

**Pan Asia Networking  
Prospectus  
2006-2011**

**International Development Research Centre**

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## List of Acronyms

|       |  |
|-------|--|
| ADB   | Asian Development Bank                                     |
| AF    | ASEAN Foundation   |
| AMIC  | Asian Media Information Research Centre                    |
| APDIP | Asia Pacific Development Information Program               |
| APEC  | Asia-Pacific Economic Cooperation                          |
| ASEAN | Association of Southeast Asian Nations                     |
| BSA   | Business Software Alliance                                 |
| CA    | Connectivity Africa  |
| CAD   | Canadian Dollars   |
| CC    | Creative Commons   |
| CD    | Compact Disc   |
| CIDA  | Canadian International Development Agency                  |
| CPI   | Corruption Perception Index                                |
| DDI   | Digital Divide Index                                       |
| DE    | Distance Education   |
| DirAP | Digital Review of Asia Pacific                             |
| DRM   | Digital Rights Management                                  |
| ENRAP | Knowledge (Electronic) Networking for Rural Asia Pacific   |
| FOSS  | Free and Open Source Software                              |
| GDP   | Gross Domestic Product                                     |
| GGP   | Globalization, Growth, and Poverty                         |
| GHz   | Gigahertz  |
| GIS   | Geographical Information System                            |
| ICA   | Institute for Connectivity in the Americas                 |
| ICT   | Information and Communication Technology                   |
| ICT4D | Information and Communication Technologies for Development |
| ICTD  | Ideas. Communities. Technologies. Development.             |
| IDC   | International Data Corporation                             |
| IDRC  | International Development Research Centre                  |
| IFAD  | International Fund for Agricultural Development            |
| IPR   | Intellectual Property Rights                               |

|         |  |
|---------|--|
| IS      | Information Society                                    |
| ISRO    | Indian Space Research Organization                     |
| LAC     | Latin America and the Caribbean                        |
| LIRNE   | Learning Initiatives on Reforms for Network Economies  |
| NGO     | Non-Governmental Organization                          |
| OA      | Open Access  |
| OECD    | Organization for Economic Co-operation and Development |
| OM      | Outcome Mapping  |
| OSI     | Open Society Institute                                 |
| PAD     | Project Approval Document                              |
| PAN     | Pan Asia Networking                                    |
| PANdora | PAN Distance and Open Resource Access                  |
| PANL10n | PAN Localization                                       |
| PCR     | Project Completion Report                              |
| PDA     | Personal Digital Assistant                             |
| PI      | Program Initiative                                     |
| PO      | Program Officer  |
| R&D     | Research and Development                               |
| RO      | Research Officer                                       |
| RPE     | Rural Poverty and Environment                          |
| RSS     | Really Simple Syndication                              |
| RX      | Resource Expansion                                     |
| SARS    | Severe Acute Respiratory Syndrome                      |
| SMME    | Small, Medium, and Micro Enterprise                    |
| SMS     | Short Messaging Service                                |
| TRIPS   | Trade Related aspects of Intellectual Property Rights  |
| USD     | US Dollars   |
| VKC     | Village Knowledge Centre                               |
| VOIP    | Voice over Internet Protocol                           |
| WAP     | Wireless Access Protocol                               |
| WiFi    | Wireless Fidelity                                      |
| WiMAX   | Worldwide Interoperability for Microwave Access        |
| WSIS    | World Summit on the Information Society                |
| WTO     | World Trade Organization                               |

## Executive Summary

The PAN Prospectus 2006-2011 provides a five-year programming strategy developed within the context of the rapidly changing Information and Communication Technology (ICT) and Development landscape in Asia. Characterized by increased access to computers and other electronic devices, and rapid growth in mobile telephony, ICTs show the potential to be truly transformative in addressing development challenges in this highly diverse region. Although some Asian countries have substantial technological bases, strong and proven institutions, and well-developed human resources, others are at the early stages of adopting ICTs and are eager to participate in the burgeoning knowledge society. Rural populations in the region especially comprise over 3 billion people who do not have access to any form of connectivity. Considerable improvements in connectivity, while creating new opportunities for economic growth and social development, are tempered by their limited penetration in rural areas and developing Asia.

The majority of rural Asians today do not have access to basic telephony (let alone the Internet). Moreover, South Asia, home to 50% of the world's poor, has more people who do not have access to the Internet or telephony than the rest of the world combined. Inadequate and restrictive policy environments, a need to focus on technological R&D innovations, and limited understanding of the positive and negative effects of ICTs on given communities, have all been identified by PAN as contributing factors to achieving our mission — *empowering communities to address their key development challenges through effective access to information and communication technologies*.

Findings were drawn from PAN's external evaluation and the Prospectus consultation meeting with regional stakeholders in 2005 at the time that objectives for this Prospectus were being formulated. The external review, while confirming PAN's strengths in applied connectivity pilot studies, regional consultation, and participatory research suggested that the objectives be more limited, clear and focused, and that future programming include a more systematic approach for gender mainstreaming. At the consultation meeting, participants affirmed PAN's niche as a leader in its focus on communities and supported the key directions of the program outlined in this Prospectus.

PAN's vision is supported by targeted research support in three key areas: policies, technologies and effects. These three themes and their corresponding objectives work iteratively to address our research problematic in a holistic manner.

- ***Building evidence and promoting dialogue to inform policies that enable knowledge societies in Asia***, will be supported by a program of research on two main issues: a) *Research on telecommunications regulatory structures to ensure equitable access to connectivity*, will draw on best practices (privatization, liberalization, deregulation, and independent regulators) to create affordable and effective telecommunication services that will provide a foundation for Asian knowledge societies; b) *Appropriate policies to ensure access rights to knowledge in Asia*, will address the development challenges that have arisen within the context of the growth of the Internet and the digital world vis-à-vis intellectual property rights and access to information.
- ***Applied research and piloting of innovative ICT applications for development***, will build on PAN's history of "learning by doing," through piloting ICT applications in communities to address key development issues. In this Prospectus, these projects will draw on the

pervasiveness of mobile technologies in Asia to develop, test, and scale-up innovative mobile applications that contribute to community development, specifically in health, education, governance, and rural livelihoods.

- ***Research and build capacity for understanding the socio-economic effects of ICTs on Asian communities***, will address the challenge of understanding the positive and negative effects of ICTs and the information society and how these powerful tools have helped or hindered the development of people, communities, and countries. Research will focus on the development of methodologies to explore the relationship between ICTs and poverty and the socially transformative effects (positive and negative) of ICTs.

Programming approaches and modalities adopted during this Prospectus will be varied. These include previous program modalities, such as the small grants program and the PAN All Partners Conferences. In addition, PAN will explore “holistic” country programing in five countries (Cambodia, Mongolia, Bhutan, Indonesia, and Sri Lanka) where research on all three themes will be conducted in a coordinated manner. Finally, PAN will continue to develop a methodology of robust regional thematic networks (as with localization-*PANLion*, and distance education-*PANdora*). These regional networks combine research, capacity building, knowledge sharing, and administrative resilience. PAN networks will look to be increasingly linked with thematic networks in the other two regions where the ICT4D Program Area is currently active. Over and above collaborative initiatives within the ICT4D Program Area, PAN has identified numerous opportunities to collaborate with partners in the other three program areas. A comprehensive gender strategy, including key research and methodological issues in the three thematic areas, will ensure a more systematic approach to gender mainstreaming over the Prospectus period.

The PI communications strategy focuses on further strengthening program level activities and will provide support to partners disseminating their research results. Following the program area’s strategy for “Big RX” (co-funding over CAD \$ 1M) the crux of PAN’s partnership efforts will focus on establishing a “Connectivity Asia” program. PAN’s strategic partners include the International Fund for Agricultural Development (IFAD) (co-funding of Knowledge [Electronic] Networking for Rural Asia Pacific [ENRAP]), Soros Open Society Institute, and most importantly the “Canadian Family” (i.e., CIDA and Industry Canada).

Challenges and risks related to this program strategy, such as a lack of local research and institutional capacity; country programing in countries in transition; sustainability of technology projects; and dealing with politically or socially sensitive issues, will be carefully considered and balanced with PAN’s evaluative thinking practices. Evaluations on capacity building, regional networks, and country programing (see Evaluation Plan); rigorous project monitoring on high risk projects; appropriate funding mechanisms and sustainable business models; and advice from IDRC general counsel will be instrumental in helping PAN curb risks and work toward its objectives.

## Summary Table of PAN’s Suggested Themes, Objectives and Approach

The following table concisely illustrates how the three proposed PAN objectives (*Policies*, *Technologies*, and *Effects*), will be researched, what types of activities will be supported, and the types of partners we will engage in the process.

| Themes                     | Policies  | Technologies   | Effects   |
|----------------------------|---|--|---|
| <b>Objectives</b>          | <ul style="list-style-type: none"> <li>Understanding which policies are most appropriate for creating knowledge societies in Asia</li> </ul>  | <ul style="list-style-type: none"> <li>Learning from technology pilots to improve connectivity and develop appropriate development applications</li> </ul>   | <ul style="list-style-type: none"> <li>Building research capacity in Asia to better understand the socio-economic effects of the information society on different user communities</li> </ul>   |
| <b>Research Activities</b> | <ul style="list-style-type: none"> <li>Regional research networks, policy dialogues that supports building evidence for influencing and informing policy on access to networks and knowledge</li> </ul>             | <ul style="list-style-type: none"> <li>Action research pilots and technological R&amp;D in the areas of health, education, governance, and livelihoods through either small grants programs or country pilots</li> </ul>   | <ul style="list-style-type: none"> <li>Developing appropriate methodologies for understanding the positive and negative impacts of ICTs</li> <li>Training in appropriate methodologies</li> <li>Undertaking socio-economic impact studies</li> </ul>  |
| <b>Expected Outcomes</b>   | <ul style="list-style-type: none"> <li>A body of evidence, increased dialogue and awareness that serves to instigate change within the telecommunication policy and intellectual property policy spheres</li> </ul> | <ul style="list-style-type: none"> <li>A body of evidence that serves to better understand which technological innovations are best suited to solve development problems in the areas of health, education, governance and livelihoods</li> <li>Development of innovative ICT applications that help solve development challenges</li> </ul> | <ul style="list-style-type: none"> <li>A better understanding of the most appropriate research methodologies for understanding the interaction between ICTs and development</li> <li>Increased capacity of Asian researchers and ICT practioners in the area of ICT for development research</li> <li>Enhanced knowledge of the positive and negative effects ICTs are having on Asian communities</li> </ul> |
| <b>Typical Partners</b>    | <ul style="list-style-type: none"> <li>Universities; policy research think tanks; NGOs; consumer advocacy associations; governments (including regulators)</li> </ul>   | <ul style="list-style-type: none"> <li>NGOs; universities; social entrepreneurs; technological research organizations</li> </ul>   | <ul style="list-style-type: none"> <li>Universities and NGOs</li> </ul>   |

# 1. Context and Background

## 1.1 The Changing Landscape of ICTs in Asia

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PAN's new programming cycle comes at a time when the ICT4D landscape in Asia has changed dramatically and continues to evolve at a significant pace. Some of the transformations could be considered positive, others less so.

### 1.1.1 Opportunities in a New Asia

Many of the trends regarding connectivity in Asia between 2000 and 2005 have been positive in nature. Teledensity, a key indicator of access to telephony, has doubled and sometimes tripled with the introduction of mobile networks, which have, to an extent, filtered down to reach the poor. By March 2005, Asia had a total of 1.25 billion telephone subscribers, of which 550M (44%) were fixed and 700M (56%) were mobile.<sup>1</sup> However, subscribers are located primarily in developed Asia and in urban areas. There are an estimated 330M mobile subscribers in China alone; 66% of which are pre-paid subscribers, a "pay as you go" method that has ensured mass adoption of mobile telephony.<sup>2</sup> In a special issue of *The Economist* on the "Digital Divide" (*The Economist* 2004), the author concluded the best means to bridge the divide was simply to allow further private investment in the mobile sector, which, according to *The Economist*, had done more to solve access problems in developing countries than any other connectivity model.

Internet access has also greatly increased, albeit from a small base (164% growth in Internet access in Asia between 2000–2004). Asia is now the world's principal Internet market (350M users, see Annex 2 for country level details on Internet access). Moreover, the potential for shared community wireless networks, often referred to as a "commons" approach, could lead to the pervasiveness of Internet access, even within poor communities, assuming regulatory reforms take place.

A principal engine of growth and competitiveness in Asia is also related to the digital world (electronics manufacturing, data process outsourcing, digital content manufacturing, telecommunications, etc.), demonstrated by the expansion of economies like China, India, Malaysia, and Singapore. The science is still imperfect, but an increasing amount of qualitative and quantitative evidence points to a positive relationship between ICTs and development. For example, an empirical study of mobile telephony in Africa (Waverman et al. 2005, p. 17) concludes that mobile phones can have significant beneficial impacts on economic growth, in some cases as much as double their impact in developing countries. The results of the study show that in low-income countries, per capita GDP could be 0.59% higher if there were on average, ten more mobile phones per 100 people. Mobile phones provide significantly higher network effects in developing than in developed countries where fixed lines have already performed this function. According to Castells (2006), "while in developing countries the benefits of mobile are two-fold — the increase in the network effect of telecoms *plus* the advantage of mobility — in developed economies the first effect is much more muted" (p. 267). Moreover, "much causal empiricism

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<sup>1</sup> All telecommunications data is taken from "2005 Telecoms, Mobile and Broadband in Asia - Market Overview Report" (Budde 2005).

<sup>2</sup> In the Philippines, often considered one of the most savvy mobile countries of the world, 95% of users are on pre-paid accounts.

supports the conclusion that a rapid country embrace of ICTs provides a strong positive for attracting foreign direct investment” (Chowdury 2000, p. 9).

With increased access to computers, mobile phones, and other electronic devices, as well as the Internet, the scope for ICTs to be truly transformative in areas where there remain important development challenges, such as health, education, livelihoods and governance, becomes greater. Examples of mobile phones being used to access agricultural pricing, Personal Digital Assistants (PDA) being used for demographic surveillance in health, and other affordable tools being used for distance learning, all show great potential. Nevertheless, a large number of these development applications still need to be developed, tested, and, if successful, brought to scale.

It is evident that a telecommunications revolution has been taking place in Asia, led mostly by the mobile phone sector. The fact that strong growth in connectivity has been correlated with, and according to some experts, the cause of, strong economic growth in Asia could warrant optimism when it comes to Asia’s place in the Information Society (IS). Some may even question why programs in the area of ICT4D are even needed. Much of the answer is discussed in greater length in the sections on PAN’s proposed programing, however, it is important to review some of the main developments and ICT challenges that Asian countries still need to address.

### ***1.1.2 Development Challenges in the Asian Context***

Much is said about the economic explosion that is taking place in Asia, most notably about the two Asian giants, China and India, which together account for a third of the world’s population. Asia is indeed the continent that many economists point to when discussion moves to identifying future growth engines. Moreover, seemingly, some of this growth has been inclusive of the poor, resulting in millions of Asians graduating from the “1 dollar a day” poverty indicator. However, many lose sight of the fact that Asia is still home to more poor people than the rest of the world combined. South Asia alone is home to 50% of the world’s poor (Budde 2005). Some development experts would remind us that although some poor have benefited from growth, inequality has increased leading to concomitant social problems. Furthermore, with widespread poverty come numerous other development problems such as low literacy levels<sup>3</sup>, poor access to essential services, health problems, poor governance, and environmental degradation. Finally, recently, Asia has been hit hardest in the area of natural disasters, most notably by the Tsunami, where more than 223,000 deaths showed the fragility of disaster prevention mechanisms and the vulnerability of the poorest communities.

Although there has been strong growth in connectivity, those who have benefited most are generally located in urban areas and are well off. The reality is South Asia has more people who do not have access to the Internet or telephony than the rest of the world combined. The mobile revolution has indeed reached many, but some experts feel it may have reached saturation levels. The absence of adequate regulatory reforms “which have generally stalled between 2000–2005” (Budde 2005), has meant that the majority of rural Asians still do not have access to basic telephony, let alone the Internet. New solutions still need to be found to ensure the excluded are included. Moreover, many countries in Asia, such as Cambodia<sup>4</sup> and Laos, are amongst the least connected in the world. Another key issue that warrants particular attention is the recent research on the gender digital divide (Huyer et al. 2005), which shows the gap between access to

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<sup>3</sup> Of the world’s illiterate population, about half of them are found in South Asia.

<sup>4</sup> Cambodia has the dubious distinction of having been the first country in the world to see mobile access surpass fixed line access in 1994. This is a dubious honour as it simply confirms the paucity of fixed lines and the anachronism of the regulatory environment.

connectivity between men and women actually increases once access surpasses a certain threshold.

It is clear that access to connectivity is not enough. The information and applications that are conveyed through the “pipes” are essential in ensuring people benefit from ICTs. And yet a disturbing observation is that WTO rules are forcing Asian countries into strict copyright rules that restrict access to knowledge, like educational material for example, and may lead to Asians being relegated to the role of consumers of North American and European content and knowledge products.

It should also be noted that along with the great opportunities afforded by the Internet come great dangers. Evidence and anecdotes are starting to show the potential for negative consequences to the use of ICTs is growing as access levels increase (censorship, privacy issues, on-line gaming, fraud, exclusion, various forms of pornography, etc.). A recent study by IDRC partner Learning Initiatives on Reforms for Network Economies (LIRNE Asia), points out that some communities in Sri Lanka spend close to 12% of their income on ICT usage; although it isn’t clear whether this is something to be worried about, it certainly warrants further investigation.

The Asian ICT4D landscape clearly shows great potential from technological innovations, although within the context of continuing inequity in access to these potential benefits. Asian economies have the capability to clearly benefit from the information society; however, the road toward it is fraught with dangers relating to copyright and potential dangers inherent to being part of the information society.

## **1.2 Road to Prospectus**

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Preparations for PAN’s 2006–2011 Prospectus involved, among others, incorporating lessons from the external evaluation done for the last prospectus (2001–2005) and a consultation meeting held with existing and potential PAN partners in Siem Reap, Cambodia in June 2005.

### ***1.2.1 Lessons and Recommendations from PAN’s External Evaluation***

A snapshot of Asia’s ICT and development landscape reveals key development challenges that a program like PAN needs to confront through research. It is important to learn from some of the past experiences of PAN and ensure that this prospectus builds on PAN’s achievements and gains knowledge from its shortcomings. The key source of information used for this section is the PAN external review, which included the following observations:

- ❖ Emphasis on *applied connectivity pilot studies* to research digital inclusion in disadvantaged communities should continue;
- ❖ *PAN’s participatory approach* and ongoing support for capacity building is highly appreciated by partners;
- ❖ *PAN’s All Partners’ Conference*, which took place at the midpoint of PAN’s prospectus (March 2003) in Vientiane, Laos, was an excellent example of wide-scale sharing of experiences to build relationships and to identify emerging topics of interest in the region;
- ❖ *The scope and number of prospectus objectives* should be limited. There is a clear need to identify key thematic areas and have more focused projects; and
- ❖ Whilst PAN has already actively ensured that research on gender issues is a part of its digital inclusion projects, a more systematic approach on gender inclusion and gender mainstreaming approach should be explored and implemented.

### ***1.2.2 Prospectus Consultation in Siem Reap, Cambodia***

Key inputs to PAN’s thought process on developing its objectives include: the opportunities and challenges of ICT and development landscape in Asia, and lessons from PAN’s external review. The third key element that inspired PAN’s thinking, was a consultative meeting with key Asian ICT stakeholders held in June 2005 in Siem Reap, Cambodia. The consultative workshop confirmed the direction PAN was proposing to take: a focus on three themes, notably policies, technologies, and effects. Through an interactive and participatory process<sup>5</sup>, the stakeholders suggested key areas of activity within the different themes, which are outlined below.

A – *Policies*: Policies to support grassroots, local efforts; better understand key ICT4D concepts and map ICT4D initiatives; research on more effective e-governance; best means to achieve Universal Access; and Intellectual Property Rights (IPRs) in Digital Asia.

B – *Technologies*: Building awareness and capacities, through training of users; research and development on localization and language processing; research on the appropriateness and applications of Open Source; and R&D on end-user application (e.g., mobile phones) for development.

C – *Effects*: Social inclusion and vulnerable groups; communication processes and content related issues; building research capacity and developing appropriate research methodologies to better understand the effects of ICTs on communities; effects on communities of new ICT tools (mobiles, Internet telephony, etc.).

The PAN team took the participants’ suggestions under consideration and added/modified them where it felt the literature or experiences warranted it. The result of this thinking is the proposed program discussed in the following section.

## **2. Program**

### **2.1 PAN’s Vision, Mission, and Values**

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Given the current ICT and development context, lessons from the PI external evaluation and input from stakeholders in the region, the PAN team has suggested the following vision for its programming:

***PAN Vision***  
*Empowered communities who have addressed their key development challenges through effective access to information and communication technologies*

In order to help achieve this vision, the PAN team supports research on how ICTs can help contribute to community development in Asia through local capacity building and knowledge sharing. PAN will work with researchers from within civil society and academia, as well the public and private sectors, to facilitate ICT for development research that helps ensure marginalized communities are empowered and key development challenges are addressed.

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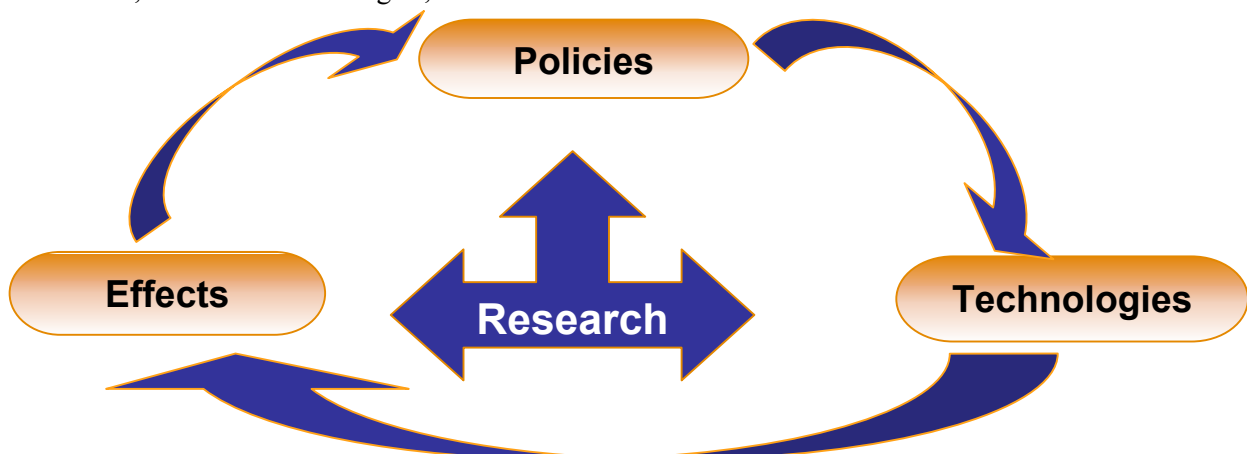
<sup>5</sup> One of the tools used during the participatory process was a Wiki, which is collaborative Web site that allowed all participants to contribute their thoughts: <http://sandbox.bellanet.org/Wikis/PAN/>

It is important to explain PAN’s values, which are at the core of PAN’s programing. PAN’s tag line, which encapsulates PAN’s principles and values, is suggested to be the following: **Ideas. Communities. Technologies. Development.** (ICTD). Victor Hugo wrote that, “**Ideas** are more powerful than all the armies of the world,” and although we know people are the agents of change, ideas are what influence people to change. Hence it seems appropriate that a key to PAN’s work is the development of new ideas that help inspire people. Moreover, the role of **Communities** is key, as it relates to so many other issues such as: the way we structure space and time, the future of work, the transformation of cities, the nature of economic systems, the impact of globalization, and the need for a sense of connection and meaning within our lives. Communities will therefore continue to be our target beneficiaries. **Technologies** are the tools that ensure ideas are transmitted to and from communities. However, not all technologies are appropriate for this purpose. Consequently, our greatest effort will be put on ensuring we understand which technologies are best suited for solving the key development challenges of Asian communities. Finally, the ultimate goal of our work is to ensure that it is done within the context of sustainable **Development** objectives.

## **2.2 PAN Themes and Objectives**

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In order to address PAN’s vision and mission, PAN proposes to work on three themes, from which are derived three objectives for its body of work for the next five years. The three themes, shown below, and their related objectives are not independent; rather they flow and interact with each other in order to help empower Asian communities to use ICTs effectively to address their development challenges. The starting point deals with supporting policies that concentrate on access to connectivity and knowledge, as much of Asia still does not have the enabling policy environment needed to benefit from a knowledge society. The environment is then propitious to test and develop effective technological applications that address key development concerns. Of course the research results from technological piloting will also be targeted at the policy sphere. Finally, the program will help build capacity and develop appropriate tools for better understanding the positive and negative effects of ICTs on Asian communities, and to ensure policies and technology decisions are made wisely. Although, we have described this program sequentially, the inter-relatedness of the different themes is such that all themes must be worked on in a coordinated manner. For example, successful technological applications in education would be a key factor in enhancing demand for low-cost access to connectivity, which deals mainly with a telecom policy issue. Finally, although the three themes are equally important, it is expected that some thematic areas would require more resources because of the nature of their work. Hence, rough estimates would state that 30% of PAN’s resources would be devoted to “Policies,” 50% to “Technologies,” and 20% to “Effects.”



## Theme 1: Policies

### 2.2.1 Objective 1: Building Evidence and Promoting Dialogue to Inform Policies that Enable Knowledge Societies in Asia

The conditions people live in are set, to a large extent, by the rules that govern their actions. Government policies and regulations also play an important role in determining whether, and in what manner, people access ICTs. The best example of this was the widespread acknowledgement that the mobile phone sector should be privatized and liberalized, which led to a revolution in mobile telephone penetration. Hence, it is clear that policy and regulatory environments are critical to achieving the types of objectives most Asian governments are targeting: bridging the digital divide, social inclusion, and creating knowledge societies. However, there are two principal challenges for policy-makers and regulators: a) the pace of technological change is tremendous, to the point where many have difficulty understanding their implications; and b) there is lack of clear and objective evidence to make effective decisions.



A satellite on the side of a Mongolian yurt

Moreover, some policies that are not directly related to telecommunications or technologies can have a direct impact on the way in which people access knowledge, and hence in helping to facilitate the creation of knowledge societies. For example, Asian countries' adherence to WTO rules, including TRIPS<sup>6</sup>, leads to a country's need to enforce stringent copyright rules that could have a detrimental effect on people's access to research and valuable information. The movement towards open and commons initiatives (most notably "Open Source," "Creative Commons," "Open Content," and "Open Access"<sup>7</sup>) are seen as the cornerstone of creating open knowledge societies.

The policy process however is not a one-way street and policy-makers do not have a monopoly on the creation or implementation of policies. Policies are created through a complex iterative process between action and ideas at the local level, formulation at national and regional levels, and implementation and (re)interpretation at micro, meso, and macro scales. The landscape of the policy process reveals actors at all scales negotiating, through action and words, the outcomes and meanings of policy development and implementation.

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<sup>6</sup> The WTO Agreement on Trade-Related aspects of Intellectual Property Rights (TRIPS) is an international treaty which sets down minimum standards for most forms of intellectual property regulation within all member countries of the WTO.

<sup>7</sup> **Open Source**, best known in the area of software, "relates to practices in the production of products which promote access to their sources." **Creative Commons** "enables copyright holders to grant some of their rights to the public while retaining others through a variety of licensing and contract schemes including dedication to the public domain or open content licensing terms." The intention is to avoid the problems current copyright laws create for the sharing of information. **Open Content** "describes any kind of creative work including articles, pictures, audio, and video that is published in a format that explicitly allows the copying of the information." **Open Access** "is the free online availability of digital content. It is best-known and most feasible for peer-reviewed scientific and scholarly journal articles, which scholars publish without expectation of payment." All definitions originate from *Wikipedia*.

### 2.2.1.1 Research on Telecommunications Regulatory Structures to Ensure Equitable Access to Connectivity

There is now general acceptance that access to affordable and effective telecommunications services is an integral part of ensuring continued sustained development and that “telecom networks and services provide the foundation for national “information society” programs as well as a rapidly growing information economy” (Melody 1997, p. 1). Most studies seem to agree that telecommunications reform is needed in order to fully benefit from the advantages of a networked society (OECD 2004). Best practices in reforming the sector generally consist of privatizing the state-owned operator, liberalizing and/or deregulating the market and technologies, creating an independent regulator, and streamlining regulatory mechanisms, while at the same time enabling the development of human capacities. The best evidence of the powerful nature of reform in this sector is the revolution in mobile cellular access, which, in large part, stems from opening the wireless mobile market to competition. Another key to enabling innovation and access, as demonstrated in OECD countries, has been the widespread deregulation of the “WiFi” spectrum.

#### **Box 1**

##### ***Building Asian ICT Policy Capacity***

*LIRNEasia is a PAN partner that endeavours to transform governance and regulation of ICTs in the Asian region from obstructive, inhibiting regimes, into ones that will allow opportunities for people to use ICTs in ways that will improve their lives and expand opportunities for entrepreneurs and innovators to introduce new products and services with a minimum of government interference. As part of the LIRNE.net network, LIRNEasia works toward building a team of Asian ICT policy and regulatory professionals that can work on equal terms with the best in the world.<sup>8</sup>*

In Asia, reforms have taken place, particularly in the mobile sector, which is partially responsible for the huge leap in access in the past decade. However, the existing reforms may not be adequate for ensuring the benefits of the latest technological advances to reach the rural masses, namely the advent of services for bringing high-speed data through the cellular network, and the ability to deliver voice telephony services over the Internet (VoIP). This technological breakthrough marks another important future policy consideration on how to deal with the convergence of voice and data services over the same network. Thus, more research still need to be done to the existing reform process, given that voice and data services have traditionally been governed under separate licensing schemes and in the case of voice, a rigid regulatory regime persists. Most of the low- and middle-income countries in Asia have recently stalled their telecom reform, which prevented access of the vast majority of rural communities to low-cost telephony or the Internet. Most Asian countries could, at this stage, be benefiting from key new technologies that would greatly increase access and lower costs. WiFi, or the 2.4Ghz band on the spectrum, is, in most of developing Asia, a licensed band. Some experts have called for a “spectrum commons” or an “open spectrum”<sup>9</sup> coalition in order to ensure bands like 2.4Ghz remain free.

<sup>8</sup> Adapted from [www.lirneasia.net](http://www.lirneasia.net)

<sup>9</sup> Open spectrum (also known as free spectrum) is a movement to get the government to provide more unlicensed spectrum, radio frequency spectrum that is available for use by all. Proponents of the “commons model” of open spectrum advocate a future where all the spectrum is shared, using Internet protocols to communicate with each other, and smart devices to find the most effective energy level, frequency, and mechanism. Previous government-imposed limits on who can have stations and who can’t will be removed, and everyone will be given equal opportunity to use the airwaves for their own radio station, television station, or even broadcast of their Web site. *Wikipedia*.

### 2.2.1.2 Appropriate Policies to Ensure Access Rights to Knowledge in Asia

Having access to telecommunications networks is not enough to fully benefit from ICTs. Access to the information conveyed by the networks is also key. However, as much as the Internet and the digital world give one historically unprecedented access to information, digital technologies, such as Digital Rights Management (DRM),<sup>10</sup> also have the potential to curtail people's access to knowledge. Indeed, rapid technological progress in information technologies, poses new issues for copyright law. Today, a digital file can be copied and instantaneously distributed worldwide through the Internet, thus potentially depriving the copyright holder of revenue from licensed sales. As a result, holders of copyright on creative works in digital format, generally emanating from developed countries, are contesting the right of consumers to make personal copies of copyrighted materials. At the same time, consumers are beginning to chafe at copyright owners' use of digital technologies to prevent or deter copying and other unauthorized uses of copyrighted works. Even worse, Asia is home to one of the biggest markets for pirated material in the world<sup>11</sup>. As digital processing grows more powerful and the high-speed distribution of digital content becomes more pervasive, the debate over copyright issues — in particular, whether copyright law has achieved the appropriate balance between incentives to engage in creative activity and the social benefits that arise from the widespread use of creative works — is likely to intensify.

#### **Box 2**

##### ***Access to Knowledge Copyright as a Barrier to Assessing Books, Journals, and Teaching Material***

*In Asia, current research seems to indicate that the balance is now squarely on the side of the rights' holders. Indeed, as evidenced by a PAN funded study, "Access to Knowledge Copyright as a Barrier to Assessing Books, Journals, and Teaching Material" (#102652), "out of the 11 countries studied, 8 countries have expanded the scope of protected copyright works beyond what is required under the relevant international instruments, and all 11 countries have given the copyright holder more rights than what they are required to do so under the relevant international instruments."<sup>12</sup> Moreover, "out of the 11 countries studied, 9 have extended the duration of copyright protection for all work forms beyond the minimum duration" required under international copyright instruments.*

Although most of the questions around access to knowledge revolve around copyright, it should also be said that a long-standing debate as to the relationship between patents and innovation also exists. The question as to whether patents help stimulate innovation (the conventional theory) or

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<sup>10</sup> "Digital Rights Management" (DRM) technologies are now included in many electronic devices to ensure users cannot copy digital content from one device to another. Many experts consider this to be an affront to the notion of "fair use."

<sup>11</sup> A 2004 study by the Business Software Alliance (BSA) and (International Data Corporation) IDC states that the piracy rate in the Asia/Pacific region was 53%, with dollar losses totaling more than \$7.5 billion and that some of the biggest Asian piracy culprits were Vietnam (92%), China (92%), and Indonesia (88%); <http://www.bsa.org/globalstudy/>. It should be noted that many experts dispute the methodology and statistics used by these industry funded think tanks.

<sup>12</sup> Consumers International Report on Copyright, namely the Berne Convention, the TRIPS Agreement and the WIPO Copyright Treaty, contain various provisions that may be relied on by national lawmakers to improve access to certain types of content. The copyright laws of 11 developing countries in Asia Pacific were examined to ascertain the extent to which the national lawmakers have availed themselves of the flexibilities presented in these instruments. The 11 countries are Bhutan, Cambodia, Papua New Guinea, China, India, Malaysia, Thailand, Kazakhstan, Indonesia, Mongolia, and the Philippines.

whether strict patents actually stifle innovation (for which there is an increasing amount of examples in the software domain) is an important one for policy-makers attempting to ensure their economies are able to be productive and competitive in the information economy (Boldrin and Levine n.d.).

### 2.2.1.3 Research Questions, Activities, and Expected Outcomes in the “Policies” Theme

Some specific **research questions** that could be focused on in the “Policies” theme include:

- ❖ What is the feasibility of the “Spectrum Commons” or “Open Spectrum” in less developed Asian countries? What are the new business models for community wireless networks?
- ❖ What types of reforms are needed in telecommunications regulations and policies for ensuring the poor and marginalized have access to ICTs? What are the most effective universal access strategies? What are the limits of deregulating telecommunications markets? What is more appropriate for achieving universal access: community access points such as telecentres, mobile telephony, or a mix of both?
- ❖ Which are the right indicators for understanding ICT access and usage in Asia?
- ❖ How should new technologies that show promise for including the digitally excluded, such as VOIP, Wimax, or WiFi, be regulated?
- ❖ How can we ensure research findings flow into the policy process? Where is it more appropriate for grass-roots approaches to advocate for change and where is it more appropriate for high-level experts to dialogue with policy-makers?
- ❖ What are the impacts of adhering to TRIPS rules with respect to innovation, access to knowledge, and economic growth in various digital domains (software development, e-commerce, access to digital educational content, etc.)? Who are the winners and losers when strict IPR regimes are enforced?
- ❖ The public domain and open access models of information creation: at odds with the intellectual property system or enabled by it? Are emerging business models for distributing intellectual property on-line an opportunity or threat to creating livelihoods in Asia?

The principal **activities** to be supported in this area may include:

| <b>Activities</b>                |  |
|----------------------------------|--|
| Telecom policy research networks | Including university, government, and NGO researchers and advocates that help build capacity to understand and produce the necessary evidence to enable policy reforms |
| Demand level data gathering      | Create a more realistic picture of how, and in what context, Asian communities, particularly poor and rural ones, are using ICTs                                       |
| Promoting dialogue               | Between researchers, regulators, grass-roots activists and policy-makers on key policy issues to promote reform  |
| Community connectivity pilots    | To build evidence on the most appropriate means to achieve universal access  |
| Ex-post evaluations              | Conducted for connectivity projects to better understand the best strategies for universal access  |
| Regional research network        | To study the impacts of copyright on access to knowledge, especially as they pertain to digital access   |
| Alternative copyright mechanisms | Build evidence on the suitability of (creative commons, open access, open source, etc.) to traditional copyright mechanisms  |

The key **outcomes** to be expected are:

- ❖ A body of evidence that serves to instigate change within the telecommunications policy and intellectual property policy spheres;
- ❖ The creation of networks of researchers and grass-roots activists, active in building evidence and promoting dialogue on key policy issues in the area of access to connectivity (telecommunications) and access to knowledge (IPR);
- ❖ Enhanced dialogue between the key policy stakeholders in the area of telecommunications policies and IPR;
- ❖ Increased awareness of policy-makers and ICT practitioners of issues related to barriers to access to knowledge and the potential of alternatives to traditional copyright mechanisms; and
- ❖ Changes in policies related to intellectual property and connectivity (access to networks and knowledge).

## Theme 2: Technologies

### *2.2.1 Objective 2: Applied Research and Piloting of Innovative ICT Applications for Development*

We generally agree that policy is a key factor in improving people's lives, as the decisions governments make can have an impact on people's livelihoods, health, and well-being. As we have mentioned above, policies also play an important role in people's access to technologies and information. However, many may ask: "Access for what?" This question is of course very important, as it isn't enough to ensure communities have access to the Internet or even information — technologies and information need to be relevant and useful. Therefore, it is important to create and test new uses for technologies that have a direct effect on bettering people's lives. Developed countries have used ICTs to increase communication, improve health conditions, ameliorate governance, better educate their citizens, and create economic opportunities (to a greater or lesser extent). Developing countries have started to do this as well, however, at times, applications have stalled in the face of inappropriate technologies. Indeed, many obstacles prevent these applications from having a truly beneficial effect, especially on rural communities: high cost, unreliable technology, illiteracy, lack of local language facilities, lack of energy sources, lack of useful content or applications, etc. In spite of these obstacles, one vital change has taken place in Asia in the past five years that could have a role in overcoming some of those obstacles: the mobile revolution.

The pervasiveness of mobile technologies in Asia, even amongst rural or marginalized communities, is a great opportunity to improve these communities' conditions. Every day innovative mobile applications in **health** (disease prevalence or demographic surveillance applications), **education** (distance education, learning management), **governance** (electronic voting, access to services) and **livelihoods** (agricultural price transmittal through SMS, remittances, etc.) are developed. Nevertheless, more needs to be done to develop and test mobile applications to make sure they are suitable and beneficial to the communities that need them most. Of course mobile applications are not the only ones that could be beneficial to Asian communities. As we have seen, access to the Internet is increasing as costs come down and the development of community wireless networks flourish.

Consequently, it is suggested that PAN support the piloting and testing of innovative ICT applications in four key development fields: **health**, **education**, **governance**, and **livelihoods**. Ultimately, research on these pilots should also be feeding into policy development processes to

ensure that successful pilots can be scaled-up and have as much beneficial impact as possible on larger communities.

### 2.2.1.1 ICTs and Livelihoods

The results from recent research suggest that there is a research gap in understanding the current and potential uses of ICT applications and approaches to support rural livelihoods. Several studies point to the fact that these users do not generally use telephones or the Internet for information gathering, a key benefit that is supposed to stem from these technologies. Moreover in poor rural areas, research is uncovering unanticipated uses of ICTs. According to Souter and Scott (forthcoming), in lower income rural communities in India, telephones are not only a potential means to *earn* income, but play an equally important role for poorer households as a way to *save* money (i.e., for transportation or postal costs.)

In the area of ICTs and livelihoods, PAN will focus much of its attention on agricultural communities, as Asia's poor- and middle-income countries have primarily agricultural-based economies. In this context, PAN will take a broader "livelihoods" approach that will ensure we can observe the variety of ways ICTs can have an effect on rural communities. The scope of this research would take into account the range of on-farm and off-farm productive and reproductive activities that support farming households and communities. This requires a holistic approach to understand how affordable and practical ICT applications can improve the livelihoods of smallholder households and communities taking into account how women and men in farming households make decisions, share resources, and divide labour; generate secondary income; and draw on human and financial resources from urban centres and foreign remittances *et alia*.

One means by which ICTs can be used is in agricultural extension and helping to reduce information asymmetry. Very few projects have been able to demonstrate any kind of positive impact in dealing with the issue of information asymmetry. However, some do exist, notably a pilot project by a company (Manobi) in Senegal, which focused on enabling farmers to access the price of produce on local markets in real time, using mobile phones. An IDRC evaluation of the project concluded that farmers significantly increased their incomes and made better production choices. Nevertheless, this experience has not easily been replicated, due to the fact that its success was possibly context specific. More emphasis therefore needs to go into understanding what the appropriate context is for bringing these experiences to scale in Asia.

Moreover, it is extremely important to undertake demand level research with rural communities to help better gauge their information needs and make certain that applications meet those needs. Too often, applications and projects have been "push" oriented, which has led to the situation mentioned in the study by Souter and Scott (forthcoming). One potential idea is to focus on issues related to remittances, which, for many parts of Asia remain a key source of income.<sup>13</sup> Currently for overseas remittances, clients need to use services such as Western Union that charge egregious sums to transfer money. Applications to facilitate remittances using mobile phones have the opportunity of ensuring more remittances get into the pockets of those who are supposed to receive them. Other possibilities include the use of ICTs for secondary and off-season income generation and the use ICTs in negotiations over rights and access to land, water, and forest resources.

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<sup>13</sup> A study by the Asian Development Bank (ADB) found that 80% of Philipinos receive remittances from abroad, which average US \$ 304 a month. Remittances remain the second-largest financial flow to developing countries after foreign direct investment, more than double the size of net official finance, reaching US \$ 100G.

### 2.2.1.2 ICTs and Health



Nurses and doctors look at digital images at the National Health University in Mongolia

The area of health is possibly the one where ICTs could have the most direct positive impact in helping to improve the lives of Asian communities. However, the first generation of largely donor driven “telemedicine” projects was generally a failure or proved to have a marginal impact on people’s health. Indeed, many of the technologies previously developed and tested were too expensive to be widely adopted in resource-poor settings. However, through the advent of more pervasive technologies such as mobile phones and Personal Digital Assistants (PDA), a new generation of health applications have come about that have actually made a proven difference. In Africa, Acacia funded a project on using SMS as a compliance measure for

patients taking their tuberculosis antibiotics, which resulted in 98% compliance. Moreover, an impact study on a project by the Indian Space Research Organisation (ISRO) that provides satellite-based telemedicine to remote areas has reportedly saved patients 81% of cost, due to savings in travel, stay, and treatment at hospitals in the city (Nair 2005). In addition, a cost/benefit study of using PDAs to undertake demographic surveillance of disease incidence in rural Uganda found that the Ugandan Ministry of Health could save significant financial and medical resources if the program was rolled out in the whole country<sup>14</sup>. As mobile use in Asia is more pervasive than in Africa, it is clear that the potential for these types of applications is tremendous.

#### **Box 3**

#### ***Providing Seed Funding for Innovative Projects in ICTs and Health***

*The PAN ICT R&D Grants Program provides seed funding to researchers pursuing innovative ICT-related solutions to address development problems. The program acts as an incubator to stimulate innovative ICTs for development research, of which some projects get scaled up into larger PAN-supported research projects. Two such innovative grants in Indonesia and the Philippines were recently approved in the area of ICTs.*

*Although Dengue Hemorrhagic Fever (DHF) is the leading cause of hospitalization and death among children in Indonesia, case detection and management, disease surveillance, and community-based control of dengue transmission, are fragmented activities. This small grant, awarded to the Gadjah Mada University, explores an integrated Web-based geographic information and decision support system, involving the local government, community members, health care and public health personnel, to improve the detection and management of DHF cases, and the prevention and control of dengue transmission in the community.*

*Mobile phones and SMS usage are widespread in the Philippines. This grant pilots a groundbreaking, user-friendly interface for a mobile injury-reporting information system using SMS. The data gathered through mobile phones also enable the development of pertinent health information database content that can be used for improving the health services of the communities involved.*

<sup>14</sup> Uganda Health Information Network: [http://www.idrc.ca/ev\\_en.php?ID=86353\\_201&ID2=DO\\_TOPIC](http://www.idrc.ca/ev_en.php?ID=86353_201&ID2=DO_TOPIC)

More research is needed to gauge, which applications and projects in the area of health have made a difference, understand why they have or have not been successful, and when warranted, try to scale them up. However, the fast pace of innovation in this area means that there is also a need for testing new applications, particularly in the area of demographic surveillance of disease incidence and medical compliance, using new technologies such as mobiles. Another area that has recently come to the forefront in Asia is the issue of pandemics. First Severe Acute Respiratory Syndrome (SARS), and now the Avian flu, are perceived as serious threats to the health of Asians, as well as the rest of the world. However, a key to mitigating the spread of these infectious diseases is to ensure appropriate data on outbreaks is captured and communicated to the relevant experts. ICTs can therefore play a critical role in helping to prevent or control pandemics, although more research and experimenting needs to be done to identify the most appropriate and cost effective means to develop health communications processes in rural areas, where many of these outbreaks start.

### 2.2.1.3 ICTs, Governance, and Human Rights

There are many examples in Asia of ICTs having been a principal facilitator of political change. The most oft-cited one is that of the toppling of Joseph Estrada, president of the Philippines, in 2001, when “Lightning rallies, noise barrages and street assemblies were all facilitated by the use of SMS (Short Messaging Service) on mobile phones and by e-petitions, as well as by blow-by-blow on-line accounts of the impeachment trial through the Internet”<sup>15</sup> Last year, President Arroyo, who benefited from this “e-coup,” was also close to being toppled by a cyber-scandal when a taped conversation between herself and an election official became the most popular ring tone on mobile phones in the Philippines.<sup>16</sup>

These examples demonstrate the power of mobile phones as disruptive technologies that have profound impacts in the area of governance and human rights. The Internet is also an interesting tool in this regard, with blogging (Web logs) and “guerrilla journalism” having taken on increasingly important roles in the discussion of political issues. The key is of course to ensure that ICTs help to ensure greater transparency and information dissemination. This is especially important in Asia as, according to Transparency International, in 2005, many Asian countries rank in the bottom half of the CPI (Corruption Perception Index), which indicates a high perception of corruption. India ranks 88<sup>th</sup> out of 158 countries, Philippines 117<sup>th</sup>, Indonesia 133<sup>th</sup>, Pakistan 144<sup>th</sup>, and Bangladesh 158<sup>th</sup> (tied dead last with Chad)<sup>17</sup>.

ICTs can also make it easier for public information to become readily available, as well as help to enforce people’s rights to this information, leading to greater accountability by many institutions and governments. More research, however, can be done in this domain, as many countries in Asia are only beginning to put value on public information for fostering greater democracy and political stability. For example, India recently passed the *Rights to Information Act*; more needs to be done however, to ensure that the process for obtaining and accessing the relevant information is done in an expedient and public-friendly manner.

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<sup>15</sup> “How IT helped to topple a president” [http://wireless.itworld.com/4273/CW\\_1-31-01\\_it/pfindex.html](http://wireless.itworld.com/4273/CW_1-31-01_it/pfindex.html)

One interesting SMS that was circulated after the demonstrations went as follows:

“CONGRATULATIONS! THANK U 4 UR SUPPORT N DS HISTORICL EVENT. ERAP WIL GO DOWN N PHIL. HISTORY S BEIN D 1ST PRESIDNT OUSTD BY TXT”

<sup>16</sup>For more see <http://news.bbc.co.uk/2/hi/asia-pacific/4120042.stm>

<sup>17</sup> [http://www.transparency.org/policy\\_and\\_research/surveys\\_indices/cpi/2005](http://www.transparency.org/policy_and_research/surveys_indices/cpi/2005)

#### 2.2.1.4 ICTs and Education

It is well understood that education is a key factor in sustainable development<sup>18</sup>. Throughout Asia, tertiary education is more difficult to access, in comparison to accessing primary and secondary education. This is due to the fact that many Asian countries provide either free or highly subsidized primary and secondary education facilities. As such, learners who are less economically endowed may have access to basic education, yet cannot access tertiary education, which is a cornerstone of the information economy.

A key challenge with regard to access to tertiary education is the sheer enormity of the Asian population, which is continuing to grow at a rapid pace. Additionally, the geography of many countries, such as the Indonesian and Philippine archipelagos and the mountainous parts of Bhutan and Pakistan, make it extremely difficult to access education using traditional face-to-face mechanisms. As a result, educational policy-makers in Asia increasingly look to distance education to solve adult and higher education access problems. In mainland China, for example, the absorption rate of higher education institutions stands at 19%, and therefore traditional, face-to-face, education is incapable of meeting society's higher education needs<sup>19</sup>. For the above-mentioned reasons, one is not surprised to see that Asia houses nine of the world's eleven "mega-universities."

#### **Box 4**

#### ***Regional Distance Learning Technologies Network***

*In 2004, PAN decided to build on its previous distance-education projects by developing a unique research and development network: PANdora (PAN Asia Networking Distance and Open Resource Access). PANdora is a regional project that links distance education practitioners in Cambodia, Hong Kong, India, Indonesia, Lao PDR, Mongolia, Pakistan, the Philippines, Sri Lanka, Thailand, and Viet Nam. By early 2005, the nine proposals had been refined and funded from 2005 to 2008 as the next round of PAN's contribution to Asian distance education.*

*Running simultaneously, the nine projects are designed to complement each other in building a comprehensive approach to distance education, specifically suited to Asia's urban and rural needs. The projects are monitored to prevent overlaps and duplication of effort. An interactive Web site has been developed ([www.pandora-asia.org](http://www.pandora-asia.org)), through which the project teams can collaborate in audio and text conferences and in testing new on-line applications, including messaging techniques and open-source learning management systems.*

It should be noted that PAN's decision to focus on distance education also stems from the success and experience from earlier work in Indonesia, Mongolia, and Vietnam. These earlier research projects generated teaching and research methods for use in formal and informal distance education, and infrastructures for their use. Other projects include one in the Philippines that applied a wide range of traditional and Internet-based technologies in community health and agricultural education, and a comprehensive infrastructure for the delivery of formal Distance Education (DE) in teacher continuous education in Bhutan. Researchers involved with these

<sup>18</sup> A UNESCO study ([http://portal.unesco.org/education/en/ev.php-URL\\_ID=28703&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/education/en/ev.php-URL_ID=28703&URL_DO=DO_TOPIC&URL_SECTION=201.html)) indicates life expectancy rises by as much as two years for every 1% increase in literacy.

<sup>19</sup> Much of the discussion of the importance of distance education is summarized in Annex 3.

projects have teamed up with researchers from the Asian mega universities to form the PANdora (PAN Distance and Open Resource Access) research network. This network consisting of 11 countries, is currently researching DE tools and methods that could build evidence for work on a new generation of educational issues such as: human rights, intellectual property rights, computer literacy, women's empowerment, business skills for street children, disaster management, rural surgery, auxiliary mid-wifery, water resources engineering, auto mechanics, and community rehabilitation and resettlement.

### 2.2.1.5 Continuing Areas of Interest

Although most of PAN's activities within this thematic area will be focused on the ones cited above, PAN will be open to other opportunities as they arise, particularly to be responsive to changing needs or technological innovations. Moreover, PAN will continue to operate in areas that have been considered its strong suit in the past. Amongst the key areas that PAN will continue to be involved in or could conduct explorations into are:

- ❖ *Environment and participatory GIS/Disaster warning and mitigation*: IDRC's response to the Tsunami led to numerous projects having been developed in this area, where PAN most often took a lead role. Indeed, ICTs are proving to be a key element of disaster prevention and mitigation, with GIS taking on a more prominent role.
- ❖ *Localization*<sup>20</sup>: both PAN's external review and its stakeholders in Cambodia identified localization as a key issue and the PAN Localization project (PANL10n) as a key strength of PAN in addressing it.
- ❖ *Web 2.0 and knowledge sharing*: this recent innovation in the area of collaboration and interactivity on the Internet, that involves blogs<sup>21</sup>, wikis<sup>22</sup>, podcasting<sup>23</sup>, Really Simple Syndication (RSS) feeds and other software applications, could potentially change the way people work with the Internet or together, and could help to enhance PAN's existing work on knowledge sharing and networking.

### 2.2.1.6 Research Questions, Activities, and Expected Outcomes in the "Technologies" Theme

Specific research questions in the "technologies" theme that PAN could focus on include:

- ❖ What is the role of ICTs in helping to resolve the issue of information asymmetry in Asian agricultural markets? How does better access to prices affect markets and livelihoods?
- ❖ Which ICTs are best suited to make positive impacts on rural livelihoods (mobile phones, radio, community access centres)?
- ❖ How can ICTs support activities in the informal economy? What role do ICTs play in capacity building of SMMEs in terms of market penetration and increasing productivity?

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<sup>20</sup> Software localization is a process of translating software user interfaces from one language to another and adapting it to suit a foreign culture. *Wikipedia*.

<sup>21</sup> A blog is a Web site in which journal entries are posted on a regular basis and displayed in reverse chronological order. The term blog is a shortened form of Weblog or Web log.

<sup>22</sup> Wikis is a type of Web site that allows users to add and edit content and is especially suited for constructive collaborative authoring. *Wikipedia*.

<sup>23</sup> A podcast is a Web feed of audio or video files placed on the Internet for anyone to subscribe to. *Wikipedia*.

- ❖ Which ICT health applications have had the most beneficial outcomes on people’s health and health systems? What are the best ways for ensuring that beneficial outcomes can reach the segment of the population that still doesn’t adequate access to health services?
- ❖ What is the potential of using new pervasive technologies such as mobile phones as tools to make the delivery of health services or information more effective?
- ❖ What types of applications are best suited to help prepare for, or mitigate the effects of, pandemics such as SARS and the Avian Flu?
- ❖ Which technologies and applications are best suited or most appropriate for improving the local governance of Asian countries? What are some of the ways ICTs can help increase/protect the democratic rights of people in Asia?
- ❖ What is the optimum intersection between access to education, affordability, and the types and level of ICTs used?
- ❖ What is the learning effectiveness of each type of technology (e.g., mobile, wikis, blogs, podcasting, etc.)

To address the suggested research questions, we suggest focusing on the following **activities**:

| <b>Activities</b>                  |  |
|------------------------------------|--|
| Foster technological innovations   | Study how best to foster technological innovations that are more appropriate for the Asian context (incubators, small grants, seed funding, South–South or North–South partnerships, etc.) and support the model that seems most appropriate |
| Develop thematic research networks | On health, livelihoods, distance education and governance to help catalyze learning, build evidence, and promote collaboration from and amongst various technology pilots  |
| Policy influence                   | Create mechanisms that ensure learning and evidence is also focused on policy influence  |

The key **outcomes** to be expected are:

- ❖ A body of evidence that serves to better understand which technological innovations are best suited to contribute to the solutions of the development problems in the areas of health, education, governance, and livelihoods;
- ❖ The creation of thematic networks of researchers and ICT practitioners in health, education, governance; and livelihoods that are active in sharing knowledge and developing innovative ICT applications in these areas;
- ❖ The development of innovative ICT applications that help solve development challenges; and
- ❖ Increased ability of researchers and practitioners in Asia to find solutions to the existing health, education, governance, and livelihood challenges through the use of ICTs.

## Theme 3: Effects

### ***2.3.1 Objective 3: Research Capacity Building for Understanding the Socio-economic Effects of ICTs on Asian Communities***

Having looked at PAN’s first two objectives on helping to create effective access policies and testing technological applications for development, some could think at this stage that there is an underlying assumption in these suggested activities: that access to ICTs and the information society that they help create, is generally a positive thing. A more nuanced explanation is that

ICTs are simply powerful tools, and that ultimately it's the people who use them that decide whether they are a force for helping or hindering the development of communities. However, a failing found in much of the research on the effects of ICTs in Asian countries is that it hasn't given an adequate picture of how and to what extent they have either helped or hindered the development of people, communities, and countries. For example, the relationship between ICTs and poverty is still poorly understood<sup>24</sup> as well as the intricacies of the socially transformative effects of ICTs. Much of that failing comes from the lack of appropriate capacity in ICT4D research in many Asian countries, but it also stems from the inadequacy of research methodologies to address these concerns. Methodological debates, which are often thinly disguised ideological debates, continue in developed countries: the new or endogenous growth theorists, a neo-liberal school, see technological innovation as the key to economic growth and prosperity; post-modernists see information and technology as having completely transformed society in various ways, and neo-marxists perceive technology as a new means to accentuate social exclusion. More research most certainly needs to be done that transcends these ideological viewpoints and gives a more holistic perspective of the impact of ICTs on Asian society.



Women train monks in Luang Prabang and influence gender roles by standing above the monks' eye-level

Another issue stems from how much of the information on the impacts of ICTs in Asia tends to be anecdotal or of dubious research value, which, again begs the need to develop rigorous, trans-disciplinary research methodologies, and apply them, in order to understand better how ICTs are affecting people's lives in Asia. Amongst some of the recent anecdotes or research on the impact of ICTs in Asia, one can cite:

- ❖ A survey<sup>25</sup> found that "at least 14 percent of Shanghai's teenagers are addicted to the Internet and that their devotion to the cyber world has created serious negative effects in their school and home lives." The article goes on to state "these children spend all their time online except for eating and sleeping. They have completely lost their self-control and have separated themselves from the outside world."
- ❖ Asian Internet pundits are describing a new phenomenon called "Internet suicides" of which the most recent case was a Taiwanese couple. The "young man and woman were found dead in her boyfriends [sic] apartment after they met , and decided to commit suicide together. This is the 12th of such incidents in Taiwan that have come to be known as Internet Suicides."<sup>26</sup>

Much research on ICTs in Asia tends to be technologically deterministic and focused essentially on the (real and potential) positive impacts of technologies, while turning a blind eye to some of the negative effects technologies can have on communities or development in general. Amongst the key examples one could cite are issues related to:

<sup>24</sup> For example, N. Chowdury (2000) states "What connection exists between ICTs and poverty in general and rural poverty in particular? The question has still not been answered. Even if ICTs, by increasing productivity, spur growth and exports, the benefits of such growth may not filter down to the rural poor ... more systematic research will be needed before we can answer this question definitively."

<sup>25</sup> "Youth workers try to pull plug on Internet addicts" in [http://news.xinhuanet.com/english/2005-12/15/content\\_3924209.htm](http://news.xinhuanet.com/english/2005-12/15/content_3924209.htm)

<sup>26</sup> Taiwan: Another case of Internet Suicide: <http://internetinasia.typepad.com/blog/internet/index.html>

- ❖ Censorship and uses of technology by governments to control their citizens<sup>27</sup>: China is thought to have set up the “most extensive and expensive censorship of any other country in the world”<sup>28</sup> and numerous Asian countries were cited as the most egregious culprits of on-line control of their citizens;
- ❖ Cyber criminality, the cost of which is now estimated at US \$ 150B<sup>29</sup>;
- ❖ Cyber-terrorism, where terrorists, who are often based in developing countries, could start attacking governments or other networks, thus, possibly creating havoc<sup>30</sup>;
- ❖ On-line entertainment including gambling and pornography<sup>31</sup>;
- ❖ Pornography, pedo-pornography, and other forms of harmful sexual practices<sup>32</sup>; and
- ❖ Increases in gender imbalances as some studies show men are possibly taking better advantage of the information society than women (Huyer et al. 2005).

The detailing of aforementioned issues are not meant to cater to the views of cyber-pessimists, as many of these negative aspects can be mitigated if they are better understood. Moreover, some of these issues, such as cyber-terrorism and cyber crime have a tendency to be exaggerated for political or commercial purposes. However, more research is needed to better comprehend the vast array of *actual* socio-economic effects ICTs have on communities in Asia, including the negative ones.

### 2.3.1.1 Research Questions, Activities, and Expected Outcomes in the “Effects” Theme

Consequently, some of the specific **research questions** that could be focused on include:

- ❖ What are the most appropriate methodologies for fully understanding the impact of ICTs on Asian societies and on the poor in particular?
- ❖ How can research capacity be built in Asia to better understand the socio-economic effects that ICTs are having on Asian communities?
- ❖ What are the positive and negative effects ICTs are having on Asian societies and how can they be mitigated?
- ❖ What are some of the effective strategies in mitigating the potentially harmful effects of ICTs, while maximizing their positive benefit?

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<sup>27</sup> Aldous Huxley (1958) of course reminds us that “Mass communication, in a word, is neither good nor bad; it is simply a force and, like any other force, it can be used either well or ill. Used in one way, the press, the radio and the cinema are indispensable to the survival of democracy. Used in another way, they are among the most powerful weapons in the dictator’s armory.”

<sup>28</sup> <http://www.asianews.it/view.php?l=en&art=1188>

<sup>29</sup> “Global cybercrime generated a higher turnover than drug trafficking in 2004 and is set to grow even further with the wider use of technology in developing countries”: [http://xtramsn.co.nz/news/0,,11965-5081071\\_00.html](http://xtramsn.co.nz/news/0,,11965-5081071_00.html)

<sup>30</sup> For a balanced view of the potential of cyber-terrorism see K. Keer (n.d.).

<sup>31</sup> “The fastest growing uses of the Internet include private, antisocial forms of entertainment, such as viewing pornographic material and gambling. To the extent that the internet facilitates activities such as these, it will weaken rather than strengthen social capital.” Warschauer (2004, p. 160).

<sup>32</sup> The prevalence of child pornography, child sex tourism, and child prostitution, facilitated by the Internet seems to be on the rise. Stern and Handel (2001).

In order to address these questions, it is suggested that PAN focus on these **activities**:

| <b>Activities</b>                                |   |
|--|---|
| Strengthening research methodologies             | Developing new and appropriate methodologies and research tools for understanding the impact of ICTs on Asian society   |
| Building institutional capacity                  | Building capacity in research institutions and universities to undertake sound research practices. This may include developing appropriate ICT4D curriculum and supporting awards and scholarships  |
| Research to help validate research methodologies | Supporting research to help validate the research methodologies and illuminate our understanding of the effects of ICTs on Asian society. This research will be undertaken as either pre and post projects, where methodologies will be implemented from the beginning to end or through ex-post evaluations of existing ICT4D projects |

The key **outcomes** to be expected are:

- ❖ A better understanding, through the development of a guidebook or a similar output, of the most appropriate research methodologies for understanding the interaction between ICTs and development;
- ❖ Increased capacity of Asian researchers and ICT practitioners in the area of ICT for development research;
- ❖ Increased knowledge of the positive and negative effects ICTs are having on Asian communities; and
- ❖ Mitigation techniques and maximizing strategies for limiting the harmful effects of ICTs while ensuring the positive effects of ICTs can reach wider beneficiaries in Asia.

## **2.3 Programing Approaches and Modalities**

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### **2.3.1 Thematic Regional Networks**

Building on PAN's positive experiences in implementing regional thematic networks on localization (PANL10n) and distance education (PANdora), which were among PAN's most successful activities, PAN will work as much as possible through networks. Experience has shown that networks can ensure greater knowledge sharing, have more scope for research activities, enable greater capacity building through peer support and mentoring and generally show more administrative resilience. Subsequently, it is assumed that the majority of PAN's funding will be used to support thematic research networks within the three themes. PAN will continue to utilize its traditional method for fostering networks, which entails PAN identifying ideas and partners through its PAN Small Grants program and subsequently linking them together regionally. However, PAN may also support existing networks, which fit into its programing themes. Finally, PAN's networks will move towards being linked with thematic networks in the two other regions, LAC and Africa, a process that has already commenced in the area of policy research for example.

In order to make certain PAN's support of networks is effective, significant capacity building efforts will be supported as well. For example, network coordinators will be encouraged to adopt an evaluative thinking process with regard to the networks they manage; knowledge share with other network coordinators; and use state-of -the-art tools that facilitate networking, such as Skype or other chat tools. Finally, PAN has included an assessment of its activities involving networks within its evaluation strategy, in order to gauge issues like network effectiveness and capacity.

### **2.3.2 “Holistic” Country Programing and New Regions**

PAN has decided to undertake “holistic” programing, defined as developing a program in a country where each PAN theme is focused on in a coordinated manner. The principal criteria used for deciding which countries would benefit from this approach are the following:

- ❖ A “window of opportunity” is open, in relation to the potential to instigate change, particularly at the policy level;
- ❖ There is significant potential for capacity building;
- ❖ No other donor is significantly active in the program area; and
- ❖ Local partners who could champion projects and be change agents exist.

At this stage, PAN has identified the following countries (although this is subject to change within the programing cycle, particularly as the assessment of a “window of opportunity” is a moving target):

- ❖ Cambodia
- ❖ Mongolia
- ❖ Bhutan
- ❖ Indonesia
- ❖ Sri Lanka

Some of these countries could be considered “countries in transition” and hence there is a certain level of risk inherent to programing in these nations, however, PAN’s evaluation strategy includes an assessment of this programing approach to ensure the benefits and drawbacks are well understood.

### **2.3.3 Continuing Program Modalities**

PAN will continue to use some of its traditional programing approaches such as the *PAN R&D Small Grants program* and the *PAN All Conferences*. The Small Grants program helps PAN identify new partners and new ideas, as well as foster innovation. PAN’s large existing networks, PANdora and PANL10n both originated as small grants. It is further suggested to use the small grants mechanism, amongst others, within the context of piloting innovative ICT applications for development (within the “Technologies” theme), as innovation tends to thrive in the context of flexible support mechanisms.

The PAN All Conferences, which are planned at the midpoint and near the end of the prospectus cycle, are organised to enable knowledge sharing of PAN partners. The conferences also help PAN identify new research priorities and adjust its programing accordingly and therefore play a role in PAN’s evaluative thinking process.

### **2.3.4 Collaboration with the Centre**

PAN will partner and collaborate with other initiatives within the centre, although collaborations can be viewed as either within program area (ICT4D) collaborations or partnering on activities with other program areas in IDRC. It can be envisaged that most of those opportunities will arise within the context of cross-cutting issues that both IDRC and its Board of Governors have identified as important (for example, focusing on health pandemics, IPR, disaster mitigation, etc.). PAN has extensive experience working with programs outside ICT4D, notably a large joint

project with the Rural Poverty and Environment (RPE) program on “Adaptation and Livelihood Resilience (in the context of post-tsunami mitigation)” and collaboration with the Social and Economic Equity program area on pro-poor policies and regulations on access. Some of the suggested areas for future collaboration with other program areas include:

| <b>Program Areas &amp; Divisions</b>               | <b>Intersection with PAN Programing</b>   |
|--|---|
| <b>Social and Economic Policy</b>                  | Pro-poor telecommunications regulations; Research on the gender dimensions of ICTs and their incidence  |
| <b>Environment and Natural Resource Management</b> | Disaster warning and mitigation; GIS for development; ICTs and Health/Pandemics   |
| <b>Innovation Policy and Science</b>               | Promoting innovation and research on the impact of current IPR regimes, research on innovative convergent technologies and convergence issues (bio-tech, S&T systems) |
| <b>Canadian Partnerships</b>                       | Strategic partnerships with Canadian Universities and research institutions within the context of regional thematic networks  |

The ICT4D program area already has a strong tradition of cross-PI collaboration, particularly on thematic issues of importance to all regions. Most of the collaboration will be linked to ICT4D’s three themes of “from regional context to global networks,” “information economy,” and “scaling up.” Much of the collaboration will also build on existing activities that have been the subject of cross-program activities within ICT4D, which are described in the table below:

| <b>Other ICT4D Programs</b>                                     | <b>Intersection with PAN Programing</b>   |
|---|---|
| <b>Acacia/Connectivity Africa</b>                               | Localization, Policy Research, IPRs (Creative Commons and open initiatives)                         |
| <b>Pan Americas/ Institute For Connectivity in the Americas</b> | Policy research, open source business models  |
| <b>Bellanet</b>   | Capacity building for knowledge sharing and networking; IPR   |
| <b>Telecentre.org</b>   | Supporting learning and research on telecentre initiatives; capacity building for knowledge sharing |

### 3. Gender Strategy

As with other domains of development research and practice (i.e., agriculture, natural resource management, community development, etc.) it is no longer acceptable to focus on the viability of ICT technologies or policies without considering the social relations that will mediate or restrict access, decision-making, use, rights, costs, etc. of these technologies and policies amongst a socially differentiated target community or group. In this prospectus, PAN will recognize that technologies and policies become meaningful in communities that are differentiated, organic, socially fragmented, and gendered. Since households, communities, and governments can be simultaneously collaborative and competitive, research within the three thematic areas must recognize and engage with the social and gender relations of power that cross boundaries of household, community, and state. This acknowledges that the intended beneficiaries of development research and practice are not passive recipients, nor even willing “participants” in a process designed outside their life experiences. Rather they are actors in the research and policy

processes, ultimately contributing to their success or failure. Policy-makers, researchers, and activists are not totally in control of the process.

The popular assumption that policies (thematic area #1), for example, are gender neutral actually leads to policies that are at best gender blind and more often gender discriminatory. Using neutral and inclusive language in policies does not guarantee that the effects of said policies are neutral. As Elson (1994) indicates for economic policy reform, macro policies become meaningful at the meso and micro scale. What appears gender neutral (i.e., in terms of access) at a macro scale proves to be quite gendered as rights are negotiated at community (meso) and household (micro) scales.

Applied research on ICT applications (thematic area #2) must focus equally on technological design and community use/application. We cannot test the technology in a social vacuum. In order for a technology to work well in a development context, we must ask “work for whom, and how?” Whose health, whose access to services, whose education, whose transaction? Just as the introduction of a new irrigation system in a rural community can intensify existing gender and social struggles at community and household levels over rights, decision-making, economic goods and other resources, so too will the introduction of new ICTs. How do men and women, youth and adults, farmers and fishermen, use new technologies differently? How do we monitor and assess unanticipated applications of new technologies that could be scaled up more broadly amongst a particular target population?

The third thematic area (Effects) allows PAN to build and support a group of Asian researchers with strong social science research skills who can generate new knowledge on gender transformative aspects of ICTs on Asian communities and support better and stronger research in the other two thematic areas. Gender and social analysis on the political economy aspects of the knowledge revolution will bring new understanding to the positive and negative implications of ICTs on socially differentiated groups, and economically differentiated communities and states in Asia. What are the implications of the Internet, for example, on gender justice within the context of the proliferation of sexual trafficking and pornography on the Internet? How has/could the introduction of new technologies in politically fragile states contribute to the re-enfranchisement of young men struggling to understand modern changes in gender relations?

Over the next four years, as PAN supports a diversity of research in the three thematic areas outlined in this Prospectus, PAN will foster and promote cutting-edge research on social and gender dimensions of ICT4D. Drawing on internal and external expertise, PAN will support a capacity-building program within the region in order to build an appropriate endogenous skill-set and knowledge base on social dimensions of ICTs in Asia that is respectful of the cultural diversity of the region. Our goal is twofold: a) to ensure that PAN-supported projects do not create additional development problems by neglecting the social/gender implications of a research issue; and b) to support research on ICTs in Asia for gender transformative outcomes.

PAN will appraise projects using the assumption that “there is no gender-neutral project.” By adopting this assumption, PAN staff will open spaces to engage partners in discussing the conceptual and methodological implications of considering gender and social dimensions. While projects at various stages may not have explicit methodological requirements for gender and social analysis, the conceptualization of the research problem should at least outline the future social and gender implications of the overarching research issue with a view to addressing these dimensions as the research process matures either through a multi-phase research effort or a subsequent research intervention (supported by IDRC or another institution). To ensure that gender is adequately and appropriately integrated into PAN-supported projects, the team will

develop a simple monitoring tool that can be used to analyze each project's integration of gender and social analysis.

## **4. Partnership Strategy**

### **4.1 PAN's Partnership Strategy**

PAN will follow the same strategy as the ICT4D program as a whole: focus on "Big RX," (i.e., co-funding arrangements over CAD \$ 1M, and strategic partnerships). Generally, the time and administrative burden of seeking project level co-funding, makes that type of resource expansion less than optimal, hence more emphasis will be put on parallel funding and "Big RX." Moreover, PAN will attempt to attract resource expansion for its large networked projects to facilitate their sustainability and develop a greater scope of research activities. The strategy will also focus on strategic partnerships with key like-minded donors, notably IFAD and OSI. However, the crux of PAN's partnership efforts will focus on attempting to establish a "Connectivity Asia" program.

#### ***4.1.1 Connectivity Asia***

Both Africa and LAC have benefited from large amounts of external funding in the form of Connectivity Africa (CA) and the Institute for Connectivity in the Americas (ICA) respectively. Both these programs have been merged with their respective regional research PIs and have allowed a great amount of synergy and flexibility in programing. PAN and ICT4D management have spent a considerable amount of time and effort in attempting to convince Industry Canada, CIDA, and DFAIT to support a Connectivity Asia program, which, as yet, has not borne fruit. However, much of this, as with Connectivity Africa and the Institute for Connectivity in the Americas, is an issue of timing.

The principal resource mobilization strategy will therefore focus on linking a possible Connectivity Asia deliverable to Canada's engagement in international events related to Asia. In the near future Canada, may re-engage with the Association of Southeast Asean Nations (ASEAN) (especially if the issue of Myanmar is resolved and India and China participate), which may be an interesting vehicle for greater Canadian engagement in ICT4D activities in the region. Canada and IDRC are well respected in this area. The fact that IDRC already has a history of collaboration with ASEAN is an added impetus (including the PAN collaboratory which is currently housed at the ASEAN Foundation (AF) in Indonesia, as well as proposed project collaboration with ASEAN on facilitating emergency preparedness around the Avian Flu pandemic). The other possibility is engagement or involvement at the level of APEC. Industry Canada, a strong ally of IDRC in the area of developing ICT4D projects, is a leader in the Asia-Pacific Economic Cooperation (APEC) Telecommunications Committee. PAN has already discussed with Industry Canada the possibility of there being greater engagement of IDRC on the Committee.

PAN would seek approximately CAD \$ 20-30M over a 3 to 5-year period. The early ideas for programing would be a focus on innovative connectivity solutions for remote areas of Asia.

#### ***4.1.2 Strategic Partnerships***

The International Fund for Agricultural development (IFAD) is one of IDRC's strategic partners and has funded both PAN (ENRAP Phases 1 and 2) and Acacia (Karianet). The second phase of

ENRAP is coming to an end in 2006 and PAN is already exploring the possibility of a new phase of ENRAP. IFAD is receptive to the idea, although the focus of the project might move from knowledge sharing to innovative ICT applications in the area of agriculture in order to be more closely linked to IFAD’s mission and PAN’s work. PAN would seek approximately CAD \$ 2M of co-funding over the five-year period.

The Soros Open Society Institute, a key partner of ICT4D-IDRC, exhibits values in their projects (cutting-edge thinking, participatory processes, funding flexibility), as well as a programmatic scope (intellectual property rights, wireless community development, etc.), that encourages collaboration. PAN already has a history of co-funding with OSI including a project on “*Access to Knowledge - Copyright as a Barrier to Accessing Books, Journals, and Teaching Material*” (#102652). A clear area of future collaboration is based on the potential of “open” and “commons” approaches to knowledge production and dissemination, as well as on issues related to open spectrum.

The “Canadian Family” is PAN’s most important partner. PAN plans to have activities that will fit within the sectoral focus priorities of the International Policy Statement (Promoting Good Governance, Improving Health Outcomes, Strengthening Basic Education, Supporting Private Sector Development, Advancing Environmental Sustainability, Ensuring Gender Equality), and plans to program in countries that are identified as CIDA priority countries (Bangladesh, Cambodia, Indonesia, Pakistan, Sri Lanka, Vietnam). Current collaborative discussions with CIDA have focused on partnerships in the area of scaling up key successful technology pilots in areas and countries of focus of both CIDA and IDRC. Collaboration with Industry Canada will focus on the potential development of Connectivity Asia, engagement within regional organizations (APEC for example), and potential areas where strong synergies arise.

#### 4.2 Resource Expansion Projections

Co-funding and parallel funding projections take into account a percentage probability factor, for example, the projections for Connectivity Asia are conservative estimates based on a crude notion that there is a 50% probability this may occur.

|                          | 2006-07     | 2007-08   | 2008-09   | 2009-10   | 2010-11   | TOTAL      |
|--------------------------|-------------|-----------|-----------|-----------|-----------|------------|
| Connectivity Asia        |             | 10M       |           |           | 5M        | 15M        |
| Project Co-funding       | 0.5M        | 1M        | 1M        | 1M        | 0.5M      | 4M         |
| Project Parallel Funding | 1M          | 1M        | 1M        | 1M        | 1M        | 5M         |
| <b>RX Total</b>          | <b>1.5M</b> | <b>7M</b> | <b>2M</b> | <b>2M</b> | <b>4M</b> | <b>24M</b> |

## 5. Communications and Dissemination

Communicating and disseminating information about PAN and its research findings is central to the PI’s *modus operandi*. PAN will essentially adopt a two-pronged approach to reaching target audience groups - the first focusing on program-level activities, and the second focusing on assisting PAN partners in effectively disseminating research findings through appropriate strategies and channels. The communication strategy for this Prospectus outlines its objectives, target audiences, as well as tools and mechanisms to communicate PAN-supported research on the three thematic concentrations, *Policies, Technologies, and Effects*.

A number of overarching objectives define the purpose and desired outcomes for the PI in communicating relevant knowledge and research findings. These include:

- ❖ Increasing general awareness of the PI and research done by our partners;
- ❖ Improving the visibility, reputation, and positioning of our partners and partner institutions;
- ❖ Informing and influencing key players in the policy-making arena; and
- ❖ Exploring more accessible and development-oriented mechanisms to publish and disseminate materials.

The target audiences for PAN's communication strategy are current and potential research partners, ICT practitioners, academic institutions, grassroots organizations, private sector institutions, other civil society groups, as well as various levels of policy-makers at national, regional, and international fora.

PAN's current arsenal of communications material includes a suite of bilingual products to capture PI-level information as well as specific learning from selected projects. The cohesive set of material include a thematic book covering PAN-supported research and partners since 1994; a concise and informative tri-fold pamphlet; a poster; a CD containing the electronic version of the book, videos, and an exhaustive list of PAN's projects; as well as a documentary-style video highlighting research findings as told by PAN's partners. Accurate and consistent information about the PI and projects can also be found on the PAN Web site (<http://www.idrc.ca/panasia>) and via the ICT4D searchable project database (<http://www.idrc.ca/ict4d/search>). Each on-line project profile includes a project description, a list of research findings, publications, news stories, and achievements.

Getting research findings into the hands of policy-makers, practitioners, universities and civil society groups in Asia is a key driving force behind PAN's mission. According to a study done by IDRC's Evaluation Unit, even the best policy research will have little or no influence in policy-making arenas if results are not made available to decision-makers (Adamo 2002). As such, promoting the publication of PAN-supported research in peer reviewed journals and positioning our partners in the proper policy arenas are crucial elements of the communication strategy. This is accomplished through a number of PAN projects such as the Digital Review of Asia Pacific (DirAP). Through DirAP, PAN fosters a community of scholars and practitioners to publish their respective country chapters in a widely disseminated piece. Currently embarking on its third edition, DirAP is now one of the most important publications on ICTs in Asia, with reports on how 29 economies are using ICTs in business, government, and civil society. In the upcoming phase, DirAP has been identified as a principal means of disseminating key research findings from various PAN-supported projects.

Recognizing the limited reach of hard-copy publications, PAN actively supports freely available on-line versions of its publications and intends to explore the emerging Open Access (OA) paradigm. Open Access promotes free on-line availability of digital content and is best known and most feasible for peer-reviewed scientific and scholarly journal articles. PAN will continue to encourage partners to publish in peer-reviewed journals, to self-archive,<sup>33</sup> and contribute to public domain<sup>34</sup> research. These mechanisms not only facilitate access to PAN-supported research by

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<sup>33</sup> Self-archiving is the concept of an author depositing their own work into an electronic archive, usually with reference to an open access e-Print archive.

<sup>34</sup> The public domain comprises the body of knowledge and innovation in relation to which no person or other legal entity can establish or maintain proprietary interests. This body of information and creativity is considered to be part of the common cultural and intellectual heritage of humanity, which in general anyone may use or exploit. ([http://en.wikipedia.org/wiki/Public\\_Domain](http://en.wikipedia.org/wiki/Public_Domain))

everyone, but also increase visibility and better position PAN partners in different arenas of policy-makers and practitioners.

Finally, PAN will continue to support the holding of PAN All Conferences, as it has in the past. These conferences serve to assemble PAN's key partners in Asia, and potential new partners, to discuss key research findings, share knowledge, and identify new priority research areas. The first PAN All Conference is expected to take place in 2007.

As is the case with all strategies, it is essential to evaluate and learn if, how, and why the established objectives were achieved. Among the planned evaluative actions are: assessing behavioural changes in the different target groups outlined above; associated policy influence resulting from disseminating practices; and enhancing the dialogue among different actors in the area of ICT4D research in Asia.

## **6. Challenges and Risks**

PAN foresees a number of key challenges and risks in the pursuit of achieving its objectives.

### **6.1 Lack of Requisite Local Research and Institutional Capacity**

There is a risk of there being a dearth of individual or institutional capacity, whether at the levels of administration or research, on the topics that PAN wishes to address. This is especially problematic in the context of helping to foster regional networks, when strong institutional hubs are needed that can help coordinate network activities. Although there are numerous institutions in the richer countries of Asia that have all the requisite capacity for this type of work, PAN strives to work and build capacity with institutions in the poorer regions of Asia. In this regard, core institutional grants to strengthen administrative capacity may be looked upon as a solution. As for individual research capacity, much of that potential risk is addressed in PAN's third proposed objective. However, to ensure that these risks are not having negative consequences on PAN's programing, the PI does propose to undertake an evaluation of how effective it is in building capacity.

### **6.2 Country Programing in Countries in Transition**

As has been mentioned, PAN proposes to develop "holistic" country programing in countries that could be defined as "in transition." There are inherent risks associated to the fact that political or civil strife and corruption could take place that would jeopardize project implementation. As the IDRC study on "Understanding local Realities in Countries in Transition" (Smyth and Gorman 2005) states, it is important to ensure that appropriate intelligence gathering is done; that appropriate risks are assessed and identified (particularly in PADs), and be prepared for more labour-intensive work in these countries. Moreover, PAN has included the issue of efficacy of the country programing approach within its evaluation plan.

### **6.3 Sustainability of Technology-related Projects**

As with all projects related to technology, there are challenges related to sustainability. What happens to equipment, or recurrent costs such as bandwidth, once a pilot ends? Many ICT4D projects have been faced with this dilemma, particularly with regard to larger connectivity projects such as telecentres. PAN will generally not be involved in traditional connectivity projects, such as telecentres, but rather will focus on supporting the development of technological

applications for which there are minimal recurrent costs. However, in the case where PAN does support projects where there are recurrent connectivity costs, PAN will attempt to seek follow-through funding or develop business models at the project's inception that might assist sustainability. Moreover, most of the community connectivity projects that PAN will be involved in will be the subject of collaborations with telecentre.org.

#### **6.4 Dealing with Politically or Socially Sensitive Topics**

PAN plans to deal with certain themes that could be considered politically or socially sensitive, such as censorship, pornography, or on-line gambling. PAN will carefully identify, measure, and weigh the risks associated with these types of projects, and will always seek advice from IDRC's general counsel to ensure that IDRC and Canada are not unduly harmed by these activities.

### **7. Evaluation Plan**

As part of a learning institution, project- and program-level evaluation activities conducted throughout this Prospectus are integral to PAN maintaining flexible, responsive programming and feeds into the formulation of future objectives. The driving forces behind this evaluation plan include:

- ❖ Maintaining a balance between learning and accountability, which includes fostering institutional learning and matching outcomes and objectives;
- ❖ Ensuring selected programming approaches are relevant to achieving PAN's mission (countrywide programming, regional networks, etc.);
- ❖ Contributing to cross-PI contextual and evidence-based thinking on certain key issues (gender mainstreaming, capacity building, influencing policy); and
- ❖ Preparing findings and other material to facilitate the external PI evaluation process.

Recognizing that no single, best, generic evaluation method exists, PAN is looking to use a variety of evaluation tools and methodologies to better understand the reach and influence of the research it supports. Continuing the strong tradition of empowering the researchers in all aspects of project development and implementation, PAN will remain committed to the use of the participatory evaluation approach. Outcome Mapping (OM) will be explored as an option for evaluating some of PAN's ongoing capacity building activities, and perhaps in some regional networks or countrywide programming endeavours. Key focus areas identified for evaluative thinking during this prospectus include gender mainstreaming, capacity building, and influencing policy. A combination of summative studies as well as large learning studies, which is further outlined in Table 1, will be used to draw out learning from various PAN projects and activities.

PAN held an All Partners' Conference at the midpoint of its previous prospectus (March 2003) to take the pulse of ICT4D issues in the region. A similar exercise, be it face-to-face, virtual, or a combination of the two, will be conducted at the midpoint of this prospectus. Another highly effective, self-assessment tool that was used near the end of the 2001–2005 Prospectus was the "PAN Progress Report." This report encapsulated PAN's activities over the course of the prospectus and related them to the PI objectives. It also proved to be a very useful overall stock-taking exercise for PAN, as well as the external evaluators.

The evaluations outlined in the evaluation plan, mark distinct periods in time for various types of evaluation activities. However, evaluative thinking is part of the ongoing work that PAN feeds into program and project development. The Rolling PCRs, annual team retreats, Program Area

meetings, project planning meetings, PAN All Partners events, major international meetings, and bi-weekly team chats all provide time and scope for reflection and learning within the PAN team and with colleagues and partners that shape the way programing unfolds during the Prospectus period.

**Table 1. Informal Framework of Planned Evaluations by Year (e.g. 2006–2007) and Prospectus Objectives**

|    | Objective 1: Policies for Better Access  | Objective 2: Technologies for Development | Objective 3: Understanding Socio-Economic Effects (Capacity Building) | Other   |
|----|--|---|---|---|
| Y1 |  | PAN R&D Grants Evaluation <sup>35</sup>   |   | Built-in project evaluations acting as stand-alone pieces as well as feeding into summative evaluative thinking by focus area |
| Y2 | Assessment of existing large regional network projects (PANdora, PANL10n) and emerging networks on ICTs and Health, etc. | Gender study                              |   |   |
| Y3 | Mid-point Program Evaluation Exercise (Face-to-Face and Virtual Meeting with Existing and Potential Partners)            |   |   |   |
|    | Summative Study on Policy Influence <sup>36</sup>  |   |   |   |
| Y4 | Evaluation of Country-wide Programing Strategy   |   |   |   |
| Y5 | Self-Evaluation via Progress Report (Similar to what was done for the last prospectus)                                   |   |   |   |

<sup>35</sup> This evaluation is strategically planned to gauge how the current administering institution has performed with regards to the objectives that were established. A consultant has already been identified.

<sup>36</sup> This study will examine PAN projects, which have had policy influence in some shape or form. Projects to be considered for this summative study include ones with explicit objectives to influence policy such as: Impact of Policy Environment Factors on the Electronic Commerce Development in Vietnam (100507); Strategy for National ICT Policy – Mongolia (100507); Learning from ICT4D Research to Enhance Policy-making in the Philippines (102043); and those that have had policy influence as a complementary effect of the project’s objectives such as Impact of ICTs on Poverty Alleviation in Rural Pondicherry, India (102340).

Table 2 draws “evaluation issues” from Table 1 and develops them further with regards to: intended users/uses; responsible officer, timing, and risk.

**Table 2. Development of Evaluation Issues (see Table 1): Intended Users/Uses, Audience, and Timing**

| Evaluation Issue  | Intended Users & Uses                         | Audience  | Timing |
|---|---|---|--------|
| PAN R&D Grants Evaluation   | PI, Partners, Future Direction of the Program | Partners, IDRC, other thematic networks in the region           | 2006   |
| Assessing cross-regional thematic networks (mature ones such as PAN Localization and PANDora, as well as emerging ones) | PI and Partners                               | Partners, IDRC, other thematic networks in the region           | 2007   |
| Gender Study  | PI, IDRC                                      | Partners, IDRC, other research agencies                         | 2007   |
| Mid-point Evaluation  | PI and Partners                               | Partners, thematic networks supported by the PI                 | 2008   |
| Policy Influence Study  | PI, IDRC                                      | Partners, IDRC, Other research agencies                         | 2008   |
| Evaluation of Country-wide programing   | Project Leaders, PI Stakeholders              | IDRC, other emerging country-wide program development, OM users | 2009   |
| PAN Progress Report   | PI  | IDRC, External Evaluators                                       | 2010   |

Evaluation plans are flexible by nature and contain a certain element of risk. In addition to the risks outlined in Section 6 of this document, the use of alternate evaluation methods such as Outcome Mapping may pose a risk when training project partners on how to use OM for evaluation and monitoring purposes. Using this plan as a guiding framework, PAN will allocate the necessary resources, both time and human, to derive learning from its projects and programing, and contribute toward accountability for the external review process.

## 8. Financial Resources

Although it is very difficult to accurately project how much annual funding would be required to accomplish each of the three objectives, the following chart outlines indicative values based on strategic decisions and assumptions. PAN recognizes the different nature of research required for each of the objectives and has forecasted funding to reflect this. For example, as Asia moves toward ubiquitous access, there will be an increasing need for research in the area of socio-economic *effects*. The following chart is based on the following assumptions:

- ❖ PAN’s capacity to program will continue to ameliorate and maintain its high reputation among its partners;
- ❖ The absorptive capacity of PAN’s partners and institutions will increase; and
- ❖ The Canadian Official Development Assistance (ODA) envelope as well as IDRC’s funding will increase.

**Table 3. Proposed Financial Resources**

| <b>Proposed Budget for 2006-2011 (Millions)</b> |                 |                 |                 |                 |                 |              |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|--------------|
| <b>Themes</b>                                   | <b>FY 06-07</b> | <b>FY 07-08</b> | <b>FY 08-09</b> | <b>FY 09-10</b> | <b>FY 10-11</b> | <b>Total</b> |
| Policies<br><i>(30%)</i>                        | 2.0             | 2.0             | 2.0             | 2.0             | 2.0             | <b>10.0</b>  |
| Technologies<br><i>(50%)</i>                    | 2.7             | 3.0             | 3.0             | 3.5             | 3.5             | <b>15.7</b>  |
| Effects<br><i>(20%)</i>                         | 0.7             | 1.0             | 1.0             | 1.5             | 1.5             | <b>5.7</b>   |
| <b>Total</b>                                    | <b>5.5</b>      | <b>6.0</b>      | <b>6.0</b>      | <b>7.0</b>      | <b>7.0</b>      | <b>31.4</b>  |
| FTEs  | 4               | 4               | 4               | 4               | 4               | 4            |
| IDRC<br>Funding per<br>PO                       | 1.4             | 1.5             | 1.5             | 1.75            | 1.75            | 5            |

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## Annex 1. Program Initiative Team

| Name                  | Position and Location                     | Area of Interest   |
|-----------------------|---|--|
| Laurent Elder         | Program Leader, Ottawa                    | ICT policies and regulation; research methods in the area of ICT4D   |
| Maria Ng              | Senior Program Officer, ASRO (Singapore)  | Distance education and technologies; library and information science; development information systems                        |
| Frank Tulus           | Senior Program Officer, SARO (New Delhi)  | Last mile solutions and universal access issues; social impact of ICTs; participatory research methods                       |
| Kathleen Flynn-Dapaah | Senior Program Officer, Ottawa            | Social and gender impacts of ICTs; political economy of ICT4D interventions; social/gender research methodology and analysis |
| Shalini Kala          | Project Officer (ENRAP), SARO (New Delhi) | ICT applications for the rural poor; ICTs and agriculture  |
| Chaitali Sinha        | Research Officer, Ottawa                  | Innovative ICT applications; Gender dimensions; research methods; social and economic effects                                |

## Annex 2. Internet Usage in Asia

| Annex 2: INTERNET USAGE IN ASIA: “Haves” and “Have nots” |                        |                             |                             |                        |                            |                   |
|--|------------------------|-----------------------------|-----------------------------|------------------------|----------------------------|-------------------|
| ASIA   | Population (2005 Est.) | Internet Users, (Year 2000) | Internet Users, Latest Data | Use Growth (2000-2005) | Penetration (% Population) | (%) Users in Asia |
| <b>Digital “Have Nots”</b>                               |                        |                             |                             |                        |                            |                   |
| <u>Afghanistan</u>                                       | 25,936,491             | -                           | <b>1,000</b>                | n/a                    | 0.0 %                      | 0.0 %             |
| <u>Bangladesh</u>  | 134,792,167            | 100,000                     | <b>243,000</b>              | 143.0 %                | 0.2 %                      | 0.1 %             |
| <u>Bhutan</u>  | 1,797,542              | 500                         | <b>15,000</b>               | 2,900.0 %              | 0.8 %                      | 0.0 %             |
| <u>Pakistan</u>  | 160,166,742            | 133,900                     | <b>1,500,000</b>            | 1,020.2 %              | 0.9 %                      | 0.5 %             |
| <u>Cambodia</u>  | 14,560,030             | 6,000                       | <b>35,000</b>               | 483.3 %                | 0.2 %                      | 0.0 %             |
| <u>Myanmar</u>   | 53,222,658             | 1,000                       | <b>28,000</b>               | 2,700.0 %              | 0.1 %                      | 0.0 %             |
| <u>East Timor</u>  | 936,053                | -                           | <b>1,000</b>                | n/a                    | 0.1 %                      | 0.0 %             |
| <u>Nepal</u>   | 24,947,198             | 50,000                      | <b>80,000</b>               | 60.0 %                 | 0.3 %                      | 0.0 %             |
| <u>Laos</u>  | 5,612,274              | 6,000                       | <b>19,000</b>               | 216.7 %                | 0.3 %                      | 0.0 %             |
| <u>Korea, North</u>                                      | 25,259,835             | -                           | -                           | -                      | -                          | n/a               |
| <u>Sri Lanka</u>   | 19,466,567             | 121,500                     | <b>250,000</b>              | 105.8 %                | 1.3 %                      | 0.1 %             |
| <b>The “Middle Class”</b>                                |                        |                             |                             |                        |                            |                   |
| <u>Indonesia</u>   | 219,307,147            | 2,000,000                   | <b>15,300,000</b>           | 665.0 %                | 7.0 %                      | 5.1 %             |
| <u>India</u>   | 1,094,870,677          | 5,000,000                   | <b>39,200,000</b>           | 684.0 %                | 3.6 %                      | 13.0 %            |
| <u>Vietnam</u>   | 82,851,971             | 200,000                     | <b>5,341,943</b>            | 2,571.0 %              | 6.4 %                      | 1.8 %             |
| <u>Brunei Darussalem</u>                                 | 383,744                | 30,000                      | <b>35,000</b>               | 16.7 %                 | 9.1 %                      | 0.0 %             |
| <u>Maldives</u>  | 294,087                | 6,000                       | <b>15,000</b>               | 150.0 %                | 5.1 %                      | 0.0 %             |
| <u>Mongolia</u>  | 2,535,013              | 30,000                      | <b>142,800</b>              | 376.0 %                | 5.6 %                      | 0.0 %             |
| <u>China</u>   | 1,282,198,289          | 22,500,000                  | <b>94,000,000</b>           | 317.8 %                | 7.3 %                      | 31.1 %            |
| <u>Philippines</u>                                       | 84,174,092             | 2,000,000                   | <b>7,820,000</b>            | 291.0 %                | 9.3 %                      | 2.6 %             |
| <b>Digital “Haves”</b>                                   |                        |                             |                             |                        |                            |                   |
| <u>Hong Kong *</u>                                       | 6,983,938              | 2,283,000                   | <b>4,878,713</b>            | 113.7 %                | 69.9 %                     | 1.6 %             |
| <u>Macao*</u>  | 482,581                | 60,000                      | <b>201,000</b>              | 235.0 %                | 41.7 %                     | 0.1 %             |
| <u>Singapore</u>   | 3,547,809              | 1,200,000                   | <b>2,135,000</b>            | 77.9 %                 | 60.2 %                     | 0.7 %             |
| <u>Korea, South</u>                                      | 49,929,293             | 19,040,000                  | <b>31,600,000</b>           | 66.0 %                 | 63.3 %                     | 10.5 %            |
| <u>Taiwan</u>  | 22,794,795             | 6,260,000                   | <b>12,200,000</b>           | 94.9 %                 | 53.5 %                     | 4.0 %             |
| <u>Malaysia</u>  | 26,500,699             | 3,700,000                   | <b>9,513,000</b>            | 157.1 %                | 35.9 %                     | 3.1 %             |
| <u>Thailand</u>  | 65,699,545             | 2,300,000                   | <b>8,420,000</b>            | 266.1 %                | 12.8 %                     | 2.8 %             |
| <u>Japan</u>   | 128,137,485            | 47,080,000                  | <b>67,677,947</b>           | 43.8 %                 | 52.8 %                     | 22.4 %            |
| <b>TOTAL ASIA</b>  | <b>3,612,363,165</b>   | <b>114,303,000</b>          | <b>302,257,003</b>          | <b>164.4 %</b>         | <b>8.4 %</b>               | <b>100.0 %</b>    |

Source adapted from: <http://www.internetworldstats.com/stats3.htm>

## Annex 3. Chart of PAN Projects 2003-2006

2005–2006

| Project Number | Project Title   | Amount CAD | Institution   | Description  |
|----------------|---|------------|---|--|
| 103013         | Community-Driven Universal Access Solutions in Cambodia (cUPAc) | 1,462,400  | Cambodia Ministry of Posts and Telecommunications       | Cambodia's national ICT policy framework is in a formative stage, receptive to policy research and strategy development for the digital inclusion of poor rural areas. The objective of this holistic country-wide project is to support collaboration between key actors from government, NGOs, academia, and business in Cambodia build evidence and capacities to help inform Cambodia's ICT and telecommunications policies, and to design a new approach to implementing and mainstreaming universal access to ICTs.  |
| 102909         | Digital Review of Asia Pacific Phase II                         | 650,000    | ORBICOM: The Network of UNESCO Chairs in Communications | Digital Review of Asia Pacific (DirAP) provides a comprehensive overview of how ICTs are being deployed across the region to facilitate socio-economic development with emphasis on national policies and initiatives, regional dynamics, challenges, and trends. The second phase of DirAP (Phase I is #101055) consists of the 2007/8 and 2009/10 editions and has been identified as a principal means of disseminating PAN. The creative use of thematic maps as tools to indicate different ICT phenomena in the region will be explored in this phase. Through DirAP, PAN is attempting to put in place an automatic, macro-level, time-series narrative tool that helps the PI to assess how the region is performing over time.                    |
| 103232         | Adaptation & Livelihood Resilience (Tsunami)                    | 1,019,000  | ISET Nepal & Winrock India                              | The purpose of this research project is to identify ways to reduce the vulnerability of South Asian communities to natural disaster, as well as to strengthen their livelihood resilience and adaptability when confronted with a catastrophic natural calamity. Specifically, the project will address the following themes: the role of income diversification, migration, commuting, and remittance income in livelihood resilience; the role of environmental management in resilience; changing dimensions of vulnerability; the role of integrated, multi-purpose communication systems in adaptation, resilience, and risk reduction, as well as the role of ICTs in enhancing such a communication systems (Joint initiative between PAN and RPE). |
| 103553         | Evaluating Last-Mile Hazard Information Dissemination           | 507,200    | LirneAsia   | The lack of effective disaster warning systems in Sri Lanka and other affected countries was strongly felt in the aftermath of the Indian Ocean tsunami of December 2004. This project is evaluating five ICTs (fixed telephone, mobile telephones-cell broadcasting, VSAT-Internet delivered Web/e-mail bulletins, addressable satellite radio, and amateur ham radio) in varied conditions for their suitability in the last mile of a national disaster warning system for Sri Lanka.   |

|        |   |           |  |  |
|--------|---|-----------|--|--|
| 103594 | Strengthening Resilience in Tsunami-affected Communities of India and Sri Lanka | 1,180,000 | Lanka Jathita Sarvodaya Shramadana Sangamaya (Inc.) & M.S. Swaminathan Research Foundation | This project will develop and test innovative tools to link ecological rehabilitation and coastal shelterbelt forests to improve local livelihoods, in part through village-level access to strategic information. Using situational analysis, participatory methods, and community-based institution building, the project will aim to reduce the vulnerability-poor population in coastal villages by strengthening local capacities, livelihoods, and protective forest belts in India and Sri Lanka. To further increase the resilience of the population, the project will also enhance the ability of these coastal communities to access strategic and transformative information through a network of village knowledge centres (VKCs).  |
| 103015 | International Open Source – Phase II  | 455,100   | United Nations Development Programme   | The second phase of the International Open Source Network (IOSN) will concentrate on undertaking research on various aspects of FOSS (Free and Open Source Software) in order to address gaps in knowledge and further strengthen the network of FOSS users and researchers in Asia. Three sub-regional IOSN research networks will be established in South Asia, Southeast Asia, and the Pacific Islands. Open Content in the academic sector (or Open Access and Free Culture) will be the focus of the South Asia node; the Southeast Asia node will focus on Open Standards in the government sector; and the enabling environment for FOSS development will be the focus of the Pacific Islands node. PAN supported the first phase of IOSN (#101223), which successfully developed capacity and awareness of FOSS through training, development of FOSS toolkits, as well as the dissemination of manuals, primers, and e-primers. |

## 2004–2005

| Project Number | Project Title  | Amount CAD | Institution   | Description  |
|----------------|--|------------|---|--|
| 102791         | PAN-DLT (Asia) – Networking Distance Learning Technology Engines for Research                        | 1,615,400  | Virtual University of Pakistan  | PANdora (Pan Asia Networking Distance and Open Resource Access) consists of nine separate sub-projects being implemented in 11 countries. The research questions posed endeavour to determine the most effective means of developing and delivering distance learning technology to make education more accessible, gender and culture sensitive, user-friendly, collaborative, cost-effective, and specific to different environments and learning styles. The sub-projects cover a wide range of research topics, including the accessibility, acceptance, and effects of DLTs; the viability of short message service technologies (SMS); the effectiveness of open source software; and current practices in course development, instructional design, and training. |
| 102607         | Research into the Development and Effective Use of ICT-enabled Rural Extension System in Afghanistan | 722,640    | International Crops Research Institute for the Semi-Arid Tropic (ICRISAT) | This project seeks to understand how linking Afghan farmers to information on extension and trade, using ICTs, can enhance the profitability of farming and improve the food security of Afghanistan. Research is also being conducted on how to develop sustainable human resources capacity and policy for local language (Pashto and Dari) tools and content creation in Afghanistan.   |

|        |  |         |  |  |
|--------|--|---------|--|--|
| 102291 | Sri Lanka Virtual Villages: A Socio-anthropological and Technology Study on the “Last Mile”    | 479,900 | Lanka Jatika Sarvodaya Shramadana Sangamaya                            | Extending two existing telecentres in Sri Lanka previously established by IDRC into “virtual villages,” this project researches how low-cost, wireless technology can enhance and improve the reach of ICTs beyond the telecentre and into rural communities. Two studies will be carried out during the course of this project. One will focus on the technological aspects and the other on the socio-anthropological aspects of the project. Wireless technologies can enable villagers to access the network at their local temple, school, or ayurvedic practitioner’s office.  |
| 102840 | Improving Rural Livelihoods in Bhutan through Addressing Identified Information Needs          | 417,050 | Department of Information and Technology, Bhutan                       | Mountains and valleys in Bhutan make installation of communications infrastructure difficult and expensive, especially in rural areas. This project is piloting and demonstrating the viability and robustness of Wireless Fidelity (WiFi) for offering various information services for the purpose of social and economic development. Researchers will use participatory planning processes to study the information needs of the citizens, which will be used in the development of a comprehensive WiFi system. After the infrastructure has been put in place, the project will assess the socio-economic impacts of the project on different groups of people and make the findings available to policy-makers. |
| 102652 | Access to Knowledge – Copyright as a Barrier to Accessing Digital and Print Teaching Materials | 137,000 | Consumers International  | Copyright protection for educational material is becoming more and more stringent, with significant ramifications for education systems in the developing world. This access project examines the impact of copyright on access to knowledge in both print and digital educational materials. Evidence-based policy positions will be derived through research on the impact of copyright on access to knowledge (in both its non-digital and digital form) in the two target countries — Indonesia and Thailand. The information gathered in this study is expected to feed into the long-term goal of fair public access to educational resources in developing countries.   |
| 102792 | Homeworkers and ICTs in Southeast Asia   | 165,520 | Corpcom Services Sdn. Bhd. (E-Homemakers)                              | One of the major stumbling blocks hindering policy-makers from integrating women homemakers successfully into development programs is the absence of appropriate and sufficient information on home-based work. This project aims to carry out a participatory study to identify and document the issues surrounding home-based work. The information collected will facilitate the creation of a knowledge portfolio on homeworkers, which will serve to support, link, and create opportunities for home-based communities to harness ICTs for their benefit.  |
| 102793 | Most Effective ICT Tools Used by NGOs to Reach Grassroots Women in Asia and the Pacific        | 233,250 | Isis International Women's Information and Communication Service, Inc. | This research project takes a holistic approach to the topic of ICTs in gender and development by examining, among other issues, a survey of the economic, social, and political environment of the countries under study (Fiji, India, Papua New Guinea, Philippines, and Thailand), their populations, geographies, ICT infrastructure, and ICT access. In addition to new ICTs, this project is studying some older communication and information tools such as publications, audiovisuals, theatre and performing arts, telecommunications, and indigenous oral traditions.  |

|        |   |         |   |   |
|--------|---|---------|---|---|
| 102649 | Impact of ICT-based Livelihood Information Delivery on Rural Communities of Bangladesh    | 356,040 | D.Net (Development through Access to Network Resources) | This action-research project establishes two ICT-based information centres in rural communities of Bangladesh with the aim of studying the usefulness of ICTs for addressing livelihood issues among the poor. Content is tailored to the needs of the rural communities, and accessible even to those with little education or resources. The project also explores local ownership models for the rural information centres and builds the communities' capacity by training local intermediaries to be leaders in Bangladesh's technological revolution and socio-economic development.  |
| 102650 | Information Society and Sustainable Development: Next Generation Policy Directions – IISD | 270,500 | International Institute for Sustainable Development     | This project engages the policy and research communities in eight developing countries to identify and investigate potential beneficial linkages at the national level between the information society and sustainable development. Researchers from leading institutions in either sustainable development or the information society are selected to draft national case studies under the guidance of national expert panels. They present each case study at a national workshop and disseminate the research results at relevant international forums. To ensure that the research has an impact on policy, the researchers identify key national stakeholders and institutions and develop a national engagement. |
| 102651 | Internet Governance Scoping Study   | 198,000 | UNDP-APDIP  | This scoping study on Internet governance establishes a forum for dialogue with stakeholders in the Asia-Pacific region in order to generate a regional perspective. Findings from the study have already fed into the second phase of the World Summit on the Information Society (WSIS) held in November 2005. The project is being implemented in two phases. Phase I focuses on open regional dialogue on Internet Governance, as well as awareness raising. Phase II focuses on capacity building and policy implementation.   |
| 102680 | Monitoring the Digital Divide Phase III   | 265,000 | ORBICOM: The Network of UNESCO Chairs in Communications | Phase III of Monitoring the Digital Divide builds on its two previous phases. The third phase of the project updates this publication by collecting and analyzing data from the first two phases. It establishes linkages between the results of the empirical application and national and regional approaches to the information society in Africa, Asia, and Latin America. The relationship between gender and the digital divide are also being examined.  |

## 2003–2004

| Project Number | Project Title  | Amount CAD | Institution  | Description   |
|----------------|--|------------|--|---|
| 102042         | PAN Localization: A Regional Initiative to Develop Local Language Computing Capacity in Asia | 1,769,062  | Centre for Research in Urdu Language Processing, National University of Computer and Emerging Sciences | Although Asians have become the most numerous Internet users worldwide as of 2001, access is still largely restricted to those with knowledge of the English language. This project is helping to generate tools to translate Internet content into local languages, build capacity for local language computing, and advance policy for local language content creation and access across Asia. Included in this is development of character sets, fonts, spelling and grammar checkers, speech recognition systems, machine translation, and other related local language applications. |

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| 102340 | Impact of ICTs on Poverty Alleviation in Rural Pondicherry, India   | 497,640 | M.S. Swaminathan Research Foundation  | Building on two previous phases with the M.S. Swaminathan Foundation, the goal of Phase III is to ascertain whether new, innovative ICTs can bring better economic sustainability to the existing project, while contributing to further improvements in the education and health sectors. Specifically, this project utilizes and assesses wireless fidelity (WiFi), 2.5G mobile technology, Global Positioning System (GPS) for fisherpeople to improve knowledge of fishing zones and potential ocean hazards, Voice over Internet Protocol (VoIP) for low-cost long distance voice communication, and RailTel, a village network backbone via the Government of India-backed broadband network across India's railway networks. The National Alliance for Mission 2007, a national movement to enable up to 600,000 villages in India to be empowered through rural knowledge centres by 2007 is one of the initiatives of this project. |
| 101226 | ICTs for Health Services in Rural Mongolia  | 278,700 | National Medical University of Mongolia                                       | This project builds on previous ICT for development investments by the Mongolian government, local development and IT agencies, and external actors such as IDRC. The goal of the project is to test ICT applications in the health sector in rural areas of Mongolia on two fronts: distance medical diagnosis to rural areas, and distance learning for rural medical doctors using Internet-based applications. The project investigates, assesses, and adapts various technologies using the Internet in the context of low bandwidth and trained medical specialists for distance diagnosis.  |
| 101054 | ICT for Rural Development in Mountainous and Remote Areas of Northern Pakistan                                  | 673,707 | Commission on Science and Technology for Sustainable Development in the South | This project aims to expand on a previous PAN project to broaden economic and educational opportunities through the application of ICTs. Key areas of contribution include medicine (telehealth), education (distance learning), agricultural extension, promotion of rural business, conservation of natural and cultural heritage, and village-level planning and development. The project is being implemented in the three northern Pakistani communities of Gilgit, Hunza, and Baltistan. The project makes special efforts to improve the livelihoods of women in the area, through the provision of specialized health services and more accessible education.  |
| 102043 | Learning from ICT4D Research to Enhance Policy-making (Philippines)   | 325,000 | Department of Science and Technology, Philippines                             | In examining past and current ICT projects for their transformational impacts on Philippine society and to distil critical learning for ICT decision-/policy-making, planning, and programing, this project strives to contribute to decision-/policy-making which impacts pro-poor (rural) programs through its research findings. The findings are to be documented in a series of publications aimed at policy-makers, program managers, and researchers with the ultimate goal of collaboratively producing a dynamic and convergent ICT4D policy and research agenda.   |
| 102248 | Technology-Supported Distance Non-Formal Training and Education in Water, Sanitation, and Hygiene (Philippines) | 257,180 | Molave Development Foundation, Inc.   | Following Phase I (#100483), the ICT4D Collaboratory was devolved to the ASEAN Foundation (AF) in Jakarta, Indonesia. The ICT4D Collaboratory is an incubator for human resource development in ICTs. The main thrust of the partnership is ICT training, both face-to-face and e-training. Subjects of instruction include: e-commerce, educational technologies, e-government, geo-information systems, bibliographic and textual database systems, system-generated discussion and mailing lists, electronic conferencing, and multimedia applications.   |

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| 101226 | ICTs for Health Services in Rural Mongolia                                  | 278,700   | National Medical University of Mongolia                               | This project builds on previous ICT for development investments by the Mongolian government, local development and IT agencies, and external actors such as IDRC. The goal of the project is to test ICT applications in the health sector in rural areas of Mongolia on two fronts: distance medical diagnosis to rural areas and distance learning for rural medical doctors using Internet-based applications. The project investigates, assesses, and adapts various technologies using the Internet in the context of low bandwidth and trained medical specialists for distance diagnosis. |
| 101221 | ENRAP Phase II: Knowledge Networking for Research Rural Development in Asia | 1,732,642 | Co-Funded with IFAD (International Fund for Agricultural Development) | A collaborative effort between IDRC and IFAD, the second phase ( <a href="#">Electronic Networking from Rural Asia/Pacific Projects</a> ) of work in over 40 projects in eight countries. It assesses existing infrastructure and capabilities, as well as builds and expands on present capacities. Its main directive is to help IFAD-funded projects become more effective in documenting and sharing knowledge.  |