Asia-Pacific
Economic Cooperation

Seminar on Using ICT for Rural Community Capacity Building

Final Project Report

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TABLE OF CONTENTS

Executive Summary

The Philippine economy proposed a Project entitled "APEC Seminar on Using ICT for Rural Community Capacity Building", which was co-sponsored by fellow APEC member-economies: Canada, China, Indonesia and Japan. This Project was in line with the 2006 Declaration of the APEC Economic Leaders, affirming that APEC's development be built on stronger societies and more dynamic and harmonious communities through information and communications technology (ICT). The Project believed that developing the capacity of a rural community to use ICT would create opportunities to learn new livelihood skills, access information, and make more use of the available information infrastructure that would facilitate their integration into the global information society.

The Seminar, held in Tokyo, Japan, on 23-24 March 2008, sought to create a venue for APEC member-economies to discuss concepts and share current practices, methods, and experiences in implementing the use of ICT for building the capacities of rural communities. Expert speakers from the Philippines and USA presented global and regional surveys of ICT capacity building in rural communities, and ten economies presented highlights of their own experiences in using ICT for rural community capacity building.

Although the participating economies were at various levels of ICT development and readiness, the following ICT and development issues were apparent:

1. On Social and Digital Inclusion:

    a. ICT initiatives should be consistently user-based or user-centered. ICTs should focus on the needs of the community, first and foremost.
    b. ICT rural capacity building should promote social and economic opportunities for underserved groups and communities. Indigenous peoples, out-of-school youth, persons with disabilities, as well as other marginalized groups, should not be left out of ICT for development plans.
    c. ICT programs should incorporate gender-responsive and gender-appropriate designs and mechanisms to encourage women's participation. ICT strategies should be designed to empower and to motivate women to assume greater social and economic responsibilities.
    d. Explore innovation in human capital development in the rural areas. There should be a more innovative approach to ICT training of rural populations, taking into account the cultural diversity and levels of e-readiness.

2. On a Multi-stakeholder Approach

    a. Local leadership champions should be identified and involved at every phase of the project. Community champions are valuable change agents, able to promote the value of ICT projects for rural capacity building.
    b. The successes of many rural community projects are largely influenced by the quality of public-private partnerships. Partnerships should not only be limited to the private sector. There must be an increased coordination among all stakeholders: private sector, local government, community, and civil society.
    c. Explore the range of multi-stakeholder partnerships to maximize expertise, technology, and the logistical resources that are available. Broadening the stakeholder base expands the intellectual discussion that could result into more innovative uses of ICT for rural capacity building.

3. On ICT and Economic Development

    a. There is a need to theoretically and methodologically correlate the rate of broadband deployment to economic development. Project champions should seek to emphasize the correlation between broadband deployment and economic development, thus creating win-win partnerships. Broadband interventions have to demonstrate to stakeholders that connectivity shall engender socio-economic opportunities.

4. On Affordability and Sustainability

    a. There is a need to make universal access affordable. Although costs of PCs and connectivity are going down, affordability is still a contributing factor to the digital divide. Bringing down the cost of computers and connectivity are essential to information access at community level or at household levels.
    b. The Telecentres Model as frontline information access points needs to be revisited. Although a proven model for ICT community empowerment, new business models have to be conceptualized in order to make them more profitable and therefore more sustainable.
    c. Social mobilization activities should be implemented. Raising awareness of rural communities on ICT and their empowering potential will promote ownership and buy-in of community ICT projects by local beneficiaries.

5. On the Policy and Research Environment

    a. R&D and M&E tools are needed to assess the outcomes of ICT development projects. It is critical to implement an evidence-based

system of monitoring and evaluation (M&E), integrating indicators that measure socio-economic development.

b. An enabling policy and regulatory environment will help stakeholders define their roles. Although governments have lately ceded ICT infrastructure development to the private sector, the ICT industry as a whole will benefit greatly from a well-defined public sector development strategy that incorporates the use of ICT as a development tool.

The potentials of ICT for capacity building of rural communities may be realized through the following recommendations put forward during the Seminar, and which are considered possible next steps for APEC TEL.

1. Identification of information areas for applications development. One of the possible initiatives that the TEL steering groups could work on is the identification of priority information areas (e.g. health, agriculture, livelihood, culture, environment, etc.) for which applications could be developed.

2. Preparation of an inventory or database of rural capacity-building efforts to serve as benchmarks. Another area of cooperation that can be considered is the preparation of an inventory or database of capacity-building efforts that will identify strategies, best practices, and standards based on different community contexts that can be benchmarks for the member economies in creating their own.

For the short term, the Seminar participants may also use the Seminar website at www.connectedruralcommunities.net as a repository for the compiled case studies from the Seminar as well as other related studies that would follow.

3. Formation of a Working Group to organize action research projects. In the medium term, as a follow up to this Seminar, it is suggested that further work be done by a working group, involving participating economies in the Seminar, to organize action research projects on building capacity in different rural communities among the APEC member economies.

4. Strengthening APEC regional collaboration. Lastly, it was recommended that in the area of pursuing regional collaboration among APEC economies, a strategy to promote such efforts should be included in the TEL Ministers Declaration. It was timely that during the TEL Ministers meeting in April 2008, it was recommended that the TEL Working Group pursue its work in the following areas, among others:

a. In the area of ICT Capacity Building for a Prosperous Future: "*We noted the on-going capacity building activities on the use of ICT for empowering rural and remote communities and acknowledged the*

benefits of cooperation with other APEC fora. We encouraged member economies to further develop sustainable community-based programs including public-private partnerships to build capacities and to meet their socio-economic development needs."

b. In the area of Challenges and Strategies to Promote Universal Services: "*To achieve our common goals, we encouraged intensified efforts to support effective universal service strategies that are appropriate to each economy. These efforts should include innovative policies, regulatory frameworks and programs to meet the needs of unserved or underserved communities using ICT in a sustainable manner*."

I. Introduction

The global shift to knowledge-based economies brought forth the urgent need to develop transnational lines of communications that are capable of transporting different forms of information to all members of society. With the global recognition of a divide and its various forms, developmental efforts have been constructed particularly for those who are in the rural areas. New demands on rural societies, due to increasing global competition and rapid technological breakthroughs in the developed economies, make the issue of the dearth of access to information in these areas more crucial.

Following the Declaration of APEC Economic Leaders in 2006 affirming that APEC's development be built on stronger societies and more dynamic and harmonious communities through information and communications technology (ICT), the *"APEC Seminar on Using ICT for Rural Community Capacity Building"* aims to create a venue for APEC member-economies to discuss concepts and share current practices, methods, and experiences in implementing the use of ICT for building the capacities of rural communities.

This Seminar aimed to contribute to the Telecommunications and Information (TEL) Working Group's commitment to implement concrete strategies that would achieve the vision of an Asia-Pacific Information Society. Through the Seminar, identified issues, lessons and recommendations were gathered to serve as inputs to a possible draft of a strategy, and a list of priority action areas for regional collaboration.

This Final Project Report presents the highlights of the Seminar, compiles lessons learned, and identifies possible next steps for APEC TEL.

II. Project Design and Description

A. Project Background

The Philippines is the proposing economy of the Asia-Pacific Economic Cooperation's (APEC) Project entitled "APEC Seminar on Using ICT for Rural Community Capacity Building," and is co-sponsored by fellow APEC member-economies, namely: Canada, China, Indonesia, and Japan. The Seminar was held on 23-24 March 2008 in Tokyo, Japan, prior to the 37th Meeting of the APEC TEL. The project was implemented under the TEL's ICT Development Steering Group (DSG).

The Seminar built on other successful TEL Workshops, such as "Challenges and Benefits of Wireless Technologies for Rural Development and Tele-centers" conducted during the 34th Meeting of APEC TEL and "Broadband for Remote and Indigenous Communities - Challenges, Needs and Opportunities" held during the 33rd Meeting of APEC TEL. The Project also addresses the Brunei Goal, reiterated in the Bangkok Declaration of 2008, of universal Internet access by 2010. It moves

forward with TEL's work by assessing practical aspects and experiences of applying ICTs for capacity building of rural communities, and outlining a draft strategy that practitioners can use. The Project is also seen to complement the TEL's commitment to implement mechanisms that would help achieve the Asia-Pacific Information Society.

The Project shares the TEL's belief that developing the capacity of a rural community to use ICT will create opportunities to learn new livelihood skills, access information, and make more use of the available information infrastructure that would facilitate their integration into the global information society. To address gender concerns, the Project also sought to highlight initiatives promoting the inclusion of women in ICT capacity building. Rural women are one of society's most disadvantaged groups owing to economic and gender power structures that have traditionally favored men. As a result, they are one of the last segments to feel the benefits or impacts of development programs and projects. The Seminar would like to address this challenge by including best practice scenarios that directly benefit rural women. As a regional body, APEC TEL can provide the forum for more substantive discussions on economy-level experiences, and facilitate the sharing and networking of member-economies, as we strive to address the gaps that still exist in our policies and programs.

Expert speakers from the economies of the Philippines (1) and the United States (2) provided global and regional highlights of ICT capacity-building initiatives in the rural areas. Ten APEC economies presented country papers on ICT capacity building: Canada, China, Chinese-Taipei, Indonesia, Japan, Korea, Malaysia, Peru, Philippines, and Viet Nam.

B. Objectives

Specifically, the Project objectives are to:

1. Discuss issues and experiences to showcase different practices and methods at the local economy, and/or regional level on using ICT for building capacity of rural communities.

2. Gather lessons and recommendations on projects related to implementing the use of ICT in rural communities, which shall serve as inputs to a possible strategy for regional collaboration on the same subject.

3. Form an initial network of experts, collaborators and practitioners whose efforts are focused on using ICT for capacity building in rural communities for future partnerships in the region.

C. Project Components/Outputs

Component I
Compilation of Lessons Learned and Recommendations

The Project attempted to compile lessons and recommendations from the results of the Seminar that are incorporated in this project report. The lessons learned from each economy are summarized in this paper and presented under their thematic concerns. Paper presenters of the Seminar included representatives from the economies of Canada, China, Chinese-Taipei, Indonesia, Japan, Korea, Malaysia, Peru, and the Philippines. Seminar overviews and expert papers focusing on global and Asia-Pacific ICT rural capacity building initiatives were presented by experts from the Philippines and the USA. There were approximately 70 attendees from fourteen APEC member-economies during the one and a half day Seminar.

To date, the TEL has developed a strong program based on capacity building and workshops have been held with the aim of sharing information among member-economies in order to increase community access and engagement with ICTs, among disadvantaged groups and underserved geographical areas. During the Seminar, the participants discussed issues and exchanged experiences on using ICT for rural community capacity building.

Component II
Draft APEC Strategy

One of the main objectives is to create a venue for member-economies to propose possible areas of regional cooperation. Towards this end, a compilation of lessons learned and potential opportunities were drawn from the Seminar and developed into a statement for possible regional collaboration. The conduct of the Seminar was thus timely, since the documented lessons and recommendation from the Seminar were among those embodied in the Seventh APEC Telecommunications and Information Ministers Meeting (TELMIN 7) Declaration. Said Declaration also "*encouraged TEL to work within its mandate, as appropriate, to enhance and strengthen collaboration with other APEC fora, and other organizations particularly in the areas of capacity building and human resource development*." The relevant portions of the Declaration are also mentioned in Section VII of this report.

Component III
List of Experts/Practitioners

The Project also produced an initial list of collaborators and practitioners who are working on rural community capacity building through ICT. While the list is composed mainly of Seminar participants (see Annex A), other experts may be added as available.

Component IV
Project Website

Another outcome of the Project is a website to stand as a knowledge base for project reports, articles, documents, best practices compilations and other literature relating to ICT rural capacity building. The sponsoring economy created and continues to manage www.connectedruralcommunities.net, in partnership with Intel Technology Philippines. The website is a vehicle through which its members may continue online dialogues and discussions on various issues arising from the use of information and communications technologies in building the capacities of rural communities.

Website content consists of profiles, descriptions, and outbound links to the project's main collaborators, such as APEC and the sponsoring economy's implementing organizations, namely the Commission on Information and Communications Technology (CICT) and Intel Technology Philippines. The focal point of the website is an online discussion forum on the following thematic areas: leadership and policy framework for ICT capacity building, public-private partnerships and sustainability and scalability of ICT projects. A knowledge base consisting of Seminar papers and presentations, are also available for download upon registration.

III. Setting the Context: Brief Overview of the Seminar and Identification of Key ICT Capacity-Building Issues

A. Overview of the Seminar. The Seminar overview, framework and process were presented as follows:

- Introduction of issues and challenges
- Presentation of panel of experts on rural community capacity building
- Presentation of panel issues
  - Policy Framework / Leadership/ Governance
  - Public-Private Partnerships
  - Sustainability and Scalability
- Panel Discussions
- Synthesis of Seminar content and next steps

Seminar deliverables as mentioned earlier are economy and regional best practices, a draft strategy for regional collaboration for presentation during the next DSG meeting, an initial list of ICT Rural Community Development experts, and a project website wherein all Seminar proceedings and presentations will be available for download.

To jumpstart discussions, an abstract of issues and challenges to guide participants in processing information on ICT deployment in rural capacity building were presented to the participants. These were as follows:

1. Intermediation vs. Disintermediation Issues – Is it more effective to engage infomediaries, such as civil society and intermediary groups to help promote and

introduce ICT-based initiatives in the communities? What dimensions of the community's social structure should ICT capacity building programs cover?

2. Broadband Deployment as a Development Tool –Is broadband connectivity a "need" in underserved areas? What are the alternatives available? What is the best indicator for success in broadband deployment – should it be broadband for all households or for all municipalities? What about other measures such as subscriber based or access based, individual or community based, etc.?

3. Bringing down the cost of computers (and other access devices) and connectivity to affordable levels – ICT equipment may be costly. What kind of policy and regulatory environment is needed to facilitate affordable ICT access for those in the rural and remote areas?

4. Raising awareness of rural communities on ICT and enabling them to be IT literate – A major problem in sustaining telecenters is engaging average people to use them so that they become an integral part of the social and economic system in the community. What user-centered applications are needed to engage community members in participating in the global information society?

5. Role of public-private partnerships – In order to create a more sustainable program, ICT for development projects need to be based on partnerships between public and private sector. In what form should these partnerships take? How can public-private partnerships be facilitated?

6. Strategies for sustainability – The past years of development, strategies under the World Summit on the Information Society (WSIS) framework have produced myriads of pilot projects all over the world. However, the question is, what is beyond the pilot stages of these projects for the communities? What could be long-term solutions so that rural communities truly realize the developmental benefits that ICTs promise them?

Three major themes, which undercut current strategic initiatives around which most of best practices in ICT rural capacity building have evolved, were tackled in the economy presentations:

1. Leadership and Governance. Leadership defines the local champion who will steer programs to produce the outputs it promises. Governance speaks about the way leadership is implemented and how it rallies support from stakeholders. In governance, the roles of government and industry must be defined.

2. Public-Private Partnerships. Public-private partnerships (PPPs) address cost concerns by subjecting the delivery of requirements to market forces when they are handled by private industries. It is important that through PPPs, there would be clearer delineation of roles between the government and private sector in the provision of connectivity and services.

Mobile telephony and its derived applications such as m-Government is a viable concept, especially in rural communities where mobile phone ownership and usage are particularly high. Government, on the other hand will have to invest in developing e-government applications that can be used in mobile phones that will be launched by private telecommunication companies.

3. Sustainability and Scalability. A key component of any ICT for development project is to ensure sustainability and scalability. One of these strategies is to provide ICT training for rural communities. These capacity-building programs should aim to not only provide skills, but also the tools and middleware that will bridge the ICT literacy gap of people in rural areas. Applications that are developed should be able to address the priority information needs as prescribed by the members of the community themselves, and not through external sources. Ownership by the rural community is important to help ensure sustainability.

   Self-sustaining projects for ICT in rural communities may also be possible through the adoption of profitable business models. Technological demand should also precede deployment as a risk-mitigating measure. As movers, government can provide subsidies and grants as seeding mechanisms.

It was thus stated that economies should plan ICT capacity-building activities around the issues of accessibility, affordability, and awareness. The importance of participation of rural communities in identifying their needs was reiterated, as a way to promote ownership and ensure sustainability and scalability of programs. Governments must also consider involving the private sector to get their buy-in on ICT projects.

B. The Global and Asia-Pacific Context: Responses to the Challenge of Using ICTs for Rural Communities' Capacity-Building

Three papers provided a survey of global and regional strategies for ICT capacity building in rural communities.

Paper I- *Status Report on the International Community's and APEC's Response to the Challenges of ICT Capacity Building in Rural Communities*

Ibarra Gonzalez, PhD (Philippines)

Dr. Ibarra M. Gonzalez discussed a paradigm shift wherein ICTs become the essential development tool in underserved, marginalized, and rural communities. He puts forward a framework in the form of a matrix that is useful as an evaluation tool to identify gaps in rural ICT deployment for development.

The paper described the X-Axis as the 'playing field', in which ICTs are rationalized and utilized to boost development in rural communities. The Y-Axis is the creation of global benchmarks of ICT growth and development through three sets of tools that measure the impact of ICT for social and economic development. The Z-Axis consists of

ICT activities currently implemented globally either as a product of the manufacturing sector, or as an enabler and facilitator of development.

Dr. Gonzalez characterizes the new paradigm for ICT, which places it as a general-purpose technology that has the following characteristics:

1. Its enabler-facilitator function is more important to economic growth than its direct contribution as a product.
2. It creates new modes of organization of production and consumption, cost-saving transactions, faster and better communication between economic agents, new networks, increased exchange of information locally and globally, new opportunities for insertion to the global value chains and for diversifying production activities and exports.
3. Rapid ICT innovations have reduced costs of access, allowed democratization particularly for the poor to support their livelihood, and facilitated the adoption of ICT in poverty reduction programs.
4. Generated new services: e-commerce, e-finance, e-government, etc. that can contribute to greater economic efficiency (but needs to address issues of trust and security).
5. Increase need to acquire and develop skills, training, education to continuously build the knowledge economy (information society).
6. Creates new models of sharing knowledge, collective production of ideas and innovations bypassing proprietary systems, "open access" models for rapid diffusion of knowledge to less advanced countries.

The paper further described global trends in the ICT sector and how ICT has been developed both as a product and as a service. The sector continues to grow in developed countries and is also felt in developing countries (e.g., Malaysia), many of which are outpacing member countries of OECD. ICT products equal those in overall manufacturing trade and above the average growth of trade in ICT services.

Dr. Gonzalez notes that the WSIS documents did little to move forward debates on ICT or ICD (Information and Communication for Development). He said that they failed to address the "ICT paradigm gap" between ICT professionals and the mainstream development communities. The WSIS debates were focused more on infrastructure and management of technical resources, issues natural to ITU, rather than on the digital divide. It provided, however, a valuable opportunity for networking, sharing of experiences, and informal negotiations.

The paper also surveyed highlights of current ICT capacity building initiatives being implemented in the global stage:

- Global ICT Program- provides support for developing countries to influence global trends and benefit from global knowledge to reduce national poverty and increase social inclusion.

- UNDP support to WSIS- provides support to enhance inclusiveness and strengthen the development focus in the World Summit, through a series of activities at the national and Summit levels.

- National ICT for Development Strategies - Implementing the Digital Opportunity Index Framework: assists developing countries in the design and implementation of national ICT for Development strategies; supports awareness raising and local capacity building on ICT as an enabler for development through regional workshops.

- Capacity Development Through Knowledge Sharing and Networking: assists developing countries in harnessing the potential of Free/Open Source Software (FOSS) to create "digital opportunities" and enhance national capacities to foster local research and development, and innovation.

- Support for Partnerships in ICTD: draws lessons from its experience with public-private partnerships in support for ICTD programmes and initiatives, and creates guidelines and best practices for countries on strategies on how to attract private sector partners to support new and ongoing programmes and projects.

- Small Island Developing States Network: (SIDSNet)-launched in 1998 with support of SDNP and the Alliance of Small island States (AOSIS); SIDSNet's main goal is to use ICT to link 43 SIDS and support the implementation of sustainable development objectives.

Asia-Pacific Regional Initiatives

Noting the regional trends, Dr. Gonzalez observed that ICT development is indicative of the ongoing debate on whether to push the growth of ICT as a production-manufacturing sector, or as an enabling facilitator for development. He notes that the question is most critical in the Asia-Pacific region where resources are scarce, and yet, had not been effectively addressed because decision-making is usually done at the higher levels of government institutions and businesses. He emphasizes the need for more lateral interaction among regional participants to allow them to determine how ICT development should take form in order to move their local communities forward. Further, he notes:

- Major efforts and resources should be allocated to nations and other regional participants to allow them to determine the role of ICTs in their local communities. In light of serving rural communities, evidence seems to point that ICT should go in the direction of “enabler”, “facilitator”, and “enhancer”.

- APEC uses the Brunei Goals as its benchmark for success and focuses on developing open and competitive markets, liberalization, developing new infrastructure and technologies, and accelerating access to provincial and rural areas.

- From 2000 to 2005, Internet users in APEC have more than doubled. Both APEC and World users are steadily growing. The percentage gap between the two averaged at 5% indicating proportionate growth, not narrowing of the gap.

Economy	2000 Users % of Pop	2001 Users % of Pop	2002 Users % of Pop	2003 Users % of Pop	2004 Users % of Pop	2005 Users % of Pop
World	407.1M 7%	513.4M 8.5%	580M 9.6%	709M NA	934M 15%	1.1B 17%
APEC	263.7M 10%	3205M 12.5%	365M 14.2%	400M 15.5%	545M 21%	571M 22%

Table 1: Growth in Internet Access in the APEC Region, presented in APEC SOM III in Korea in 2005 entitled: "Achieving the Brunei Goals – Moving Forward"

- There is a tendency among developing economies and rural community leaders to be attracted to the latest state-of-the-art technology, even when the "old" technology has not been fully mastered and maximized.

- TEL programs address the advancing the information society through the initiatives in human capacity building, expansion of the Asia-Pacific Information Infrastructure through the development of market-led government regulatory frameworks, realizing the Asia-Pacific Information Society, and increasing community access and engagement with ICTs.

He proposed the following recommendations and strategies that APEC may consider in order to enhance the impact of ICTs in rural development:

- Before moving into broadband technology, primary investment in human capacity development should be addressed to ensure that basic ICT literacy, systems understanding, and ICT applications are fully maximized.

- Encourage proportionate representations from stakeholders in international assemblies responsible in framing policy decisions for all.

- Build a multi-stakeholder process by convening a local working group of stakeholders and experts to develop the right applications and to create an enabling environment to implement these.

- Applications must be designed to meet the needs and priorities of those who will use them.

- Problems of rural underdevelopment, such as the digital divide are a moral challenge. We should create a Knowledge Heart Society – not only a world of technological determinism but also one that takes care of the physical body and the environment by combating adverse effects of ICTs.

Paper II-*Global Best Practices on ICT Capacity-building Activities for Rural Communities*

Frank Odasz (USA)

Mr. Frank Odasz highlighted several initiatives implemented around the world that featured community-based, localized ICT capacity-building projects. Several of these 'proof-of-concept' projects may be models for future pilot ICT projects in other parts of the world:

- *Grameen Bank (Bangladesh):* The Grameen Bank's contribution to third world micro-lending strategies helps business practice build new markets through poverty-reducing measures.

- *Web 2.0:* Creative individuals have produced the latest multi-billion dollar success stories by providing free self-expression and collaborative tools: Skype, Myspace, Youtube, Facebook, and others. Institutions and corporations invest in the youth to create learner-based learning objects and educational websites for the rest of the world to freely access.

- *Donnie Morrison (Scotland):* Mr. Morrison, in partnership with the UK government, installed a wireless network for the communities in the Outer Hebrides Islands. Through this network he created a local skills database that was used to promote local talent to international corporations in London. Through teleworking, people and jobs were matched, and enabled many families to return to their hometown.

- *Community Technology Centers (US):* This ten-year program has shown little progress since it started. Most of the centers became unsustainable and the communities have not realized much of its economic promises.

- *Intel Teach Program:* With the rush to mine raw human potential, the corporation aims to teach 20 million teachers by 2010.

- *Koyukuk (US):* Using a flip digital album, the elders of this little Alaskan Village passed on their traditional knowledge to the coming generations. This village is wired with 256 kbps broadband access and was successfully maintained.

The paper also collates different lessons learned and presents some of the challenges that need to be addressed. It stresses that future ICT capacity building strategies will be aided by more innovative and user-centered models that give credence to local culture and contexts. Mr. Odasz notes the following:

- The age of Web 2.0 and bottom-up ICT-for-development initiatives has set the stage for a richer, more vibrant entrepreneurial culture among the youth, and those in the rural community who were once isolated from the rest of the global community. With the emerging business models from the Web 2.0 model, the rapidly growing volume of bottom-up innovations needs to be broadly shared.

- Grand visions of global ICTs for rural development practices used to be discussed based on generalities. The new trend gives space for specifics of each local situation and local innovation. These new participatory technologies allow everyone to be *learner and teacher, consumer and producer.*

- The 'build-and-they-will-come' mentality has become a failure. The mere presence of infrastructure will not reap the benefits that ICTs promise.

- Subsidies also render the community handicapped once the term ends. These projects need social engineering strategies that will produce desired outcomes.

- To be more effective in capacity building, infrastructure and training should be funded on a one-on-one dollar-matching basis.

- The different socio-political-economic aspects of healthy villages must be addressed by ICT4D projects. The following nine wellness components are essential to a healthy community (1) Safety (2) Health (3) Education (4) Entrepreneurship/E-commerce (5) Social Services (6) Culture (7) Environment, (8) Government (9) Entertainment.

- Policymakers must be careful and not naïve in sharing the power of telecommunications to villagers. Training must come with the sharing of values and ethics, and understanding how to minimize the potential risks of misuse.

- Rural communities in developed societies still need to see the developmental role that ICTs play in their daily lives. A great part of planning capacity-building initiatives should start with the goal of letting the villagers appreciate ICTs' role in their economic progress.

Paper III-*Tools and Applications Used in ICT Capacity-Building for Rural Communities*

Brian Mefford (USA)

As the new global economy moves toward broadband-dependent services, the cost of bridging the current digital divide is not getting any lower. Mr. Mefford's paper featured successful practices of developing tools and applications implemented by Connected Nation, a national not-for-profit known for its ability to close the digital divide, by addressing the broadband demand through capacity-building initiatives, in rural communities in the United States.

Mr. Mefford presented the Connected Nation model, which includes broadband mapping, public-private partnership and grassroots "e-community leadership teams," as the suggested models for accelerating broadband use. Connected Nation's research was found to be instrumental in developing effective and sustainable digital inclusion and capacity building programs in rural communities. Their initiatives have expanded access to and use of broadband Internet and related technologies to communities and families.

Connected Nation has garnered international, as well as industry-wide recognition for its best-practices models for ICT and broadband technology expansion.

The major strategies utilized by Connected Nation are:

1. Research and mapping. These are tools used to determine current infrastructure and uses of ICT at the local community level. Connected Nation's broadband inventory maps are the first of its kind, containing detailed information on the existing ICT capacity within a region. Research is used to determine the current state of the network capacity build-out and what uses are based upon this infrastructure.

2. Organizing eCommunity Teams. This is a strategy to empower community leaders to promote ICT demand and find sustainable solutions that fit their community needs. eCommunity Technology Teams are organized at the local community level and are comprised of representatives from different sectors to analyze and develop plans to determine the best means of deploying available technology across different sectors.

3. Promoting computer and literacy through the No Child Left Offline programs. This program promotes digital inclusion among disadvantaged school aged children and their families, by providing computers and other technological resources as well as to perform basic computing functions.

Mr. Mefford shared key principles for promoting digital inclusion in capacity building, listed as follows:

- Programs should develop a comprehensive strategy for digital promotion across a state or entire nation or economy.
- A clear mandate from government leaders is essential to empower communities to bridge the digital divide.
- Effective capacity building programs need to be defined and implemented at the grassroots level, enabling and empowering local communities to bridge the gap.
- Research is imperative to understand current supply and demand realities and build customized demand and supply promotion programs tailored to each community.
- Programs must leverage Public Private Partnerships bringing together local community leaders, state or government representatives and the private sector.
- Programs should be based on a market approach, which implies that demand needs to be aggregated and grown to enable sustainable business propositions that will encourage private sector participation.
- Hence, capacity building or supply enhancement will be driven by sustainable demand growth of ICT services and applications.
- Within the most remote communities where market forces are not likely to develop sustainable infrastructure investments, innovative public-private joint ventures can be engineered and implemented.

Mr. Mefford has also selected successful ICT capacity practices and tools and applications that they have implemented in various rural communities. These are concrete examples that help illustrate the benefits that ICT and broadband technologies and services have brought to citizens in these communities.

1. The Connect GRADD (Green River Area Development District), a public-private partnership aimed at ensuring affordable universal broadband access, was created in 2006. It aims to assess business opportunities and promote demand for ICT services in the seven rural counties in Kentucky. A budget amounting to some $2 million were allocated to the Connect GRADD joint venture to build a wireless high-speed network. It is expected that this network would provide affordable broadband services to nearly every household in the GRADD counties. As a result of this public-private partnership, certain benefits have been identified as follows: a framework that will encourage regional economic development opportunities; the ability to develop education initiatives and expand education resources throughout the region; the potential to provide the traditionally underserved areas the access to technology and high-speed Internet; and the provision of necessary resources that would help redound to better business possibilities and promote entrepreneurial spirit.

2. In the area of e-Health, ICT has enabled remote mining communities in Kentucky by allowing patients receive top quality health care from doctors located remotely through a videoconferencing facility and enabled by broadband. Another example is the access of patient medical records, through the Picture Archiving and Communications System (PACS), using broadband Internet in Boyle County's Ephraim McDowell Regional Medical Center.

3. An e-Security example is the Man-portable Interoperable Tactical Operations Center (MITOC), developed by researchers at the University of Louisville in Kentucky, is a new portable wireless hot spot technology that allows public safety agencies to communicate more effectively in times of disaster.

4. In e-Education, Connected Nation partnered with IRMA-India to promote ICT among the rural poor/tribal/isolated and unconnected communities across India. This partnership aims to provide resources and education to help communities identify and gain access to certain services and programs that will meet their basic livelihood needs. IRMA targets and focuses its resources to encourage primarily women in these communities, but also targets the physically-challenged, scheduled casts, scheduled tribe, and those living below the poverty line. Community Information Centers are created to help achieve the aforementioned objectives.

Another example is Internet2, an initiative of the Kentucky Education Network, which aims to develop a seamless education-centric network that will provide interactive education tools to children and teenagers. The Network connects the schools and universities across the state.

5. In the area of e-Agriculture, an example cited is the Equibase Company's Virtual Stable used by Stonerside Stable to track and monitor horses around the world. The broadband-enabled pocket-size PC application used by Anderson Circle Farms in

Anderson County records information at any location inputting inventory, labor, machine maintenance, physical structure, agronomics, accounting and livestock data. Meantime, AgConnections software helps farmers trace their expenses and effects on crop production using production records tied to Geographical Information System (GIS) software packages.

6. Some e-Commerce applications include the use of the Kentucky Artisan Heritage Trails (KAHT) which features Internet-based driving trails that direct tourists to eastern Kentucky's finest artisans. A leading regional manufacturer in Bell County, J.R. Hoe and Sons uses broadband Internet to attract new business. Rick Dees, a National radio personality, uses broadband technology to broadcast his live morning show in Los Angeles and syndicated Weekly Top 40 Countdown from his farm in Danville, Kentucky. Letcher County-based WMMT FM Radio also uses Internet radio to broadcast the Voice of the Mountains to listeners as far away as England and Japan, sharing with them the history and culture Appalachian life.

IV. ICTs as Enablers: Compilation of ICT Capacity-Building Best Practices from Participating APEC Economies

Panel Discussion I
Leadership and Policy Framework

Under an enabling policy environment, ICTs have shown to be an effective development tool, but evidence in support of this has been lacking or uncoordinated. This Seminar provides the opportunity to highlight some of the best practices and lessons learned from Asia-Pacific economies, and demonstrate the potentials and scaling-up of ICT projects to address rural development concerns. Strategic initiatives in health, education, agriculture, and business have shown to benefit from the use of ICTs.

1. *The Philippine Community eCenter (CeC) Program*
Patricia M. Abejo (Philippines)

This paper discussed how the Philippine government, through the Commission on Information and Communications Technology (CICT), has led the establishment and coordination of efforts relating to the setting-up of Community e-Centers (CeCs) around the country. It has mobilized multi-stakeholder support and contribution of other CeC stakeholders, such as the private sector, academe, and non-government organizations, to ensure the success of this initiative.

CeCs are public access points, similar to the concept of telecenters that offer e-government and e-services to the communities where they are located, servicing such sectors as education, health, agriculture, and business. Community e-Centers (CeCs) are community-based infrastructures designed to provide citizens with affordable and relevant access to a wide array of ICT-related services. They are typically based at or

managed by a local government unit, a non-profit organization, an academic institution or an entrepreneur. CeCs also work for the empowerment of marginalized localities by enabling their participation in electronic government processes, distance learning and electronic commerce.

This government-initiated project builds on existing capacity-building efforts in the country and is mandated by the Philippine Strategic Roadmap for the Information and Communications Technology Sector (2006-2010). The CeC Program's goal is to put up 1,500 CeCs by 2010. As of December 2007, a total of 750, or 50% of the CeC target had already been attained.

The CeC Program is also consolidated under the Philippine Community eCenter Roadmap (2008-2010), which seeks to refine program direction and development, as well as to address the challenges and constraints being encountered in its roll-out. The Roadmap also identifies other strategies such as creating the CeC Network (PhilCeCNet) and establishing the National Telecenter Academy. Recently, CeCs were launched to address the information needs of communities in the sectors of education, agriculture, health, and business.

Philippine CeC Program models highlighted in this paper are the following:

- The *eSkwela* Project provides mobile teachers or instructional managers and out-of-school learners with electronic learning opportunities and ICT resources in an exciting, innovative, and locally meaningful way. The project has five major components namely: Customized Instruction Model, Infrastructure Deployment, Community Mobilization and Involvement, Educators' or Stakeholders' Training, and Progress Monitoring and Evaluation.

- The *iSchools* Project supports the goals of the Philippine Government and the Department of Education (DepEd) in incorporating ICT in public high school education. It seeks to enhance classroom instruction and learning by providing access to relevant digital content, building the capability of teachers and students through ICT trainings and integrating ICT into the basic education (i.e. primary and secondary) school curriculum.

- The *Techno Gabay Program* is an effort of the Department of Science and Technology's (DOST) Philippine Council for Agriculture, Forestry, and Natural Resources and Development (PCARRD) and assisted by the CICT. The project makes use of CeCs and the existing formal organizational structures at the provincial, municipal/city, or barangay levels to establish a one-stop facility where farmers, fisher-folks, entrepreneurs, traders and agricultural extension workers can access emerging technologies in agriculture and essential farming information such as market prices and production inputs, among others.

- The *Last Mile Initiative Program (LMIP)* seeks to design, support and evaluate at least ten (10) CeCs in remote communities of the country. It aims to determine applications and models that are sustainable and can enable broad-based participation in various ICT applications for future replication and scale up in

other CeC Programs. The LMIP has collaborated with the government for future directions of using CeCs to promote eco-tourism, deliver e-learning modules and web board applications to remote communities and to document lessons that specifically benefit women, indigenous cultural communities, overseas Filipino workers and job seekers.

With respect to women and empowerment, the CeC Program has been instrumental in bridging the digital divide. Field surveys and interviews reveal that women outnumber male users and are regarded as regular CeC users. Female customers use CeC services for availing ICT literacy courses such as word processing, spreadsheet, presentation making, and Internet usage; applying for employment; internet surfing; communicating with friends and loved ones; and reading online news.

Documentation on CeC practice in the Philippines has demonstrated its role in poverty alleviation, empowerment, social and skills development, employment opportunities, and the provision of more effective public service. It has also enabled the integration of far-flung communities into the global information society through its strategic geographical locations all over the country.

The CeC model, while widely recognized as an effective component of poverty-alleviation programs, needs to be further strengthened to ensure greater success of its outcomes. The following recommendations are proposed to address current gaps in its framework and implementation in the Philippines:

- CeCs should strengthen public, private, and civil society collaboration to ensure sustainability.
- The Program should promote ownership and buy-in of local stakeholders through enhanced capacity building and social preparation activities.
- CeCs should engage in the development of content that is appropriate and relevant for the community or sector.
- CeCs should continue to be an empowerment tool to assist and support marginalized and underserved groups such as women, indigenous communities, persons with disabilities, etc. to promote social inclusion.
- CeCs should adopt an enterprise model for its operations.
- The Program should be able to encourage knowledge sharing of best practices through local, provincial, regional and national fora among its members and others who are engaged in similar programs. A manual or a toolkit on CeC operations may be developed for this purpose.
- PPPs should strive to ensure availability of ICT infrastructure.

- Monitoring and evaluation mechanisms should be integrated in all program aspects.

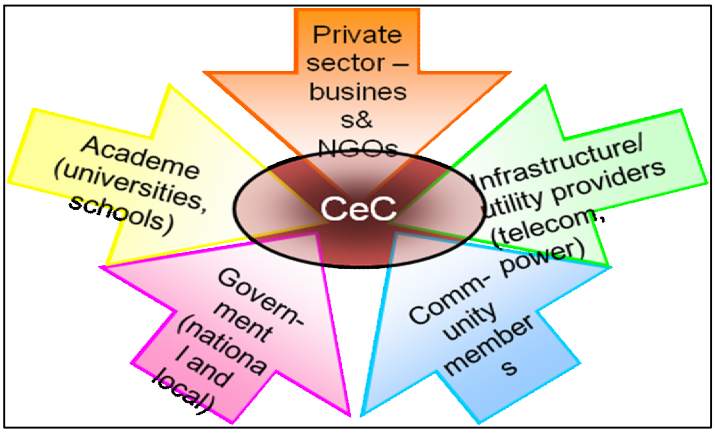

Table 1. A model for a successful Community eCenter

2. *Strategies for Rural and Remote Broadband Development in Canada*

Kathy Fisher (Canada)

Canada's broadband deployment is a considerable achievement considering its geographic and population density challenges. When compared with economies with similar population density, Canada ranks the highest in terms of the number of subscribers per 100 population.

The success in the Canadian model is in the way it has provided the framework for market forces to provide broadband access to Canadians, as well as the mechanism wherein government may intervene through policy and program development, in the event that the market alone is unable to provide access.

The objective of providing reliable and affordable telecom services to both urban and rural areas is enshrined in Canada's Telecommunications Act, and helped to promote the role of market forces. The guiding principles for the Federal Government in their broadband deployment plan in rural communities are universal access, reliance on market forces, and the mandate to develop policy and programs to carry through its objectives.

Broadband deployment was stimulated through the following successful strategies:

1. Broadband deployment was private sector led, with investments in technology.

2. Government intervention is only provided when the market fails due to the high cost of deployment and lack of a business case. In addition, individual funding and program initiatives have come from the federal government, provincial governments and the private sector or through collaborative efforts by these three groups.

3. The Canadian Telecommunications regulator and Industry Canada's satellite and spectrum licensing combine to provide a regulatory environment for rural broadband deployment.

Canada foresees attaining more benefits from its market-led strategies for ICT rural capacity building, on the improvements in technology. Specifically, these include:

- Continued private sector build-out, improvements in technology, and ongoing provincial investments partnered with federal infrastructure programs;

- At 92% broadband availability to all Canadian households and 79% of rural households in 2007, the broadband gap is closing;

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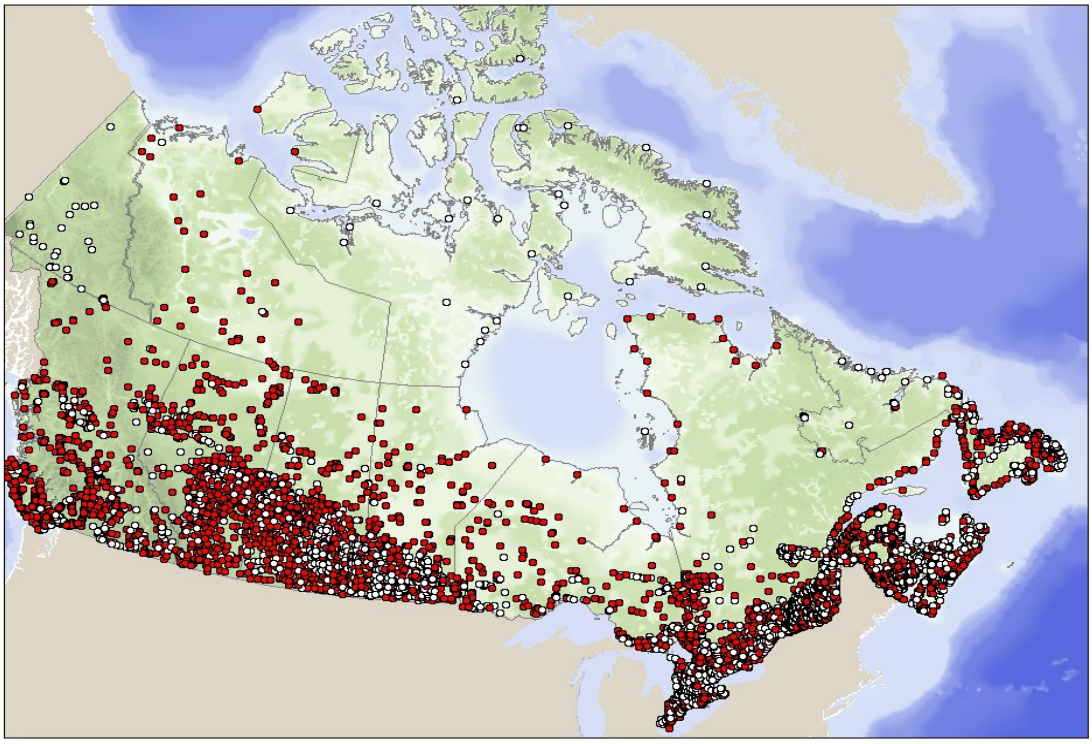


Table 2. Broadband access in Canada, as of June 2007

- Satellite and fixed wireless technologies have helped entrepreneurial telecommunications and cable companies to emerge and deliver services to many rural communities across Canada.

With broadband deployment moving forward, Canada's next steps require a discussion as to whether the focus should be on the extent of connectivity vs. the transition to high-speed networks.

3. Policies on Enforcing Rural ICT Usage in Viet Nam

The paper presents some of the policies, plans, and services initiated by government for the ICT sector. In the Vietnamese experience, Government has taken the lead by developing an Action Plan for the provision of telecoms services, as well as establishing the Vietnam Public Utility Service Fund (VTF). The following are general characteristics of the ICT policy environment in this emerging economy:

1. Vietnam has a general policy of developing ICT, which covers policies on telecommunications infrastructure, ICT industry, ICT applications, and ICT human resource development.

2. There is a mandate to develop universal telecom services, namely: standard telephone service and standard Internet access service. Universal telecom services areas cover 180 rural districts or some 2,821 communes.

3. Support norms include support for USO Telecom provider and support for the Vietnamese living in public utility telecom areas.

4. By 2010, the Approved Program on Provision of Public Utility Telecommunication Services should be able to:

    - Achieve telephone density in areas covered by public telecom services to over 5 telephone sets (fixed line)/100 individuals;
    - Provide all communes with booths;
    - Provide 70% of communes with public Internet access points.

5. Funding for the program will require about US$325 million. Resources to fund this include contributions made in proportion to the revenues from service provision (excluding connection charges):

    - 5% of the revenues, for mobile telecom services (3% from 2008)
    - 4% of the revenues, for inter. telephone service (2% from 2008)
    - 3% of the revenues, for domestic telephone service (1% from 2008)

6. The Vietnam Public – Utility Telecommunication Service Fund (VTF)

    - The VTF is a State Financial Organization, directly under the Ministry of Information and Telecommunication. It also operates for non-profitable goals; as it is exempt from income tax and value added tax.
    - Its general principles and objectives include support of the implementation of the policies on the provision of public-utility telecom services throughout Viet Nam.
    - The primary tasks of the Fund include:
        - Receive and mobilize financial resources to support public utility telecom programs and projects;

  - Elaborate and execute programs, plans, projects involving provision of public utility telecom services;
  - Organize the selection and appraisal of projects; and
  - Monitor, evaluate, and report on the implementation of projects supported by the Fund.
- The Scope of fund support is to provide financial assistance to appropriate telephone enterprises under two main types of support programs: support for investment and development, and support for maintenance costs.
- Forms of assistance available include direct funding and soft loans.

Major challenges faced by government include the following:

- Raising financial resources for 70% of communes to have public Internet access points till 2010;
- Selection of appropriate telecoms technology for using rural ICT;
- Developing suitable content and information provided to the rural people by using ICT.

Panel Discussion II
Public-Private Partnerships (PPPs)

Partnership is recognized as an integral component for building the information society due to the high costs of ICT investments. Establishing and enhancing PPPs is a strategy to ensure that public sector goals and policies are achieved by tapping the expertise and resources of both the public and private sector. Panel Discussion II presented models of public-private partnerships that best addressed the challenges of ICT capacity building initiatives.

1. Characteristics of Rural Population and Efforts to Improve Their Digital Capacity in Korea
Chueng Moon Cho, PhD (Korea)

The first computer education program for rural communities started in the Nokdong Post Office as part of the Informatization Culture Promotion Campaign in Korea. Since then, this campaign was actively engaged in rural communities nationwide to reduce the geographical gaps of informatization across the country. Despite the disadvantaged conditions of out-migration of young adults, an aging population, and low-income levels in rural Korea, the efforts of the campaign have played a key role in expanding the communication skills and knowledge of rural people. It came to an end in 1999 but was replaced by the ICT Education Programs for Rural Communities which included website development, an e-market for agricultural products, promotion of the Internet, and the establishment of an agricultural portal on agriculture.

The National IT Education Plan for 10 Million People was established in 2000. Its aim was 'to realize the digitally equitable society and achieve national development by providing IT training opportunities to all people including those who can be easily excluded from the benefit of the information revolution'. The plan focused its capacity building efforts on computer and Internet usage. The plan has since focused on the IT Education Program for Five Million Disadvantaged People.

The National IT Education Plan's major strategies were characterized by the following:

- Partnerships were made with public schools, universities and private training institutions to be the training centers for other members of the community after school hours and to implement a curriculum in-line with the national program. The military and universities send out personnel and students to villages to serve either as trainers or IT technicians for the village's needs. Partnerships were made with the Hometown IT Volunteer Group, with students from universities providing computer and consulting training to rural residents during the summer.

- The Program paid attention to the local readiness of the local farming villages and took note of the community's capabilities, experiences, farming patterns, existing policy programs, and existing market network. This recognized existing 'local knowledge' as basis for the creation of their digital information network and helped identify the 'incentives' that will motivate the farmers to wish to change.

The National IT Education Plan has also recognized the importance of ICT capacity building for women. So far the Plan has provided ICT training for 434,003 housewives since 2000, as part of its mission to empower and serve marginalized groups or sectors of society. ICT capacity building for women has greatly increased their livelihood opportunities, increasing their markets for their agricultural products.

Korea's attempts to bridge the digital divide has resulted into the following successful cases:

- Promoted information-seeking mindsets and use among rural citizens. The case of a typical homemaker, Lee Mi-jung, who lives in an agricultural community has shown that by using computers she is able to collect information regarding stock and rice-field farming. She is also able to keep informed about new farming technology and able to maintain contact with other community members. She learned her computer skills in a local agricultural center free of charge.

- Provision of ICT education and its application for senior farmers. Senior farmers have learned how to use the Internet for livelihood purposes through computer lessons given at local elementary schools used for outreach activities during school breaks. Senior citizens are also taught how to use e-mail and word processing programs, and consequently, appreciate the benefits that ICTs can do to promote social and digital inclusion.

- Establishment of rural online community. The success of the "Internet Lounge" as a form of a Local Information Access Center, which provides ICT training courses for farmers, awareness and use of the Internet has increased in rural communities. Many rural people are able to enjoy the benefits of online communication with their family in other areas of the country. For residents of Kyoungbuk Province for example, local Information Access Centers provide medical-related material and information for the public.

- Facilitation of agricultural transaction between farmers and consumers through online marketing. Successful cases have also involved the improvement of livelihood opportunities by expanding their clients and consumer base for the marketing of their agricultural products. Through the Internet, local farmers have been able to penetrate markets in other areas in Korea as well as in Japan. By promoting products online, producers are able to do away with middlemen or distributors, reducing marketing costs.

Several recommendations were proposed to enhance the effectiveness of future ICT programs that will better serve rural communities and economic livelihoods in general:

- More attention to local readiness including capabilities, experiences, farming patterns, existing policy programs, and existing market network;
- More attention to the 'local knowledge'- information network;
- Identify the 'incentives' that will motivate the farmers to change;
- ICT-related policies must take a broader approach to complement other rural development policies;
- Tailor ICT use with the problems of rural areas.

2. *Community Access Point Blue Print – Cap 2.0: Mapping Out To Filling the Gap On e-Literacy, e-Skill To Attain e-Earning For Community Members* Bambang Soeprijanto (Indonesia)

The Community Access Point (CAP) Project started as a government program to launch the use of ICTs for eradicating poverty and capacity-building by picking local best practices of ICT-for-development projects and replicating them across the country. With the assistance of the World Bank, the Blue Print of CAP 2.0 featured models of ICT-for-development initiatives in the country and identified gaps, which can be filled by future innovative public-private partnerships. It is implemented by the Ministry for Communication and Information Technology and is institutionalized through the IT Strategic Planning 2005 – 2009 and Annual 2008 Program of the Directorate General on IT Application.

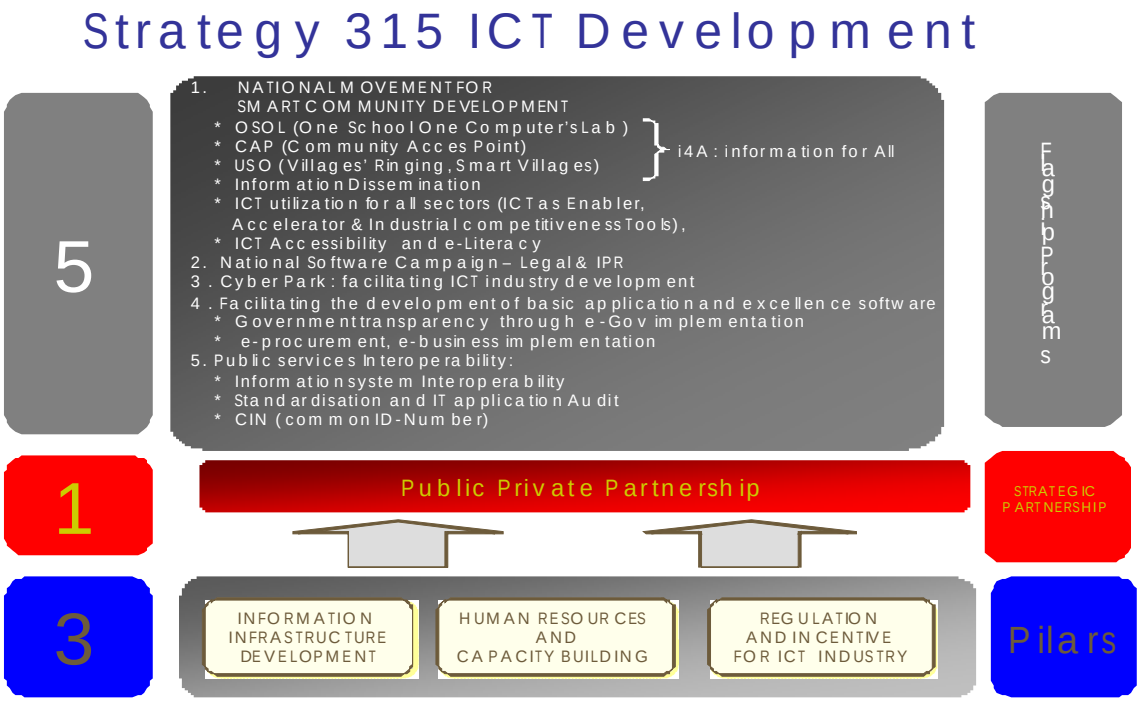


Table 3. Strategic Concept of ICT Strategy 315

The Government forged a partnership with a private company, PT Pos Indonesia Tbk (Persero) to expand CAP's reach. They have taken measures such as converting branch offices into community centers with public areas where CAP services will be available to community members. CAP's goals are to promote:

- ICT usage for enlightening the society and flourishing the welfare of the nation (e-literacy and poverty eradication);
- ICT usage for social inclusiveness, non discriminatory purposes, impaired people, gender main streaming and universal design & adoptive technology;
- ICT usage for raising national competitiveness in the global market;
- Affirmative action toward creating local culturally based digital content and conservation of local culture so as to protect the minority from vanishing.

The results of the CAP Project have been positive and consist of the following:

Telecommunication infrastructure (2004)

- Teledensity relatively high at Metropolitan areas (11 - 25 %)
- VoIP operators (Indosat, Telkom, Satelindo, Atlasat, Gaharu)
- FWA Operators (Indosat, Telkom, Ratelindo)
- Low Teledensity rate at remote areas (0.2 %) + 43,022 villages without phone line (64.4 % out of 66,778 villages)
- Setting-up of 3,645 Post offices and 175 Post offices Online
- Setting-up of 10,000 Internet cafes

While successful in driving infrastructure development in Indonesia, the CAP Project still grapples with the following challenges:

- Information does not exist at the desired aggregation (supply driven, topdown approach)
- Information is not available in electronic form (lacking of digitizing efforts)
- Information is not accessible through the Internet (expensive rate)
- Low availability of information on the Internet in local languages
- Online information is too late (government web sites content up date)
- Short life of information available in Internet (limited server's capacity)
- On-line information can only be searched to a limited extent (limited bandwidth capacity)
- On-line information is presented in an non-editable format
- On-line service to citizens is virtually non-existent (priority of government agencies for back office purposes)

Several recommendations were made to further enhance the CAP as a strategic ICT initiative:

- National policy on CAP 2.0 development should be focused on selected targets to and enable voluntary participation and local involvement;

- ICT usage should promote e-learning, e-skill and e-earning as not a mere conventional learning extension, but a paradigm shift.

- ICT usage to enable public policy participation, local leadership building and social interaction on line to boost capacity building and institutional development and innovation.

- Communication and information dissemination to promote economic opportunities in the digital era and to bridge the digital divide and eradicate poverty among member nations.

- National Communication and information dissemination strategy should utilize ICT based on demand driven models focusing on capacity building and local institutional development towards Indonesia's Information Society 2025.

3. Rural Telecommunications and Universal Access Fund for Investment in Telecommunications

Eduardo Beingolea Zelada (Peru)

The Universal Access Fund for Investment in Telecommunications (FITEL) enhanced government capacity to design and implement ICT projects geared towards poverty reduction and the improvement of the well being of the rural population. FITEL used the one percent levy on gross operating revenues of telecommunications companies to fund rural service expansion through a direct and transparent subsidy scheme. FITEL was seen as a necessary state intervention after all of its achievements in computer and

broadband deployment were recognized. Policymakers later on improved the use of the funds by financing capacity-building efforts to let rural communities realize the full benefits of these efforts.

The Internet monoboxes (PCs with Internet access of narrow band 19.2kbps, and a printer) were installed which aimed to reduce village isolation, open permanent contact channels, provide access to information, and reduce communications costs. However, the project encountered a few problems relating to its implementation, and these were: the deficient selection of managers and shortage of skilled human resources to operate and maintain the PCs, a general lack of awareness of the project and project benefits, as well as the lack of electrical power in some villages.

The following lessons were learned from the FITEL project:

- Interventions should be accompanied by training activities.
- Training and promotion programs must be executed by local promoters and implemented in a systematic way.
- Identify target the population that will use ICTs.
- Conduct public awareness and dissemination activities about the program.
- Ensure the local population's involvement.

Recommendations to strengthen the pilot's rural capacity building components were the following:

- Support of training programs, improving users capabilities for technological tools operation;
- Development of relevant local content for people who live in these towns (alliances);
- Encourage development of productive activities for local people using ICT (alliances).

Panel Discussion III
Sustainability and Scalability

This panel discussed modalities of project ownership and management, and what best solutions could be replicated models across different rural communities and contexts.

1. Lessons learned through the Asia-Pacific Telecommunity HRD Programs
Yoshiyori Urano, PhD (Japan)

The paper touched on the consolidated efforts of the government, academe, and other international organizations to provide e-Learning materials to rural communities in selected Southeast Asian countries. The projects used the learning paradigm of

ubiquitous learning from "Glocal" (Global and Local) perspectives based on the different infrastructure available in the community. The collaboration became win-win partnerships to provide sustainable and scalable models of capacity-building across the region.

The places of implementation were in five cities of ASEAN countries, namely: Bario (Malaysia), Hatinh (Vietnam), Lombok (Indonesia), Cebu (Philippines), Phu-tho (Vietnam) and Phnom Penh (Cambodia).

The following are some lessons learned and their corresponding policy recommendations:

1. It is important to build a new learning paradigm of ubiquitous learning from 'Glocal' (Global and Local) viewpoints. E-learning strategies should be different with each infrastructure requirement. Local communities can develop more appropriate applications for their needs.
2. It is important to establish win-win partnerships or cooperation/collaboration among stakeholders.
3. Universities could be one of the important players in these projects:
   a) Universities can provide a forum where "Knowledge and Experience" are shared;
   b) Foreign students can play an important role in bridging their countries.

2. *Efforts to Improve Digital Capacity in China*

Yu Zicheng (China)

In China, most rural areas are without telephone access. The provision of communications facilities [is best with problems][?] because most of potential users live in remote and mountainous regions. Mountainous areas for example, take up 68% of the territory of Sichuan Province. In the western part are plateaus and mountains while the eastern part is mainly composed of basins and highlands with an altitude of 500 to 2,000 meters above sea level. Up to 25% of the villages have no access to communication facilities and 18% no access to power supply.

Because of the geographical challenges, investments in communication facilities in remote areas are costly. Transportation is also far from satisfactory – 40% of the villages without telephone access are at least 10 km. away from the nearest access point.

In 2004, the Ministry of Information Industry (MII) established the Villages Access Project. Through this project, the government was able to assign different geographic areas to basic telecom carriers to fulfill universal service obligations. Since then, telephone access increased to 97.1% of administrative villages. The Project continues to grow with the goal of providing "telephone access for every village, and Internet access for every town". By the end of 2007, the percentage of administrative villages with

telephone access increased to 99.5% with five provinces achieving 100% with telephones. The percentage of towns with Internet access stood at 92%.

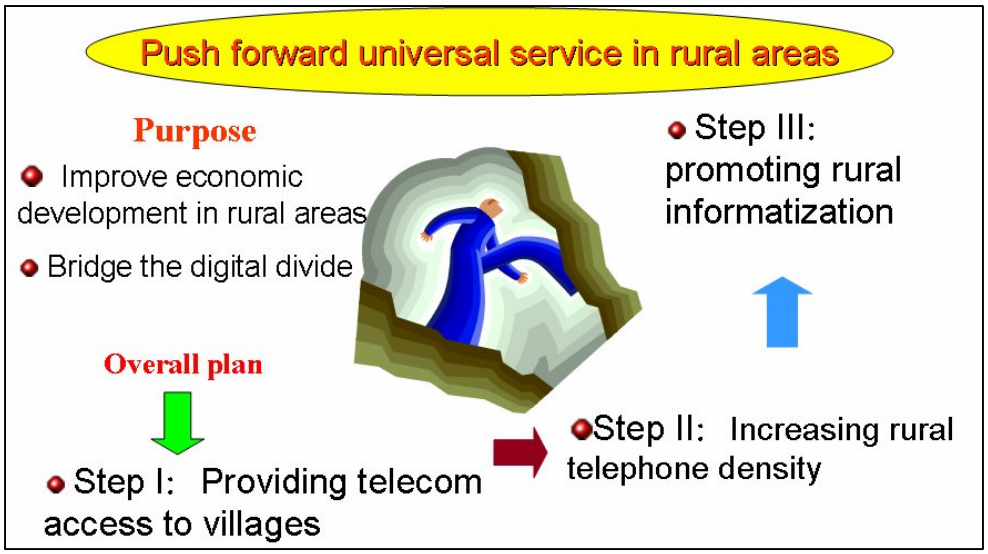


Table4. Viillage Access Project

The major challenges faced in the Project are:

- Poor conditions make construction difficult.
- High maintenance and operation costs.
- These projects are large investment but have low returns.
- A mechanism for universal service funds is still not in place.

For the Rural Informatization Project, government set out to create guidelines to regulate the implementation of pilot projects and easily integrate them under national informatization strategies. Domestic telecom carriers invested heavily in rural areas and are currently developing their services. Domestic manufacturers such as Lenovo and Haier, and multinational corporations like Intel and Microsoft, have also started R&D and implementation of information terminals that can be deployed in rural communities. These investments aim to facilitate the integration of the Chinese countryside's agricultural information resources.

3. *Closing the Digital Divide, Creating Digital Dividend –A Malaysian Perspective and Case Study*

Izlyn Amylia Ramli (Malaysia)

Malaysia recognizes that ICT is very much a critical enabler in economic development and its importance is highlighted in the 8th and 9th Malaysia Plans towards achieving Malaysia's developed nation status by 2020. ICT can also be an essential tool in terms of bridging the digital divide and working towards building the knowledge or information society.

The Malaysian economy sought to establish an enabling policy environment for the growth and expansion of the ICT sector through the development of the following policy instruments:

1. The 8th and 9th Malaysia Plans
    - National Strategic Framework for Bridging the Digital Divide (BDD), which sets out to "expand the communications network to ensure more equitable access to information and services".
    - Development and Strengthening of Cybercities and Multimedia Corridor (1990)

2. Goals of the Malaysian National Strategic Framework for Bridging the Digital Divide (BDD)
    - Access
    - Adoption
    - Value
    - Partnerships

During a national assessment of Malaysia's ongoing programs, the following issues were identified:

- Current programmes are largely uncoordinated;
- The reach of programmes to underserved sections of society is uneven;
- Development programmes are not making use of the most ubiquitous ICTs access devices (TV, radio and even mobile);
- Some programmes with ICTs are not making use of the existing ICT infrastructure;
- Some programmes within the same Ministry and/or related government agencies are proceeding with their own infrastructures;
- Some programmes are not taking the opportunity to use ICTs where they could.

The BDD Framework aimed to address these through increased programme coordination, better implementation methods, and more effective monitoring and evaluation. The major targets are:

- Increase access to and adoption of ICT by underserved groups by providing a telecenter for each mukim by 2010.
- Create value in BDD programmes – A way to do this is to study how telecenters can become a one-stop shop for government services.
- Develop local content through participatory approaches- It will do so by developing a central repository center for the community's content.

- Cultivate multi-stakeholder collaboration and coordination – One way is engaging in more rigorous PPP strategies such as establishing a virtual center of excellence among universities.
- Institutionalize evidence-informed policy and practice – It seeks to develop a standardized but flexible training module for telecenter managers.

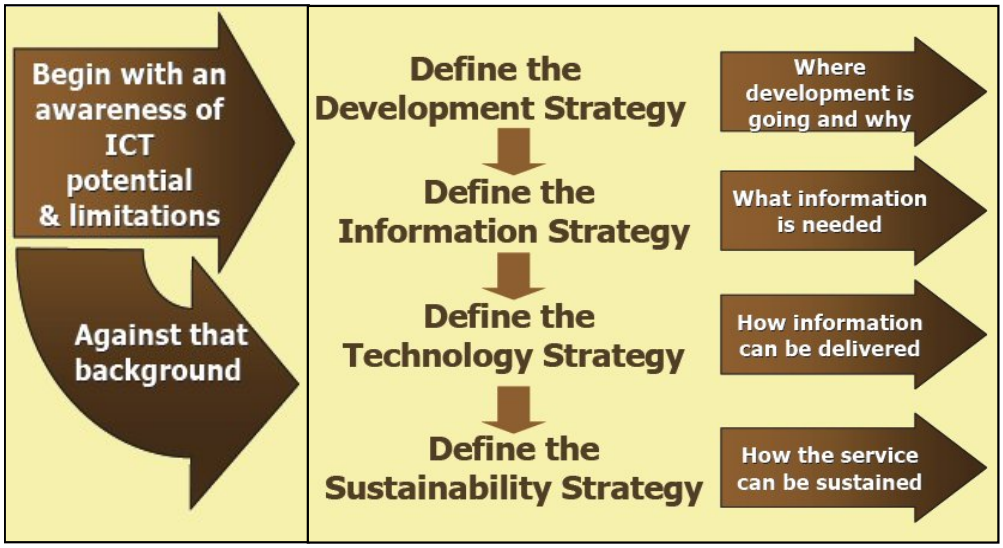


Table5. Strategising Development Programmes for Value, framework developed by Roger Harris Associates, adopted by Malaysian government

It was also suggested that APECTEL should improve on its ability to provide services to rural communities through the following

1. A more holistic view of activities towards achieving e-APEC Strategy and overarching objectives of BDD as per UN MDGs;
2. To increase coordination amongst the multi-stakeholder partnerships of government, private sector, international organizations and civil society; and
3. To provide a more effective system of evidence evaluation and monitoring with new emphasis on indicators measuring socio-economic benefits.

4. *Initiative Broadband Technologies for Rural Communities*
Victor Chiu (Chinese Taipei)

According to the ITU Digital Opportunity Index in 2007, Chinese Taipei has 71% Internet penetration. The general population is considered to have easy access to ICTs at affordable prices. All homes are equipped with ICT devices. All citizens have mobile phones with everyone using broadband.

The main challenges in installing ICT infrastructure in Chinese Taipei's rural areas are the frequent earthquakes and storms that make it costly, time-consuming and labor-intensive. As of 2006, only 46 out of 7827 villages still do not have an Internet connection. The National Communications Commission set a target that every village

should have broadband service, and every household should have telephone service by 2007, and that every tribe has broadband access by 2008.

Using the current services available, the Chinese Taipei government use FTTx, xDSL, WiFi/WiMax and OSS as technologies to provide broadband. In 2007 alone, all villages were connected with at least 2MBPS broadband access and 54 new Digital Opportunity Centers were established. Operations are being maintained through the Telecommunication Universal Services Fund.

V. Inter-APEC Fora Collaboration

1. The initial report of the Seminar was presented by the Project Overseer during the 30th Meeting of the APEC Human Resources Development Working Group held in Bohol, Philippines in April 2008. It was noted during the Meeting that discussions covered certain projects and concepts on the use of ICT in education (e.g. APEC Digital Opportunity Center or ADOC, among others).

2. The issue of the role of women as well as the development of small and medium enterprises (SMEs) are important to APEC. As such, the Project encouraged presentations and discussions on the said topics, particularly experiences that illustrate how initiatives have contributed to the development of the role of women in rural communities and or SMEs.

3. The proponent economy thus believes that the goal of bridging the digital divide should include initiatives on the use of ICT, particularly in the rural communities, could be further enhanced if such use is applied in various applications and services, such as in education, health, agriculture, etc. These initiatives could be enhanced through collaboration with TEL.

4. Cognizant therefore of these, the Brunei goal, and now reinforced with the Bangkok goal, of tripling the internet access, could very well be pursued with other fora, particularly those within APEC, so that efforts to use ICT in various areas could be coordinated.

VI. Lessons Learned: Opportunities and Challenges

The Seminar highlighted a number of issues and lessons learned that serve to remind stakeholders that development problems are complex and require multifaceted solutions that technology alone cannot provide. From the presentations of the different economies, the following findings may be noted:

1. ICT initiatives should be consistently user-based or user-centered. Imposition of technology without community input stifles the creativity of the community to identify, develop, and use technology, applications, and services

that work to address their developmental needs. Incorporating and responding to community needs in ICT development and planning will determine the effectivity of ICTs and applications that will be made available to the community, and how well they address the development problems unique to the community.

2. ICT rural capacity building should promote social and economic opportunities for underserved groups and communities. Indigenous peoples, out-of-school youth, persons with disabilities, as well as other marginalized groups, should not be left out of ICT for development plans. With nearly 80% of the world's disabled population living in developing countries, it is imperative that ICT strategies and tools be responsive to their needs and aspirations.

3. ICT programs should incorporate gender-responsive and gender-appropriate designs and mechanisms to encourage women's participation. Gender-mainstreaming helps remove barriers to women's involvement in ICT projects. Gender divides are generally more pronounced in developing countries where women are poorer and have less access to opportunities that would help them overcome their disadvantaged situation. ICT strategies should be designed to empower and to motivate women to assume greater social and economic responsibilities. ICT training on e-business for example, would help strengthen women's management skills in operating SMEs.

4. Local leadership champions should be identified and involved at every phase of the project. Community champions are valuable change agents, able to promote the value of ICT projects for rural capacity building. Local agents should accompany interventions because it is generally perceived that they have the local people's trust. Training, advocacy, and promotion are best implemented through them.

5. The successes of many rural community projects are largely influenced by the quality of public-private partnerships. Partnerships should not only be limited to the private sector. There must be an increased coordination among all stakeholders: private sector, local government, community, and civil society. The government should take on the role of facilitator and enabler as it creates guidelines and applies appropriate regulation and policies in the implementation of both public and private projects, and integrate them into national strategies. Partner with the local academic and training institutions to be able to reach more members of the population.

6. There is a need to theoretically and methodologically correlate the rate of broadband deployment to economic development. Project champions should seek to emphasize the correlation between broadband deployment and economic development, thus creating win-win partnerships. Broadband interventions have to demonstrate to stakeholders that connectivity shall engender socio-economic opportunities. Correlations may be demonstrated through more methodical and systematic identification and use of both qualitative and quantitative indicators.

7. There is a need to make universal access affordable. Although costs of PCs and connectivity are going down, affordability is still a contributing factor to the digital divide. Bringing down the cost of computers and connectivity are essential to information access at community level or at household levels.

8. Social mobilization activities should be implemented. Raising awareness of rural communities on ICT and their empowering potential will promote ownership and buy-in of community ICT projects by local beneficiaries. While ICTs provide opportunities, it will be the people themselves to determine the success or failure of these initiatives.

9. Explore the range of multi-stakeholder partnerships to maximize expertise, technology, and the logistical resources that are available. Broadening the stakeholder base expands the intellectual discussion that could result into more innovative uses of ICT for rural capacity building. Stakeholder partnerships can also define the current and potential roles in ICT development in the rural areas, especially with respect to the attainment of the goal of universal services.

10. Explore innovation in human capital development in the rural areas. There should be a more innovative approach to ICT training of rural populations, taking into account the cultural diversity and levels of e-readiness.

11. The Telecentres Model as frontline information access points needs to be revisited. There is a low take-up rate of existing telecentres. Although a proven model for ICT community empowerment, new business models have to be conceptualized in order to make them more profitable and therefore more sustainable.

12. R&D and M&E tools are needed to assess the outcomes of ICT development projects. There is a need for more research and development (R&D) at the community level in order to develop appropriate policies to help create a specific and localized approach in formulating ICT-enabled development strategies. It is critical to implement an evidence-based system of monitoring and evaluation (M&E), integrating indicators that measure socio-economic development. Measuring intended and unintended outcomes will greatly benefit from a refinement of the monitoring and evaluation tools.

13. An enabling policy and regulatory environment will help stakeholders define their roles. There is continuing debate on the role of governments: are they infrastructure developers or demand generators; are they regulators or enablers. Although governments have lately ceded ICT infrastructure development to the private sector, the ICT industry as a whole will benefit greatly from a well-defined public sector development strategy that incorporates the use of ICT as a development tool.

VII. The Way Forward

Much work needs to be done if APEC is to move its ICT agenda forward. The following are some of the strategies from which new directions can hopefully be determined for the region:

1. Identification of information areas for applications development. Among the numerous issues and concerns that were raised during the Seminar, possible initiatives that the TEL steering groups could work on is the identification of priority information areas (e.g. health, agriculture, livelihood, culture, environment, etc.) for which applications could be developed. Regional collaboration on applications development on urgent information areas for rural communities should be identified.

2. Preparation of an inventory or database of rural capacity-building efforts to serve as benchmarks. Another area of cooperation that can be considered is the preparation of a simple inventory or database of capacity-building efforts that will identify strategies, best practices, and standards based on different community contexts that can be benchmarks for the member-economies in creating their own.

For the short term, the Seminar participants may also use the Seminar website at www.connectedruralcommunities.net as a repository for the compiled case studies from the Seminar as well as other related studies that would follow. It will also be a venue for future discussions among the participants.

3. Formation of a Working Group to organize action research projects. In the medium term, as a follow up to this Seminar, it is suggested that further work be done by a technical working group, involving participating countries in the Seminar, to organize action research projects on building capacity in different rural communities among the APEC member-economies.

4. Strengthening APEC regional collaboration. Lastly, it was recommended that in the area of pursuing regional collaboration among APEC economies, a strategy to promote such efforts should be included in the TEL Ministers Declaration. It was timely that during the TEL Ministers meeting in April 2008, it was recommended that the TEL Working Group pursue its work in the following areas, among others:

a. In the area of ICT Capacity Building for a Prosperous Future: "We noted the on-going capacity building activities on the use of ICT for empowering rural and remote communities and acknowledged the benefits of cooperation with other APEC fora. We encouraged member-economies to further develop sustainable community-based programs including public-private partnerships to build capacities and to meet their socio-economic development needs."

b. In the area of Challenges and Strategies to Promote Universal Services: "To achieve our common goals, we encouraged intensified efforts to support effective universal service strategies that are appropriate to each economy. These efforts should include innovative policies, regulatory frameworks and programs to meet the needs of unserved or underserved communities using ICT in a sustainable manner."

VIII. Concluding Statement

It is apparent that APEC economies differ in their levels of ICT development and extent of utilization. It demonstrates how the digital divide continues to exist in the region. The economy presentations have shown, however, that there is a concerted effort to address this universal challenge, in unique ways.

By highlighting what are the best practices in the use of ICTs for development, this Seminar has hopefully given us a fresh perspective and renewed determination to work harder towards building an Asia-Pacific Information Society.

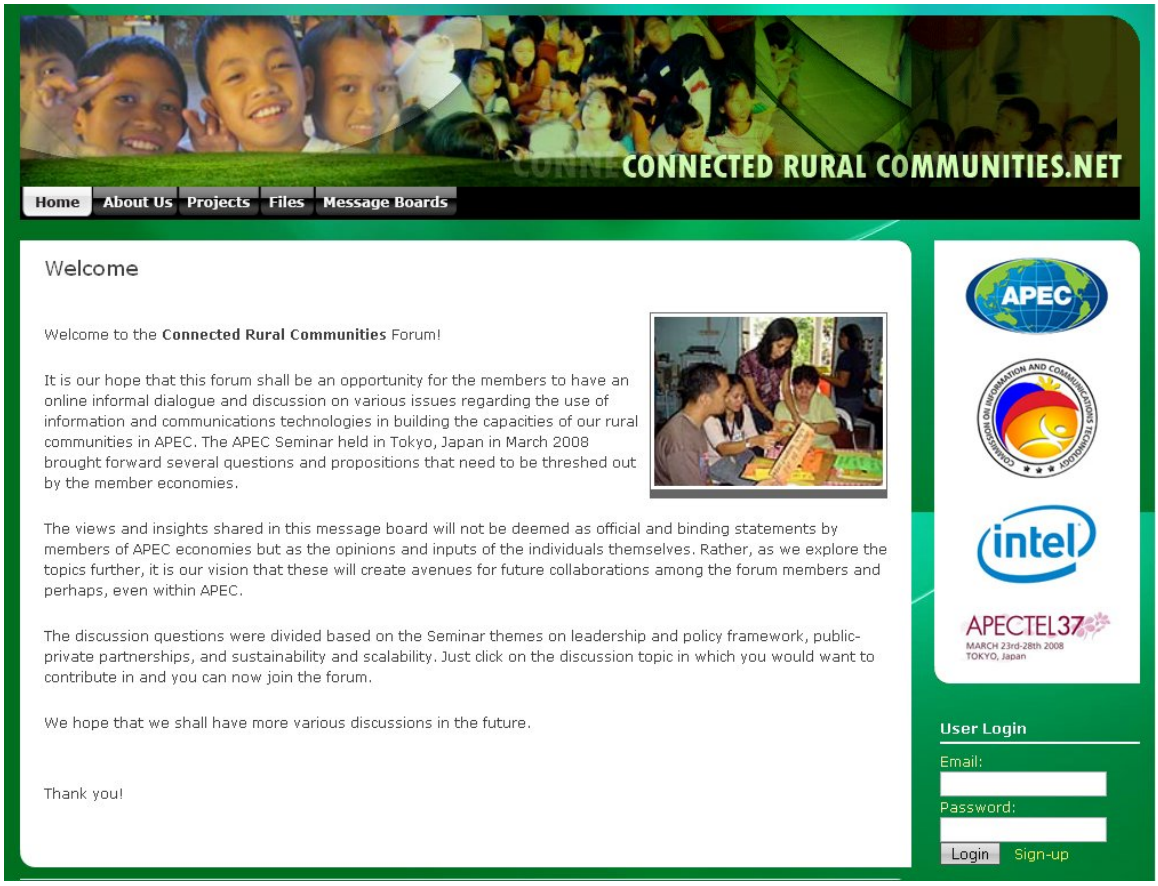
IX. Annexes

Annex A- Initial List of Experts
Annex B- Project Website
Annex C- Seminar Program
Annex D- Biographies of Presentors

ANNEX A
Initial List of Experts and Practitioners

Canada	Kathy Fisher Ron Hale Eric Tsang
China	Liu Ziping Ma Yan Rujing Men Yu Zhicheng
Chinese-Taipei	Wu-Jhy Chin Victor Chiu Po-Chou Liang Ching-Heng Lin
Indonesia	Sofi Soeria Atmadja Bun Cahyono Dhia A. Febriansa Agustinus Machfud Dayu Rengganis Santoso Serad Yusril Siri Bambang Soeprijanto
Japan	Yoshiuri Urano, PhD
Korea	Cheung Moon Cho, PhD
Malaysia	Nor Arlinda Mohamed Khalid Izlyn Ramli
New Zealand	Ernie Newman
Papua New Guinea	Kila Gulo-Vui Flierl Shongol
Peru	Eduardo Beingolea
Philippines	Patricia Abejo Alfrredo Carrera Yvonne Garcia-Flores Ibarra Gonzalez, PhD Virgilio Peña Victoria Christian Rivera Philip Varilla
Thailand	Sirote Ratanamahatana Wilai Theanthongthou
USA	Ashley Heineman Brian Mefford Frank Odasz
Viet Nam	Tuan Chu Hong Trinh Thi Anh Dao Khanh Nguyen Anh Dung Nguyen Tam Nguyen Linli

ANNEX B
Project Website



ANNEX C
Seminar Program

APEC SEMINAR ON USING ICT FOR RURAL COMMUNITY CAPACITY BUILDING

Telecommunications and Information Working Group – ICT Development Steering Group

DAY ONE
23 March 2008

8:00 – 9:00 am	Registration
9:00 – 9:30 am	SESSION ONE *Overview by Virgilio L. Peña*

SESSION TWO
Global Initiatives and Technologies on ICT Capacity-Building for Rural Communities

9:30 – 9:45 am	Introduction to the Discussion by Virgilio L. Peña
9:45 – 10:15 am	*Status Report on the International Community's and APEC's Response to the Challenges of ICT Capacity Building in Rural Communities* Ibarra Gonzalez, PhD, Wellness Institute, The Philippines
10:15 – 10:45 am	*Global Best Practices on ICT Capacity-Building Activities for Rural Communities* Frank Odasz, Lone Eagle Consulting, United States of America
10:45 – 11:00 am	Morning Break
11:00 – 11:30 am	*A Survey of Tools and Applications Used in ICT Capacity-Building for Rural Communities* Brian R. Mefford, Connected Nation, United States of America
11:30 am – 12:30 pm	Panel Session: Virgilio L. Peña, Moderator
12:30 – 2:00 pm	Lunch Break

APEC SEMINAR ON USING ICT FOR RURAL COMMUNITY CAPACITY BUILDING

Telecommunications and Information Working Group – ICT Development Steering Group

SESSION THREE *Economy Presentations*	
Discussion 1: Leadership and Policy Framework	
2:00 – 2:30 pm	*The Community eCenter Program* Patricia M. Abejo, Commission on Information and Communications Technology, The Philippines
2:30 – 3:00 pm	*Strategies for Rural and Remote Broadband Development in Canada* Kathy Fisher, Industry Canada, Canada
3:00 – 3:30 pm	Open Forum: Kathy Fisher, Moderator Panelists: Patricia M. Abejo, Kathy Fisher, Nguyen Kieu Khanh (Ministry of Information and Communications, Viet Nam)
3:30 – 3:45 pm	Afternoon Break
Discussion 2: Public-Private Partnerships (PPP's)	
3:45 – 4:15 pm	*Characteristics of Rural Population and Efforts to Improve their Digital Capacity in Korea* Chueng Moon Cho, PhD, Korea Agency for Digital Opportunity and Promotion, Korea
4:15 – 4:45 pm	*Community Access Point Blue Print – Cap 2.0: Mapping Out To Filling the Gap On e-literacy, e-skill To Attain e-earning For Community Members* Bambang Soeprijanto, Ministry for Communication and Informatics, Indonesia
4:45 – 5:15 pm	*Rural Telecommunications and Universal Access Fund for Investment in Telecommunications* Eduardo Beingolea Zelada, Fund for Investment in Telecommunications, Peru
5:15 – 5:45 pm	Open Forum: Sofia Soeria Atmadja, Moderator

APEC SEMINAR ON USING ICT FOR RURAL COMMUNITY CAPACITY BUILDING

Telecommunications and Information Working Group
ICT Development Steering Group

DAY TWO
24 March 2008

Discussion 3: Sustainability and Scalability	
9:00 – 9:30 am	*Lessons learned through the APT HRD Programs* Yoshiyori Urano, PhD, Waseda University, Japan
9:30 – 10:00 am	*Efforts to improve digital capacity in China* Zicheng Yu, Chinese Academy of Telecommunication Research, Ministry of Information Industry, China
10:00 – 10:30 am	*Rural Internet Center* Izlyn Amylia Ramli, Telekom Malaysia Bhd, Malaysia
10:30 – 10:45 am	Morning Break
10:45 – 11:15 am	Panel Reaction: Zicheng Yu, Moderator Panelist: Victor W. J. Chiu, Chunghwa Telecom Co., Ltd.
11:15 – 12:00 pm	SESSION FOUR Synthesis and Next Steps by Virgilio L. Peña

ANNEX C
Biographies of Presentors

I. Expert Speakers

Ibarra M. Gonzalez (Philippines) is currently developing the "Health Channel, the Wellness Spring Net", via satellite and the Internet, as a means of educating the public on preventive health care and rural health services using natural medicine. In 2003, the President appointed him as Director General of the National Computer Center, where eGovernance is one of its key projects. Prior to that, he was Director of *Eskuwela Ng Bayan*, an ICT project under the Office of the President which focused on upgrading the poorest of 40,000 public elementary schools nationwide, using multiple delivery systems (cable, satellite, DVDs).

He handled ICT projects for the DSWD's Early Childhood Development and the ICT program development for the urban poor for Asian Social Institute. He was an ICT consultant for the Philippine Information Agency and for NetCurricula (promoting the use of the Internet in primary and secondary schools nationwide). He was also the Research Director of CommSciences, an ICT research company based in Los Angeles.

Dr. Gonzalez is a communications theory and research graduate of the Annenberg School of Communication at the University of Southern California, Los Angeles. His MA is from the UP College of Mass Communication in Diliman, Quezon City. His undergraduate studies are from the Gregorian University in Rome and the Ateneo de Manila University in Quezon City. He trained in audiovisual communication in Lyon, France, in radio and television in Hatch End (London) and Booterstown (Dublin), and in film at the Hollywood Film Institute in Los Angeles.

Brian Mefford (USA) serves as the Chairman & CEO of Connected Nation, a non-profit organization widely known for its ability to accelerate technology availability, literacy, and use among previously overlooked populations. Mr. Mefford was responsible for leading the successful design and execution of broadband expansion plans in Kentucky with ConnectKentucky - the organization's "proof of concept" project. He was featured as part of CSPAN's "Communicators" series and has been profiled in *The Economist* and *The Wall Street Journal* for efforts to provide broadband Internet and computers to underserved areas of the United States.

He has worked for and consulted with leaders at the highest levels of state and federal government. In a leadership capacity, he has been involved in a number of successful high-tech startups or early stage businesses in various parts of the United States. He founded The Coronado Group in Phoenix, Arizona and the Pareto Institute in Washington, D.C. He also worked as a tech sector market analyst for New York-based Fulcrum Analytics, a business intelligence and marketing services firm.

Mr. Mefford has participated in the Legislative Studies Program of the Governmental Affairs Institute at Georgetown University. He received a B.S. in Economics from Centre

College in Danville, Kentucky and an International M.B.A. from Thunderbird, The American Graduate School of International Management, in Arizona.

Frank Odasz (USA) is President and CEO of Lone Eagle Consulting (http://lone-eagles.com) based in Dillon, Montana, USA. Specializing in fast-track Internet training for rural, remote, and indigenous learners for the last 20 years, Mr. Odasz has participated at various national and international conferences on online learning, community networking, and rural Ecommerce. His work has been recognized for excellence by four congressional reports, the White House, and dozens of books and publications.

Mr. Odasz has been teaching rural citizens and teachers consecutively since 1988. Among the online courses he has created are Classroom Collaboration on the Internet; Mentoring Online; How to Create and Teach an Online Class; Making the Best Use of Internet for K-12 Instruction; and Designing Online Curriculum for K-12 Instruction. Presently, Mr. Odasz teaches online graduate courses for Alaska Pacific University, Seattle Pacific University and the non-credit Ecommerce course for Idaho State University. In 2002, he created Rural Ecommerce and Telework Strategies as a non-credit first online course specifically for rural learners.

Mr. Odasz also served on the founding boards for both the Consortium for School Networking and the Association for Community Networking. He has been providing rural community workshops for the Kellogg "Managing Information in Rural America" project, workshops for educators for the International Thinkquest Competition, CTCnet national conferences, AFCN-cosponsored community networking conferences, and has advised on grant applications for the Hewlett Packard Digital Village initiative, as well as U.S. Dept. of Ed. Office of Migrant Education technology projects.

In 1982 Frank attended the University of Wyoming to learn the benefits that computers and telecommunications could bring to rural citizens. As one of the early pioneers of both online learning and community networking, he founded the Big Sky Telegraph network in 1988, which was one of the first online systems to offer online courses for rural educators in over one hundred one-room schoolhouses in Montana.

II. Economy Presentors

Kathy Fisher (Canada) is currently the Director for International Telecommunications Policy and Coordination Industry, Canada. Ms. Fisher is responsible for Canada's multilateral, regional and bilateral international telecommunications policy relations and coordinates Canadian participation in multilateral organizations including the ITU, APECTEL, CITEL, ICANN/GAC. In addition, she is responsible for Canadian bilateral relations on telecommunications policy issues.

Between the period of 1998 and 2003, Ms. Fisher advanced the work of the TEL's Liberalization Steering Group in her capacity as Deputy Convenor and Convenor of the Liberalization Steering Group.

Most recently, as Director of Broadband, Ms. Fisher was responsible for strategic investments and connectivity initiatives to bring high-speed Internet access to rural and remote communities. She was also responsible for the Computers for Schools program, which gave a second life to surplus government and private sector computers for use in schools and learning organizations across Canada.

Yu Zhicheng (China) is the Deputy Chief Engineer, and Director of New Technology & New Service Section of TeleInfo Institute, China Academy of Telecommunication Research (CATR) of MII. He is also a Member of the China Institute of Communications. He has worked with the CATR for more than 11 years. His research interests include new telecom technologies and services, telecom regulation and policy, among others. Mr. Yu graduated from Nanjing University of Posts and Telecommunications in 1995 and received his masters degree in mobile telecommunication at Korea University in 2002.

Victor W. J. Chiu (Chinese-Taipei), Mr. Chiu has been directing Chunghwa Telecom's (CHT) network strategy and planning for more than 30 years. He has published more than 50 papers in the field of telecom network technology. He has received many awards including the 1994 Top Ten Engineers in Taiwan. From 1996 to 2000, he served as the representative of CHT's Washington office in DC. Now, he is the VP of Telecom Labs, a unique R&D organization of Chunghwa Telecom. Mr. Chiu holds Electrical Engineering BS and MS degrees from University of Cheng-Kung and University of Colorado respectively.

Bambang Soeprijanto (Indonesia) is currently the Director for ICT Community Empowerment, Directorate General for IT Application, Ministry for Communication and IT, of the Republic of Indonesia. He received a masters degree in Agricultural Journalism in 1989 from the University of Wisconsin, USA.

He has attended a number of trainings and seminars on ICT policy and the regulatory environment in Asia and the Pacific, health, e-commerce, and development communications.

Yoshiyori Urano, PhD (Japan) is presently Dean and Professor at the Graduate School of Global Information and Telecommunication Studies, Waseda University. He was formerly with the KDD where he served as Director of KDD Research and Development Laboratories from 1993-1996. Dr. Urano received his doctorate in Engineering from Waseda University in 1965.

His current interests include next-generation Internet, information network architecture, intelligent network operation/management, multimedia, distributed processing, network applications (distance education/e-learning/ubiquitous learning, tele-medicine information systems, disaster prevention information systems, among others).

Cheung Moon Cho, PhD (Korea) is the Director of the Division of International Cooperation and Planning of the Korean Agency for Digital Opportunity and

Promotion (KADO), which is in charge of international cooperation for helping the informatization of developing nations. He is also Vice Chair of the Telecommunications Development Advisory Group of ITU from 2002 to the present. He has worked as a consultant with ESCAP and the World Bank in the field of ICT and development. Dr. Cho received his doctorate in Sociology from the University of Maryland.

His major research work on ICT and development covers issues on the World Summit on the Information Society, the digital divide, information use among marginalized groups such as the poor, elderly and persons with disabilities, e-learning and measuring the digital divide. Dr. Cho has also done studies on donor activities and assessments of overseas aid projects.

Izlyn Ramli (Malaysia) is currently with Telekom Malaysia Bhd (TM), a leading regional communications company based in Malaysia, where she is Assistant General Manager, Strategy Analysis and Development in Group Strategy and Planning. Her main responsibilities include analysis of economic, social, technology, industry and business environments for strategy development and formulating business plan directions, in order to create business opportunities for TM Group. Ms. Ramli is also one of TM Group's liaisons with external parties such as the Malaysian Government, Ministries, Regulators, as well as national and international bodies.

Her areas of specialization include strategy development and strategic resolutions; programme management; ICT industry liaison at government and international fora; ICT industry development and analysis; management consultancy; communication; networker and connector.

She holds an MBA with Distinction from City University (Cass) Business School, London, specializing in Strategy Management of Technology and E-Business. Ms. Ramli has a first degree BSc (Hons) in Economics from University College, London.

Eduardo Beingolea Zelada (Peru) is presently with the Technical Secretariat of FITEL (ascribed to the Ministry of Transports and Communications – MTC) since May of 2007. His main functions include coordinating the different activities of the Program of Implementation of Rural Telecommunication – RURAL INTERNET, elaborating the different terms of Reference and Technical Specifications for the Rural Internet Program, coordinating with consultant companies, and monitoring project processes.

His experience covers the management of telecommunications projects for rural areas, the technical specifications and bases of auctions, and the supervision of projects of telecommunications in rural areas of Peru. Mr. Zelada is an Electronics Engineer with a postgraduate degree in the Management of Public Investment Projects, Data Networking and specialization courses in VSAT satellite systems.

Patricia M. Abejo (Philippines), appointed by Her Excellency President Gloria Macapagal-Arroyo in January 2007, serves as a Director of the Commission on Information and Communications Technology (CICT), a government agency tasked to oversee the country's ICT development. Ms. Abejo is concurrently the Chief of Staff of the Office of the Secretary and Director for the Cyberservices Group. As Chief of Staff, Ms. Abejo provides technical management and coordination to facilitate top-level decision-making functions in the area of strategic ICT execution within and outside the CICT, in areas such as development of the ICT and business process outsourcing industry, human capital development, and e-Government development.

As Director for the CICT Cyberservices Group, Ms. Abejo provides for the development of collaborative programs and projects to promote the Philippine Cyber Corridor as one of the globally preferred ICT BPO destinations. This includes partnering with the industry to develop and promote the cities around the country as alternative locations for investments, pursuing human resource development initiatives, and coordinating with various stakeholders such as the private sector, academe, local and national government agencies, among others.

Ms. Abejo received her B.A. in Human Relations, with certificates in Computer Information Systems, Human Resource Management and Business Communications, from Golden Gate University, San Francisco, California, USA.

The Project APEC Seminar on Using ICT for Rural Community Capacity Building was made possible through the collaborative efforts of several individuals. These include:

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