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ENHANCING THE LIVELIHOODS OF THE RURAL POOR THROUGH ICT: A KNOWLEDGE MAP

Sri Lanka Country Study

June 2008

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Information and communication technologies (ICTs), appropriately adapted, help improve the livelihoods of poor individuals, families and communities in rural areas and increase their income opportunities, thereby improving their chances of escaping from persistent poverty. This Knowledge Map helps understand what we know, both from research and from experience in the field, and what do donor staff and their country counterparts most urgently need to know about these issues. In addition, it provides recommendations on the use and role of ICT in enhancing the livelihoods of the rural poor.

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June 2008

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Acronyms

ADB	Asian Development Bank
BDS	Business development service
BIN	Business Information Network (EIP)
BIP	Business Information Portal (CCC)
BIS Centers	Business Information Centers
BIS	Business Information System (EIP)
CCC	Ceylon Chamber of Commerce
CDMA	Code-division multiple access
CINTEC	Computer and Information Technology Council
CIT	Council for Information Technology
COMPOL	Computer Policy for Sri Lanka
DoA	Department of Agriculture
EIP	Enterprise Information Project
FOSS	Free and open source software
GGs	Govi Gnana Systems
GTZ	German Technical Cooperation
ICT	Information and communication technology
ICT4D	ICT for Development
ILO	International Labor Organization
ICTA	Information and Communication Technology Agency of Sri Lanka
ISP	Internet service provider
IT	Information technology
ITDG	Intermediate Technology Development Group
MSME	Micro, small and medium-scale enterprise
NGO	Non-governmental organization
Norad	Norwegian Agency for Development Cooperation
REN	Rural Enterprise Network
SBFS	Sector Base Filing System (EIP)
Sida	Swedish International Development Agency
TIS	Trade Information System (CCC)
UNDP	UN Development Program
UNESCO	UN Educational, Scientific and Cultural Organization
UNICT Taskforce	UN ICT Taskforce
USAID	US Agency for International Development
VGK	Vishva Gnana Kendra (universal knowledge centers)

Executive Summary

In Sri Lanka, literacy regarding modern Information Technology (IT) is still at a very early stage. In a country with a 93% literacy rate, IT literacy rates are 9% for the urban population and 3% for the rural population. Utilization of Information and Communication Technologies (ICTs) in rural livelihoods development is almost non-existent. However, there is a growing interest among the government of Sri Lanka, the donors and NGOs. It seems likely that, during the next five to 10 years, a considerable number of people, including those living in rural areas, will adopt ICTs. This is mainly due to: (i) donors' willingness to invest; (ii) continuity of state support toward the ICT policy since its inception, irrespective of the political parties coming into power; (iii) the rapid expansion of the telecommunications networks in Sri Lanka, especially in rural areas; and (iv) increasing private sector investment in ICT-based businesses.

Attempts made by the government, the private sector and NGOs to promote utilization of modern ICTs for rural livelihoods development have had little impact, but have generated a considerable amount of knowledge, which will create a strong foundation for the future. There are multiple reasons for these ICT interventions being unable to leverage rural livelihoods development as expected. These include: (i) lack of understanding of the complexities of rural livelihoods; (ii) lack of identification of appropriate ICT interventions; (iii) weak collaboration among stakeholders; (iv) little focus on service sustainability; and (v) little attention paid towards capacity-building programs, essential at the service delivery level.

Participants in this study suggest that more attention needs to be paid to the areas of: (i) capacity building at the meso level; (ii) research on impacts and outcomes of ICT livelihoods interventions; (iii) promotion of innovations; (iv) development of ICTS complementary policies and rural development; and (v) creation of an enabling environment for sharing experiences nationally and internationally.

I. Introduction

I.1 Practical Action Consulting

Practical Action, formerly known as Intermediate Technology Development Group (ITDG), is an international development organization based in the UK since 1965. It is working in several countries through country and regional offices. Practical Action specializes in helping people to use technology for practical answers to poverty. It seeks to demonstrate and advocate the sustainable use of technology to reduce poverty in developing countries.

Practical Action started to work in Sri Lanka in the 1980s, and established an office in 1989. It is registered in Sri Lanka as a voluntary social services/non-governmental organization, under Voluntary Social Services Organizations (Registration and Supervision) Act, No. 31 of 1980, as amended by Act No. 8 of 1998. Working together with the communities, Practical Action South Asia aims to build up the technical skills of poor people in the region, enabling them to improve the quality of their lives and that of future generations.

For over 35 years, Practical Action Consulting has provided development consultancy services as the consulting arm of Practical Action, with high-quality independent and professional advice to governments, NGOs, aid agencies and the private sector.

Practical Action Consulting operates from regional offices in the UK, Eastern and Southern Africa and South Asia, staffed with experienced development professionals. Our offices have enabled the development of extensive local networks with a range of development practitioners. We also draw on the skills and expertise of over 400 development professionals working on Practical Action's regional development programs, based in offices in Bangladesh, Kenya, Nepal, Peru, Sri Lanka, Sudan and Zimbabwe. Our longstanding engagement in technologies in developing countries has enabled us to build up an extensive network of over 600 international consultants, managed from our head office in the UK. Standards of performance are ensured through formal and transparent reporting mechanisms, making for a high and consistent level of quality.

Our work focuses on improving access to essential basic services and enabling sustainable livelihoods for poor and isolated communities in rural and urban locations. The main sectors on which we concentrate are: (i) water and sanitation; (ii) energy; transport; (iii) ICTs; (iv) housing and shelter; (v) business development and micro, small and medium-scale enterprises (MSMEs); (vi) agro-processing and food production; (vii) climate change; (viii) urban development; and (ix) disaster mitigation.

Our expertise in these sectors includes: (i) technology assessment and feasibility studies; (ii) social and economic analysis; (iii) market appraisals; (iv) due diligence surveys; (v) policy option assessments; (vi) private and public sector involvement; and (vii) institutional and organizational development.

In addition to technical skills, Practical Action Consulting provides the following services:

- **Project design and management:** Program design and delivery, monitoring and evaluation of complex projects with international multi-disciplinary teams;
- **Institutional development and organizational development:** Facilitating efficient, customer and client-focused support and services;
- **Training and capacity building:** Conducting training, designing training manuals, training trainers;
- **Policy and strategy development and policy guidelines:** Improving infrastructure services for the poorest;
- **Market analysis and participatory approaches:** Creating studies to identify needs and opportunities for technology change for sustainable production.

I.2 Research questions and methodology

The research comprised three main components: (i) a literature review; (ii) a questionnaire-based survey; and (iv) a stakeholder workshop.

Literature review

Literature on previous studies on the role of ICTs in rural livelihoods development was reviewed in order to identify the ICT interventions for livelihoods already in existence. 20 published documents, including project documents and strategic papers, websites, and evaluation reports and papers were reviewed.

Questionnaire based survey

One-to-one interviews with a range of different ICT service providers and users were conducted to find out their experiences, perceptions, challenges and suggestions on the use of ICTs for rural livelihoods development. A total of 26 people representing different agencies were interviewed, including service providers and service users. ICT-based services that were included in the questionnaire survey can be categorized as follows:

- Radio and television-based information services;
- Web-based and local database information services;
- Telecommunications services;
- ICT training providers;
- Linkage facilitators – marketing services, job-seeking services and livelihood-related technology training.

In addition to these sectors, researchers, consultants and donor representatives were interviewed.

Stakeholder workshop

The workshop was designed to facilitate a discussion among the representatives of different ICT service providers, including government, private and non-governmental sectors, on the constraints and opportunities of ICTs and ICT-based services for rural livelihoods development.

During the workshop, the study findings were presented with the research framework and objectives. The Information and Communication Technology Agency of Sri Lanka (ICTA), Kothmale Community Radio, GTZ- Chamber of Commerce joint program and the Cyber Extension Unit of the Department of Agriculture made presentations explaining the challenges and successes of their interventions, allowing participants to learn about ongoing ICT interventions in Sri Lanka. This was followed by a discussion, guided by one key question: What are the strengths and weaknesses of ICT interventions for livelihoods development in Sri Lanka in terms of the basic principles of the livelihoods approach, that is:

- Focusing on people, not resources;
- Developing and implementing through dialogue and participation;
- Being demand-driven with feedback loops;
- Building on strengths rather than focusing on constraints;
- Developing or supporting appropriate policies;
- Institutions and processes, fostering micro-macro linkages;
- Focusing on outcomes not outputs.

This session enabled us to find answers to the key research question in the research framework: 'What do we know already, both from research and from experience in the field?' In order to formulate recommendations and to prioritize research needs, the following two questions were posed to participants:

- How can the full range of ICTs, appropriately adapted, help to improve the livelihoods of poor individuals, families and communities in rural areas and increase their income opportunities, thereby improving their chances of escaping from persistent poverty?

- What elements most urgently require further research and analysis in order to lay the basis for informed policy and investment by donors, governments and others?

II. Findings: ICT and Rural Livelihoods Development Projects in Sri Lanka

II.1 Background

Very little has been written on the use of ICTs in micro, small and medium-scale enterprises (MSMEs) in Sri Lanka. There are almost no publications available on the contribution of ICTs to rural livelihoods development. The impact of ICTs on rural livelihoods is not adequately monitored or researched. Moreover, it is questionable to what extent the little that has been written is really relevant to rural livelihoods development.

Regarding the private sector in Sri Lanka, the ICT presence is high and pervasive in the financial sector, but low in the rural development and agricultural sectors. ICT is less pervasive and more uneven in the tourism, transport and travel sectors, as well as in the retail and wholesale sectors (Greenberg et al., 2002). As a result, it is realistic to expect a very low level of ICT use in the micro and small enterprise sector in Sri Lanka. This assumption is supported by data on coverage and usage of the Internet. Despite the fact that the Internet was launched a decade ago in Sri Lanka, it has not yet been able to penetrate rural localities. Users in the Colombo and Kandy districts account for 87% and 2% of usage, respectively; all other districts account for the remaining 11% (Withanage, 2003). Therefore, it is reasonable to conclude that the use of ICT by entrepreneurs in rural areas is very low in Sri Lanka.

Attempts made by the government, non-governmental organizations (NGOs) and private sector organizations have not been successful in impacting directly on the livelihoods of rural people. It has been observed that in most of ICT projects, the focus has been more on building ICT capacity at the rural level than ICT-based services for livelihoods development. From the researchers' point of view, the latter is the correct way, as ICT infrastructure and knowledge should be the basis for encouraging rural communities to utilize ICTs for rural development more broadly and for livelihoods development more specifically. This would mean longer-term impacts for projects on rural livelihoods.

II.2 Key ICT-based project interventions

As there are very weak linkages between existing ICT interventions in rural areas and livelihoods, the researchers intended to investigate indirect links among ICT-based interventions. In this attempt, a brief introduction to the key ICT-based projects undertaken by the government, NGOs and private sector organizations is given below.

The e-Sri Lanka initiative

The Sri Lanka government's ICT strategy for rural development is called the e-Sri Lanka initiative. The vision of the e-Sri Lanka program is to 'take the dividends of ICT to every village, to every citizen, to every business and re-engineer the way government thinks and works' (Withanage, 2003). Its goal is to use ICTs to develop the economy of Sri Lanka, reduce poverty and improve the quality of life for the people (www.icta.lk).

Under the e-Sri Lanka program, there is an area called ICT for socio-economic development, which focuses on ICTs for rural development and poverty reduction. This aims to address the gap on the use of ICTs for rural development in most policy documents previously drafted. The decision to establish a fund to support societal applications whereby innovative ICT applications will be supported by the program, is clear evidence of its focus on ordinary citizens' needs and support for their empowerment through ICTs (Withanage, 2003). The e-Sri Lanka has a five-pronged program strategy, which encompasses (www.icta.lk):

- i) Building implementation capacity ;
- ii) Building information infrastructure and an enabling environment;
- iii) Developing ICT human resources;

- iv) Modernizing government and delivering citizen services; and
- v) Leveraging ICTs for economic and social development through public-private partnerships.

Nenasala of e-Sri Lanka

Nenasala of e-Sri Lanka was initially known as *Vishva Gnana Kendra* (VGK: universal knowledge centers). It aims primarily at the use of ICTs for rural sector development. A key objective of the program is to establish multi-service community information centers, or *Nenasala*, which provide access to the Internet, telephones and other information services along with training to the public in rural communities. The central aim of *Nenasala* is the delivery of positive economic, social and peace-building impacts on a long-term and sustainable basis.

Through the *Nenasala* project, the achievement of the following developmental outcomes has been planned:

- Empowering the population in rural areas through affordable community access to ICTs;
- Providing direct employment to 2,000-3,000 persons (two to three staff per *Nenasala*);
- Enabling 5,000-10,000 users in each target region regular access to *Nenasala* services for better access to other services such as health, employment, agriculture, and education;
- Achieving a 70% youth and a 40% women user accessing services through *Nenasalas*.

In the first phase of the current plan, it was estimated that about 100 *Nenasalas* would be created in the northeast and south regions by the end of 2004. By the end of 2006, the project had been able to establish 350 *Nenasalas*, concentrated in southern Sri Lanka, with a plan to expand the project to establish 2,000 centers by the end of 2008. Having observed the low IT literacy rate in both urban (9%) and rural (3%) sectors, the *Nenasala* project also includes a user training package, mainly for children. The centers are run both as an enterprise by individuals and as social ventures by community institutions such as temples, especially in rural areas.

Govi Gnana Systems (GGS)

This pilot was implemented by e-Development Labs Interblocks Ltd and PricewaterhouseCoopers. GGS enables farmers, traders, buyers and sellers of agricultural produce to view transaction prices in other areas of the country. The main objective is to enable farmers to obtain the maximum price for their produce by providing them with up-to-date information about trading prices. The pilot was established in the Dambulla and Meegoda, which are dedicated economic zones, considered to be large agricultural market towns. The prices of agricultural produce are collected at the point of conducting trades from selected trader terminals. They are also collected by personnel who conduct spot price capture using hand-held devices. These are projected on display terminals and kiosks and then published via the Internet. The aim of this information sharing is to reduce price volatility and bring stability to agricultural prices to help farmers get into forward sales contracts which can eventually be used as collateral for additional funding (www.icta.lk).

JobsNet

JobsNet is a project of the Ministry of Employment and Labor, conceptualized and managed by the Ceylon Chamber of Commerce (CCC). Besides these actors, the Norwegian Agency for Development Cooperation (Norad) and the Swedish International Development Agency (Sida) collaborate in the initiative.

JobsNet, designed by the CCC in November 2002, opened its first center in January 2003. The network today has up to 17 centers island-wide. *JobsNet* is structured to ensure that a high percentage of the population has easy access to its services. It was established with the prime intention of providing a valuable service to the 'jobs market', matching the needs of job seekers and employers. To date, more than 70,000 job seekers have registered with *JobsNet*, 4% of whom have an interest in self-employment. With a high number of job seekers, and with jobs evidently available, the inevitable question has been 'Why can't these people get the jobs they want?' The answer lies in the quality or ability of the job applicants. Out of the 70,000 job seekers registered to

date, 90% can be identified as requiring some additional training if they are to match employers' expectations and requirements. Through an evaluation and review process, the CCC and JobsNet have profiled clear bottlenecks and shortfalls in the current provision of training nationwide, and have submitted a proposal to Sida. This has been accepted as a viable and sustainable solution: upgrading the skills of job seekers, and making them employable in accordance with their and the employers' expectations (www.jobsnet.lk).

Enterprise Information Project (EIP)

EIP assists private sector enterprises, promotional institutions and public planners to obtain business-related information for decision making. EIP has been in operation since 1998. It was involved in establishing and developing the island-wide Business Information Network (BIN) in the regions of Colombo, Hambantota, Kandy, Kurunegala, Matara, Matale, Ratnapura and Jaffna. The goal is to network all the districts, enabling free flow of business-related information for the benefit of entrepreneurs in Sri Lanka. Through the system it is envisaged that there will be great potential for suppliers, i.e. farmers, to link directly with exporters, thus invalidating the role of middlemen during their transactions. The innovative component of EIP is the Business Information System (BIS), which is a computerized database established at the CCC. The system has been developed taking into consideration user requirements of all partner organizations. The BIS operates on an Oracle 8i platform with three main components: (i), the CCC Trade Information System (TIS) of the CCC; (ii) the Sector Base Filing System (SBFS) introduced by EIP; and (iii) the external data sources that provide validated business information, such as the Sri Lanka Ports Authority, the Central Bank of Sri Lanka, the Industrial Technology Institute, and Sri Lanka Customs. The system also enables the facility to input, update, process, store and transmit simple output formats for the use of relevant decision makers.

The EIP's second phase commenced in 2002 and expanded its data domain to a wider array of external data sources. These data sources provide validated business information in the areas of new technology, procedures, regulations, standards and statistics. Special emphasis is placed on sectors identified by the government of Sri Lanka as thrust sectors. These are: (i) paddy; (ii) fisheries; (iii) rubber; (iv) garments; (v) spices; (vi) handicrafts; (vii) gems/jewelry; (viii) fruits/vegetables; and (ix) coconuts. In addition to these sectors, data sources of general sectors such as import/export and trading/investment are also identified as key components that could nurture the contents of the database (www.eip.lk).

Sri Lanka – German Enterprise Information Project

In 1998, recognizing the importance of developing an ICT-based information exchange, the government of Sri Lanka, after evaluating over 40 local trade promotion organizations, entrusted the CCC with developing a distinct business development service. Under this mandate, the CCC established the web-based Business Information Portal (BIP) (www.bip.lk), with an on-line payment facility for information trading, for the benefit of rural MSMEs in Sri Lanka. The overriding purpose of the BIP is to support national development by providing effective ICT support through establishing a specialized and in-depth preferred point of reference for MSMEs which are unable to obtain quality information on time at an affordable cost.

The BIP has contributed toward developing a common marketplace for information trading. Eight regional Business Information Centers, BIS-Centers, are linked with the CCC to provide international and national business information to regional MSMEs. Regional BIS-Centers facilitate the entry and dissemination of information via a chain of regional information desks, to promote regionally important business data. That data includes: (i) business contacts – local/overseas; (ii) general business information such as export/import trade statistics; (iii) rates of exchange; (iv) economic information; (v) trade/investment policies; and (vi) rules/regulations. The data can be retrieved at any point in the country or globally over the Internet.

The system is not confined to local MSMEs, but also expands its services to overseas MSMEs through its web-based interface, which links partners by way of a two-way window. The portal serves both foreign entities interested in Sri Lanka and local entities interested in establishing

contacts with institutions representing specific industries, markets or regions overseas. This is distinct from many other portals, which are designed to attract mainly an external audience. With the expansion of the system in 2003, www.bip.lk integrated many national data sources, forming a comprehensive data platform to retrieve customized information to exactly meet the demands of the MSMEs.

Cyber-extension

The Department of Agriculture (DoA) is currently introducing electronic media for dissemination of information to extension agents and farmers. Cyber-extension is one such initiative, whereby farmers can use interactive CDs, email and internet facilities to access information and to communicate, particularly with the DoA, to obtain advice and assistance in solving their farming problems. The department has set up 49 Cyber-Extension Units, although only a few have an Internet connection – there is a target of 220 units island-wide. The Audio-Visual Center of the DOA has produced a variety of interactive CDs on crop production and post-harvest processing.

The cyber-extension service is in its infancy. Use of the service is low, due to: (i) a lack of infrastructure, mainly Internet connectivity; (ii) a lack of ICT skills of extension agents and farmers; and (iii) a lack of awareness on the availability of such services and facilities. Although it is too early to comment fully on the initiative, it is reasonable to state that the project has great potential. The DoA believes that cyber-extension should be continued as part of the subsidized extension service of the government, complementary to its extension agents' network.

Toll-free telephone service

Since February 2006, the Audio-Visual Center of the DoA has initiated a toll-free telephone advisory service. The farmers can contact agricultural researchers directly, to obtain advice on their problems. The toll-free telephone advisory service is also linked to a weekly television program telecast every Saturday for half an hour. The program is produced based on the high number of inquiries that the toll-free center receives from its service seekers. According to the DoA, the service is becoming popular among farmers, but more publicity is needed if full benefits are to be reaped.

Suntel-Ceylinco Grameen partnership

Suntel Telecom Network recently initiated an exclusive partnership with Ceylinco Grameen Credit Company Ltd, a rural micro-credit company, to market its telephone units among Grameen customers. The agreement between the two companies will provide Grameen clientele with Suntel telephones, to be paid for in four affordable installments. Under the agreement, Ceylinco Grameen, through its network of 43 branches island-wide, will promote and sell Suntel telephone units to its 75,000 membership, made up primarily of individuals taking the initiative to develop their own small-scale businesses. The intention is to sell 25,000 telephone units with connections from Suntel within the first five months of the agreement, with Ceylinco Grameen guaranteeing the repayments for all the units.

Ceylinco Grameen offers its members the training to help them develop their own small-scale businesses, along with an initial collateral-free small loan of Rs5,000.00 as a first step to start their businesses. These loans can be paid back in installments. Ceylinco Grameen continues to assist its customers by providing support and guidance on how to improve their businesses. Currently, Ceylinco Grameen operates in 43 divisional secretariat divisions, and has to date granted more than Rs.990 million in small-scale loans to 75,000 poor families island-wide, covering primarily the north and east.

Suntel recently introduced a concept revolutionizing fixed lines with the launch of telephones powered by code-division multiple access technology (CDMA). The CDMA units are of ideal value to Grameen customers, because of their affordability and mobility as well as their vast coverage (www.suntel.lk).

Kothmale Community Radio

Kothmale Community Radio is one of the most discussed and commended initiatives. Its unique features include a combination of ICTs, community participation and strong multi-party partnerships.

Kothmale Community Radio serves an area with a 25km radius, which includes three rural towns – Gampola, Nawalapitiya and Thispane. It covers an estimated population of more than 350,000. The project uses community radio as an interface between the Internet and rural communities. UNESCO provides computer equipment and training. The Sri Lanka government, through its Telecommunications Regulatory Commission, provides the Internet connectivity to the community radio station through a dedicated 64-kilobyte line. With a website in three languages – Sinhala, Tamil and English – the project has also incorporated computer classes and web design, with the assistance of the Institute of Computer Technology.

There are three basic features to this project, combining ICTs with conventional radio:

- **Radio program for radio-browsed Internet:** A daily one-hour radio program is broadcasted and direct inquiries from listeners for specific information are answered instantly by community broadcasters browsing the Internet and translating the results into local languages;
- **Community radio as a mini ISP:** The community radio station has provided two free-of-charge Internet access points, in Gampola and Nawalapitiya community libraries. Access points are also used as a direct link to the radio station for producing and airing live programs;
- **Community database development:** Kothmale develops its own computer database, made up of information from the Internet that is often requested (www.comminit.com).

Rural Enterprise Network (REN)

REN brings together rural micro-scale agro-processors. It was conceived by Practical Action to address certain pertinent issues that plague rural producers in Sri Lanka. It seeks to bridge the gap between rural entrepreneurs and distant markets and professional services.

REN seeks to connect small-scale agro-producers through a networking model of marketing, financial and business development services, to which they currently have very limited access. The project is an exercise in building capacity and technical know-how, and providing access to credit and management facilities and marketing intelligence for producers of natural, herbal and traditional food products. The idea has been tested informally since 2003.

The REN marketing company was formed by the network in 2003, under the World Bank infoDev program to produce marketing services for its membership. REN now plans to take its member community to the next level of technology, by introducing ICT applications. ICTs, applied appropriately, could provide information on markets and product improvement, and even allow for better interaction between a geographically scattered producer base and the company. For example, a computerized quality feedback mechanism can enable manufacturers to correct production malfunctions in time. This quality feedback mechanism would be useful both for the company and the rural producer.

Under the infoDev funded program, REN builds the capacity of five selected small agro-processing groups. It uses simple computer applications and email communication as an entry point, using ICTs to improve the efficiency of the enterprises. Four of these groups are now using computers to keep records of their production and marketing. Plans are underway to introduce email to improve communication between the REN office and the processing centers, and among processing centers, in order to ensure coordinated production and supply (www.rensrilanka.org).

Lanka Software Foundation

The Lanka Software Foundation (www.opensource.lk) is a free and open source research and development non-profit organization. Its objective is to offer fellowships and internships to talented developers who would like to contribute to free and open source software (FOSS). The Apache Axis Project, the Apache Web Services Project and the Sahana Disaster Management System are notable contributions from the Lanka Software Foundation. The objectives of Lanka Software Foundation are:

- To support open source software developers and projects with infrastructure, funding, motivation, research, development, consultancy, training and other enabling facilities;
- To create an identity for the Sri Lankan open source software developer community and to provide worldwide interaction, cooperation and coordination of open source software developers;
- To provide scholarships, grants, financial assistance and other facilities to students, teachers and lecturers, for academic and research studies with respect to open source software and related fields;
- To initiate, establish and implement open software projects;
- To undertake and provide open source software services;
- To liaise with external agencies and act as a medium to obtain and receive resources, facilities and funds for the development and enhancement of knowledge, education and research with respect to open source software and related fields;
- To organize and promote seminars, workshops, conferences and exhibitions for the purpose of training personnel and disseminating knowledge;
- To establish an open source network consisting of developers and their employers, universities, professional organizations, university-hosted development labs, and other international open source organizations.

III. Findings: Priority Knowledge Needs of Key Stakeholder Groups

III.1 Priority needs of donors

The major donor agencies making investments in ICT development in Sri Lanka are: (i) the World Bank; (ii) the Asian Development Bank (ADB) (iii) the US Agency for International Development (USAID); (iv) the UN Development Program (UNDP); and (v) the German Technical Cooperation (GTZ). The primary objectives of these donors are: (i) building ICT infrastructure and capacity of government, and, in some cases, private sector, institutions in planning; (ii) developing information databases; and (iii) improving the efficiency of operating systems and delivery of services. A few examples of donor-funded ICT projects for rural development are as follows:

- UNDP has a program that operates at three levels: (i) generic UNDP programming, such as using ICTs to enhance UNDP's own program activities; (ii) use of ICT in the thematic area of governance; and (iii) use of ICT for development – ICT4D – as a practice area whereby UNDP funds or collaborates with organizations to implement ICT4D projects. It also facilitates partnerships and organizes knowledge production and sharing events. ICT4D is still in its infant stages, with UNDP currently seeking partners.
- USAID, under its ongoing Last Mile Initiative in Sri Lanka, funds computers and Internet connections in private bank branches in small towns, to allow people to access the Internet at times when the banks are closed. USAID is also planning to fund the development of content, focusing on: (i) jobs; (ii) workforce development skills; (iii) English as a second language training, and (iv) real time crop price information for farmers (Kapadia, 2005).
- ADB has funded the establishment of community information centers and village information centers, and plans to work with government agencies on an ICT-enabled skills development project (Kapadia, 2005).
- The World Bank and ADB implemented a project that ran from 2001 to 2006, equipping 2003 schools with computer facilities.

The UNICT task force has made the following recommendations, based on assessments of ICT interventions for rural livelihoods development:

- ICT-based self-employment should be promoted by governments, NGOs and the private sector. Publicizing successful case studies and business opportunities among the youth will attract them to ICT-based self-employment. Mentor support in starting ICT-related enterprises is a key service that governments or NGOs could organize. The role of the mentor is to offer informal advice and guidance based on relevant business experience. It may also be a means of facilitating the access of young people to business networks in order to obtain other forms of support (Youth Employment in Asia and the Pacific, ILO).
- The UN and its agencies should assist developing countries and regional institutions of developing countries in building local, national and regional networks of partnerships suited to the demands of their particular challenges. One way to assist the process of building networks is to create a website to post information about case studies of partnership initiatives in different countries, and to assist in the exchange of information (Youth Employment in Asia and the Pacific, ILO).
- The UN should undertake an analysis of existing public-private partnerships in ICTs to identify lessons learned in this area, to enable their incorporation into any new partnerships (Youth Employment in Asia and the Pacific, ILO).

Many donors share the view that using ICTs to facilitate markets for rural products can help isolated producers to tap into regional, national and global markets.

III.2 Priority needs of national-level policy-makers

In 1983, the Computer Policy for Sri Lanka (COMPOL) was implemented – it was the first ICT policy of Sri Lanka. Since then, the Computer and Information Technology Council of Sri Lanka

(CINTEC, 1984), the Council for Information Technology (CIT, 1998), and recently, the Information and Communication Technology Agency of Sri Lanka (ICTA,2003), have taken over the responsibility of setting the policy base during respective portfolio years. ICTA has set its objectives as follows:

- Build necessary connectivity infrastructure throughout the country, in order to connect villages and towns to the world;
- Create an enabling environment, including the enactment of regulatory reforms together with the acceleration of enabling laws for e-government and e-commerce;
- Develop human resources at multiple levels to support national development;
- Modernize the public sector and deliver citizen services through e-government services;
- Promote Sri Lanka as an ICT destination renowned for producing best-of-breed in niche global markets through the use and adoption of technology;
- Bridge the digital divide with applications aimed at poverty reduction and social development.

III.3 Priority needs of representatives and mediators of the rural poor

The main gap identified by community-level mediators and facilitators is the language barrier. Although information provided is a useful medium, in many instances communications are in English. This limits a regular usage by rural communities. Therefore, community-level mediators have stressed the urgent need to present information in local languages.

Mediators in village-level service centers, which were established by the projects discussed above, emphasized that a lack of Internet connectivity was a major constraint. According to officials, at the project planning and management level, provision of such facilities is pending – delays in implementation are the result of a variety of factors. However, using ICT to leverage livelihoods development services, and putting the necessary infrastructure in place is a top priority.

One of the key factors in the success of service delivery is the promotion of the services among the target community. The majority of service providers are of the view that more communities will access their services if they are aware of the services and their benefits. Therefore, the majority believe that they need carefully planned promotional campaigns to attract more customers. For the agriculture sector, it was proposed to use: (i) farmer meetings, such as *Kanna Resveema* which are seasonal cultivation planning meetings with the participation of farmers, agriculture officers and irrigation officers; (ii) farmer association meetings; and (iii) other village-level gatherings for promotional work.

III.4 Priority needs identified by researchers and evaluators

Researchers and evaluators of ICT projects highlight a gap in capacity at the service delivery level. They strongly recommend building capacity at this level, under close supervision and with follow-up action. For example, an Ernst and Young evaluation report on projects implemented under the e-Sri Lanka Initiative identified the lack of capacity of the implementing partners as one of the key reasons for failure (Ernst & Young n.d.).

Most of the initiatives reviewed in this study are financially supported by the government, NGOs or donors. Except in very few instances, there is not much thinking or planning toward financial sustainability of the services offered. Most stakeholders believe that the services they offer should be free of charge, as the rural poor cannot afford to pay. However, according to researchers' observations and user's feedback, the business development service providers should plan to achieve financial sustainability within a reasonable timeframe. Because donor and government priorities may change over time, existing support should be used to build rural ICT infrastructure and capacity at the service delivery level.

Most researchers highlight that weak partnerships among implementing partners affects the sustainability of the interventions. In certain cases, sustainability is at stake because partners do

not give long-term commitments. This is mainly due to a lack of understanding of the benefits of being part of the project. In some cases, business partners benefit directly by earning income from the selling of the particular services. In other cases, they benefit indirectly through the free promotion they obtain by being part of the initiative, which in turn helps to expand their clientele.

According to existing statistics, the level of ICT awareness in Sri Lanka is not satisfactory. The level of usage by rural communities in comparison with urban communities is minimal (11%: Wategema, 2005). There is insufficient data on the level of awareness on ICTs among those engaged in micro-enterprise. Nevertheless, based on the above statistics, it can be assumed that micro-enterprises may not have sufficient knowledge. Therefore, it is recommended that an awareness campaign be undertaken among micro-enterprises on the benefits of ICTs and available resources and services such as web portals, telecenters, cyber-extension services, and toll-free advisory services.

Another gap identified by the external evaluators is the lack of collaboration among key ICT stakeholders, such as regulatory and educational organizations and the private sector. The unavailability of appropriate legislation to develop the necessary infrastructure has limited the promotion of ICT, thus failing to attract the private sector to leverage initiatives of educational organizations.

All participants in this research study emphasized the need to develop mechanisms and tools to assess the impact and effectiveness of knowledge and technology transfer initiatives in terms of their performance and in terms of achieving specific socio-economic targets as defined in their objectives.

The evaluation of Ernst and Young on the ICT pilot projects carried out under the e-Sri Lanka initiative, listed some gaps. Based on this assessment, some lessons could be applied to future initiatives. The report highlighted the lack of a needs analysis prior to designing web portals. This was also emphasized by many participants of this study, who strongly recommended a need assessment of target groups during the project design stages.

Another key aspect of discussion was the content of information provided. Analysis shows that information systems should be able to provide direct services to their clients.

IV. Findings: Priority Knowledge Needs Related to Key Themes

IV.1 Role of key institutions and intermediaries

In Sri Lanka, many service-providing institutions work to improve the livelihoods of the rural poor, covering many fields. These include: (i) financial assistance; (ii) technology transfer; (iii) business skills development; (iv) market assistance; (v) information; and (vi) input supply. These institutions fall into different categories, including: (i) government organizations; (ii) NGOs; (iii) private companies; (iv) individual enterprises; and (v) business associations/federations.

These institutions are involved in many ways in impacting the livelihoods of the rural poor at different levels of the 'supply – product/service – market chain'. Networks of community-based extension services operated by the government, NGOs and private sector organizations have officers based at the district or regional level, who bridge the gap between the rural poor and service providers in specialized fields. There are two main challenges faced by institutions with extension networks in operation, especially in the case of those who provide free or subsidized services. These are:

- High costs pertaining to maintaining such networks;
- Limitations observed in service delivery in reaching the rural poor.

On the other hand, outreach is less effective in the case of organizations without networks available for livelihoods development, when the rural poor are concerned. In such situations, institutions tend to collaborate where possible with organizations with extension networks. Unless there are mutual benefits for both parties, there is less chance of reaching the target clientele.

Role of ICT in enhancing capacity and effectiveness

As illustrated in the DoA cyber-extension intervention and the Nenasala project, ICTs can be used in many fields as a complement to extension networks, provided that field workers and relevant community-based organizations as well as the target community are:

- Trained in using/developing ICT materials, such as technology transfer through audio-visual presentations;
- Supplied with ICT-based operational systems that enhance efficiency of service delivery, such as IT-based micro-credit operational systems, and mobile phone-based messaging market information updates;
- Assisted with the necessary ICT infrastructure for increasing extension services to the rural poor in livelihoods development, such as the establishment of community-based knowledge centers, and the improvement of IT facilities, (computer units) in rural schools where available;
- Involved in the review process of ICT interventions for improvement based on the requirements of users and the overall community.

IV.2 Linkages among specific ICT interventions to enhance livelihoods

Where ICT is concerned, there are two types of institutions: (i) those that are directly involved, such as the ICT industry and the state; and (ii) those that are indirectly involved such as enterprises that use ICT to support their business operations. In this respect, ICT interventions can be linked either directly or through business development service (BDS) providers in the following areas, contributing to the growth of livelihoods and poverty reduction:

- **Market support for livelihoods/enterprises:** (i) providing market information; (ii) linking buyers and suppliers; (iii) ensuring the availability of commodities; (iv) providing market analysis/intelligence on opportunities and trends; and (v) assisting product/service promotion/marketing;

- **Financing:** (i) information/comparable analysis on available options of financial support schemes for MSMEs; (ii) improving efficiencies of operational systems of financial institutions; (iii) electronic banking, tele/online;
- **Networking:** (i) supply chain management; and (ii) net community/community of practice – BDS providers, info-mediaries, ICT service providers linked as a network for sharing experiences toward improving services or virtual discussion forums.

IV.3 Role of local government service delivery

During recent years, Sri Lanka has progressed in integrating ICT at the central government level in terms of providing general information to the general public, where a toll-free telephone facility is linked to an IT-based enquiry system. This process at the outset, required decentralization to the local government level, i.e. provincial-level institutions.

ICT can also enhance effectiveness and accountability through the installation of easily accessible public complaints/feedback systems, whereby officials can efficiently integrate public concerns and needs in their planning processes.

IV.4 Role of ICTs in increasing empowerment and giving voice

Communication interventions, such as live radio and television programs with connectivity facilities, have attracted widespread participation of the general public throughout the country, irrespective of where they are based or their economic status. Such interventions adapted to the livelihoods sector, could be a good platform for giving voice to the rural poor, whereby users are given an opportunity to contribute to the decision-making process with their practical experiences and learning.

Communication centers in remote towns have also taken up Internet services as a business venture in the provision of information required by clients. With steps taken to overcome the language barrier, Internet/email services could also be used in this process of increasing the empowerment and giving voice to the rural poor, via virtual discussions.

IV.5 Impediments to and incentives for policy, institutional and behavioral change

ICT-for-livelihoods interventions, as described in this report, have many challenges that could be overcome with the help of a more highly developed national policy on ICT/ICTE. This report also illustrates that, during the period since 2000, many interventions have evolved in this sector, from which many lessons and recommendations can be drawn. The following recommendations are proposed for consideration:

Policy advocacy is essential and needs prioritization

- Further research on the relationship between ICTs and effects on development;
- Development of standards and guidelines based on practice and research;
- Awareness creation among policymakers and implementers on the potential of ICT in the development process and related issues;
- Analysis of the roles of the media, and the ICT and development sectors in advocating for sectoral policies for national development – integrating ICTs to enhance their impact on rural livelihoods;
- Further research on donor interests and trends in the ICT and development sectors.

Donor investment to contribute to a change in attitudes, practices and policy

- Further research on impact/outcomes of ICT-for-livelihoods interventions toward sharing lessons and recommendations with the active participation of users, including the rural poor, which leads to identification of possibilities for combining practices;
- Implementation of interventions/action research to encourage innovation among civil society organizations, regarding the integration of ICTs into development;
- Establishment of research grants on ICT development initiatives to support rural livelihoods;
- Analysis of the successes of other countries regarding the integration of ICTs into a national development policy.

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Annex 1: List of Interview/Survey Questions

Questionnaire for ICT Service Provider Interviews in Sri Lanka

[You can use any additional paper if the provided space is not enough for your answers. Please highlight or tick (✓) your desired answer/s]

A. General information:

A1. Name:

A2. Title/occupation:

A3. Name of your organization:

A4. (i) Email address:

(ii) Telephone number:

A6. In what rural ICT projects/programs is your organization involved?

A7. What are the main economic activities in the implementation area? Such as: agriculture, fishing, SMEs ... Please specify...

A8. What are the main demographic and geographic characteristics of the area involved in the project?

B. Characteristics and description of the project:

B1. Broadly speaking, what is the project about?

B2. What are the benefits for rural adopters of this project?

B3. What information opportunity/gap is being addressed?
i) Health information ii) Education information
iii) agricultural information iv) Legal information v) administrative information vi) Job information
vii) Market price viii) others, please specify

B4. How was this gap identified?

B5. Is the project based on an already existing community project or association?

Yes

No

B6. If yes, then how did you learn about the previous project?

B7. What alternative projects/policies existed before the project was implemented?

B8. Who administered the project? i) Local government ii) Central government iii) NGOs
iv) Private sector iii) Mixed combination

B9. If mixed, then what is the form of combination?

C. Actors:

C1. Who are the targets of the services delivered? i) Agriculture and Fisheries ii) Small-scale business enterprises
iii) Social issues (e.g. education and health) iv) Local government v) NGOs vi) Others (please describe)

C2. Is equitable access guaranteed for all users? Yes No

C3. If not, what criteria are applied to select who will receive the service?

C4. Has your organization partnered with other organizations for the project? Yes No

C5. If yes, then is the associating partner from i) NGOs ii) Government iii) Private sector iv) Others (please specify)

C6. How is the project funded? i) Self-funded ii) Government iii) International donor agencies
iv) International iv) NGOs v) Private sector

C7. Have you faced any cooperation challenges among actors? Yes No

C8. If yes, please elaborate on the kind of challenges have you faced:

C9. How did you try to overcome them?

C10. Were local actors consulted prior to the project implementation?

C11. How have local actors been included in the project administration and evaluation?

D. Technology and services:

D1. Which technology is used to deliver the ICT services? i) Radio ii) TV iii) Telephone/mobile
iv) Computer v) Internet vi) Print media

D2. How was the technology chosen?

D3. Why do you think this technology is most effective for delivering the particular service?

D4. Does the technology build on pre-existing systems? Yes No

D5. Does the project utilize content which is locally generated or appropriately localized? Yes No

D6. What is the scale of the initiative in terms of number of users? i) Less than 100 ii) 100-500
iii) 500-1,000 iv) 1,000 and above

D7. What geographic level does the service cover? i) Village ii) Union iii) Upazilla/municipality iv) District
iv) Division v) Country
Please specify the area if the service covers more than one village/ thana/district/division

D8. Do you think that there is a scope for further expansion of the existing project?
Yes No

D9. If the above answer is yes, please specify why and how the project can be expanded further?

D10. What is the scope for further expansion?
i) Increase the number of service providers
ii) Increase the number of users within the communities
iii) Increase access to new community
iv) Others (please specify)

D11. Which mode of technology should get more priority for further expansion? i) Radio ii) TV iii) Telephone/mobile
iv) Computer v) Internet vi) Print media
Explain why?

D12. Are there any training or basic skill (e.g. literacy) requirements? Yes No

D13. Who do you think needs the training? i) Service users ii) Service providers iii) Both

D14. Are the training facilities available for the service users as well as providers under the existing project?
Yes No

D15. If yes, then in what form?
i) Formal training e.g. through regular classes
ii) Informal training like through one-to-one correspondent basis as needed.
iii) Other type.....

D16. Who are the trainers? i) Local facilitators ii) Hired from outside

D16. Is there a cost associated with using this technology? Yes No

D17. If the above answer is yes then what is it?

D18. How can access to this technology be increased?

E. Project sustainability:

E1. What is the business model/how the project works?

E2. What have been the financial (or livelihood) results?

E3. Is the project self-sustainable or profitable? Yes No

E4. If not, what are the obstacles for sustainability?

E5. .What is the role for local leadership? Is local capacity being developed? If so, how?

E6. How can local leadership and/or local government be linked with project sustainability?

F. Results:

F1.What was the expected impact before starting the project? Have the basic expectations been accomplished? (For identification of case study)

F2. Who is in charge of the project's evaluation and monitoring?

- i) No formal monitoring or evaluation
- ii) Internal monitoring and evaluation
- iii) External monitoring and evaluation

F3. What indicators have been used to measure the success or failure of the project?

- i) Profitability
- ii) Sustainability
- iii) Number of users
- iv) Other

F4. Thus far, would you consider to the project to be a success or failure? Why?

F5. What are the most noticeable changes on the livelihoods of the service users?

- i) Income generation
- ii) Employment generation
- iii) Reducing information gap
- iv) Empowerment of women/reducing gender discrimination
- v) Better health or education facilities
- vi) Other (please specify)

F6. Have there been specific efforts to help special or minority groups (women, young, elderly, etc.)?

Yes No

F7. If yes, what efforts have been made?

F8. What can be done to improve the long-run impact of the project?

F9. What aspects of the project would you have implemented differently, if you were to re-launch the project?

G. Final checklist: Which of the seven policy issues are addressed? (For internal use only)

- 1. Sharing costs
- 2. Ensuring equitable access
- 3. Utilizing local or appropriately localized content
- 4. Building on existing systems
- 5. Building capacity at the local level
- 6. Using realistic technologies
- 7. Building knowledge partnerships

Name of project	Sharing costs	Ensuring equitable access	Utilizing local or localized content	Building on existing systems	Building local-level capacity	Using realistic technologies	Building knowledge partnerships

Questionnaire for ICT Users' Interviews in Sri Lanka

[You can use any additional paper if the provided space is not enough for your answers. Please highlight or tick (√) your desired answer/s]

A. General information:

A1. Name:

A2. Title/occupation:

A3: Telephone number:

A4. Email address:

A5. What are the main economic activities in the implementation area? Such as: agriculture, fishing, SMEs... Please specify.

A6. What rural ICT projects/programs have you used?

A7. What forms of technology have you used?

A8. For each form you haven't used, why haven't you used it?

Type of technology	No access	Too costly	Don't know how to use it	Don't think it will be helpful
Radio				
Television				
Telephone				
Mobile				
Computer				
Internet				
Print media				

B. Characteristics and description of the project:

B1. What is your understanding of the project?

B2. How did you learn about it?

B3. How does this project impact your livelihood?

B4. Is the project based on an already existing community project or association?

- i. Yes
- ii. No

B5. If yes, then how did you learn about previous project?

B6. What alternative projects/policies existed before the project was implemented?

B7. What additional ways do you think technology can improve your livelihood?

C. Actors:

C1. To whom are services provided ?

- i) Agriculture and fisheries
- ii) Small-scale business enterprises
- iii) Social issues (e.g. education and health)
- iv) Local government
- v) NGOs
- vi) Others

C2. What kind of people uses this service (e.g., wealthy, poor, old, young, men, women, etc.)

C3. Is equitable access guaranteed for all users?

- i. Yes
- ii. No

C4. If not, what criteria are applied to select who will receive the service?

C5. Who implemented this project? i) Private firm ii) NGO iii) Local government iv) Mix of

C6. Were local actors consulted prior to the project implementation?

- i. Yes
- ii. No

C7. How have local actors been included in the project administration and evaluation?

C8. Which technology is used to deliver the ICT services? i) Radio ii) TV iii) Telephone iv) Mobile
v) Computer vi) Internet vii) Print media

C9. Does the technology build on pre-existing systems?

- i. Yes
- ii. No

C11. Does the project utilize content locally generated or appropriately localized?

- i. Yes
- ii. No

C12. Do you think it would be helpful for others to expand the existing project?

i. Yes ii. No

C13. Explain why?

C14. Which mode of technology should get more priority for further expansion?

C15. Explain why?

C16. Are there any training or basic skill like Literacy, requirements?

i. Yes ii. No

C17. Who do you think needs the training? i) Service users ii) Service providers iii) Both

C18. Are the training facilities available for the service users as well as providers under the existing project?

i. Yes ii. No

C19. If yes, then what form?

i) Formal training e.g. through regular classes

ii) Informal training e.g. through one-to-one correspondent basis as needed

C20. Who are the trainers? i) Local facilitators ii) Hired from outside

D. Project sustainability:

D1. Is there a cost associated with using this technology?

i. Yes II. No

D2. What is it?

D3. How can access to this technology be increased?

D4. What is the role for local leadership? Is local capacity being developed? If so, how?

D5. How can local leadership and/or local government be linked with project sustainability?

E. Results:

E1. Do you think the project has been a success or failure? Why?

E2. What are the most noticeable changes on the livelihoods of the service users?

i) Income generation

ii) Employment generation

iii) Reducing information gap

iv) Empowerment of women/reducing gender discrimination

v) Better health or education facilities

vi) Other

E3. Have there been specific efforts to help special or minority groups (women, young, elderly, etc.)?

i. Yes ii. No

E4. If yes, what efforts have been made?

E5. What can be done to improve the long-run impact of the project?

E6. Do you think this is the service your community most needs?

i. Yes ii. No

E7. If not, what services would improve your community more?

G. Final checklist: Which of the seven policy issues are addressed? (for internal use only)

1. Sharing costs
2. Ensuring equitable access
3. Utilizing local or appropriately localized content
4. Building on existing systems
5. Building capacity at the local level
6. Using realistic technologies
7. Building knowledge partnerships

Annex 2: List of Interviewees

	Name	Title/occupation	organization	Contact no/email
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3.	Mr. R. Janaka Ruwan Kumara	Manager	Nenasala (Pilot Project) Embilipitiya, managed by VANIK Information Tech (Pvt) Ltd	Tel: 047-2261531, 077-6033986 E-mail: vgk_embilipitiya @yahoo.com
4.	M.A. Hasantha	User	Nenasala (Pilot Project) Embilipitiya	Tel: 0779-996252 E-mail: hasantha_ma @yahoo.com
5.	D.G. Janaka Kumara	User	Nenasala (Pilot Project) Embilipitiya	E-mail: dgik_190@yahoo.com
6.	Mr. Jayantha Samankuma	Coordinator	Nenasala – Panamura	Tel: 047- 5671032, 0779381665 E-mail: panamuranana @yahoo.com
7.	A.M. Chamari Udayangani	School Student (ICT user)	Nenasala – Panamura	Tel: 0776 633803
8.	T.P.G Renuka Jayalath	Student (ICT user)	Nenasala – Panamura	Tel: 077-9930354 E-mail: rnk_jayalath@yahoo.com
9.	Dr. Rohan Wijekoon	Director	Audio Visual Centre (AVC) Gannoruwa, Peradeniya	Tel: 081-2388618 E-mail: avcentre@slt.net.lk
10.	S.G.J. Bandara	Agricultural Inspector	Marassana Cyber Extension Unit (Govi Jana Kendraya)	
11.	Mr. D.M. Sammatha Bandara	Farmer (ICT user)	Marassana Cyber Extension Unit	123, Marassana, Marassana
12.	L.B. Mahagedara	Farmer (ICT user)	Marassana Cyber Extension Unit	98, Marassana, Marassana
13.	Mr. Kapila M. Gamage	Head of Communication	Central Distribution Unit Ministry of Fisheries and Aquatic Resources Development 5 th Floor, Maligawatte Secretariat Colombo 10	Tel: 0777-802721, 2386697 E-mail: sadmin@fisheries.gov.lk
14.	Mr. Ravindra Ariyawickrama	Director, Sarvodaya Information Technology program	Sarvodaya Shramadana Movement 98, Rawatawatte Road Moratuwa	Tel: 0714-201566
15.	Mr. Priyantha Fernando	Project Director	JobsNet No. 97, Jawatta Road Colombo 05	Tel: 2559963 Fax: 2559961 E-mail: Priantha@jobsnet.lk
16.	Ms. Jayasamara	Secretary to the Additional Secretary	Ministry of Science and Technology	Tel: 2510523
17.	Mr. P.D. Asoka Pushpakumara	Science & Technology Officer	Vidatha Resource Centre Divisional Secretariat, Ingiriya	Tel: 0779-002878
18.	Ms. Dhanushka Udayangi	Science & Technology Officer	Vidatha Resource Centre Divisional Secretariat, Anguruwatota, Madurawala	Tel: 034-2251141

	Name	Title/occupation	organization	Contact no/email
19.	Mr. Thusitha Ruwan Niyadabupala	Ceramic Producer (User)	Vidatha Resource Centre Ingiriya	Tel: 034-4924843
20.	Mr. Gamini Wijesekera	Mushroom Producer (User)	Vidatha Resource Centre Ingiriya	Tel: 034-2269196
21.	Mr. I. Ajith	Science & Technology Officer	Vidatha Resource Centre Samadhi Buddhist Centre Diyakobala, Bibila	Tel: 060-2555298
22.	Mr. Thilina de Silva	Fruit Processor (user)	Vidatha Resource Centre, Bibila	Tel: 0714-350921
23.	Nimalsiri Malage	Fisherman (large-scale)		
24.	Jayasena R.P	Fisherman (large-scale)		
25.	Nihal Mada Ralahamige	Fisherman (large-scale)		
26.	Lokumarakkala Jayapala	Fisherman (medium-scale)		
27.	Rathran Pramadige Siril	Fisherman (medium-scale)		
28.	Piyum Kumara	Fisherman (medium-scale)		
29.	M.M.Saman	Fisherman (small-scale)		
30.	Mahesh Taranga	Fisherman (small-scale)		
31.	L.M.Chandrasiri	Fisherman (small-scale)		
32.	Mr. Roshanjith Siriniwasa	Advisor, GTZ-SAARC Trade Promotion Project	Ceylon Chamber of Commerce Building, 50 Navam Mawatha Colombo 2	Tel: 2431885-6, 0773597506 Fax: 2431886 E-mail: roshanjith.siriniwasa@gtz.de
33.	Dr. Ananda Mallawatantri	Assistant Resident Representative	UNDP, 202-204 Baudhaloka Mawatha, Colombo 07	Tel: 2580691 ext.253; 0773444146 Fax: 2581116 E-mail: ananda.mallawatantri@undp.org
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Annex 3: List of Workshop Participants

	Name	Designation	organization	Contact no/email
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