED**

HEALTH & SOCIAL DEVELOPMENT  
RESEARCH CENTER, JAIPUR

SPONSORED BY:  
RAJASTHAN STATE AIDS CONTROL  
SOCIETY,  
GOVT. OF RAJASTHAN

operate because fewer counsellors are required. The system can operate on a full-time basis, although personal counselling is available only during certain hours of the day.

#### TARGETING:

The service is advertised through the mass media, especially local newspapers. More direct targeting is achieved by advertising with HIV/AIDS organisations that work among high-risk groups. It is not possible to determine any further details of the clientele because the service is, by design, an anonymous and unlinked service.

#### OUTREACH:

The service has received more than 80,000 calls since its inception. It currently receives anywhere between 3000 and 7000 calls per month, depending on the publicity the service has received during the month.

#### EXPANSION:

HSDRC plans to expand the project in a number of ways:

- Make the service accessible through long distance calls (as well as local calls).
- Make the service accessible through alternative media options e.g. Internet.
- Make more services accessible to clients, such as STD management, personal counselling on issues related to sex & sexuality & related issues, blood sample collection for Voluntary HIV testing.

#### SUSTAINABILITY:

On-going costs are met by the Rajasthan State AIDS Control Society. The application of ICT has reduced running costs because fewer counselors are needed.

## K. Kothmale Community Radio Internet Project



(<http://www.kothmale.net>)

PRIMARY FACILITATOR: **Sri Lanka Broadcasting Corporation**

PROJECT FOCUS: **Community information and open learning**

COUNTRY: **Sri Lanka**

### BACKGROUND:

Kothmale FM Community Radio Station is one of four community radio stations operating under the Sri Lanka Broadcasting Corporation. It is located in the central region of Sri Lanka in Mawathura, which is about 25 kilometres south-west of Kandy. Mawathura is primarily a rural region with tea and rice being the dominant plantations.

Kothmale FM began broadcasting in February 1989. Around this time, the regional government authority relocated around 3000 families for a large dam project. Many people lost crops and farming land. While they had specialised in various crops such as Pepper, Cardoman, and Rice, the land they were given was established with tea crops. Therefore, these people had to learn new cultivation methods and adapt to different conditions. Kothmale FM was established with the objective of giving relevant information to these people, to provide information about self-employment and health, and to create a link between people who were now geographically distanced from one another.

The station is dedicated to being community focused. Workshops and events for the community are held on a regular basis to encourage local participation. Kothmale FM plays an important role in relaying information regarding health, agriculture and local news. It is also works with local schools and broadcasts cultural, sporting and social events. Given the lack of access to telephones the station also plays a vital role in keeping the community informed in emergency situations.

When the station was opened it was fully sponsored by Sri Lanka Broadcasting Corporation and was permitted one hour of transmission per week. In February 1991 this was extended to three days per week and three hours of transmission per day. The station employed a station manager and operated with the assistance of volunteers. In 1999 the station moved to its larger, current location in Mawathura.

PARTNERS: **Sri Lanka Broadcasting Commission  
Mahaweli Authority  
Sri Lanka Telecom  
UNESCO**

## PROJECT DESCRIPTION:

The ***Kothmale Community Radio Internet Project*** was established as a pilot project to assess the prospects for converging community radio and the Internet to serve rural information needs and to assess its possible impact in rural communities. The concept of extending 'Internet radio' to rural regions in developing countries was devised in 1996 during discussions between UNESCO and Community Radio broadcasters. The idea was that the two mediums - radio and the Internet - could be integrated to lower user connectivity costs and to make the Internet accessible to a wider audience.

The Community Radio Internet project began in April 1999. UNESCO provided a USD 30,000 grant for the project and the Sri Lanka government provided support through Sri Lanka Broadcasting Corporation, Mahaweli Authority and Sri Lanka Telecom.

Three computer access points have been established at different community centres in the local area. Kothmale FM has a server and three computers whilst Gampola library and Nawalapitya Town Hall each have one computer.

The project works in a number of ways. Listeners send questions or topics by telephone or post to the radio station and program hosts and volunteers use the Internet to research responses. This information is then translated (from English) and presented on the radio. The Internet is also utilised by the radio announcers who will often incorporate information, news, weather reports and music into their broadcasts.

The Internet Centres also provide the local community with direct computer and Internet access. Due to a lack of Internet service providers in the country there were previously no Internet access points in the area. The Internet is also a luxury that the majority of Sri Lankans cannot afford. Many people in the community now contribute to the Internet Broadcasts by researching and translating and by directly participating in radio programs.

The three access centres keep in touch via email and share information, which is then posted on boards for all of the community.

In November 2000, an Internet club was formed in the community and this group of volunteers takes the responsibility of coordinating computer workshops for the community and maintaining this web site.

## TARGETING THE POOR:

The project was initially targeted to people that had been disadvantaged through relocation due to the dam development project. It also targets 'information-disadvantaged' people (lacking both IT and English-language skills, and access to the Internet) in the area by providing a mechanism through which they can submit queries and receive contextualised responses in their own language. This process is limited only by the IT and English-language skills of the radio personnel.

## OUTREACH:

Whereas stand-alone Internet cafes would have concentrated benefits to the small number of people with the necessary skills, this project makes relevant information available to many more people through the combination of Internet access and FM radio. The potential audience is that which can be reached by the FM radio transmission, the bulk of the population of Mawathura.

## EXPANDABILITY / REPLICABILITY:

The program cannot be expanded as it is restricted by the range of the FM radio transmitter. However, it can be easily replicated in other communities.

## SUSTAINABILITY:

The morning broadcast has been commercialised and the station collects approximately 75 per cent of its operational costs from this commercial revenue. Nineteen people are employed as relief announcers and there are 15 volunteers. Financial management remains with the Sri Lanka Broadcasting Corporation.

## L. Drishtee and The Gyandoot Project



[\(http://www.drishtee.com/\)](http://www.drishtee.com/)



[\(http://gyandoot.nic.in/\)](http://gyandoot.nic.in/)

PRIMARY FACILITATOR: **Drishtee.com Ltd**

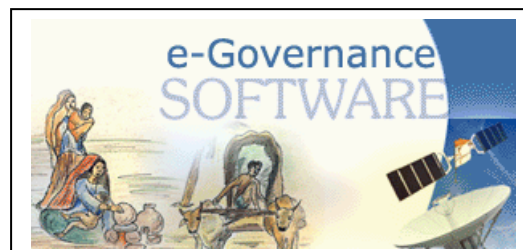
PROJECT FOCUS: **Governance**

COUNTRY(S): **India**

BACKGROUND:

Approximately 70 per cent of India's one billion people live in rural villages of less than 5000 people. Technology-assisted strategies represent the only realistic hope of improving government service-delivery to these villages.

PARTNERS: **Various local and state governments  
Boston Consulting Group**



PROJECT DESCRIPTION:

*Drishtee* is a software platform for enabling governance, commerce, education and health services. It facilitates communication and information interchange within a localised intranet between villages and a district centre. Dishtree services are delivered via Information Kiosks that are owned by local villagers. Each kiosk, located at a prominent central location in its district, caters to the needs of the surrounding villages. Typically, the kiosks are financed through a Government-sponsored loan scheme. User fees are charged at the kiosks for the services provided. Kiosk owners are trained to operate the Drishtee system and services.

Drishtee Ltd was established following the success of The Gyandoot Project in Dhar, Madhya Pradesh. The Gyandoot project began in December 1999. The goal of Drishtee is to replicate the Gyandoot model throughout India.

The following services are currently offered at the Gyandoot kiosks:

- Agricultural Information: Prevailing rates of prominent agricultural commodities at auction centres around the country.
- Copies of Land Records: Farmers require these at every cropping season to obtain loans from banks for purchasing seeds and fertilisers. Major banks have agreed to accept these kiosk documents.
- Online Registration of Applications: Villagers had to make several visits to the local revenue court to file applications for obtaining income/caste/ domicile certificates. Now, they may send the application from a kiosk and receive notification by e-mail when the application has been processed.
- Online Public Grievance Redress: A complaint can be filed and a reply received via e-mail. These can include complaints regarding drinking water, quality of seed/fertilizer, functioning of schools or village committees, etc.
- Village Auction Site: Allows farmers and villagers to advertise and sell land, agricultural machinery, equipment, and other durable commodities.
- Transparency in government: Updated information regarding beneficiaries of social security pension, beneficiaries of rural development schemes, information regarding government grants given to village committees, public distributions, data on families below the poverty line, etc. are all available on the Intranet.

## TECHNOLOGY:

**Information Kiosks:** The Information Kiosks facilitate public access to the services and information offered by Drishtee. Each kiosk computer runs Drishtee application software. The database of the kiosk is updated whenever the kiosk is connected to the district server or the web server. Mail and other messages queued at the Kiosk are uploaded to the District or Web Server.

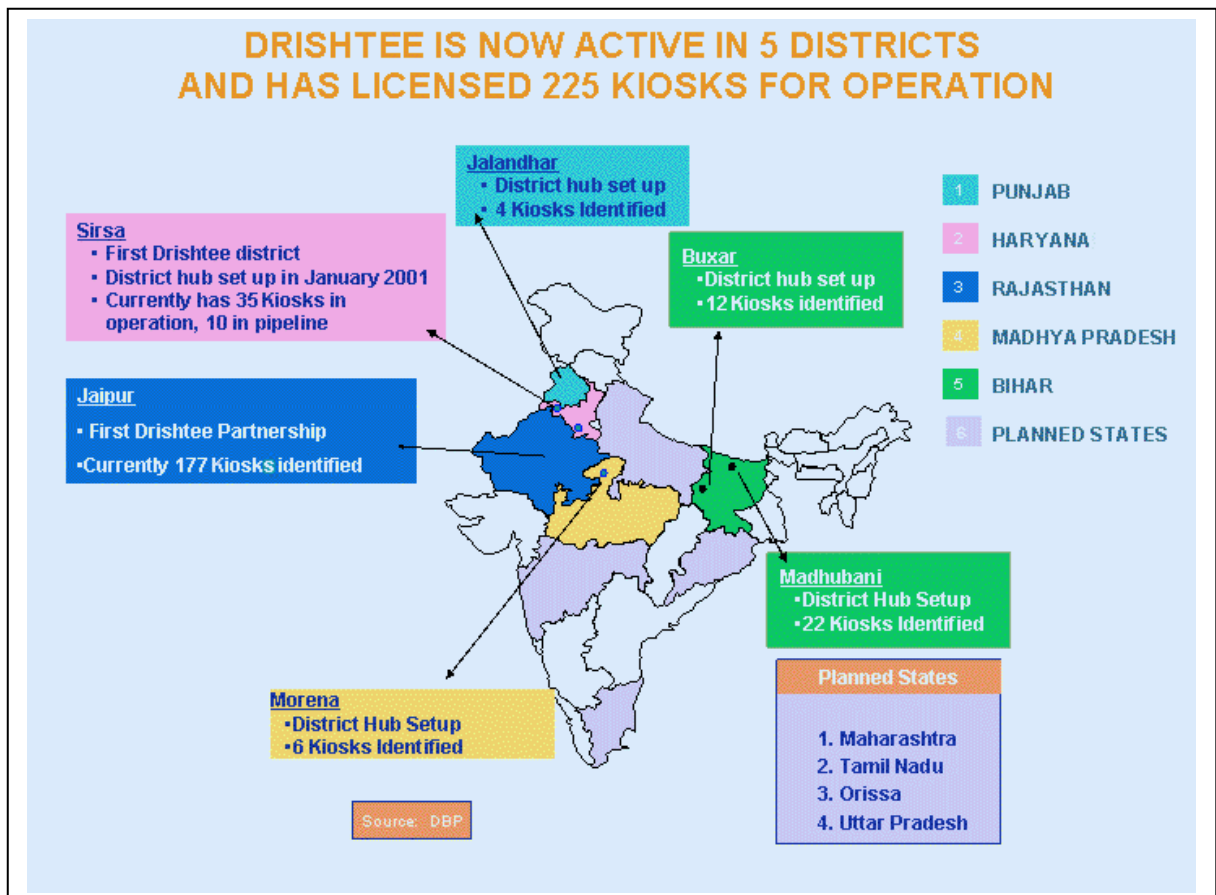
**District Server:** The District Server acts as the local content provider, providing data such as commodity prices, etc. It also acts as a sub-administrator processing the requests of the local kiosks, facilitating communication, monitoring kiosks and administering the district database.

**Web Server:** The Web Server acts at the main administrator of the complete system. It co-ordinates communication between districts and acts as national level content provider.

## TARGETING THE POOR:

This program targets the rural poor of India with information services. It achieves this through community-based intermediaries (local kiosks) that facilitate access to locally relevant information and services.

## OUTREACH / REPLICATION:



## SUSTAINABILITY:

Information Kiosks achieve sustainability by providing for-fee services to increasing numbers of local clients. Drishtee will achieve sustainability through franchising more kiosks as it expands throughout India.