Telecentre Sustainability

Three Case Studies in Thailand

Research Report

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ACKNOWLEDGEMENTS

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TELECENTRE SUSTAINABILITY: THREE CASE STUDIES IN THAILAND
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SYNTHESIS

Introduction

This cross case-study research aimed to examine and compare different forms of telecentre activities in Thailand. The objectives of the study were:

- To examine factors that support or limit the development and sustainability of telecentres in Thailand; and
- To compare lessons learned from different models of telecentre activities under different contexts.

The definition of 'telecentre' in this research was a place, which provided information and ICT services to community members and/or the public, with an intention to support community development and to improve people's quality of lives. As a result, Internet cafes were not considered for this study.

Three telecentres with different forms of ownership and operation were examined. Bannok.com Computer Centre was owned and operated by an NGO; Pong Telecentre was under the care of a non-formal education centre (government unit); and Ban Sam Kha School Computer Centre was community-based. The field research was taken place in three northern provinces: Chiang Rai, Phayao and Lumpang, during August to October 2003 (see Map 1).

Methodology

The research framework emphasized on both social and financial sustainability of telecentres over a period of time. All telecentres in this study were relatively new, established during 2001-2002. Therefore, it was possible to trace back from the time of their inceptions and progresses made to the field study period. In this research, social sustainability referred to what and how the telecentres and their services benefited the locals and rural communities. The financial focus was on whether they could be self-sufficient in covering their operational costs and incurred expenses from providing services, and how they could keep the business or activity running in the long run. In analyzing these elements, social and political influences from outside the communities and local contexts were taken into account.

The research employed case study and field research methods and applied different data collection techniques that suited the local conditions at the time. The main research techniques used were individual and group interview, participating observation, casual conversation, and
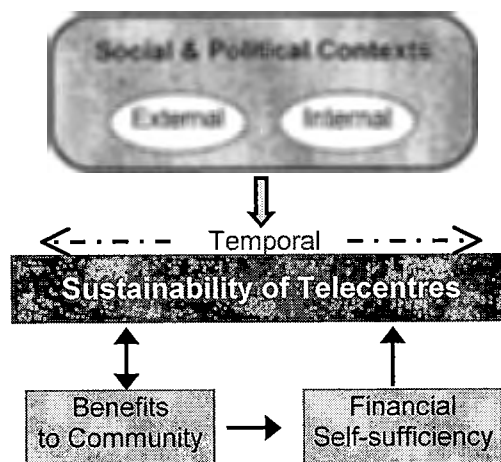
participatory focus group with the use of visual tools (Venn diagram, Matrix, Fish and boulder, Force fields, etc.). Questionnaire interview was also used in Pong community.

Main Findings and Analysis

There were some similarities and differences among all the three case studies and the differences were highly contextual-based. The motive behind the establishment of a telecentre was the first that contributed to those differences. Other causes such as locally geo-demographic conditions, immediate client needs, and owner organizations' and their staff's expertise had influenced on the service foci and targeted clients of the telecentres.

Contextual Differences

Founding Rationale

- The Bannok.com Computer Centre was purposed to better support development projects within the owner organization; hence the service revolved around the staff and projects' communication and management needs.
- Pong Telecentre was initially a pilot site of Thailand-Canada Telecentre Project aimed to find and test a financially self-sufficient telecentre model in Thailand. The Non-formal Education Centre in Pong took the operation and ownership roles with an attempt to provide equal ICT opportunity (skills and access) to local people.
- Ban Sam Kha School Computer Centre was born out of the enthusiasm of school students who were keen to learn and use the computer and later the Internet. Therefore, the focus was perceived by the community as a learning tool for the young although villagers were welcome and encouraged to learn and make use of the facility.

Expertise of Owner Organizations

Working under different local conditions such as ethnicity, local lifestyles and beliefs, and institutional structure, each telecentre had developed and furthered its own expertise and network.

- As an NGO worked with hill-tribe communities and one of the earliest Thai NGO integrated ICT into their daily development practices, the Mirror Art Group (Bannok.com) was able to market its IT-related services to other NGOs and independent organizations through its networks. ICT had been a powerful tool for their development activities while the IT unit could self-support sufficiently.
- NFE Pong, as a government organization provided adult education and promoted life-long learning, was efficient in coordinating with local organizations especially government departments and local governments. It employed training and knowledge-transfer activities for rural community development. As a result, the Telecentre emphasized on computer and Internet training and promoted its services mainly through public institutions and government units.
- Ban Sam Kha Village had a grassroots identity and a reputation of strong community. It had experiences in conducting research in poverty elimination within, for and by the community. The good reputation helped it build up networks in grassroots, government, private and public sectors. Many supportive individuals and organizations had meshed and formed an alliance relationship and brought in pilot projects that might further promote the self-sufficiency of the community. ICTs could become a supportive tool of various community projects. The Computer Centre had attempted to play an assistant role in some of the community development activities.

Based on the organizational backgrounds and experiences, the telecentres all came up with their own operational and managerial styles. An overview on the operation of all three telecentres is summarized in Table 1 and 2.

Operation and Financial Management

Each case study in this research had employed certain different management strategies although all of them had combined both charity and business elements within their service provision.

- Bannok.com Computer Centre had adopted a more private-enterprise strategy in its resource management and operation as the NGO had been steering towards this direction in order to promote self-sufficiency in all of its development projects. The Centre covered the cost of satellite Internet connection by collecting monthly contribution from all the in-house projects with a rough estimation of each project's usage. The available resources (hardware, software, skilled staff and organizational structure) made it be able to sell services such as web design, ready-to-use application and server space rental, which required more advanced skills, to other organizations and to fully cover its operational costs and possibly new investments. The charity part came from free computer and Internet service for local youth on weekends, free training and supportive IT activities to other organizations on occasions.

- Pong Telecentre employed a not-for-profit approach, a combination of business and partial subsidy in order to provide reasonable services to local people. NFE Pong had subsidized the electricity cost and had provided space and partial full-time staff for the Telecentre. As a result, the Telecentre could keep its operating cost low and in return, it felt obliged to provide more reasonable hourly charge of computer-and-Internet use and training to the community. Because the Telecentre and NFE Pong, as well as NFE Pong and other local organizations, had an interdependent relationship, the Telecentre had provided services to NFE Pong and training to other local government organizations mostly for free. Although games were limited to a minimum, it remained the flexibility in order to make at least a break-even to its expenses.

- Ban Sam Kha School Computer Centre was similar to Pong Telecentre; however, it was in a transition-stage from solely subsidized to self-sufficient. As it received one-year subsidy of Internet connection, full-time staff salary and partial utility cost, a big portion of 2003 revenue was saved in the form of funds and would be used to pay for the expenses after those financial supports ended. Because of the poverty situation of the community, the Computer Centre charged for the service fee at low prices, which was seen affordable for community members. Coupling with its more charitable service approach, free services for the School students during school hours and free for the villagers' learning, as a result, the service charge and revenue was way lower than what it should have been in order to break even or to cover the operating cost. Nevertheless, part-time young volunteers comprising of the school students and village youth, and the contribution from 20% of the profit made by the Yaowachon.com (a student-owned shop within the School) might continue to ease the financial burden of the Centre.

The Bannok.com Computer Centre applied a more private business approach in its financial and marketing management while still remained certain level of charity service especially for the local community. The Ban Sam Kha School Computer Centre was still much in a charity and subsidy scheme and involved lower level of for-a-fee approach. The Pong Telecentre was somewhere in the middle between the former two cases; it employed a not-for-profit operation style, partial market-based approach while remained some charitable services. The common similarity in all cases was they all strategized the pricing scheme and financial management in consonance to local economy and situations.

Similarities as Part of Imbedded Rural Conditions

The similarities of all three cases were mostly outputs of socio-economic conditions in rural and remote areas and of the spontaneous interaction of the telecentres to those conditions.

Community Development Enthusiasm

All the telecentres and owner organizations had great wills and missions in helping and improving the quality of life of local people. The Bannok.com tapped onto different facets of communities' problems such as literacy, educational funds, society's attitude toward and awareness on problems faced by hill tribe communities, loss of local culture and wisdom, careers and occupations, citizenship, drugs and local content. Using ICTs as facilitation and communication tools to carry out their development activities became an organizational culture and daily routine of its staff.

On the surface NFE's main task appealed to provide adult literacy and education, but at the core its mission was to help community members improve their own livelihood through learning and education. It was fortunate for NFE Pong to have staff, who dedicated and enthusiastic to help and serve the communities in its catchment area, as mentioned by the NFE Pong director. IT and the telecentre had started to provide the staff an additional tool and service in serving and helping the community in terms of information and skills, as well as entertainment. Many NFE teachers in the lowland area became trainers and information mediators. However, constantly maintaining a balance between work responsibility – taking care of benefits and interests of local community and NFE's, and staff's own personal lives and interests was a challenge for some staff.

As mentioned earlier, the operating and management body of the Ban Sam Kha School Computer Centre comprised mostly village youth between 11-20 years of age. Being involved in various development activities within the village, the team members were motivated to help improve the lives of villagers and their families by using capacities and skills they had. The free service offered to villagers by the Centre was one attempt among others.

ICT and Telecentre Uses: Contextual Based

The ways communities made use of ICT and telecentre services in the case studies were based on community contexts and the interaction of communities and their circumstances.

1. Entertainment

Unsurprisingly young people, except in the Bannok.com case study, were the ones who enjoyed the use of computer and the Internet the most and generally for entertainment purposes because most of them were familiar with the technology and had obtained some basic computer skills from schools. While male users most likely played games at Internet cafes, chatting with friends and other people residing in other cities or countries on the Internet was the most common entertaining usage for female users in two of the case studies. Many local adults perceived chatting as a non-useful and unproductive use of the technology. However, online chitchatting might provide teenagers especially in rural area a way to escape their boredom[1] and to learn about worlds outside their communities through virtual conversation. In the case studies, online chatting was also use for organizational communication as at Bannok.com and for language skills improvement as in the other two case studies.

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[1] Research findings by Valentine, G. and Holloway, S. L. (2001). A Window on the Wider World? Rural Children's Use of Information and Communication Technologies. *Journal of Rural Studies* 17, 383-394.

2. News

Most local adults in the case studies obtained daily news through broadcast media and obtained government and community announcement from village chiefs through loudspeakers. Local channels and media broadcast local content by using local dialects had been received a lot of interest and attention from community members in the Bannok.com case study. Many local people in the case study of Pong Telecentre obtained family updates and news from their friends and relatives through cell phone. A number of young people in the communities of Pong and Ban Sam Kha surfed the Internet for entertainment news related to such as TV programs, celebrities and sports.

3. Acquisition of Specific Information

In all three case studies, community members both telecentre users and non-users sought information related to their professions and local issues that had impacts on the quality of their lives. As young people were major users of telecentres, information that most users sought was related to their learning subjects for reports and assignments, and related to continuing education at higher levels. This phenomenon was more obvious in the case of Pong Telecentre and Ban Sam Kha School Computer Centre. Because the Pong Telecentre was located in a district versus the Ban Sam Kha School Computer Centre which was located in a village, the former serviced people in more diverse sectors of professions than the latter did. A number of government employees in Pong sometimes obtained updated information from web sites of the government units that they worked for through the Internet service provided at the Pong Telecentre.

Mostly, local people did not obtain information from the Internet on their own, but often through others such as their children, telecentre staff and their acquainted. The practice was more common in the Ban Sam Kha case since the Computer Centre was community-based and the village young tried to deliver the online information to the village adults through its community radio. In addition, because the village was relatively small, all community members were aware of the in-place facility. The information sought by the majority of local people in all three communities was highly related to the problems they faced such as markets for selling their produces, central and local market produce prices, alternative or additional career choices, agricultural land, water for agriculture, market trends and so on. For most local people, the information they needed was normally locally specific and was often neither available in the mainstream media nor on the Internet, while cell phone was used by few individuals to obtain needed local information.

4. Communication

Among the three case studies, the Bannok.com relied on the Internet for communication the most while the other two used it much less for this purpose. The Bannok.com was able to communicate with its project clients, supportive organizations, friends and networks, as well as among its staff via email and chatting applications. It used web board application to seek support and advice, to exchange ideas and to post unjust issues. The organization also used the web site to promote and market its activities.

Nonetheless, the Internet played a very small role in fulfilling the communication needs of local community members in all the case studies. In Ban Sam Kha, a small number of young people used email to communicate with, seek advice from and provide updated news of the village to their friends and relatives living outside the community. For Pong community, users used the technology for communication with others at the minimum; other than the lack of computer and Internet skills, this was because of higher penetration of cell phone use in the area. The penetration of the use and ownership of

cell phone was lower among villagers in the other two case studies due to the affordability issue.

5. Education & Learning

IT Training and Skills: In all the case studies, providing IT training was part of the telecentre's or computer centre's services. The Pong Telecentre had put computer and Internet training at the forefront of its service provision. The Ban Sam Kha School Computer Centre had been trying to increase the utilization of the technology by providing informal training for both the villagers and young people from other villages. While the Bannok.com was not explicit in providing training, it had aimed to provide support to improve IT skills of its clients and did provide some training for local young people and school students occasionally.

Research: For the majority of young people and a number of adults, the Internet had become an additional or alternative resource to libraries for researching information and knowledge, particularly in Pong and Ban Sam Kha communities. The Bannok.com had also attempted to create local content and to make local knowledge and traditional practice available on the Internet.

Teaching and Leaning Tools: In addition, the staff of NFE Pong had demonstrated that entertainment on the computer such as karaoke could be used as a teaching and learning assisted tool to provide local-language lessons to young people.

6. Office Tasks

The computer applications were commonly used for bookkeeping, document, and presentation tasks. Other than the owner organizations, community stakeholders had also started to be benefited from the service offered by the telecentres or computer centres.

7. Others

The Bannok.com also used the computer to assist in the production of TV programs of community TV. Local young people used digital video camera to film and create stories and the project staff edited the content on the computer. In addition, its staff had made use of those tools in helping them collect and storage data in multimedia format for its virtual museum project, as well as many others.

Cultivating from Strengths

All the case studies had tried to make use of its strength in providing IT services and in overcoming difficulties faced although each of the case studies had its own uniqueness. For example, the Ban Sam Kha School Computer Centre was located in a community that had a high level of social capital and it was a truly local-need-driven and grassroots-based computer centre. As a result, it had obtained a more self-motivated participation from the local community members and this could help contribute to the sustainable of the computer centre as the locals realized the benefit and tried to make use of the technology and to keep the service running.

The Pong Telecentre had tried to integrate into and be part of the services provided by its owner organization, NFE Pong, to local communities in the catch-area. It had tried to utilized and had been benefited from NFE Pong's available resources and networks for its operation and management. Due to the support from NFE Pong, the telecentre could offer low cost training and service to local people.

The Bannok.com Computer Centre had made use of its advantage as an early adopter of ICTs in private (NGO) sector to market itself and to obtain better financial self-sufficiency. It also utilized the Bannok.com's organizational structure in drawing wide variety of expertise

from many places. Hence, volunteers had been its sufficient manpower in performing routine and specific tasks.

One of the similarities among all the three was having supportive networks that each had built over years and all had maintained their relationships with others in a give-and-take and collaboration approach.

<u>Technological Barriers</u>

During the field study period, all the case studies were found to experience technical problems on hardware and/or software in one way or another. Partially, the problem was related to the harsh condition of rural areas where accessing to IT was difficult due to the unavailability of certain infrastructure, the nonviable and unaffordable equipment or technology, the geographical difficulty and the local climate condition. In addition to the above, the lack of ICT skillful and knowledgeable manpower in the local areas had contributed to technical and technological matters. While the Bannok.com could better cope with its constraint with a mixture of internal and external human resources, the other two case studies, the Ban Sam Kha School Computer Centre in particular, relied more heavily on the outside technical expertise.

Moreover, most local community members were not familiar with and did not have the skills to make use of the computer and Internet yet especially adults. The limitation of skills, the low level of ICT awareness and the subsistent economy limited many local people the chance to exploit the potential benefit of IT facility offered by the telecentre or computer centres. There had been attempts to involve young people in mediating useful and needed information to adult generations such as in the case of Ban Sam Kha School Computer Centre though it was still in a small scale and lacked continuation. Pong Telecentre had a plan to use other forms of media to transfer information to its local communities; however, it had not yet materialized the idea. Similarly, the Bannok.com had not considered mediating the needed information to the local communities it worked with explicitly: even though it piloted a community TV project.

Concluding Observations and Recommendations

Factors Influencing Sustainability

The factorial elements that would have impacts on the sustainability of the telecentre/computer-centre case studies are briefly explained as the follows.

- Skills and Capacity of Staff

  The continuation in improving the skills and capacity of staff would be vital in terms of technical maintenance, service provision and operation management. Firstly, the increase of technical skills for staff in technical maintenance would save the operating cost that they sometime heavily relied on other parties and would help them be able to provide service without much disruption. Secondly, with deeper and broader skills of staff, the telecentre/computer-centre could possibly differentiate, diversify and provide more up-to-date and/or advanced services to clients according to their information and communication needs. Public relations, marketing, researching and strategic planning skills would also help the staff better manage and operate the service to make it financially sufficient and useful for the locals.

- Enthusiasm in Providing Services

  The three case studies showed that the enthusiasm of staff to serve the communities and to help local people be able to gain benefits from the use of IT had made the technology start to work for local people such as in the form of information mediator.   The information

mediator helped ease the alienation that local people had towards the technology. The friendliness and willingness to service of staff also created trust and loyalty that often drew clients to come back and use the service again. The enthusiasm could include more than just 'what we have to offer, but what you need and how we can help fulfill your needs through our services.'

- Understanding and Fulfilling Community's ICT Needs

  In order to make service offered useful for local people, the telecentre/computer-centre had to be able to understand what information and communication that community members actually needed and how they wanted to obtain the information or how the service to be delivered. Neither staff and community leaders' assumption nor generalization of local needs could represent the true needs of individuals. The willingness to continually consult and listen to local community members by using suitable approach would provide the telecentre/computer-centre a better understanding and ways to deliver its services. Methods and techniques on needs assessment and evaluation might provide the telecentre/computer-centre tools to do so. The telecentre/computer-centre could also consider including traditional forms of communication and media channels in information mediation.

- Integrating ICTs into Problem-Solving and Community Development

  Because the information and communication needs of local people were greatly associated with constraints and problems they faced, the telecentre/computer-centre might explore how its services could be tools that help the communities and people to solve their own problems. As one of the case studies had shown, ICT could be a part of tools in assisting in the implementation of development activities. Telecentres/computer-centres could possibly further integrate the use of the technology into community development especially at grassroots level. The telecentre/computer-centre could consider exploring ways that could, for example:

  - Help rural people be able to access market information through a combination of communication techniques and tools;
  - Assist in the research of niche market and value-added product-lines and productions;
  - Promote life long learning activities within communities and among local people;
  - Provide channels or linkages for rural communities to useful information sources; and so forth.

- Leadership, Local Values and Practices

  From the case studies, the ability of leaders to incorporate diverse interests of community members could help the establishment, resource allocation, operation and management of the telecentre/computer-centre proceed smoothly. Leaders that realized the benefit and embraced the use of IT within organizations and communities could help promote the use of and create a culture in utilizing the technology. The leader and community/organization that valued and tried to achieve self-reliance and self-sufficiency could provide a better chance for a telecentre to sustain its services and activities in a longer run.

- Grassroots/Community Participation

  When the local community such the case of Ban Sam Kha was involved as a major player in the telecentre activities since its inception, the members felt the telecentre was a part of the community and would try to help maintain the activity even when outside financial support ends. The Pong Telecentre had tried to involved representatives from local communities but might seek greater participation from the communities it served. While the Bannok.com had consulted with local grassroots for many of its activities, could open for greater and

encourage more active participation of local community members in the actual planning and decision-making process.

- Community Awareness, Utilization and Potential Benefit of ICTs

  The awareness of communities included the existence of telecentre/computer-centre, the available service and facility, and the use and potential benefit of services and facilities for fulfilling in particular their own information and communication needs. In the case studies, the precondition for the awareness to occur was that local people had to realize what their needs were. Once they had experienced and found that they could benefit from using the technology, they might try to utilize it either on their own or through others although they did not have IT skills. Hence, helping the locals realize their information and communication needs and develop information literacy would partially increase the utilization of ICTs and services of telecentre/computer-centre. The telecentre/computer-centre could include some awareness-raising activities into its marketing strategies.

- Supportive Networks: Learning and Exchanging

  The telecentre and computer centres in this study might have a lot to learn from each other in terms of technological aspect and beyond. Since all the communities had some similar conditions and development projects, they could learn from each other's experiences and lessons and could apply whichever that would be useful to them. For example, the Bannok.com had operated eco-tourism business with and in a few hill tribe communities; the hill tribe community at Pong could possibly learn and exchange ideas with the Bannok.com since it too had eco-tourism project. The Ban Sam Kha could learn from the former two as its eco-tourism project was still in a planning stage. Other areas that they could all learn from each other were such as community database and local content, marketing strategy, mediating information to local people, local culture preservation, community management and administration, and so forth. They could make use of the technology to facilitate learning among communities they served.

  Moreover, it was also important that the telecentre/computer-centre's supportive networks, including individuals, groups and organizations at local, provincial, regional, national and international levels learn from experiences of each other and of local communities. One case study showed that the supportive partners could learn together with and from the grassroots community and they could also work together to facilitate or support the learning process of local communities in solving their own problems through acquiring additional information, skills and knowledge.

Lessons Learned from the Thai Case Studies

- The demand in using telecentre/computer-centre for information and communication had not been substantial enough; without entertaining services, telecentres could hardly generate incomes for a profit or break-even without subsidies. The telecentres in this study offered services at a more affordable price for the rural and remote poor and emphasized more on learning rather than entertainment especially games. Therefore, they would not make much money to cover the cost as general Internet cafes.   Many Internet cafes generate profits from providing games (via LAN), typing and other services rather than from providing Internet services for information and communication: Internet services tended to provide a diversity-look for their business. Nevertheless, telecentres earned an image or reputation of doing 'good' for community development and learning, as well as a reliable place for information, knowledge and training.

- Regulated wave frequencies and bureaucratic rules were still unsurprisingly part of the barriers to local innovative initiatives and cooperative practices. Inexpensive technology such as wireless and WiFi technology that could be used for connecting rural and remote

communities to the Internet and for creating community network would hardly be possible without the cooperation of government departments and deregulation of wave frequencies for local community use. Similarly, inflexibly bureaucratic rules became limitation for local civil servants from different departments to co-invest in activities and programs such as ICTs and information diffusion for the better off of local communities; certainly, mechanism and practice that assure the transparency and accountability should be in-place.

- Without technical skills or dedicated supports from other sectors such as business, NGO and government, it was difficult for local people to maintain, promote and create an efficient and sufficient telecentre or Internet network.

- Solving the problem of rural communities was not only rural people's business, urban or semi-urban communities could take some responsibility in order to create a win-win situation. As a metaphor cited by one rural villager, in preserving a sufficient water source, those lived upstream had to forgo some practices which were important to sustain their subsistent livelihoods; since water was a shared resource, people in the city or downstream should have realized and provided support to people living upstream for them to be able to maintain the good practice for the benefit of whole and still be able to make a living. ICT tools could play a role in helping to create awareness and in linking the rural, semi-urban and urban to collaboratively solve the problems and to share benefits as one of the case studies (Bannok.com) had tried to achieve.

- The information and ICT tools would be useful for community development and solving community's problems when at community level people realized their information or technology needs that might help them manage their own resources better. Assisting local people in a learning process to know about 'selves', to realize their potential capacity and to find the underlying causes and solutions of their problems could be an option. Supportive individuals and organizations could possibly help the locals to solve their problems by:

  - Examining if any gaps that ICTs could bridge;
  - Demonstrating how ICTs could work for the locals if at all;
  - Providing space and time for people to experience, learn and adapt the way they saw suitable, without making decisions or doing things that they could do for themselves, but staying close and providing help when they need;
  - Building human capital and targeting the young;
  - Involving the young in community development by enhancing their creativity and providing them the autonomy of responsible activities;
  - Facilitating networks of learning and sharing knowledge, experiences and lessons learned.
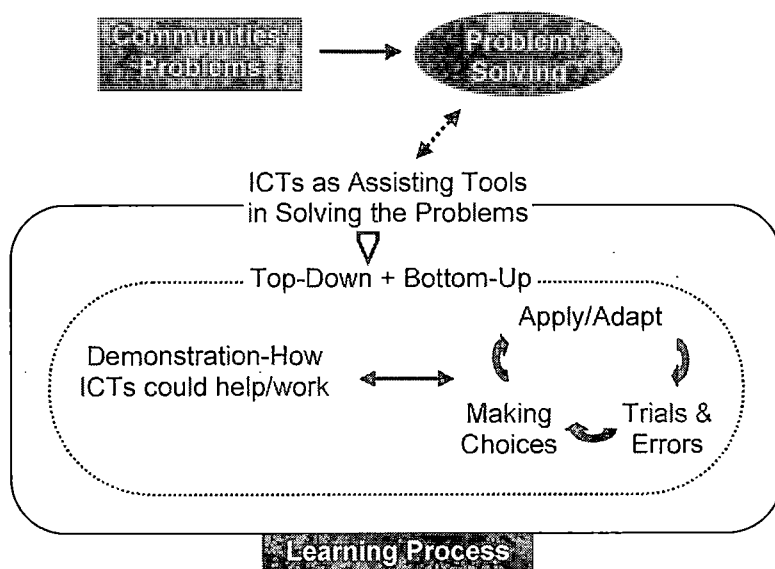
Table 1: An Overview of the Case-study Telecentres

	Bannok.com Computer Centre	Pong Telecentre	Ban Sam Kha School Computer Centre
Owners	The Mirror Art Group (Thai NGO)	Pong District Non-Formal Education (NFE) Centre (government unit)	Ban Sam Kha Village (the youth and villagers)
Est. Motive (year)	Organizational Needs (2002)	Supported by TCTP[2] (Feb 2002)	Community (youth) needs (Nov 2001)
Initial capital supports	By AOL and Fundraising Activities: - Building - Computer sets (10) - Printer (1) - Fax (1) - Others	By TCTP, Pong Municipality, Phayao Provincial Administrative Office: - Computer sets (7) - Dial-up Internet connection (1st year) - Staff training (one time) - Building renovation	By its ally organizations and individuals[3] as an overtime effort: - Second-hand computers (20) - Satellite Internet connection (one year) - Training - Operator Salary (one year – 2003) - Utility costs (by the School) - Others
On-going / overtime supports	From its clients (revenues)	Pong District NFE Centre, Other funding organizations (time-to-time): - Staff - Utility expenses - Stationery & etc.	
Managerial staff	IT team/project leader	Manager (NFE Pong Director)	A teacher of Ban Sam Kha School
Operational staff	Full-time staff & full-time volunteers	NFE staff (full-time & part-time)	Full-time operator (1), village youth, & teacher
Service foci	IT (communication) supports for staff and projects within the NGO	Computer & Internet training for local communities	Computer & Internet services to the Sam Kha community

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[2] TCTP is Thailand-Canada Telecentre Project, partially funded by CIDA and implemented by Hickling Corporation (Canada), Loxley Public Company Limited (Thailand), and the TeleCommons Development Group (Canada). For more information, see www.t-centre.com.

[3] Such as Northern NFE Centre, Suksapatana Foundation, Thaicom Foundation, NECTEC (National Electronic and Computer Technology Center), the Siam Cement Group, CP Public Co., Ltd, ThaiCom Foundation, etc.

Table 2: Facilities Available at and Services Offered by the Telecentres

	Bannok.com Computer Centre	Pong Telecentre	Ban Sam Kha School Computer Centre
Facilities			
Internet Connection	Satellite (package 1.5Gb/mth = USD 75); normally used USD 200	Dial-up through modem (both free and private ISPs)	Past: Dial-up (radio wave telephone) Present: Satellite (limit 750Mb/mth ≈ USD 70)
LAN System	✓ (Connected every computer in the NGO)	✓ (All computers within the Telecentre)	✓ (Some computers within the Centre)
Telephone	✓	✓	✓ (Public phone at the School)
Fax	✓	✓	
CD-ROM	✓ (Both reader & writer)	✓ (Both reader & writer on server computer)	✓ (Reader on server, but out of order)
Digital Camera	✓ (Plenty within the NGO)	✓ (One with 2Mpxl)	✓ (An older model using 3.5" diskette)
Video Camera	✓ (A few)		
Services			
Hours	8-24, 7 days	9-19.30, 7 days	8-20, 7 days
Internet & Computer	✓ (Internet subscribing fee collected from other projects)	✓ (15 baht ≈ USD 0.38 per hour)	✓ (12 baht ≈ USD 0.30 per hour)
Printing	✓ (Free)	✓ (B&W: ≈ USD 0.13 per page; Colour: ≈ USD 0.20+ per page)	✓ (B&W: 5 baht ≈ USD 0.13 per page)
Typing		✓	✓
Fax	✓	✓	
Phone		✓	
Training & Advice	✓ (Free)	✓ (Free & For a fee)	✓ (Free for villagers)
Basic Graphic Design		✓ (Business card, logo, product label)	
Others (such as)	Web site services, maintenance, server space, ready-to-use program & application	Digital photo	Village's research data input (Free)

Map 1: Research Sites of Three Case Studies
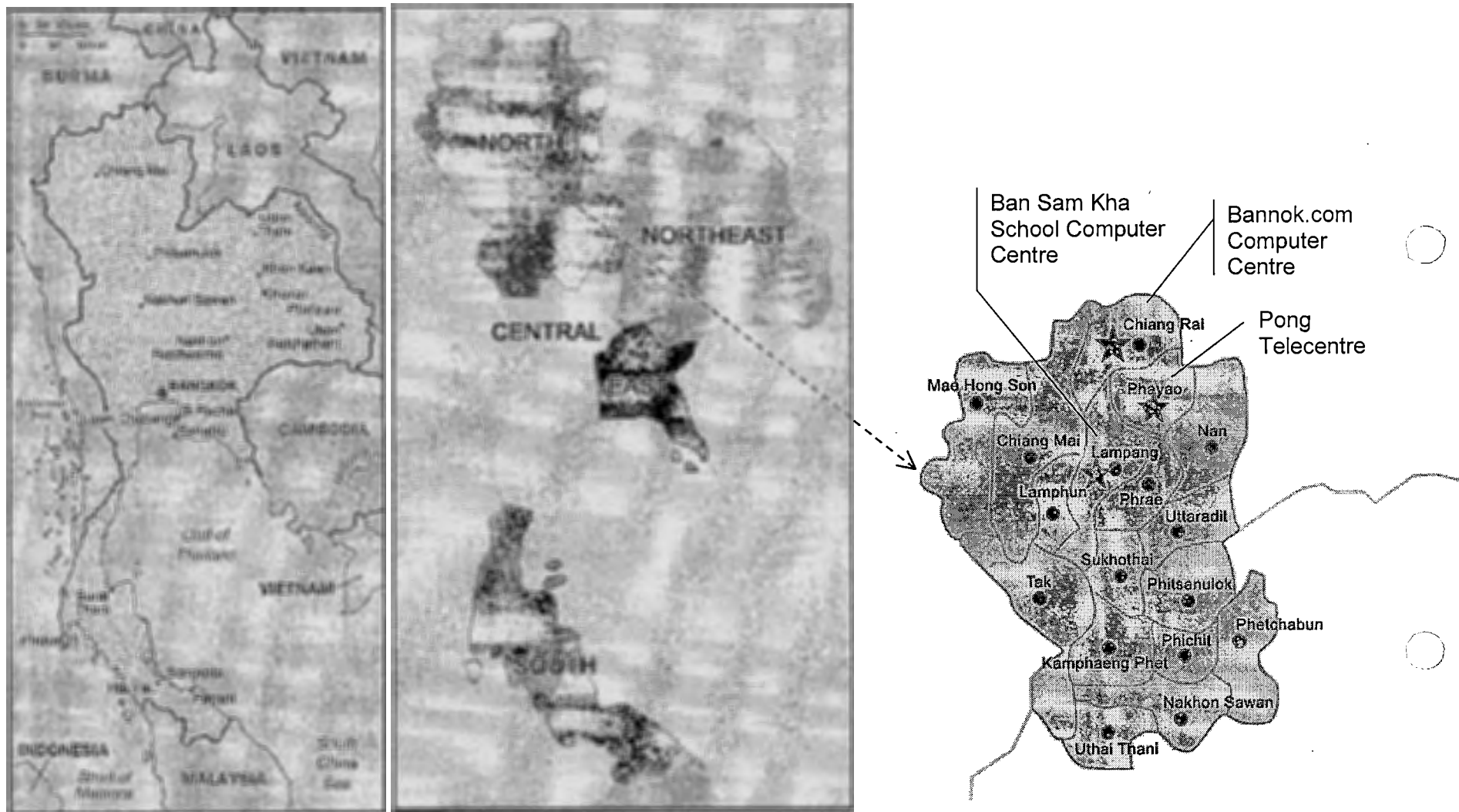
AN OVERVIEW OF TELECENTRE ACTIVITIES IN THAILAND

In Thailand, the attempt to set up universal information and communication technology (ICT) access points in non-urban areas started around the years 2000 and 2001. Under the support of international development agencies, public enterprises and institutes, private organizations and government departments, several telecentre-related initiatives have been carried out in different parts of the country. Many of these projects were the Overall Winners of and obtained capital funding from the World Bank's Development Marketplace Innovation Day in June 2001.

While over 70,000 Internet cafes are in business nation-wide, only around a few dozens of universal access activities aiming to support rural development were established in the rural areas in 2003. The majority of projects focus on the penetration and deployment of computer and Internet technology. Some brief information about a number of telecentre activities and initiatives is provided below.

1. Pilot Community Telecenter Project Under the Support of NECTEC

Four communities from over 20 proponents were selected to be pilot sites in 2001. The pilot project was aimed to explore operation and management approaches in promoting and defusing the use of ICTs in rural communities and the potential benefit of ICTs to local economy or poverty reduction. All the telecentres are owned and operated by local organizations. They all use basic dial-up modem for Internet connection. The NECTEC staff has been helping the centres to achieve financial self-sufficiency and operational efficiency.

A reasonable amount of documents and publications related to the project is available both on the Internet and in hardcopies. For more information, contact: Ms Royboon Rassameethes (royboon@nectec.or.th), www.nectec.or.th.

2. Former Pilot Telecentres Under the Initiative of the Thailand Canada Telecentre Project (TCTP)

Six telecentres were established under the Project in 2001. The purpose of the project was to test different concepts in providing ICTs to rural communities in the form of universal access points with a financial sustainable aim. The support withdrew after one year of operation and local organizations and/or communities took over the full ownership of the telecentres. The telecentres are:

- Pong Telecentre: under the management of the Pong Non-Formal Education Centre
  Contact: Ms Sawitri Intorn (mawin33@hotmail.com);
- Hua Thanon Bann Mai Kao Kad Telecentre: under the management of the Hua Thanon TAO (Tambon Administrative Office)
  Contact: Ms Narumon Churdee (cher2002@hotmail.com);
- Mae Hong Son Telecentre: under the operation and management of the Nawamintrachinee Mae Hong Son Industrial and Community Education College
  Contact: Mr Aekchai Kaikaew (aekchai.kai@chaiyo.com, amf@thaimail.com);
- Ban Mae Telecentre: under the management of the Women's Woodcarvers Cooperative
  Contact: Mr Chookiat Kiewkaew (+66-053-836-078);
- Jakraj Telecentre: under the management of the Population and Community Development Association (PDA) in Jakraj
  Contact: Mr Nuthapol Polmoung (+66-044-399-107);
- Hang Hung Telecentre: under the operation and management of the Hang Hung Women's Association and jointly supported by TCTP and Chulalongkorn University
  Contact: Ms Runglawan Chanhawan (+66-054-226-163).

All of the telecentres use a dial-up modem for Internet connection and a regular LAN system to connect all the computers at the centre, except Mae Hong Son site that uses an Octopus Thin Client (Thick Server Thin Client) solution for its LAN system in order to reduce the maintenance burden. For more information, contact: Ms Vasoontara Chatikavanij (vasoonta@loxinfo.co.th).

3. Telecentre-related Project Under the Affiliation of the Thai RuralNet, a project under the Young Development Alliance

The volunteers of the Alliance, formed by university students, have provided technological support to four IT (information technology) centres in rural areas. However, not all of these IT centres are connected to the Internet due to difficult conditions in remote areas. For example, one IT centre is located and established within a learning centre of one local community forest network. The learning centre uses the ICT equipment to produce learning and knowledge sharing materials and to create and manage a local database system. For more information, contact: Ms Kritaya Srisupkij (kritaya@thairuralnet.org), www.thairuralnet.org.

4. Telecentres Under the Support of the Community Organization Development Institute (CODI)

CODI supported a telecentre initiative that involved partnership among local communities, organizations and government departments. The purpose of the project was to make IT a useful tool in creating local database and data analysis for local organizations. Two IT centres received technological and financial support during the pilot phase. For more information, contact: codi@codi.or.th, www.codi.or.th.

5. Computer and Internet Centres under the Initiative and Support of the Suksapatana Foundation and Thaicom Foundation

The foundations aim to use computer and the Internet as assisting learning tools for rural communities. The Suksapatana Foundation has also focused on constructionism learning approach. Two interesting grassroots initiatives have been under the support of these two foundations.

- Ban Sam Kha School Computer Center focuses on providing access and IT skills to rural people and on supporting the learning process of community members through the use of IT. The centre has 20 second-hand computers and is connected to the Internet via satellite (Thaicom's iPSTAR). For more information contact: Ms Srinuan Wongtrakul (srinuan_w@hotmail.com).

- Computer and Internet Learning Center at Nang Rong focuses on providing IT training to rural children and interested villagers and promoting the use of technology for planning and problem-solving. The center serves as a universal access point and children's reading place at the same time. The center staff has organized summer camp activities for local children. Through the summer camp activities, village's ecological data has been continuously collected. In April 2004, the center had ten computers with satellite Internet connection (iPSTAR). The staff also organizes non-technological-related activities within the community in order to build cooperation and rapport. For more information, contact: Ms Sanit Tipnangrong or Na Noi, Ms Paweena Tipnangrong (tipnangrong@hotmail.com).

6. Pilot Internet Kiosks and Telecentres Under the Initiative and Support of TOT

TOT (Telephone Organization of Thailand) has initiated the Net Moo Ban project. Three pilot Internet kiosks with one stand-along computer at each site were established as public universal access points. The project employed a payphone approach, which users could purchase and insert a TOT phone card into the station and then start to use the equipment. Thus an operator was not required. In 2003, the project team started to explore models of multipurpose community telecentre. The team has an attempt to include applications for local economic

development at one additional pilot site. For more information, contact: Mr Jira Nuchanong (jiran@tot.co.th), +66-02-575-9222, www.tot.co.th.

7. Pilot Computer and Internet Centres Under the Initiative and Support of the Southern Alternative Agriculture Network

This pilot project is almost the only telecentre-related initiative in the southern region of Thailand. The Network has tried to prepare local people's IT readiness by raising awareness and providing training and knowledge sharing activities to rural communities in the south for over one year. Since September 2003, the pilot communities started to come up with their own action plans to set up a computer and Internet centre within the community. The Network has been looking for a suitable technology solution for Internet connection. An option considered was a wireless Internet connection provided by private companies. The project is not yet well documented. For more information, contact: Mr Kumrab (kumrab@yahoo.com, +66-074-284589, +66-06-696-1225), www.saanthai.com.

8. Lighthouse Project at C-BIRD Nang Rong

The Lighthouse Project was initiated and implemented by the Population and Community Development Association (PDA) and supported by Pan Asia/IDRC (International Development Research Centre). A pilot computer and Internet centre was established in 2000. The centre provided computer and Internet training and access to local community and its staff at C-BIRD Nang Rong Center. It has tried to market and provide services to local organizations and institutes. For more information, contact: Mr Samnarn Chaikot (samnarn@hotmail.com, acpd_pda@hotmail.com, cbird_nr@pda.or.th).

9. Mae Moh Community Development Project Under the Initiation of Chulalongkorn University

The project aimed to open a channel of communication to provide the Mae Moh community with critical information about air quality and environmental management. Four community IT centres were established, including the one that was co-funded by TCTP. Their operation and management approaches have not been well documented after the support ended. More information could be obtain through: Ms Anong Tasueb (mtasueb@yahoo.com, +66-054-266-163), Mr Mingmitr Kruaboonma (+66-02-218-8197-8), Ms Suchada Chankhiew (mimikiku@chaiyo.com, +66-054-226-115), and Ms Nathnicha Wanlers (gift_char@hunsa.com, +66-054-266-161).

10. Mobile IT Buses Under the Initiative and Management of Suddhivatvararam Temple

The Temple initiated a mobile IT training project aiming to provide training to students and teachers in schools that lack equipment and skilful IT manpower. The monks fund raised for purchasing two buses with 20 computers each and necessary equipment installed. They also create the curricula and teach the courses. For more information, contact: Venerable Sakommunni Bhikkhu, www.chonglom.com.

11. Bannok.com Computer Centre Under the Initiative of the Mirror Art Group

The Mirror Art Group set up a computer centre within the organization aiming to provide ICT support to all of its in-house community development projects and staff. The computer centre has also provided training and access to local young people and support to local organizations. Ten computer stations with Internet access via satellite (iPSTAR) are available at the centre. For more information, contact: project@bannok.com, www.bannok.com.

Through studies supported by NECTEC (2003), the direct users and beneficiaries of the majority of telecentre initiatives in Thailand are young people. Some in-dept information of example telecentre activities are provided in the case studies of this research.

BANNOK.COM COMPUTER CENTRE

BANNOK.COM AND RURAL DEVELOPMENT

Bannok.com was founded by the Mirror Art Group, which originally used performance media to convey social and political reflection and criticism to the public in Bangkok. In 1996, the Group moved to the Muang District of Chiang Rai, the northernmost province in Thailand, and worked with four hill-tribe ethnic groups in 16 communities in the area. It started with a Thai literacy program and through teaching Thai to community members the volunteer teachers had found many other development areas needed to work on. Gradually, various projects were initiated to address those development issues as seen in the table following.

Development Area	Project
Thai Citizenship	To Be Thai
Career/Employment, Local economy	Hill Tribe Eco-tour, e-Bannok.com (shop)
Local culture/content	Hilltribe.org (virtual museum)
Literacy	Bannok Teacher
Social awareness	Bannok Volunteer, Intern Student
Fundraising	Secondhand Clothing Fund, Hill Tribe Children Fund
Human trafficking	Back to Home (in Bangkok)
ICT for development	Bannok TV, Thai ICT, Bannok.com Computer Centre

The Group had adapted business approach in its financial management in order to make each project less rely on charity and outside funding and became more self-sufficient. About 30% of development and operation budget came from its own investment and reinvestment, and another 70% were obtained from grant proposals submitted to funding organizations.

Introduction

The Bannok.com[1] Computer Centre was an in-house facility created by the Mirror Art Group (Bannok.com), a Thai NGO. It was established in 2002. The motivation for establishing the computer centre was to enable the Group's IT unit to better support other development projects within the organization. As a result, Bannok.com Computer Centre focused on supporting Bannok's projects and staff, as its immediate clients. Its services were shaped to fulfill the immediate clients' needs, including solving their IT problems and promoting greater efficiency within the organization. This case study looked at how ICTs could be used or how the organization used ICTs to assist its works in rural, especially hill tribe, community development.

The initial investment was obtained through a proposal submitted to AOL and through other fundraising activities for purchasing hardware and constructing a one-story building. The equipment purchased included such as 10 computers with CD-writers, a printer, a facsimile machine and other equipment for local network system. The IT team of the Group was in charge of the Computer Centre and the services offered.

The Mirror Art Group started to use the computer for bookkeeping, data storage and video editing since 1996. It had joined the UN's campaign for promoting the use of IT in grassroots and non-government organizations by providing computer training to other NGOs. Consequently, it was recognized as one of the leading NGOs in utilizing the technology for development work. When the Group moved to its current location, no other communication means existed except for postal service and land transportation. Satellite Internet connection became a necessary option to achieve fast, up-to-date and convenient information and communication. At the beginning, the connection was considered expensive, costing around 20,000 baht (USD 445) per month with unlimited data transfer. Nonetheless, the price gradually decreased. During the field visit, the Group used a package of 3,000 baht (USD 75) per month with a limit of 1.5Gb data transfer. Normally, its monthly usage exceeded the limit and the Group paid around 8,500 baht (USD 220) per month. Ideally, the Internet speed was 128/56kbps; however, it was usually slower and the connection was fluctuating.

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[1] *Bannok* is a colloquial word for rural in Thai.

Operation and Management of Bannok.com Computer Centre

Services for In-house Projects and Staff

The role of IT team at the Computer Centre was to support and encourage all the projects and staff to make use of ICTs through various services it provided, as stated below.

- The Computer Centre provided Internet connection and Intranet service to all staff and projects. Every computer was connected to a LAN system and all the staff could share their files and data. It was attempting to use Linux for its server. The team had involved a grade-11 student who had expertise in programming and server to help with this task.

- Hardware and software services included providing maintenance and writing compact (user-friendly and ready-to-use) templates and applications for the Group and projects. The IT team maintained the proper function of the whole network both Internet and Intranet. Aside from the computers within the Centre, it also helped repaired and upgraded computers and programs scattered in the office of and owned by each project. The team created easy-to-use templates for such as outwards letter, daily activity report and web page updates. It planned to create accounting programs for the projects as well.

- IT staffs acted like helpdesk, providing advice to all users and projects when they experienced any difficulty in using either programs or computers.

- The Computer Centre staff helped create and update web sites for some projects.

- The Centre provided training to the staff. However, the training was usually not in the form of courses, but rather based on problems and individual needs. Project staffs who had high level of IT skills did not necessarily use this service. Often, project leaders and staff would transfer the knowledge and skills within their responsible projects.

- Ten computer terminals were available for all members to use. The Computer Centre was opened seven days a week from 8am until midnight.

> "The past two weeks, I learn about computer, edit picture ... I asked as well, how to reduce photo size, pull pictures from others' computer, connect network... Using digital camera, in the past I never got a [chance to] touch..."
>
> (Intern, individual interview, 18 September 2003)

In assessing the provision, use and satisfaction on ICT services through focus group activities, most project team leaders rated maintenance and consultant services at the highest score, but rated training and skills enhancement at the lower end. The IT team rated itself the highest for most services in terms of provision, except training and skills enhancement and encouraging projects to use ICTs at the middle and upper range respectively. In terms of satisfaction, it self-assessed its own performance more or less similar to others. Two extreme ratings at the lowest end appeared in the equipment maintenance and advice on upgrading services because the level of IT skills among projects varied and the staff within a couple of the projects had obtained skills and proficiencies in dealing with these issues themselves. The low rating for skills training and support was because the IT team employed a more passive rather than proactive approach for this service and possibly as a result, the demand and niche for this particular service was not fulfilled.

Services Provided to Outsiders

The Computer Centre had provided services and consultation to external individuals, groups, local and public organizations and other NGOs either for free or by charging a fee depending on types of work, organizations and circumstances. Some examples are provided below.

- Having experience in creating easy-to-use templates and applications for its own organization's administrative tasks, it occasionally provided advice and helped create templates for other organizations. It was planning to put some of the programs into packages and sell them to other organizations that might have similar administrative needs.

- Access to computer stations at the Computer Centre was free for the local youth to use for research or other document-related tasks on weekends. Some young people from a village close-by (<1km. away) came to use the computer and Internet.

- The Computer Centre designed and maintained web sites for other organizations. The service charge varied from Bht 60,000 to 200,000 depending on the scale of the job. For example, Thailand Research Fund (TRF), an independent government-funded organization, paid the Computer Centre to help maintain and update its web site.

- At the beginning, the Computer Centre provided computer and Internet training to the youth from different hill tribe communities, and students and teachers in the area. However, because students and teachers were not target clients of the Centre since they had access to the equipment and facility at the schools. The Computer Centre consulted with the schools and came to a shared understanding that for basic computer skills the schools should provide training while the Computer Centre would help out with more advanced or sophisticated programs if those exceeded the capacity of schools.

- The Computer Centre also leased its server space to other organizations by charging its clients 1,500 baht (USD 37.5) per month. The Centre paid 6,000 baht (USD 150) per month for the server space.

Financial and Staff Management

The Computer Centre generated income mostly from services provided to individuals and parties outside the organization. Web design and web maintenance was one of the major income generators. It had also helped implement an IT-for-public-health-fund project funded by Thai Health Promotion Foundation.

The major expenses of the Computer Centre were Internet network, basic infrastructure and staff salary. The organization had tried to implement some accounting tools to show the financial flows of each development team, but it had not calculated everything into an exact amount. The service charge for Internet connection was an example. All the project teams made a rough estimation on the amount of Internet and data transfer each used and contributed a portion of the connection cost according to the estimate.

On the other hand, the measurement of basic infrastructure cost, which was generally from electricity and telephone, was more precise. A meter for electrical power had been installed. For telephone, each team had to pre-dial its own password when making an outward call; all calls made were automatically recorded into a computer system. As a result, the central management team could identify and bill each team correctly. The Computer Centre usually used the telephone for coordinating activities and obtained help and advice when experiencing technical difficulties, especially when the satellite signal was repeatedly down or off.

At the time of field study, the IT team was comprised of an IT team leader and three full-time long-term volunteers. All of them were young, under 30 years old. Following the organization's arrangement on working hours, they worked six days per week and Sunday was usually flexible that they might choose to catch up with tasks that they could not accomplish during the week. They normally started working at around 9am and the finishing hour would depend on the demand and urgency of daily situation. The team members were usually self-directed and identified their own tasks based on needs and priorities.

Normally, the monthly salary for permanent staff was around Bht 10,000 (USD 250) and Bht 3,000 (USD 77) honorarium for long-term volunteers, but this could vary. The Computer Centre also paid for the cost of room and board (approximately Bht 600 per person per month) for the long-term volunteers. The team also obtained an 11th grader consultant from another district to

work on programming tasks for its server and he usually came on weekends. Occasionally, the team obtained short-term volunteers or interns to assist with some of its work.

Technical Issues

The availability of software and hardware equipment within the different organizational units was dependent upon the needs of the unit. Each unit usually managed and took care of its own equipment with support provided by the Computer Centre staff. Generally, the equipment functioned properly except some older hardware that required more maintenance. In addition to the computer and Internet, the organization had also made use of other related ICT tools such as digital camera, digital video recorder, scanner, projector and so on. A portion of the equipment did not belong to any particular project teams, but instead was managed by the administrative team as organization-wide resources.

During the field study, it was observed that the most common problem faced by the Computer Centre and the larger organization was the instability of Internet connection. Because it was during raining season, storms had displaced the proper angle of the satellite dish in receiving signals and had left it out of service for almost a week. The disconnection had disrupted many projects, as they heavily relied on the Internet and Intranet in coordinating and performing tasks. A few people mentioned that they had nothing to do or could not do their work since the Internet was disconnected. Later, the staff of satellite rental company found that the dish was too old and replaced it with a new dish; however, the Internet signal still fluctuated often.

At the time of research, the Computer Centre also encountered a server crash, resulting in loss of information and data. Because the Centre mostly backed up and stored files on the server and had no places or back-up formats, it tried to rescue as much data as possible and had to recreate many files. Consequently, many components and services on the web site including some services within its LAN system were unavailable for both the members and the public for a period of time.

ICTs and Development Activities at Bannok.com

Organization-wide ICT Applications

The use of computer and Internet within Bannok.com had gone beyond the need to communicate with the outside world and had become part of the organizational culture since daily use of the network was obligatory. All members, both staff and volunteers, had to report what they had done for the day in order to help everyone know and understand each other's work and to avoid overlap and repetition. The report was informal and was done on a template on the Intranet; also, digital pictures were encouraged since they could tell more than words. Daily reporting became a routine task and was compulsory, and whoever missed to report would get fined.

In addition, they used chat and email programs such as ICQ and MSN and web board to communicate, coordinate, assign and submit tasks, exchange ideas and discuss issues throughout the day. A volunteer said she would sometimes access the network in the morning and check if any tasks had been assigned to her. Without replacing face-to-face and personal interaction,[2] the online tools became particularly useful when some members worked in distance, traveled, required quiet and private working environment, and preferred anonymity.

All the projects of Bannok.com had made use of the technologies in different ways and for different purposes. The following shows how some of the development projects made use of ICTs for their work.

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[2] There were various activities within the organization to promote interactive learning and personal relationship among members and an all-member meeting was called for almost every morning except Sunday.

To Be Thai

To Be Thai is the second phase (since 2003) of a previous project that helped hill tribe children who were born in Thailand to obtain legal documents, rights and status in Thailand, as well as legal documents for their families depending on cases. The focus of second phase was on protecting cultural rights and Thai citizenship of hill tribe children. The project was first established after the Group staff found that many hill tribe children and adults who were born or had their origin in Thailand did not have any legal citizenship status and documents. This was because of the pastoral practice of many tribal groups in the old day and that led to having no permanent settlement and officially registered household document, on the one hand. On the other hand, many of tribal communities lived in remote areas up in the mountain and they did not see the importance of having any legal or proper document and neglected to report and acquire birth certificate. Consequently, the lack of legal document resulted in disadvantages in many aspects such as the lack of opportunities in education, land ownership, employment, etc.

The project mandate was to act as a consultant and coordinator in helping the communities address this problem. The project team mentioned that they used chat and email to communicate with other activists or like-minded organizations and to seek advice. They concurred that web board was a particular useful tool in posting issues for discussion, seeking supports online and drawing attention and accelerating responses and actions from the related government departments. The team updated the web site of To Be Thai frequently and whenever new and unjust issues occurred. The team leader mentioned that they received responses not just from activists in the field, but also academics, officials, publics and members of hill tribe minorities. Because the content on the web site was widely accessible and available to the public, the web site became a tool that pressured and pushed the officials to take actions as they cared about their image and reputation.

> **COMPUTERIZED APPLICATION**
> **A SHOWCASE**
>
> "We brought our computers and set them up at the District Office. We created a template of the application form and showed the officials how to use the computer to help with filling out citizenship applications for two months.... After the officials saw that, they started to accept and use the computer and template created because it was clear, accurate and could be stored as database. Later, they left a hardcopy of [citizenship] application form with us, so we can fill it out for people and they submit it themselves. Our assistance also resulted in the District Office changing and performing tasks in the new system faster...."

In addition, it was mentioned that when dealt with difficult cases that they did not know how to proceed and never experienced before such as problematic documents, the team leader said they could scanned and email the document or even put it onto the web board and ask for advice. In some cases, consulting over the phone was more difficult because some detail elements in the document were hard to explain. Through the Internet, they obtained quick feedback and advice from different sources. Interestingly, the team also commented that without the Internet many hill tribe communities could still obtain news very quickly and they could consolidate and coordinate among themselves well throughout the region; partly they had their own radio channel that broadcast programs in different hill tribe dialects.

The team promoted its web site through its network, seminar, workshop and press. It planned to launch a petition on the web site for the further amendment of immigration and citizenship laws, which at the moment barred Thai-born children whose parents illegally entered the country from being considered as Thai citizen and thus did not have any legal rights in Thailand. The web site was also a channel for the dissemination of research, information, data and real life stories related to this issue. It aimed to use variety of cases from different sources and organizations to create consolidation and to achieve its goal.

Hilltribe.org

Hilltribe.org was a virtual hill tribe museum project aimed to preserve local hill tribe traditions and cultures. It collected information on stories, rituals, artefacts, and ways of life in diverse themes through interviewing the elders and observing activities. The team recorded and stored the information in electronic formats by using IT and multimedia technology such as computer, digital camera and video. The plan was to make the information available online in both English and Thai. It was a two-year project started in January 2003. The Rockefeller Foundation provided a 4-million-baht (~USD100,000) grant to the project. Its target groups were international audience, general Thai and local young people.
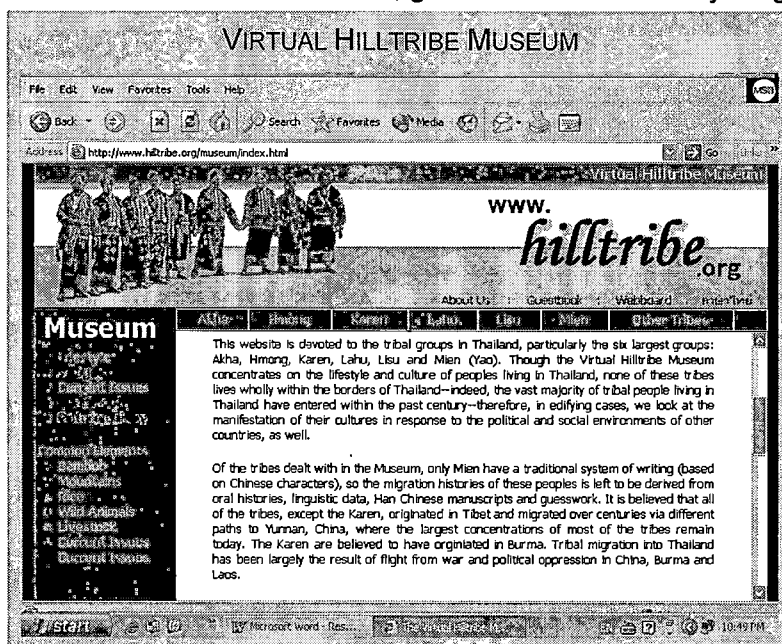
The team leader shared his observation that most tribal village were interested in and watched VCD of tribal music produced in China almost every day. The scenes on these music videos showed tribal traditions and cultures and sang in tribal languages which Thai tribal people understood. "If there were media and content that related to them, they would choose to watch first." He also pointed out that in order to preserve local culture, it was essential to use the right media, local content and local-related superstars. In addition, the mainstream media often presented false information about hill tribes and consequently created stereotypes and misconceptions. Many tribal young people also perceived the computer and Internet as modern and cool. Therefore, the team was confident that if they created the online content in the multimedia format, the local people and the young might be interested in viewing and might preserve the good values and traditions they had.

The project team was comprised of a long-term volunteer originally from the US and three local volunteers from two hill tribe communities, one from Akha tribe and two from Lahu tribe. The youth volunteers and team leader together designed and planned for the themes or topics they wanted to collect. All the volunteers had obtained at least basic level of computer, Internet and other ICT skills. They typed and saved information and stories on the computer. They also searched for information relating to tribal cultures and stories online. "Mostly use google.com, search for tribal information, search from data collected by the Centre [Bannok.com] staff in the server as well. Key words used are such as Akha, Lisu, Yao," said one of the volunteers. The volunteers mentioned that they found a fair amount of information in Thai. A couple of them had also obtained video production training provided by Bannok.com before. Since most community members were not fluent in Thai, the information collection tasks were the main responsibility of the local volunteers.

Although the team normally worked during the day, they also collected information spontaneously whenever they heard or spotted something interesting and this could include local music and song played among the elderly, stories told through daily conversation, etc. The volunteers were provided with a digital camera and had it with them all the time. For predictable scheduled or planned events, they would make arrangement with the villagers and would obtain a video camera from the office. They divided content collection into themes, e.g.,

belief and religion, life style, handicraft, agriculture, tradition, music, festival and ritual, etc. They had collected pictures and stories of various annual events such as festivals and ceremonies, and from daily life such as healing ritual, funeral, wedding, how to name a newly born, different dressing styles of clans by age and gender, daily use tools, and agricultural and hunting practices. The volunteers accepted that in the past they were never interested in the local values and traditions until working for the Hilltribe.org.

The team faced various problems. First, there was enormous and diverse amount of information in the field and this was challenging because the team had to verify all the detail information with the elders whether it was locally related. Second, the project faced manpower constraint in data collection. Often, local villagers who were knowledgeable in indigenous practices were limited and were not fluent in Thai. It was difficult for the project to find qualified individuals to help collect information from the knowledgeable ones because they were busy trying to maintain their livelihoods.

This project could be considered as an attempt to create local content and database by and for the local community. It had built planning and management capacities and had created certain IT awareness and skillful manpower within local communities. As the volunteers mentioned, the villagers at first were very interested and curious about how the technology worked and how the youth used it; "when I took pictures by using [digital] camera and video, they asked me, I showed them the picture I took. Then they said 'Oh it is like this. Good.' Some said it was good that we did this and helped preserve the culture." The project also helped support other development activities of the Group such as e-Bannok Shop and Hill Tribe Eco-tour. However, the sustainability of the project would depend on the team's capacity managing the project and seeking additional funding after the first two years, as well as the benefit perceived by local villagers.

e-Bannok Shop

Started in 2000, e-Bannok was a shop selling local handicrafts, mostly made by women in the community. The project was initiated with an intention to use business to help provide and improve income and occupation opportunities of local women. It traded hand-made products such as pillowcases, clothes, bags, bracelets, clay whistles and hand-made fabric. The project leader noted that they used to purchase all the products made by the villagers and that led to over-stocking, thus threatening its own self-sufficiency. As a result, the project became more selective and employed more of a business rather than charity strategy.
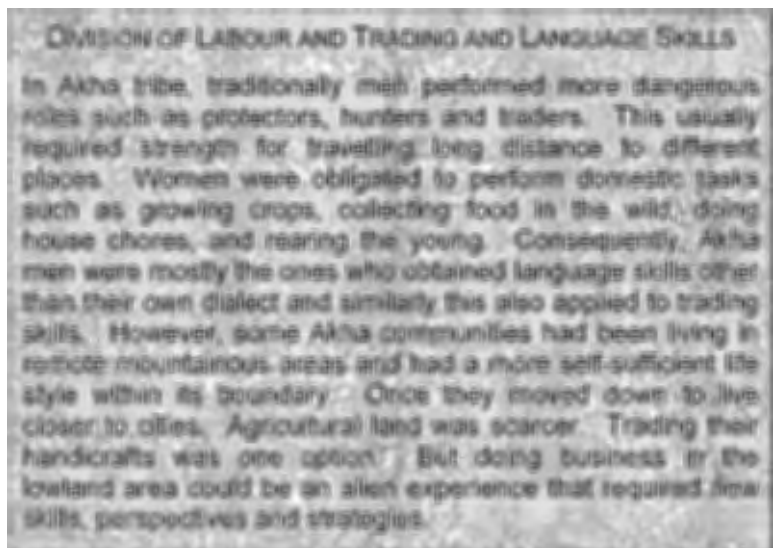
The project changed its approach and shifted roles from being the buyers and became more of a product distributor and market mediator. So the Shop bought and stocked smaller amount of products. Some local women left their products at the project's showroom and asked the staff to help sell the products. The staff would inform them once the items were sold; however, since the market was competitive, some women had to wait for a long period of time before they could have their products sold. The result was many villagers withdrew from participating in the Shop's activities, from 50-60 villagers only 20 or so continued to make handicrafts.

Nonetheless, many villagers had changed their production strategy: producing to meet demands by order. The Shop tried to arrange for its customers and the villagers to meet and negotiate with each other directly. In this way, the villagers would not highly rely on the project and it hoped to help them learn more about marketing and business strategies.

The project realized that increasing the capacity, knowledge and skills of villagers for them to be able to manage and administer their own business was a continuous and long-term process. The product that brought revenue into the business was whistle that was not the tribes' traditional handicrafts. The tribal product faced high competition in the market in terms of quality and diversity. The project staff mentioned that often the good image of the organization as an NGO was the selling point of the products not much of the products themselves. The staff had taken some villagers for field trips to different places in order to help them learn some marketing techniques and entrepreneur skills from others that were already in the business. Through these activities, the villagers got a chance to make a comparison on price and quality of products. The project team leader recalled that some villagers saw the difference on the marketing strategy, but some did not. After the field trip, many villagers accepted that products of some other tribal groups had better quality that made them more competitive. The project aimed to develop villagers' capacity on colour selection, style and marketing; all of those were problems in production and sale.

The project had a plan to provide training on hands-on sewing skills to some villagers in order for them to be able to produce value-added products. The Shop intended on sending some interested villagers to take pattern-making courses, but the prerequisite for pattern making was basic literacy. Consequently, many interested villagers were barred from participating in the course. In addition, the production had to coordinate with the life style and agricultural season of villagers. They worked on handicrafts only when they were available from the field and this usually coincided with time that the market had high demand for the products.

As it experienced marketing problem, the project had tried different options including selling the products on the Internet by creating a web site (www.ebannok.com) to advertise, provide information about the products by using story telling and take orders online. However, it did not established any system that allowed the purchase to be completed through credit card service and hence, the project did not yet fully engage in e-commerce. It used the Internet more as a tool to communicate with its network and customers. When an order was placed online, the information would be sent to the staff. The staff then emailed the client to confirm the purchase and ask the client to pay through banks or post services. After the order was confirmed or payment was approved, the goods would be delivered to the client via mail. The project leader mentioned that she had explained to villagers on how the Shop sold products via the Internet but they did not truly understand how the system worked since most villagers did not have any IT background. A long-term local volunteer mentioned that she got some computer training and

used to confirm the purchases with online clients a couple times when the team leader was not available.

Nevertheless, the Shop generated most of its income (95%) mostly from participating in trade shows, in-store face-to-face sale, and its network. In addition to the lack of a credit card system, many of its products (clothes, etc) were usually goods that people wanted to try-on and touch before buying and many product pictures posted online could not present the fine details of the craftsmanship. Consequently, it was not very convincing to purchase online. The majority of online clients were those who used to visit the organization and see the products. Moreover, the staff accepted that because in the past it got some funding from outside and as a result, it was not very proactive in terms of marketing.

Hill Tribe Eco-tour

Eco-tour project focused on bringing income into some hill tribe villages that still maintained their traditional life styles and had resources that were suitable for eco-tourism. The Eco-tour was a for-profit project and was started in 2002. The idea of having tourist activities in communities was proposed by villagers. The Mirror Art Group used to support various projects to help improve the income level of villagers and economy of communities. However, many of those projects were not very successful because they did not suit the local contexts and cultures very well, and there were problems related to the high competition and the lack of market. Through discussion, villagers mentioned that foreigners and tourists came to visit them in the village, but villagers did not gain any benefit or make use of the opportunity although few of them sold some hand-made items occasionally. In addition, one village had already opened their houses as home-stay accommodations, but the business was controlled by private tour agencies. Only a small portion of households were involved in this business and were generally paid very low accommodation price. The project saw this as an opportunity for the community and started working with four hill tribe communities.

WHAT WERE COMMUNITIES WORTH IN TOURIST BUSINESS?	Eco-tour	Tour Agencies
Home-stay per night	Bht 50	Bht ~20
Food (per meal)	Bht 15-20	N/A*
Village guide per day	Bht 150	None
Instructor per day	Bht 150	None
Host Rotation	Yes	No

*Often, the price for meals were given at a low price or were included in the accommodation and tour guides bought fresh products from outside the community and asked village hosts to cook for guests.

At first, the Eco-tour project provided training on how to provide home-stay services and on hiking and trekking tour guide techniques for the participating villagers. Members of the Eco-tour program were households without drugs and were volunteering to join. The project had convinced some knowledgeable villagers to provide some courses, which were related to their indigenous knowledge and skills, to tourists; hand weaving was one such initiative. Through instructing the tourist in the course, the local instructor who were usually women gained a sense of pride in their knowledge and wisdom they had and the course also raise the interest and awareness of the local young on the value of tribal art and culture.

The project staff and villagers discussed and set up service charges for such as accommodation, meal, tour guide, weaving equipment, instructor, and others. In terms of board and room, it was agreed that the home-stay hosts would also provide local food. Two villages had created their own rules and systems in taking turns accommodating tourists, in order to help distribute income within the village more evenly. The project team proposed to the villagers to contribute five percent of their earnings from eco-tourism towards their village development funds.

The Eco-tour used the Internet to promote its travel programs and to communicate with its clients. The staff updated information on its web site often. Besides the web site, it also

advertised its travel programs through other channels such as magazines and word-of-mouth. Since its client were not local people within the province but from other provinces and mainly from overseas, email was a vital communication tool for the project in reducing coordinating cost. Some foreigners contacted the project to help organize some community development activities for them while at the same time they could learn about the local culture. For example, a group of university students specialized in optometry from Singapore came and helped providing eye glasses. The project also provided services to meet niches of individuals as well. For example, the staff organized a field research program for researchers. Eco-tour was considered to be one of the projects that used up the amount of data-transfer the most.

Nonetheless, it could not provide reservation service online due to some restriction on the category of tour companies that it registered; otherwise, it would have to pay much higher operating cost. The staff noted that because they were still new in that market, they tried to keep the price low in order to be more competitive and to test the market. Around 70% of the revenue obtained went to the villagers involved and the project used the remaining 30% to pay for its overhead. The revenue it generated fluctuated from month to month. The project leader mentioned that if it could generate annual revenue at one million baht or so, then the Eco-tour project could survive.

Volunteer and Resource-Raising

The Volunteer and Fundraising project was a mechanism that the Group used to draw both human and financial resources from the cities and overseas to its development activities and the rural areas. Its focus was also to raise awareness on rural issues. Initiatives within the project area were Rural Teacher, Second-Hand Clothing Fund, Internship, Long-term Volunteer with expertise, and Educational Fund for Hill Tribe Children. Every month, it recruited a group of 20-30 people as rural teachers. The Rural Teacher program was the initiative that helped the Group get to know the communities and their problems and led to the inception of many other development projects. The volunteer teacher also collected data of communities and explored problems faced by communities for project planning, besides teaching basic literacy to villagers and children. The Group considered the volunteer teachers as one of the most important groups of individual for it in carrying out development activities.

The second-hand clothing initiative received clothing donations and sold the clothes at very reasonable prices to villagers instead of giving out for free in order to make villagers appreciate their value. The revenue from selling the clothes was put into funds for senior villagers and people with disability and for supporting village activities such as sport fairs, etc. In order to help many village children continue their education at the secondary level, the Group initiated an educational fund project. The project normally asked parents to try to contribute around one-half of the educational expense for their children and the project would

support the rest. Therefore, the villagers would not be completely dependent on others.

The organization also provided internship opportunity for students interested in gaining some practical and real life experiences. Many interns were students at universities or colleges who were required to obtain hands-on training as a part of their course or program requirement. These students usually came in during school breaks. The project also accepted long-term volunteers at the length of three, six, nine and 12 months. The recruitment was selective in order to make sure that the volunteer could actually live and work under harsh conditions and could contribute to the development activities of the Group.

The project used the computer to archive the database of each group of volunteer teacher and used the Internet as a tool to promote its activities, advertise volunteer recruitment, facilitate discussion on rural affairs through web board, and maintain its relationship and network with former volunteers.

Bannok TV

Bannok TV was a pilot project intended to help the local community create and produce community TV programs. In 2001, the project submitted a proposal to a World Bank funded ICT project competition and won a grant. It purchased some equipment such as digital video cameras and signal sender and receiver for short distance, and used the grant to pay for staff salaries and per diem and other overhead costs. At first, the team provided training on how to use the equipment such as digital video camera and computer and on how to create or convey a story and how to write script to the village youth and interested young adults in four villages. Once the youth had enough skills and confidence, they started to produce TV programs.

For reasons of practicality, it chose the closest village, about one kilometer away, to be the pilot site. The young people in other villages would occasionally came to borrow the equipment to record interesting events or festivals taking place in their villages. After some discussion and meetings between the team and the villagers, they agreed to broadcast the program at 7.30pm for half an hour everyday, Monday to Saturday. Programs were in either Thai or local dialect. Programs related to official matter such as laws and regulations were in Thai and programs related to local cultures and stories would be in local dialect. The youth filmed and created stories and the project team helped edit on the computer. The TV signal was sent out from the office of the project with simple and inexpensive equipment, which had radial limit at one kilometer, to a signal repeater at the village leader's house. Then the repeater would broadcast the program within the village.

The project team had continually adjusted the production to suit the locals and its own conditions. The program was replayed once to twice a week because the production was fairly labour and time intensive and because some villagers complained that they missed the program sometimes due to busy engagements. Nonetheless, most villagers did not like to watch repeated programs except ones that related to them such as stories about other tribal communities and tribal cultures. Also, the local volunteers from the village had to work to make a living and would not be able to put much time into the production. The project had experimented with hiring full-time staff but that was still time consuming and also increased the cost. Later, the project tried to produce more live-broadcast programs hosting within the village in order to reduce the amount of post-production work. Many children who never had a chance to be involved in the production process were excited in witnessing the live production and broadcast. The TV program had been well accepted throughout the pilot phase.

However, after one year of operation, the project team had taken a break. This was partly because the team realized that it had too much influence on the design and planning of what and how the programs should be, and also because the funding for the pilot project had ended. The lessons learned from the pilot phase were that the villagers were interested in viewing the

programs but the feeling of involvement and ownership was not there, and that the villagers had to worry about their livelihood first. In addition, when the team assessed the needs of content and program format of the community, villagers barely provide any opinions or suggestions, and when asked whether the program format the team suggested was satisfactory they said all was good. The staff considered the aforementioned problems as the reflection of its working process and strategy. The team took this opportunity to let the villagers decide how they want to manage the TV channel. One major barrier for villagers to produce their own TV programs was that there needed to have a dedicated team continuing to carry out the production, but villagers were busy and struggling to make a living. Once the villagers were ready to continue, the team would act more like a mentor rather than a manager of the TV program.

Local Community and Information and Communication Needs

Local Communities

During field study, three communities (Lee-Pha, Ja-Lae, and A-Pha) were visited and one of them, Lee-Pha, was studied more in-depth. Lee-Pha and A-Pha were Akha and Ja-Lae was Lahu. A-Pha and Ja-Lae were still located in the highland area although they had moved from more remote areas to the current location years ago. The villager mainly relied on subsistent farming and daily labour job, as well as small amount of tourist activities. Lee-Pha was located less than one kilometer from the office of the Mirror Art Group. The community members had gradually moved from the mountainous area to lowland area since 1996 because the mountainous area had been regulated into a conservation area and also because the community wanted to be closer to services and facilities in the city and schools for their children. Since the lowland area to where they relocated had been occupied and farmed for decades by lowland villagers, the Lee-Pha members could hardly obtain a new piece of farmland. Consequently, most villagers (80%) had to work as daily labourers or to find other means to make a living. In all the three communities, a large portion of villagers could understand Thai but were not fluent in spoken. Thus they had difficulty to communicate with lowlanders and officials, except young people who mostly went to schools and some adult men who worked in the city and could speak northern Thai. Most villagers saw the importance or education and sending their children to school although funding was the number one constraint.

Through group discussions and interviews in Lee-Pha community, problems and needs mentioned and agreed by many villagers of each specific gender were as follows:

Male villagers	Female villagers
• The need to separate from the existing village and to establish as an officially independent village in order to be able to apply and obtain funding from the government for necessary development projects of the community;	• The lack of land for agriculture;
	• Unemployment and the lack of income because
	- could not sell handicrafts and could not find the market for the products;
• The lack of farmland and investment capital, leading to insufficient income and poverty; and	- never went outside the community to sell the products and also did not know how; and
	- could not speak Thai; and
• The lack of a public common space within the community.	• Having too many children, but they could solved this problem by themselves.

Interestingly, the issue on obtaining Thai citizenship was mentioned by some but not a priority of the community and this could be because the majority already had some legal documents and were in the process of obtaining the citizenship. The most severe problem cited by the villagers was indeed the lack of available agricultural land. The village men mentioned that the Forestry

Department was having a project that provided some farmland for relocating hill tribe communities. But they did not know whether they would be allocated land. The women mentioned that they would like to have access to land for growing crops and so they could earn some money to support their children in schooling. But they had never contacted any organizations or individuals because they did not know where to go and whom to ask. They said that the Forestry Department should have provided them with new pieces of land. Hence, when discussing about their information interests and needs, both genders mentioned about the need for information on the access to farmland either for rent, lease, sale or so on.

Information and Communication Patterns and Needs

In Ja-Lae and A-Pha villages, both landline home phones and public payphones were not available as the villages were more remote and up in the hill. Consequently, personal cell phones were an alternative that some villagers used for quick interactive communication. In Ja-Lae, only two people had a cell phone: one was a member of TAO (Tambon Administrative Office) and another had a family member working overseas. The number of people owning a wireless phone was greater in A-Pha village, around 10. Nonetheless, the phenomenon of cell phone ownership was quite similar to Ja-Lae; the owners tended to be people who had responsibility related to the local government or had relatives working elsewhere. However, "people who don't have a cell phone borrow people who have one as well. Mostly it is more that people live outside calling back in. Call-in [inward call] is free. If call out [outward call] for long period of time, would give a fee at five baht per minute," said a young villager.

For both of the communities, the closest private landline-phone service and public payphone was located in Huay-Mae-Sai, another village near-by. Similarly, villagers who had gone to work and live elsewhere were mostly the ones calling their relatives and friends in the villages rather than people residing in the villages making outward calls. The private phone service charged outward calls according to time and destination and charged 20 baht per service. The phone shop normally asked the inward caller to call back after 20 minutes and rode a motorcycle to get the intended villager to pick up the second call. Since more A-Pha villagers obtained a personal wireless phone, they had rarely used the private service, but many villagers in Ja-Lae still relied on the private phone service.

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Some facts about the communities and available infrastructure were shown in the table below.

	Lee-Pha	A-Pha	Ja-Lae
Geo-location	Lowland	Highland	Highland
No. Household	~100	~30	62
Faith	Christian	Tradition	Tradition
Tourism activity	No	Yes	Yes
Loudspeaker	Yes	Yes	Yes
Electricity	70%	Yes	No
Landline phone	No	No	No
Public phone	1 Skm	No	No
Wireless phone	Yes	Yes	Yes
TV (household)	55%	>80%	5-6
Radio	Yes	Yes	Yes

Note:
The wire of landline home phone actually ran through the main street, but the villagers did not know how to obtain or apply for having phone connection in their houses.

The rest of households were located further inside from the main road and moved to the current location after the electricity department set up the poles for the earlier settlers.

Radio and television were accessible in both villages, but at different level. Most villagers in Ja-Lae had access to 4-5 radio channels. As mentioned by a young man "like the lowland's ones, listen to whichever that has music. [For] news, depends on channel. Listen to Tribal [hill tribe] Radio as well. In Ja-Lae, around 5-6 houses have a TV, other houses that don't have any will go and watch at the houses that do." As electricity was not available in Ja-Lae village yet, the TV owners normally used car batteries to run the appliance. The same villager expressed his concern that in the future when many houses had a TV, people would be addicted to watching it and might neglect each other and give lower priority to community affairs such as village work and meeting.

A-Pha villagers mostly listened to news and songs from Akha Radio, which broadcast programs in Akha dialect spoken by the villagers, in the morning and in the evening around 8pm. Unlike Ja-Lae, A-

Pha community had access to electricity. Watching television in the evening was very common. "Almost every house has one [TV], some houses have a VCD [video CD player], people are addicted to TV.... My grandma, over 80 now, after having dinner will go out to watch TV every night. We have one at home, but people like to watch TV together, have companies to watch..." said a young villager.

Besides news and entertainment, the villagers were interested in market prices of farm produces. Villagers normally received the information on prices from middlemen, who came into the villages to buy produces. Villagers did not know where to check the price. Occasionally, villagers exchanged information on produce prices with their friends who resided in other places when they came for a visit or when both sides ran into each other. A local volunteer commented that when agricultural information and produce prices were broadcast through radio, the terms used were often official and technical or written language that local people hardly understood. He gave an example of the word 'percent' and any information given in percentage. This problem was also related to the literacy level of villagers.

In the more in-depth study at Lee-Pha community, the most popular media were TV and radio. One part of the community did not have electricity and consequently, only one-half of households had TV access at home; nonetheless, people who did not have one watched TV at the neighbours' houses sometimes. Interestingly, many female villagers mentioned that they would like to have a satellite dish for greater variety of TV channels. Younger generations also mentioned that they would like to have a community library with newspaper and magazine provided. A few female villagers accepted that they loved to read comic books. Radio broadcast in both Thai and hill tribe dialect was a medium accessed by most villagers.

A small number of young people mentioned that they also obtained news, entertainment and information through newspaper and the Internet. One admitted that he used the computer and Internet at the Bannok.com Computer Centre when he wanted to look for some information and when he did not have any hired job on weekends. Another said, "[I] search for information on recipes from the Internet. [I] don't usually look for any specific ones. Any recipe that's interesting or I like or I can make, I note it down."

> "My personal feeling about computer, so-so. If I left here, then I think I might not have any chances to use it. If there were, then I would use it. People in Ban Lee-Pha don't know how to use it. Children who go to schools will know how to use computer."
>
> (Volunteer from the village, personal interview, 30 August 2003)

In terms of communication, due to its reasonable cost, letter mail was used by a number of Lee-Pha women to keep in touch with friends and relatives. Few people owned a cell phone because it was relatively expensive. Occasionally, people without a cell phone would borrow from the ones who had. In deed, they expressed the need to install a public payphone in the community. A few explained that that could save around one hour, especially for people who did not have a motorcycle, in commuting back-and-forth to the existing public phone which was located more than one kilometer away.

> "Phone, I use public booth in Moo 1 [village], if it is not good, then [go to] Tung Luang [3km away]. If it [the one in Tung Luang] is not good, then [go to] the city, 3 baht a minute for cell phone [private service]. Call my husband around twice each month. More than 10 minutes, each time pay around 40-50 baht. Expensive? Don't know, once a while, it's affordable.... Mostly he calls."
>
> (Lee-Pha villager, personal conversation)

Even though the wire of landline phone ran through the main street of the community, they did not know how to apply for and where to apply for a telephone. The lack of information on sources for information and data appeared to be one of the most critical problems. This was probably part of the consequence that the Lee-Pha had not integrated fully into the lowland environment and had not had a clear understanding on how official and business system worked and where they could find out more information related.

It might be worthwhile to mention the power relation between the new and original settlements where the Lee-Pha resided. Both Lee-Pha community and the original lowland community of the area were under the care of the lowland-village chief. If the Lee-Pha community wanted to obtain a public payphone, the official chief could possibly help submit an application. The chief mentioned that he used to suggest to Lee-Pha community that they should have applied for a telephone but they said it was not necessary. Apparently, because Lee-Pha community moved into the village as a more-or-less self-governed entity that had its own rules and leader, the lowland village chief noticeably tried to keep distance from involving in or having any role in Lee-Pha's activities as much as possible except when necessary.

The information sought by the Lee-Pha was highly career and income generation related. The information most needed was about available agricultural land for rent. One villager mentioned that she did not get any advice and information on agriculture and wanted to know more on "how to make produces beautiful and safe, and natural agriculture practices." However, young people who were literate, could speak Thai fluently and had worked in cities for sometime were less interested in farming. A number of them looked for an alternative career. For example, a couple of male villagers looked for information on how to do business such as how to price, plan and invest. Additional skills that they were interested in were such as baking, sewing, and trading. A few of them also expressed that they wanted to know more about job opportunities and labour laws. Some of them obtained the cited information from books, magazines, radio, TV, friends and work. But some information was not available and illiteracy was a major barrier for many.

Strengths and Opportunities

Volunteer and Capacity Building

Through its volunteer programs, the Group had efficiently drawn manpower with diverse specialties from both within the country and overseas to help with various aspects of its rural development activities. At the same time, involving local young people to work as volunteers had built capacity within local communities and in return the local volunteers also helped carry out, coordinate and mediate development activities for the Group at community level. Other than learning through doing, some volunteers also had chances to learn from activities organized outside the organization. Some projects were very supportive of their members attending to workshops and seminars in order for them to learn new skills and knowledge and to broaden their visions.

However, there were occasions that once the skillful ones left it was hard to find a replacement. Bannok TV as an example, it faced the shortage of skillful human resource because the local community had limited skill in producing and designing TV programs. Although it used to provide training to some village youth and some volunteers had helped out in the past. But once the volunteers left and the village youth went into the city, the project faced the shortage of manpower and training new staff would take a long time. The organization might consider encouraging and supporting the practice of knowledge and information sharing among the local volunteers and between the volunteers and

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"At first, I was not sure if I could do it [the job]. When I've actually done it, it was not difficult. I'm continually learning. I take care of the store, check stock, do bookkeeping and make price labels."

A few local volunteers described things that they gained and learned from working at the Bannok.com were such as systematic thinking and planning, self-adjustment to the society, work strategy of NGO, team work, broader worldview, new technologies, self-realization on values of their own tribes.

A couple of them also gained self-confidence and trust of the communities to perform some village tasks, especially relating to official document and financial management. "People in the community wanted me to be the village chief... But I don't want to be because don't have experiences. So I told them that if they wanted me to help with anything, I would."

the rest of local community especially with young people. Therefore, when one left the community to find opportunities elsewhere, the skills and knowledge remained and others could easily fill the gap.

> One volunteer mentioned that he liked to use PhotoShop and whenever anyone in the team learned something new that others did not know, they would share with each other.

ICT Reputation and Community Development

The early adoption of ICT use in assisting in Bannok.com's development activities provided opportunities for its IT team to continuously develop advanced ICT skills and specialty and also helped the organization gain a good reputation. Consequently, the IT team could easily market its services to outside organizations and individuals through its expanding networks and could generate income to sustain itself and its activities on ICT for development.

Supportive Relationship and Cooperative Network

Over the years, Bannok.com had continually created relationships and extended its networks in different sectors but mostly at the intra-sector level and with like-minded NGOs and grassroots groups. Effective networking and good reputation as cited above had benefited the organization in various ways such as:

- Obtaining grant funding and income from service provision;
- Seeking intellectual help and practical advice, as well as collaboration from like-minded players in the field; and
- Gaining trust and local cooperation from grassroots communities.

It might further build relationship and expand its network more towards inter-sectorial, regional and international realms for exchanging lessons learned and experiences. Bannok.com had a lot to share and also could learn from others who did the similar activities such as e-commerce, eco-tourism, and ICT for development in terms of technology alternatives and work strategies. For example, e-Bannok Shop might find an e-marketer project initiated by FOOD in India useful; might gain new ideas from learning how FOOD used the Internet to create young entrepreneurs and job for the local youth and to help local artisans sell their handicrafts at a better price. Bannok.com could possibly increase the practice of exchanging links with other organizations for marketing and public relations purposes.

Enthusiastic and Determined Staff

The staff and volunteers of Bannok.com were determined and enthusiastic to help improve the life of the local people in various aspects. The same level of enthusiasm to support and serve each other also existed among Bannok's projects such as the Computer Centre and the central management unit that tirelessly provided assistance and service to all other projects. Most of its projects cooperated with each other and a couple of them worked more closely and collaboratively due to the circumstance and nature of activities. Continuing to apply an integrative approach and mechanism in carrying out development activities among the projects could make projects enhance and complement each other's strengths and weaknesses.

Trust and Further Community Participation

Having worked closely with communities and having helped them solved their problems, Bannok.com had gained the trust and cooperation of local communities. Nonetheless, as the organization had shifted from charity towards entrepreneur (self-reliance) approach in helping and working with local communities, some misunderstanding on the organization's working strategy had occurred in a number of community members. It was vital for the projects and staff to frequently and continually listen, inform and consult with community members. Clear communication done at both organizational and personal levels would help reinforce a shared understanding and open space for local participation. To encourage participation at decision

making level, the projects might couple its communication strategy with local capacity building (skills on e.g., language, IT, information research, etc.) as explained next.

Self-sufficiency, Self-help

Other than transforming itself to become more self-sufficient as many of its projects had already done, Bannok.com tried to help local communities become more self-sustainable. However, many community members remained more passive rather than proactive. It tried to encourage greater local involvement and initiative. Providing useful information would help enhance communities and individuals to independently make decisions that suit their contexts and needs. Bannok.com might consider addressing the following issues:

- Individual voices

  Often in a group meeting or conversation, many community members especially women were silent and few people would dominate the conversation. As expressed by one female villager in a gender specific meeting, "[We] never contact any department because don't know where to go. Don't know with whom to consult. Never had a chance to speak." The phenomenon was also true even within gender specific group. Hence, opinions from leaders sometimes might not truly represent the majority and tended to ignore opinions of many. Gender and power-dominant sensitive approaches could provide a chance for more voice to be heard and might facilitate greater participation.

- Information needs for decision making and local content

  Timely and accurate information could better help the locals make their own decisions that suited their existing circumstances. As many local people were not fluent in Thai and were not familiar with information sources, as well as the limitation of accessible information channels, Bannok.com might possibly fill the gap. Assessing local information needs and assisting them in finding the information needed could help local people find alternatives and become more independent in making choices.

  Moreover, many people needed the information that was local in terms of both content and presentation. As the local content needed was generally unavailable in the mainstream media, creating local content for and/or by local people and presenting it in local dialects in a doable scale and format could possibly be an option.

- Information mediator

  Providing information to the communities could be done through various ICT tools, as well as traditional media, depending on the circumstances of each community. Village loudspeakers, community leader's walkie-talkies, villager's wireless phones, Internet at the Computer Centre could all be the means in the process. Also, information mediator could play an important role in information diffusion to the locals and remote areas. In this case, it could be the young or local volunteers who were interested in doing so.

  For example, The Eco-tour project and Hilltribe.org were planning to bring computers into an actual hill tribe museum in Ban Ja-Lae village in order to promote tourism and as a facility to help tell stories of local hill tribe community. There was also a plan to install solar cell panels and equipment for receiving satellite signal for Internet connection. The projects had trained 4-5 local young people to be acquainted with the technology and prepared them to help with the activities of the project. They could involve more community members and local volunteers who had obtained some IT skills to help research information for villagers and could utilize the technology to help the locals find the information they needed to improve their livelihood.

Lessons Learned

- As demonstrated by the case of Bannok.com, ICT was a supportive tool that could certainly help facilitate and accelerate the proceeding of activities in community development. However, to achieve positive development impacts, one had to incorporate many other non-technical, but critical social, economic and human, as well as political, components in the development process.

- This case shows that a charitable approach created dependency of local people on outside parties and destroyed local people's capacity to be innovative, and their opportunities to learn and to solve their own problems. Once people were used to being passive receivers, it was more difficult and took longer time to help them become more self-reliant.

- E-commerce was just one of many channels and marketing strategies that could help one sell tribal handicrafts. Financial, technical and skillful manpower could be barriers for small business to fully engage in e-business. Continuous public relations and proactive marketing strategy and action remained important, as well as continuous development of product quality, for the well being of small scale business in a competitive market.

- Demonstration was helpful to introduce and to create understanding of how the technology works. But in order for the locals to take ownership and utilize available ICT equipment, their early involvement in the planning and implementation process for short-term, medium-term and long-term projects and plans was vital. Also, building the local capacity and providing learning space was crucial. It would take time for the locals to become comfortable and confident with the technology before they could pick up the pace in utilizing it for their own benefit.

> **SPACE FOR (ADULT) LEARNERS**
>
> "The staff helped and taught me; I learned to type. It took me long time until [I'm] fluent. The staff encouraged me, said in the past s/he was like that too. [I] use computer for typing daily reports... I started to learn how to do accounting on the computer."
>
> "I used to go into web sites of magazines such as *Khwan Ruen*, to look for patterns for tailoring. I think I can do it if I got [chances] to practice... The Shop sent me to learn patterning... If assessing myself, I think I'm able to do 50%, not as fluent like a tailor."

PONG TELECENTRE

Introduction

Pong Telecentre was located at the Non-Formal Education Centre (NFE) of Pong District, Phayao province in northern Thailand. Initially, it was one of six pilot telecentres of the Thailand-Canada Telecentre Project (TCTP)[1], aimed at testing and demonstrating financially self-sufficient models of telecentres in Thai context. The implementing team conducted two community needs assessment workshops with community stakeholders. In addition, it conducted individual and business ICT needs surveys. The representatives were enthusiastic to set up a telecentre. The director of NFE Pong had had an idea to provide IT services to the communities. This coupled with its friendliness, high level of coordination and available human resources, convinced the community representatives to set up a telecentre under the management of NFE Pong. NFE Pong invited the community's representatives to sit on the telecentre's steering committees.

> **PONG DISTRICT**
>
> Pong district was the biggest among seven districts in Phayao province, covering about one-third of the total geographical area. It comprised seven *Tambons* (group of villages). The total population (2003) was around 53,000, about 10% of the whole province.[+] The available basic infrastructure was: [*]
> - Electricity, except many highland areas;
> - Tap water, and mountain tap water system in highland areas;
> - Paved road, in most lowland and some highland areas;
> - Landline home phone in municipalities only and public phone booth in most rural villages; and
> - Wireless phone signal (rooftop antenna required in many non-municipality areas).
>
> From observation and interview, TV and Radio was widely available in most households except in mountainous areas where electricity (from cable, battery and solar power) was scarce and only few households had a TV.
>
> + Obtained from Pong District Office and www.dopa.go.th.
> * From observation and interview

TCTP agreed to provide a one-time investment, including two sets of computers, software, two sets of tables, two additional phone lines, a fax machine, and one modem, for the establishment of the telecentre. It also supported the cost of dial-up Internet connection for the first year and later provided two more computers. The Pong Municipality matched the first investment with three more computer sets and the funding for renovating a one-story building for hosting the telecentre. In addition, the president of Provincial Administrative Organization Phayao also helped provide two more telephone lines. In March 2003, after one year of operation, TCTP withdrew and NFE Pong took full ownership of the telecentre.

Operation and Management

Services

Pong Telecentre focused largely on computer and Internet training and supported information and knowledge acquisition and learning activities, as it was owned by an organization providing adult education. It provided free computer and Internet training for staff of government and local organizations such as novice monks, students, TAO (Tambon[2] Administrative Organization) staff and teachers. The Telecentre had tried to follow the government's IT policies and projects. For example, it provided free training for the TAO staff after the government implemented the Internet Tambon project. Another reason for providing free service to local and government

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[1] The telecentre project was financially supported by CIDA and was implemented by a Thai telecommunication conglomerate (Loxley Public Co., Ltd.) and two Canadian development consultant firms (Hickling Corporation and TeleCommon Development Group).

[2] A *Tambon* is comprised of a group of villages.

organizations was due to the close coordination and interdependent relationship between NFE Pong and those organizations.

The Telecentre charged a reasonable fee, perceived by the trainees, for training service offered to the public. The staff normally reserved around three hours in the evening for training; however, some sessions were in the morning or afternoon depending on learners' availability. The operator continually planned and scheduled training sessions 1-2 months in advance for diverse groups either for a fee or for free. It offered training from 30 hours and up for each course and at the end of the course it provided each trainee a certificate. From interviewing a group of seven MS Word trainees, two had the skills already and only wanted to obtain the certificate for career advancement and salary promotion. The rest wanted both skills and certificates for the same reasons. However, the courses provided were not standardized or certified by the industry, Ministry of Education, academic or IT institutes.

"Kids, students in the formal system, hire me to search information for them every week. Subjects I search for are [such as] history of communication, solar power, tourist attractions, making herbal beverages. I find [information] every time, use google and sanook. I search in Thai, and search English web sites sometimes such as governing system of Laos."

(A NFE teacher, personal conversation, 15 Sep 2003)

The computer and Internet service was aimed to mainly support research, communication and document tasks. Research supports were offered through different ways. The first was rental of Internet access time: users searched or surfed the Internet to find information on their own. The second was information research done by the telecentre staff, who then printed hardcopies out or saved it in a diskette for clients. Some NFE teachers also took orders from people, usually students living farther away, and helped research information they wanted by charging a fee. However, the operator said that the Telecentre never set up a price for research-by-staff service. She charged those clients for a fee based on her own discretion although sometimes the service charge was not sufficient for the value of time forgone that she could work on other regular duties.

Communication services offered were long distance phone call, fax, email and synchronous communication (chat). The long distance phone service rarely had any users because of the competitive prices of phone services provided by private vendors who owned a personal wireless phone. Occasionally, people came to use the fax service. One male customer mentioned that he used to keep in touch with his wife who worked and lived in USA via fax and email at the Telecentre on a weekly basis until he got a computer and Internet connection at home. NFE also used the fax service sometimes. Email and chat were part of the Internet-hour-rental service. The Telecentre staff provided advice on how to use the program, but did not act as a mediator in receiving or writing messages for the users partly because they had not received any requests for this service.

Besides renting computers by the hour for document-processing tasks, the Telecentre also provided document and layout related services such as typing, making PowerPoint presentations,

Pong Telecentre was open seven days per week except national holidays. The stated business hours were 8.30am-8pm, however, from observation, it was usually opened 9am-7.15pm depending on the level of business. It used to open until 9pm, but changed due to the concern that parents might complain about the young staying outside too late at night, and also of the staff's personal and family life.

and designing business cards and product labels. It used to provide binding and photocopying services at the beginning, but stopped because of high rental and maintenance costs of such equipment and small market share. NFE Pong had long used research, typing and printing services for producing leaflets, information sheets, digital photographing and reports, etc. from the Telecentre. As NFE subsidized the utility cost and provided other resources, the Telecentre provided services free of charge to its owner organization.

Staffing

Pong Telecentre employed staff on a part-time basis in order to keep the operating cost low. All of them were NFE Pong's staff. The arrangement made among the NFE Pong staff was that the registrar staff took most responsibility of the Telecentre such as training, operating and bookkeeping and looked after the Telecentre on weekdays, and another 4-5 NFE teachers took turns in taking care of it on weekends. Most training was offered during weekdays by the registrar staff. On weekends, was up to each individual NFE teacher to decide whether to provide any. Occasionally, the Telecentre invited outside trainers to provide specific training sessions. As a result, the registrar staff had her office set up at the Telecentre and acted as a full-time operator although it was supposed to be a part-time position. The director of NFE Pong acted as the Telecentre manager: helping coordinate with other organizations at the decision making level, market Telecentre services, seek additional funding and oversee the direction of the Telecentre.

Technical Maintenance

The telecentre operator usually took care of the maintenance matters by herself first; however, when the technical problems exceeded her capacity, more skilful individuals in the area were consulted. After the withdrawal of TCTP and one-year maintenance support from Loxley, Pong Telecentre obtained maintenance service on more serious problems from a local entrepreneur who owned an Internet café in a farther district (70-80km away). He dealt with both software and hardware problems on the server and network and often charged for a reasonable fee. In addition, two NFE teachers who co-owned a computer shop with their friend had gained a certain level of troubleshooting and hardware repairing skills through operating their business. As NFE staff they sometimes helped solve some problems without charging a fee; and supplied new parts and equipment at a break-even price for the Telecentre.

Problems experienced by the Telecentre were usually related to deterioration of equipment, viruses, malfunction of software and Internet connection. A sign asking users to scan for viruses or to consult with staff before using a floppy disk on any computer station was posted on the wall, but through observation none of the users did that and the staff were not very serious in taking any action. One Telecentre staff member accepted that there might have been fewer problems if at the end of each day they could clean up the unnecessary files and folders from all computers as a routine maintenance task. However, due to long hours at work and personal engagements, it was not yet put into practice. As all computer terminals were connected to the server as one LAN, it was possible to perform this

> **TELECENTRE FACILITIES**
> - Computer stations: 7 (Celeron/Pentium) with speakers, excluding one server (with CD writer)
> - Printer: 1 inkjet
> - Scanner: 1
> - Digital Camera: 1 (2Mpxl)
> - Telephone lines: 2
> - Fax/phone: 1
> - Software: Windows 98, MS Office, Starfish Office (local OSS – unutilized), etc.
> - Internet connection: services from 2 ISPs (CS+Loxinfo; TOT) through dial-up modem via regular landline phone
> - Thai web site directories (hardcopies)
> - Others: Switch (1); UPS (2)
>
> Air-conditioning, comfortable waiting area (with armchairs and couch), and drinking water was available. Snacks (banana chips) and handicrafts made by women's groups were available for sale.
>
> (Observation in September 2003)

task from the server either daily during low traffic periods or weekly.

Although equipment malfunction occasionally caused a slow Internet connection, disconnection or out-of-connection, the connection problem was mainly related to the local phone and ISPs used. From observation, the Telecentre was only once out-of-connection due to the maintenance of the local telephone line done by TOT (one of the landline phone providers), the rest was from ISP choices. More explanation on the latter is provided next, Financing Management.

Financial Management

Pong Telecentre operated and provided services to local people with a not-for-profit approach. "The telecentre and library have the same role, to be a learning source. The telecentre administration has to have some business elements in order for it to keep running... but not focusing on the business side, not for profit. We emphasize on being a learning source for the community. We don't want to take advantage of the community which is already at an opportunity disadvantage."[3] Since it had to balance between financial self-sufficiency and affordable services, it charged the service at either reasonable and market prices or for free while NFE Pong subsidized part of its expenses and resources such as utilities, business space, staff, and others.

BASIC SERVICE CHARGES	
Services	Baht (≈USD)
Computer rental/hour	15 (0.38)
Training (30hrs +)	300+ (7.6)
Printing (B&W)/page	5 (0.13)
Printing (colour)/page	8+ (0.20+)
Typing/page	10 (0.25)
Phone/Fax	varied
Digital picture/photo	20 (0.50)
Others (e.g. designs)	varied

The computer and Internet hourly rental service was the major income generator. It was five baht less than other computer and Internet shops in the areas. The busy hours were usually in the afternoon and on weekends. The average daily revenue was around 170 baht (≈USD 4.30) if service was fully operation. When the Internet connection was out or equipment was broken, the revenue dropped since online activities were the major usage. Unlike many Internet cafes that mainly drew revenues from games, Pong Telecentre limited the use of computer and Internet for games although it did not totally prohibit them. It also sold snacks (banana chips) and handicrafts made by local women's groups, which was aimed to provide additional markets for those groups.

REFERRING INTERNET USERS

"I went to another Internet shop. They told me to come here [Pong Telecentre]; I don't know why." said a male Internet user.

Many Internet cafes paid about the same price for the Internet connection. All of them had fewer computers and it was not very profitable for them to provide Internet service for one customer, unlike typing and games on LAN. Some also had to pay rent and therefore, they had higher overhead.

"The most profitable is typing service," mentioned by a co-owner of near-by Internet café.

A co-owner of computer shop located in downtown said, "we emphasize on repairs and maintenance."

Since the electricity cost and some other costs were subsidized by NFE Pong, the major expenses of the Telecentre were staff salary, Internet connection and maintenance. The training honorarium (100baht/3hrs) for the operator in 2003 was from project funding obtained by the public library. Hence, the Telecentre could provide free training sessions for local organizations and departments. However, the manager did not know whether that fund would be continually provided or they had to find alternatives. The staff helping on weekends got a 100-baht compensation per day from the revenue made on that day.

For the Internet connection, the Telecentre staff usually tried to use the free Internet hour provided by TOT for its landline telephone clients before

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[3] In a personal interview with the Director of NFE Pong on 21 September 2003

using the commercial one. It paid 3-baht for a local phone call for each connection and had to redial every two hours. However, the Internet connection from TOT was often slow and self-terminated before two hours. When the free connection was not very efficient, the staff would use a commercial Internet connection, which was more stable. It cost 12-15 baht per hour plus 3 baht for a local phone call. Hence, the Telecentre would about break-even if it used the commercial Internet service with only one customer.

Pong Telecentre, as mentioned earlier, had to pay maintenance fees only when it used services from individuals outside NFE Pong. Due to having a well-established relationship with the technical service provider, the Telecentre was usually charged for a reasonable price, 300-600 baht, per service. Apparently, it called for the service once or twice every two months. For an overview of monthly balance, the operator kept track on daily revenue and expenses.

Each month, the operator made a book to keep records on the daily usage of the Telecentre services. The information recorded was simple, mainly on type of users (public, student, bureaucrat), time in and out, whether using Internet or computer, time length and service charge. At the beginning, TCTP asked the operator to keep detailed records on usage and user such as information sought, web site, and so on. However, it was undoable because the operator had to perform many other tasks of NFE Pong and was not able to observe how people used the Internet and computer. At the end of every month, she made a summary of income and expenses of the Telecentre. Nevertheless, multitasking and heavy workload sometimes reduced the capacity of the operator and delayed the completion of monthly financial report, as well as some other tasks perceived as having lower priority.

> ## MORE THAN A GOOD PRICE
>
> 14.30 – No computer is available, so she [Orn] waits for a computer. Mink [a grade-5 girl] asked her why she didn't go to another Internet shop. She said it was more expensive, 20 baht. Mink said there was another one which was close by. She said she never used the service of that Internet café.
>
> 15.00 – Talk to Orn, who is trying to log onto www.narak.com, a chatting web site. She uses the computer and Internet in school as well. ... She said in school there were 40 computers for students at both lower and upper secondary levels, 20 for each level. Students can use them to do anything they want: typing, learning, playing the Internet (games, chat, surf web sites). For her, researching online is not playing the Internet. In addition, the school has another 8 computers for students to use for research only.
>
> Orn comes here because the service charge is cheaper than other Internet shops in the area. Other Internet cafés usually charge 20 baht per hour. She said if there was another Internet café that was cheaper, she would go as well. She complains that the Internet is slow today and often disconnected, especially on weekends. She said at school, the Internet was even slower because more computers were connected.
>
> 16.50 – Khun Jit [Telecentre staff] asks two teenage girls, Orn and her friend, to quit chatting because they had been doing that for almost two hours already and asks them to come back tomorrow instead.
>
> (Journal of Field Study at Pong Telecentre, 6 Sep. 2003)

PR & Marketing

Pong Telecentre had done some public relations and marketing on its activities through diverse channels and at different levels, as explained in the following:

- At the decision-making level, the director of NFE Pong (Telecentre manager) had continued to make local organizations aware of facilities and services available at the Telecentre through a 2-day monthly meeting participated in by all chief officers of local organizations, as well as village and Tambon chiefs. They became promoting channels for the Telecentre within their units. Some of those units then contacted the Telecentre to provide training and to lend its skills, which they did not have.

- Through PR letters, Pong Telecentre sent out formal letters to some targeted local departments and organizations such as TAOs, schools and so forth to promote its services.

- Through clients, the Telecentre staff informed and introduced new activities to its clients and used this channel to spread the word.
- Through NFE programs and staff, NFE teachers assigned at each community learning centre had invited their students and community members to come and try. A number of teachers had mentioned to their students that they would teach the students how to use the technology at a mutually convenient time. The teachers also searched for information online for villagers when they asked for help.
- The Telecentre promoted its services through local radio once in a while.
- At the beginning, the Telecentre offered membership with preferential price for the service as the start-up marketing strategy. Also, it used to provide a free-to-use day in the first year.

However, the PR and marketing strategy seemed to be less proactive and consistent in the second year. A number of staff at near-by government departments did not know much about the service offered although most expressed their interests in using and getting training on computer and the Internet. One local novice-monk school was not a targeted client, but there turned out to be enough interest in the technology among novices. More exploration on this issue is provided later in this report. The Telecentre had never carried out any needs assessment of community members and of local organizations in the areas. Although a survey was in the plan, the staff never had a chance to do that due to workload. This could have effects on the PR and marketing plan and direction of the Telecentre.

Communities and ICTs

Information Access and Communication Pattern

Generally, local people received information and news from more traditional media such as TV, radio and newspapers, and from people around them. When asking what sources they received information from the most, around 62% of 35 respondents said TV. Twenty percent received news and information mostly from family and friends, followed by radio (5.7%) and print media (5.7%). More than 85% of respondents received entertainment and daily news from those sources. Locals also received

> **NFE PONG & INFORMATION SERVICES**
> - A public library (NFE Pong head office) with collections of hardcopies and videos, using computerized data management (barcode system);
> - Village newspapers delivered by NFE teachers or postmen through NFE Tambon Learning Centres or local government units, and village representatives;
> - Pong Telecentre at the NFE Pong head office;
> - Adult education program (literacy & secondary courses) and training through NFE teachers.

information from other sources. Loudspeakers and village or tambon chiefs were also major sources for news and information within their community and announcements from government departments although a few people mentioned that their houses were farther out and the loudspeaker could not reach them. Some people mentioned co-ops were places they got information on agriculture practices, prices and loans. A small number said they used home phones and public phones due to the scarcity of the infrastructure.

Nevertheless, more advanced ICTs were also the complement sources of information and means for communication and their uses were under particular contexts or within more specific groups. A few people said they received news messages through wireless phones. Several mentioned that they used cell phones to keep in touch with family members and friends. A small portion used it for business purposes. An owner of a food-stand, who sold grilled-fish at a small local market, mentioned that she used her cell phone to call her supplier every day to check the fish prices and place the order. One women's group that made and sold sausages had included the cell phone number of the group leader on the label for marketing purposes, so its customers or distributors in other areas could call to place orders. Nonetheless, due to the

high competition, they sold their products mostly at nearby local markets within the tambon. So they checked the sale and collected the money from the distributors by weekly visits.

> **KARAOKE, COMPUTER, & LOCAL CULTURE**
>
> "What do you use the computer for?" I asked.
>
> "Not much, I'm not fluent in using computer. Mostly play karaoke and type sometimes. ... Many village youngsters come to the learning centre and watch karaoke and TV in the evening. They learn how to write in Hmong through karaoke. One of the teachers, who is Hmong, provides Hmong lessons to those young people every evening."
>
> A TV and computer were available at this NFE's highland community learning centre, located in a Hmong (hill tribe) community. The village youth went to watch TV and karaoke almost everyday. Hmong does not have its own written language, only spoken dialect. Western missionaries invented the written form by using roman alphabets. Songs of hill-tribe ethnic minorities and Karaoke video-CDs from China were widely available at the border and was popular among many hill-tribe groups. It became a learning and cultural preservation tool in this case.
>
> (From an interview with one NFE highland teacher)

In the highland area, the phenomenon was much different; the density of households with television sets was much less than in lowland communities due to the limitation of related infrastructure. Nonetheless, a wireless signal was available with rooftop antenna although limited. Similar to lowlanders, highlanders used cell phones for business and personal communication. A secretary of highland women's group making stitched-handicraft mentioned that she saved money and time by calling the suppliers for prices of fabric and thread. Many young people worked in cities and some overseas. People without a cell phone would rely on the ones who did for both incoming and outbound calls. The service charge was 10-20 baht for inward calls. Public telephones were available where a satellite dish was installed. Hence, the highlanders rarely had a chance to use the computer and Internet except the young who went to schools in the lowland areas.

For more specific information, local people normally obtained from related local government units, public library and the Internet (young people mostly). From interviewing some public library users, most of them were satisfied with materials available at the library. They mentioned that they could mostly get what they wanted. Although it did not provide any computer for the public to use for research, it provided multimedia materials on videos and CD-ROMs. A few library users, as well as the majority of interviewees who did their research online at the Telecentre, said that they usually researched in libraries first and went online after they did not get enough of what they wanted from libraries.

From interviews of 86 people, almost 68% used the computer and/or Internet, 18% did not use either and the rest did not respond. The following tables show some demographic facts on the computer and/or Internet users. Students and government employees were the groups that used the computer and Internet most. When looking into the data within each group, it appeared that around 93% of students interviewed and 87% of public and government employees used the technology. People in career groups such as

Table 1: Percentage of respondents using the computer and/or Internet within age groups.

Age group	Percent
Under 20 (Teenager)	78.6
21-30	76.5
Over 31	45.8

Table 2: Career of respondents using the computer and/or Internet.

Occupation	Percent
Student (formal)	47.5
Public/Government	33.9
Not working	8.5
Others	10.1

farmers and daily labourers who earned lower incomes, required more labour and worked in the field without many document-related-tasks were less likely to use this technology. Often, many farmers also worked as daily workers when available. Due to seasonal and local circumstances, the majority of interviewees were female; hence, the gender aspect was not analysed under this question in order to avoid misleading conclusions.

Fifty-five interviewees said they used services of Pong Telecentre and/or computer shops before. Nine out of 48 Telecentre users interviewed went to other Internet cafes. More than two-thirds of Telecentre users were at the age of 15-19 and the majority were students in formal setting. Unlike many Internet cafes, the Telecentre had more female users (60%) than male.

Information and Communication Needs

Local people had great need of telephone. Although wireless phones were available in most areas, many non-municipal residents I interviewed complained that they had applied to get a home phone quite a few times over years, but the telephone companies said they did not have any numbers left. All the main lines were used up. They mentioned that service charges of landline phones were more reasonable than those of wireless. One highland NFE teacher said,

> "Villagers sometimes use mine [cell phone] to call their children. I let them use it, but don't know how to charge them. They have great needs for using telephone. When crops are ready to harvest, they have to call and arrange for the middlemen to come; otherwise, villagers have to go down to Pang Ka, 15km away."

A number of people who owned a computer explained that they did not have Internet connection at home due to having no home telephone.

Unsurprisingly, from interviews most people were interested in information and news that related to their careers. For example, many government employees mentioned that they were interested in checking out the web sites of departments and ministries they worked for in order to keep up with changes, new policies, and urgent commands from the headquarters. This allowed them to respond and take actions quickly. A few police officers mentioned that it was too slow to wait for the official letter to arrive. TAO staff checked out products and economies of other tambons in order to compare and learn from others. Besides staying updated on official changes, NFE staff also looked for information on potential additional careers and alternative products in order to transfer the information and knowledge to villagers. "I'd like to search information on bamboo worm from Kasetsas University and University of Chiang Mai – is able to cultivate them. I'd like to know how to do it. If it were interesting, ... I'll study the possibility. If I could sell them, then I'd support villagers to do it", said a lowland NFE teacher.

Young students mostly sought information on continuing education and topics relating to learning subjects for their assignments. Those who were looking for jobs or in the workforce were interested in obtaining more information on labour laws, welfare regulation, and employment opportunities. One interviewee obtained job and employment information from biweekly periodicals from the public library. She commented that it was not enough and should have had those more frequently. A couple of people mentioned that job vacancies from government units should have been announced more openly and broadly. A hairdresser mentioned that she obtained information on new styles and techniques.

A number of respondents were in the agricultural sector, which was the major economy of the district. Many of them expressed the need for information on produce prices, markets, agricultural techniques (for preparing plot, better yield, etc), additional and optional careers between and during growing seasons, and loan and interest breaks. They obtained most of the agricultural information from middlemen and a few other sources (e.g., village chiefs and books). Information on IT training, health, land regulation, community development news and so on were also mentioned. Some mentioned that they had to get the information

> SHORT DISTANCE – LONG WAY
>
> "My house is in Santisuk village, around 25km [from the town]. I spend around one-and-a-half to two hours to commute one way by motorcycle. The way is winding. Difficult! Especially in the rainy season, the road is muddy."
>
> (An NFE Pong Student, personal conversation, 21 Sep. 2003)

at government units that were mostly located in town. Interestingly, a portion of respondents was not able to tell or think of what information they needed or wanted.

The following provides some examples of comments on information needs of both highland and lowland farmers interviewed.

" I'd like to know more about the acidic and alkaline soil. If the measuring machine is provided…" "I'd like to contact and have communication via phone when chicken have problems related to diseases. I'd like to get advice on chicken farming or if there would be handbooks for additional knowledge. " "When village chief get information, s/he should announce right away, shouldn't wait or collect many before making an announcement." "Provide and deliver information faster." "If I didn't go and visit [government units], I wouldn't get [information]. There is no new information." "About additional career, I don't have much information; live in the hill; don't come down often especially in rainy season; don't have time."	"Take care of my kids and help them be able to obtain good education. [I want] knowledge on growing field crops and rice, I'd like to have knowledge on how to maintain a good family." "Trading and business, rearing and taking care of first born baby till grown up." "… I'd like to get advice; this rainy season, the chicken got diarrhea, didn't have any solution except future prevention only. The impact is [that I'm] facing loss, no profit or invested capital gain." "Information and content match [our] needs – growing corn, corn prices which are not from the middlemen." "Markets that take [our] rice." "Would like to know from people that could provide advice.

Local Awareness and Perception

Most local people, who were aware of the use and benefit of computer and Internet and used services of the Telecentre or computer shops, worked within formal institutions or had working-relationship with those institutions. These people were students in formal settings, teachers, employees of private enterprises, TAO staff, staff of some government units, village and tambon chiefs and representatives, local group leaders, and NFE students. One new university graduate mentioned that having the Internet kept him updated on events and he could check news when he felt like knowing something. A novice monk said that he and his friend would like to learn how to use the Internet because they were about to graduate from grade 12 and they were afraid that they did not know how to use it and could not catch up with others at the university level.

The younger generation more than the older generation, perceived computer and Internet use, IT skills and training certificates as being necessary for their career advancement. One young man, who came to learn how to use the Internet, said learning to use the Internet might be an advantage when applying for a job. He could count this as computer skills and include it in his resume. If any job required computer and Internet skills, he could say he knew how to use it. He also mentioned that email could be used for communicating with others, as well as the Internet for searching information. A group of Telecentre trainees accepted that they wanted the certificate to get promotions on salary raises and better positions; two of them mentioned the future opportunity in getting alternative jobs.

Although many rural residents and adults viewed that it was important to obtain updated news and information at a fast speed and the Internet could provide them a lot of information, they usually had no time to obtain the basic skills and to come into the town. A number of interviewees stated that they would like to get some computer and Internet training, including repairing and troubleshooting, but most of them did not know that the Telecentre provided training service and they also did not have time.

"Internet, ... NFE teachers said if I would like to learn, I can contact them, but I don't have time," said one NFE student who lived in a mountainous community.

"I think there are recipes on the Net, but don't have time. When I went there, only children and teenagers, and I don't know how to use, so I think better let them use. Sometimes there are many people and the computers were occupied. I think I better find the information from other sources, from books and etc," comment of a leader of women's group.

In terms of Telecentre services, more than three-fourths of respondents realized the existing of Pong Telecentre as they called it 'computer and Internet shop of NFE'. However, a big portion of people who were aware of the Telecentre's existence did not use the service. Many of those did not know what and how the services were provided. Also, being owned and operated by a government organization, Pong Telecentre was perceived as providing services like normal government departments and operated during official hours, 8.30am-4.30pm, only. For example, a local group leader commented that he knew about the Telecentre, but never used the service before because the Telecentre was part of government units, which were generally open only during official hours and were closed on weekends unlike private business. He said that he came to the Telecentre as he was unable to get all the services he required at another computer shop.

Telecentre Use

The major use of the Internet at the Telecentre was for entertainment and research. Entertainment such as chatting online was the most common use of the Internet at the Telecentre. Typing, surfing the Net and playing games were next in popularity. Most female users usually chatted only, but some of them would also, surf, and search all at one time. A teenager, who came to the Telecentre for online chatting almost every day and came to the public library once a week to return and borrow new books said if there was not the telecentre here she would have had nothing to do and just stayed home. She said it was fun to use the Internet. Male users often played games, but also had mixed use among surfing, chatting and playing games. The length of one- or two-hour use was about the norm for entertainment.

While chatting online was a routine use of Telecentre, researching on the Internet depended on whether students were assigned any report or research task. However, when using the Internet for research and the computer for doing assignments, they often spent a bit more time at the station. Cutting and pasting the needed content from web pages and saving the content into a document format on diskette was commonly practised. In a few extreme occasions, clients spent a whole day or around eight hours at the Telecentre doing research for their reports and presentations. As one grade-10 student said, whenever she had to write a report if she had access to the Internet, she would research online first because it was more convenient. She could save it on a disk or print it out; then edit and pull the information together easily. Also the Internet had more information than the school library

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CHAT FOR ENGLISH SKILLS

What a surprise! Seeing a local young woman chat quite fluently online in English was uncommon. I figured that out on one weekend while a group of young people from a rural village came to learn how to use the Internet at the Pong Telecentre.

"In the past, my English was not good, but I wanted to be good at it. I chatted with my friends from different countries. I learned English through chatting. Right now I am quite fluent in reading and writing. ... I asked my friends to chat with my students so they could practice using English. And assigned one friend for each student. I don't want them to chat in Thai." A teacher of NFE Pong explained.

A female teenager in the group was very keen on learning English. She had a notebook full of English expressions and vocabulary. She got them from teaching-English TV programs and books. She chatted with one of the teacher's friends. "I have the notes beside me when chatting in English. Whenever I stuck and don't know how to respond, I look it up in my notes."

did. Her school was relatively new and so did not have many books available.

Most Telecentre users (72%) only visited Thai web sites and searched in Thai. The rest 28% mentioned searched both in Thai and English, but Thai was the main language used. The web sites and/or search-engines used most by them were sanook.com, kapook.com, and google.co.th. Other web sites that were also used were such as hunsa.com, dekdee.com, thaimail.com, chaiyo.com, etc. About one-third of the interviewees mentioned always found information they needed and one-half said that they usually got information they wanted with occasional exceptions that the information was not enough, could not open the web page, or the content was not updated and uploaded onto the Internet. As a male Telecentre user commented,

> "Today I plan to come and check the exam schedule and location at Ram[kamhaeng University]. [I] know the exam date but don't know the place.... I couldn't open the web page, it took long time to load. It was like this too when I opened it in Bangkok. Usually in the evening, many people try to get onto the page."

One female grade-12 student searched for information on hormones for her biology assignment. Two of her friends had finished the assignment by searching for information from the school library. The girl who searched the Internet said she could not find the information in the school library and she got it from sanook.com by looking at the topic on diseases. She said she was satisfied with the information obtained because it was better than that in books and had more details. She came twice a week. All of them were waiting for another student who could not find information on tenses in English and had asked the operator to search for her.

The Telecentre operator provided advice and helped the clients in research when they could not find the information because either they did not know how to search or did not use the proper key words and search at the right place. "Last year we'd like to have a field trip visit in Chiang Rai, but didn't know where to go. Asked the [Telecentre] staff to search on the Internet for us and we went to see how they made wine. After we came back, we made [wine]" (a women group leader, personal conversation, 23 Sep 2003).

The operator mentioned that there were some up and down periods on Telecentre use depending on seasons. It was usually busier during school break and weekends and less busy during some local holidays because the Telecentre was also closed and when the Internet was unavailable. It also had greater traffic during the end of fiscal year and promotional-and-performance review periods because civil servants and government employees were more interested in checking out their promotional status from government web sites.

Although the majority of the Telecentre users resided and/or worked near-by the Telecentre, a number of users who lived farther around 10-20 km away also came for the services by mostly motorcycle. However, most of them were young. Since the goal of the Telecentre was to promote the equality on information access, it did plan to provide information from the Internet through other channels or media to local people such as farmers. The Telecentre manager stated that they had planned to put up a price board in front of the Telecentre in order to get daily information on agricultural produce prices to the local farmers, but the plan had never materialised due to time, staff and budget constraints. NFE Pong also planed to expand its IT service to other more remote tambons by setting up computer centres at its community learning centres with the facility of one or two computers. It aimed to provide computer training first and would provide Internet service once landline phone was available in those areas.

Strengths and Opportunities

In-house Services and Further Integration

The role of NFE Pong was to build local capacity through training and life long learning programs and it considered Telecentre and library services had an identical function that was providing knowledge and information to the public. The library had been using computer and library software to store its material records and barcode system in managing library loans. The community also recognized that the library had diverse collections; it was awarded by the NFE Office on its excellent service. NFE Pong had tried to make use of these existing services to support its work. Nevertheless, as the Telecentre was still relatively new for the community, it had not yet provided much benefit to people outside the formal educational setting. NFE Pong could possibly integrate this service more into its adult education program and library service, as well as including other communication means in its information service.

- The Telecentre and library

    The Telecentre and public library appeared to be more separate entities although both used to be more integrated in terms of knowledge and information provision at the beginning due to the librarian's personal talent and expertise in coordinating and organizing the integrative activities for children and the young. For example, she had provided training sessions on research both in the library and Internet; however, since she had left the Centre, NFE had not been able to obtain any replacement and those activities had been discontinued. In this case, NFE Pong had truly relied on personal attributes of its staff. Setting up mechanisms for the continuation of those activities and creating an informal knowledge sharing system among staff might help each of them learn skills and gain additional specialty from each other and maintain better linkage between the two services.

- Adult education programs and the Telecentre

    As the local community had high demand on computer and Internet training, the NFE could possibly integrate training provided by the Telecentre more into its adult education courses and curricula. The Telecentre could upgrade some of its training courses and certificates to the standardized level certified by credible institutions. It could also provide supports if NFE Pong offered any computer courses as vocational training.

- Community learning centre and information provision by the Telecentre

    Community learning centre located in each tambon could be an available facility for the Telecentre in providing information needed by community members such as produce prices. Since most NFE teachers had a cell phone and receiving inward calls would not have any cost to them. Walkie-talkies were available at a few community learning centres in the highland area. Pong Telecentre could make use of this facility at the head office in providing information to people in the mountainous communities.

A Strong Team of Staff as Two-way Information Mediator

In the district, NFE Pong was almost the only organization that had its staff often in the field and worked closely with local communities and the staff worked together as a team and helped each other when any of them experienced difficulty. Many teachers had origins or settled in the district and surrounding areas were also enthusiastic to help solve local problems and to contribute to community development. Community members sought advice from most teachers and some teachers also helped obtain and search information when villagers requested. Many of the teachers collected basic data from communities they served. Hence, the Telecentre might consider coordinating with NFE teachers in conducting communities' ICT needs assessment; diversify its service; and provide information to the communities through the teachers either for free and/or for a fee depending on the nature of services and demanding level of tasks.

Staff Capacity and Changing Demands

The staff of NFE Pong was life long learners. They had specific personal interests and skills and most of them expressed the willingness to take additional training in order to learn new hands-on skills and knowledge. A number of them were enthusiastic to acquire a higher level of IT skills. Through interviews, a few government units mentioned they all required some training for their staff at their offices and the kinds of training needed went beyond the general basic level of MS Word, Excel and research online; they would need to manage local databases, networks, web sites, and so on. As NFE Pong had lent its staff to the Telecentre activities, continually improving capacity and competency of staff would be vital for keeping up and matching on-going changes of demand if the Telecentre continued to focus on training. In order to meet specific niches, it could also expand the training service by acting as a mediator and obtaining outside IT instructors in the unfamiliar areas as it had already done on occasion.

Pleasant Environment vs Technical disruption

Friendly, helpful, clean and comfortable atmosphere with air conditioning and reasonable price were the positive qualities of Pong Telecentre cited by many users. However, there were also complaints on crashed and frozen computer, frequent disconnecting of the Internet, other broken equipment, not enough chairs and computers, and an earlier closing hour than stated. Making a new sign and clarifying what could be expected would help reduce the higher expectation of clients. Frequent and consistent pause of service or inconvenience in the use could create annoyance and make clients walk away. When people experience technical problems, taking immediate action to fix them might help in the short-run. Reaching out to other similar projects and finding alternative and suitable technologies might help solve the problem in the long run.

An Important Local Coordinating Point and Greater Local Participation

NFE Pong perceived itself and acted as the local coordinating point among organizations, communities and departments. It had been a local unit that others came to seek cooperation, data, skills and helps. In return, it also gained trust, cooperation and various forms of support from its networks. NFE Pong and the Telecentre might be able to use this strength to further facilitate local co-investment and participation in information diffusion. They could:

- Include the local young and NFE students, who were in an employment-waiting period, as part-time staff or volunteers in searching and delivering both online and offline information needed by community members. Different communication tools such as pamphlet, radio, loudspeaker, wireless, etc could be used for the delivering tasks.

- Provide information to distance and remote communities through networks of tambon and village chiefs and/or leaders of local career groups (e.g., women's groups, micro-finance groups, co-ops and so forth), especially village chiefs and loudspeakers were one of the sufficient means through which villagers obtained news and information. They could coordinate with other local organizations (TAOs, public healthcare units, agricultural extension staff, and World Vision units) which worked with the communities.

- Provide community more detailed information on how the telecentre work through different PR tools and media, in order to make a clear and shared understanding.
  - For example, what services it provided, how it provided these services, and what its clients could expect such as advice on how to use equipment, flexible training hours with learner-centred approaches, and full research service.
  - It could continually promote up-coming activities or training sessions offered to both its target groups and the general public; they could do so easily by sending out invitations to other organizations and putting up a standing board for PR and marketing purposes in front of the Telecentre.

o   It could help communities realize that the Telecentre was not-for-profit and an integral part of the library, aiming to support the learning of community members. It could provide the community about information including its performance, operation and management, supports obtained, successes, failures, and necessary improvements.

- Seek financial support or co-investment from other organizations since they had gained the trust of local stakeholders and good a reputation in the area. A couple of local organizations such as PAO (provincial administration office) of Phayao and the Municipality of Pong had been willing to support the Telecentre. Due to some bureaucratic rules in the spending budget, the Municipality was reluctant to provide additional financial support because the Telecentre belonged to another government department. Nevertheless, the Municipality was willing to invest in some facilities that could facilitate knowledge and information provision services for local communities and would face less bureaucratic complications if the facilities were under its ownership but under NFE's operational assistance. This could be an opportunity for further negotiation and co-investment between Pong Telecentre (NFE Pong) and the Municipality, as well as others.

Lessons Learned

- The quality staff of the owner organization (NFE Pong) and their personal relationships with others could contribute to interdependent relationships at the organizational level and among public, private and government sectors. A strong leadership and service oriented approach of the director and staff at NFE Pong had shaped a give-and-take relationship with other local organizations over years. At the time of establishment and expansion of the Telecentre, other organizations had provided support in return. Private individuals had also provided reliable and reasonable maintenance service, as well as supplies and clients to the Telecentre regularly.

- Creating a unique service focus, supporting the learning and information research of local communities, helped the Telecentre differentiate itself from other similar businesses. That helped it better market its main services while other services were complements for revenue purposes.

- Part-time staff borrowed from NFE Pong, helped to save the Telecentre operating costs, but multitasking divided the staff's attention and did not allow them to dedicate energy and time on the Telecentre. Telecentre work became a second priority or sideline. Nonetheless, a flexible management approach of the leader helped sustain the dedication of the staff although it might not yet help them to achieve a balance between work and family life.

- Besides reasonable price, friendliness, familiarity and comfortable environment provided by the Telecentre and its staff helped establish loyalty of customers.

- Computer equipment and online applications such as karaoke and chat programs, which were widely used for personal entertainment by young generations, could be used for educational purposes, but this was solely relying on the creativity of individuals.

- Noticeably, the control of game playing at the Telecentre helped it gain and encourage more female users. However, with mostly young users also discouraged older adult generations especially having no computer skills to use the computer and Internet service.

- The majority of community members, except the young, were not aware of the services provided by the Telecentre and the benefit the technology could provide them until they experienced it themselves. However, using computer and the Internet for acquiring information required a certain level of skills that most of them did not have. Without an information and communication mediator or champion, they could hardly receive any benefit

offered by the technology and Telecentre. In a number of cases, the information people acquired from the Telecentre or Internet might not provide any immediate or direct impacts on their lives, but rather a set of database at the back of their mind that would help them make decisions or give them options later on; and this was hard to notice.

- Adapting partial business and partial subsidy strategy in the management and operation could sustain the activities of telecentre in providing reasonable information and communication services to rural and low-income communities on a not-for-profit basis. In this case it was owned by a government unit, which it might have to work on people's perception towards the stereotype of bureaucratic services and official working hours.

BAN SAM KHA SCHOOL COMPUTER CENTRE

Introduction

The inception of Ban Sam Kha School Computer Centre was facilitated by the intense interest of school children in ragard to a second-hand computer. It started when a teacher's friend donated a second-hand computer to the school. Students were very excited about it. They lined up to play with the computer during breaks; the teacher had to pose a 5-minute limit for each student. One summer a school graduate came to inform the teacher that the computer was out of order. The teacher was very surprised because the school was closed and the room was locked. The teenager confessed that she and her friends broke into the room through a window and used the computer everyday. This incident inspired the teacher to try to find the way that could help the village young people have more IT opportunities.

> **BAN SAM KHA SCHOOL**
>
> This K-6 primary school had only 49 students. There were five teachers in total including the principal. The trend was the number of students continued to decline due to fewer children born in the village over years. A topic of discussion among villagers had been whether the school closure should happen, due to the Ministry's new resource allocation policy. A number of parents supported the closure because their children could have a bigger learning community at other schools while some felt that the School should be kept opened. If the closure occurred, it would affect the continuation of the Computer Centre.

The teacher and students consulted the matter with their existing networks. The director and staff of the Northern Regional Centre of Non-formal Education (NFE) located in the capital district of Lumpang agreed to help provide computer training for the youth. In November 2000, the Computer Centre was established. The community had provided one additional computer. At the beginning, it had only a few second-hand computers. Some of its ally organizations such as Suksapatana Foundation and the Siam Cement Group (SCG) had gradually donated second-hand computers to the Computer Centre. At first, only one computer could be connected to the Internet and that increased to four. At the time of field visit, it had around 20 computers and 12 of those could access to the Internet because the rest were too old.

The Internet connection was actually not available until late 2002. Village adults opposed the youth's requests to have Internet access. The village committee held meetings to discuss the issue; the idea did not gain approval due to the adult's fear of children being exposed to inappropriate online content. The young people expressed their frustration through a written complaint; commented that village adults seemed to underrate young people's capacity to make appropriate judgements. As a consequence, village adults re-examined their decision and realized that they probably eliminated a learning opportunity of their children and they should have been more open-minded. At the same time, the young had involved their parents and many village adults in Internet training sessions provided by the Regional NFE Centre. Once went through the training, many village adults had gained a better understanding on the benefit of the Internet. The community approved the idea to have the Internet connected at the Computer Centre, but had set up rules and agreements in regard to the youth's use of the Internet.

Operation and Management of Ban Sam Kha School Computer Centre

Services and Facilities

This community-owned computer centre provided services daily from 8am-8pm. It set up some specific yet flexible time periods for different user groups. During school hours, 8am-3pm, the Computer Centre mainly served students in the School. Students could use the computer and Internet to research information free of charge; usually after 3pm the Centre was opened for small children to freely play with the computer such as Micro-World program. It also provided

typing training for children. Outside school hours, it provided services to general public and charged a fee. Nonetheless, when villagers used the computer for calculating their monthly expenses and learning to use the technology, the Centre provided services to them for free.

"At first, it was difficult to convince the village adults, they were afraid, didn't want to come. But once did, they liked it and came everyday. We announced via the loudspeaker, divided people into sessions for training and practices. They liked it, some people also came even though it was not their session – all the computers were full and still didn't have enough for [everyone]," said a young Computer Centre committee member.

FACILITIES AT THE COMPUTER CENTRE

Computer sets:	20 (second hand)
Printer:	1
Internet connection:	Satellite (ThaiCom)
Data transfer:	Limit of 750Mb/month
CD reader:	1 on server computer (out of order)
CD writer:	None
Radio broadcaster:	1 (out of order)
Software used:	Micro World, MS Office, Lanna

All the computers at Computer Centre were connected to a LAN system. Hence, data could be shared among computers. The Computer Centre and villagers had stored their household spending data on the server, but the server had been out of order at the time of field study and the data was unavailable on the LAN system.

The services provided were hourly computer and Internet rental, typing, training and printing. During school break, the operator would provide training on basic computer programs such as MS Word, Excel and typing. However, the president of Youth Group said that they had not provided any training sessions for long time because the villagers had many engagements and were not available, but they would start to provide training again when people were ready. In general, the operator and the young in each shift provided advice on how to use the computer and Internet to clients whenever needed. As a grade-6 student explained,

"If secondary students from other villages come to use, we will advise them only on how to search the information online and how to use the Internet because they mostly know how to use the computer. If it is the villagers, we will help them get familiar with computer, mouse and keyboard first, using typing and Micro World program. Adult villagers and the youth learn together."

The operator mentioned that children and adults exchanged their knowledge and skills. One over 70-year old villager "was good at [typing] and had no problem using the computer," according to the operator. He taught *Lanna*, a northern Thai language, to the young and in return the students taught him how to use the computer and type in Lanna. The Lanna teacher accepted that he learned from the young, but because of his age he forgot many functions and keys on the computer and had to relearn often. The keys for Lanna and Thai were identical on the keyboard; every computer at the Computer Centre was installed with Lanna fonts. Nonetheless, normally many adult villagers had difficulty to work in front of computer because of eyestrain and their unfamiliarity with the new technology.

Many school children also provided research service to adult villagers who did not have the skills. The students used to search information about herbs from the Internet and then broadcast the information through community radio. The Computer Centre was supported the radio equipment which was installed at the computer room. The signal was sent to a receiver at the village chief's house and then broadcast it through the loudspeaker. Unfortunately, the signal receiver was out of order and had not been repaired. As a result, the community radio project had been discontinued.

Staffing

The operation and management team of the Computer Centre was comprised of a teacher who provided a managerial role, a full-time operator, and a group of committees. The teacher acted as an advisor, coordinator and manager of the Computer Centre. She provided advice and informed the committee members on possible options and pros-and-cons when making decisions. She would consult with the committee when making decisions for the Computer Centre. She coordinated with and sought advice and support from various players and networks on issues such as training, field visits, funding, Internet connection and technical problems. The teacher also looked after the financial situation and the operation plan.

The full-time operator was hired under a one-year contract until the end of 2003. She was a technology college graduate and had obtained some computer skills such as basic MS Office and basic computer assembling skills from her studies. She mentioned, "when studied [at the college], I didn't know much about the Internet because got only one hour, didn't use the Internet much. I know how to use it here [the Computer Centre]. Sometimes children know this and that, and then they tell and teach me. Learned the Internet from here." She learned how to send emails, search information on the Internet and build a web site from school children, who received training from the NFC Centre. The operator and the young were attempting to create a web site for Ban Sam Kha village, but it was not completed yet. The operator also said that she was not good at technical maintenance. She helped with typing and bookkeeping tasks and also took care of the Computer Centre on Monday to Friday from 8am to 4pm.

The committee members took turns looking after the Computer Centre. The committee members were grade-5 and grade-6 students at the School and a number of village young people. These young people were mostly also members of the Village Youth Group and were studying at secondary and post secondary levels. There were around 30 committee members in total. Early in the morning, the upper primary students helped clean up the place. From 4-8pm on weekdays and 8am-8pm on weekends, the school children and a number of youth committees who were organized in-groups of three would look after the Centre by following a schedule of four-hour shift. The last shift of each day had to count and record the daily revenue and had to submit the money to an advisory committee member, who was an adult villager and acted as a treasurer. The treasurer had to create a separate account for her own record. At the end of each month, the operator and treasurer would compare their accounting records; this was one of the triangulation attempts for financial transparency.

Financial Management

The monthly revenue generated from service provision slightly fluctuated. In months that the Internet limit was used up quickly, such as September 2003 when it reached the data transfer limit in six days, the revenue was lower than normal. On average, the service generated 2,000-3,000 baht (USD 51-77) per month. During peak periods such as school break, festival and local holiday when the local young people who studied elsewhere came home and young people from other villages had time to come and use the service, it could make over Bht 4,000 (USD 100) per month. It mainly generated income from Internet and computer rental hours, typing service and printing documents in respective order. An additional income source was from 20% of monthly profit made and donated by Yaowachon.com shop.

> **YAOWACHON.COM**
>
> Yaowachon.com (not an e-commerce) was an initiative set up to provide learning opportunity for 5th and 6th graders to gain hands-on entrepreneur and financial management experiences. The school students had run a shop in the school to sell drinks (pop, water, milk, yogurt), snacks and souvenirs. The teacher obtained a 10,000-baht loan for the young to establish the shop. They used 10% of profit to pay for the shop space and another 10% to pay back the loan. At the time of field research, the loan was paid back and the shop had been generating profits. The young had agreed that 20% of the profits from the shop would go to support the Computer Centre.

The Computer Centre had divided its revenues into portions for different categories of expenses such as electricity, Internet connection, reserving funds and salary. The cost of satellite Internet connection was around Bht 2,800 (USD 70) per month and was supported by NECTEC for up to one year. The Suksapatana Foundation provided 3000 baht (USD 77) per month for the operator's salary for one year (until the end of 2003). The School helped cover most of the electricity cost. The principal mentioned that the electricity cost was over 1000 baht each month, but as a small school, it only received a budget of around 200 baht for infrastructure. The principal had considered obtaining solar cell equipment; however, he did not know whether the government would provide that eqiupment because normally the equipment was provided to schools in remote areas that electricity was unavailable. The Centre had tried to save some money for the years to come, as a short-term coping mechanism after the withdrawal of financial supports. It had not been able to cover its operating cost by only relying on the revenue generated from providing service on computer and Internet rental hours. The Computer Centre and community would have to find the solution for the financial matter.

Technical Problems and Maintenance

Internet Connection Difficulty

Initially the Computer Centre connected to the Internet via dial-up modem. The teacher responsible for the Centre explained that the connection via phone was very unstable and disconnected very often. They used to pay three baht per dial for the cost of local phone call only with free Internet connection. But because the connection terminated often, they ended up paying a huge amount of money for telephone bills. As the village was located at foothills, it was more difficult to connect to both wire and wireless communication technologies. According to the teacher, its ally individuals and organizations had cooperated with many ICT teams and experts from different sectors and countries to try to find and test potential solutions on reliable and reasonable Internet access for the Computer Centre. They hoped to find a suitable technology for the Ban Sam Kha community, and then adapted the same technology in many hundreds of other villages that had similar geographical conditions in the country. But after trials, nothing worked well for the site.

The Computer Centre started to connect to the Internet via satellite (ThaiCom) in September 2003. With a limit of 750Mb data transfer, school children searched information on the Internet much less often. In the first month, it reached the limit within six days and for the second month it lasted for more than two weeks. A student commented that when using a dial-up connection, they could have unlimited access but the service was slow. The satellite connection was faster but with limited data transfer, he added. The Computer Centre had considered increasing the limit up to 1.5Gb, but the connection cost would be double and it would not be able to cover the cost; the reserving funds it had amounted around 20,000 baht could only cover a few month of the connection. Through observation, the Internet speed was quite slow and was not very stable and this could be from either the old equipment or the connection, or both.

Hardware and Software Problems

The Computer Centre also experienced some hardware and software problems. Because of second-hand computers, many of them were not compatible with newer applications such as Internet and CD-ROM. Also, dealing with broken computers became a normal phenomenon.

FREQUENCY AND REGULATION

Once NECTEC had tried to assess the possibility of using wireless Internet connection in Ban Sam Kha aiming to make it as a pilot study. It later found out that all wave frequencies in Thailand were regulated by the Post Department and the Department planned to commercialize the frequency range targeted by NECTEC. Although there had been plans to deregulate certain wave frequencies for local community use, the process had been going on for long time and had not been resolved.

Many young people had acquired basic skills on technical maintenance and repair from the NFE Centre and were able to solve some software and hardware problems by trouble shooting and replacing parts. But often, new equipment and more advanced skills were required. The operator mentioned that the NFC Centre occasionally provided well functioning hardware (i.e., hard disk and monitor) in order to replace the broken ones. The NFE staff and NECTEC personals had often helped repair the computer and at the same time taught the young how to solve those problems. Nonetheless, a visitor who helped fix the server commented that one of the causes of the problem was that no one cleaned up the hard disk space and that the memory was too full. Hence, the lack of routine maintenance also contributed to technical problems in addition to the depreciation of equipment.

ICT Use and Ban Sam Kha Community

The Community

The village was renown as a strong community with efficient and transparent management practices and with a high level of social capital. Whenever any conflict occurred between people, mediation was practiced. All members trusted each other and they considered the whole village to be one family. The community applied democratic approach in village management and embraced teamwork and diversity of opinions. The management structure of the village comprised of a village chief, a few village chief assistants, village committees, counseling committees and house-division leaders. It sorted all the households into divisions and the elected leader of each division had to look after the development, well being and tasks assigned to the division. The management team had meetings often, once or more per week. Generally, when decisions had to be made, village committees debated to find the pros and cons and possible options for an issue first. Then, they presented those ideas to villagers in a formal village meeting that at least one member of each household should attend. More opinions from villagers were welcomed. Discussions went on until they could narrow down to fewer options. Voting or seeking consensus was used for the final decision.

Ban Sam Kha: Some Facts	
Ban Sam Kha was a rural village in Lampang province located around 15km from the centre of Mae Ta District and 45km from the capital district of Lampang.	
Population	~650
Households	~150
Literacy	~90% (> 50% below grade 6)
Main economy	1. Subsistent agriculture (rice, garlic, onion) 2. Handicrafts 3. Commercial farming (cash crops, livestock)
Water	Mountain tap water
Transportation	Personal motorcycle, privately run buses
Electricity	Available village-wide
Public phone	2 payphones (radio wave)
Home phone	None
Cell phone	Available but few
Loudspeaker	House of village chief
Radio receiver	Most households
TV set	Most households
Computer	~10 households

However, through observation, the majority of villagers especially women rarely expressed their opinions and mostly sat at the back except a few female committee members.

The community valued self-reliance, local wisdom, rapport and community ties. When any of them was down, the whole community would come together and help find the best possible solution. For example, in the past many villagers were deeply in debts and faced bankruptcy and the loss of their properties and homes. Once other community members learned about their problems, the village had set up a group of debt-relief committee to help those facing bankruptcy. The committee helped negotiate with the loaners such as banks, micro-finance groups and individuals to consider those cases as bad loans and to provide an interest break or freeze, so that borrowers could pay back the initial amount without having to worry about the interest. The committee had together guaranteed for the borrowers that they would pay back the loan by a certain period of time. The community used social pressure to ensure that the borrowers would regularly pay back the initial amount as they agreed until they had totally returned the loan.

Through the use of participatory tools, the majority of village committees identified that the following on going problems were their priorities respectively:

1. Not enough water for agriculture during dry seasons

    Although the village was located at the foothill area where the mountains surrounded were a fresh water source, the moisture evaporated quickly during dry season and some part of the area experienced wildfires. Villagers had faced water constraint for cultivation during dry seasons and the village had to set up agreements on water use and distribution. As a result, they could cultivate rice only once a year and after harvesting rice they could grow some vegetables, but mainly for within-household consumption. Hence, aside from low agro-produce price, water constraint was a partial cause to insufficient income of villagers.

2. Low incomes vs. high expenses

    Since most villagers were in agricultural sector and cultivated mainly for self-consumption rather than for cash, they had to find other sources of income from non-agricultural sectors.

    Most villagers had additional jobs and alternatives. Most households were involved in making decorative paper flowers and many were involved in carving wooden handicrafts. Girls and women normally involved in one of the process in making paper flowers and men usually carving wooden animals according to orders. It was common to see many female villagers helping their partners sand and detail the wooden crafts because craving products generated more income than making flowers did.

    > "Carving is the main career after growing rice, incomes from carving is better, I get continuously, but won't get money in lump sums. ... There are only orders for horses. I like carving, but don't have any other alternative either because other jobs are dangerous, earn not more than 200 baht, around 130, have to go back-and-forth 35-40km and after subtracting expenses and bus fares, it isn't viable."
    > (Male villager, interview, 9 Oct 2003)

    On average of an efficient day, one could make around Bht 50-100 (USD 1.3-2.6) per day from paper flowers depending on which part of process she involved in and her working speed.

    > "For making flowers, I do it everyday, adding petals. If work on it whole day, I can make 1000 flowers.... Would be nice to have careers and jobs for [people] to do. Should support other alternatives. Men make [wooden] horses, but women make flowers and earn 5 baht per 100 [flowers], it's little, not enough for expenses – this is the only one and don't know what else to do," complained a female villager.

    One could make around 200 baht per day from carving wooden horse if he worked 12 hours or more on that day. Nonetheless, most craftsmen carved small to medium-size horses and the price was usually nonnegotiable because many people both inside and outside the village supplied the product. A couple craftsmen had tried to be more innovative in carving different styles and products and they were quite successful; they were able to price their own products and to earn more income. Many villagers did not take time to learn to carve new things because could not afford their time to forgo one to two weeks of income from producing horses. Also, there was no warranty that they could earn the same amount or more from carving other styles, as it took time before they became proficient and the

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UNAWARE CONNECTION

A villager-couple who would like their cows grow nicely and quickly recalled that the village used to have a mulberry-tree-planting project for feeding silkworms and producing silk. But it was not successful because when cows grazed into the mulberry tree plots, they ate all the leaves and the trees died. But they did not know that mulberry was a great source of nutrition for livestock – the animals liked it. They said, "maybe that was why."

This was a cause-and-effect relation that the villagers did not realize. If they had accessed to up-to-date information on agricultural R&D and technology, they might have created appropriate management for both livestock and mulberry tree cultivation.

(See Mulberry for Animal Production, FAO Animal Production and Health Paper 147. Available online: www.fao.org/DOCREP/005/X9895E/X9895E00.HTM)

demand could change.

> "100 people learned carving horses, less than 50 who actually do it. I'd practiced for 2 years until I could sell all [I made]. At the beginning, I used to supply the chief 10 pairs and got 8 pairs returned. I used to burn [wood for] charcoal for sale, but when compare, carving horses destroys fewer trees..." said one craftsman.

Many villagers also got into groups to create career alternatives. A number of villagers got together to raise swine and cattle. Due to low market prices, both groups were facing a loss. Hand weaving was another example. A group of female villagers wove handmade fabric for sale. Because the work was time consuming and the market was highly competitive, the income from the sale was not worth the time spent on making it and the women had difficulty to find the market. Thus they could not rely on weaving to make a living but considered it as an alternative for generating additional income.

Collecting food and produce such as mushrooms and nuts in the wild for sale was also an option for some villagers. Many villagers had tried to cultivate some of those in a seasonal and at a small-scale basis; mushroom and sticklac were two types of cultivation that villagers did not have to spend much time to take care of. They self-germinated and could provide products for several seasons. Sticklac could especially bring the farmers a good additional income per unit of yield if the demand and price was high. Villagers also took labour jobs outside the community; however, a number of people mentioned that working outside the community involved greater risks and higher expenses.

Villagers were more self-sufficient in terms of staple food items such as vegetable and rice. Most of them had tried to reduce unnecessary spending, but they still had certain expenses that they had to worry about. The community saw education for the young as one of the priorities. Villagers invested a lot of money on schooling for their children, particularly when the young pursued higher levels of education and had to live outside the village.

3. Time constraint for developing each individual's own career due to too many visitors

Due to the good reputation as a strong community, the village received several groups of visitors each week. Sometimes, its supportive organizations or government personnel came for a visit, but most of the time, people from other communities contacted and arranged to come for a field study in order to learn from and exchange with the villagers. The villagers had to prepare materials and staff for the reception such as refreshments, meals, tour guides, information persons and so forth. As a result, those who were responsible for taking care of visitors had to devote their time and that meant no income for that day. Therefore, they could hardly find time to further improve their skills, knowledge and techniques for their personal and career development.

Nevertheless, to solve that problem the village committees had decided to charge a fee to visitors who came for a field-visit in order to cover the hospitality cost and the average daily income of villagers who would take care of the visitors throughout their visit. They also agreed to divide the committees and some villagers into smaller groups and to take turns helping with reception tasks. They hoped the solution would work well for both villagers and visitors and would help the villagers obtain visitors that took the visit as an opportunity for learning and exchanging ideas in a serious manner.

4. Unsustainable career options

As mentioned above, the career choices they had could not sustain a sufficient livelihood of most villagers. Many villagers were trying to find and search for better alternatives that could allow them to earn sufficient income while working and living in the community. Many organizations had tried to help and promote alternative career choices, but many of the career projects were not successful.

"For career matter, in fact [each person] has to think and come up with his/her own ideas. [One has to know what he/she likes, then does it from heart. Organizations came to promote career choices and they were not successful because it wasn't coming from people themselves," as a villager commented.

During the field research, the village had received financial and material supports from the Forestry Department to create a herbal orchard. Villagers had taken turns working in the orchard field, from adjusting ground level, adding nutrients, building walking path, laying water tubes and irrigation system, fencing, planting and so on. Because this was a long-term project, everyone who worked in the orchard would receive pay for the day. They hoped to make a more stable income and sustainable livelihood from herbal related business. At the planning stage, some committee members proposed to grow rare herbs for sale, while some proposed to create a complete herbal business line from growing, producing value-added products, packaging, selling to servicing (i.e. spa, massage centre). However, the herbal project was still at the implementing and experimenting phase. Unstable career and insufficient income was one underlying cause that led many villagers getting into debts.

5. Debts

When the society became more industrial, villagers had also more relied on goods and services produced outside the community. The lack of financial management skills, coupling with the influence of materialism, put many villagers into debts. The village had tried to find a sustainable solution to eliminate poverty. A decade ago the villagers tried to reduce external expenses and to increase circulation of money flows within the village by creating more jobs in service and production sectors in the form of groups. There were 39 groups in total. However, many projects were not successful due to various reasons related to operation, marketing and management practice and indeed created more debts for many villagers.

"Doing Household Accounting helped a lot, reduced unnecessary expenses. For example, reduce and quit playing lottery, drinking. In funeral, villagers agreed to not having any reception."

In 2000, they had started to conduct a debt reduction or poverty solution research by using a participatory and action research method. The Thailand Research Fund (TRF) proposed and supported the idea and although the villagers were at first skeptical, they gave it a try. The community set up a team of research committee to take the responsibility. The research committee had conducted surveys on how much debt each family had (~USD 600,000 in total for the whole village) and had tried to find the underlying cause of being in-debt. They had also collected spending information of each household by using self-report technique over a period of time. As a result of household accounting, many individual villagers were able to reduce a portion of unnecessary expenses and the community as a whole agreed to reduce or eliminate some traditional activities that cost them large spending at once. In this on-going learning process, the committees were showed and had involved the use of computer in assisting in the data collection and analysis. More detail is provided in the later section of this report.

In addition to increasing incomes and creating sustainable careers, village committee recognized that the efficiency in financial planning and management was crucial. A number of ally organizations had offered their supports. With consent of the community, a few projects had been initiated; they were community bank and community convenient store. Those organizations provided resource, advice, mentor and training to the responsible villagers on a regular basis. For example, a commercial bank (Krung Thai Bank) provided initial funding with low interest rate for the community bank to manage and reinvest the business. It provided computers with banking programs installed and mentoring staff who monthly visited the community. A number of villagers were skeptical about this project because firstly they had to

pay back the initial capital plus interests at the end of this three-year project and secondly they already had micro-finance groups within the village and thus there was no need for an additional financial institute. Nevertheless, many thought it was a rare opportunity for villagers to learn and understand hands-on banking system and management. These projects required the use of computer at least for bookkeeping; however, tasks involved computer uses were mostly left for young people who had the skills. Other staff said they would learn how to use it, but they did not have time yet.

Local ICT Accesses and Needs

Since radio and television were widely available, the majority of villagers obtained news, information and entertainment through these two media. They normally listened to the radio during the day while working on handicraft products and watched TV in the evening. Another daily information source was the village loudspeaker. Every morning and evening, the village chief provided information such as new regulation, benefit-scheme for local people, warnings, and announcement about activities of the village. A newspaper-reading place was also located on the main road of the village and was close to the village's temple. Its simple-canopy-like building was well maintained. Through observation, people mostly read newspaper in the afternoon and most readers were young people or men. A few different newspapers were delivered daily and were up-to-date. However, most villagers interviewed mentioned that they did not go and read newspaper every day, they read the paper on occasion.

A village library was located in the Ban Sam Kha Temple. The idea of village library came from monks who were enthusiastic to provide information and knowledge resources for the young and villagers. The library had wide range of books and some documentary and educational CD-ROMs. The Temple had a few computers including one in the library. The computer was for storing library database and for playing the CDs, but unfortunately had been out of order. At the time of this study, only one computer in the temple was working properly and was used for document and administrative work. The monk had tried to maintain the computer in a workable condition and had allowed young people to use it when they needed a computer for schoolwork.

Nevertheless, the main concern was not the technology, but the fact that the library had not been utilized. Very few people came to the library and made use of the resource although it was almost the only library in the village and had much more collections than the bookshelf in the school. The village library was well maintained by a group of female teenagers. Few students from other village came to use the library since most villages surrounded did not have one. "The community library has been set up for 2 years. In fact, the temple would like to involve the community. The youth that go to schools come to do research sometimes, not just from this village, from other villages also come.... But books are old too, depends on donation... We've bought some." It was possible that the villagers were too busy and reading was not a life-long-learning habit for the locals. Activities that helped support and promote reading and using the library for information research might be needed.

Map of Ban Sam Kha drawn by students, near the top-left corner was the School and the bottom right corner was located the village chief office. Temple (yellow) and public health centre (red cross) respectively. The paper flower factory and herbal orchard (formerly sport field) were at the bottom-left corner.

None of the villagers had a home telephone. A number of villagers had a wireless phone for both personal and business purposes; wireless phone under GSM was more accessible than others were. Two public payphones were available within the village: one coin phone was located near the Temple and a card phone was installed in front of the Computer Centre. Because the call number of card phone was provided, people from outside could reach villagers via this payphone. However, due to no operator system in place, most inward calls were for the School or Computer Centre.

The village young also communicated with their friends and relatives residing outside the community via email and chat rooms. A few young interviewees who studied and lived in other cities mentioned that they sometimes got village news from their friends and the younger ones via the Internet. They kept in touch with each other on a regular basis. Their younger peers also sought advice from the older ones. But the young living outside could not involve in many of the activities since they were busy studying. Some of them would help out with some project tasks when they came home during semester breaks.

In terms of information needs, most villagers interviewed mentioned that they normally received news from TV, radio and village chief already and could not think of any particular issue or information for which they needed more information. One villager explained, "Don't have anything that I want to know. Don't have any exciting issue that I have to struggle to get information. Any duties I have, I do. Daily routine, work and find food and stuff for meals and for sale." Nonetheless, several expressed their concerns on how to market their products and how to acquire a more sustainable livelihood and stable career.

"I'm farming, onions, yields are not good. I'd like to get information on growing onions and groundnuts better. I'd like to work in a job that I can stay home and bring in stable income."

"I don't know what to want. It's uncertain in terms of market. There's no market available. If others come to buy from us, the price is on them. We have to sell; otherwise [the crops] get spoiled. I don't follow any information."

"Normally I get information from Tambon's agriculture extension worker, but it didn't work, i.e., our rice got aphides, they suggested me to spray some pesticide, but it didn't work.... I'd like to know if there are other varieties that are better as well..."

"...fertilizer use, soil preparation, I'd like to know. Some people said using [chemical] fertilizers eroded the soil. I'd like to know how to get the best yield."

"Sometimes I don't get enough [information], I talk to friends and learn from each other. For example, I grow tamarind for 2 years, didn't get any fruit. Caterpillars ate the flowers. I need to find prevention method. Talked to my friend at Don Fai, he told me that I had to use hormone to kill the insects. His got fruits every year. A bunch of black caterpillars came, in 2 days all flowers were gone. I think it might not have residues because it's only flowers, I use natural fertilizers."

A number of them admitted that they were interested in indigenous herbal knowledge and that they had obtained new herbal information and knowledge through the young who searched the information on the Internet and broadcast it via community radio. Local herbal remedies and practices had regained noticeable recognition from villagers. The two primary reasons were that firstly many medicinal herbs were locally available and mostly free from the ground. In second order, villagers found that modern medicines had many side effects. The local herbal wisdom was the heritage of which villagers felt proud and wanted to preserve. The community consequently initiated a project to collect, translate and revise local herbal medicine scripts.

A portion of interviewees wanted more specific and local information that was mostly related to their careers. For example, one villager needed some detailed technical information on how to repair a specific model of motorcycle because he found that this model was accounted for about 80% of all motorcycles used in the village. He had tried to find the information from the Internet, bookstores and his friend working at that motorcycle company, but could not find any information. One villager said she wanted to know how to make cows grow better and faster because the family had had a good life from cow farming and she would like to do even better. The family gained experiences over years and got information mostly from extension workers and veterinarians. Another interviewee mentioned that he wanted to know the price trend of sticklac, so he could plan whether he should stock and sell it when the price peaked. He got information only from middlemen who came to buy the sticklac in the village. None of the media provided such information because the product and demand was relatively local; a processing factory was located in a neighbouring village.

> **LOCAL CONTENT, LOCAL HERITAGE**
>
> A few villagers inherited indigenous herbal scripts written on palm-leaf books from their ancestors. The script was all written in Lanna. In order to preserve and revive the knowledge, a group of committee was set up to collect and to translate the script from written Lanna into Thai writing of spoken northern Thai, then into official Thai later. They admitted that the translation had not reached 10% yet and had been slow because "the owner of remedies was the village doctor and wanted to keep the knowledge secret, he wrote in puzzles, [we] have to interpret those. They're problems that young people don't know, [we] have to rely on people with experiences."
>
> The committee planned to categorize and index the remedies. They said that it was not at the stage that needed the computer; there were still tasks in the process before the computerizing phase. They hoped to create a book of herbal remedies. However, they expressed the concerns on copyright and patent issue of the remedies.

"We didn't create the village data every year. Sometimes we lack various types of information and data. Didn't collect much data. Didn't record what had been done. We just started to collect data when doing research. [We] consider information being important. [We] get the data and summarize it, and learn together..." (village chief, interview, 8 Oct 2003).

Local Perception towards the Computer and Internet

> "Computer, [I] intend to learn but don't have any chance and time. Would like to know about web site, have to learn, have to find some time. Would like to get one at home, whenever I'd like to punch [the keyboard] I could. It's a technology that [one] should know" (senior villager, interview, 13 Oct 2003).

Many villagers said they used to go to the Computer Centre to learn how to use the compute and Internet with the young. But many of them had not gone there for a while because were too busy and had no time. As a female villager described her routine,

> "This morning I'd got 2kg of sticklac. After meal, went to catch crabs and got 1.7kg – I sold some to... Then I went to pick some vegetable for food, after done that I've been sanding horses. I'll not let the time pass by without doing any useful things. I think that time is money and gold. I work all the time, [if] can get some money I will do."

Most of them expressed that the technology was useful and that if took it seriously, they thought it was not difficult to learn. Adult villagers recognized the benefit of computer and Internet for online research. Several mentioned that without the Computer Centre, their children had to go into the city and that cost more time and money, as well as involving more risks.

However, a few parents expressed their concerns of having to cover the operating costs of the Computer Centre after the outside funding withdrawn: would the parents have to support and pay for the cost of running the service? One parent said most families were poor and 20 baht for their children to play the computer and Internet was a lot of money. The parents mentioned

that although the facility was for their children, Neither they thought that the technology would make their children excel in studies nor they saw any difference on their children's progress between having and without the computer and Internet in the school. They thought it was more important that the teachers taught well and provided good foundation for students.

In addition, these parents felt that the Computer Centre did not have a good system to control or manage how the young use the computer and Internet such as setting up a limit for playing games or other entertaining activities that were not related to education and research. They also concerned about inappropriate content on the Internet. However, when I asked that if the Computer Centre had used filtering programs to block the unsuitable content or web site, one parent admitted that he did not know anything about the technology because had never explored it yet.

> WHAT THE YOUNG SAID?
>
> "I don't go and use the Internet else where because it is 5-10 baht more expensive. If Ban Sam Kha [Computer Centre] increased the price to 15 baht, I still use here, but if it were 20, I wouldn't use."
>
> "When there wasn't the Internet, I felt that my knowledge was dumb, didn't learn well. After having the Internet, better, because [I] got information from other sources as well."

In brief, the perception of many villagers was as this villager who frankly commented,

> "The Internet has a lot of information but has little benefit to the community, people don't use it. People think that today they have done their best, don't continue to learn any additional skills, they have little knowledge, not familiar with computer…. I used to use it, but don't have time. I went to use the Internet, email, [I'm] slow. Collecting data, searching for information has little necessity because I'm not doing business but use labour. If go to click information and don't carve [wooden] horses, then [we] will lose income, if use the time for clicking information to make horses, [we] will earn 100-200 a day. The benefit for the young, 'yes', but for adults, I haven't seen."

Nonetheless, a major micro-finance and saving group (*Sajja Ormsup*) of the village had planned to use the computer to assist in its accounting tasks. The committees had set up appropriate time to learn to use the computer and accounting program. In the past, an organization helped the group create an accounting program by using MS Access, but the villagers felt it was complicated and experienced difficulty in using and making changes. When the committees compared the balances from different accounts and found the results did not all match, they felt discouraged to use the program because they could not figure out what was the problem and where and how to solve it.

The vital factor that made the committees reconsider using the computer for accounting again was the growing amount of money and number of accounts they had to handle. Especially when they had to manually calculate interests for special saving accounts and annual dividends of all members, it was more error-prone. A NECTEC team member agreed to create a basic accounting program from Excel for them. The program would be a partially completed one in order for the committees to create more suitable components themselves once they had acquired the skills. The plan was to build the structure first and the NECTEC staff would sit down with the group to adjust the program and terms used until it suited the needs.

The Use and Benefit of Computer Centre

The majority of Computer Centre users were young people and only a small portion of adult villagers went to use the service at the Centre. Through interviews of 35 female and 28 male villagers, nearly one-half of both genders (45.7% of female and 46.4% of male) used the computer and/or Internet. Around three-quarts of 29 computer and/or the Internet users had used the service of Computer Centre; the rest mostly used only computer at work or home. One-third of interviewees would like to acquire more knowledge and skills on the computer and Internet; they comprised of both IT users and non-users in an approximate ratio of 1:1.
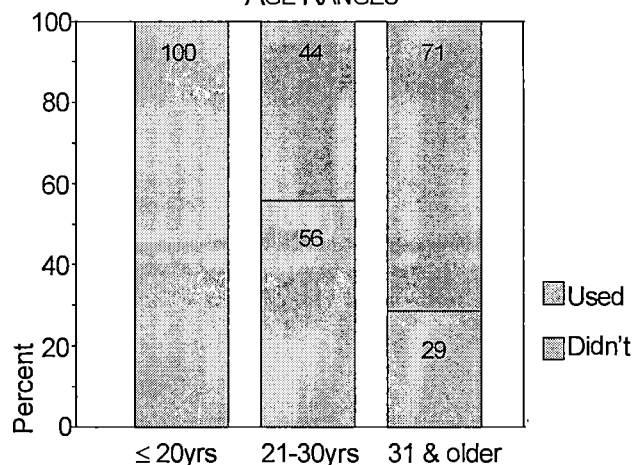
The young users were mostly from Ban Sam Kha: a small portion was from near-by villages. "Few from other villages, once a while, Ban Tung and Huay Ma Kleua will come [to the Centre]. There are few from other Tambons as well. Around 4-5 people [from other communities] each month come to type report and use the Internet" (Centre committee, conversation, 11 Oct 2004). A number of young people admitted that they sometimes used the service of Internet cafes when they went in town and while they waited for the bus to come back to the village; the service charge was in the range of 10-20 baht. However, one Computer Centre committee commented that the majority of users were the same group of people who came often.

Through interviews, the number one use of the computer and Internet was chatting online. Researching information was the second, usually when students needed information for their assignments. Other uses of computer among the young were games, typing, email and practicing and learning how to use the equipment. Most of them used programs and researched information in Thai.
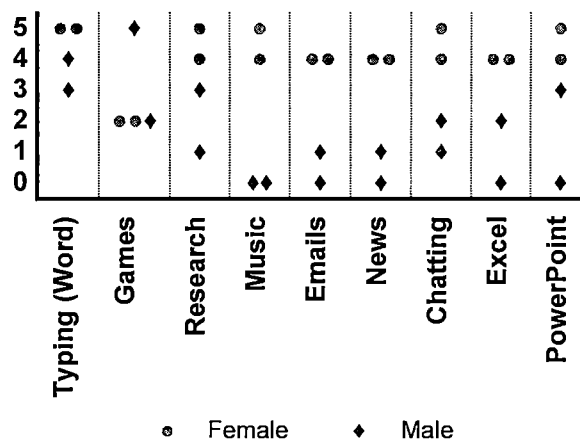
Interestingly, through a focus group activity, female and male teenagers used the technology in a different way. The matrix followed shows what they used the computer and Internet for at different levels. Female teenagers tended to used computer and the Internet for school assignments, community tasks and entertainment and socialized

COMPUTER AND INTERNET USE OF INTERVIEWEES BY AGE RANGES

Age Range	Used	Didn't
≤ 20yrs	100	
21-30yrs	44	56
31 & older	71	29

(Percent)

Matrix Showing What the Teens Used the Computer and Internet for and to What Extent

Level of use: 5 (high) to 0 (not at all)

Columns: Typing (Word), Games, Research, Music, Emails, News, Chatting, Excel, PowerPoint

o Female   ♦ Male

Note: Level of use 5-0, 5 = high and 0 = not at all.

activities at a higher level, while male teens used the technology for the above mentioned to some extent but at a lower level except games. From observation in the field and focus group conversation, male youngsters were more into playing music instruments such as guitar and sports, as well as many other outdoor activities. As a result, they less likely used the computer and Internet as a past time.

Normally, villagers did not use the computer and Internet directly, but through the young. Nearly 10% of interviewees mentioned that they obtained information through young people who used the technology; one-half of those had gone to the Computer Centre occasionally for computer training but not the Internet yet. Moreover, over 80% of villagers who obtained information and computer services through the young were older generation, over 31 years of age. The young had become information mediators in the village in addition to mentors for computer and Internet knowledge and skills.

> ### IT AND THE YOUNG
>
> "Use computer for chatting the most and finding news is the second, search from sanook, kapook, google. Search in Thai" (grade-7 male student).
>
> "I'd like to be a tour guide. I chat with foreigners to practice English, but chat in Thai more often.... Mostly chat with Australians" (grade-9 female student).
>
> "I search the Internet in English, don't know how to search in Thai that well. Mostly go directly into web sites [if for Thai content]. Use google for searching knowledge about English language. If searching other learning subjects such as math, I search in Thai" (grade-9 female student).
>
> "Use Internet for chatting. [Use computer] for typing history of Lanna language, accounting of Brain Bank, typing school reports" (grade-9 female student).
>
> "If there weren't the Internet, then I didn't have information for my studies. I use information from the Internet, from both English and Thai articles. Mostly, I got articles in Thai; the English [ones] have been all translated into Thai. I search from google" (university freshman).

Few villagers mentioned that they asked their children to do things or search the information for them at the Computer Centre. For example, they asked children to obtain headlines of news, herbal medicine usage, agricultural technology, and so on.

A villager said, "Used to ask [my daughter] to search for me.... I'd like to know herbs in our village, what they are used for. Previously they searched and broadcast via loudspeaker. Some herbs we have locally, I can use them. Ask my daughter to search often, about livestock, search chicken breeds that people farm. My daughter will tell me which varieties have good prices."

Some villagers mentioned that they went to the Computer Centre and the children opened the page for them to read on the computer screen. As a villager said,

"Used to read news and herbal information on the Internet – children opened for me. Some herbs I know some I don't. Mostly read news because there aren't many newspapers available. Often read entertainment news because I am fancied about celebrities...."

A few villagers, who were committees of the micro-finance and saving group, accepted that they either went to the Computer Centre or asked their children to look for information on debt and credit situation of people applying for loans. As the village continually conducted poverty and debt reduction research, each household had an account on the server of the Computer Centre showing its loans and expenses situation openly. During the field study, the village research committee had given a pause in collecting all households' spending information; however, the data collection process still went on in a small voluntary-based scale. Although it was mostly the young who performed the task, a few adult villagers also input the data of their household spending onto the computer at the Computer Centre on a monthly basis. The use of computer in categorizing, calculating and keeping the data overtime had helped provide the research committees and villagers a better system to look at the problem. This computerized process had eased in the analysis and had created a systematic database on villagers' financial status.

In addition, the village also relied on the Computer Centre on typing tasks. The village committees sometime had necessity to use computer for typing such as village information and profile, funding proposal, research report, lessons learned from experiment projects, etc., and the youth lent their hands for the tasks. The Community Convenient Store and Yaowachon.com Shop used the computer for bookkeeping. However, the Store personnel mentioned that she made the record manually on a paper notebook first and then inputted the information into the computer later. She accepted that keying data into the computer was not a daily routine although the computer was beside the cashier counter.

> "I used to go to the computer centre and punched [the keyboard]. Went to search information. Learned with children. Knew that if used [the Internet] what benefit I would get. Right now don't have time. If [I] want whatever [information] ask children to do it, and then will get the information. Don't need to do it myself" (village chief, interview, 8 Oct 2008).
>
> "Right now I use the computer to do household accounting, input data into the computer every month. Didn't use as often as in January though, at the time I used it every other day" (24-year-old female villager, interview, 9 Oct 2008).

Strengths and Opportunities

Community Space and Internet Access Points

According to village committees, in Ban Sam Kha community, the School, temple, healthcare unit and village worked together in a collaborative manner. The School where the Computer Centre located was one of the multipurpose spaces for villagers. People felt comfortable and free to come into the School. It provided space for diverse activities and hosted a community bank, the Computer Centre and Long-stay – an accommodation facility for visitors. After school hours, the place was still vibrant. Students got into groups to do their homework; secondary students came and provided advice to the younger on their assignments; the Lanna language course for the young was offered here thrice per week; some youngsters came to play music and sing together and some played soccer. Often, village committees took visitors to the School for a visit and it became a meeting facility at the same time. During school break, it provided various activities such as English, Lanna, and Vipassana (meditation) to the young and involved parents by asking them to collaboratively help look after the children and to join some activities. The openness, informality and friendliness of School made local people feel comfortable to come and learn to use the IT facility; it was a part of the community in a true sense.

Nonetheless, as the School was located at almost the north-end of village, many villagers felt the Computer Centre was a bit inconvenient to them to access especially when they were busy. The Computer Centre might consider the possibility to create a community network and share the satellite Internet connection with other access points. One possible option could be the temple or the community library, located at the south-end.

> "[We] don't use the Internet here because don't have telephone.... I use it at the School around once a month; it's far, and here, I got works to do. If there were at the temple, it's close, I'd go to use. Some villagers don't feel like walking there; they don't have motorcycles, so they don't go. It'd be nice to have it here too. The healthcare unit and temple are thinking to connect to the Internet and would like to get telephone line but couldn't get it.... Nice to have it at the temple because villagers go there often, they come to the temple when there is village meeting. ...Meetings start around 8-8.30pm; they usually come around 7pm. While waiting, they could open and have a look," mentioned one healthcare staff.

The Computer Centre could explore the potential of increasing the greater quota of data-transfer amount per month and diversifying its services as a node. As the community library became the Tambon (group of villages) library and could possibly obtain some funding from related government departments, it might be able to contribute some funding towards the increasing cost of Internet connection if it became another service point. Also more revenue could be generated to cover the Internet cost if service charge were an option. In addition, healthcare unit could probably match a portion of financial contribution if it considered to be a subscriber user of the Internet service at the temple or to access directly at its office.

The experiment might provide a learning opportunity to villagers and young people. The Computer Centre could try out both wire and wireless technologies and possibly locally made equipment for sharing the Internet access within the community. It might be able to learn some technical experiences from Indonesian grassroots in using inexpensive wireless technology and equipment in creating community networks (see http://sandbox.bellanet.org/~onno). Creating a village technical team would be vital in order to maintain and sustain the network without having to rely too much on outside technicians. The Computer Centre could involve young people besides committees of the youth group in this process. Village teenagers who might be interested in technical component could obtain hands-on skills while maintaining and building
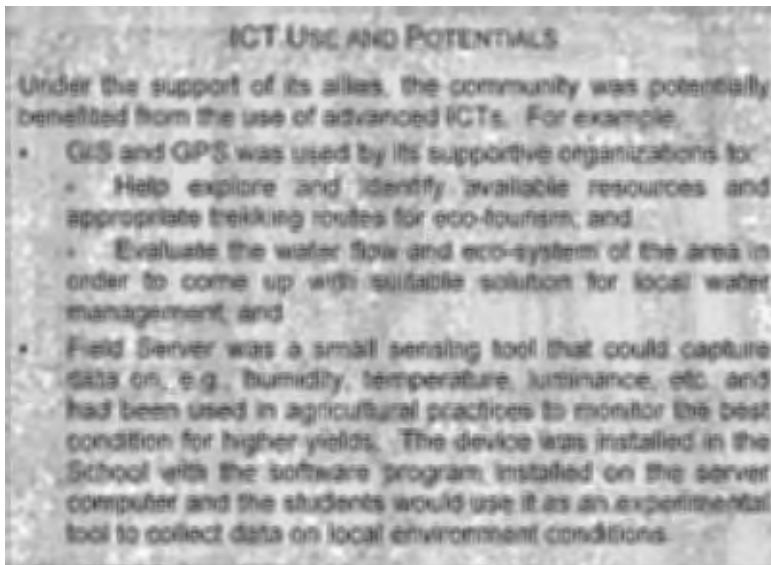
the network. It is important to continuously create knowledge and skills transferring and sharing environment among villagers, and between villagers staying locally and village young people who studied and worked outside the community.

Combining the Traditional and the New, the Local and the foreign

The community members realized and felt proud about their own values, local wisdom and capability, but at the same time they accepted that they had limitations and were opened to suggestions and alternatives. They willed to apply and incorporate new ways of doing things into their life styles and beliefs where they saw appropriate.

> **ICT USE AND POTENTIALS**
>
> Under the support of its allies, the community was potentially benefited from the use of advanced ICTs. For example,
> - GIS and GPS was used by its supportive organizations to
>   - Help explore and identify available resources and appropriate trekking routes for eco-tourism; and
>   - Evaluate the water flow and eco-system of the area in order to come up with suitable solution for local water management; and
> - Field Server was a small sensing tool that could capture data on, e.g. humidity, temperature, luminance, etc. and had been used in agricultural practices to monitor the best condition for higher yields. The device was installed in the School with the software program installed on the server computer and the students would use it as an experimental tool to collect data on local environment conditions.

"When use information, we have to integrate local wisdom, compare and see which one is good. It has to be old and new combined. If there weren't the Internet, for learning, sometimes we're slower than others are; especially we live near the wild…. We know our village's problems better than others do. When have problems, we all have to help, anything that is beneficial to the village, we have to find the solution together. To wait for [government] departments to help [us], it might not be possible. We have to help ourselves as much as possible. Rely too much on outside factors, then we are not ourselves. In this village, we have to manage our own resources. If the local wisdom has limitations and we have to rely on outside factors, we will not refuse but have to apply to use. Villagers have to find the solution together. [If] give us funding, we have to manage and do it by ourselves, then it will be our benefit, [the benefit] will be within our village" (village chief).

Some traditional and advanced ICTs could potentially be a part of tools for solving the village's problems and for serving the information needs. While the Internet was an up-to-date and timely information source, the village loudspeaker and community radio, as well as poster boards, could be information-mediated channels made the information more accessible for the locals. If the Computer Centre considered to provide information and research service to the villagers since most people did not have any computer skills and hard to find time to come and learn to use the equipment, it was crucial to make people realize the existence of the service. It could set up a mechanism that allowed villagers, who did not yet have the skills, to conveniently request for the research of information needed and to have the information delivered in a suitable way. The Computer Centre and the village might collaboratively find the potential of communication tools and technologies and explore the way to assist village members in utilizing them for acquiring information and data for better planning, decision making and management.

A Learning and Sharing Community

Learning by doing was a trait that ingrained in the community members at all age. For example, the young had set up a bank, called Brain Bank, to provide loans with no interest for career investment to villagers. In addition to financial management skills, they also acquired vocational experiences through the borrowers by posing a loan condition that the borrowers had to provide learning opportunities on the business invested to the young if any of them had the interest.
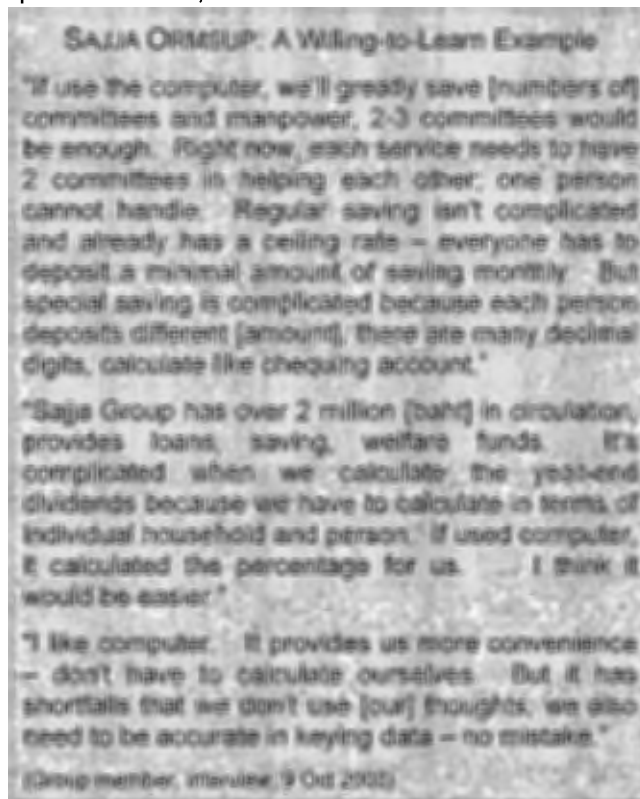
Adult villagers had also gone through many trials-and-errors. They had experienced failures, but the important things seemed to be that they knew why and learned the lessons.

> "How to help the villagers acquire the analytical skills and be able to better manage and administer their own families. It may not possible to rush them. We may have to let them learn by themselves. I'd like the villagers to help themselves, to know about themselves first, to learn from others who have already done well and have been successful. Let them learn from the failures and examine why they failed...."

The learning approaches and experiences of both the Ban Sam Kha village and Computer Centre were useful for other communities and for similar initiatives elsewhere when the lessons were shared. The Computer Centre had exchange ideas and experiences with other school computer centres and some community computer centres. Nevertheless, it could possibly reach out and network with more organizations in other sectors. that had worked on telecentre (computer centre, community information centre, community Internet centre, community learning centre, etc.) related initiatives. It would be worthwhile for it to explore and discuss the dynamics of technical solutions, service provision and management strategies with others at a regular basis. At the same time, it had a lot to share.

The locals could always share their experiences, knowledge and skills in many areas such as funding management, governance practice, local participation, learning process and thinking system. "Funds that government provided for 20-30 groups, over 10 years now, they still remain, never disappear. The officials admire [us] because the management and administration within the village is good. Legume fund, livestock medicine fund. When people borrow the money for investment, after they sell produces, they pay back, so [funds] are still there." The village normally shared and exchanged its lessons learned and experiences with others through field visit and through hardcopies of village and project reports. During the field study, a video-production team from Krung Thai Bank was producing a documentary aimed to captured the local knowledge, development projects and experiences of the Ban Sam Kha and would widely distribute the video to other rural communities. The village committees had requested for copies of the documentary in both VHS and CD-ROM formats and would cover the cost of those copies; the village planned to use it as an introductory presentation when people visit and also to sell it to interested visitors.

Besides printing and traditional electronic media, the Internet could provide additional potentials in the practice. Since the Computer Centre committees and the operator were in the middle of creating a web site of Ban Sam Kha, the village and Computer Centre could also use the Internet as another knowledge-sharing medium. The faster and wider audience and networks they could reach, the more local communities and people, including Ban Sam Kha villagers themselves, could benefit from knowledge sharing.

SAJJA ORMSUP: A Willing-to-Learn Example

"If use the computer, we'll greatly save [numbers of] committees and manpower. 2-3 committees would be enough. Right now, each service needs to have 2 committees in helping each other; one person cannot handle. Regular saving isn't complicated and already has a ceiling rate – everyone has to deposit a minimal amount of saving monthly. But special saving is complicated because each person deposits different [amount], there are many decimal digits, calculate like chequing account."

"Sajja Group has over 2 million [baht] in circulation, provides loans, saving, welfare funds. It's complicated when we calculate the year-end dividends because we have to calculate in terms of individual household and person. If used computer, it calculated the percentage for us. ... I think it would be easier."

"I like computer. It provides us more convenience – don't have to calculate ourselves. But it has shortfalls that we don't use [our] thoughts, we also need to be accurate in keying data – no mistake."

(Group member, interview, 9 Oct 2002)

Local Practices, Information, Market and Niche

"There are insects, diseases and problems with chicken eating the vegetable. We don't use any chemical because we consume [the crops] ourselves. The village chief and doctor prohibit [pesticide use] as well. In the rice paddy, we don't use herbicide, each family pull grass in its own field.... It's better to grow our own, we can't earn much from selling, but when we buy it is expensive. There is no market if we grow for sale," said a villager.

The Computer Centre could work together with the village and its allies to try to find out how ICTs could help promote strengths and could market unique products of the community. Many local resources and practices in Ban Sam Kha would be marketable if the linkage for consumers and markets were created.

In-depth, accurate, timely Information on market demands and supplies, market trend analysis and potential niches was what the locals needed aside from locally specific data and information.

"I follow agricultural news, for example, what is good to grow this year and what the market demands. But [they] only say what [we] could grow that the market might want. This year they don't want us to grow garlic because Chinese garlic will flood into Thailand, ask us not to grow more or reduce, it's good if we could reduce. This year, there's China-Thailand free trade [agreement], the agricultural sector said. ... China is cold, better for growing [garlic]. Its variety, we can't grow here. Ours is Si Chom Poo [pink] variety, tastes stronger, but stores/restaurants choose Chinese variety because it's cheaper.... When Bangkok people come here, they ask for the Northerner [garlic] more [than other] because it stays [fresh] for long time; [...variety] got spoiled in 3 months, they sprayed a lot of chemical... it comes out before local villagers'. They want it to be dry, so have to spray chemical and can sell it sooner..." explained a villager.

Distributing channels and consumer links would be vital if the locals looked for and marketed niches that the village could provide such as organic produces and locally specific variety.

Skills and knowledge on researching and analyzing information, marketing, and business planning would also benefit the locals on decision-making and management of production and product-distribution. This could be a long process since many local people lack IT skills and it would take some time for them to be acquainted with the technology and could use it on their own. It would be possible when local mediator is in place and is involved in the learning process. Nevertheless, building the capacity is a continual and long-term process while information mediator could be a short-term and medium-term coping-mechanism.

Finding the Balance: Community vs Family Responsibility

Seeing the young as the village's development manpower in the long run, the village set the opportunity for learning and capacity building of the young to be one of its priorities. Villagers saw the importance of education and benefit of technology for the young and tried to provide support and cooperation as much as they could. For example, "When children went for the Internet training at NFE Centre more than 10 nights, villagers made the food and paid for the accommodation. [Children] had fewer: we stayed to take care of them.... Sometimes, parents went there in the evening, brought them food, came back at mid-night." The village adults also tried to involve the young in all village projects and tasks as they realized young people's potentials and skills and would like to provide hands-on learning experiences to the young.

Young villagers were involved in activities of the community bank, community library, revision of herbal remedies, Computer Centre, debt reduction research and so on. In addition, the young had also initiated their own learning projects such as the Brain Bank, Long Stay, and Yaowachon.com Shop. Some projects or tasks might draw and demand greater amount of time, energy and manpower than others. Consequently, few other duties and projects might

receive less attention and might be neglected sometimes. As a parent mentioned, "In the past the young took turns taking care of [the library]. Lately there are many tasks from the Computer Centre, then they rarely go to look after the library." One community member also observed, "children involve in lots of activities in the School, sometimes late [at night]. This leads to the lack of personal time within the family. Parents complain that [children] do so many things and don't stay home even on weekends."

The workload and busy schedule also affected many villagers' family and personal lives. Many villagers were enthusiastically participated in various village tasks and projects on top of their routine jobs and duties. Many village committees admitted that they felt they did not have enough time for their families and perceived this problem as one of the priorities. Open discussion and better communication among all parties of the village could possibly help the community come up with a suitable distribution of tasks and allocation of human resources, and a better balance between community responsibility and family life.

Lessons Learned

- A powerful champion, either it was one person or a group of individuals, with well-established connections at the decision-making level could help draw various attentions and bring cooperation, as well as resources (human, knowledge, technology, etc.), into the development milieu of a rural community. In this case study, the networking activity was not performed only at the top level, but at the grassroots level as well. The impact of radial networking helped create an expanding well-knitted relationship among networked members. Through its champion, the Ban Sam Kha School Computer Centre initially equipped with only two computers had grown to have 20 computers with Internet connection and to provide supports to other community activities. However, all of these would not happen without the local community's own initiative and social strength.

- Through a collaborative learning process and under an alliance relationship, grassroots, public, government and private sectors could work hand-in-hand towards a goal of rural community development. In this case, all parties considered themselves a member of alliance. Their perception toward the community was more subjective as they felt proud of the community for its success and tried to lend their hands when it facing stumbling blocks. The community's allies had coordinately worked on the issue of ICT access and had tried to make the technology and its potential use work for the local people. Beyond the initial founding intention to provide learning opportunity to the young, the allies had assisted the Computer Centre in starting to provide services to various development projects of the community.

- Community's self-help standpoint and self-awareness on its own strengths and limitations, as well as its openness, were important factors that made it be able to involve organizations and individuals from diverse sectors in its learning and development circle. In the case of Ban Sam Kha community, all the helping hands and supportive resources came from the faith and trust that the supportive parties had for the community and its strengths. They believed that the community could do it.

- The computer and Internet technology could provide opportunities for the whole community, especially children and adults, to learn together and from each other and to accept each individual's unique capability when the openness was in-place.

- When private and business sectors involved or were involved in rural community development, they could play roles much more than a financial supporter. As in the case of Ban Sam Kha, the private and business sectors had become mentors, demonstrators and counselors on IT and ICT use, retail business, banking and financial management, and so

forth. Their experiences, knowledge and skills had been fed into the learning process of local people and vice versa. The rural community could learn some alternative ways and tools that they might be able to adapt and apply to help solve their problems in their own contexts.

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