Towards an ICT Enabled Farming Community

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ABSTRACT

This paper presents a proposed use of virtual community for farmers in Sri Lanka by reviewing Information and communication technology perspective with reference to past and present political strategies adopted by Sri Lankan government. In this study, it also analyzes Virtual Community portal as a frame work for agri information system, and their role in implementing e-Government in the country. The history of ICT applications in the country and supportive relationship among first movers and rest of the government organizations is summarized. The status on e-governance with special reference to community social networking for farmers is presented thereafter. The issues in providing timely and accurate market information to the farmers have also been identified in the pilot survey. The paper also presents the proposed implementation framework which would enable the farmers to use ICT effectively.

Keywords: *ICT, Agricultural Community portal, e-government, e-governance, agri information systems.*

1. Introduction

Sri Lanka has shown promising characteristics of economic development in the recent past. However, from time to time inconsistency in the policy making has created a situation where the gap between the rural and urban communities might increase. Majority of disadvantaged people live in rural areas and they are mainly involved in agriculture. Though the contribution of Agricultural sector on GDP is 12.3% (Central Bank Report, 2007), the local value addition is remarkably high when comparing with main industries like garment industry. Agriculture contributed with 32.2% (Central Bank Report, 2007) of the total employment in the country. However, rural agricultural sector experiences shortage of quality land and water resources, electricity, transport and communication. As a result of poor infrastructure, shortage in production, raw materials, lack of using new technology, dissemination of knowledge and poor institutional structures have badly affected the rural development in the country.

Today country's economy is predominantly based on export led industries. The major exports are tea, garments while tourism and the foreign employment contribute significantly. However approximately 50 percent of country's economic activities are taken place in the Western province with a land area extent about 6% of the country. In addition 1/3 of total population is scattered around western province as it is the trading centre of the country including main ports, air ports and the commercial city Colombo and capital city of Sri Jayewardenepura Kotte. The main objective of the study is to explore the potential of developing a Virtual Community as a successful agri-information system, and assesses its impact on the agricultural societies. The study also investigates the ICT initiatives aimed at farming communities in Sri Lanka, and

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strategies adopted by Sri Lankan government on agri information system developments, further identifying strengths, weaknesses, opportunities, and threats, in prevailing agri-information systems in the country.

Rural agricultural activities are affected by the uneven distribution of infrastructure resources. For instance, less than 15% of the rural population has access to communication facilities such as postal and telephone (Economic Review, 2007). Limitations in the communications at the rural level affect the village level producers and suppliers at national level. As a result, especially farmers at the rural areas are marginalized by not allowing them to have information on economic and social opportunities beyond their territories. This research aims to enhance the access to information by the rural farmers through community portal and reap potential economic and social benefits.

2. Research Methodology

This research is based on both survey and case study methodology, and will present a combination of interpretive and exploratory research. Survey shall collect data about the occurrence or incidence of events or instances in varying situations and circumstances; case studies shall include in-depth studies of particular events, circumstances or situation which offers the prospect of revealing understanding of a kind which might escape broader surveys. Case study is the method of choice when the phenomenon under study is not readily distinguishable from its context (Yin, 1993). This is particularly the case at the level of government and related organizations, where it is not possible to conduct mass scale survey covering all the public sector institutions. The agri information systems and farmer communities represent a way of understanding the dimensions for a potential community web portal for farmers.

In order to gather materials for an empirical research series of case studies have been conducted. Accordingly, we attempt to illustrate how we can make sense of community portal for rural farmers in Sri Lanka. According to Cosly, Lury (1987) and Blaxter et Al (1999), the case study uses a mixture of methods: personal observations, which for some periods or events may develop into major participation; the use of informants for current and historical data; straightforward interviewing; and tracing and study of relevant documents and records from local and central government, travelers etc."

To collect data and information and advisory services of resource rich institutions an elaborate questionnaire has been designed and used. A short questionnaire therefore used for minor institutions, as it is very significance to collect data on minor institutions as well as major institutions. For obtaining the assessment on Nenasala telecentres, and agrigrarian service centers by farmers a questionnaire in local language has been used. Apart from that Interviews were conducted among selected agrigrarian service officers, farmers and information centers by using an interview schedule.

The case materiel present in this paper will provide an understanding of complex and dynamic activities within the integrated farmer community website, which is aimed to be a portal for all Sri Lankan farmers irrespective of their locality.

3. Sampling

Kalutara district is taken as the geographical area within which the study is limited. Population consists of 11 divisional secretariats. Sample of 20 Agrarian Advisory Service Centers coming under Kalutara district were chosen. Sample of 20 users from out-stream institutions and 40 farmers and public living near the institutions. Data also collected from libraries, research institutes, and universities. The activities included in the pilot data gathering includes a survey of 05 Nanasala kiosks, 10 kiosk customers and non-customers, an in-depth interview of 05 Nanasala operators, Conversations with 10 proponents, observers, agencies, government officials, intensive participant observation of 05 Nanasala in operation.

As far as constraints are concerned there was not much research carried out on agri information systems in Sri Lanka. Finding empirical evidences has become an issue, and that made the research more difficult. It was observed that some of the officers were reluctant to provide the detailed information.

4. Related Work

According to Hanna (2002), the impact of e-Government is three fold:

- Government itself (e-Administration)
- General Public (Government to Citizens)
- Businesses (Government to Businesses)

E-government would make government sector more service oriented. As a result government organizations will be able to provide personalized and inclusive services to general public. Within the existing service environment of government sector, this is quite a difficult job. Therefore the existing process has to be reorganized in such a way to provide people centered services. And E-government would also enhance productivity of government service by adopting new technologies, management techniques, organizational structures and introducing innovation and creativity to the organization culture. This is the transformation process of government organizations to reap the benefits of E-government.

"e-Government is simply the use of information and communication technology, such as internet, to improve the processes of government" (Gorden, 2002). As this definition implies e-Government is to improve the processes of government. As he further elaborates "e-Commerce is not at the heart of e-Government. The core task of government is governance, the job of regulating society, not marketing and sale." Therefore, the e-Government processes are mainly related with regulating the society but not profit making endeavors.

The benefits of e-Governments are well documented and implemented by many countries. However many developing countries are in the process of implementing the e-government initiatives. Stakeholder led multi-donor funded, national development program, the e-Sri Lanka was launched on the 20th of November 2002. This initiative aims to use Information and Communication Technology (ICT) to foster social integration, peace, growth and poverty reduction. According to Hanna, e-Sri Lanka strategy mainly concentrated on bringing Sri Lankan government closer to the people digitally with easy access to Information and Communication Technology.

Information and Communication Technology Agency (ICTA) is the government own public limited company responsible for implementing e-Sri Lanka development initiatives. This apex body was created abolishing existed Computer and Information Technology Council (CINTEC). ICTA became operational under the Information and Communication Technology Act, No. 27 of 2003.Under e-Sri Lanka initiative one major program was Re-Engineering Government. As www.icta.lk describes, this program pursues major and sustainable improvements in the government of Sri Lanka's efficiency, transparency, effectiveness, and quality of services. For this purpose, it will reinforce and expand fundamental governance and public management reforms as a complement and enabler required solutions. This program will do so by re-engineering public sector work processes through the strategic use ICT and by implementing novel ICT enabled administrative policies.

In Australia, as described by Dugdale et.al.(2006), citizens who are the biggest users of government services are the least likely to be connected to the internet. What can be done to connect the unconnected? The article explores what has been learned from some of the Australian initiatives for connecting the un-connected to online government services. It concludes that greater attention to community-based human capital development is needed. It gives examples of factors needed for success in building socially

marginalized communities' interest, enthusiasm and capacity to interact and communicate via online technologies, thereby contributing to how successful e-government can be in delivering gains in efficiency and improved services.

Warana Unwired (Veeraragahavan et,al.,2007) sought to replace an existing PC based system for managing information in a sugarcane cooperative with an SMS based mobile-phone systems.

This paper discusses the early investigation of the Warana Wired Village Project that led to the conception and implementation of the Warnan Unwired project. The new system is described in detail, and results, both quantitative and qualitative are analyzed.The finding of the research was an average 6.5 SMS requires per farmer over the 8 months period, which would extrapolate to ~9.8 a year, which compare closely with average self reports of 10 queries per year that farmers reported in the surveys for the PC-based systems.

Digital Green, Gandhi, R., et.al., (2007) is a research project that seeks to disseminate targeted agricultural information to small and marginal farmers in India using digital video. The unique components of Digital Green are a participatory process for content production, a locally generated digital video database, human mediated instruction for dissemination and training, and regimented sequencing to initiate a new community.

Unlike some systems that expect information or communication technology alone to deliver useful knowledge to marginal farmers, Digital Green works with existing, people-based extension systems and aims to amplify their effectiveness. While video provides a point of focus, it is people and social dynamics that ultimately make Digital Green work Local social networks are tapped to connect farmers with experts;

E-Krishi (Kerala State IT Mission, n.d.), Market Driven Agricultural Initiative through IT enabled Agri Business Centres in Kerala State implemented by Kerala State IT Mission (KSITM) & Indian Institute of Information Technology & Management - Kerala (IIITM-K) in collaboration with Department of Agriculture. E-Krishi envisages to bring on a single Platform all the stakeholders in agri business.

Through Meghaliya (National Informatics Center, Meghalaya State Unit, n.d.) farmers can bring their agricultural produce to Regulated Market (APMC) to get remunerative prices. Free temporary storage of the farmers' unsold produce may be provided in the market yard till the farmer gets a favourable price in order to prevent distress sales.

5. Applications of E-government in Agricultural sector of Sri Lanka

Ministry of agriculture and agrigrarian services has 19 different departments and statutory institutions for agriculture development in the country. Most of the institutions under the ministry has very useful information on research, product development, market enhancement information etc, but very rarely see them disseminated over the internet for farmers use.

ICT agency of Sri Lanka on the other hand pioneered in initiating the “Govi Gnana System” pilot project in Dambulla Dedicated Economic Zone (DDEZ) to share agricultural price information. This solution was developed by the GGS Consortium comprising of e-Development Labs, Price Water House Coopers and Interblocks for the Ministry of Rural Economy, together with the Central Bank of Sri Lanka. This is an important project that empowers the traders and farmer to benefit from greater access to information providing long term visibility and predictability of income and details on demand of trends for harvesting. Unfortunately however, the system’s benefits were not reaped by the implementers as users have shown lack of enthusiasm towards this project.

The Kothmale Community Radio Internet project was another initiative by Sri Lanka. IT (www.kothmale.org) was designed to test an ICT access model for 200,000 people in marginalized communities in the central hill region of Sri Lanka. Initially supported by UNESCO, the project used community radio as an interface between the community and the Internet. Now runs by Sri Lanka Broadcasting Corporation.

Common Problems with Market Information Systems for Farmers

It is universally accepted that strong links between agribusiness smallholders can reduce rural poverty. However, lack of rural finance, infrastructure, and business and public services is particularly creating disadvantaged situation for rural farmers as pilot survey revealed. It further reveals that as in many developing countries, Sri Lankan government run market information services may not be the main source of information for farmers. As a result of that small farmers often rely on word of mouth information from other farmers and from traders. Some farmers and extension officers highlighted some issues with the existing systems as follows.

- Very poor at making collected information available to farmers.
- Pay inadequate attention to the quality of data collected
- Publish information in a form which is unsuitable for some farmers.
- No updated information on manual systems, sometimes with incomplete information
- Report information on prices in urban markets, but farmers have no way of understanding what these prices mean to them.
- They provide farmers with market prices but give no analysis of trends.
- Rarely provide information about quantities supplied or other important commercial information.

Propose Framework for Community Portal

The proposed portal should provide upto date accurate pricing and trading facilities to farmers, merchants and general public. In addition the research concentrates on information listed below.

- How to grow new crops which may offer good market prices
- Profitability of growing these crops
- Where to buy seeds
- Use of new farming techniques required
- Cost of constructing and operating stores
- Post harvest handling and packaging for new crops
- Access to agricultural information locally and internationally
- Extension services on product development and export marketing
- Education on avoiding health and chemical hazards.

Conceptual Frame work for Farmer Community web Portal is shown in Figure 1.

Definition of Conceptual Framework

Proposed farmers community portal will be the main vehicle of information for farmers. The information will be collected from various sources such as research institutions, agregrarian research officers, universities, farmers and media. Farmers in the rural areas will have access to the information through community tele-centeres. Rural farmers will be organized in the form of rural agrarian communities to make use of information from the portal. This portal will also be connected to various other government information sources to give better access for information for farmers in Sri Lanka. To make it easy for dissemination of information through the web, various other options such as, post offices, private call centers and other private and public institutions contribution will also be explored.

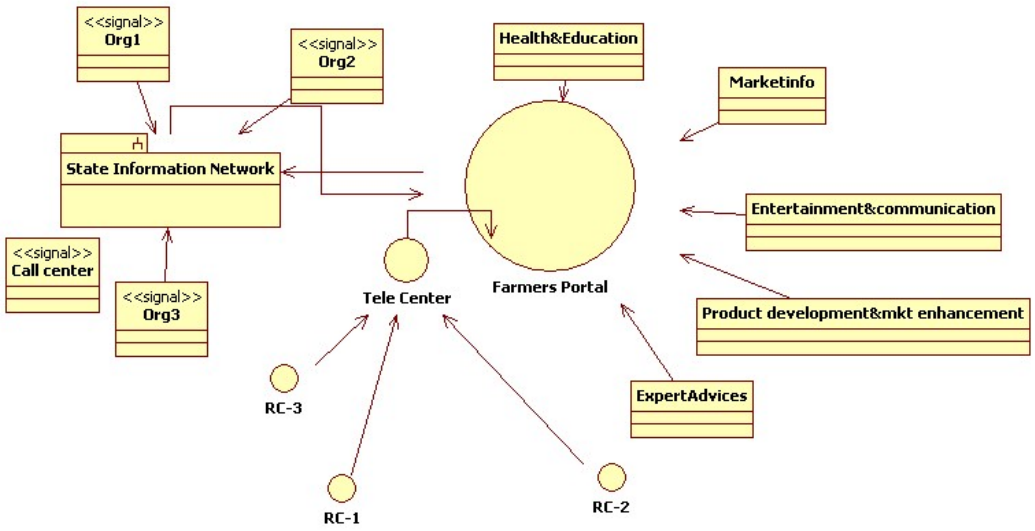

Figure 1: Farmer Community web portal

6. Concluding Remarks

Though contribution of Agriculture sector on GDP is 12.2%, the local value addition is remarkably high when comparing with main industries like garment industry in Sri Lanka. However, rural agriculture sector can be improved with quality land and water resources, electricity, transport and communication. Rural agricultural activities are mainly affected by poor infrastructure resources. As a result, farmers in the country do not reap the benefits that they would otherwise. The pilot survey revealed that lack of rural finance, infrastructure, and business and better quality public services can improve the quality of life of the rural farmers. Hence it is proposed that virtual community for rural farmers in the form of agri information portal to aid the issues of poor infrastructure resources mainly information dissemination in the rural societies. An in depth study will be carried out to explore the issues such as localization, computer literacy among the farming communities and a model will be develop to make the proposed means of stake holder interaction via ICT enabled tools.

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