

IEICE Global Plaza

—Monthly community plaza in English for students, faculties and engineers—

Essay

Information Communication Technologies Evolution for Development of Rural Area —Translating Knowledge into Action—



*Poline Bala, Dr., Deputy Director,
Centre of Excellence in Rural Informatics,
Institute of Social Informatics and
Technological Innovation (ISTI-CoERI),
Universiti Malaysia Sarawak (UNIMAS)*

Promises of Information Communication Technologies

Since the world moves into the information age where wealth creation and accumulation will be increasingly dependent on high technology for the exchanges of data, information and knowledge (Omar Abdul Rahman, 1993), the Internet especially, and its other related services have been trumpeted as the new means to unlock new opportunities and potentials to advance the process of development. In fact, some scholars (for example Barr 1998) suggest that a close correlation exists between information communication technology (ICT) and economic development, whereby efficient telecommunication facilities promote economic development. This kind of argument has ushered in a pervasive argument such as information communication technology for development (ICT4D) promoted by many governmental and non-governmental agencies as new tools for social transformation and economic development. It is argued that the dependence on physical resources will give way to the exploitation of knowledge resources in the future development of economy and hence the creation of what the United Nations calls as the "knowledge-based global economy and information society" (UN, 2000 : 9). As a result many developing countries in Asia, Africa and Latin America have embraced the promises of ICT's power and potential to transform the socioeconomic landscape of developing countries into "modern" societies. In Malaysia for instance, the quest for ICT as a new tool to attain rapid economic development has been translated and institutionalized as Malaysia's National IT Agenda (NITA) with a mission to expose every segment of Malaysian society to information communication technologies.

Digital Divide, Telecentre and ICT for Rural Development

It is in this context that telecentre has gained popularity as a tool to close the digital divide between less developed and developed nations, information have and have-nots, as well as between rural and urban communities. It is considered as one of the most cost effective means to provide public access to computers, the Internet, technology training, community services, and other ICT services in rural areas. It is because of these potentials that Malaysia has eagerly embraced telecentres as one of the important methods to empower technologically disadvantaged citizen or communities. This can clearly be seen from the 2, 490 telecentres that have been developed throughout the country.

Nevertheless, it is widely acknowledged that there is a need to shift focus to ensure that target communities do gain genuine benefits from these technologies. For a group of researchers from UNIMAS this shift of focus is crystallised by valuable lessons learnt from their engagement with the electronic Bario (eBario) Project in the Kelabit Highlands. It is a pilot project which explored and demonstrated a process of providing ICT to Bario, an isolated rural community in Sarawak, Malaysia. Today, the school and community have

access to telephones and the Internet and are using these technologies. In addition, the community is applying ICT in order to enhance their livelihood. The eBario illustrates that for ICT to be used for development purposes, an emphasis must be placed both on the ICT themselves and also the people and communities. The lessons learnt from eBario have been developed into solutions, which would be practical, replicable, and relevant to communities.

From eBario to eLamai, eLarapan, eBa'kelalan, eBuayan and to the Orang Asli of West Malaysia

With that, new telecentres were developed in Sarawak and Sabah. One of the two sites in Sarawak is among the Penan community of Long Lamai, which is one of the biggest and oldest settlements of the Eastern Penan in Sarawak. It is located in Baram region, Miri, Sarawak. The telecentre is known as Ngerabit eLamai. The other site is amongst the Lun Bawang of Ba'kelalan, and the telecentre is locally known as Tutum Bala Bakakelan or eBa'kelalan. Meanwhile, one of the sites in Sabah is on the island of Larapan off Semporna. Known as Paglatunan eLarapan project, the telecentre aims to serve the communication and information needs of roughly 1500 Bajau living on the island. The second telecentre is among the Kadazan Dusun of Kampung Buayan, which is located on the margin of the Crocker Range and is accessible by hours of walking through forests, and across rivers and hills. There live approximately 500 residents and they are mostly farmers. The telecentre, known as Longkod Piromutan or the messenger of Buayan, was officiated by the Minister of Science, Technology, and Innovation of Malaysia, Datuk Seri Dr. Maximus Ongkili on April 6, 2010. The projects carried out in different ways have helped to improve the socio-economy of the community, as well as provide opportunities for them to better their lives.



Fig. 1 eBa'kelalan in the Kelabit Highlands of Sarawak. Fig. 2 eBario in the Kelabit Highlands of Sarawak



Fig. 3 eBuayan in the Crocker Range of Sabah

It is in this context that my Center, ISTI-CoERI was asked to carry out the needs analysis in developing Telecentres at four Orang Asli settlements in West Malaysia : Pos Gob and Pos Balar in Kelantan, and Pos Sinderut and Pos Lenjang in Pahang from February 2011 to February 2012. The main objective of the project is to conduct a preliminary assessment of *actual ICT needs and uses* in the communities to be served by these facilities and to provide training to all stakeholders (specifically community mobilisers attached to government and non-governmental agencies) on how to carry out community engagement activities when setting up telecentres for community development. Both activities are considered crucial stepping stones in developing telecentre as an important way to attain Malaysia's



Fig. 4 eLamai in the Penan village of Long Lamai, Sarawak



Fig. 5 eLarapan on the island of Larapan, Sabah



Fig. 6 Participative Development among the Orang Asli



Fig. 7 Community Engagement for Telecentre Development

national IT policy and strategy, where the impact of IT is expected on every Malaysian citizen's life and livelihood.

Multidisciplinary and Interdisciplinary Approaches to ICT for Rural Development

Out of the experiences gained from the telecentre projects, the Centre of Excellence in Rural Informatics located at the Institute of Social Informatics and Technological Innovation in UNIMAS has adopted a holistic and multi-level collaborative approach to ICT implementation among rural and remote communities. This is because of complex issues such as sustainable development, problem solving, and the management of process, project and events. All of them require not only a holistic understanding of the challenges ahead but also more holistic approach to redefine problems and find solutions based on a new understanding of complex situations. Conversely, the new situation requires researchers and experts from different fields to develop sufficient trust and mutual confidence to transcend disciplinary boundaries and work together on a common issue in search for research-driven solutions.

This is reflected on the formation of a team of researchers from different disciplines and fields of expertise of social anthropology, rural sociology, information system, computer science, electrical and electronic engineering, civil engineering, linguistics and human resource management to carry out the assignments. The researchers should be uniform in their qualifications but trained in their own areas of specialization, to share their research activities and combine their expertise, with the aim of introducing ICT into economic and social development among rural communities. Meanwhile, the main goal of the social scientists is to understand a complex local context in which the technologies will be implemented, and which has many dimensions: economic conditions, social conditions, traditions, access to resources, power structures within the community and the latter's relations to the outside world, the engineers, computer scientists and information system developers' work to develop the technologies, from power supply and network design to content development which are appropriate and relevant to the communities.

The cross-fertilisation of ideas and knowledge between academic disciplines has extended to collaborations with other national and international agencies. This is from the perspective that multi-level collaborative approach to ICTs implementation among rural and remote communities requires the cooperation with individuals, community, agencies that can support rural development. One clear example is the Electrification by Solar Energy in Rural Area Project funded

by the Government of Japan for the telecentres in Long Lamai, Ba'kelalan and Larapan. Since 1989, under the Grant for Grassroots Project (GGP) programme, the Government of Japan has extended the financial assistance to Sarawak and Sabah with 37 small but socially and economically important projects amounting to approximately RM5 million in total. Read more at <http://www.theborneopost.com/2010/12/17/japanese-govt-chips-in-to-light-up-ba-kelalan-using-solar-energy>



Note by IEICE-TFIPP (Kenzo Takahashi, Prof.)

This article was contributed by the author with her good will to encourage the younger generation of IEICE. The project "eBario" in her article was introduced by Prof. Khairuddin A. Hamid, Vice Chancellor of UNIMAS in IEICE Global Plaza as well (See IEICE Journal vol. 93, no. 1 or access http://www.ieice.org/eng/global_plaza/2009/12.html). She was born in Bario, Baram District of Sarawak and studied her primary and lower secondary schools in the Kelabit Highlands where the "eBario" was set up later. She received her BA degree from University of Malaya, Malaysia, her MA degree from Cornell University, USA, and her PhD degree from Cambridge University, UK in 1990, 1999, 2007, respectively.

Upcoming International Conferences

ICMTS2013—IEICE Electronics Soc., IEEE, APEEIE, JSAP, in Osaka, Japan, on March 25–28, 2013, <http://www.if.t.u-tokyo.ac.jp/ICMTS13/>

COOL Chips XVI—IEICE Electronics Soc., IEEE, IPSJ, in Yokohama, Japan, on April 17–19, 2013, <http://www.coolchips.org/>

PEDS 2013—IEICE Kyushu Section, IEEE, IEEJ, in Kitakyushu, Japan, on April 22–25, 2013, <http://www.peds2013.org/tutorial.html>

Kaleidoscope2013—IEICE, ITU, Kyoto University, et al, in Kyoto, Japan, on April 22–24, 2013, <http://www.itu.int/ITU-T/uni/kaleidoscope/2013/>

EMTS2013—IEICE Electronics Soc., URSI Commission B, technical sponsorship by IEICE Communications Soc., in Hiroshima, Japan, on May 20–24, 2013, <http://ursi-emts2013.org/>

ICTF2013—IEICE Europe Section, technically co-sponsored by IEICE Communications Soc., in Sarajevo, Bosnia & Herzegovina, on May 29–31, 2013, <http://www.ieice-europe.org/ictf/>

CLEO Pacific Rim 2013—IEICE Communications Soc. and IEICE Electronics Soc., in Kyoto, Japan, on June 30–July 4, 2013, <http://www.cleopr-oecc-ps2013.org>

OECC/PS2013—IEICE Communications Soc. and IEICE Electronics Soc., in Kyoto, Japan, on July 1–5, 2013, <http://www.cleopr-oecc-ps2013.org>

APSAR 2013—IEICE Electronics Soc., IEEE, in Tsukuba, Japan, on September 23–27, 2013, <http://www.apsar2013.org/sponsors.html>

MWP 2013—IEICE Electronics Soc., IEEE, in Virginia, USA, on October 28–31, 2–13, <http://www.mwp2013.org/>

EMC' 14/Tokyo—IEICE Communications Soc., in Tokyo, Japan, on May 13–16, 2014, <http://www.ieice.org/emc14/>

Message from TFIPP Secretariat

This issue is delivered also by a free mail magazine "IEICE Global Plaza on Line" with updated news of interest for you. Please contact Prof. Takahashi, TFIPP (Task Force for International Policy and Planning) at global@ieice.org, if you need. Back numbers are available in archives at : http://www.ieice.org/eng/global_plaza/index.html

Editorial Committee of IEICE Global Plaza

Editor-in-Chief	Kenzo Takahashi	Chair, IEICE-TFIPP
Editor	Yoshikazu Miyanaga	IEICE Engineering Sciences Soc.
	Fumio Futami	IEICE Communications Soc.
	Toshiyuki Yakabe	IEICE Electronics Soc.
	Hiroyoshi Miyano	IEICE Information & Systems Soc.
	Shigeyoshi Iizuka	IEICE Human Commun. Group