Community Informatics: Challenges in Bridging the Digital Divide

Peter Songan [a], Khairuddin Ab Hamid [b], Alvin Yeo [c], Jayapragas Gnaniah [d], and Hushairi Zen [b]

[a] Centre for Applied Learning and Multimedia, Universiti Malaysia Sarawak, Malaysia.
[b] Faculty of Engineering, Universiti Malaysia Sarawak, Malaysia.
[c] Faculty of Computer Science and Information Technology, Universiti Malaysia Sarawak, Malaysia.
[d] Faculty of Cognitive Science and Human Development, Universiti Malaysia Sarawak, Malaysia.

Abstract. This paper describes how community informatics can help to overcome the digital divide between rural and urban communities in developing countries of Asia. The e-Bario project, a research initiative undertaken by a group of researchers from Universiti Malaysia Sarawak (UNIMAS) provides a context to demonstrate how information and communication technologies (ICTs) can provide opportunities for remote and rural communities to develop socially, culturally, and economically. The results of the initiative show the many ways in which ICTs can be used to improve the lives of the marginalized groups. However, other than the opportunities that the initiative provides, there are also many challenges that are encountered along the way. These challenges, based on the e-Bario experience are the major focus of this paper.

Keywords. Community informatics, Challenges, Digital divide, e-Bario.

1. Introduction

Community informatics is an emerging field that involves the process of using ICTs for community practice in order to improve the socioeconomic well-being of the community. According to Gurstien (2000), community informatics is the application of ICTs to enable community processes and the achievement of community objectives including overcoming "digital divides" both within and among communities. The pervasiveness of the Internet has brought ICTs to large numbers of people who have never used them before, particularly where community-based telecentres have provided access to ICTs in developing countries where there is very little likelihood of individuals owning their own computers. Community informatics, which is described in this paper as the use of ICTs for community practice, particularly in developing countries of Asia present many challenges. This paper highlights those challenges to community informatics as a practice for the identification of information needs in communities and for the development of information systems that can deliver those needs.

It is estimated that nearly 75.0 percent of the population of Asia is reckoned to be living in rural districts. Dysfunctional patterns of technology diffusion serve to prevent the poor, mostly rural, majority populations of developing countries from benefiting from ICTs to the same extent as their educated urbanised compatriots. Although the information revolution threatens to increase income inequity, nationally and internationally, it can provide tools, which can dramatically reduce isolation and poverty and alleviate its worst effects. A pro-poor agenda of technology-improved access to education, health care and information is increasingly possible for developing countries. Contemporary ICTs can now be used to integrate rural and poor urban communities into economic life, thereby raising income, and improving their quality of life. Appropriate regulatory services can be designed to encourage the provision of rural telecommunications on a commercial basis. Satellite network, wireless communications, public telephones and community information centres, cyber kiosks, or telecentres are effective arrangements for reducing information inequality (Harris, Bala, Songan, Khoo and Trang, 2001).

The World Bank recommends a systematic approach to the application of ICTs to the needs of rural communities (World Bank, 1998). In order to support ICTs adoption that will contribute to rural development, it is essential to begin with the needs of the rural community. As a first step, a feasibility study is required in order to:

1. Identify the needs and priorities of rural communities for such areas as agriculture, education, commerce, natural resource management, health and the like.
2. Determine the types of information needed to help meet those needs, including information gathered from the rural population and transmitted to policy-makers and project designers, and information shared among rural communities.
3. Determine the gaps between the information currently available and what is needed.
4. Determine how ICTs can close those gaps and build valuable synergies by mobilising information across sectors.

Evidence suggests that rural dwellers have more to gain than do urban dwellers from any increase in the density of communications capability (International Telecommunications Union, 1998). For example, the economics of telecommunications are related to distance. The greater the distance from communities of interest, the greater the savings