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Towards Knowledge Society

A Handbook of Selected Initiatives in South Asia

D.Net
Development Research Network

In Association with

Bellanet, Nepal
Centre for Science, Development and Media Studies, India
Sarvodaya Shramadana Movement of Sri Lanka, Srilanka

Towards Knowledge Society:
A Handbook of Selected Initiatives in South Asia

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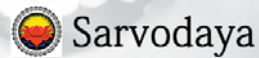*Shah Md Ahsan Habib,* D.Net, Bangladesh
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The views in this publication are those of authors only and do not necessarily reflect the views of the organisations involved in this publication

Content

Foreword

The ICT4D issue is now getting priority in development activities around the globe and South Asia is no exception to that. Organisations working in ICT4D have been meeting in different forums to discuss their ideas and share their experiences. Such information sharing process has not only generated enormous enthusiasm, but also triggered collaboration among the organisations on the ground. This handbook is an example of such collaboration.

To support the growing need for information and knowledge regarding ICT4D initiatives, practitioners and organisations in South Asia, a group of GKP Members have collaborated to produce this handbook as a resource for individuals and organisations working in development. The handbook contains ICT4D initiatives of selected South Asian organisations covering key aspects of their activities including impact, innovation, partnerships, management as well as the challenges they face in implementing their ideas. The infromation gathering approach and preparation of the cases were designed in such a manner so that readers and users can easily understand the ideas behind the models and can make comparisons across models. It is hoped that the understanding will help others learn and fuel the interest to replicate similar models and initiatives. It is also hoped that the information will help organisations connect and collaborate to expand the benefits of ICT to more people, especially the disadvantaged.

I believe this partnership effort of GKP members in South Asia, namely between D.Net of Bangladesh, Bellanet of Nepal, CSDMS of India and Sarvodaya of Sri Lanka will benefit the readers and ICT4D practitioners not only in South Asia, but also around the world.

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IV

Preface

South Asia is one of the most active grounds of ICT4D initiatives. In many instances, South Asia is the pioneer in creative ideas and their successful realisation on the ground. The instances of successes and failures are often discussed in various seminars, workshops and other forums organised in different parts of the world, and some times power point presentations and short write-ups are also available. However, there is a severe dearth of detailed information and insights about the initiatives. Such a situation leads practitioners replication or picking certain elements of initiatives, fail to get adequate information about them; repeat same mistakes in implementing similar kind of initiatives, which were already tested elsewhere; and try to re-invent wheel due to lack of information. The publication of this handbook is a step to meet the deficit and to share selected ICT4D initiatives of South Asia among practitioners, policy makers, development partners, academicians and students.

The process of information collection for case preparation has not been an easy task. A number of project sites have been visited and a good number of people who were involved in the planning and implementation of the project activities are met. Publications, reports and websites of the different organisations and projects have also been used for gathering information. Comments and opinions from the concerned persons and authorities have been considered before finalising the cases.

Acronyms

AC   : Alternate Current
AEC   : Agro Enterprise Centre
AIDS   : Acquired Immune Deficiency Syndrome
BBC   : British Broadcasting Corporation
BdOSN   : Bangladesh Open Source Network
BDT   : Bangladeshi Taka (Currency)
BFES   : Bangladesh Friendship Education Society
BICs   : Business Information Centres
B2B   : Business-to-Business
B2C   : Business-to-Citizen
CBOs   : Community Base Organisations
CCIs   : Chamber of Commerce & Industries
CDMA   : Code Division Multiple Access
CD-ROMs : Compact Disc-Read Only Memories
CENWOR : Centre for Women Research
CF Meeting : Char Facilitators Meeting
CiCs   : Community Information Centres
CLCs   : Computer Literacy Centres
CLICK   : Community for Learning Information Communication and
                   Knowledge
CLP   : Computer Literacy Programme
CMC   : Community Multimedia Centre
CMS   : Content Management System
CS   : Civil Society
CSC   : Common Service Centre, Community Servise Centre
CSO   : Civil Society Organisation
CUC   : Char Unnayan Committee
CUP   : Char Unnayan Parishad
DDG   : Decentralised Distributed Generation
DFID   : Department for International Development
DIT   : Department of Information Technology
DST   : Digital Story Telling
ENRD   : E-Network Research and Development
FGD   : Focus Group Discussion
FIT   : Forum for Information Technology
FM radio   : Frequency Modulation Radio
FNCCI   : Federation of Nepalese Chambers of Commerce & Industry
FTP Server : File Transport Protocol Server
GEM   : Gender Evaluation Methodology
GIC   : Government Information Centre
GOSL   : Government of Sri Lanka
G2C   : Government-to-Citizen

HIV	:	Human Immunodeficiency Virus
HLCIT	:	High Level Commission for Information Technology
HSC	:	Higher Secondary Certificate
HURENDEC	:	Human Right and Environment Development Centre
IBCRF	:	International Breast Cancer Research Foundation
IBM	:	International Business Machine
ICCI	:	Islamic Chambers of Commerce and Industries
ICT	:	Information and Communication Technology
ICTA	:	Information and Communication Technology Agency
ICT4D	:	Information and Communication Technology for Development
ID	:	Identity
IDRC	:	International Development Research Centre
IIN	:	Industrial Information Network
I4D	:	Information for Development
IL&FS	:	Infrastructure Leasing & Financial Services Ltd.
INGOs	:	International Non Government Organisations
IT	:	Information Technology
IP	:	Internet Protocol
IPR	:	Intellectual Property Rights
ISP	:	Internet Service Provider
Jeeon-IKB	:	Jeeon Information and Knowledge Base
KADO	:	Korean Agency for Digital Opportunity
KOIKA	:	Korean International Cooperation Agency
LAN	:	Local Area Network
LFW	:	Logical Frame Work
MB	:	Mega Bytes
M&E	:	Monitoring and Evaluation
MOU	:	Memorandum of Understanding
NeGP	:	National e-Governance Programme
NGO	:	Non Government Organisation
NIC	:	Network Information Center
NITC	:	National Information Technology Centre of Nepal
NLSA	:	National Level Service Agency
NNPAC	:	Nari Nirjatan Protirodh Andolon Committee
OLR	:	Organisation Learning and Reflection
OM	:	Outcome Mapping
OSC	:	Open Source Council
PDA	:	Personal Divide Assistant
PCs	:	Personal Computers
PDF	:	Portal Document Format
PDT	:	Plantation Development Trust
PRA	:	Participatory Rural Appraisal
PSC	:	Project Steering Committee

PSTN	:	Public Switched Telephone Network
PV	:	Participatory Video
R&D	:	Research and Development
READ Nepal	:	Rural Education And Development
SAPInt.	:	South Asia Partnership International
SDA	:	Social Development Agency
SCA	:	Sustainable Competitive Advantage
SDC	:	Swiss Agency for Development & Cooperation
SDCs	:	State Data Centres
SHGs	:	Self-Help Groups
SLA	:	State Level Agency
SLC	:	School Leaving Certificate
SMEDA	:	Small and Medium Enterprise Development Authority
SMEs	:	Small and Medium Enterprises
SMS	:	Short Message Service
SPEED Trust	:	Society for People's Education, Empowerment and Development Trust
SSC	:	Secondary School Certificate
SWAN	:	State Wide Area Network
TRC	:	Telecom Regulatory Commission
TV	:	Television
UCSC	:	University of Colombo, School of Computing
UN	:	United Nations
UNDP	:	United Nations Development Programme
UNESCO	:	United Nations Educational, Scientific and Cultural Organisation
UNFPA	:	United Nations Fund for Population Activities
UNICEF	:	United Nations Children's Fund
UNIDO	:	United Nations Industrial Development Organisation
UP-CTSP	:	Unlimited Potential-Community Technology Skills Programme
UPS	:	Uninterruptible Power Supplies
US	:	United States
USA	:	United States of America
USB drives	:	Universal Serial Bus drives
USD	:	Currency of United States
VAB-NJ	:	Voluntary Association of Bangladesh, New Jersey
VDC	:	Village Development Committee
VLE	:	Virtual Learning Environment
VPN	:	Virtual Private Network
WSA	:	World Summit Award
YATV	:	Young Asia Television
YCMC	:	Youth Community Multimedia Centre
YPRDO	:	Youth led Poverty Reduction through Digital Opportunities
YPSA	:	Young Power in Social Action

Part I: Access to Information and Knowledge

Pallitathya- A Sustainable Information and Knowledge System for the Poor and Marginalised

Bangladesh

D.Net (Development Research Network) has been dedicated for pursuing research and action programmes for mainstreaming, interalia, Information and Communication Technologies in poverty alleviation and economic development of Bangladesh since 2001. 'Pallitathaya' is now a flagship porgramme of D.Net. The programme has already received two recognitions. The livelihood content developed for rural community model under the project was nominated as best e-content from Bangladesh for 2003 WSA Awards; and the project bagged the Global Gender and ICT Award in 2005.

1. Pallitathya Programme: A Journey

1.1: D.Net launched its ICT4D action research programme titled "Pallitathya" (Rural Information) in June 2003. The broad objective of this programmet is to bring in new solution and insights for improving access to information and knowledge so that rural people can take informed decisions in their daily life and exercise their rights through increased awareness.

1.2: In attaining the broad objective, a set of specific objectives were identified: to study, specific end-user information requirements by the rural community of Bangladesh; to develop and test most suitable information content in terms of modes of presentation and degree of conversion of existing necessary livelihood information so that community people can handle them and share among themselves; to identify the effectiveness [both appropriateness and cost-effectiveness] of different ICT-based delivery channels to make the digital contents available to the end-users; to develop a set of ICT-based information centres in selected villages and test various

options of sustainability of ICT based information centre in rural community; to investigate the relationship between local ownership and willingness to pay for viability of the information centre; and to assess the impact of the information centres on rural livelihood of the community people.

1.3: It is expected that a broad group of rural communities would be benefited out of the initiative. The groups/communities those are targeted by the project include farmers, students, women, youth, children, self-employed, micro-enterprise, rural poor, NGOs, and local government.

2. Moving Towards Right Direction: Information Need Assessment

2.1: The focus of the programme from the very beginning has been the people and their problem. D.Net felt necessary to understand the livelihood pattern of the rural people and identify their information and knowledge gap, and D.Net team initiated a "joint research". The research team was formed with graduates from various disciplines and a young group from villages having various levels of "formal" education and life experience. Involvement of rural "barefoot esearchers" in the research process added new dimension in the research as it helped the research team to deeply intervene with the key local representatives of different groups. Besides, the research used different participatory tools and techniques especially different PRA tools to identify information requirement of various segments rural communities.

2.2: The needs assessment identified the knowledge gap and information requirement of the rural communities in different broad areas. The broad areas of knowledge gap include agriculture, health, human rights and legal issues, education, non-firm economic activities, rural employment, disaster management, government services, and general awareness related information. As the study identified, many of the common problems of livelihood were handled by the community people using their traditional and

indigenous knowledge. In regard to information and knowledge, neighbours had been the major sources of information in dealing with the agricultural production and marketing. Shop owners, experienced farmers, block supervisors, agricultural extension offices, NGO workers were also used as sources of information though less frequently. In dealing with health problem and diseases, indigenous doctor, local doctor and clinic, health officer, health worker, local hospital, doctor and clinic in nearby towns had been the major sources of information. Radio programmes, relatives, neighbors, TV programmes, NGO workers are also found to provide valuable information in regard to health. Local teachers, relatives, neighbors appeared to be the major sources of education related information.

3. Creation of Information and knowledge Base: Digitised Local Language Livelihood Content

3.1: As an outcome of the Need Identification Research, D.Net research team found that there was a huge gap and great potential to offer information and knowledge base in digital forms - both offline or online. However for effective dissemination of required information and knowldge through Pallitathya Kendra, formulation and identification of local language contents were a pre-requisite task. Ensuring required coverage and user-friendliness are obviously very crucial challenges of such a job. Thus, D.Net followed a rigorous process in the content development.

3.2: Board content development areas were identified based on the needs assessment and a group of young scholars in different livelihood areas were selected for content development. The content development team was trained and provided with a set-up of computer with necessary facilities of internet, telephone and software for typing, converting into web-enabled format and image editing and other activities. The content development activities as identified by the project research team were: compilation of information from raw contents and putting into that in a prescribed format; digitization of content; attachment of relevant pictures; development of a database system and data entry for a directory database; validation of content

by infomediary and rural users to get first hand feedback on content structure, ensuring user-friendliness; and posting of content in a common resource pool (CD based offline system) software named as Jeeon-IKB.

3.3: Following a very rigorous process, the content development team primarily produced nine CDs in the broad nine thematic areas-agriculture, health, non-farm economic activities, education, appropriate technology, social awareness, rural employment, disaster management, and law and human rights. The content was developed with texts, pictures and sketches with the presumption that pictures and sketches would help better explain the texts to both the local service providers and self-browsing users. Raw materials for the contents were basically collected from various sources as research reports, report on technical innovations, books, periodicals on relevant topics. Integrating local partner and validation by the experts were important features of the content development process. Content development agencies, government and private research organisations, NGOs, private organisations and individuals had participated in the content development activity. The content base Jeeon-IKB is now available through an online system on *www.jeeon.com.bd.*

3.4: Other than developing content, a directory database was set up to provide information covering address, locations, availability of services and products, prices of products and services etc. that are required by the rural communities. As part of designing the directory database, the research team had identified 20 major thematic areas where people used to visit for different purposes. Eighteen major locations in 15 districts had been identified for collection of information of various service providers. The directory database is now available as Jeeon-Thikana.

3.5: For broadening thematic areas, enriching exiting contents, and making adjustment with the changing needs, the content development team of D.Net has been involved in their tasks considering the process as a continuous one. D. Net's different technical reports on the programme rightly identified that information need of the rural people is not uniform and demand for

certain information in one location cannot certainly mean the same level of demand in other location. Like content development process, directory data entry is a continuous process and going on under the project.

3.6: The next emerging need was the management of the developed content and the database. A dynamic website (*www.jeeon.com.bd*) was restructured for content management and up gradation. Bangla embedded Unicode compliant fonts are used for content posted to the website by which people with any operating system can use it. A google type Bangla search engine was also developed and linked with the content.

4. Setting up Model Pallitathya Kendra: Reaching Rural Communities

4.1: After the development of a set of livelihood contents and the directory data base, it was time to test the effectiveness of the developed content. For that matter D.Net decided to set-up four information centres [Pallitathya Kendra] in four villages in four districts of the country. Selection of the location was one of the initial tasks. A set of inclusion and exclusion factors was considered for location selection under the programme. Factors of inclusion were mainly: diversity of economic activities; option for electric and internet connectivity; urban centre but not too close-by; familiarity of local youth with ICT; cooperative local group and willingness to serve people; local ownership of phone/fax shop, handicrafts producer, Trade/Business; access to some other villages; frequency of visit to that location by different groups (women, youth etc.). And factor of exclusion was socio-political instability that was mainly judged considering occurrences of political clash and violence during last two elections; and incidence of violence against religious and ethnic minority in recent past etc. A survey checklist was developed for verification of the criteria and 12 locations were surveyed. A group of researchers visited the locations in 5 districts based on some secondary information. In the process of finalisation of centres, several meetings were organised with local elites, political power centres and civil society.

4.2: Following an extensive process of location selection, four Pallitathya Kendra were set up in four remote villages in four districts. The primary task of the centres was ICT awareness development among community beneficiaries and promotional activities. As part of the awareness development programmes and promotional activities of the Pallitathya Kendra, several measures were undertaken. A seven-minute documentary on the concept of the Pallitathya was prepared. Flash animations on five agricultural issues were developed and a set of video documentaries were collected from other sources. Posters, signboards and banners were developed and displayed in the public places of the villages to let people know about the services available in the Kendra. Leaflets were distributed among the villagers. The video film documenting the activities of the Kendra was shown at different places as well as at the Kendra. Moreover, inaugural ceremonies of the centres were organised in such a manner so that greater participation of government officials, local organisations, local government representatives could be ensured.

4.3: For effective information dissemination and to reach all the target beneficiaries, D.Net integrated infomediary with the Kendra. Infomediary, who is essentially a human interface, expected to build a bridge between ICTs and rural people for easy access to livelihood information by all. Two types of infomediary were deployed: centre-based and mobile infomediary. The mobile infomedairy was generally a female information worker called mobile lady. This was a component of the project to answer a very important research question - how rural people who all are computer-illiterate and at least half of them alphabet-illiterate can take benefit of ICTs. The safe assumption was that most targeted end users of information services through Pallitathya Kendra are non-users of most of the ICTs available there. However, a farmer can describe his crops and ask for the going rates at different accessible markets; an aged person with the asthma can describe the symptoms of his ailment and ask for locations, fees and schedules of relevant doctors; a divorced housewife can explain her situation and ask for a possible recourse. In each of these situations there was need for a physical person who knows how to understand the end user's specific situation and find a solution in the available contents and sources. Keeping these in mind,

the infomediaries for the Kendra were selected following some specific criteria and they were trained [box-1]

Box 1: Infomediary Selection and Capacity Building

Identification of right Infomediary was a major challenge during the research phase. A set of criterion was developed earlier for right identification of Infomediary. It became too difficult to find people with all required qualification and traits. Community involvement was instrumental in identification of Infomediary. The major challenge was to find someone with knowledge. The first criterion for infomediary selection process was that they must be local (in the selected area), educated and committed to the purpose. The emphasis on local young educated people was for two reasons: their social acceptance and capacity to understand the pulse of the villages quickly and easily than the outsiders. The criteria considered for selecting the Infomediary were: minimum educational background (HSC); capable to operate computer; quick learning and capturing capacity; committed and willing to work with rural people; intellectual ability; young and energetic; well acceptance and reputation among rural people; good networking ability with rural people; attitude towards loyalty and accountability of the work; and ability to ride by-cycle. At the beginning it was thought that Infomediary training would only focus on information centre management and operation. Later it was observed that understanding of community lifestyle is not less important. To mitigate the challenges D.Net has undertaken a number of measures, which include computer skill, understanding livelihood problems and questions, communicating skills, time management, documentation, and refreshers training.

4.4: Two broad types of information were made available from the Pallitathya Kendra: livelihood information and some ancillary services. The broad areas of livelihood information include agriculture, health, education, law, non-farm activities, appropriate technology, awareness, disaster management, rural employment and directory information. Other than core livelihood information services, Pallitathya Kendra provided some additional services which has demand in the rural areas and generates income for the Pallitathya Kendra. The ancillary services like photocopy, composing and printing, commercial telephone services etc. were chosen through research, which are not competing with information services.

4.5: Four different channels were identified to deliver livelihood information viz. i) digital offline livelihood content in Bangla language titled "Jeeon-IKB" (Information and Knowledge Base); ii) mobile phone based helpline; iii) video documentary and iv) internet browsing [box-2]. Information from the Jeeon-IKB was provided in two ways; self-browsing and accessing information and knowledge with the help of infomediary. A user also could take information in print form for preservation once s/he finds it useful later. The helpline was designed for providing livelihood information through mobile phone by experts.

Box 2: ICT Channels used for Information Dissemination

Jeeon IKB is an off-line content database which is particularly suitable for rural people - even those unable to read and write, with the assistance of 'Infomediary'. People get response to daily queries such as what, where, why, how in ten areas of livelihood information requirement.

Mobile Infomediary, goes door to door in rural area to assist the villagers asking their livelihood related queries using the mobile phone to the helpdesk where experts in different fields answer those questions. There are four modes to ask question and to receive answer from the Helpline, i) asking question and receiving response through mobile phone instantly, ii) asking question now and receiving answers within three days through mobile phone; iii) asking question through mobile phone and receiving answer through email/letter within 7 days and iv) asking question and receiving answer through letter/email within 15 days. Selection of option depends on urgency and the availability of information with the expert panel. Experts are generally subject matter specialists sitting at the help desk to respond to the queries of the villagers.

Video documentary is another key effective channel to deliver necessary livelihood information to the villagers. Two types of video film have been shown to the villagers: videos related to new income opportunities and improving production and marketing, and videos related to rising awareness on various livelihood issues including empowerment of underprivileged groups. Entertaining educative cartoon films like "Mina" are also shown to kids.

In some cases internet browsing was another channel for collecting examination result, reading daily nationals, searching job and other relevant information etc.

4.6: By the time the services offered by the Pallitathay Kendra started getting popularity. During September 2005 to March 2007 a total of 11056 rural community beneficiaries received information and knowledge and ancillary services from the four Pallitathaya Kendra. Of the four channels that were used to provide core information services from the Pallitathya Kendra, content-based information and Helpline are found to be particularly popular.

5. Assessing Stakeholders' Responses: Evaluation and Impact Assessment

5.1: A major milestone of the project was achieved by the end 2006. At that stage, D.Net felt necessity of a structured evaluation of the whole project in various perspectives, so that, it could draw important conclusion as regards whether it is worthwhile to continue the Pallitathya Kendra, if so in what form and medium. D.Net incorporated the Gender Evaluation Methodology (GEM) and Outcome Mapping (OM) methodologies for evaluating the initiatives. The evaluation study examined and assessed all the programme activities and actions and identified their positive and negative aspects. Based on the assessment and observation, the study offered a set of recommendations to be accommodated as mid-term corrections of the programme. Key strategies that were adopted include: incorporating the gender issue in the main infomediary training; incorporating the mobilisation and communication issues in the infomediary training; motivation of Local implementing partners came up as part of main implementing strategy; and mobilisation of common people came up at the core to make the Pallitathya Kendra as information exchange centre.

Figure 1: People coming for visiting Pallitathya Kendra

5.2: A total of 11,056 people received livelihood information (47%) and ancillary services (53%) from four Pallitathya Kendra located at Bagerhat, Nilphamari, Netrokona and Noakhali during September 2005 to March 2007. Combine average service recipients were about 600 per month, where the peak was in June, 2006 (9.2%) followed by August, 2006 (8.6%) and November, 2006 (8.2%). Considering the seasonality, access to public examinations results enriched the number of information service recipients in June 2006 and photography enhanced the number of ancillary service recipients in November 2006.

A significant number of women (41%) received services from Pallitathya Kendra which is almost close to national share of female population (48%) of Bangladesh. The ratio of married and unmarried service recipients were at 54.3% and 44% respectively. Marital status has a close relationship with women's mobility particularly in rural areas. The participation of women for receiving livelihood information and knowledge services was much higher than expected because of introduction of mobile infomediary who moved door to door with mobile phones for facilitating access to expert consultations on various livelihood issues. Pallitathya Kendra mobilisation efforts centred around the philosophy of inclusions, where women were prime target.

The Pallitathya Kendra could reach the disadvantaged groups in rural communities. Print disability (13.6%) and less education up to HSC and below (79.5%) didn't restrict villagers for receiving both information and ancillary services from Pallitathya Kendra. On the other hand, 91 percent of the users were ICT illiterate. Introduction of infomediary could make these people able to access the information and knowledge. They did not have to wait until they become ICT literate.

It was found that Pallitathya Kendra served people irrespective of their age. More than half of the service recipients' (58%) age was within the range of 15 to 32 years. The share of service recipients for the age group between 33-45 years was 17.8%. User of 7.1 % in the age of above 45 years used the facilities of Pallitathya Kendra. It is to

be mentioned that users below 14 years of age was at 17% among the service recipients, which proves that the Pallitathya Kendra could address the needs of the population engaged in various productive activities, not only of young children, which is a general phenomenon.

Service recipients of Pallitathya Kendra were from diverse occupational background. The research shows that 22 categories of professionals received services from Pallitathya Kendra. Other than students (40%) housewife (19.2%) was one of the prominent occupations. Housewives had an added advantage in getting services at their door steps with the help of mobile lady.

In terms of livelihood areas, access to health care information and knowledge was most popular among the service recipients (45.54%). Other three important livelihood areas, education (17.40%), agriculture (16.47%) and legal and human rights (9.16%) were chosen by the information and knowledge service recipients. High level of use of health information service indicates a dismal health care situation in rural areas despite significant investment in health care.

Agriculture related information and knowledge was sought naturally by farmers (23.3%), followed by housewives (21.6%). Housewives used this agricultural information services for homestead cultivation. For health information, housewives topped the user list in terms of professional categories (44.4%). Housewives generally neglect their health problems due to the financial incapability and hassle to go to doctors or to hospitals for treatment. However, Pallitathya Kendra created the way of providing health information at the door step. Education related content was naturally accessed by students (83.6%) out of 17.40% users of education content services. Parents were the second major group with various professions. Housewives (36.9%) were the top users of legal and human rights related information services. The finding confirms prevalence of high level of domestic violence in rural Bangladesh. Interestingly, housewives were also the top user of appropriate technology related information; probably they collected this information for their household activities.

In terms of education, class VI-X was the top (26.94%) agricultural information receiver where male and female ratio was at 73% and 27% respectively. Print disable user of 16.56% took agriculture information among total agriculture information recipients. Education group of class I-V was the top (27.04%) health information seekers where female was at 66% and second highest was the illiterate group (23.72%) where female was at 69%. Education of SSC was the top (49.75%) educational information recipients and HSC group was the second highest (24.75%) recipients. Other groups had very little participation for receiving education information. Class I-V was the top (23.40%) law and human rights related information seekers where female was at 55%. Majority of awareness related information receivers were in class VI-X (55.66%) where female was at 68%. Non farm economic activities related information receivers were top in SSC group (29.84%) where female was at 71%. Appropriate technology information recipients were top of 28.57% in class I-V where female was at 88%.

In terms of use of channels, Jeeon-IKB (the local language content base) was the most accessed channel for information and knowledge, 45% of information recipients' accessed information and knowledge through Jeeon-IKB. Mobile phone based helpline was the second most-used channel, 35% community beneficiaries used this channel for accessing information. Issue based camp met the information requirement for 11% information recipients. Internet was not a popular channel yet for two reasons: number of people having knowledge of using Internet and inadequate relevant content available on line. Capacity of infomediary to understand English is also a reason.

Most important is that people with education only up to primary level topped the recipients of information and knowledge services from Jeeon-IKB (21.9%). Illiterate people had the significant user of information using Jeeon IKB. On the other hand, community beneficiaries with education level up to class X (21.9%) topped the list of users of mobile phone based helpline. Children of class VI-X were the top user of audio-visual content (46%). Direct internet users were very limited. Relying on self-service model in the context of low literacy and ICT literacy would not work. Thus, deployment of infomediary based information and knowledge system was proven

to be the right approach. The Pallitathya experiment revealed very interesting correlation between education level and access to information and knowledge services. The lower the education levels the higher the propensity of using information and knowledge services. The nature of service, i.e., livelihood areas also confirms that low income group people received more information and knowledge services.

The combination of Jeeon-IKB, the off-line CD-based channel and help line appeared as a resort to the infomediary at the initial stage of operation of Pallitathya Kendra. Weakness in searching content from Jeeon-IKB and other sources over the internet was reason for using helpline by the infomediary. The community beneficiaries sometime preferred to talk to an expert at the help desk rather than reply on the infomediary. Refreshers' training and practice improved performance of infomediary over time. The behavioural aspects of the users of helpline are also noteworthy. Among 1639 users of help line 52 % preferred letter-to-letter mode despite scope of talking to experts. Two important reasons were identified for this: some beneficiaries want to keep something in their hand, which is not possible incase of verbal communication until it is recorded and a retrieval device is available with the user; secondly, the letter-to-letter option was cheaper than other mode of communication with the helpdesk.

Figure 2: Tathyakarmi [Infomediary] gives information to people

Figure 3: A woman registers her name for getting health information

In terms of ancillary services, photography was most popular (39.76%). The photography service was received for employment application, admission to education institutions as well as for

capturing moments of life. Second popular service was body weight measurement (33.33%). Initially, it was fun for children, subsequently pregnant women, mother with new born baby and other groups also received this service linked to the content on reason for high and low weights. Desktop publishing was also an important service for the community beneficiaries (15.34%). There were some other ancillary services like soil test, DV application, admission form, email, government forms which were received seldom by the service recipients. This might be due to lack of proper marketing or promotion of those services among the community.

The repeating use of services from Pallitathya Kendra is considered as emergence of Pallitathya Kendra as new sources of information and knowledge. During the research period, 43% people came more than one time to Pallitathya Kendra for receiving various services. Among the repeat users 49% people took information and knowledge services, which indicates that information and knowledge services brought benefit to them.

5.3: The programme targeted to increase income opportunities among the rural people; decrease cost of livelihood; decrease possible loss or damage of certain disaster and empower people especially marginal people. An impact assessment study of the 'Pallitathaya' project was conducted. However, the evaluation study came across a number of instances when the rural community people received immense benefit out of the information services received from the Pallitathya Kendra. Some notable impact of the existence of the Pallitathya Kendra may be revealed from the instances when the rural poor farmers were able to save huge damages of their crops due to timely information from the Kendra [Box -3]. Some students and guardians were benefited due to timely and speedy education related information delivery from the centres [Box-4]. Villagers have started obtaining benefits out of the health related services [Box-5].

To understand the impact an alternative to "Return on Investment" dimension of financial viability, which often ignores the benefit of public goods, was developed which was coined as "Benefit on Investment" (BOI). The BOI is a ratio of benefits in financial terms to the members of a community and total cost of establishment and

operation of a PK or common access point. For establishment of legitimacy of a common access point the BOI value should be at least greater than 1.To estimate benefit from Pallitathya Kendra to the communities BOI analysis was conducted which shows that total estimated benefit from 4 Pallitathya Kendra was BDT 42.83 million where total project expenditure was BDT 26.19 million. The combined BOI for the whole Pallitathya experiment is 1:4.64, which means for each Taka investment for 15 months of operation of the system the community benefit Taka 4.64. The BOI for information and knowledge services is 1:4.42, whereas BOI for income generating services is only 1:0.25. It is to be mentioned that the BOI mentioned above is estimated considering all costs including cost of operation at head office level. If only local unit level cost is considered, the BOI is 1: 18.33. In this case, the BOI for information and knowledge service is 1:17.43 and for income generating service is 1:1. The research findings strongly argue for 'public assets' and 'public goods' opposed to only financial sustainability argument, while income generating aspects are not ignored.

Box 3: A Farmer Saved his Crop using Information Services of Pallitathya Kendra

Mr. Nurul Islam Khan produces rice along with beans, bitters and bottle-gourds on his land. He is doing his best to make an honest living for his 6-member family with an average monthly family income of USD 120.00. One day, he found that his cultivated beans, bitters and bottle-gourds were attacked by harmful insects. He became worried and started consultation with his neighbors.

From the neighbors, he was advised to consult with local agricultural field officer regarded as Block Supervisor, a post of Agricultural Extension Department under the Ministry of Agriculture. They also informed him, if he fails to get hold of the desired officer, then he can pay a visit to local Pallitathya Kendra (the Rural Information Centre) to receive effective agricultural information service through various ICT channels. The urgency to receive effective agricultural advice made him looked for the local Block Supervisor first, but he failed to get hold of him. Then he sought informational help from Pallitathya Kendra. Thus he paid a visit to the Information Centre and he chose to use the verbal information service from the CD Content.

Mr. Nurul Islam Khan applied the prescribed insecticides and dramatically got rid of his problems. Thus he saved his beans, bitters and bottle-gourds and above all, his livelihood. According to his calculation, Mr. Nurul Islam Khan was able to prevent a total loss of USD 120 just by applying the received advice without paying any charge for the service offered by the Pallitathya Kendra. He thinks that information services provided by the Pallitathya Kendra can save the farmers greatly from potential loss.

Note: Collected on November 30, 2006

Box 4: A Student Received Examination Result in Time

Ms. Lovely is the daughter of Mr. Mohammad Nasir Uddin and Ms. Sokina. Her 5-member family has a monthly family income of USD 60 on average. Ms. Lovely appeared in the nationwide held Higher Secondary Certificate (HSC) from her college located in Netrokona town in 2005.

She was very anxious about her exam result. When the concerned authority published the result in the internet, she got more anxious to receive it. But she wanted to save her parents' money and time too in collecting the information. At that point, she learnt about the internet browsing service of Pallitathya Kendra (the Rural Information Centre) from one of her neighbors which is only one and half kilometers away from her home. She was very curious and could not believe that she might be able to receive the service from her own rural community.

Finally she paid a visit to the centre on October 5, 2006 and got hold of her desired information through browsing the internet. She spent only BDT 10.00 to get her result. And she spent BDT 20.00 for the rickshaw fares. If she would collect the same information from her college in town, she would have to spend a total of BDT 60.00 which is five and half kilometres away from her home. Thus the received service from the centre both saved her money and time. Therefore, Ms. Lovely was very thankful about the received service.

Note: Collected on December 2, 2006

> *Box 5: Villagers obtaining Benefits of Timely Health Services by Pallitathya Kendra*
>
> *Ms. Jomila is living with her 3 sons and a daughter who received remittances from her son in Abu Dhabi. Her monthly family expenses were USD 55 on average. One day, she experienced a severe pain in her body. She did not know what to do. Her neighbors advised her to visit the rural physician who can cost her BDT 20.00 per visit. But she did not have enough money at that time. In the mean time, she was approached by the infomediaries from the local Pallitathya Kendra (the Rural Information Centre), who advised her to get help from the place to save time and money.*
>
> *Thus she paid a visit on October 4, 2006 to the Pallitathya Kendra and received information service through instant mobile phone-to-mobile phone over the Help Line from an expert at Dhaka-based Help Desk. She spent BDT 14.00 only for the received service. Ms. Jomila bought the prescribed medicine without any delay and got rid of her suffering within a short time. Although both the rural physician and the centre are quarter kilometer away from her home, the centre service saved her BDT 6.00, which is a substantial amount for a poor rural women like her. She thinks that the local elderly women will be benefited a lot if the infomediaries visit their homes to deliver services.*
>
> *Note: Collected on December 2, 2006*

6. Important Supportive Aspects of Implementing the Idea: Partnership, Cost, and Financial Sustainability

6.1: Partnership has been very much crucial for the initiative. As there are some critical elements of the model like content, local implementation, local service providers etc, D.Net had developed partnership with different institutions at national and local level. For establishing the local information centre, D.Net always partnered with local counterparts that are mostly NGOs, local government institutions, educational institutions etc. Even in pilot stage of operating four information centres, local partners provided space and local logistics. After completion of the programme local partners

would continue the project. For content development in different areas partnerships were developed with NGOs, government organisations, research organisations, universities etc. For example for agriculture related contents collaborative effort was made with 13 organisations that include Bangladesh Agriculture Research Institute; Bangladesh Rice Research Institute; Department of Agriculture Extension, Department of Livestock Service; Agriculture University; Ministry of Fishery etc. For undertaking research, developing livelihood contents and setting up Pallitathya Kendra, D.Net received financial support from Research Initiative Bangladesh, Manusher Jonno Foundation, International Development Research Centre, and Global Knowledge Partnership.

6.2: Practically the project did not focus on the financial sustainability issue at this stage. Thus cost aspect had hardly been a matter of concern. Moreover, covering of cost or commercial supply of services had also been clearly absent in the pricing model of the services under the project. However no information was provided free of charge from the Pallitathya Kendra. And in determining price of different services, one of the important concerns of the project was to identify the willingness to pay for information and services. Capacity of villagers to pay for a piece of information has been another important consideration. In fixing the price for ancillary services existing market price was assessed. Based on the response of the community people to the price list, the prices had been revised occasionally.

7. Ensuring Effective Service Delivery: Management and Operation of the Pallitathya Kendra

7.1: **Management of Pallitathya Kendra:** The Pallitathya Kendra was operated by a group of local infomediary who are guided by local management. The team look after the day to day operation of the centre and provide necessary technical support to the centre The responsibilities of the local management team include: ensuring smooth operation of the centre; helping D.Net to select right types of Infomediary; ensuring security of the centre; undertaking

necessary steps to promote the services to the mass people and increasing service recipients; helping D.Net to ensure service quality; arrange regular group meeting in the village level for promoting services and encourage people to receive services from Pallitathya Kendra; ensuring compliance of the job responsibility of Infomediary and centre management system; and continuing the initiatives after project phase is over.

7.2: **Management Support from D.Net:** The infomediaries were supported by the content and Telecentre management team of D.Net. Besides, D.Net livelihood expert team provided information and counseling support through mobile phone and e-mail. In running the 'Pallitathya Kendra', the D.Net's responsibilities include: ensuring supplies of equipments, materials and salaries timely for centre operation; Recruitment of quality Infomediary for centre operation; providing training to the Infomediary; evaluation and provide necessary guideline for active functioning; restructuring of programme when necessary.

Box 6: Problems faced in the Operation of Pallitathya Kendra

The centre managements commonly came across a number of technical problems in dealing with computer hardware and software that include technical faults of hardware, error in computer operating system, problem with printer cartridge setup and replacement, disconnection of LAN, installation of relevant software, malfunction of digital camera etc. As infomediary was not well acquainted to deal with these problems they cannot resolve all types of problems. In this regard, they rely on D.Net's technical support.

Technical support staffs were assigned for resolving various technical problems, but sometimes they can not reach there timely due to distance, lack of good transport facilities, political instability etc.

The operations of the Pallitathya Kendra heavily rely on electricity supply, and power disruption was a major problem in running smooth operation in these remote areas.

Manipulation of data by the infomediary was also identified in a few cases in the Pallitathya Kendra. It appeared that the manipulation happened mainly for two reasons, i) to secure their job in Pallitathya Kendra and ii) to receive incentive bonus as best Pallitathya Kendra.

7.3: **Reporting System and Supervision:** The programme has a reporting system on centre status and accounts. D.Net deployed a control room engaging a few active staffs. Capturing feedback of user, analysing user questions, provide responses to the end users are important tasks of the staffs. Infomediaries are guided to write every piece of complain and comments regarding centre, content search, helpline response and technical problem as well as the villagers comment and sending these to the D.Net management team. Hence D.Net receives day-to-day feed back from the field. Field visit has been an important aspect of the effective operation of the centre under the project. D Net staffs submit report after coming back from the field.

7.4: **Records and Documentation:** As the Pallitathya programme is an action research project, documentation is the very important issue. D.Net has developed information recording system by which each and every individual visiting the centre has to record their basic information like age, sex, income and many other points along with the information s/he poses at the centre. This data and information are required for many research purposes like analysing whether the centre is serving for the poor can be captured through income data. Besides, recording each and every question is a readymade feedback to the content development team about the current information flow of the community people.

7.5: **Training and capacity building:** Capacity building training programmes is part of the project. These include: trainings for the base line research team; training for the directory database team; training for the content development team; and training for the Infomediary.

7.6: **Trouble Shooting in Local Pallitathya Kendra:** The centre managements commonly come across a number of technical problems in dealing with computer hardware and software. As infomediary is not well trained to deal with these problems they hardly resolve even a common problem. In this regard, they completely rely on D.Net's technical support. D. Net has technical staffs to provide support in different centres.

7.7: **Incentive and Provision of Award for Local Management:** Realising importance of an incentive structure for improving performances of infomediaries, D.Net introduced award for best centre every year.

7.8: **Feedback for upgradation of Content:** User tracking forms, the field notes of the infomediary and help line questions helped D.Net to have a comprehensive database of real livelihood questions posed by the villagers. In response to the identification of new demand using feedback and questions, contents were regularly enriched and updated.

8. Ownership and Replication of the Initiative

8.1: Organisations or individuals are encouraged by D.Net to replicate the model. The only recognition that D.Net deserves is the acknowledgement of the model. So, the IPR issue of the model is under 'creative commons'. Contents developed by the D.Net which is called "JEEON-IKB (information and Knowledge Base) is licensed by D.Net. But the knowledge base is open to anyone who wants to have it with a license fees paid to D.Net. D.Net was working with JOOMLA software to make an online interactive content repository and make some content available free to the target user. From the very beginning the initiative encourages local ownership for the initiatives. As of mid 2006, all the Pallitathya Kendra that were run under D.Net strategy and following D.Net model were completely owned by local organisations or NGOs.

8.2: The action research project was to identify information gap and developing a model for ensuring greater access to information by the rural people turned into a movement. After successful launching of 'Pallitathya Kendra' in four villages, the model attracted attentions of different other potential replicating organisations. A number of NGOs, private company, international development partners, and government became keen to learn the process. Understanding this interest from different stakeholders, D.Net organised several public

events to share the learning from this intervention. D.Net also took another step to provide technical assistance to the potential replicating organisations. D.Net was working with about 50 organisations to replicate the model. Under such collaboration D.Net provided content, training for local infomediary and mobilisation support to these organisations and other supports like equipments and local operational costs were borne by local organisations.

9. Highlights of the Project

9.1: **Demand Driven:** D.Net as an action research organisation didn't try to follow an existing model, which is successful in other part of the world, rather focus on developing issues and proposal based on the local context and local demand.

9.2: **Engaging Local Implementing Partner:** From the very beginning D.net research team strongly felt the importance of having local implementation partners to host and own the process. Without local ownership and institutions it was not impossible to launch the process.

9.3: **Integrating Infomediary:** Infomediary is the heart of the whole concept. Infomediary is the physical interface between the information and knowledge base and the rural people and selected from the community, which is essential to understand local problems and needs.

9.4: **Developing Local Language Content:** Developing livelihood content repository in Bangla is at core of the project. Information available on the Internet is hardly meeting the need of the rural people. So, developing local language livelihood content repository by the research team was crucial for effective implementation of the project.

9.5: **Integrating Help Line:** Integration of the help line service along with traditional telecentre services is an important feature that helps

following 'no refusal policy' of the centre. Once a villager comes to the information centre and fails to get the desired answer, they can pick up the mobile phone or send e-mail to the Help Desk expert team to get an immediate advice against their problem. Even the help desk experts don't have the answer ready at their end; they consult with some domain institution and exports.

9.6: **Right Mix of Ancillary Services:** Along with a set of core livelihood information services, a set of demand based ancillary services is offered from the centres at commercial prices. Other than meeting the need of the villagers, the selling of services are expected to help in attaining financial viability of the centre.

9.7: **Introduction of Concept of Benefit on Investment:** A new concept of 'benefit of investment' (BOI) was introduced for assessing benefit accrued by a community in monetary terms, where applicable, against investment made in a community-based unit of Pallitathya information and knowledge system. Such an indicator was needed, as there is confusion, whether investment in building information and knowledge system for the poor and marginalised is justified, because there is competing needs for investment.

Access *www.pallitathya.org* for further information

Read the monograph titled "Pallitathya- An Information and Knowledge system for the Poor and Marginalised: Experience of Grassroots in Bangladesh' available on *www.bdresearch.org*

Satellite Multimedia Datacasting Initiative

Nepal

Equal Access International, an International NGO based in San Francisco, started operations in Nepal as the executing agency for the UNDP Asia Pacific Regional project, Digital Broadcast Initiative. This initiative, that used digital satellite broadcasting technology to bring vital development information direct to underserved communities in rural settings, was formally launched in Kathmandu, in June, 2003. Since then, Equal Access has continued to implement numerous 'communications for development' projects in Nepal, with programming on a range of thematic areas including education, healthcare, microfinance, sustainable agriculture, human rights and conflict management, HIV/AIDS and women's empowerment. The Equal Access Mission is to create positive change for large number of people in the developing world by providing critically needed information and education through: Locally produced and targeted content; use of appropriate and cost-effective technology; Effective partnerships and community engagement. Equal Access projects are designed to reach the broadest possible audience in culturally appropriate and cost effective ways. By using digital satellite technology, solar energy and other appropriate technologies, Equal Access has been able to reach areas with poor telephony, little or no electrical power and high rates of illiteracy.

1. The Initiative Targeted to Overcome Barriers Using Appropriate Technology

1.1: Information today has become vital and integral in the lives of the people in any part of the world as access to information greatly affects the economic and social conditions. This is much applicable to the rural communities of Nepal where people do not have the information that would otherwise help them make informed

decisions. In the context where Internet access is still a distant and remote possibility in many parts of rural Nepal, utilisation of a technology that overcomes the barriers of cost, the non availability of Internet infrastructure or service providers and the lack of telephone connectivity is vital. With the objective of providing information on matters that concern the daily lives of people in rural Nepal, Equal Access launched Multimedia Datacasting Initiative in 2003, on a very small scale and with the funding support from USAID.

1.2: Equal Access utilizes a channel on the World Space Corporations Asia Star satellite with footprints in most parts of South Asia, to broadcast its audio and multimedia content. These broadcasts can be received by World Space satellite radio receivers manufactured mainly by Hitachi, Polytron and Tongshi. First Voice International manages the free channel in the World Space satellite broadcasting system. Since the technology allows for digital content in the form of text, graphics, comic strips and short video clips to be downloaded at any location in Nepal, without the requirement of telephony or Internet connectivity, it is most suited for the promotion of IT related activity in rural Nepal, as an early stage for introducing the people in remote locations to the technicalities of Internet browsing and for dissemination of vital development related information. The data can then be downloaded using a regular computer attached to the receiver's data port.

2. Preparing Information and Knowledge Base: Content Development and Dissemination

2.1: A survey was carried out among 60 representatives from 60 communities out of the 100 communities that were chosen as sites for expansion for the multimedia sites in 2006. The sites were chosen on the basis of the presence of a local partner (NGO, community libraries, school, FM radio station, youth club) and the remoteness of the site (identified on the basis of difficulty of access by transportation, availability of other sources of information or communication channels). The survey provided the information that

the content need was mainly around issues concerning agriculture, health, education & livelihood, news & useful information, women & children and government announcements and notices. 53% of the respondents expressed that information about government public announcements related to immunization and vitamin A campaigns would be useful while 40% said government policies, forms and formats for application for citizenship certificates or passports would be most useful. Likewise, 31 % expressed the need for information on new and improved techniques for farming, 27% wanted to know more about the various ailments that could possibly happen to cattle and crops and the possible remedy for the same and 13% wanted more information on market and market prices for agricultural products. While 44 % thought educational material on income generating activities would be useful, 29% wanted results of school and college level examinations to be disseminated.

2.2: In the health category, while 33% of the respondents felt information on HIV & AIDS would be useful, 24 % wanted information on sanitation, water-borne diseases and their remedies. A whopping 69% of respondents wanted selected clippings from dailies and weeklies published from the capital city and other socially useful information. Likewise, 27% wanted similar information from regional and district level publications. Again, while 27% of respondents thought information on trafficking of women and children and means to stop these would be useful, 22 and 20% respectively wanted more information on children education and information about the activities of organisations actively working for women's rights.

2.3: The collection of material for datacasting is done from various social organisations such as the National Health Education Information Communication Centre - Ministry of Health, INGOs and NGOs working in various development sectors, Government offices and other organisations. Such materials may be in form of booklets, posters and other printed materials. After collecting, digitizing and converting the content in appropriate format (mainly pdf), the content and the schedule (play list) is uploaded to the First Voice FTP Server along with related content. The FTP Server synchronizes with the satellite channel which is used for multimedia

datacasting and the up linked content is broadcast several times in a day. Sometimes the materials are also extracted from various websites containing the relevant information for the rural community. For many organisations that need to distribute their content to rural and difficult-to-access areas, this technology has been quite helpful.

2.4: Equal Access broadcasts at least 2 MB of data through this channel every day at a download speed of 64 kbps. In a couple of minutes, the content is automatically received and downloaded by the satellite receiver. If the receiver is powered on, the receiving process is automatic and the content is directly stored on the computer for offline access of the content at any time of the day. Unless otherwise changed, the content downloaded can be archived as long as there is available disk space in the computer.

2.5: The downloaded files are generally stored as PDF document files and can be opened, read and printed for general purpose. Equal Access has developed its own content viewer for accessing the downloaded content which has been localized in Nepali language so that it is easily understood and used by the rural communities.

2.6: At the content uploading end, uploading of content to the World Space system requires a basic computer with internet connectivity and FTP software. In the event that content is not already in digital format, additional hardware like scanner and associated software will be required.

Box1: Equipment Required to Download or Receive the Multimedia Content

Hardware

Computer - Simple computer with windows operating system.

Tongshi - This is a satellite receiver. It works like a computer modem but is a little bit more advanced than a computer modem. By using this device we can listen to the audio signal too that comes from the satellite channel.

Yagi Antenna/Patch Antenna - A satellite antenna to gain the signal from the satellite.

Co-axial cable - at least 15 meter long cable needs to be connected between the antenna and the satellite receiver.

Software

Content Viewer - To view the content received over the satellite receiver, a content viewer developed by WorldSpace Corporation is available. However, it does not have any option for localization, which is necessary for broadcast to the rural masses. Hence the need for a localized graphical user interface with easy navigation was felt. So it was decided to develop a localized graphical user interface along with a localized web browser for viewing the broadcasted contents. The locally developed 'Equal Access Content Viewer' is in Nepali and integrated with Mozila web browser. The Nepali version of content viewer was developed for Equal Access by Madan Purasrkar Pustakalaya (www.mpp.org.np) and is currently being utilized in all the existing multimedia sites.

Figure 1: Equal Access Content Viewer - Equal Access Suchnaako Sansaar

3. Implementation through Partnership and Capacity Development

3.1: Equal Access Nepal engaged various partners at the community level like FM Radio stations, community libraries, social clubs, schools, farming communities & local NGOs. The partners and the specified sites are selected primarily on two grounds; firstly, whether the site can make the best possible use of the downloaded information where there is little or no other means of reliable information delivery channels and secondly, whether the site already has access to a computer set and some source of power.

3.2: After choosing the partner, a basic two/three days training is conducted for the responsible person from such partner organisations. This training is mostly done at an accessible centre among 10-15 sites identified for the multimedia information access points. If the traveling is difficult for a number of remote sites, then the technical officer from Equal Access visits the sites and conducts the trainings. In the training Equal Access Nepal's technical staff describe what the multimedia data casting is, how it is useful for remote villages and communities, how to operate the hardware and also provide basic knowledge on maintenance of the equipments and troubleshooting.

3.3: The training is done on a peer-to-peer basis so that each of the trained people can further train other people in the surrounding areas of his/her locality. The training manual has been localized to Nepali which simplifies the understanding of the technical issues, setup process, operation and the basic maintenance of the system.

4. Setting up Multimedia Sites brought Good Responses from the Community

4.1: As of September 2007, around 100 multimedia sites have been setup in different parts of the country. Among these 100, most of the multimedia sites have been set at the rural libraries run by local

communities and supported by READ Nepal (www.read.org) and few have been installed at community FM radio stations. Most of these sites have limited means of receiving information due to the lack of infrastructure for communications or transportation. Among these, a few of the sites do have had technical difficulties, but all of them are benefiting a lot from the content that is being downloaded every day.

Box 2: Some Responses from the Community People

"The content received from the Equal Access satellite system is very helpful to us for getting latest information in Nepali. Though we live near to the airport, the flights are available only for few months of the year and for rest of the time we know a very little about what's happening in rest of the country".

Ratnadevi Thakali, 22, Female - Librarian - Puthang Library and Community Centre, Jomsom.

"I don't know how to use the computer, but my friends know how to open the content viewer and look for different pages of information. They often tell me what is there and thus I get to know many things about health and the constituent assembly. I now understand what computers can do and why I should also learn the basic skills of computer operation."

Surendra Sherchan, 42, Male - Villager - Tukuche, Mustang

"Once I was looking at the content viewer, I saw few posters that mentioned about violence against women and also that there were laws regarding these. I discussed with my friends because we have been seeing such problems in our family. We began looking into these issues seriously and got to know more from other sources. We began raising voices whenever any of the women in our family was a victim of some form of violence. Now we feel that information does help in social development because most of my friends too have understood the issues of human rights and social violence against women. Now we fight back."

Bishnu Gurung, 22, Female - Villager - Lamjung

4.2: One of the good uses that the multimedia technology offered was the dissemination of the School Leaving Certificate exam results. Usually, the results would take a long time to reach rural Nepal as the newspapers that provide the results need to be flown into the remote areas. The road transportation is not available to most of the hilly settlements and the air service is not reliable considering the bad weather conditions and poor infrastructure. With the direct delivery of such information at almost no cost, the members of the community were very happy when they could get the results on the multimedia sites on the same day the results were being announced by the authorities in Kathmandu. Likewise, one FM station in remote Solu Khumbu also read out the serial numbers of the results on air, thereby benefiting a huge audience who would otherwise need to anxiously wait for the next flight to get through to Solu.

4.3: In some of the remote areas where micro FM radio stations have been operating, the multimedia sites have been used as quick source of information such as the daily news, government announcements and other issue of public interest such as the school and college exam results. Few FM radio stations broadcast this information through the radio so that people can get this information directly through their radio sets instead of visiting the multimedia sites.

Box 3: Students Get SLC Results from Multimedia Centre

Every academic year, more than two hundred thousand students from across the country sit for the School Leaving Certificate (SLC) exam in Nepal. SLC exam is considered as the iron gate for these students as it also opens the door to pursue his/her career further in higher studies.

The results of SLC exams are announced after 3 months from the exam completion and everyone desperately waits for his/her results throughout the country. The results are published through daily newspapers, internet and telephone system.

However, the newspaper does not quickly get delivered to all regions and internet is limited to few urban regions. The telephone is not also available in the remote

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areas and the students have to wait for some days to get the results through newspapers or the post. In some of the places in hilly and mountainous regions, it often took more than a week to get such information.

With the setup of multimedia sites in such regions, now the students and parents are able to know the results by the day it is published in Kathmandu. In most of sites, the results are printed and pinned on the notice boards for the people. In areas where there are micro FM radio stations, the results are announced through the radio. Otherwise, the students come to the multimedia centre and check out their results on their own.

When we broadcast the results of 35 schools of the district by our FM radio, it won the heart of all. "We should continue and encourage such kind of job, a village where we never have timely access to newspapers or the internet, it has been a boon to the village", says principal of Jan Jagriti Higher Secondary School at Salleri. Within two days, we relayed the results of all the schools from the surrounding areas of Solukhumbu, Okhaldhunga and Khotang districts.

Manoj Shrestha - Programme Manager - Community Radio Solu FM, Salleri, Solukhumbu

4.4: In few areas where there is some limited access to internet and daily newspapers, the multimedia sites have been playing an important role due to numerous reasons. The daily newspapers are generally available on the next day or at late evening and people have to wait to know the important news and happenings. However, Equal Access uploads excerpts from the national news bytes early in the morning, people get the news at the most remote places in the country without waiting for the newspaper to arrive to their locality. Furthermore, since all of the content, as well as the content viewer is in Nepali, it helps the information seeker to access the content with less difficulty.

Box 4: Low Cost and Affordable Service Delivery

Previously, they used to pay Rs. 20 to view individual's SLC result in the local cyber café. The cost of internet access was high and not reliable. But now with the satellite service from Equal Access, students can easily view their SLC result at very low cost at our library. This year almost 200 students have known their result from this service. They also get to know the daily news and other information because lot of content is downloaded every day and can be accessed like an encyclopedia. The cost applicable to the students is very low which we do charge only to generate some funds for computer maintenance & upgrade which is quite outdated.

Sumitra Pokhrel - Librarian & Manager -Katari Community Library, Udayapur

Figure 2: Teachers with the downloaded content at community multimedia centre in Solukhumbu district.

5. Effective Operation of Multimedia Sites: Expansion, Evaluation & Monitoring and Operational Challenges

5.1: Equal Access Nepal targeted to expand the number of multimedia sites within Nepal from the initial pilot phase to further remote areas. To do so, it sought partners in such locations who would contribute to the project by providing the computer that would be needed at the local multimedia sites. The project aimed to tie up with partners who have installed such computers in rural locations and Equal Access Nepal would contribute by providing the satellite signal receivers at these sites. It also conducted training for the custodians of the multimedia sites in four different locations of Nepal. The training has equipped the custodians with the skills to effectively operate the multimedia sites and also to ensure that the information that is downloaded is useful and shared among the community at large. The project has encouraged the active participation of young people at such multimedia sites both to learn the use of the computer and the technology, but also to make use of the information that is provided.

5.2: Equal Access came across many challenges in the course of implementation of the project activities. One of the drawbacks of this technology is that it does not allow two way communications like the Internet, and hence feedback on the content and its usefulness cannot be sent back immediately. This is however resolved to some extent through the feedback forms received from the communities through the local partners.

5.3: Effective monitoring and evaluation has been a great challenge. This refers more to information about how the sites are running, equipment status and the operation of the site. It is difficult to get timely information and because of the remoteness of some sites, it may sometimes take months to know whether the site is operational or not. The project aimed to be driven by providing feedback forms to the sites to be filled out and sent back to Equal Access. Equal Access maintains a database of these feedback forms and analyses the same to get a better understanding of the needs of the communities in terms of the content that they would find useful.

5.4: Because the sites are remote, it is difficult to repair equipment once they break down or need repairs. Our efforts have been to train the custodian at the site to carry out minor repairs and to do basic trouble shooting but it is difficult to get major repairs done on time.

5.5: For some of the sites, the dependence on Equal Access precedes efforts to find other means of sustaining operation costs associated with the sites. However, we have seen that this can be overcome with a good selection of the local partner, where they have developed innovative means of sustaining the service.

6. Ownership, Sustainability and Replicability of the Initiative

6.1: The current Equal Access partnership model has taught us that local ownership of the equipment and the site is vital, as in the case of any other project. A management committee needs to be formed and the committee will need to decide on how best they can sustain the operation and maintenance of the equipment required. While some charge a minimum fee from the users, others have added other facilities like printers and photocopiers to raise the funds necessary. The partnership with community libraries through a NGO (READ Nepal) has supported our model as the libraries already had a computer each and someone with basic computer knowledge who could be trained.

6.2: The equipment for multimedia data casting is simple both in terms of its ease of operation and also its costs. The total cost of equipment (apart from computer) per site would be about USD 150 and the total cost per site including training would be about USD 200. The other costs would involve the costs of developing content and the cost of leasing the satellite channel. But these costs, when calculated on the basis of the population reached, would amount to very minimum per unit costs. The addition of more sites would not lead to any increase in the price of the satellite channel bandwidth nor to the cost of content development, hence, scaling up is economical.

6.3: The technology is most useful for countries in South Asia and Equal Access sees a great potential for the replication of such projects in all parts of South Asia, as most of the countries in the region share similar development challenges and demographic dynamics.

7. Highlights of the Initiative

7.1: Utilisation of cost effective technology appropriate to the context of Nepal, has been one of the innovative features.

7.2: Effective partnerships and community engagement for the operation and management of the multimedia sites.

7.3: Bringing access to unconnected communities by using the satellite broadcasting technology to overcome the geographical barrier and for the effective delivery of multimedia content to remote and rural areas of Nepal.

7.4: Localization of the content viewer software as well as the multimedia content available for the viewing purpose.

7.5: Content collected and packaged from relevant materials provided by development agencies, community based organisation, social service providers, agricultural committees, libraries and educational organisations.

7.6 Useful material available for people in communities who would otherwise be unconnected to the Internet, in a user friendly manner.

Access *www.equalaccess.org* for further information

Government Information Centre 1919

Sri Lanka

The Government Information Centre (GIC - 1919) which was set up by the Information and Communication Technology Agency (ICTA) of Sri Lanka, is the first technologically advanced information seeking option in the country in response to the need to give the Government a more friendly and citizen-centric interface. The project has been undertaken as a part of the broad programme strategy of the ICTA for the creation of enabling environment in the government for a successful e-Governance programme; interconnect government agencies to achieve a higher level of productivity through improved interaction; making public services "truly citizen centric" and ensuring geographically non-discriminate delivery of information. The e-Governance programme is one of the ICTA programme areas which come under high level e Sri Lanka project with the objectives of poverty elevation, economic growth and peace. Funding was provided under the World Bank credit facility available for the e Sri Lanka project.

1: Conceptualizing and Objective-oriented Designing of GIC-1919

1.1: The Government Information Centre [GIC] of Sri Lanka makes plan to make it much easier to seek and request information on all essential citizen-centric government services. The trilingual call centre should be the single point of contact for information and guidance for all citizen services in the government and is now available to the public. The GIC is also known as '1-9-1-9'.

1.2: In line with the objectives to provide information on services of the government and to extend the supporting services to citizen in obtaining the government services a solution utilizing modern information technology was designed. There could be several such ways and among them; the internet and "Help Desk" were chosen.

1.3: The idea was not limited to providing information relating to citizen services of the government but also to help citizens on matters of obtaining government services. This was identified as another problematic area relating to citizen services of the government where the citizens are found to be severely frustrated. Moreover, there should be scope to make suggestions and complaints about government services. A separate Help Desk can handle citizen complains and grievances.

2. Development of Knowledge Content Base in Three Languages

2.1: In 2005, the first phase of the project, information was collected from twenty Government Organisations for developing the website for GIC and the Manual for the respective Department. The development of GIC web was out sourced.

2.2: After gathering information from the top 20 government important departments of Sri Lanka, the information were fed in to the system using the Unicode font in all three languages (English / Sinhala / Tamil) and copies were sent to the government departments in the form of CD and hard copy for correction before it is uploaded to the GIC Site and the contact centre. Once the corrected information is provided to ICTA, these were given to the Vendors in order to precede their process of setting up the Web site and the contact centre.

2.3: As of October 2007, 20 gigabytes of data were produced that includes: manuals and the contact details of government departments in all 3 languages which include application forms. The information was used by the contact centre agents to host it on the GIC web site *(www.gic.gov.lk)*.

3. Steps for Effective Service Delivery: Awareness Campaign and Finding Right Organisation for Setting up Model GIC

3.1: After the development of a set of livelihood content, it was time to search for right implementing organisations to set up and run

government information centres. When the ICTA and the World Bank came to a collective decision on implementing the Government Information Centre, they wanted a service of the highest quality. After a thorough selection process, Timex BPO was chosen over the rest for their very high quality, innovation, efficiency and perseverance. Timex BPO was awarded for setting up and running the trilingual call centre in January 2006.

3.2: After being selected, Timex BPO built a knowledge base using the information on different government departments (those were collected for the development of contents base) and the contact centres for easily handling calls in three languages: English, Sinhala and Tamil. The developed website designed with a search engine where the user can simply search by typing key words such as (NIC, Passport, Driving License, Birth Certificates etc...).

3.3: Alongside making arrangement of setting up centres, a media publicity campaign programme was initiated by ICTA for ensuring effective and grater use of GIC. ICTA launched media campaigns in two phases: In the first phase there were TV, radio, posters, and newspaper advertisement. In the second phase, alongside radio, TV, newspaper advertisements, preparation and distribution of hand Bills, SMS/e-Mail campaigns, hording at popular departments, telephone directory advertisement were the parts of the awareness development process.

4. Services from GIC: Information and Promotion of Long Term Relationship

*Figure 1: President of Sri Lanka Mahinda Rajapakse launched
the Government Information Centre (GIC) in August 2006*

4.1: The call centre started operation in April 2006 and was officially launched in August in the presence of the President of Sri Lanka to herald a new culture in seeking and obtaining government information in Sri Lanka. The GICs were set not only to provide services through individual interaction but also promote the development of long-term relationships between GIC and people using GIC services.

4.2: GIC provides an easy way to seek and request information on all essential citizen-centric government services. The key objective of GIC is to provide high customer satisfaction by giving the accurate information and in minimum time period, regarding questions put forward by the customer in relation to government departments and ministries. The information needed by the customers is expected to be offered in a friendly manner. And if the required answer is not available to ask them to call back after 24hrs to get the information. These services to the customers are provided from 8am to 8pm everyday.

4.3: With the targets to provide fast, easy and accurate information, inbound calls from citizens requesting information related to government services are handled in three languages: Sinhala, Tamil and English. The common information requirements from the centres are related to obtaining passports, obtaining a copy of the birth certificate, marriage certificate, death certificate, new / duplicate national ID etc. In-house or contents knowledge base contains information regarding the government departments covered, in an organized manner. This makes it easier for agents to have access to the information when required. The information needed can also be gathered by browsing the website, which contains information regarding the government departments and ministries covered. This can be accessed from any part of the world.

4.4: The operation and information dissemination process of the GIC can take different forms. The implementation approach or GIC activities cover One, general public could either phone in on highly publicised numbers or contact the call centre through email to obtain detailed information on any one or more of public services offered by the public sector; two, general public who have access to internet via some means, can obtain government service information via the GIC Web Portal; three, when a call comes through, depending on the language, it is channeled through to a call centre operator conversant in the particular language; four, the operator would very carefully listen to the caller and attempt to understand the nature of the inquiry. Once the nature of the inquiry is clear to the operator, he/she examines the data sheets stored in the computer and once the relevant data sheet is projected onto the screen, information on that data sheet is explained to the caller making every attempt to ensure that the caller would be provided with all the information he/she needs.

4.5: Data sheets are prepared in respect of each of the public services that the call centre would respond on information stored in a central server. Other relevant information could also be stored in the server. If a caller's inquiry is on a matter for which there is no readily available information at the call centre, the agent issues a reference number to the caller, and the customer have to call back GIC after 24 hours. As soon as the call finishes the agent enter the question and the Team leader check the question from his/her end. Then the team leader contact the relevant department regarding the question and the answer is collected and provided to the customer as he/she calls back after 24hours.

4.6: In between September 2006 and October 2007, another 35 Government Departments were added in all 3 languages where it was 20 organisations earlier, to the Contact centre and the Web site. With the increasing popularity and the demand for services, GIC grew and in turn the numbers of operators were increased to match the demand. Moreover, some new activities were incorporated in the form of as re-vamping the GIC Web site and handling of public complaint and grievance.

4.7: The GIC is a centralized organisation which covers entire government citizen centric services and the 1919 number is available for any part of the country and can be dialed from any telephone network. Therefore, there is only one centre is available under GIC project.

5. Outcome of Setting up of GIC and Responses from the General People

5.1: The GIC reduced average citizen time in gathering information from different government departments. It helped and simplifies avoidable delays, while increasing customer / general public satisfaction levels. It also helped department officials streamline work processes and increase efficiency levels by being able to entertain a higher ratio of well prepared citizens who wish to acquire departmental services.

5.2: As of October 2007, GIC answered 469,104 calls since its official launch. On average GIC receives 2000 calls a day. With the media coverage, call volumes shoot up indicating that there is a big demand for Government information. The call numbers show that there is a huge demand for the government information which can be provided via telephones. Based on the current strength GIC
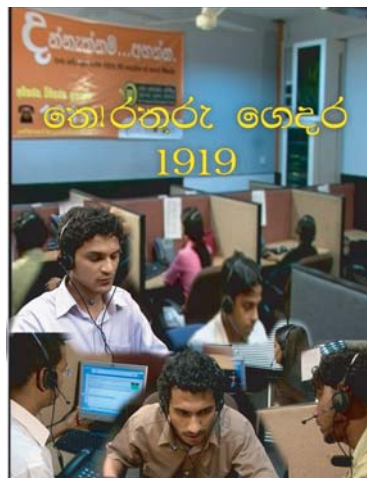

Figure 2: GIC Call agents are answering to the inbound calls

would be able to answer 1900-2100 calls per day at the maximum efficiency. But due to call patterns GIC has answered 1791 calls per day on average during weekdays in December. Another significant feature is that 60% of the calls are received by GIC between 8 a.m. to 3 p.m. Therefore in order to maximize the usage, the future media campaigns should focus on citizens who would be tuned to media during that period of time.

Figure 3: Call agent's inbound call monitoring system

5.3: Although GIC is equipped to provide information to Tamil speakers, this facility is less utilized. The information and data gathered on different districts indicate that GIC attracts very little attention from districts where majority of Tamil speakers reside.

Figure 4: View of the call agents employed in the GIC - 1919

5.4: The GIC services made it easy for the people to get information on procedures and documentation on different government agencies. For example, it is now relatively easy and less time taking to obtain passport and birth certificate. If some body wants to obtain a passport without knowing any procedure to be followed, he/she just calls 1919 and inquire. Then the call agent politely evaluates the caller's eligibility for that particular service and provides the instructions including documents to be prepared. If somebody inquires about a birth certificate from the 1919, the call agent would ask some questions from the caller to clarify the instruction to be given and then right information would be provided after searching the knowledge base of government services.

5.5: With the implementation of the GIC project, the Government of Sri Lanka (GOSL) is in a position to find out some problems/difficulties faced by the government which are typical for any government. The GIC project was implemented under re-engineering government programme which is the e Government programme of e Sri Lanka project. Therefore, it would contribute to achieve the e-Government concepts such as e-Governance, e-Administration, e-Democracy since GIC project is operated with the good governance characteristics such as effectiveness, accountability, responsiveness, citizen centric, transparency and participation.

6. Important Supportive Aspects of Implementing the Idea: Cost and Financial Sustainability

6.1: The GIC project is implemented in collaboration with ICTA as the government side project management body and financial support was provided by re-engineering government programme which is one programme area of the Word Bank funded e Sri Lanka project of ICTA. The cost estimation for the next 3 years of GIC is approximately 80-90 Million rupees. Therefore GIC should be maintained with the support either through World Bank or GOSL funds.

6.2: It is noteworthy that ICTA Spends Rs.20 on average for answering a call and monthly financial commitment for GIC is approximately Rs 1.4million. As the experience goes, it is possible to increase the number of incoming calls by launching a media campaign. It has been observed that in order to maintain a healthy call volume it is essential to have an evenly distributed media campaign that involve considerable volume of expenses.

6.2: In the initial thinking of the concept for the GIC, there was no plan for charging from citizens for the services provided by GIC. In terms of the sustainability of this kind of very successful citizen centric service project there must be a strong mechanism to take it forward. Currently the GIC is fully funded by ICTA under re-engineering government project. Once the re-engineering government project is over it must be handed over to make it as a very sustainable project.

6.3: Several options have been thought of on the way to make it financially sustainable: The first option could be, allocating funds trough the government budget and management of the project would be done by Project Steering Committee (PSC) and respective project team. The second option is, providing GIC some call times to play merchandise advertisements of relevant business organisation. In the project management point of view, it is done by the respective project team and Project Steering Committee (PSC). The third option is, charging some amount from callers on each call which received to the GIC through telephone operators (Connectivity Providers) with the approval of Sri Lanka Telecom Regulatory Commission (TRC). Finally there could be mix of the above options, if the risk high when only one option is selected.

7. Ensuring Effective Service Delivery: Management and Operation of the GIC

7.1: The GIC - 1919 is managed by two teams: one is from re-engineering government team of ICTA and other team from call

centre. Therefore, operational aspects are managed by call centre management team where as monitoring, coordinating with government are done by PSC and GIC project management team.

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Box 1: Dedicated Team to Manage and Support the Initiative

GIC Management Team: This team looks after the day to day operation of the centre and provide necessary technical support to the centre

Help Desk team: An expert team on different livelihood areas provides regular answer to the questions asked by the general public by calling up GIC (1919).

Content Development Team: Develop content in different livelihood areas based on the demand of the community / calls.

Technical team: Provides necessary technical support to the GIC.

Monitoring Team: Critically investigate the users to understand the impacts and other challenges and tries to find a way to provide constructive feedback to the management team.

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7.2: The Project Manager, who is appointed by the ICTA, to manage the GIC call enter and web portal is primarily responsible for directing and coordinating all the work and the services of the project. Furthermore, s/he is responsible for administration, monitoring the progress of content development, personnel training and other logistic support.

7.3: Each government organisation that hosts its services in the GIC nominates one person to be the direct contact person. S/he is the person to whom the call centre escalates queries to which the call-centre-agents cannot find answers. It is the Govt.

Representatives' responsibility to research the query and inform the answer to the GIC call centre within 24 hours. To facilitate this, ICTA has provided these representatives with a mobile phone. Representatives are obliged to be reachable on this cell phone number and/or at the office telephone number during the hours of call centre operation.

7.4: Since there are two management teams to manage the GIC, there is a reporting mechanism from the Call Centre management to the PSC and Project management team. The Call Centre management should send daily operational reports such as call agent login details, call details etc and monthly reports such as monthly call summary reports. In addition to these reports the Call Centre are required provide information for monitoring and evaluation purpose on ad hoc basis.

7.5: The training is conducted for the staff at the contact centre and they are given training on 2 modes one on soft skills and the other on the product. The training is provided during the two week incubation period, during which the trainees are evaluated and further training are provided for the required areas. For increasing the quality of services provided by the agents, provisions for monetary and non-monetary rewards are in place on weekly and monthly basis.

Box 2: Problems in Managing and Operating the Initiative

Translating contents into three languages is not an east task always that create difficulty in some occasions

Updating contents periodically in order to available the up to date information on different government departments is a huge task

Sometimes publicity and awareness programme does not work properly in a particular area. Designing proper awareness programme is a difficulty

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7.6: ICTA is responsible for monitoring and evaluation of GIC-1919. Data input is generated through project activities and reported to the M&E unit of ICTA systematically. Monitoring and evaluation is done based on the indicators identified in the Logical Frame Work (LFW) of the GIC project. Project goals and objectives are indicated in the LFA document so that monitoring and evaluation is carried out to evaluate whether project is going in the right direction as it is planned. M&E project manager would report to the World Bank about the results of the evaluation and action to be taken in the future.

7.7: GIC project management team has to carry out caller evaluation periodically in order to identify whether the GIC is providing a satisfactory service for the citizens. The evaluation methodology and results should be available to the M&E team. The GIC project manager is mainly responsible to carry out the caller evaluation and GIC call agent evaluation. The M&E team should help GIC project manager to conduct the evaluation according to the ICTA results base framework. In this way the project manager is aware about the direction of the project and achievements.

8. Ownership and Replication of the Initiative

8.1: The Government Information Centre set up by the Information and Communication Technology Agency of Sri Lanka (ICTA) is the first technologically advanced information seeking option in the country. The GIC is a collaborative initiative of the e-Sri Lanka Project of the ICTA.

8.2: No doubt, it has great potential to replicate in South Asia in reaching information on government services to the public. GIC is not like a conventional government organisation where the citizens have been treated in friendly manner with greeting all the time. The most of the operations are automated with latest technology so that training on technology and professionally addressing people would be required.

9. Highlights of the Project

9.1: Information content relating to government services being created as a knowledge base.

9.2: In each Government Organisation there is a contact person to give additional information when requirements are escalated

9.3: The project is implemented as a private public partnership. An expertise business partner from the private sector is involved in running the call centre activities.

9.4: In-built periodical evaluation of the quality of call centre services and call statistics by the ICTA.

9.5: A short number is given with the hunting facility to easily reach to the target.

Access *www.gic.gov.lk* for further information.

Virtual Village

Sri Lanka

Sri Lanka is responding positively to the global ICT revolution with the state sponsored (World Bank Funded) 'e - Sri Lanka' programme (www.esrilanka.lk) since 2003, in response to that the scaling up of the telecentres started all over the country and telecentres has become the popular ICT window for reaching the 'Last Mile'. By the time more and more communities, institutions and multiple other national and international partners gain interest and engage themselves with telecentre based last mile engagements, and mostly attention had been seen on aspects such as appropriate telecentre models, service packages, appropriate technologies, sustainable business models etc. which concentrates on the technology sphere of the telecentre operations. Sarvodaya, the pioneering ICT4D organisation through telecentre and a community centric organisation, recognised the importance of studying the other side of the picture - that is the community response patterns to these Last Mile technologies and thus engaged with the Virtual Village project aiming at research on Socio-anthropological and technological aspects of Last Mile.

1. Setting up Virtual Villages for Assessing the Impact on Rural Lives

1.1: The project titled, Sri Lanka Virtual Villages: A Socio-anthropological & Technological Study on the "Last Mile" (also referred to as the Virtual Village Project) was carried out with the broad objective of developing a model of two pilot "virtual villages" in Sri Lanka for the purpose of studying key socio-anthropological and technological issues, while ensuring a 'last mile' ICT delivery and information sharing at the rural community level. The specific objectives were to study the impact of the intervention [virtual villages] on community livelihoods, cultural and economic behaviour, community dynamics, and gender relations etc; to test the appropriateness, adaptability and challenges of various ICT as WiFi,

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• *The case has been prepared mainly based on the Final Project Narrative Report titled 'Sri Lanka Virtual Villages: A Socio-anthropological and Technological Study on the Last Mile' by Sarvodaya, Sri Lanka, July 2007.*

open source applications, and other equipments; and to research the development, use and applicability of local content.

1.2: To attain the objectives, two Virtual Villages were established in two geographically and demographically diverse districts in Sri Lanka - Meewala in Gampaha district and Kuda Oya in Nuwara Eliya district. Meewala has flat land with coconut plantations while Kuda Oya is hilly terrain with tea plantations. The socio-anthropologic study was further enhanced by the presence of Sinhalese and Muslim communities in Meewala and Sinhala and Tamil communities in Kuda Oya.

1.3: The community interaction with technology was enabled by the setting up of village Telehuts with ICT facilities, the establishment of village access points in the school and also by field officers carrying a laptop to farmers. The field officer carrying a laptop was defined as a mobile access point for the homes of farmers, entrepreneurs and women for promoting the use of ICT to obtain information. These two villages provided testing grounds for WiFi in the rural area. Technological issues related to line of site and other bottlenecks and alternative solutions with CDMA were dealt with. Additionally, social mobilisation programmes which provide ICT interactivity and capacity building further enhanced the opportunities for the grassroots communities in the selected villages to access modern technology.
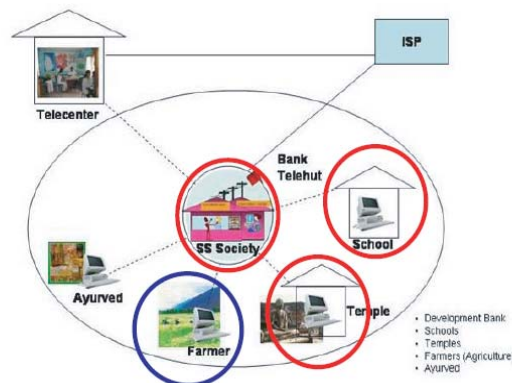

Figure 1: Designing the Model Virtual Village

1.4: The inaugurations of Telehats were inspiring events with the participation of all classes and communities in both the villages. In November 2004 the first Virtual Village was inaugurated in Meewala in a Buddhist temple, which was also the gathering place of village shramadana society. The gathering included members of the project steering committee, villagers of all ages, the temple priests, principals of neighboring schools, village-level local government officials, Agricultural Officers, and Sarvodaya Society representatives. The Telehut at Kuda Oya was officially inaugurated in March 2005 with the patronage of Prof. VK Samaranayake, (who had become the Chairman of the Information Communication Technology Agency (ICTA) of Sri Lanka), and other steering committee members. Village elders, youth and children, school teachers and members of the Sarvodaya Society which includes members of village bank attended the ceremony. After the ceremonial opening of the Telehuts in both the locations, members of the steering communities introduced the projects and their benefits to the village communities.

2. Participatory Activities and Social Mobilisation to Reach the Targeted Local Communities

2.1: On the way to starting operation, along with telehuts in two villages, additional Village access points were also installed at strategic locations. In parallel, there were about 21 types of community mobilisation programmes carried out throughout the project period, such programmes were composed of participatory engagements (such as village mapping), workshops (Hardware training), seminars (women right education), film shows etc. specifically targeting children, youth, farmers and women. Moreover, the activities carried out by the telehuts included: Printing digital photos covering family events, pilgrimages in the village; Demonstrating agricultural CDs and Education CDs; offering Skype, e-mail , internet , fax , Photocopy services etc.

2.2: The local level participatory activities started with drawing of village maps with the participation of the village community including village elders, the local government officer, school teachers

and in both telehut villages. A good number of children and village women participated in the event that also turned in to promotional events. A documentary on child labour produced by UNICEF were also shown in the presence of the villagers and subsequently carried out dialogues based on the film. There were eye openers to most of the village participants as they were not familiar with the aspects of child rights and affiliated issues, though such issues are encountered in their localities quite often.

2.3: With the objective of raising youth awareness on basic computer hardware two training programmes were carried out in the villages. Computer accessories were on display and the technical officer demonstrated how to assemble a computer and software installation. The participants got hands on experience on how to assemble a computer. With the objective of creating basic hardware awareness among students a two-day programme was conducted in Mayfield School, a village access point in Hatton in March 2007. Over 400 students participated from Grades 1 to 11. Awareness generation among the village youth in the use of ICT as a tool for development was carried out at the Meewala Telehut, Mayfield School and Ruwanpura temple during October 2005. The three programmes attracted a total of 50 students including 30 female students. Basic Computer training in MS office package, Internet and email usage was carried out at the Kuda Oya Telehut regularly (3 days a week) for the past 1 year. Moreover, setting up a youth information circle was promoted with the aim of encouraging village information mobility among the youth. The resource persons discussed the value of information with 45 participants, (25 females) at the Meewala Telehut and 30 participants (14 female) in Ruwanpura during the two programmes held in August and September 2006.

2.4: An art competition at Meewala was arranged to create awareness among the village children on uses of ICT and to generate enthusiasm among the village children to use the facilities offered at the Meewala Telehut and to popularize the Telehut among parents of the children who participated in the programme. Students of nearby schools also participated. With the objective to improve the knowledge among the school children of medicinal plants and to

prepare a herbarium a discussion was arranged.50 students participated from both villages (20 female students). The resource person from the University of Colombo, trained the students on how to prepare a herbarium. The teachers and the students showed a keen interest in the activity.

Figure 2: The field officers take the laptop to Meewala public library and demonstrate available CDs

2.5: For the production of digital resource two young groups from Gampaha and Hatton were formed. The groups included both girls and boys representing the ethnic diversity of the two project sites. Activities got off the ground with introductory workshops on information, media, documentation and communication. They were also given a basic introduction to script development and training in video production. They learnt how to express their views on issues that they considered important and also acquired a good understanding of how the media uses sound and images to influence people. As a result, many interesting aspects of village life surfaced, which included the revival of dying traditional crafts such as mat making, communication patterns, health issues and how the community perceived information technology. 'Going the Last Mile'-the video giving an overview of the project - that had been presented at the eAsia Conference and I4D film Festival 2007 (at Delhi), was a result of this activity. The village youth (a total of 40 youths from both villages including 20 females) were also trained on how to document information. The Meewala youth produced a web-based presentation on the mat weaving industry.

2.6: Children of the Sarvodaya Preschool which is housed in the same premises at Kuda Oya Telehut were shown Kids' CDs regularly by the field staff. Basic Computer training in MS office package, Internet and email usage was carried out at the Kuda Oya Telehut three days a week for the past one year. Children's Fair was initiated by the Telehut staff with the help of the Sarvodaya Society in the Ruwanpura village. It helped to cultivate the saving habit in children. 15 children from Ruwanpura farmers have been selling their home grown vegetables to neighbours every Saturday since March 2007.

2.7: Awareness programme on agriculture for the communities at Meewala was arranged with the objective of promoting interaction of the farming community with ICT services available from the Audio Visual Unit of the Department of Agriculture (Ministry of Agriculture). A programme was held at the Meewala telehut with the participation of 22 (10 women) farmers. Moreover, the field staff was regularly mobilized to take the laptop to farmers' houses or the field and demonstrate the interactive CDs on agriculture in the local language. The farmers were also connected to the toll free help number on crop related issues sponsored by the Department of Agriculture. The digital camera was used to take photographs of infected crops and emailed to the Department of Agriculture (Ministry of Agriculture) to provide solutions to the farmers.

2.8: In order to promote the use of telehut facilities by women, a programme for mothers was held at Kuda Oya Telehut in September 2006, linked to the awareness programme for the village midwife. In Meewala, a similar programme was initiated. The field staff took photos of the babies and the mothers and gave them to the participants on CDs. A programme to introduce Microsoft Excel to maintain the birth chart of the babies was planned. The midwives in Meewala did not show any enthusiasm to use the laptop for the content delivery even after several attempts to make them join the telehut. The midwives in Kuda Oya, on the other hand, were keen to use the laptop for content delivery. Based on the observations of baseline survey, awareness raising programmes were conducted at Meewala and Kuda Oya with the participation of both women and men under the themes of diversifying opportunities in skills training

Figure 3: Awareness programmes at Mayfield School & Ruwanpura temple.

and reducing gender imbalances in enrolment in technical/vocational education, and women's rights and protection against gender based violence. The two awareness programmes carried out at Kuda Oya in Hatton covered sexual and reproductive health and the availability of non-traditional employment opportunities for girls and women.

3. Outcomes and Assessment of the Services and Mobilisation Activities

3.1: Implementation of both Mobilisation activities and ICT installations came up with changes in lives of the community. Provision of computer facilities and the Internet, to the two schools in both villages (which haven't had computer facilities before) gave students and teachers an opportunity to interact with technology. The Kiththammahara School (Meewala) had a population of 365 students who benefited from the establishment of the village access point in their school. Mayfield School (Kuda Oya) had 426 students who had benefited from using the computer. The schools were also provided with English learning CDs and other educational CDs produced by the Department of Education in Sri Lanka.

3.2: Both students and teachers were greatly benefited out of the computers made available under the project. Usage records of

Mayfield Tamil Collage of Kuda Oya, reported most (49%) of the demand was on MS Word, and second biggest (25%) was for Power Point. There was a substantial usage (10%) to learn English grammar. They used the English learning CDs provided by the project. Though they were produced by the Department of Education (Ministry of Education, Sri Lanka), they were not available to these schools, prior to the project. Computers were used for official work carried out by the teachers such as preparing time tables, and other work scheduling. For most of the teachers this computer has provided a time to develop their personal ICT skills.

Box 1: Teachers Benefited from Telehut

The Telehut enabled Mrs Francis Concela, a teacher from Mayfield School, Hatton to use a computer. Other teachers who were more computer competent helped her to learn how to use and type from the computer. They use the computer to prepare timetables, leave sheets and pay sheets and also question papers.

3.3: Community people of different age group were engaged in using the computers. Majority users of the Kuda Oya telehut had been in the age group of 18 - 25yrs, and second biggest group was less than 17yrs. In contrast Meewala had been a place of attraction for many school children and youth below 15yrs. Second biggest category was 15 - 30 yr group. Kuda Oya telehut had been visited by communities traveling as far as 25 km. Although the majority users (64%) were from the same village or nearby villages, over 25% traveled more than 6 km to visit the telehut. This includes the students who attended computer training courses offered at the telehut.

Box 2: Enabled Obtaining Feedback from Department of Agriculture

The digital camera in the Telehut was used and a photo taken which was emailed to the Department of Agriculture to get feedback on a cultivation problem in the bean Cultivation field of JM Appuhamy, a farmer of 48 years old, from Ruwanpura.

3.4: Though the above results imply there had been a considerable usage of the telehut in both villages, one has to consider whether this is satisfactory. In order to impart the optimal development impact on the rural community at large, as expected by installing telehuts (and other facilities), it is vital to generate broader community participation at the telehuts. This was the constant debate of the research team & project partners. Thus main focus was shifted to recognise hidden reasons obstructing the wider participation of diverse communities, including farmers, women and unemployed youth The problem was such, as discovered in a sociological research carried out by D.Net, out of 214 survey sample in Meewala village, 95% respondents knew about the telehut, yet only 53% of them had visited the telehut, and only 44.4% had obtained telehut services. In turn, 41% did not even visit the telehut, though they knew about it, despite the fact the services are being offered free of charge, and by trained local staff. The same study revealed, significant proportion of the village community took the ICT services from different places other than village Telehut, which were located outside of the village. On the other hand, there was a significant disparity between age and gender participation in the telehut usage, which again challenges the broader objective of using ICTs for community

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Box 3: Farmers Benefited out of the Telehat Help Desk Service

By Dialing 1920 and talking to the help desk at Audio Visual Centre farmers may seek answers to any crop related problem. According to Mr. Siril Rajapakse, a farmer who grows paddy and pepper in Meewala village, talking to experts on the agricultural field was useful as they were able to get answers to persistent problems in the field. They received information on planting crops according to the land area and the use of organic fertilizer.

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4. Preparation of Platform for Efficient Project Activities: Institutional Partnerships, Management, and Capacity Building

4.1: Sarvodaya had initially selected three Institutions namely: UCSC (University of Colombo, School of Computing), Faculty of Agriculture of the University of Peradeniya, CENWOR (Centre for

Women Research). Sarvodaya had signed an MOU with University of Colombo, School of Computing (UCSC) for the provision of expertise in the technological component of the research. The UCSC was responsible for the design of virtual village network, trilingual virtual village website, and research database. There were three members from UCSC took part in the project steering committee, thus UCSC had played a pivotal role in the whole project maintaining the technology thrust dedicatedly throughout the project period. University of Peradeniya was expected in carrying out the socio-anthropologic research component. Despite earnest beginning, by carrying out baseline sociological research, they could not deliver its research promises and subsequently, Sarvodaya had negotiated with researchers of Department of Sociology, Faculty of Arts (of the same University) to collaborate with Sarvodaya to carry out research. The Virtual Village project had also created a common platform for Development Research Network, Bangladesh and Sarvodaya to explore common applied research interests. Ultimately, the interest had generated multiple cross communications, leading into an inter-organizational MOU to carry out vital Sociological research.

4.2: The recipient organisation, Sarvodaya, was responsible for overall management of the project. A Steering Committee was responsible to make the policy level decisions at monthly meetings. These meetings were held almost every month. In addition, the steering committee members regularly contributed to the project activities via online discussions. A total of 22 steering committee meetings were held during the 3- year period.

4.3: The Sarvodaya recruitment process was followed in recruiting the Project Manager, the Technical Officer and the 6 village level staffs. UCSC assisted in selecting the Project Manager and the Technical Officer. The overall coordination of project activities and field staff was handled by the Project Manager under the supervision of the Project Leader and External Advisor. The project manager was also responsible for follow up and monitoring of project targets. The technical officer liaised with the UCSC and attended to the setting up of village Telehuts. He also provided technical support for the Telehut. The Field Officer and Field Assistants at Meewala and Kuda Oya coordinated village level activities.

Limited community participation: The Telehut users were mainly youth. The adults were not very well convinced about the new technologies and the new opportunities they could offer. Hence, more promotional methods should be adopted to generate interest among adults to use the Telehut facilities.

ISP and Connectivity Problems: ISP response to the Project was the worst experience both for UCSC as well as for Sarvodaya project staff. Their provision of technical back up support services never reached satisfactory levels, while regular break downs had become a daily norm. Thus the project continuously suffered at Meewala. As an optional route, the project team (including UCSC) turned to another ISP for the Kuda Oya village, which again turned out to be the same.

Technical and Coordination Problem: Thunder strikes and torrential rains disrupted the initial WiFi antenna setting at Meewala which had led to a chain of technical and coordination problems. The constant delay in the delivery of equipment and services by the suppliers caused delays in reaching project milestones. Repeated reminders of calls, faxes and emails by both project office and technical consultants at UCSC were required to get any work done by the suppliers. The Internet connection that has been obtained from LANKA-COM used to break down on a regular basis.

Frequent Staff Mobility: The field staff at Meewala frequently left the project during 2005 and 2006. The project faced difficulties in finding suitable candidates representing same localities (as per the conditions set by the Steering Committee). Delays in recruitment and new faces among the field staff made the Telehut less attractive to village users. The new staff had to be trained on the project goals, repeatedly.

Leadership Crisis: Since June 2006, the project has been experiencing a serious leadership crisis at Meevala village. This was primarily connected to the short departure (for a short time) of the incumbent monk of the Meewala temple, who was also the elected president of the Sarvodaya society. A new monk became the chief monk in the temple (following the temple traditions) since, and ironically he had failed either to gain the village community acceptance or to deliver project responsibilities. This situation led to a leadership crisis within the village.

4.4: Minutes of the steering committee meetings and other project activities were documented. The Telehut staff had documented the village level activities. Gender representation was seriously taken into account at the steering committee as well as at recruitment of project staff. The project manager, field officer and field assistant were females.

4.5: A number training and workshops were arranged for awareness building and capacity development of the staffs and other parties involved in the process. During January and May 2005, two training programmes were organized to introduce project goals amongst the Telehut staff and grassroots stakeholders. Meewala and Kuda Oya Telehut staffs, Sarvodaya society leaders who were involved in the project and Sarvodaya district level coordinators of the 2 Telehut districts participated the programme. The awareness programmes helped the progress of the project as the staff and grassroots level coordinators were made aware of its goals and research based implementation pattern.

4.6: Knowledge on using flash and web development were considered essential for the staffs. A training programme was organized in November 2005 to impart knowledge on use of Flash among the telehut field staff to design village presentations to promote the project within the grassroots community. Six telehut staff members (2 females), Monks in the Meewala Temple, and Volunteers from Kuda Oya telehut participated the programme. The telehut staff at Meewala had subsequently given training to the young telehut users on how to use Flash. Presentations created using Flash is uploaded to the project website. A training programme was also organized for the staffs of telehut on web development. Field staffs have uploaded the website with village information. For the improvement of networking amongst the telecentre operators and providing a platform to discuss their issues in management of a telecentre a capacity building workshop was also organized for all staffs. Thus opportunities were created to network with other telecentre operators both within Sarvodaya and outside to share knowledge.

4.7: With the intention to create knowledge on review of community information centres in the region and its business models,

information needs of community and to prepare a portal using open source software, a programme on Community Information Services for the Poor was organized for the Project Managers and Technical officers in 2005. The institutional strength was improved with the training as the technical officer of the project designed the telecentre family project portal. Moreover, few more capacity programmes were organized to create awareness among the telecentre operators on social enterprises and enhancement of management capacity of telehut staffs.

5. Findings and Observations of the Research: Responses, Challenges and Impacts

5.1: Five professional institutions had partnered in the project, investing their institutional strengths and capacities. Accordingly, technology setting up, support services and research were carried out by UCSC, baseline research and subsequent social/socio-anthropological research had been carried out by University of Peradeniya and D.Net (of Bangladesh). The CENWOR carried out the Video documentation of the project, and contributed to maintain the gender consciousness. Sarvodaya, as the host organisation coordinated the overall project, while contributing community development and ICT4D expertise.

5.2: The socio-anthropologic research shows that the subtle social issues such as religious issues, local leadership patterns, leadership of the religious monk's, cast segregation becomes deciding factors at wider community access to technologies. Among the diverse casts, some tend to perceive that the telehut is not appropriate for them to associate with as it was closely associated by people belong to another cast. (The study reveals that 23% of the villagers do not visit telehut due to cast related prejudice.)

5.3: The women belongs to Buddhist religion was reluctant to visit the telehut due to the fact that it was not religiously appropriate for the women to interact in close proximities of Buddhist monks.

Muslim girls never attempted to visit telehut as it was located in a Buddhist temple. The study shows that more than 30% of the villagers are of the opinion that the location of the telehut should be changed. Majority of the demanders were Buddhists themselves.

5.4: The intrinsic relations and influences of positive and negative aspects inherited by the traditional leaderships within the villages, remain decisive at the introduction and infusion of technologies to those communities. Monk leader in one village contributed to the initial rising and subsequently to the downfall of telehut, while another Monk in the other village continuously contributed to the technology infusion.

5.5: Further research observations revealed, provision of easy accessibility alone cannot attract rural communities to ICT. The use of ICTs for livelihood is a matter of behavioural change and a matter of technology diffusion which takes over time, where age, sex, education level, occupation and livelihood patterns make influences.

5.6: Analysis of usage patterns in the two telehut locations suggest that the telehut specific factors such as Location, Accessibility are deciding factors of the community visits to the telehuts, while more specific factors such as telehut management, promotion, mix of services and local language plays a significant role for convincing the communities about usability of telehut into their common livelihood. Telehat needs to be at a socially are culturally neutral place and to be easily accessible. It needs availability of diverse set of services that can tailor to the needs of a diverse group of community. Management efficiency of the telehut matters strategizing the open hours to targeted community groups, and frequent monitoring, promotions etc. are crucial for successful operations of telehats.

5.7: The technology research team recognised some constraints as the key challenges against the smooth implementation of WiFi access in two rural village settings. Meewala is a lightening prone area and is regarded as one of the most vulnerable areas for lightening in Sri Lanka. Frequent thunder storms created multiple constraints obstructing the smooth connectivity to the telehut. Access points

were subject to damage/burn due to lightening, which required expensive and time consuming repairs. For example, at the beginning of April 2005, Access point was suddenly stopped working prior to handing over of the equipment to the project by the ISP. It took more than 3 months to set it back into operation.

5.8: The technology team discovered that the electricity at Meewala had fluctuations and the connection to telehut was not suitable for some of the sensitive equipment such as Photocopiers, Fax machines etc. which was subsequently rewired. The Meewala village situated inside a thick Coconut cultivation, thus the coconut canopy interfered the WiFi signal penetration. Though technical team could build up options, the circumstances had restrained the ability to expand the hotspot. Kuda Oya village located between two hills and such hill terrain interfere the line-of-site, thus none of the models did not help to provide internet connectivity.

5.9: The research study also came across some infrastructure constraints. Project team had experienced endless constraints with ISP and Hardware Vendors to receive prompt services at delivery and after care. They took extensive time to respond, and repeatedly demonstrated incompetence. Their business operations were mostly city centric, thus could not understand the needs of the rural setup. On the other hand limited technical staffs were overwhelmed with demands. At some instances, months had been passed without any activity since Hardware Supplier had not supplied the equipment.

5.10: One of the major out puts of Virtual Village project was the release of two Sinhala Unicode fonts. Since the dearth of Sinhala Unicode fonts hampered the growth of Sinhala Unicode content, local language research group worked to redo two fonts: Sarasavi and Manel. Both were redesigned and made available freely on Internet (http://www.ucsc.cmb.ac.lk). UCSC learnt, tested and adapted Mambo as the Content Management System (CMS) for the project website (www.v-village.lk). Subsequently Mambo had been introduced to other government departments such as www.news.lk in Department of Information, www.slmfa.gov.lk at the Ministry of Foreign Affairs.

74

5.11: Since May 2007, WiMax was available as connectivity option. Building upon the lessons learned from this project, UCSC is planning to carry out research on WiMax to be used as a backbone with smaller Wi-Fi hotspots. The knowledge and experiences gathered by testing CDMA IP / VPN by UCSC through the project had been extensively utilized for multiple projects of national interests. For Example, a network had been constructed for PDT (Plantation Development Trust) which is a semi Government Organisation for Estate Development where seven regions are connected using IP/VPN and one of them is Hatton (municipal area of Kuda Oya village). In this project, some of the project finding of caching (Pre-fetching) had also been applied.

6. Highlights of the Project

6.1: The project focused community response patterns to the Last Mile technologies and engaged with the Virtual Village project aiming at research on Socio-anthropological and technological aspects of Last Mile.

6.2: Awareness through local level participatory activities with the participation of the village community including village elders, the local government officer, school teachers.

6.3: Participation of women in skills training for reducing gender imbalances in enrolment in technical/vocational education, and women's rights and protection against gender based violence.

6.4: Promoted developing network amongst the telecentre operators and providing a platform to discuss their issues for management of a telecentre and to share knowledge.

6.5: Five professional institutions partnered in the project, investing their institutional strengths and capacities.

Access *www.fusion.lk* for further information.

TARAkendras of TARAhaat

India

Development Alternatives (www.devalt.org), established in 1983 and TARAhaat (http://www.tarahaat.com), established as a corporate, are two sister organisations, working for the last 24 years, to promote and appropriate technologies for people's empowerment and sustainable development. They have set up several centres, each of which is called a TARAkendra (TARA telecentre), with the vision of empowering people to realise their aspirations using information and communication technologies. TARAhaat is an example of the Franchise Model of telecentre movement in India, which relies on entrepreneurial abilities, to be promoted at the telecentre manager level. The group's efforts have been recognised through numerous national and international awards, including the prestigious United Nations Sasakawa Environment Prize, the Stockholm Challenge Award, the Klaus Schwab Award for Outstanding Social Enterprise, the Jawaharlal Nehru Prize of the Indian Science Academy and the UN Global 500 Roll of Honor.

1. A venture of blending commercial and social programmes

1.1: In order to empower the local community through information technology, TARAhaat designs and produces products and services for local needs that are delivered at the footsteps of the rural communities. To ensure greater access to the community, it is done in the local language. A typical TARAkendra has 3 personal computers, printer/webcam, a dial-up connection, and a backup generator. The important aspect is to train the operator and build his entrepreneurial capacities, enable financial linkages, and undertake provision of services. The model works on fee sharing basis between the TARAhaat and the Franchisee.

1.2: Services offered cover areas of Health, Education, Agriculture, Governance and Business. This is done through: micro-enterprise development, education and vocational training, information and

communication (weather information, and agriculture produce prices (Mandi prices), government schemes, job postings, etc.), community programmes, and governance related services. Though such services may bring a community development options, the choice of a particular service is made against its selling value. The concept is that infrastructure alone will not be able to bring access and the social mobilisation and management of telecentres, and so the services have to be integrated as well.

1.3: One important task for the success of the TARAkendra is to inspire locals to join hands with the TARA team i.e helping to involve the local community. The process has been such that for ICTs to reach people, TARA has had to go to the people, to make them adopt and understand the utility of these technologies. An important feature of TARAhaat centres is that everything comes for a price. For using the telecentres, and enrolling in the various IT courses run in the centres, the locals have to pay. This is considered to be helpful in the circumstances, as with a price, local people have had a tendency to attach 'value' to the services, as most free services are thought to be ineffectual. The centres also identify local representatives. These representatives are selected from within the villages and are then trained to either become teachers at the centres, or join the marketing team to encourage more people from the village to join the centres. Often these representatives are past students of various courses in TARA centres, who are inspired to continue the good work.

1.4: Capacity development and spreading entrepreneurship has been important component of the initiative. For capacity development programmes, there are three tiers of training modules: basic skills in ICTs, Life Skills (English Language and Personality Development) and Job Skills (selling skills, accounting package, diploma in IT, office administration, hardware assembly, etc.). For spreading entrepreneurship, the key element for success of the model, the programme has come up with specialised e-Learning modules, supplementary resource materials, specialised training programmes for specific enterprises, manuals for processes and training, and business plans and linkages.
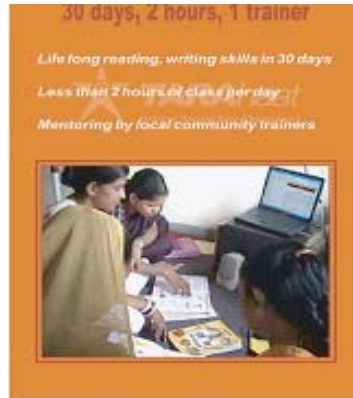
1.5: TARA Akshar literacy programme has been introduced in a number of TARAkendras for empowering the rural communities by overcoming the learning barriers and to tap the unlimited potential of the communities on a scale. The programme is designed to be conducted by one trainer, in a 2-hour daily class, and promises to create reading skills in just 30 days. This has been suitably modified for the various provinces (states) in India, and adapted to local languages.

1.6: Efforts are on for expanding the coverage of TARA Akshar literacy programme across more kendras throughout India and strengthening grassroots communities. In the coming days Tarakendras are expected to offer public services -e-Governance, transactions, vocational skills for youth, Enterprise Development Services, and innovative product delivery mechanisms

Figure 1: A TARAgram in Orchha, near Jhansi, Uttar Pradesh

2. The project engaged a range of partners with a variety of services

2.1: The strategy is to build alliances with various partners, and to provide co-branding to appreciate the support received from various

partners. This has been highly successful in bringing in a variety of suitable partners for various services being rendered at the TARAkendras. They include Shell Commercial energy for a million households, Microsoft Unlimited Potential-IT curriculum and training support, ICICI Bank-Channel for loan products, ICICI Lombard-Channel for insurance products, USHA Certified vocational courses for women-Training and capacity building activities, Samsung Digital Hope-Revolving fund for entrepreneurs etc.

2.2: Besides, the project as a whole has engaged with a number of NGOs, academic institutions, networks, and government agencies at the local level, to bring in expertise and collective action for finding relevant solutions. Through the use of creative signage, and wall posters, the project seeks to bring greater awareness. Both outdoor and indoor publicity is accorded, being an important aspect of recognising and valuing the support received to make this a successful programme. They have also been used for running a campaign to promote clean energy products and introducing the concept of green villages, thus addressing sustainable development issues.

2.3: With support from UNDP's ICTD Programme, administered by National Institute for Smart Government (www.nisg.org), the TARAhaat programme has benefited from technical support right from assessment and monitoring, to evaluation strategies.

3. Outcome and impact of the intervention

3.1: TARAhaat telecentre network has made a serious impact on the people it serves in the heart of rural India, covering different states. TARAhaats have been bringing positive changes in the lives of many. An impact assessment study was undertaken by Centre for Science, Development and Media Studies, in February 2007, which can be accessed   a t (http://www.i4donline.net/articles/current-article.asp?articleid=1036 &typ=Features). In 2001, an impact assessment of the TARAhaat portal was conducted by Digital Dividend team at World Resources Institute, and the full report can be accessed from http://www.digitaldividend.org/pdf/tarahaat.pdf.

> *Box 1 : Tarakendras have been offering numerous benefits to the community*
>
> *There are a number of examples of the positive impacts on the lives of rural community members, through different TARAkendras. Following are a few examples :*
>
> *Ravinder Kaur, a resident of Nurmahal in Punjab, completed the Practical English Learning Programme from the TARAkendra at Nurmahal. She's got a job at Akal academy, as an English instructor, in Bilga village.*
>
> *The bank employees at Regional Rural Bank, Tikamgarh, in Uttar Pradesh, were having problems of their own. The bank had installed computers and the employees had not had any training at all. Instead, they were told that if they didn't develop their proficiency within two months, they would be transferred to different places. They tried the local computer centres but soon found that the quality was not up to the mark. Finally, they came to know about TARAkendra and joined the TARAlite course specifically designed for working professionals, as well as FoxPro, on which the bank software was actually based. Today, they have won the confidence of their manager and are gearing up for a more rewarding career at the bank.*

4. Handling challenges in managing and implementing the ideas

4.1: The most difficult challenge while implementing the socially relevant programmes is to mobilise the community to participate in meetings and to elicit their points of view. How to continue and sustain the interest of the communities for active participation is the second level of the challenge. Another key challenge faced is to build relevant, context specific content, catering to the localised needs of the community, and to plan context-specific activities, as they cannot be prepared as generic content, but have to be adapted to suit the local conditions. Moreover, capacity building of low skills people, lack of connectivity, poor infrastructure, limited sources of finance, and combining social impact with financial viability have been other challenges.

4.2: Minimising the drop out rates of the entrepreneurs who have taken franchises of the TARAkendras has been achieved by taking into account the financial viability for the entrepreneurs, while being present to provide community engagement and support for change management. By having the right mix of various telecentre models and providing stable territory networks that support the various telecentres, and engaging the operators for regular consultations and problem solving, they have been able to create the key elements of success. The key points are: ensure inclusion, manage risks, and enhance network viability.

5. Ownership and replication of the model

5.1: The TARAkendras, being a meeting point for the youth, women, and children, creates a social space for community mobilisation. The combination of "click and mortar" activities, i.e., ICT and non-ICT services packaging, and creating the crucial market and financial linkages, after capacities are developed, are clearly the processes to undertake. The management team feels that it is important to combine financially viable services with socially relevant and empowering services, to ensure success. The organisation's various capacity building programmes are well documented and become valuable resources for others to use, replicate, and adapt, in India or abroad.

5.2: The TARAhaat model is a proprietary and franchise model, and would like to safeguard the intellectual property of the efforts, to build a successful mode. It is an example of how institutional methodologies developed with deep social engagement can create successful telecentres. There are opportunities for other practitioners to visit the telecentre projects and talk to various operators and beneficiaries. The TARAhaat model has recently been supported by telecentre.org to create a query answer service that will not only help this network, but also other practitioners, for replication in India and abroad.

6. Highlights of the Project/Programme

6.1: It has a commitment to the community, to a long-term engagement and to excellence. It has demonstrated the ability to identify and deliver need-based services.

6.2: It offers a right mix of commercial and social programmes.

6.3: The team members constantly work at the grassroots level to convert weaknesses to strengths, by bringing in institutional expertise that comes from the Development Alternatives group.

6.4: It is a business model, and is commercially viable by design. It has been creating local capacities to offer diverse products/services.

6.5: The project activities have a strong field support. Building linkages with local governments, civil society organisations, and communities, is an important component for its success.

Access *www.tarahaat.com, www.i4donline.net, www.digitaldividend.org/pdf/tarahaat.pdf* for further information.

Community Library and Information Centre, Gaighat

Nepal

With a vision to create a well informed and literate society and mission to work with local communities to increase literacy and people's access to information and knowledge Rural Education And Development (READ) Nepal (the branch office of READ Global in US) has been establishing self-sustaining community libraries since late 1980s. A resource centre of local area and a source of knowledge and information, READ supported libraries have turned out to be a platform for people to come together and performing a range of community development initiative. Community Library and Information Centre, Gaighat is one of the READ established knowledge centre that is piloting and adding some unique feature to the ongoing library project of READ. READ is the pioneering and only organisation working to promote community libraries.

August 21, 2006 is marked as the historic day for READ Nepal as it received the 2006 "Access to Learning Award" from the Bill and Melinda Gates Foundation. READ earned the honor for its pioneering approach to providing no-cost computer and internet access to rural Nepalese communities and for its incessant efforts in promoting information and literacy from the grassroots level.

1. Building Literacy and Communities through Library- A Journey

1.1: The journey of the movement started with the establishment of first community library in 1991 in Junbesi (of Solukhumbu District of Nepal) with the support of READ Global an US based voluntary organisation. Initially the setting up of library i.e. a set of books in a room failed to attract much community people. In such a circumstance the READ Nepal strongly felt the necessity of community mobilisation and broadening the activities of the libraries for the creation of a resource centre for the community people.

1.2: Community mobilisation and making community people understand the importance and necessities of such a knowledge centre came up at the centre stage. Meetings with the communities and different social and political groups, and discussions with different stakeholders came up with extended objectives of the project; new strategies for ensuring greater community involvement and ownership feelings; and expansion of the components and activities of the library. The broad objectives took the shape that incorporated education and economic growth through income generating activities; and social development to promote right to information through dissemination of ICT services. Mobilisation effort of participation and discussion of the local communities came up with good results and power of unity of the local community works. The broadened form of community library transformed into a Community Resource Centre with the incorporation of a number of components and activities that include arrangement for child play and education, meeting and education for women, arrangement for computer training and information dissemination etc.

1.3: As of October 2007, a total number of over 46 such libraries were established in the different locations of Nepal those were serving as a store house of knowledge and information, and were working to create space for the community men and women to embark on a range of development initiatives. Each centre or library was not merely a small rooms, it owns the building. Each library was equipped with different sections apart from library such as: children section, meeting hall, audio visual section, telecentre, cultural section etc. Being the integrated development centre, it stood as the community resource centre facilitating wide range of information and knowledge.

2. Setting up of Community Resource Centre at Gaighat- A Success Story

2.1: There was one library in Katari (approx. 80 km away from the Gaighat). Some of the villagers came across the library they were feeling the need of the community library in their area. So they

approach READ and submit proposal according to its guidelines. Thus, in response to the community need and demand, a community resource centre was set up in Gaighat, Udaypur in 2006 with the objectives of providing education through library and literacy; generating employment and creating equal access in the world of information technology; dissemination of local content and success stories regarding education, health, agriculture, gender equality, vacancy announcement etc.; and facilitating a place and centre of community development initiatives by the local people. Children, farmer, housewives, teachers, students, and organisations of the area and locality were the target beneficiary of the centre.

2.2: Due to very good response from the local community and effectiveness of the local management committee [called Library Management Committee], the library started operation successfully with its different components: cultural section; women section; children section; reading hall; community hall; audio-visual and sports centre and telecentre. A total number of 10000 books were maintained by the library for its readers. Other than offering book lending, the centre became a place of child and women education, a meeting place for the community people, a centre of obtaining training, and a great source of information and knowledge.

2.3: The telecentre, an integral part of the community resource centre, was the outcome of continuous hard work of the community people. Users Groups started obtaining information on different aspects as health, agriculture etc. from the telecentre using its local language database and internet services. There were lending of CDs and VCDs, TV and documentary shows, internet, computer education (basic and advance level both). For dissemination of information, the library introduced Equal Access Multimedia Datacasting System under which content received from the satellite (via receiver and antenna) were printed and patched on the notice boards and placed in different places of the area. Moreover, a Wall News Paper called SANGAM SANDESH was being published twice a month and distributed in every school and government organisation of the catchments area. Other programmes of the library included agricultural exhibition, sports competition, awareness raising session on the first-aid etc.

2.4: The community resource centre introduced some income generating activities like photocopying, telephone services, fax services, printing, commercial renting and training services etc. The centre also kept the provision of charging very small amount from the community people as membership fees. The funds generated were used to meet expenses of staff salary, stationary, news paper and magazine, repair and maintenance cost and other sudden requirements.

3. Book, Knowledge and Information to Everyone- Mobile Library in Gaighat

3.1: Setting up of a library in Gaighat was good news in the people who were interested in reading and obtaining information and knowledge from the library. But the people who do not live near the library and cannot afford to buy books or computer were not getting access to the community resource centre. On the way to make Community Library and Information Centre more accessible to the community people the piloting of the idea of mobile library started in Gaighat, Udaypur in April 2007. The innovative system of distributing books was designed - through mobile libraries- to help people get the book they want at their doorstep. It was started by Gaighat's Sangam Community Library. The library or the community resource centre was already taken off well and was well received by the local communities around the area.

3.2: In the beginning, the Sangam Library employed five youngsters to distribute books. They would go from door to door, making inquiries about which book people wanted to read and provide the books thus chosen. With the start of the book distribution service, the number of people reading books in the locality increased considerably and the number of youths involved in the service increased to twenty one. The twenty one youths traverse the area on their bicycles, drop into homes, drop off books and return in seven days to collect the books. Other than distributing and collecting books they also started distributing and collecting education and documentary CDs and VCDs.

3.3: The mobile library also became important means of collecting problems and concerns and requirements of the community people and providing relevant services accordingly by the mobile service providers. Thus other than collecting books, CDs, DVDs, the mobile library service providers provided with various information services to the community people and thus help them solving the problem being at home only. For example, a mobile service provider might get information on application filing procedure of passport from the internet, content base, or relevant office and reached to the household.

Box 1: Gaighat is Unique of All READ Supported Library

This library is functioning as other libraries of READ. But more than that this library as been unique due to following characteristics:

It performs more activities and has wider collaboration/networking with other organisations. Not only are the individuals of the community but also the organisations (Government and Non Government) the members of the library.

It collaborated with the schools around the periphery. Each child of the school is the membership of the library.

The use of ICT is maximum. As of October 2007, more than 500 participants are trained in computer. Most of them are in job.

The concept of mobile library has first been introduced in Gaighat that came up as a great success.

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4. The Community Resource Centre Affecting the Lives Positively

4.1: The library started helping people from all walks of life of Gaighat. The students who could not afford to buy books benefited greatly from the library. Students and youths were obtaining training and education from the centre. Housewives were given self-help books on house-keeping cooking etc. and a meeting place; children were provided with relevant literature and playground; and professionals and teachers were greatly benefited by the useful books and source of knowledge. Over 500 students from different schools

in the region, over 1200 households, and officers from many offices became members of the library and obtaining benefits. The library resources helped a lot in capacity building and creating employment opportunities to the community people.

Figure 1: Inauguration ceremony of Book to Every home Programme

4.2: The mobile library started developing reading habits and enhanced people's access to knowledge. The fifteen mobile library service providers were covering a great number of households. On an average, each service provider was covering 150-200 households in a week. Along with receiving books from the library, the households were being benefited by obtaining other required information and knowledge with the help of mobile service providers only in exchange of very insignificant expenses.

Box 2: Capacity Building Using the Library Resources

Mr. Dhan Kumar Shrestha who has been involved in the library since its beginning has developed reading habits. He has interests in the development area. He gained knowledge and exposure using the resources of the library. He has found the real platform for capacity building in the library. Using the platform and resources of the library, he has mobilized a team and made maximum contribution for the institutional development of the library. Now this library team can confidently train and help others.

Figure 2: The books at their doorstep: The women and children selecting books

4.3: Other than dissemination of information from its telecentre, the employees of the Sangam library of Gaighat gathered information pertaining to their locality and, twice a month, publish them on wall papers. The areas of information covered job openings, livestock sales taking place and other information relevant to the community. Thus the library became the focal point in Gaighat for the exchange in trade information.

Figure 3: The old woman and others selecting book of their interest

4.4: The monthly income of the centre from income generating activities stood at over Rs.60000. By meeting the operating expenses, the library started financing development initiatives of the community people. Recently the Library donated funds for the road construction, building electric poles, women mobilisation activities, waste management initiatives in their locality etc.

5. Important Supportive Aspects of Implementing the Idea: Partnership, Cost, and Financial Sustainability

5.1: Partnership has been very important in establishing library in different areas of Nepal. Local community has always been the major partners in establishing and managing the library project. Other than READ and Sangam Community Library, HURENDEC- Human Right and Environment Development Centre, Seto Guras Child Development Centre, Committee for Law Research Centre and Sangam Multi Purpose Micro Credit and Cooperative Ltd played role in establishing the Gaighat library.

5.2: Initial support from READ to meet the expenses can be maximum USD 25000 for the library building construction, books, furniture, trainings and sustainability project for the library. However, the funding support depends upon the size of the community, topography etc. The other expenses mainly connected with operation and maintenance of the library must be borne by the community.

5.3: Operating expenses and staff salaries are important component in running such a centre facilitating a great number of activities and services. It promotes voluntarism. The employees get less than what the even financially contribute to the library. For example, mobile service providers get 60% of the contribution of the households to whom they provide mobile services and remaining 40% are contributed to the centre.

5.4: Each library supported by READ Nepal has a sustainability strategy. The income generating activities under the library management differ from place to place depending on geographical location, scope for income generation from the activities and need of the community. From stores, telecommunication and photocopying, fish pond, printing press, saw mill, ambulance etc. are few of the activities run by the libraries. The sustainability activities must meet the expenditure of staff, maintenance and other operating expenses. Gaighat library was offering telecommunication, fax, printing, commercial training and rental services and was successfully covering its operating cost.

6. Management and Operation of the Community Resource Centre

6.1: Management: The READ supported libraries have been managed by Library Management Committees formed in different localities. The committee must have representation from every stakeholder in the community including local school/college, teachers, VDC (Village Development Committee) members, social workers, NGO representatives, farmers, businessmen etc. Nine member management committee representing all the partner organisation was responsible for managing the Sangam Library.

6.2: Operators: A total number of 25 Volunteers and staff are actively engaged in the day to day operation of Sangam Community Library. The operation team work under the management and guidelines of nine member main committee looks after the library activities.

6.3: Capacity Building: Mr. Madhu Sudan Shrestha is well versed in software and hardware computer application. Similarly, Renuka Basnet, responsible for Digital Story Telling (DST) making and Equal Access Datacasting system has got training in respective field organized by READ, UNESCO and Equal Access Nepal

6.4: Evaluation: The door to door volunteers (mobile library) collect the feedback and are discussed during the meeting of the management committee. Telephone feedbacks are also contributed in correcting and rectifying regular activities of the centre. READ generally do not intervene in the day to day activities and operation of the centres. However, it may undertake supervision and evaluation when required, and it has a plan to undertake evaluation of centre after operation of five years.

7. Ownership and Replication of the Initiative

7.1: Local library is owned by the local community from the very first day of their establishment. It is centre with community participation,

community investment and community ownership. The library follow the participatory approach which is the process by which the beneficiary influence the direction and execution of a development project with a view of enhancing their own well being and empowerment of community as a whole.

7.2: READ Nepal's venture could be seen achievable through replicating its model libraries in collaboration and partnership with the community and with the other interested national and international institutions. With a target of developing 50 more libraries by 2012, READ Nepal is expected to expedite its service and involve intensively in exploring and forging partnership with likeminded institution. READ Nepal planned to initiate dialogue with READ Global in order to ascertain appropriate support and expertise to expedite its implementation process.

8. Highlights of the Initiative

8.1: Bottom up Approach: All the community libraries established by READ are based on need and demand from the community.

8.2: A Resource Centre of the Community: The community library does not merely have a small room. The community owns the building equipped with different sections for children, women, audiovisual show, community hall, telecentre etc. Being the integrated development centre, it stands as the community resource centre as it provides wider range of information and facilities for all.

8.3: Invested and Owned by the Community: The centre is based in the community and have self legal entity. The community households in the community have the investments in the community resource library in one or other ways. The overall management and accountability of the community library lies in community itself. It is community operated and owned by the community.

8.4: Participated by all Classes of People: The community library is not of the educated and literate people only; it is open to all classes and communities of the locality: farmers, low cast group, women, children, teachers, businessmen etc. It promotes inclusive active participation for all.

8.5: Promotes Community Development: The community resource library does not only provide the library service but also conduct and run various programmes according to the need of the community. It collaborates with different agencies for the effective implementation of integrated development programmes for the community.

8.6: Promotes Volunteerism: The community library is promoting voluntarism and making every members of the community socially responsible.

8.7: Self Sustainable: The community resource library is in a position to meet its own operating expenses and run the centre smoothly. It haws components needed for its self sustainability: income generating activities, community participation, institutional development and networking.

Access *www.udayapur.com/sangam/index.html* and *www.readnepal.org* for further information

Rural Database- a component of Amader Gram

Bangladesh

Rural Database is one of the components of Amader Gram Project implemented by Bangladesh Friendship Education Society (BFES). Amader Gram is a ICT4D Project targeted to build knowledge society under a pilot scheme (Action Research) that has been supported by the Ministry of Science and ICT, Government of Bangladesh (July 2004 - June 2006) in twenty villages of Bagerhat and Khulna Districts in southwest Bangladesh. Through setting up 'Knowledge Centre', the project targets to provide access to information and Transfer Knowledge from 'have' to 'have-not's'; to support ICT & ICT based Education at the community level; to promote local knowledge for development; and to improve rural livelihoods through integrated development programmes. The Rural database component has been implemented as part of a set of other activities to achieve the project goal. Rural Community people (all segments/all professionals/all classes/all) and government agencies are the target primary beneficiaries of the database activity. International organisations including ITU did case studies on the programme and recognised it as one of the best model programme in the world.

1. Introducing Technology and Creating Awareness in a Remote Village

1.1: When the project was started in 2003 in a remote village of Bangladesh with the setting up of knowledge centre or Gyan Kendra, a very few people knew about the computer in the area. With the objective to introduce computer among the villagers, a special Rickshaw Van was built to carry a computer in the nearby villages and was introduced among rural poor people with the new technology. The van was carrying a banner containing the message 'Sobar Aaghe Jante Hobe Thathya Projukti' (You should know first, what the Information Technology is?).

1.2: At the beginning it was an essential step as rural people hardly knew about computers at that point of time. The findings of the baseline survey observed that during the 'technology introduction period' 98% of the rural people recognised computer monitor as the Television, and there was no computer in the village (Rampal, Bagerhat) before 2003. Amader Gram Project took the first initiative to introduce computer in Rampal in the year 2003.

1.3: Initially educational institutions (schools) and hat-bazar (market places) were the target areas. School students and rural people were allowed to use the computer for writing their name and print it free of cost from the van-based printer. One of the most significant things was that the Van driver acted as the demonstrator, who was provided with necessary training before introducing the demonstration or 'introduction exercise'. 'Announcement about the computer and knowledge centre' was also part of introduction and awareness development activities.

1.4: The initial exercise came up with a good outcome as greater and greater number of people started visiting the knowledge centres to see and use computers. Even a good number of girls and rural women started visiting the centres.

2. Capacity Building and Skill Development as Foundation Work

2.1: As introduction and awareness development exercise reached an expected stage, computer training was started. The first group was the village youth having basic literacy. Guided by the baseline study and ongoing project activity analyses, along with other village groups, students and teachers, computer was introduced among members of governing boards of different schools in the locality. So, it was not easy to bring the 'School Teachers' under the computer training programme of the project. It was observed that due to ongoing awareness development activities, motivation of the teachers and community mobilisation, the enrolment in computer training classes increased gradually.

2.2: The training was not free or cost and an amount of Tk. 1000 was charged from each student for computer training. The fees cover their training, course materials and life long practice opportunity in the computer centre. The villagers paid the course fee in installment.

Figure 1 and 2: Technology Reaching at all levels

2.3: For training purpose, Microsoft developed curriculum was used, which was customized. That was not an easy task. A very long process of negotiation with Microsoft made it possible to get permission for the customization.

Figure 3: A Centre at a village

3. Gather Rural Information Involving Rural Youth- Creation of Knowledge Base

3.1: At one stage of the training and skill development activity, students were assigned to gather information on their locality as part

of Access and Visual Basics course. It created opportunity to develop local database. So, a few software using visual basics were developed for the purposes.

3.2: The students were responsible to collect information on villages and gave input in their computers. By doing so, they were developing and sharpening their data gathering and computer skills. The process gave rise to a survey group whose responsibility was to collect information from village homes for the creation of the database.

3.3: By the time date gathering took the form of formal survey. It was started with the preparation of a structured questionnaire/form and collecting demographic information on the village. Then a household survey form was developed and the survey team started visiting each and every household of villages. A group of trained village youth was engaged in entering information in the computer database.

3.4: The activity reached to a tremendous peak and the villagers themselves were able to gather information on 5 villages. Other than demographic information, database covered birth and death information on village households, poverty status of the villagers. It also included disease and doctor's name and phone number etc. The Centre was supporting Union Council for developing list of Boisko Bhata [old age benefit] list. Very recently BFES signed a contract with OHIO University of USA for studying on morbidity. Morbidity Database would be developed in the project area. Data collection process was already started.

3.5: The database was updated quarterly and regularly. It has separate ID for each household and provision for collecting information and updating accordingly. As the team consists of the villagers and already well trained, they became conversant and comfortable with the process. The well trained group was also engaged in training and grooming the new young group for the job.

4. Database Created Huge Knowledge Base and Information Source

4.1: Village people and other interested parties obtain necessary instant information from the database. For example, if anyone wants information, like early marriage, the database might be used instantly to provide the information. The database activity is supporting local Union Council in gathering relevant information. Upazila [sub-district] administration and local NGOs were using the database for necessary information and data. Moreover, it came up with remarkable findings/observations [box-1] on the village livelihood to use as information/knowledgebase for the academicians and inputs for the policy makers.

Box 1: Capturing True Picture of Village Livelihood

The poverty related information on the villagers capture true picture of the villagers. As per popular definition if anyone has less or equal of 50 decimal land, he or she is poor. But the database came up with the findings that a person, who has 5 to 10 bighas of land, is still poor in the project area. It was observed that their living standard is even poorer than the owner of 50 decimal lands of other places of Bangladesh. In Bagerhat, per household land ownership is comparatively higher than other regions of Bangladesh, but the production of crop far less than other places. One of the reasons is that vast land area lands are affected by salinity due to shrimp cultivation. The Shrimp cultivation has also affected the lifestyle of the inhabitants of the locality. A farmer now became fisherman or night guard in the shrimp cultivation projects. So, this night guard sleeps during day time. Women are responsible to do all the works; which was done by the male members before. These changes not only changed the life cycle, also changed the family culture.

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5. Technology Reaching the Core Levels and Database Generating Income

5.1: Students and young villagers were involved with the job in between their study times or other works. And very importantly, they were not volunteering and getting due honorarium for survey and data entry. They were paid Tk.5 for filling up per questionnaire and Tk.10 for data entry per questionnaire. The job of data entry was particularly encouraged as it needs computer skills.

Box 2: A Young Boy from Poor Family Blessed with a Better Life

Shafique, son of a Rickshaw Van driver, came across the knowledge centre when he was at class Six. His mother was the member of the knowledge group. He learnt how to operate computer and data entry from the training programme of the centre. By the time Shafique successfully passed his Secondary School Certificate with grade A. Along side studies in a college, Shafiq involved as the assistant trainer in the centre. His father is still working as the Rickshaw van driver.

5.2 : The changing socio economical situation in the village appeared to be very positive and matched with the intention of launching Amader Gram Project in the village [Bagerhat] i.e. helping the young generation by accommodating them or attaching them with technology. The hard work was found giving success. After receiving computer training locally, the young generation was engaged working under the project. Even village growers and vegetable sellers were found interested in learning and enriching by computer skills.

Box 3: Technology Reaching to All Levels

Pritom is working as a team member of the data entry team. He gives 3 to 4 hours daily. Rest of the time he sales vegetables in the local Bazar. Alongside his main profession i.e. selling vegetables, he involved in data entry operation and thus enhancing his computer skills and earning.

5.3: Rural youths were collecting information, giving input in the computer, creating and enriching database and providing information to the interested parties. In performing their jobs, they felt empowered and involved in their job with confidence. Girls were also taking part in the programme alongside boys. We had arranged a Knowledge Fair in 2004. Schools from our project area took part with their computer and computer based projects. It creates lots of discussion among the locality as well as in media.

5.4: In the ongoing phase data were gathering from the villages and giving entries to the centres only. As per the project plan, villagers would get the opportunity to give data input directly at their home computer in near future. They would be provided with mobile disk or per drive so that they could bring the gathered information at the end of the week to the centre. It would help to decentralize our programme. According to the plan, one computer would be provided to each village and one boy and one girl would team up for the job. They would be able to start their own digital studio. They would be responsible for collecting all relevant information of that particular village.

6. Important Supportive Aspects of Implementing the Idea: Partnership, Cost, and Financial Sustainability

6.1: As mentioned earlier, it is one of the activities of the Amader Gram Project and funded by jointly Swiss Agency for Development & Cooperation (SDC), Department for International Development (DFID), Microsoft Corporation under Unlimited Potential Programme and International Breast Cancer Research Foundation (IBCRF). Total project cost is estimated to be around 2.5 lac US dollar for 7 years. Around 9 percent is allocated for the rural database activity.

6.2: No specific revenue model was planned at the time of designing of the project. But by default design it is a cost effective project activity and there is a clear cut hand over plan built in with in the

project. As per plan, in the year 2008, 25% of the activity cost would be borne by community, which would increase to 50% on year 2009 and 75% on the year 2010.

6.3: It was calculated that the cost of the training programme per person was Tk.2200, so the rest of the amount over Tk.1000 was offered to the community people as subsidy. Initially, the project received government funds from Science and Technology Ministry for running the training programme.

7. Ensuring Effective Operation: Management and Supervision of the Knowledge Centre

7.1: Management: The project was supervised or managed by a team of five people. Four of them were from the locality. They were chosen by specified criteria, like one ex headmaster, one religious leader, one ex-chairman and one respected housewife and the other person from the implementing organisation. This five member's committee was acting as the Implementation Team of the project. When the project would be handed over to the local community in the year 2010, Project Manager would replace the representative of implementing organisation. A total number of 21 persons were so far engaged in the rural database activity in different capacities.

7.2: Local Supervision: The project incorporated provision of sharing information on database in the community meeting. News was regularly published in the Amader Gram Newsletter. People of the locality already knew that they could use the database as and when necessary. Open to all without any restrictions. Feedbacks were regularly collected and documented.

8. Ownership and Replication of the Initiative

8.1: At the moment the project is owned by the implementing

organisation Bangladesh Friendship Education Society (BFES). From the very inception, it was decided that by 2010 the ownership would be transferred to the community people.

8.2: The mother project can be implemented and the mother project i.e. Amader Gram was already copied in 10 different places in Bangladesh. The project component i.e. Rural Database project was being implemented in three places in India, one in central India and two in the West Bengal.

9. Highlights of the Project

9.1: Community by Themselves Perform: The bottom up exercise at the pilot phase involves local youths to gather information, and provide ICT access through Gyan Kendra (Knowledge Centres) in different villages. That is, the rural youth develop the software, design the database, collect information and develop database.

9.2: Value Addition and Suitable Technology for the Rural Community: Value addition to the raw information, use of the local language (Bangla) and multimedia (to facilitate illiterate users) and participation by local people right from the beginning.

9.3: Ensuring Involvement of Women: Most of the operators and workers providing primary information are women, thus giving them status. The plan of allocating computer in each village would be owned by one male and another female.

9.4: Knowledgebase for All Classes: The Database is a multidisciplinary information source supportive to all rural classes and the government agencies.

Access *www.amadergram.org* for further information

School Telecentre

Nepal

1. The experiments of community telecentre by the Forum for Information Technology (FIT) Nepal with the partnership of local youth club and small NGO could not come up with satisfactory outcome. FIT experienced lack of commitment and malpractices on the part of local youth club and NGO in running the centres. In search of competent and able management, then FIT started piloting telecentre at a school. It was the first such initiative in Nepal. At the same time a Korean NGO KOIKA (Korean International Cooperation Agency) was piloting a similar initiative in a different school. Based on the experience, later it was agreed that FIT Nepal would implement 11 telecntres in 11 schools with the support of KOICA and NITC (National Information Technology Centre of Nepal).

2. A total number of 11 schools were selected. After selecting the schools, equipments installations process started at different schools with the equipments handover ceremony at Indreni Complex, Baneshwor in January 2007. Different groups of people from FIT Nepal on different dates took those equipments using various means of transportation and visited the schools personally with the main objective of installing these donated computers properly and giving a technical training to the concerned persons of the schools for the proper and effective operations of those equipments as well as giving a brief introduction about the "School Telecentre Project" and the desired outcome of this project during this period of one year. Each centre is provided with 5 computers, scanner, fax, telephone, and printer. Room and local infrastructure are provided by the school. Each school is also provided with a recorder for recording community radio programme.

3.   After the installations and trainings, every telecentre was inaugurated officially in order to make the local people aware that the new telecentres have been established with the purpose of benefiting

the local people as well as the students with the very basic facilities of information and communication technology and computer trainings for building the skills. Apart from that, the inauguration programmes were also intended to disseminate information to as many people as possible and to state that the telecentre are not limited to the students of the schools only but also will offer its services to the local community as well. For this, various media, local FMs, televisions and newspapers were requested to support this noble cause in spreading this message around the country.

4. The impact of the school telecentre has been very positive. The community people are very much benefited by this intervention. The community people are now able to use the new technology and they are given the capacity building training from which they are now able to communicate easily with the mass of people and were also able to share their ideas and put forward their problems.

5. A management committee is there to take care of the operation. The committee has members of governing board members, teachers, community people and parents and a representative from FIT Nepal. A number of two employees of FIT Nepal are engaged in managing the project activities from their side. FIT Nepal people pay monthly visit and provide training on different areas to the members of community club (operator or manager and a community representative). The community club also responsible to give a presentation during the training period on the activities of the centre. So, that also works as a monitoring tool and getting feedback by the FIT Nepal.

Box1: Challenges and Problems in Managing School Telecentre

Community is not always welcome by the school authority in the school complex and school authority hardly takes care of the community. The teachers or staffs who are not involved in the activities or handling computer feel deprived in some cases. In some instances governing boards do not cooperate on political or other ground.

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6. No revenue model is developed for making the project financially viable. Even after availing equipments free of cost the centres hardly can make money to run the centre comfortably. Whereas providing similar services, private centres are earning money in the same locality. Probably approach is the responsible factor.

7: The local centres are owned by the school governing board. After the completion of the project phase the Korean firm is thinking about setting up another 100 school telecentres. Actually initial effort of FIT Nepal running telecentre by local NGO of club could not be successful. There were tendency among the local club to use there computers for business purposes and personal use. But after setting up telecentres in the school that problem is no more.

Access *www.fitnepal.org.np* for further information

Industrial Information Network

Pakistan

1. Pakistan's first B2B (Business-to-Business) and business information portal, "Industrial Information Network" (IIN) www.iin.com.pk, has been launched in June, 2005. It aims to make use of IT for industrial and economic development in Pakistan through providing web-based vital information and institution support services, which would translate into high economic gains for the country. It would indirectly spread the use of IT in the country and would form a major part of the e-commerce infrastructural initiative of Government of Pakistan. IIN is a joint Initiative of Ministry of Information Technology and Telecom, Ministry of Industries Production and Special Initiatives of Government of Pakistan and Small and Medium Enterprise Development Authority (SMEDA) Government of Pakistan as executing agency. It targets to promote online trade and Business. Small and medium enterprises, young entrepreneurs, women, self employed individuals are the major target beneficiaries. , Initially the project completion date was December 2006 but the project has been extended till June 2008. It was selected as a Model Project for E-Business Development in WSIS 2005 in Tunisia, by UNIDO.

2. The service is accessible any time via internet. IIN has been introduced at many platforms through seminars, link exchange at government and non government websites, institutes, E-marketing campaigns, through collaborations and partnerships at national and international level. Academia has also been approached and presentations have been presented at different levels and at different stages of project development. It is a unique platform for all kind of business information, and for promoting and facilitating the online business to business transitions. It is a platform to convert the conventional methods of business to modern methods by the use of information technology. For the SME entrepreneurs who have never had used computers, IIN provide personalized service in helping them develop their basic IT skills and get web presence to trade online. It is therefore planned to set up Business Information Centres

(BICs) in different industrial clusters to cater to the needs of SMEs in those clusters. The Business Information Centres facilitate as the focal point for IIN activity in each sector. These centres would be established all over Pakistan for the benefit of SMEs.

3. The project is envisioned to be the largest and most comprehensive (one-stop-shop) source of industrial information, and the biggest e-commerce portal in Pakistan. Being an underdeveloped country Pakistan has a huge scope of information technology usage and development. Industrial information Network is such an initiative which is helping to create the awareness among the masses and there was need of the growing cyber economy to develop such a platform for the common users. As of October 2007, there are more than 4856 registered users of IIN; traffic is more than 283 daily visitors and 4651 hits per day.

4. SMEDA has a dedicated team working for implementation and smooth operation of the project. Feedbacks on the services can be given online any time. Feedback from industry comes through chambers, associations, trade bodies etc. and such feedbacks are more of a demand of information.

5. Maintaining the technology and R&D for content development is a continuous process that has to be updated with the passage of time. To run these activities resources would always be required in the form of hardware, software and man power, so financial stability is essential to run the project smoothly.   Revenues through advertisement and selling of place at website cover partial expenses and remaining expenses are met by the Govt. of Pakistan.

6. The infrastructure of the software is developed in such a way that addition of new sectors can be done easily with minor enhancements and modifications in the configuration of the software. Portal is made flexible anticipating the requirements and changes may be required in future and can be incorporated easily. Islamic Chambers of Commerce and Industries (ICCI) is in the process of replicating the project Industrial Information Network would assist Islamic Chamber in this venture.

Access *www.iin.com.pk* and *www.smeda.org* for further information

Nepali e-Haatbazaar

Nepal

1. RUPP jointly with High Level Commission for Information Technology (HLCIT) and Agro Enterprise Centre (AEC/FNCCI) initiated "Nepali e-Haat Bazaar" (www.b2b.com.np) as a National B2B e-Commerce Service in Nepal in 2003. The main objective of implementing Nepali e-Haat Bazaar is to establish single electronic gateway to promote trade and market linkages within the country and with the international markets. Services available in the system are the platform for contacting buyers and sellers, get daily agricultural price information, facility for promoting products, list of buyers and sellers, etc.

2. For the effective operation of Nepali e-Haat Bazaar, the Central B2B e-Commerce Wing at AECwas established. AEC started the Nepali e-Haat Bazaar in 15 different Districts with the collaboration of Chamber of Commerce & Industries (CCIs) at local level. A group of staffs have been assigned by the AEC for the operation, administration and awareness of the B2B e-Commerce in the country. Some financial support has been provided by RUPP to AEC for human resource development, administration of B2B e-Commerce and establishment of B2B e-Commerce wing in AEC.

3. After piloting B2B e-Commerce in Pokhara, Butwal, Tribhuwannagar, Tulsipur and Nepalgunj, the Programme collected recommendations and suggestions from the partner CCIs, members of FNCCI and the UN Habitat that executed ICT project "Assessing the Feasibility of ICTs as a Development Instrument for Rural Urban Linkages in Nepal", which helped to improve the B2B e-Commerce services by redesigning the system to provide a business like approach. The system is also designed to establish the trade linkages with the international markets. The site has been named "Nepali e-Haat Bazaar" (B2B E-COMMERCE SERVICE, NEPAL). High Level Commission for Information Technology (HLCIT) of Nepal agreed to promote the site as a national e-commerce web site of the country; help updating the web site with the updates of IT policy;

support in enhancement of the web site incorporating digital signatures and online payment

4. According to the operational strategy of the project, AEC is responsible for working closely with local CCIs, for creating awareness about the online transaction, making potential buyers and sellers to try posting their requirement in the website, and promoting the site in a business like manner. AEC is also to work closely with different commodity associations, individual companies and entrepreneurs to make use of the website for online posting of buying and selling information. AEC is responsible for evaluating the progress and within a period of three years, AEC is to obtain the information about users' trend in buying and selling. In the long run, AEC's major focus is to be towards making this e-commerce trade promotion programme a sustainable business identity by charging fees to the users.

5. Initially, AEC's effort to collaborate with the local level CCIs worked. However, with the passage of time most of the CCIs became inactive. Local level awareness programme of AEC could not create enthusiasm among the local farmers and traders. As of October 2007, only three training and awareness programmes were arranged for the local operators and farmers/traders only in two places. So responses from the traders and farmers have been very limited.

Access *www.b2b.com.np* for further information

Common Service Centres

India

1. Among the many serious challenges India faces, managing and improving the quality of life of the fast growing and changing local communities, is one that requires urgent attention. The weakness of the delivery system is a common observation. The existing set up frequently leads to misdirecting of benefits. Leakage of benefits occurs in the form of rent-seeking by official agencies, marginalisation of the poor in the decision making processes, etc. This observation on the importance of the operational framework shifts the focus from information technology (IT) and its impact on the efficiency and productivity of the operational system.

2. The Government of India has launched the prestigious National e-Governance Programme (NeGP) to bridge the digital divide existing today between the urban and rural areas. The NeGP is aimed at improving the quality, accessibility and effectiveness of Government services to citizens and businesses, with the help of Information and Communication Technologies (ICT), and consists of three interconnected components of State Wide Area Network (SWAN), State Data Centres (SDCs) and the Common Service Centres (CSCs), as the nodal points for front end citizen service delivery.

3. The CSCs (Common Service Centres) are being seen as a major governance intervention for enhancing efficiency, bringing in transparency and accountability, and reducing operating costs. India possesses vast human resources in digital technology. Given that societies like India are big and administering them would have time and efficiency hurdles, an introduction of the digital medium is perceived to be the best available solution for better governance. Common Services Centres are the front end of a long and complex process of providing better governance and other essential value-added services.

4. The Department of Information Technology (DIT), Government of India, proposes to facilitate the establishment of a network of more than 100,000 internet enabled Information and Communication Technology (ICT) access points termed Common Service Centres (CSCs). The CSCs are meant to provide high quality and cost effective video, voice and data content, in the areas of E-Government, Agriculture, Education, Health, Tele-medicine, Entertainment, as well as possible government and private services. The Project is currently under implementation in many states including Jharkhand, West Bengal, Haryana, Bihar, Tripura, Uttarakhand, Gujarat, and Sikkim, and by March 2008, around 50,000 CSCs are likely to be established. The goal of the CSC Project is to empower the rural community and catalyze social change through modern technologies.

5. The CSC programme envisages a bottom-up model for delivery of content, services, information and knowledge, that can allow like-minded public and private enterprises - through a collaborative framework - to integrate their goals of profit as well as social objectives, into a sustainable business model for achieving rapid socio-economic change in rural India. It is the community participation and collective action, not ICTs alone, which will lead to a behaviour change for sustainable socio-economic change and long-term rural prosperity.

6. The Scheme is being rolled out to establish CSCs across the country with an equitable geographical spread through a three-tier structure for the States. At the first (CSC) level is the local Village Level Entrepreneur; at the second/middle level an entity termed as the Service Centre Agency; and at the third level is the agency designated by the State to facilitate implementation of the Scheme within the State. This agency is termed as the State Level Agency (SLA).

Box 1: Solar Powered solution for CSCs

The major challenge that one has to face in setting up of an ICT kiosk is the power back up, as the viability of the kiosk depends on the hours of its operation. Therefore to secure the hours of the operation to render services to the public more effectively, NLSA (National Level Service Agency) has initiated a dialogue with several companies which are into DDG(Decentralized distributed generation) technologies, based on renewable energy, such as Solar photovoltaic and Hybrid power, and are considered as emerging alternate power solutions for rural ICT initiatives.

One of the licensed manufacturers of Solar unit, 'TERI' was appointed by NLSA as the national knowledge partner for the development of energy options for the Common Service Centres Scheme. The institute has now developed a unique solution for the power problem faced by CSCs (common service centres). TERI's solution, named Solverter™, has a dualcharge battery that can be charged from solar energy as well as from AC mains. It comes in a rugged box-the size of an ordinary UPS/inverter. This solution eliminates the normal UPS and battery; instead it uses a 75-W solarpanel, a 100-AH battery, and the Solverter™.

The Solar system was tested at one of the pilot centres, at Baramati, Maharashtra. The pack provided continuous backup for up to six hours during the non-availability of electricity at the centre. In September 2007, NLSA had organised the SCA enabling meeting with the SDAs of the States where CSC roll out has been initiated to understand the implementation issues and the way forward. The SDAs from Jharkhand, West Bengal, Haryana and Bihar had participated in the Meeting.

7. Since the implementation of a project of this size and scope poses significant challenges of project management at the national level, and also in exploiting opportunities to achieve significant economies of scale, a National Level Service Agency (NLSA), namely

Infrastructure Leasing & Financial Services Ltd. (IL&FS) was appointed. This Agency is assisting the DIT & the States in carrying all works related at the pre-implementation and implementation phase of the scheme. The State Level Agency (SLA) facilitates the implementation of the CSC scheme through field formations (SCAs) and/or the district administration in the entire State, and provide necessary legal and policy measures to enable the SCA/CSCs to come into being, attain sustainability, and deliver government services as contemplated in the CSC framework. SCAs will set-up service delivery channels and provide secure and safe Government-to-Citizen (G2C) and Business-to-Citizen (B2C) services through the network of CSCs allocated to it. The SCA can be a private sector agency, an SME, a training institute, an NGO, or a co-operative.

8. The amount of funds allocated for the CSCs scheme is quite large. For the CSCs to continue working in the rural areas, there is need for electrical power. Rural electrification and availability of alternative sources of power can lead to the successful operation of CSCs. However, this requires not only adequate infrastructure (connectivity, broadband, etc.) but also a trained pool of manpower, and capacity building of the rural masses. Rural youths and members from self-help groups (SHGs) who are literate but not adequately trained for recruitment in the CSCs, can be provided IT-based training (in both hardware and software). Unless the rural masses realise the utility of CSCs, e-Governance becomes a word without meaning and purpose.

9. For the successful implementation and replication of CSCs, there is a need for alternative technologies. A technology that is suitable to one terrain may not be suitable for another terrain. The opportunity cost of adopting one technology over another, needs verification. There is clearly a need for co-ordination and management (for financial, technical, human resources development and other purposes) amongst the VLE, SCA, SDA and NLSA. There is also a need for looking at the long-term financial sustainability of CSCs.

Access *www.mit.gov.in, www.i4donline.net* for further information

Part II: ICT Literacy and Education

The UP-CTSP Community Information Centre (CiC)

Bhutan

The Microsoft Unlimited Potential-Community Technology Skills Programme Community Information Centres project in Bhutan is implemented by the Department of Information Technology, a government agency. The objectives of the UP CiCs are to increase rural access to ICT in Bhutan through computer literacy programmes for underserved rural youths and adults, in addition to providing basic E-governance applications and E-related services in the community. The UP-CTSP project has duration of 30 months with a grant of USD 250,000 from Microsoft as well as support form UNDP and the Korean Agency for Digital Opportunity (KADO).

1. An Innovative Implementation Strategy

1.1: The four main components of the implementation strategy are: a sustainable UP-CTSP CiC model, meaningful partnerships, computer literacy programmes and a rural entrepreneurship model to ensure the centres long-term sustainability. The components contribute to the broader objectives of increasing rural access to ICT, providing computer literacy programmes in rural areas largely marginalized in terms of accessing the benefits of the digital age, initiating E-governance and E-related services in the CiCs, as well as supporting IT education in Bhutan through the use of the UP curriculum in the CiCs and schools and finally ensuring the social and economic sustainability of the centres. These strategies are in line with the Royal Government of Bhutan's 9th and 10th five year plans to support holistic rural development.

1.2: The project activities carried out to implement the strategy have been divided into two phases during 2005-2008. Under phase 1, the UP-CTSP project activities include: Hiring of project personnel, CiC site selection, procurement and installation of equipments, establishment of 9 CiCs, support for 9 rural E-post offices, first training of trainers for 60 individuals in the UP curriculum, monitoring of the CiCs, field visits to CiCs, community awareness campaigns and awareness campaigns through the media, baseline survey on socio economic demographics and information needs, collaboration with key organisations, and computer literacy programmes. Under phase 2, the UP-CTSP project covers: the second training of trainers for another 60 individuals in the UP curriculum, establishment of 11 CiCs, community awareness campaigns, monitoring of the CiCs, field visits, preparation and implementing of business plan, computer literacy programmes to reach the 3000 individual target, continuation of collaboration with key organisation, supporting IT education in Bhutan through collaboration with the Department of School Education.

1.3: A baseline survey was carried out in the first phase in order to assess the socio-economic demographics and the information needs of the communities in which the community information centres were to be located. The survey comprised of six communities under the UP-CTSP project, involving fifty-four households. The findings included socio-economic characteristics of households, distribution of age, gender, employment status of households, as well as their literacy and educational status, their current usage of communications technologies and their information needs. The baseline survey was useful in terms of understanding the demographics of the communities in which the CiCs were to be set up as well as their information needs, in order to provide services that would be of use to the communities and to deploy technologies relevant to the communities.

2. The UP-CTSP CiC model in Bhutan: management, operation and service delivery

2.1: The UP-CTSP Community Information Centres are all located in rural areas of Bhutan, and located in the same community building

that houses the local leader's office. This building is usually centrally located and is the hub of local activities. This ideal central location for the CiCs has meant that it is easily accessible and widely known in the community. The equipment grant at the CiCs include two new computers, five refurbished computers, internet connection and a printer, fax and photocopy machine, all of which caters to approximately 3300 people per community (Business plan, 2007).

2.2: The CiC is operated by a centre manager trained in the UP curriculum, under the supervision of the project manager at the Department of Information Technology. The CiC manager delivers basic E-related and E-governance services such as printing of documents, email, printing of government forms etc...The CiC manager also conducts the computer literacy programmes using the UP curriculum, and teaches five modules of the curriculum: Computer Fundamentals, Spreadsheet Fundamentals, Word Fundamentals, Presentation Fundamentals and Internet and World Wide Web Fundamentals.

2.3: A regular day at a UP-CTSP CiC would include two training sessions in the UP curriculum, sometimes before school starts and after school hours according to the schedule of the trainees. It would also include assistance with email, printing, accessing government forms such as for timber, loans etc…and also office assistance to the local leader

Figure 1: A community information centre

3. Meaningful partnerships and Community Awareness: Key to Ensure Social and Economic Sustainability

3.1: Meaningful partnership and collaboration with key organisations with substantial presence at the local level have been vital to the long-term social and economic sustainability of the UP-CTSP CiCs in Bhutan. The organisations that the UP-CTSP project works with closely are the Department of Local Governance, the Ministry of Agriculture, Bhutan Post and the Department of School Education in order to fulfill its objectives and carry out its activities. The collaboration with the Department of Local Governance has successfully resulted in the CiC's central location in the community building, which falls within the purview of the aforementioned Department as well as to gain the support from local leaders in terms of creating community awareness. Such community awareness campaigns have helped bring entire communities on board while implementing the project.

3.2: Massive community awareness campaigns conducted jointly by the Department of IT and the local leaders have helped ensure the social sustainability of the project because local leaders are trusted by the community and have proven to be the right channels through which to inform the public about the introduction of a new IT project in their community, which aims to serve their needs. It has

Figure 2: Community awareness campaign at Talo village

been found that involving the community at an early stage in the project and inculcating a sense of ownership in the project is an effective means to ensure the long term social sustainability of the project.

3.3: Collaboration with Bhutan Post has meant that the UP-CTSP project has been able to support rural E-post through equipment grants, training for postal officials, internet connection, which increases rural access to ICT. The collaboration with the Department of School Education has similarly resulted in an effective partnership, with the UP-CTSP project supporting IT education in Bhutan through the provision of UP curriculum in schools as well as computer literacy programmes at the CiCs.

4. Using the UP curriculum to support IT literacy programmes at the CiCs and Schools

4.1: The UP-CTSP computer literacy programmes are conducted at all twenty community information centres established under the project. The programme is conducted using five modules of the UP curriculum namely: Computer Fundamentals, Word Fundamentals, Spreadsheet Fundamentals, Internet and World Wide Web Fundamentals, and Presentation Fundamentals. At the end of a month long course on basic computer skills in these five modules, a joint UP-CTSP and DIT certificate is awarded to the student by the Department of IT. The training target set for the UP-CTSP project in Bhutan is 3000 trainees within two years of the implementation phase. As of now, the training target is on schedule and the project team is confident about meeting the target. After the implementation phase, the UP-CTSP training in the communities will carry at the CiCs through the rural entrepreneurship model of the centres.

4.2: The UP-CTSP computer literacy programme is an effective way in which rural students and individuals who otherwise don't have access to computer learning are now able to acquire basic computer skills through the community information centres. Due to lack of resources, remote schools often don't have the means to learn

computer skills. Where there are few computers, opportunity to study is limited to only few students. Students and parents in rural communities are realizing that computer skills is vital for the future employment prospects of the students and are enrolling in the computer literacy programmes in large numbers. Trainees having completed the UP-CTSP programme and having received the UP-DIT certification have been reported to have acquired jobs such as lab assistant, E-post assistants, administrative assistants and hotel receptionists because of their computer skills.

Box 1: IDRC Content and Applications System to Use at the UP-CTSP CiCs

The content and applications system funded by the IDRC is specifically designed for deployment at the CiCs and contain a vast array of information, including community profiles, government forms for download, news and events, published policy documents in the areas of health, agriculture, education, a discussion forum, agriculture market information, newsletters and links to other government websites. The system is also interactive in that registered users can post articles, news and documents and is available in both English and Dzongkha.

The most important aspect of this system in terms of providing relevant information for rural communities is a knowledge base repository of information pertaining to the following sectors: agriculture, health, business and others. The deployment of this system will provide a first time opportunity for rural communities in Bhutan to access information on agriculture, health, education and businesses that is potentially critical for their growth and development. At the moment, this system which has been developed in house in Bhutan by national consultants is in the process of being customized for each CiC and will be launched in the remaining CiCs towards the end of 2007 (Dorji, 2007).

> *Box 2: Challenges Faced during Implementation*
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> *There were two significant challenges that were faced during implementation.*
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> *The first is that the initial target of setting up sixty community information centres through the project was over ambitious considering that the resources were inadequate for such a large number of centres. Other factors also came into play such as monitoring issues, logistical arrangements etc…Therefore the initial design of the project did not foresee the ground realities. The challenge was however dealt with by reducing the number of centres to twenty-nine in consultation with the donor agency UP-CTSP.*
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> *The second challenge faced was the need to come up with a sustainability plan that would effectively address the dilemma of long term social and economic sustainability. The issue of sustainability is core to all community information centres in Bhutan as well as outside. For the UP-CTSP project in Bhutan, a rural entrepreneurship model has been envisaged whereby the CiC would run as a rural business under the guidance and supervision of the Department of Information Technology. It remains to be seen how successful and effective this strategy is after implementation.*

5. Assessing Impact and Replicability Value of the UP-CTSP project components

5.1: It is difficult to evaluate systematically the effectiveness and replicability value of the UP-CTSP CiC project implementation strategy in Bhutan as an impact evaluation study has not yet been conducted and is scheduled for March 2008. Nonetheless, based on the experience gained and the results achieved thus far, and through close monitoring and periodic reporting, some inferences can be made as to if the implementation strategy was successful. It is noteworthy to see that the four main components of the implementation strategy: developing a sustainable UP-CTSP CiC model, meaningful partnerships, computer literacy skills and initiating a rural entrepreneurship to ensure long term sustainability have produced some interesting results that have been interpreted mainly through feedbacks, ground experience and periodic reporting. This has consequently helped achieve the objectives underlined for the project.

Figure 3: Students with their UP certificates at a certificate awarding ceremony in Tshento village

5.2: The UP-CTSP CiC model for instance is the first model of its kind, where it is located in the community building. It has been reported that this central location serves well for the community because the location is accessible. This model has been supported by the Department of IT and the Department of Local Governance. The services at the UP-CTSP CiC have been of use to the community members who often visit the centre to acquire government forms downloaded online and typing and printing of documents. The current services provided at the CiCs have been streamlined in the business plan. Based on the feedbacks and experience, the UP-CTSP CiC model is regarded having successfully delivered services useful to the communities and as having a set up that is well suited to the communities. In terms of its replicability value, the Royal Government is considering the UP-CTSP CiC model for replication while establishing one CiC in every community block as per the 10th five year plan.

> *Box 3: Monks Benefited from UP Computer Literacy Programme*
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> *Chimi Dorji is a 32 year old Khenpo, a master is Buddhist Philosophy from Mysore, India. He is also the English teacher at the Talo Buddhist Institute and a day student at the Talo Community Information Centre, where he learns basic computing skills in five modules of the UP curriculum. Khenpo Chimi Dorji supplements his English classes in the afternoon at the Institute with courses in basic computer skills, which he learned at the CiC and for which he has received a UP certificate. His basic computer skills now benefits over 100 monks at the Talo Buddhist Institute. Khenpo Chimi is among several monks who are learning computer skills at the CiCs.*
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> *Source: Department of Information Technology*

5.3: Meaningful partnerships have been a key factor in the success of the UP-CTSP CiC Project. The value of this strategy can be seen by the impact it has had in integrating the CiCs in the communities. Collaboration with the Department of Local Governance has ensured the active participation of local leaders who have taken an important role during the joint community awareness campaigns.

5.4: One of the most important focuses of the UP-CTSP CiC project is its computer literacy programmes in twenty CiCs across the country. Of the average 1848 people or 56% that are literate in a community, including school children over the age 15, an average of 260 people or 14% of eligible community members for computer literacy programmes or 7.8% of total population in a community are trained through the UP-CTSP computer literacy programme. These statistics apply more or less to all twenty communities in which UP-CTSP CiCs have been established. Training will continue beyond the 30 months implementation and therefore, training figures will continue increasing even after the rural entrepreneurship model is established.

124

5.5: The effectiveness and replicability value of the long term sustainability plan for the UP-CTSP CiC project which involves a business plan for rural entrepreneurship has not been implemented or tested yet in order for lessons to be learned or for evaluation. However, the merits of a rural entrepreneurship model and the preparation of a business plan have been weighed as follows during the planning process: a) a rural entrepreneurship model will continue to encourage rural growth and community participation in an IT project whose objectives are to promote rural access to ICT. b) a business plan will be an effective way to guide a fledging rural business by addressing key business issues such as marketing, sales, pricing, management etc... c) Handing over the operational and management aspects to rural entrepreneurs could address the challenge of long term economic sustainability as the Department of IT does not have the resources, financial and human to continue the management of the CiCs.

5.6: The UP-CTSP CiC project through these main four strategies and related activities has in small measures achieved the objectives of increasing rural access to ICT in twenty communities in Bhutan, helped train 14% of the target trainees in the communities through basic computer literacy programmes in the CiCs and in schools across the country through its UP curriculum. It has also provided basic E-governance and E-related services for community members, and has developed a long term plan to ensure the CiCs economic and social sustainability in the future. All this has helped support in small measure holistic rural development, in line with the Royal Government of Bhutan's 9th and 10th five year plans.

6. A Rural Entrepreneurship Model for the Future

6.1: The strategy to ensure the CiCs long term economic sustainability has been laid out in a business plan which is to direct the UP-CTSP CiC project's future management. The long term economic sustainability plan is to transform and manage the existing CiCs from a government owned and managed initiative into a rural commercial venture owned and managed by rural entrepreneurs.

6.2: The business plan has been prepared by the Bhutan Management Development Consultancy, a local consultancy firm. The report undertook a business analysis, proposed a full range of services, did a market analysis and proposed the marketing and promotion strategy, sales strategy, management and operations and laid out the financial projects. The public/private partnership envisioned through this strategy is also underlined in the business plan. The Department of IT will therefore continue to support the venture as the Community Information Centres will continue to provide rural access to ICT and support holistic rural development, an important policy focus of the Department of IT and the Royal Government as a whole.

Figure 4: A local leader awarding a UP certificate to a student

7. Highlights of the project

7.1: Setting up of twenty community information centres in rural communities in Bhutan

7.2: Supporting nine Bhutan E-post offices with equipment grant, training and internet support

7.3: Training of over 1700 community members and students in the Microsoft UP curriculum

7.4: Meaningful partnerships with the Department of Local Governance, Bhutan Post and the Department of School Education

7.5: The development of a long term sustainability plan underlined in a business plan

Access *www.dit.gov.bt/upbhutan* for further information

Empowering Underprivileged Youth

Bangladesh

VAB- Volunteers Association for Bangladesh, an USA based voluntary organisation has launched the Computer Literacy Programme (CLP) through its New Jersey Chapter in partnership with D.Net to promote the knowledge and usage of computers among the underprivileged needy youths in Bangladesh.

1. Initiation of a Remarkable Journey: A VAB-NJ Initiative

1.1: To build a knowledge society, as announced in the national Information and Communication Technology (ICT) policy of Bangladesh, and reap the benefits of a new economy, Bangladesh needs its young generation to be educated and acquainted with the state-of-the-art knowledge of ICT. In developing a base for skilled ICT professionals, various plans are underway; however, they are concentrated in urban or semi-urban areas. Students and youths in rural areas rarely get a chance to learn computer and ICT, and thus do not know how this modern technology can be utilized to benefit their rural livelihood. It is understandable that with the poor resource base, it is not an easy task for the government alone to provide facilities and necessary resources for learning ICT skills throughout the country. Initiatives from different corners and groups of people are essential. Therefore, a few non-resident Bangladeshis (NRBs) living in New Jersey, USA, came up with the concept and plan for implementation of the CLP.

1.2: The principal aim of VAB-NJ is to empower the underprivileged youth in Bangladesh through computer literacy, but it was clear to

VAB-NJ that it would be very difficult to implement and carry out such a programme without an implementing arm in Bangladesh. Thus VAB formed a partnership with D.Net, an organisation working for spreading information technology in Bangladesh, for implementing the ideas. The specific goals of this initiative that have been determined are: developing facilities in rural areas for educating and training underprivileged youths on ICTs; integrating local people into the programme through participation in the implementation of the programme; and developing and designing education/training programme and training kits in line with the ICT policies of Bangladesh and tailored to the specific needs of the rural livelihoods.

Figure 1: Students Coming for Training to a CLC

Figure 2: Students Attending Training at a CLC

1.3: To attain the objectives a complete package has been prepared under the CLP initiative, which includes the establishment of

Computer Literacy Centres (CLCs) in selected schools in rural Bangladesh, development of a structured hands-on curriculum, development of training manuals for both teachers and students, creation of a pool of trained teachers, and providing the required technical support and monitoring to ensure smooth operation of the CLCs.

2. Under-Privileged Students and Community People Availing Benefits from CLCs

2.1: The first step was to establish CLCs in the educational institutions in rural Bangladesh. In selecting the sites, consideration was given to geographical location, availability of electricity, eagerness of the school managements and their willingness to help. In each CLC, a computer lab was created equipped with a minimum of four computers, one printer, and necessary voltage regulator/stabilizers. An introductory curriculum was developed in consultation with computer scientists, based on which a student's manual 'Esho Computer Shikhi (Let us Learn Computer)' has been published. A separate manual has also been prepared for the teachers. Two teachers from each CLC receive two weeks of hands-on training from D.Net professionals.

2.2: After the completion of preparatory phase, CLCs have been organizing training for the students. As most of the CLCs [55 out of 60] are located in educational institutions, mostly students of that institution are getting opportunity to learn. Computer classes are conducted outside of the school's normal schedule. The students are also provided with a copy of the student's manual. In each batch, 8 to 10 students are taught for two hours a day, twice a week for eight weeks, about the parts of the computer, fundamental usages, Microsoft word, Excel and Spreadsheet. 4 CLCs are operated in local NGOs and 1 in a library. Local students and community people are availing the benefits of these centres. Four centres have been provided with Internet connection to give the trainees some idea about the use and benefits of Internet.

3. Outcome and Impact of CLP: CLCs are making differences

3.1: In 2004 the programme started with the objective of setting up 20 CLCs. In October 2007, 60 CLCs were fully operational in 28 districts of Bangladesh. Generally, students are found to be very enthusiastic and eager learn the use of computers from the centres. Facilities have proven to be insufficient and aspiring students wait fervently for their turns. The number of students applying to take computer course in the Secondary School Certificate (SSC) exam is also increasing at the schools that also have CLCs. The impact of the CLP on the lives of the students, teachers and institutions that host the CLCs has been consistently positive. Students have successfully overcome the "fear factor" associated with computers, and have been able to utilize their computer skills to successfully seek employment. Many have been motivated to pursue advanced studies in computer science. Teachers attest to the interest of students, and note the heightened awareness of the importance of computers in today's world. Schools have increased the efficiency of their operational activities, and some CLCs also function as youth development centres.

3.2: A recent study titled 'Bridging Digital Divide for Rural Youth: An Experience from Computer Literacy Programme in Bangladesh' by a graduate student from a USA university came up with positive observations and outcomes of implementing the project in rural Bangladesh. According to the study observation, as of May 2007, 90 male and 24 female teachers have been trained, and 7,945 students participated in the programme of which 7,469 received certificate of completion. Of these, 48% are female students. While students' scores in the SSC computer science practical examination was hovering near 70%, the figure jumped to nearly 100% in schools with CLCs. Teachers of other subjects are also falling in line. CLP is, thus, showing slow but sure signs of opening doors of possibilities to the graduates.

3.3: One observation is that the number of interested students for computer course in SSC has increased tremendously with the presence of CLCs. The evaluation study observed that 61% of the male students felt that the presence of the CLC has affected their decision to take computer in SSC greatly, while a lesser 22% feel that it has done so to a certain degree. A smaller 17% felt that it has had no impact at all on their decision. Female students were almost evenly split between the three degrees of influence.40% of the CLP students who intend on taking SSC Computers felt that the presence of the CLC affected their decision greatly.

3.4: As reported in the evaluation study, generally teachers and guardians are very positive about the presence of the CLCs. Almost all the guardians somewhat agreed or strongly agreed with the proposition that the students looked more confident, comfortable and enthusiastic in a computer environment as a result of spending time in the CLC. A third of them strongly agreed or somewhat agreed that the students' self-confidence had not increased in a computer environment as a result of spending time in the CLC, while three quarters of them strongly disagreed or somewhat disagreed with that proposition.

4. A Unique Financing and Partnership Model in Bangladesh: Responses from Other Local and International Institutions

4.1: The CLCs are the outcome of the partnership VAB, USA, D.Net, Bangladesh, and Computer Literacy Centre' management i.e. educational institutions in rural Bangladesh & Community based NGOs.

4.2: VAB-NJ, an association of non-resident Bangladeshis, conceptualized the Computer Literacy Programme as an initiative through which CLCs would be established at educational institutions throughout Bangladesh to help underprivileged youths learn computer usage. VAB-NJ is financing the CLP by raising funds and grants from Non-resident Bangladeshis. A sponsor can help through

direct cash contribution, and 'donate a computer' and 'sponsor a computer learning centre'. Under the 'sponsor a CLC', a sponsor can choose an educational institute and donate money. About 75% of the existing CLCs have been established under this component of the project. In most cases, the sponsor typically selects his/her own village school as the CLC. His/her friends and relatives may monitor the implementation process and activities and thus help to achieve the objectives of CLCs. The sponsor's contribution is two-thirds of the costs and remainder is provided from the programme fund.

4.3: D.Net implemented this vision of VAB by performing the on-ground tasks. The on-the-ground tasks include site selection for CLCs, developing curricula, preparing instruction manuals, training the teachers, supervising the smooth operation of the centres, and technical support and maintenance. D.Net has the technical expertise, innovative ideas for implementation, and the necessary motivation. While VAB-NJ provides major funding for the project, D.Net also shares a portion of programme implementation costs.

4.4: A CLC is established in an institution provided it satisfied the core requirements of space, furniture, and availability of electricity. The schools have to provide space and furniture for the lab, mobilize the teachers, students and the community, and manage the day-to-day operations at the centres.

4.5: D.Net organized fundraising events in Bangladesh and bore a part of the expenses. The success of the programmes attracted the attention of other individuals and institutions in the country. Bank Asia, a private sector bank in Bangladesh, provided funds for establishing CLC. Diplomats visited a CLC and donated four new computers and Dhaka office of IMF provided four previously used computers to another CLC. The most significant recognition came from Microsoft, which has committed funds for establishing 13 Community for Learning Information Communication and Knowledge (CLICK) centres. Seven centres are already in operation.

5. Management, Operation and Ownership of CLCs

5.1: School management committee, Headmaster, Computer lab teachers are responsible to manage activities with the help of D.Net. D.Net has a dedicated management and technical team to support local management for the smooth operation of the centre. The project has a monthly reporting system of centre status and accounts. Local management sends monthly status report to D.Net in a specific format. D.Net management team submits monthly status report to VAB-NJ and organizes teleconferencing to discuss implementation status.

Box 2: Problems and Challenges faced in the Operation of CLCs

The centre managements commonly came across a number of technical problems in dealing with computer hardware and software that include technical faults of hardware, error in computer operating system, problem with printer cartridge setup and replacement etc. The costs of maintaining and repairing these ageing equipments are rising by the month; they increasingly disrupt the teaching routine, and disappoint the students. Part of the difficulty of servicing these equipments is that they are brand machines. Locally assembled clone machines would be better suited for the CLCs

Technical support staffs were assigned for resolving various technical problems, but sometimes they delayed to travel there timely due to distance, lack of good transport facilities, political instability etc.

The operations of the CLCs heavily rely on electricity supply, and power disruption has been a major problem in running smooth operation in these remote areas.

Many schools are unable to find a contiguous two-hour segment for the students to use the computers. This is detrimental to the learning experience of the students. Necessary steps need to be identified to allow uninterrupted computer-time for the students.

Currently, the opportunities for students who have completed the course to come back and practice are very few. Yet, regular practice is necessary to retain what is taught in the CLP course.

The female students have noted many limitations that challenge their participation in the CLP that are both societal and particular to the operations of the CLC itself. Initiatives to address these issues will help girls get more out of the course.

5.2: D.Net builds and implements training programmes for the CLCs' teachers. Other than initial level computer and technical training programmes, D.Net organizes refreshers programmes for the teachers and school management for smooth operation of the centres.

5.3: The centre managements commonly come across a number of technical problems in dealing with computer hardware and software. They completely rely on D.Net's technical support. D. Net has technical staffs to provide support in different centres.

5.4: Two School teachers in each centre are paid monthly BDT 750 as fellowship for their time and effort to run training programmes and manage the CLCs.

5.5: local school management owns CLCs. The school managements will have to run the centres by themselves when the project phase is over.

6. Highlights of the Project

6.1: Initiated by Non-resident Bangladeshis staying in USA to promote the knowledge and usage of computers among the underprivileged needy youths in Bangladesh.

6.2: VAB is financing the CLP by raising funds and grants from Non-resident Bangladeshis either through direct cash contribution or financing a centre at this own nominated place village.

6.3: CLCs are generally set up in schools, and school management is responsible to arrange training and run the centres

6.4: The CLCs are the outcome of the partnerships of VAB, USA, D.Net and Computer Literacy Centre' management i.e. educational institutions in rural Bangladesh & Community based NGOs.

Access *www.vabonline.org/vabnj* for further information.

Part III: ICT for Peace Building

Sri Lanka

Young Asia Television (YATV) is a pioneering television network, which is based in Colombo, Sri Lanka with an international network of broadcast professionals - both individuals and organisations - from whom the organisation obtains a range of programming material. YATV in turn distributes and broadcasts its own programmes through an extensive regional and international network.

The organisation trains and facilitates young people using a variety of media tools to express their aspirations and concerns related to issues such as sustainable development, environmental protection, human rights and peaceful coexistence. As a public service media organisation, its core focal areas are human, civil and political rights; environmental protection; sustainable development; gender; tolerance and peaceful co-existence; health and nutrition; and cultural diversity. Young Asia Television has received numerous awards and accolades for its work from organisations such as the Asia Pacific Institute for Broadcast Development and the Asia Pacific Broadcasting Union as well as from UN organisations and other country specific media awards.

1. Using ICTs to Educate and Empower Youth: Entertaining while Educating

1.1: Since 1995 Young Asia Television has been assisting young Asians to harness the potential of ICTs (especially media tools) to make a difference to the world around them. This has resulted in the creation of a platform where they are able to express their views and concerns on critical social and developmental issues.

1.2: The activities of YATV and its programmes are designed to encourage discussion and dialogue, and are therefore a catalyst for positive change through peace building; employment generation; gender equity; empowerment and equal access for all; and poverty alleviation. While the primary target audience of the YATV programmes is young people, the programmes often have a much broader appeal and have a loyal audience amongst government officials, women, international development workers, NGO workers, entrepreneurs, rural communities and professionals.

1.3: YATV purchases PRIME TIME television and radio space for the broadcast of its programmes on channels that are popular amongst its target audience. Other than these YATV uses distribution strategies such as community screenings to reach communities that do not have access to these electronic media. To reach out to a wider audience, Young Asia Television produces programming in local languages (such as Sinhala and Tamil in Sri Lanka).

Figure 1: YATV People Engaged in Making Television Programmes

2. Media that is BOLD yet Sensitive

2.1: The programmes that are produced incorporate concepts of culture and multiculturalism; identity and diversity; tradition and modernity; while ensuring local, regional and international representation. The concepts and message are bold while being sensitive to young people and the cultures/societies from which they come.

Figure 2: YATV Youth Engaged in Making Programmes

2.2: **PEACECASTING:** Young Asia Television started making a serious commitment to ethnic reconciliation in Sri Lanka back in 1997 when a negotiated peace was not on the agendas of either of the two warring factions.

2.3: Initially its commitment to PEACECASTING took the form of two weekly television programmes, which have been acknowledged as being both groundbreaking and influential. Sathi (produced in Sinhala), and Vilippu (produced in Tamil) were YATV's response to the critical lack of awareness in the country of the needs and experiences of the people who are most affected by the war.

2.4: Sathi (meaning Awareness) and Vilippu (meaning Awakening) look at the need for peace and initiatives taken to achieve peace and reconciliation. The programmes explore the realities of living in Sri Lanka with its ethnic and cultural diversity and attempt to catalyze audiences to play their part, however small, to make peace initiatives. People are motivated to make initiatives for peace through dialogue within their families and outside, and encouraged to explore paths toward non-violent conflict resolution and reconciliation. The TV series emphasizes the dividends of peace for the people, business, and industry. Sathi and Vilippu are the only television programmes that have been regularly addressing issues related to the conflict, in the language of the communities involved.

2.5: With the cessation of hostilities and the advent of the peace process - YATV saw the need for an English language programme to complement Sathi and Vilippu and reach out to the influential decision makers of urban Sri Lanka. In February 2003, YATV launched the No War Zone (with assistance from the Swiss Agency for Development and Cooperation). Providing in-depth analysis of significant issues related to coexistence, reconciliation and peace building in Sri Lanka… the No War Zone airs at least 3 times a week on at least 2 terrestrial broadcasters and has very quickly gained an appreciative loyal audience base. The No War Zone has come to be known for its regular chat corner where not just celebrity stakeholders of the peace process are put in the spotlight - but a variety of others with important contributions to make are given space to be seen and heard.

2.6: **Supporting Peaceful Coexistence:** YATV has produced two teledramas that look at the concerns and aspirations of the three larger ethnic communities in Sri Lanka and the missed and existing opportunities for promoting peaceful coexistence and reconciliation. Directed by the award winning film director Asoka Handagama, and shot entirely on location in North and East of Sri Lanka, 'Take This Road' and 'The East is Calling' are compelling dramas that attempt at facilitating a wider understanding of the complexities of the ethnic conflict, and towards promoting the values of mutual understanding, tolerance and co-operation among communities. The popular appeal

of the Tele-drama format allows it to capture the imagination, whilst it draws attention to the importance of reconciliation and co-existence amongst communities. The series was produced with the funds provided by the Academy for Educational Development with financing from the United States Agency for International Development.

2.7: **Supporting Development:** Two years after the Asian tsunami devastated the Eastern and Southern coasts of Sri Lanka, YATV launched a trilingual multimedia campaign to highlight the success stories of tsunami recovery initiatives from the districts of Trincomalee, Batticaloa, Ampara, Galle, Hambantota and Matara. These stories of success and achievement come from the people who worked within their community in order to restore normalcy to their lives in the face of immeasurable adversity, and are now looking to the future. Many of these experiences reflect the support and participation of various stakeholders including citizens, NGOs, INGOs, and Government organisations, without which they may not have succeeded.

2.8: **Gender Issues:** A long running television magazine programme 'Space To Let' offered a 'space' that is badly needed by Asian women and other marginalized groups to voice their views and concerns. These programme series cover a wide range of issues including the sex industry, abortion, arranged marriages, education, employment and healthcare. YATV believes that knowledge empowers and challenges viewers to confront critical issues and make choices for themselves. At times thoughtful, at times witty, Space to Let is a look at the world through the eyes of women.

2.9: **Environmental Conservation:** There are few things more important in the world today than the state of the environment. The great "Cycle of Life" consists of millions of different species of plants, birds, trees, insects, mammals, fish and countless others that all co-exist in a delicate balance. If just one component of this cycle is harmed or removed, every other part suffers. As more and more wildlife is destroyed through global warming, pollution, deforestation and urban development, we are losing vital and precious animals and

plants forever. This may sound dramatic, but sadly it is a reality we must all face. YATV's many programmes take a closer look at environmental issues around Asia, highlighting efforts made at conserving and actively making a change in our environment.

3. A Combination of Effective Partnership and Dynamic Management

3.1: Young media personnel are the implementers of the initiative and the operator of the project is the Young Asia Television management Team. Youth, Civil society, Governmental organisations, Non-Governmental Organisations, Community Based Organisations, Private Sector and Academia of Sri Lanka have been part of different activities. The communities that YATV works with have been key stakeholders in any production process, as they are consulted through the design, implementation and evaluation of all activities/ programmes.

3.2: Young Asia Television worked with a considerably large number of international partner organisations and donors in developing media interventions that were of specific concern to the development activities of the partner and in keeping with the mandate of YATV. Some of the partners Young Asia Television worked with include Asian Development Bank, ILO, and International Organisation for Migration, Danish TV (Denmark Radio), European Commission, UNFPA, UNICEF, UNDP, UNESCO, Food and Agricultural Organisation, FORD Foundation etc. In the process of preparing a programme, the partners are guaranteed that the programmes would be produced with good journalism principles and approached with the appropriate sensitivity to the social issues being discussed.

3.3: A management team headed by senior and widely experienced media experts (with representation from young media personnel as well) manages Young Asia Television activities. The team, which is based in Colombo (Sri Lanka) consists of approximately 140 people; providing youth with creative and stable employment opportunities in a market that is highly temperamental.

3.4: All management and production staff are encouraged to update their knowledge and receive training in areas where they need capacity building. This has been a continuous process and involves bringing in outside expertise to build staff capacity or sending staff members for workshops, conferences, etc. where they can receive the training needed.

4. Ownership, Revenue Model and Financial Sustainability

4.1: Young Asia Television board of directors is generally the owners of the project. The IPR of non-commissioned work is owned by Young Asia Television. For commissioned work the owners of the IPR are those who commission it - while YATV does reserve rights to the video footage.

4.2: YATV is aware of the economic imperatives that underlie such a media venture and is conscious of the need to be competitive in the media market without compromising on the basic principles of "development communication" and "public service broadcasting".

Financial sustainability is important for a media initiative such as Young Asia Television, as media (especially electronic media) is a sector that requires significant investment in technology and expert human resources. Young Asia Television is a self-sustaining media organisation that funds its public service media initiatives through a two pronged strategy [a] working in partnership with organisations whose goals are aligned with specific communication initiatives [b] taking on a limited amount of profit generating commissioned media projects.

5. Evaluation, Monitoring and Impact Assessment

5.1: Regular evaluation and monitoring of initiatives is in-built into every Young Asia Television media intervention. Young Asia Television adopts a RESULT BASED MONITORING system for all its programmes or activities. This is built into the project from design stage to ensure that realistic goals are set and reached. As the process of monitoring and evaluation is implemented, feedback from the process is used to tweak the project and make it responsive to the needs of its target audience.

5.2: In addition YATV focuses on a qualitative (rather than quantitative) approach to evaluating the impact of its programmes on their target audience. This is achieved through focus group discussion (geographic and ethnic diversity is always ensured in conducting these focus group discussion); key informant interviews and feedback questionnaires. Findings are always fed back into the projects to continuously make them more effective.

6. Replication and Scalability

6.1: There have been many attempts made at replicating the Young Asia Television initiative in places such as South America, Africa and the Middle East - however these projects had to be discontinued as a key partner pulled out without any notice. However YATV is in the process of launching a global presence on the World Wide Web.

6.2: Young Asia Television has proved to be a scalable initiative in terms of its reach, target audience and output - as can be clearly seen in the strides the project has made over the years since its initiation. The organisation has also successfully implemented multiple national public awareness programmes concurrently (such as those for the National HIV/AIDS Prevention Programme, the Ministry of Tertiary Education and The Ministry of Water Supply & Drainage)

7. Highlights of the Initiative

7.1: An innovative use of ICTs for sustainable and equitable development.

7.2: It is a public service media and self sustaining.

7.3: Young people engaged in facilitating the participation of their peers in the 'development dialogue'.

7.4: Unique brand of programming that helps foster peace and reconciliation - this has been branded 'PEACECASTING' (a word that is now gaining international recognition).

7.5: An equal opportunity employer.

7.6: Core focal areas of human, civil and political rights; environmental protection; sustainable development; gender; tolerance and peaceful co-existence; health and nutrition; and cultural diversity.

Access *www.yatv.net* for further information.

Part IV: Reaching the Last Mile

Nepal Wireless Networking Project

Nepal

To bring the computers and the Internet within the reach of the poor people and to make the digital gap narrower, Himanchal Higher Secondary School initiated a pilot project in a small and remote hilly area of Nepal known as 'Nepal Wireless Networking Project'. The ultimate idea is to offer a complete e-commerce solution. The project activities targeted the people living in a Himalayan region of Nepal where there is almost no chance of getting the modern means of communication in near future. The project introduced information technology to the villagers of some selected villages, most of whom had never seen computers until a few years ago. Mahabir Pun has been awarded Ramon Magsaysay Award 2007 for such a fantastic initiative.

1. Sowing the Seed: Beginning of a Remarkable Journey

1.1: In 1997 Himanchal High School got four used computers as presents from the students of a school in Australia. Internet and

Figure 1 and 2: The antenna for the test to Pokhara from Relay station 1 [left]; and Right: A home built antenna mounted on a wooden pole during the testing period.

e-mail were quite new terms then. The computers they had sent were two 386 PCs, one 486 PC, and one laptop (486 PC). With the initiative of Mrs. Janita Keating (a teacher) the students of Billanook College in Melbourne, Australia collected the computers and raised money to ship them to Nepal. The initial dream was to have the students of Billanook College and Himanchal High School communicates with each other through e-mail. That dream did not come true instantly as there was no phone line in the village to connect to the Internet.

1.2: Initially, a radio phone was tried, but it did not work well. Even when it worked it was not clear enough to get an Internet connection. The next option was to get a satellite connection which is very costly and was not affordable at that point of time. But they did not give up and kept on asking people for ideas. Then BBC took one interview of Mahabir Pun and wrote the articles "Village in the Clouds Embraces Computers" and "Praise for 'Inspirational' Web Pioneer". Those articles changed everything. They started getting responses with ideas from people all over the world. And wireless technology became the ultimate choice.

1.3: As a result of the BBC articles, two volunteers came up for help in early 2002 from Belgium (Johan Verrept) and Finland (Jonni Lehtiranta), who had some ideas about the wireless networking. Jonni Lehtiranta brought two Cisco PC Wireless Cards (Aeronet) that were donated by IBM Finland. Johan Verrept did some research on the Internet. It went for several experiments in 2002 with the wireless cards to test the connection between two villages, Nangi and Ramche, which are about one and a half kilometers (about a mile) apart across a river valley. Ordinary TV dish antennas and some home-built antennas were used for the testing. One USA volunteer was also involved in the testing process. The test was successful and thus a very rough draft of the networking plan was born. Later on, a good number of volunteers came up with more ideas on wireless technology and help from different parts of the world. A good number of people also came up with donations.

1.4: In March 2003 they went for a second testing. A team was working for three weeks trying to connect a village to Pokhara (the nearest city with an ISP) using an ordinary TV satellite antenna (8 ft in diameter). For this a Linux server was set up in Pokhara. A TV dish antenna (8 ft wide) was installed on the rooftop of a house in Pokhara and connected it to the radio by modifying its built-in antenna. The dish antenna was pointed towards the 3,320m (11,000 ft) high mountain range (The Pun Hill Range) that was stretching between Pokhara and the village. These mountains were the main obstacle to the team.

1.5: To overcome the obstacle, the team picked up a tall tree on the top of the mountain and used the tree as relay station. On the tree, they tied two dish antennas (one 8 feet wide and the another 3 ft wide), a 50W photovoltaic panel with 40 amp-hour rated 12V storage battery along with two D-Link access points. They put the access points, the power supplies, hubs, voltage converters in a wooden box and tied it near the antenna on the trunk of the tree. They also put a TV dish antenna (8 ft in diameter) in the village pointing towards the relay station. They had partial success. One thing they found was that definitely they could connect Pokhara to the village using the 802.11b access points because they could connect to Pokhara from the relay station hill. However, they could not connect to Pokhara directly from the village that time even though they tried everything they could.

2. Dream Turns into Reality with a Great Support from a Group of Foreign Volunteers

2.1: It took 7 years for the wish to be fulfilled. The initiators managed to get a grant from Donald Strauss Foundation. In the process of making proposal and obtaining funds, a foreign volunteer played a remarkable role. The grant money was a great help to obtain the required equipments: 12 smart Bridges Air Point Pro Access Points ; 14 lightening arrestors for the access points; 14 Pacific Wireless; 24 dB Directional Antennas; 2 120W Solar Panels and Voltage Regulators; 2 400W Air-403 Wind Generators and 3 75 Amp-Hour Trojan Deep Cycle Gel Batteries.

2.2: The group of foreign volunteers who were working and helping did some research work and testing of the equipment in Los Angeles before moving into field for implementation. In this way the three week process of installing the wireless equipment started in August, 2003. Since the team had arrived in Nepal in the middle of the monsoon, it rained almost everyday and the task was not easy. Pointing the antennas in the right direction was the main problem. However, they managed to overcome the problem and came up with success.

Figure 3: An antenna mounted at Khopra yak farm in the Annapurna Mountains

2.3: The test was successful. In September 2003, five villages were connected and expanded the network to two more villages. After that the network was expanded to a few more villages. As of October 2007, 22 villages in Nepal were connected in the network. A total number of 22 telecentres were established in 21 remote hilly villages. They were also working on two telecentres in two villages supported by Nepal government.

3. The Network Made Communication Easy, Providing Education and Offering Businesses and Commerce

3.1: Initially the activities started using the network mostly for communication purposes since the network is the only means of

communication available. Communication became smooth and easy. People from the villages working abroad are using e-mails to communicate with their families in the villages. Now the project activities offering agriculture marketing opportunity to the villagers; generating business as some villagers getting tourists attraction; getting education and training for the children and youth; and telemedicine services (in some centres).

3.2: The students and teachers are using their web mail accounts under nepalwireless.net. Some people are also using free web mail

Figure 4: Computer Lab in Nangi village

Figure 5: Computer Lab in Tikot village

accounts such as Yahoo or hotmail or others. Students from high schools are using the network to write e-mails to each other and to their pen-pals abroad. In the past, the students used to send letters to their pen-pals through "snail mail" which used to take months. Now they can communicate within a matter of minutes no matter where they are located. Also, the teachers and students are getting access to some educational materials that we have put in the intranet.

Figure 6: Communication centre in Ghorepani village

Figure 7: Computer lab in Shikha village

3.3: Paudwar and Nangi villages are using the network to run their income producing projects smoothly. They have been running Yak farming and Camping Grounds on joint venture basis way up from the villages (at 12,000 ft) for several years. Now the management committee of the projects is using the network to communicate with each other through NetMeeting or email in order to take appropriate decision for the projects. Moreover, laptops have been given to the camping ground and Yak farming staff. The management committee and the staff communicate regularly with each other to run the projects smoothly. Nangi school has also started a cross-breeding programme between yaks and cows near the Relay Station 1 mountain at an elevation of 11,000 ft. There is a person working on that project. It has been easier for the person taking care of the yak and cows to communicate with the villages and other yak herders through his laptop.

3.4: Nepal Wireless Networking Project is working with Open Learning Exchange, an NGO based in the US and Kathmandu as a partner to develop educational contents for the school children. The content will be based on the government curriculum from grade one through ten. It is expected that the pilot testing of the contents of English and Math of grade two and six will be completed by the middle of 2008.

3.5: One of the main goals was to use the network for live teleteaching by one teacher from one high school to the students of several other high schools. The live distance teaching installation and testing has been technical assistance for launching the distance education programme. If they succeed in this endeavor, it completed using Axis 210 cameras; however, the video quality for the tele teaching is not good enough. The reason is that they have not yet solved the routing problem. The institution is seeking for will help to fill the acute shortage of qualified teachers in the rural areas.

3.6: It has already set up a trial tele-medicine programme between Nangi village and Pokhara city. The health worker of Nangi village is

communicating with a medical doctor in Pokhara for medical assistance. It is working well. The idea is to have the doctors in a Hospital of Pokhara communicate with the patients in the village clinic directly through video-conferencing in order to treat the patient. The village health workers on village side assist the communication between the doctor and the patient and provide the medicine prescribed by the doctor. The project team is working for the expansion of the activities in more villages.

3.7: For the e-commerce site, the students of Gandaki Software Engineering College, Pokhara Nepal have developed software and they are volunteering to launch a e-commerce software. They would go to the villages and teach villagers how to use the application.

3.8: All the villages that have been networked did not have telephone. The project team has successfully connected the Wifi network to PSTN line in Pokhara. This type of communication is purely VoIP. They have set up a network server in Pokhara that facilitates network management and provides a number of services to network users.

4. Important Supportive Aspects of Implementing the Idea: Partnership, Management and Financial Sustainability

4.1: Nepal Wireless received enormous support and partners in implementing their ideas. A good number of foreign volunteers help implementing the ideas from the very beginning. They received both technical and fund support at that point of time for implementing the project activities. It received a grant from Donald Strauss Foundation at the initiation for purchasing relevant equipments. Equipment support also received from IBM. It started getting government support in recent years after successful testing and implementation of their ideas in several villages of Nepal.

4.2: A capable team is handling the project activities. Administrative and technical support is provided by a management team under the banner of E-Network Research and Development (ENRD)- a team of four persons are responsible for taking care of the activity. They take care of administrative activities, documentation, and monthly visit, summarizing visit reports and monitoring, technical support to the centres, trouble shooting etc. ENRD receive weekly auto generated report from the centres. Wiki Reporting process is also an instrument of the monitoring of the activities of centre.

4.3: Local language contents are important sources of information from the centres. The local contents are developed by another partner organisation and it is a continuous process. Telemedicine is a separate component, which is in the process of adding up in a few recent telecntres. Some hospitals are contributing in implementing the activity as partners.

4.4: No specific financial model is there in the project for running the telecentre. Most of the services are provided free of cost. Some services like internet surfing, and printing there could be charges, but the pricing and charges vary from telecentre to telecentre depending upon the decision of the community committee 'Local Level Development Committee'.

5. Ownership and Replication of the Initiative

5.1: The project is owned by the Himanchal Higher Secondary School. However, local telecentres are owned by the local community people. Each centre has a centre manager to run the centre. This is a voluntary job and trained by the ENRD. For management of the centres each village has a 'Local Level Development Committee' formed by the ENRD.

5.2: Project has got good publicities in Nepal. Therefore several people including some members of parliament have shown their interests to replicate such network in their districts. In order to encourage people to replicate the project in different parts of Nepal, it has a plan to organize occasional training programmes in different parts of the country. For the training purpose, a handbook in simple Nepali language has already been published. The project is there in operation i.e. the use of wireless technology is there in a few Latin American countries. There is huge scope in South Asia where the wireless technology may work in providing information access to the people of remote villages. The project team encourages replication and always ready to provide technical support.

6. Highlights of the project

6.1 Target beneficiaries are the people of the region of nepal where there is almost no change of reaching the modern means of communications in near future.

6.2 The dream of the initiators turns into reality in seven years with a great support from a group of foreign volunteers.

6.3 After experimenting a number of alternations, wireless technology came up as the most suitable an ultimate chioce for the implementation of the project.

6.4 The network startet offering benifits to the community people throuth facilitating smooth communication and promoting education bussiness and commerce.

Access *www.nepalwireless.net* for further information.

Part V: Youth and Development

Youth Community Multimedia Centre

Bangladesh

Community Multimedia Centres that combine access to ICTs with the local penetration of media like audio narrow casting, community radio and TV broadcasting and cable was initiated to reach the marginalized groups of the country by YPSA (Young Power in Social Action), a youth led and managed voluntary social development organisation in Bangladesh. In Bangladesh, Young Power in Social Action (YPSA) is the initiator of the type of activity. In 2002, UNESCO initiated a programme to identify social & technological strategies to explore the potential of ICTs to contribute to poverty reduction. It spreads across nine sites in five countries of South Asia (India, Bangladesh, Srilanka, Nepal & Bhutan) with a range of poor individuals & communities and a variety of technological mixes (www.ictpr.nic.in). Each one tried to develop social & technological access models that address both the fundamental poverty issues and key barriers to ICT usage by the poor. Young Power in Social Action (YPSA), was selected as UNESCO's partner to implement this project in Bangladesh. YPSA undertook a pilot project titled "Youth led Poverty Reduction through Digital Opportunities (YPRDO)" in Chittagong district and 'YPSA ICT Resource Centre' was set up in an easily accessible point of local community. After the phasing out of the project, based on the experience and learning of YPRDO project and considering the community demand for the 'YPSA ICT Resource Centre', the first Community Multimedia Centre of Bangladesh was set up.

1. Community Based Media Initiative to Reach the Marginalised Groups

1.1: Youth Community Multimedia Centre (YCMC)' is a community based media initiative - media by, for and with the disadvantaged rural

communities of Bangladesh that started with an action research to identify & dissemination of information need of the rural people. It was initiated in January 2005 and the project was going on as of October 2007. The project targeted to promote media pluralism, ensure representation and participation of rural disadvantaged community's opinion in mass media, and establish an equal and non-discriminative platform to uphold rural community's concerns and voices.

1.2: Broadly the targeted beneficiaries of the initiative are rural disadvantaged or marginalised groups. Especially rural disadvantaged youths and adolescents are the primary stakeholders. Other community people (farmer, student, women, youth, self-employed, micro-enterprise, rural poor, NGO/CSO, local government) are the indirect beneficiaries.

2. Engaging Disadvantaged Youth in Community Development through Awareness Development and Capacity Building

2.1: Community awareness programmes were implemented through grassroots discussion meetings, community consultations and visits to local schools, civil society groups and local government agencies. Meetings were supported by multimedia presentations and written documentation on the concept and practice of community multimedia. The basic targets were to identify volunteers, civil society and local government partners as basis for wider community participation, ownership and linkages to existing social networks.

2.2: For capacity development, first potential community members were identified specially youths from different disadvantaged communities who were interested to work with them voluntarily. After selecting, computer skills and training were provided to the youths. The centre prioritised the participation of poor and marginalized youth. Participants were selected based on interviews and homes visits, conducted as part of the ethnographic action research process. Families that did not have more than one or two

earning members and whose income is less than 50 taka (about USD 0.75) per day participated at no cost.

2.3: Then to attain the objectives of the project, trainings were provided on radio, video and multimedia digital content production (new technological applications) and other forms of traditional media

Figure 1: Sustainability workshop organized at YCMC with UNESCO, RELIEF International and local communities

(interactive forum theatre, folk music). The series of trainings were designed under following modules relating specifically to community media: training and coordinating volunteers; management and organisation; journalism; programme planning and production for radio and television; multimedia production: web authoring, digital storytelling, etc.; cassette narrowcasting and FM cable casting; FM broadcasting. As a result, participants developed capacity in preparing media programmes in local language by themselves.

Figure 2: Daylong cultural competition organised at YCMC for Youth of the Locality

2.4: The trained youth group then engaged into content development and began developing audio, video and multimedia programmes on local community problems/concerns/needs in local language and dialect. As part of content development under the project, actually local issues and problems were documented by, for and with the local community members.

2.5: The trained participants were responsible to develop need-based contents on various issues using multimedia tools and applications, and prepare content packages that could be understood even by the completely illiterate people. For instance, a health information package was developed using digital photographs, video clips, animations, audio, text etc. The idea was that the grassroots people were to be given information in an attractive form.

3. Dissemination of Community Concerns and Awareness Programmes

3.1: The information is then disseminated through the local cable operators (cable casting-live and pre-recorded), cassette players, DVD shows (narrow casting) to reach the civil society, policy makers, local political leaders, and local community. The idea is to develop a public opinion favourable to these issues.

3.2: For the dissemination of developed contents and programmes to the targeted groups and areas, lay out of cable network has been prepared for the extension of existing cable infrastructure to more remote and disadvantaged localities. For ensuring outreach of activities and programming where cable infrastructure did not exist, narrow casting networks have been formed i.e. in localities having no cable network, media programmes are disseminated through DVD shows, laptops, PDA etc.

3.3: With the broadcasting and narrowcasting of the developed programmes, local problems/concerns/needs became known to all concerned people via local media; public representatives became more aware and responsive to local problems; and community members became more aware on issues of their concerns.

3.4: As the local youths gain confidence and skills in new technologies, they started disseminating their learning to other disadvantaged adolescents through peer training method. Moreover, through arranging and conducting workshop/events/consultations on development related issues, staffs, volunteers, community people have been provided with critical awareness and insight on development issues relevant to their lives and livelihoods.

4. Creating Village Database, Skilled Manpower, and Bondage among Rural Communities

4.1: All the information is stored in the centre in a customized offline browser database named ENRICH. The community people are given easy access to the information in the centre with the help of trained volunteers and project personnel. It also arranged community gathering, formal informal meetings among different groups, regular cultural events, weekly movie shows etc.

4.2: For creating the technology base, the centre developed two training programmes: the basic foundation course and a more advanced programme. A structured syllabus for both levels of the training was drawn up and a training handbook was developed. Then for broadening the scope of skills and activities beyond computers, and building on YPSA's experience with participatory video, the project team offered training in video recording and production in order to provide youth participants with the opportunity to express their concerns and raise locally relevant issues.

4.3: For ensuring quality and effective training, a limited number of youth [40] is allowed to enroll at a time. The centre provided practice facilities after the course to strengthen participants' skills. Alongside training programmes, the centre also conducted awareness activities that target a variety of stakeholders. Posters are made in English to spread awareness about ICTs among development organisations and activists. Brochures are developed in Bengali to reach local groups and individuals. Group meetings and discussions were held regularly in the centre with the local youth and adolescents, youth clubs and civil society organisations about the potential of ICTs as a tool for development and poverty reduction. Group meetings are also arranged among grassroots groups in YPSA's more remote working areas.

Figure 3 and 4: Young Volunteers Performing Interactive Forum Theatre and Preparing Audio-visual Contents

4.4: Based on demand and lessons learned, changes are gradually made to the curricula. One important development was an increased focus on multimedia skills: using CD writers and scanners, still and video cameras as well as photography and publishing software (e.g. Adobe Photoshop and Illustrator).

4.5: An outcome of the project that gained increasing significance is the emergence of the facility as a social community space, with activities based on the interests, demand and inputs of youth participants. The centre has been gradually expanding from a technology and training orientation into a more multipurpose facility. As the programme continued and participants socialised more freely and engaged in more non-formal learning and cultural activities, the network is becoming wider and more diverse, more skilled and assertive; it is crossing more and different traditional social boundaries and barriers and making stronger links to development and poverty reduction programmes.

5. Operation and Management of the ICT Centre

5.1: The CMC is named "Youth Community Multimedia Centre (YCMC)" as it has a special focus for the youth population of its working area. The Youth CMC is managed completely by some very

young professional of the implementing organisation & some youth & adolescent volunteers of the community. The focus of the contents is also youth.

5.2: The ICT centre has been set up in an easily accessible locality of Middle Mohadebpur village in the Sitakund municipality (A Upazilla or sub-district) in Chittagong district of Bangladesh. The centre remained open from 9 AM to 5 PM. The centre has made up of five rooms, one used for ICT skills training and access to computers and other equipment, one for issue-based discussions and cultural and recreational activities, one as a studio for audio recording/video editing and cable casting and two for administrative and income generating activities. The YCMC is using different equipments to disseminate information and other services to the community: Computer, Printer, Multimedia Projectors, Digital audio recorder and editing equipments, Digital video cameras and editing equipments, Television, Cable TV infrastructure CD-ROMs, DVD Players, Internet, USB drives, Pocket PC, Bulletin boards, Cassette playback, Laminating machine, Scanner, Web cam etc.

5.3: A team of three (03) full-time dedicated staffs were responsible for the overall management and administration of the initiative. In addition, a centre management committee was responsible to provide advisory, mentorship and other management support. A number of training on different aspects had been arranged for the team members of YPSA. Besides the project team had attended different national and international events to develop their capacity for clarifying the theoretical understanding of the model.

> ***Box 2: Challenges and Problems Faced in Handling the Centre***
>
> *Lack of adequate Power Supply: Power failure, load shedding and low voltage are constant problem.*
>
> *Disrupted Internet connection: Unstable and constantly disrupted Internet connection and lack of locally relevant local language content at the early stage was a severe limitation to link the rural population with Internet and online applications.*
>
> *Drop out of volunteers: The major stakeholders of the CMC are the youths and adolescents of the working area who play the key role for the content development, dissemination and to reach the community & working area. However, as the focus is on the rural poor youths and adolescents, most of them drop out during the process as they have other priorities such as ensuring daily living. So, a number of them drop out regularly after or during their training and learning period. This harms the teamwork, content development, dissemination and other day-to-day activities. It also increases the investment of time and finance for the training as the newly recruited ones requires to be retrained.*
>
> *Time consuming Process of Translation and Adoption: Most of the good training materials and modules of Community media skills being in English takes a lot of time for the CMC manager for translation, development and adaptation in the local context.*
>
> *Conservative Approach of the Community: Conservativeness of the target community is yet another challenge the CMC has to face. Due to the conservative nature of the community, the major part of it is not very much open to changes. It also affects the community participation at a large scale. Actually, Religious conservativeness that creates a barrier for the rural young and adolescent girls' participation.*
>
> *Lack of Regulatory Framework: Another big constraint is the absence of policy or regulatory frameworks concerning community radio or community media in Bangladesh. Community organisations are ineligible for broadcast licenses.*

5.4: As a strategy for local capacity development, the CMC train a core group of 3-5 trainers and develops the media production skills of at least 30 youth volunteers as well as representatives of at least 4 local civil society groups. Training is learner-centric, with a high percentage of practical, hands-on work. By the end of the 6.2: 7.2:

programme, trainees generally acquire the basic skills required to operate and programme a community multimedia centre or working in radio, TV and multimedia. Skills development for target groups within the community-at-large is integrated into local developmental and cultural activities as part of an ongoing process to build capacity for using community media as a tool for local growth and development. As of October 2007, a group of 25 volunteers identified and were working with the CMC. A core team of 16 volunteers were trained to manage and operate the CMC and able to train volunteers in community media skills.

6. Important Supportive Aspects of Implementing the Idea: Partnership, Cost, and Financial Sustainability

6.1: The Community Multimedia Centre (CMC) has been built up as part of an Activity Financing Contract with UNESCO and after the contract phase is over, the implementing organisation has converted it into a Community Multimedia Centre. The whole imitative operated by YPSA ICT4D unit along with community participants. The financial support came from UNESCO and YPSA. At the local level, the partners of the project include local Government, local media (print journalists), schools and community people at large.

Box 3: Financial Challenges Faced in Implementing the Initiative

The centre is linked to YPSA's grassroots development network, which works to address root causes of poverty through a range of programmes in key areas of social and economic development: education, health, micro-finance, grassroots organising, etc. With a history of working for development in Sitakund dating back some 21 years, YPSA foresaw that an ICT initiative would increase employment opportunities for young people and connect them to the 'knowledge society'. At the initial stage of planning the CMC had ideas of "Cable Radio". It planned to produce & sell modified radio sets that can be attached to the cable of local cable operator. Later on due to financial limitation the idea was abandoned.

6.2: Initially, 180 trainees completed the basic course, which was offered free-of-charge. Later on, a staggered system has been introduced in which some 25 percent were paying participants. The cost was 1000 taka (about USD 18) for the foundation course and 1400 taka (about USD 25) for the advanced course; and payments were made in two instalments. The new structure helped subsidising access for poor youth and cover part of the centre's operational costs.

6.3: Through ensuring community participation and implementing some income-generating activities, the project developed a model of sustainability. The local community participates in the management and administration of the CMC as an autonomous body and helped decision-making. Some income activities (e.g. commercial computer training, photocopy, printing, video etc.) of the centre were helping in generating income for financial sustainability of the centre.

6.4: As of October 2007, the initiative was not fully financially sustainable. For that matter adequate income generation is very important. The revenue generation section that generates income through offering following services - Commercial computer training, Computer compose, Printing, Photocopying, CD writing, Video documentation of events, Internet browsing/email, Laminating yet to be sufficient to run the centre without any financial support. YPSA recognised the importance of financial sustainability to continue its activities without interference of any supporting agencies by the community itself; however, to them community benefits and social sustainability is much more important.

7. Assessing Community Responses: Evaluation and Outcome of the Intervention

7.1: YPSA get regular reporting from the YCMC. The centre provides monthly report to the YPSA Organisation Learning and Reflection (OLR) Unit in a prescribed format. Field monitoring is conducted by the unit through occasional field visit.

7.2: Formal evaluation and feedback through formal and informal interaction with the community people help streamlining the activities in line with the objectives of the project. Following the feedbacks the project activities were redesigned and previous activities were modified. Systematic tracking of operations and activities were primarily done by UNESCO (supporting agency) through ethnographic action research.

7.3: YPSA have conducted impact assessment through third party expert consultants. The initiative is expected major changes among the community, through greater community awareness on issues of community concerns (e.g. health, education, rights, community radio, digital opportunities); local government, political representatives and civil society at large are aware and sensitised about grassroots community needs and concerns; enhanced capacity and new skills on digital opportunities by the disadvantaged communities of the working area; bridging of digital divide between the rural and urban areas. Moreover, it is also working for preservation of local and indigenous culture and tradition; creating greater skills, employment opportunities and confidence of rural disadvantaged youths and adolescents. With the intervention, rural community's voice, concerns, right to information and perspective established as a community rights.

7.4: Till date over six thousand people have directly and indirectly benefited from this project. It has developed skills of it's staff members and community people in radio programming, it has the radio programming facility/ infrastructure in place and it has developed community awareness on community radio through traditional media within it's working area. Moreover, as an ongoing activity, it is also continuously developing experimental radio programmes and cable casting through local cable networks. Therefore, it has experience in almost every aspect of community radio, which no other organisation in Bangladesh has. Thus it is completely ready to begin community radio programming and broadcasting as soon as government approval is in place.

7.5: As up to October 2007, a total of 182 community people trained in basic computing skills on full scholarship. A total of 72 volunteers were trained on interactive forum theatre performance, video content production, radio programming, and Digital Storytelling format. They work now with the YCMC.

7.6: The centre was managing a cable casting network of over 1000 households. Twenty-Four audio programmes were made on different issues of community interest in local language, 16 (Sixteen) video programmes were created on different local issues, and a total of 12 digital stories were prepared. Four forum theatres and 1 Journal theatre on 'Community Radio' were prepared & performed throughout the working area. Moreover, 6 multimedia educational tutorials on adolescents' sexual- reproductive health were prepared as of October 2007.

8. Ownership and Replication of the Initiative

8.1: YPSA owned the initiative. YPSA however encourages community ownership for initiative like this. At the end of the process, as per the project provision, YPSA has a plan to transfer the ownership to the local community through capacity development of the centre management committee. All contents produced under the initiative are considered free to use and distribution for Non-commercial purposes.

8.2: The initiative is replicable by any organisation who wants to have such social intervention for social motive. Pure profit making entrepreneurs may not be interested for replicating such endeavour as it takes time to generate sufficient revenue out of it. But the project is very easily adaptable and replicable at almost every part of Bangladesh. There is yet no other organisation in Bangladesh replicating this initiative. However, this model have been locally modified, adapted and replicated in over twenty countries of the world.

8.3: Many people have conducted many times informally to YPSA. However, no one have contacted for formal replication support from YPSA till date. Along side ICT Support to local institutions, other NGOs, CBOs and educational institutions, the project activities also include sharing experiences with other NGOs/networks/institutions/individuals for replication. The YCMC is committed to support any other replication initiative in terms of technical support, capacity development and reference support.

9. Highlights of the Project

9.1: YCMC is an exceptional convergence of new and traditional media means and approaches. The first of its kind in Bangladesh where media content is produced by, for and with the disadvantaged rural communities.

9.2: A very specific innovation of the project includes converting printed publication/content into multimedia CDs where printed publications are at first digitised, and then audio/voice, animation and other interactive navigational schemes are added into it.

9.3: Community involvement is ensured at all different levels. Firstly, community is directly involved in deciding the content for media programming, secondly contents produced in the centre are mostly done by the trained community people themselves, thirdly community provides advice and direction for operation to the centre through an autonomous body namely centre management committee.

9.4: All the developed contents are mostly in Bangla language. Especially local language and dialect on issues of local community concern, locally relevant information.

9.5: Community people get to know about the initiative mostly through traditional channels e.g. around 80 micro-credit groups of YPSA in the working area, publicizing through local cable media, personal contacts, group meetings etc.

Access www.ypsa.org/ict4d.htm for further information.

Part VI. Human Rights

Promoting Good Governance through Participatory Video

Bangladesh

Participatory Video is a set of techniques to involve a group or community in shaping and creating their own film. The idea behind this is that making a video is easy and accessible and is a great way of bringing people together to explore issues, voice concerns or simply to be creative and tell stories. This process can be very empowering, enabling a group or community to take action to solve their own problems and also to communicate their needs and ideas to decision-makers and/or other groups and communities. As such, PV can be a highly effective tool to engage and mobilize marginalized people and to help them implement their own forms of sustainable development based on local needs.

1. Community Based Initiative to Reach the Marginalised People

1.1: Since 2001 SPEED TRUST has been working intensively in 6 chars (new alluvial land)of Bauphal upazila of Patuakhali, isolated from the river Tetulia to establish the rights of the inhabitants of char land. Later in December 2002, they conducted a qualitative participatory study named "Life and livelihood of adolescents and women of coastal chars" in the context of socioeconomic condition and their access to government resources of Bauphal upazila. The study findings point towards miserable living conditions of charland. There is very limited scope for economic activities in the charlands. They are involved in risky job like catching fishes in stormy river, grazing buffaloes etc. The inhabitants of charland have not been able to establish their rights to land from time immemorial due to conflict over inter district boundary, corruption of government offices, limitations over policy and political clout of landed class. As there are no educational facilities, the char children are deprived of their right to education. There remains wrong perceptions amongst the inhabitants of charland as the real ownership over land is not established yet. So providing legal assistance to the char people in

land related cases would play an important role in establishing their rights. Health facilities are almost absent. Most of the adolescent girls and women are attacked with various chronic female diseases due to lack of education and health care, pneumonia due to wet weather, fever, cough, dysentery and various types of skin diseases. Here maternal and child death rate is alarming. It came up from the study that the areas urgently require special attention and supportive policy of government.

1.2: Against the experience of these events, SPEED TRUST with the assistance of " Manusher Jonno Foundation" took up " Participatory video project in establishing good governance in the coastal areas" in 2003. The specific objectives as identified in the project documents included: awakening local people particularly poor char people on the duties and responsibilities of government institutions and various issues; ensuring services of upazila level organisation and equal distribution of resources particularly of land; strengthening char based CUC, CUP and women repression resistance committee and awakening the leaders of these organisations on various issues and making them skilled in income generating activities to ensure the rights of char people; preparing children in a joyous environment for participating in formal primary education apart from taking care of maternal and child health; and creating a pressure group with the participants of civil society members at the local, district and regional level for formulating a char policy. Poor landless people who are living in the Charlands (alluvial lands) at southern part of Bangladesh are the target beneficiaries of the initiative.

1.3: In designing approach and methodology for attaining objectives, participatory video came up as a central tool which can be a powerful means of documenting local people's experiences, needs and hopes from their own perspectives. The video medium is transportable, easily replicated and easily shared; it thus has a wide "spread effect". It could initiate a process of analysis and change local knowledge and practice, whilst stimulating creativity both within and beyond the community. When done well, PV could present the "inside view" in a lively way that is accessible to people at all levels. All community members must have equal access to the process and all voices should be expressed and heard.

2. Preparing Platform for Project Implementation: Awareness Development, Capacity Building and Network Development

2.1: To understand the region and disseminate information about the own area, a Char census was conducted and published. The findings of the census activities were then presented at community / Char levels, at Upazila Level (2 Upazila), at district level, at Barisal division and at Dhaka in a National Dialogue.

2.2: For capacity development of staffs, trainings and workshops are arranged covering different areas that include: Land Rights (Evaluation Process), and workshop on Programmes Monitoring Tools etc. Other than these Monthly Staff Review Meeting and Monthly CF Meeting are important instruments for continuous awareness building and capacity building process of the project.

2.3: For the awareness building and publicity amongst community people and target beneficiaries, a number of activities are performed that include: organizing press conference; training for the capacity building; cross learning visit; trainings on Gender & Rights, Gender & Advocacy, Legal and Land Rights, Legal and Land Rights Refreshers etc. Monthly Meeting of CUC, Quarterly Meeting of CUP, and Monthly Meeting of NNPAC have been important instruments for ongoing awareness and capacity building programmes for the community people and local participants.

*Figure 1: Awareness Development Programme
for the Community People*

2.4: For offering legal support, a number of lawyers were contacted and a discussion meeting was arranged with the panel lawyers in this connection. As part of advocacy, stakeholders Meeting at Upazila Level is arranged quarterly. There are also arrangement for Media Trip and Public Hearing. It publishes Jharapata (Quarterly News Bulletin); Poster, Leaflet and Booklet; Calendar and distribute as advocacy materials.

2.5: Health campaign and activities for child care and education are important components of the project. For education, it was developed education curriculum, arrange trainings for the teachers, organise quarterly meetings of parents' forum, and teachers.

2.6: Network building among community people, government organisations, civil society and other social and economic groups are considered important for the success of the initiative. For that matter, a group was formed and workshop was arranged for discussions among the network members. Moreover, there were Upazila based workshop/meeting with CS and Govt. Officials, National Press Conference by the members and Sensitisation Meeting at Char.

Figure 2: Participants of an Awareness Programme

3. Major Project Activities: Awareness, Legal Support and Advocacy through Participatory Video

3.1: The major activities of the project include priority base PV preparation and presentation; Issue base participatory video presentation at local govt. and govt. officials sector; follow up presentation and reflection. In preparing the Video, one important step is to select the issue that is related to lives of the charland. Then script development, time and place selection, footage collection, computer editing are important tasks. After that a final CD for of material is produced. Specifically, participants (men, women and youth) of the trainings rapidly learn how to use video equipment through games and exercises. Facilitators help groups to identify and analyse important issues in their community by adapting a range of Participatory Rural Appraisal (PRA)-type tools with PV techniques. Then issue based short videos and messages are directed and filmed by the participants. Footage is shown to the wider community at daily screenings.

3.2: A dynamic process of community-led learning, sharing and exchange is set in motion. Completed films are used to promote awareness and exchange between various different target groups. Insight has worked with farmers, marginalised communities and youth in rural and urban settings, street children, refugees and asylum seekers, people with mental health problems, learning difficulties and physical disabilities. PV films of video messages are made suitable to use to strengthen both horizontal communication (e.g. communicating with other communities) and vertical communication (e.g. communicating with decision-makers).

4. Supportive Components on the way to Implementing the Ideas: Management, Evaluation, Partnership, and Financial Sustainability

4.1: Speed Trust is directly implementing the project; however, char community, journalist, different stakeholder and civil society are involved in this process. A dedicated team is working in performing the project activities. Speed Trust organizes training/capacity building programme for the team. The team has been involved in bargaining on access to govt. resource and services at the char community. Manusher Jonno Foundation of Bangladesh provided financial support to implement the project.

> ### *Box 1: Challenges in Implementing the Project Activity*
>
> *There is a major challenge for leadership amongst the landless people. But at one time the landless leader slips up from the leadership; this is our national character also. Those who are protesting today they are found some time later on the row of land grabbers for the sake of their interest.*
>
> *The local civil society is not capable to protest the political and administrative challenges.*
>
> *The persons who are deployed in these remote places on behalf of administration, most of them are in punishment transfer. This is why the sincere and dignified people are not found in local administration. But there is also a practice of random transfer in administration. Since the land issue is time consuming settlement issue, therefore, no progress is completed within the stipulated period.*
>
> *From the experience it has been found that in several instances the land grabbers have created different types of disturbances including propagation in media as well as amongst the local people.*
>
> *Negative attitude is there among the mainland community about the char people. Consequently, the vested interests groups including the land-grabbers are not interested to promote rights of the char people and the mainstream want to fish in troubled water.*
>
> *There is unwillingness amongst the major political parties to lend their support to the issues of char people. Often they make things complicated of land-related cases, human rights violations and other issues of char people for their vested political interests. Thus the char people's interests are thrown at the backseat.*

4.2: On the basis of selected indicators, participatory monitoring is conducted. It has monthly monitoring, which is conducted for checking the progress of monthly activities; and quarterly Monitoring, which is prepared for checking the progress of the organizational activities. Moreover, according to monthly action plan, the respective project staff supervises and prepares reports to submit

to the management. Feedback process includes follow up, feed back from media, discussions, workshops and seminars. It also applies the Participatory Rural Appraisal (PRA) method by adopting Focus Group Discussion (FGD), social mapping, study and research, field survey etc.

4.3: The project is owned by the implementing agency i.e. Speed Trust. In future the management would think about transferring the ownership as it should continue when the project phase would be over. It can be replicated in another sectors and it has good possibility.

5. Outcome of the Intervention: Assessing Impact

5.1: The video programmes provided vital information to the char people some times playing life saving roles and in most cases creating awareness about the resources that they already have but cannot utilize to the best. The project has opened doors for the local community to make a livelihood for themselves out of small projects that can be implanted from their available resources or little assistance from mainland. A good number of people are now producing poultry products, dairy products, vegetables and other goods. Yield has increased dramatically. Fishermen know about means of preserving their products and over all there has been a change in the way of life. Success stories utilising modern methods are not very uncommon on the islands any more.

5.2: By the time the initiative contributed through increasing the access of char community in govt. resource and service mobilisation like as govt. land, health and family planning, education. Changes are taking place in the villages in the area of social welfare, agriculture, and violence against women. As reported, near about 45,000 people beneficiated from the initiative till date.

Salma Begum a resident of Bhaupal received twelve day training on video editing at SEED Trust in 2003. Salma took the challenge of working with the char people. She had to travel with a heavy video camera from char to char coaxing people to come in front of the camera and talk about their problems. She then brought the videos to the main land and showed them to authorities associated, for necessary action. She also made footage of the local authorities making commitment or providing solutions via video, which she took back to the respective community thus providing assurance and in many cases solution to their problems. She provided the locals with valuable information about health, sanitation, livestock, irrigation, cultivation and other means of poverty elevation. She also made special footage on khasland, social security, social and legal rights, women and children in particular.

Since Government authorities and other People cannot directly overlook Participatory Video clips they had to attend to the problems in most cases with the fear of the clips finding way to international media or to higher authorities. The video clips in fact help bridge a gap between people at grass root level and authorities and institutions.

5.3: Narrating her experiences Salma Begum, who is working for the char people, said "in early days I had to face a lot of social pressure. I had only my training and determination to go with but I was always sure about the results. To see people smile it is a big reward and I consider it as my biggest achievement". About the problems she faced Salma Said "it was very hard in the beginning to make people face the camera and it was even harder to persuade the authorities to speak in front of the Camera. It was hard to carry the Huge Video Cameras around on boats with safety concerns. Being a woman I had to face ridicule, threats and assaults. The very same people can now not stop thanking me and SEED for the efforts." Salma has trained a few women at the "Lokka Kendra" who now are walking in her footsteps. The interesting fact here is that Salma has a formal education up to HSC and many of the women she trained can barely right their names but the service they are dong to their community is incomparable. These women with SEED Trusts programme can now operate cameras and other equipment that many tech savvy people cannot.

6. Highlights of the Initiative

6.1: The initiative is related to legal rights, education, health and livelihood of char people

6.2: Completely participatory people of all levels are participating in the process of planning, preparation and presentation

6.3: Men, Women and Child are equally active in giving their voice and participation in the process

Access *www.speedtrust.org* for further information

Part VII: Promoting Entrepreneurship

Business Incubation Applying ICT

Pakistan

The aim of the intervention titled 'Business Incubation' was to enhance the performance and potential of all size businesses, mostly; micro, small and medium operating in the area and to increase economic activism so that in the longer run the poverty is reduced and technology is integrated and adopted in all business spheres of mountain communities where ICT use and application is at naïve stage. It is a component of the Project "ICT for Rural Development in Mountainous and Remote Areas of Northern Pakistan", implemented by Karakuram Area Development Organisation [KADO]. KADO through the project management made attempts to explore new areas of investment, trade and commerce by applying ICTs to promote and expedite the rural development, enabling the communities to access information and to make informed decisions so that poverty is reduced and base for continuous economic development is set.

I. Objective Oriented Design of Business Incubation Covering Business Sectors

1.1: 'ICT for Rural Development is an action research project aimed at demonstrating the use of information and communication technology for the promotion of sustainable livelihood and extradition of extreme poverty in the remote mountainous villages. Under this project over 30 different villages have been connected with rest of the world through a V-Sat connection, apart from the establishment of two e-village resource centres, and IT resource centres in two schools. Many skill development and training programmes have been organized under this project to equip the local population with basic computer skills. Business Incubation by applying ICT is an important component of the project broadly to learn how ICT can be used as an effective tool for business incubation via the application of e-commerce, skill training and linkages.

1.2: The idea was that how an intervention can positively contribute to overall context by using and incubating businesses with Information and Communication Technology tools so that the performance of the businesses enhanced and improved. This intervention was to demonstrate that ICT could be used to improve the health of many businesses by improving performances, profits and revenues. The set specific objectives of the incubation was to improve the area of over all cost reduction, improve sales or revenue, enhance gross profit and net profit, improve technological facilities, improve the quality of the management and decisions making, quality in service delivery, improve marketing and better communication and get better ownership of businesses. The targeted entrepreneurs for incubation were mostly linked with; tourism (Hotel, tour operators, Forts, guides etc) wholesale (trade related, shopkeepers, café owners etc) companies (partnership businesses), individual entrepreneurs, NGO, Banks and financial institution. Beside that women were encouraged to use technology for business promotion and to integrate women in to the overall businesses.

1.3: The Business incubation process started in around early quarter of 2005, when internet connectivity was established. The idea was to enhance the skills of the entrepreneurs in using computer, internet, data processing and use of technology as a mean to reduce costs in communication, improve marketing and also to access wide network of customers and clientele especially from the tourism perspective. The research was designed in a way that focus remained on capacity building, making easy access of internet to the users, increased the awareness of the importance of internet through marketing programmes and also use of better management techniques like quality decision making through data process and making available the trained human resource at the disposal of entrepreneurs or entrepreneurs themselves. The cost reduction, increasing marketing efforts, improving the management and profitability remained the targeted areas. Many sectors and sub sectors were targeted for this purpose. The Business Incubation was spread over the time period of around 32 months starting from October 2004 to July 2007. Initially, the project was for 24 month, however, later on, extended to almost for another 12 months making it the project of around 32 month.

1.4: Before implementing the idea of business incubation, Business Incubation design was developed and the design includes; categorization and classification of sectors and sub-sectors of the business to whom it was targeted i.e. tourism, wholesale, companies, forts, individuals, NGO Banks, women etc. All entrepreneurs were provided Internet facility, all entrepreneurs and students including the interested future business groups were trained in use of computer, web designing, business management, use of technology for data processing and advanced training in use of software for inventory and data management, business simulation by use of computers, training in use of computer, tele marketing and use of equipments and use of application of technology for product development and innovation.

1.5: Business incubation was designed keeping in view the importance of marketing, Skill and capacity development, Technical knowledge, Business management, cost effective marketing tools, Follow-up of businesses, Business counseling, Effective and efficient communication, Quality control, Bookkeeping as an important needs identified in the need assessment sessions. Business incubation strategy was designed to provide cost effective solution of communication through Internet, provide technology by ensuring the suppliers in the market and cost effective and affordable connectivity. Comprehensive education in use of IT gadgets, software, computers data processing, business management training and quality control by application of technology. Business incubation design was reviewed by the technical team and research team to ensure the smooth run and results oriented or meaningful. Repeated revisions of the design enabled to make the design most appropriate to meet the objectives described in the project outline.

2. Preparing Platform for Implementing the Ideas through Capacity Building

2.1: Base line assessment of the incubated businesses showed lack of basic skills in computer and other information and communication

technologies, business management, data processing, marketing, service delivery etc. To address the manpower and skill development related issues basic needs were identified and training programmes were designed accordingly.

2.2: In the first week of March 2007 a training session was organized to facilitate and to reinforce the trainings imparted previously and to educate with the ongoing Development in E-commerce and new areas of application of ICTs in the businesses. The objective was to learn how ICT can be used as an effective tool for business incubation via the application of e-commerce, skills training and linkages. As the results of the training, trainees became aware of the latest theories and development in e marketing and selling etc.; learnt effective use of ICTs in daily businesses; learnt to update their websites; and became Capable of developing online businesses.

2.3: A fifteen days training was organized on 'web and graphic design training' on December 2005 and 2006. The objectives of the training were to provide web development training to the participants so that they can undertake a static web design project independently. Participants also introduced to various Internet technologies that are in use today. This foundation training of its kind enabled participants to decide their career and businesses in modern ICT tools like web development. This training enabled the participants to develop web sites for their businesses; upload websites on the web server; digitize their products and services. Total 10 participants were given this training and encouraged to develop their own websites for their businesses. Now several businesses have created their websites and use for their business transactions and communication with their online clients. Incubated businesses show a remarkable decrease in their marketing expenses and communication cost. This training included some professionals who assisted the incubated businesses and they themselves enhanced their earning using this skill.

2.4: 11 local entrepreneurs (men and women) were trained in web development and marketing training focusing on e. marketing with the following objectives: Understand the creation of web graphics using highly professional graphic software; Build fully functional 2 of

websites; Upload websites on the web server; An online presence; Digitize their products and services; Basic marketing skills and E-marketing. Besides the above-cited objectives, it was hoped that this would enable the trainees to initiate online businesses. This training remained beneficial, as some of the new business initiatives have been started in the area.

2.5: Training on investment and liquid assets was organized for local youth and other business community interested in dealing online investment and liquid asset, such as selling and buying of stocks, currency and e commodities. 10 participants including 2 women participated in this training. The aim was to introduce businesses which can be run online and educated people have access to online businesses, opportunities. Based on this training and available internet services to companies are now in this business. This training paved a new window of development.

3. Helped developing Web-sites and Business Improvement

3.1: Business incubation is also one of the most important components of the ICT4D project as a lever for promoting businesses and economic development. ICT4D has reduced an average of 36.8% marketing cost, now several directly incubated and several indirect incubated businesses have developed their own websites such as www.altithunza.org, www.hmpsc.org, www.gojal.net, www.hunzagallery.com, www.hunzaclassical.com, www.nastourim.gov.pk, www.silkroute.com, and www.hunzascouts. 8m.com.The feedback is very much encouraging and participants have developed a number of websites so far.

3.2: The web site: www.gojal.net has been prepared in order to provide comprehensive information   about Gojal valley. All the materials are research based. Main information in the web side include area map, demographic trends, physiographic characteristics, natural resources, tourist attractions, local news and links to different resources. Another website: www.nastourim.gov.pk was developed by

2 of the trainees in the training on 'web development and graphic designing for entrepreneurs held here in Karimabad, for Northern Areas Tourism Department, Gilgit. This is a very detailed web site and provides all relevant information to tourists.

Figure 1: Two Developed Websites under the Project

3.3: Scouting is an international movement promoting volunteerism worldwide. www.hunzascouts.8m.com is a non official website for scouts to keep them informed about their activities tasking place across the valley. One of the trainee developed web site for the Scouts Association in Hunza. This web site provides information about the scouting movement and the activities carried out in the valley and new developments in scouting worldwide. One of the trainee developed web site: www.silkroute.com for local art groups offering services in music and arranging other events. This is an initial attempt to explore the ICT potential in selling their services through their own website within the area and outside the project area. This will encourage several other musical groups to compete up with web based solutions for their low income and weak marketing of their services in different events and celebration. Besides remaining struck to one kind of service several other services like event management could be a unique idea to catch business from the area while selling one. Alongside with above web sites some other web sites were also developed as part of regular web development and design component. Trainees are encouraged to keep on developing websites for commercial purpose to enhance their earning through developing and assisting business community and institutions.

3.4: Hunza classical is a group of local artist offering services to tourists and others in music and events management. The web site [www.kado.net.pk/hunzaclassical] provides details regarding services available with 'Hunza classical group'. This group offers cultural programmes and event management. www.hunzagallery.com is a art gallery presents a meticulous Paintings and Art work from the Hunza valley, the only Shangri La on Earth, in the extreme North of Pakistan bordering with China and Afghanistan.

3.5: For the noted objectives a continuous need based training programme was developed to equip the businesses with the required skills and information in computer operation and internet usage. Simultaneously equipment and managerial facilitation were also provided. Marketing and introduction of new services to improve the customer flow were also implemented and monitored continuously from time to time. Incubated businesses were suggested to work on innovative ideas and during the course businessperson were facilitated with information, skills development, management assistance, product development, costing and cost reduction, marketing systems development and introduction of new and innovative services where deemed feasible.

4. Important Aspects of Implementing the Idea: Management, Partnership, Ownership and Replicability

4.1: A dedicated research and management team was responsible to perform the project activities. For this purpose research team set down goals and objectives, identified the existing data sources i.e. feasibility studies and business plans available, financial records including annual and other reports, service utilisation reports and leasing records where available and for new businesses they helped and assisted in developing business plans. A technical team was engaged in offering technical support. The KADO ICT4D initiatives are supported by IDRC, Canada. Pakistan government also came up with supporting some activities.

190

4.2: Evaluation and feedback was an important activity of the project that includes frequent visits, questionnaire filling asking for suggestions and feedback. The feedbacks were essential for midcourse correction and used for the future planning.

4.3. The initiative is owned by KADO. It came up with the lesson that application of ICTs in leveraging the rural economy and providing efficient services provided confidence to the organisation that ICTs application in almost all sectors can help and boost if planned and implemented properly. Experience and learning from this initiative is widely replicable in other rural areas of Pakistan and of the world equally. After learning about the positive results of the limited business incubation interventions in Hunza and Nagar encourage and demanding to expand the scope of similar ICTs interactions in the region and outside. In order to expand the project

activities to other villages to enable maximum number of the rural people to use ICTs for their development and ultimately reduction of poverty would requires more resources but that can multiply the incredible results and outcomes.

5. Outcome and Impact Assessment of the Project Activities

5.1: Impact assessment was an important component of project activities. According to the assessment carried out during the project time, the overarching effect of the project has remained very positive and remarkable. To assess impact of incubation with ICT, sectors and sub-sectors were evaluated against a set of indicators quantitative and qualitative; however, qualitative indicators were translated into quantitative form.

5.2: According to the reports generated show that the incubation intervention accelerated over 30% net growth in the incubated business. With respect to cross sector growth, an overall around 37% improvement was observed in tourism industry, which, includes, incubated hotels, Forts, Tour operating Companies and tourist guides. Whereas about 31% growth was recorded in trade and commerce sector, which, includes, trading companies and whole sellers; however, service industry, which incorporates Banks, NGOs and individuals showed a approximately 24% growth. According to the report, an average of 25.5% growth was noted in overall sale, 17.5% growth in gross profit, 25.7% increase was recorded in flow of customers whereas 36.8% reduction was recorded in marketing cost, likewise 42.1% decrease was observed in communication cost.

5.3: Tourism sector is considered to be one of the main economic contributing sectors rather a promising sector in the area as a large number of individuals are directly and indirectly attached to the tourism industry. Tour operating companies, tour and expedition guides and hotels have grown mushroomly and have developed their 'websites', KADO's ICT-based intervention has encouraged and facilitated them all to sell and market their services effectively and efficiently. Now more entrepreneurs affiliated with tourism sector enjoy more tourist flow in the area and have a direct and indirect

boost in the sector; ICT intervention has provided a low-cost chance to move the poor out of poverty, at their doorstep.

Box2: Businesses Benefited From the Intervention

Mr Shafqat, Owner of Silk Route Treasurers Co and Café De Hunza, was very much satisfied with KADO intervention and said that the intervention was during period when he was passing through a depressive phase of his business. He termed ICT4D as blessings for his business. Following the KADO intervention, a lot of improvement and growth [around 55%] took place during the incubation period of 20 months. He was very satisfied that his customers increased by 30%. He also introduced new services for the customers and was in a position to cut a lot of communication and marketing cost. He was thankful to KADO.

5.4: Trade and commerce sector shows second highest growth rate during the incubation period started from October 2004 and ending on July 2007 comprising upon 32 months. Service industry is one of the evolved sectors contributing towards the local, regional and national economies equally.

6. Highlights of the Project

6.1: Aimed to enhance the performance and potential of all size businesses in the area and to increase economic activism so that in the longer run the poverty is reduced and technology is integrated and adopted in all business spheres of mountain communities

6.2: An important component of a complete village development plan besides providing effective and efficient services.

6.3: In term of the perception and ICT utility the community of Hunza has greatly realized the importance.

6.4: Focused on the participation of women and women entrepreneurs who have limited use of ICTs because of the skills insufficiency.

6.5: Entrepreneurs affiliated with tourism sector enjoy more tourist flow in the area and have a direct and indirect boost in the sector.

Access *www.kado.net.pk* and *www.karakoram-ict.org.pk* for further information

Part VIII: Gender in ICT

Women in Information Communication and Technology

Nepal

1. Available data indicates that women are conspicuously absent from the decision making structure in information technology in both developed and developing countries. There are very few women software developers in the world and fewer in developing countries like Nepal. Telecentres, which are considered to be a strong mechanism for minimizing digital divide, do not focus the need of the women as such. A women friendly environment in the telecentres is required to be promoted so that women can feel free in using these centres as information bank. As a whole, strategies should be designed to give women easy access to information technology. This would lead to an efficient e-governing mechanism, which is only possible when the government and the civil society are gender sensitive in the planning phase of ICT4D.

2. On the above background, 'Women in ICT' is initiated by Bellanet Asia, SAP International Nepal in December 2006 with the goal to promote participation of women in information and communication technology. The specific objectives of the project are to build women leadership in ICT and to promote functional forum for women in the ICT field to share their learning. Objectives are to be attained by motivating women to get engaged in ICT interventions; by campaigning to bring conducive environment for women; and by promoting networking among women in ICT.

3. The initiative is run by SAP-International and Bellanet Asia in close consultation with women in ICT network. Bellanet Asia team has dedicated a staff member as well as there is a Advisory Committee for managing the network. The management team has been organizing trainings and workshops to enhance/empower women in ICT. The initiative is moving forward with regular interactions, meetings, and workshops, online communication by using email, websites, online discussion, blogs and wikis.

4. Due to financial constraints, the initiative started with a very limited budget of USD 3000 for a year. Other than Bellanet, communities including Computer Association of Nepal have contributions in this connection.

5. The activities and interactions have already started bringing positive outcomes. Stereotyped views of women's skills and abilities have been changing. Women have started understanding the effective use of ICT and effective strategies that can empower them despite the socio cultural barrier and Gender insensitive ICT environment.

6. The progress and evaluation of the project activities are monitored regularly through reviewing training outcomes and workshops conducted and online discussions among network members.

7. It seems to be a financially sustainable project as the members are the owners and contributors of the process. There is mechanism for local resource mobilisation for meeting the expenses with the expansion of the network.

8. Bellanet is working to develop a common understanding on the issues and re-addressable mechanisms for ensuring a strong role of women in ICT. It has develop a women's committee for the mission of promoting women in ICT and in the coming days it looks forward to motivate and encourage more women to enter the ICT job market and ensure quality participation of Women in ICT.

Access *www.womeninict.org* for further information.

Part IX: Open Source

Bangladesh Open Source Network

Bangladesh

1. Open Source Network (BdOSN) was formed in October 2005 to create a network among the voluntary groups and individuals who have been working in the field of Open Source Software with the broad objectives to harness the potential of Open Source Software for the country. Most of the groups are voluntary, self motivated, Internet based and worked separately. It was indeed a long attempt to make a coordination hub for these activities. The initial idea was just to create a broad organisation where the Open Source and Open Content volunteers and professionals can exchange their ideas and embark on new initiatives. However, in last two years, BdOSN has matured into an independent organisation with partnerships with other Open Source based organisation and individuals.

2. The board goal of the initiative is to harness the potential of Open Source and Open Content philosophy for the social and economic development of the country, and to prepare the nation to avoid possible significantly negative consequences of Intellectual Property Rights (IPR)-related trade repercussions arising from the widespread use of pirated software and content. To attain the goals, the specific objectives as identified are to establish a non-profit, voluntary organisation that would offer processes for enhancing the abilities and capacity of individuals, groups, institutions, organisations, societies, and government in Bangladesh by using Open Source and Open Content solutions; to promote and popularize Open Source and Open Content philosophy in all applicable fields to conduct policy advocacy on Open Source and Open Content to relevant stakeholders, to establish a technical and professional services resource centre to facilitate greater adoption of Open Source and Open Content in the academia, government, civil society organisations, to develop local capacity and create job opportunities for women and youth in Bangladesh by developing an Open Source and Open Content market.

3. It has provisions of several types of memberships: Individuals; Civil society organisations, academic membership, Community membership (BdOSN will help local communities to develop their own network), Business organisations, sponsor membership and patron membership. It has set up an Open Source Council (OSC). OSC is the highest body of the BdOSN. An 11 member EC is the executive authority of the network and runs the network as OSC approved plan and as per constitution of the network.

4. The network is solely a voluntary organisation and mainly runs by the subscriptions of the members. There are some patron members who bear the major part of the regular expenses. Some of the programmes were organized with the help from the financial assistance from the Sponsor. Some of the public and private universities, radio Media, Financial institute like Banks, Telecom Company etc sponsored different programme of the network. The network also published books and CDs and distribute those with distribution cost.

5. The Open Source Network is performing a number of activities. As part of awareness development programme, all regular media including electronic and print media has been utilized. With the constant persuasion by the network, some of the print media are now playing some pro-active role towards open source. Besides the media campaign, the network regularly organized seminar, talk and workshop for creating awareness among its stakeholders.

6. One important activity of the network is to develop the capacity of the students and others in the field of open source software and technology. To achieve this, network organized Open Source Camp (a Training workshop) in different universities of the country.

7. BdOSN works with its partner network and helps the community to develop their own network. Open Source Network is local community involves with open source activities. In last two years 11 such network were constituted in the different universities of the country. One of the activities of the BdOSN named BanglaWiki, a voluntary group for Bangla Wikipedia. This effort provided a very

good foundation to develop a Bangla Encyclopedia in Internet. BdOSN has been able to get more than 14000 entries in Bangla Wikipedia (http://bn.wikipedia.org) in one year. BdOSN also runs the country's first voluntary support centre to help the end user for using Open Source Software. From the support centre the end user can collect CDs, Programme, plug-in and also can solve their problems. In a follow-up action, 4 local networks have also started their own support centre at their respective universities. The central support centre is run by BdOSN volunteers.

8. BdOSN has been working to let people know that everyone has a right to the access to information and using pirated copies of software is not the solution to bridge the digital divide. It would enable people of Bangladesh where it is very expensive for people to use licensed software, to have their customized software very cheaply and the local content could be reached very easily to people where it will ensure their right to information and hence diminishing the digital divide gradually.

Access *www.bdosn.org* for further information

About the Study Team Members

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