

ICTs for Global Development and Sustainability: Practice and Applications

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Section 1
**Public Access to ICT and
Telecentres**

Chapter 1

Re-Thinking Methodology through the E-Bario Project: From Participatory Methods to a Relational Approach to ICT for Rural Development in Sarawak, East Malaysia

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ABSTRACT

This chapter highlights the value and limitations of participative development employed in the implementation of an ICT-based research and development project in the Kelabit Highlands of Central Borneo. The first section describes the reasons for e-Bario project and why participative development, with a strong emphasis on the anthropological methods of immersion and Participatory Action Research (PAR), has been adopted as development approach in Bario. In the second section I interrogate participatory development as practiced in the e-Bario by bringing to light a number of problematic aspects of the participative technique, in which conflicts have arisen over the development process, and the interpretation of participation itself has been vigorously questioned. Later, I propose a relational view of the participative process, which suggests a shift of focus from technology to people and social relations. My argument is that a relational perspective of participative process can open up a social space for local people and developers to identify, cultivate and establish social relationships both within and beyond a project's framework. It is these bonds of trust and obligation, developed and sustained over the longer term, that have allowed the Kelabit and the researchers to work out their social relationships to one another in matters concerning e-Bario.

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INTRODUCTION: EMERGENCE AND PROBLEMS OF PARTICIPATIVE DEVELOPMENT

In late 1980s “development” has been criticised and labelled by some as a failed industry especially within the post-structuralist literature as such should be made obsolete (see for instance, Esteva, 1987; Shet, 1987; Fals Borda, 1988). On the contrary, some scholars and practitioners (for example Chambers 1993) who are engaged in a search for better strategies for interventions suggested that taking local culture, context, conditions and participation by local people into account in development process and practices can be one of the solutions to many failures of development projects. This approach is considered important to curtail the negative effects of development interventions and, most importantly to ensure that the economic, social and cultural benefits of technologies reach targeted areas and local communities through efficient and effective deployment of services, (Barr, 1998; Paisley & Richardson, 1998; Anderson et al., 1998).

This raises question why local participation in development process? This is because social and cultural dimensions are crucial to development process. For instance, Porter, Allen, and Thompson (1991) observe and suggest: “ a painstaking exegesis of a well-meaning but ill-fated Australian development project in Kenya reveals the reasons for its failure as mainly cultural: past lessons were not learnt, historical local circumstances not examine, indigenous knowledge not harnessed, and the superiority of Western knowledge and experience taken for granted.” In this sense, “culture” is fundamental and needs to be taken seriously in development initiatives particularly for ensuring “more effective and beneficial to those people whose lives are being changed” (Schech, S & Haggis, J (2000).

Other international organizations, especially UNESCO, also see culture as intrinsic to development. The agency states that, “...culture has

increasingly come to be seen as crucial to human development. We understand better not just that culture can be mechanism for, or an obstacle for development, but that it is intrinsic to sustainable human development itself because it is our cultural values which determine our goals and our sense of fulfillment.”¹

In other words, technologies alone are not sufficient to ensure success, which will depend as much on *how* the technologies are deployed, or adopted and the approach by which they are introduced. In fact, some consider that it is far more important to look beyond the technologies to the social, economic and political systems of the community (Garcia and Gorenflo 1998). This is a shift recommended by the FAO (1998). As pointed out by Anderson, “...in our enthusiasm for ICTs and their potential, we should not forget that the focus should be on people, organization and processes rather than on the technologies themselves” (Anderson et. al.1998).

At the same time, however, there have been severe critiques of participatory techniques to be an antidote to failed development projects. On this front, participative processes have been presented as being increasingly overexposed and even abused, serving as technical and management solutions to what are basically political issues (Gujit and Shah 1998:3). This has resulted in community participation being labelled as a ‘sacred cow’ (Blackburn and Holland 1998:2) or worse still, as the “new tyranny” in development practice (Cooke and Kothari 2001). In fact, Mosse (2003:5) suggests that community participation is increasingly seen to “advance external interests and agendas, while further concealing the agency of outsiders.” All of these arguments suggest that “participation all too easily slips into empty rhetoric, [which] can serve the interest of the status quo and can readily lend itself to the fate of being veneered (Gardner and Lewis 2005:356).”

Drawing on arguments made by these two opposing views of participatory development, this chapter highlights the value and limitations

of participative development employed in the introduction of information communication technologies (ICT) such as the computer, Internet, CD ROM and Very Small Aperture Terminals (VSATs) for rural development in Bario of the Kelabit Highlands of Central Borneo. The chapter begins with a brief account of what is e-Bario project and how and why participatory approaches were incorporated in the process of planning and implementation of the project. In doing so I aim to highlight the significance of participation in development for the Kelabit in Bario in historical and cultural context, and what are some of the challenges and issues for participation in development for the Kelabit today. In the next section I bring to light a number of problematic aspects of the participative technique, in which conflicts have arisen over the development process, and the interpretation of participation itself has been vigorously questioned. This will be followed by a proposal for a *relational view* of the participative process in the third and final section. It suggests a shift of focus from technology to people and social relations. My argument is that a relational perspective of participative process can open up a social space for local people and developers to identify, cultivate and establish social relationships both within and beyond a project's framework. It is these bonds of trust and obligation, developed and sustained over the longer term, that have allowed the Kelabit and the researchers to work out their social relationships to one another in matters concerning e-Bario.

WHAT IS AND WHY E-BARIO?

The e-Bario project was conceived in 1999 by a group of researchers from University Malaysia Sarawak (UNIMAS) in partnership with the Kelabit people of Bario. Its main objective is to examine in what ways can the new information communication technologies (ICT) such as the internet, computers, printers, and VSATs can

bring social and economic development for rural communities in Sarawak.

It was initiated within the context of the ICT-hype (Keniston 2002) of 1990s by which the new forms of ICT are seen as new economic and social drivers that can boost further the economic and social development of societies. This has been substantiated by arguments that better telecommunication will induce rapid economic development (Barr, 1998; Omar Abdul Rahman, 1993). As a result many national governments of developing countries have aggressively adopted ICT as developmental tools to propel their societies to greater height of economic prosperity. In Malaysia, for instance, this desire has been translated into a vision of becoming a fully developed nation by year 2020 (Raslan, A. 2000; Goh Beng Lan, 2002). In order to attain this mass development programme, the Malaysian government has outlined specific targets which include to become an Information Society by the year 2005, whereby people would have access to information, and information becomes a commodity; and to be a Knowledge-based-Society by 2010, with a Malaysian society that values the culture of life-long learning and the creation of knowledge-based products and services.

It was partly because of Malaysia's massive ICT development planning that e-Bario was mooted. Its main aim is to explore whether or not the new communication technologies can bring "development" to rural communities in Malaysia. Because of Bario's isolation and inaccessibility in the mountainous region of the Baram and Limbang Rivers in Central Borneo, it is outside the national grid and with very little communication infrastructure. With these situations, Bario represented the disconnected portion of the digital divide and presented a challenging environment to which to test the usefulness and effectiveness of ICT in rural Malaysia (Harris et al., 2001).

All this made Bario an ideal site to explore issues and challenges involved in ICT development in rural areas. This situation has been amplified

by the Kelabit own desire for better information and communication infrastructure in Bario. But who are the Kelabit, and why do they need better means of communication in Bario? The Kelabit is a closely-knitted community who traditionally inhabit the Kelabit Highlands of Central Borneo. It is a highland plateau located in north-eastern of Sarawak. It is surrounded by rugged mountains, high peaks and dense jungle, and henceforth is considered isolated from other parts of Sarawak. Nonetheless, due to cultural practices of travelling far and other historical and social processes of the past 50 years, the Kelabit have experienced high level of rural-urban migration. For instance, in 1999 more than 80% of the Kelabit total population of 5,200 have left the Highlands to obtain higher education and find better job opportunities in cities like Miri, Kuching, Bintulu and Kuala Lumpur. This high level of rural-urban migration has led to a geographically-dispersed community, creating communication chasms between the Kelabit who remain in the Highlands (rural Kelabit) and those who have left to live in urban areas (urban Kelabit). It is out of their widespread diaspora that the Kelabit are constantly looking for ways and strategies to foster family relations and community connections.

In 1999 the main means of communication between Bario and the outside world were a radio call centre, locally known as *inan radio call* and the Bario airport (Bala, P., Harris, R.W and Songan, P., (2003). While the radio call centre was equipped with Very High Frequency (VHF) to facilitate communications between Bario and the world outside, the airport in Bario is a meeting point for information exchanges where 'fresh' and important information is received and sent through passengers on the daily flights via verbal exchanges, or in the form of printed material, letters and recordings. But because of the need for faster and flexible services, many local residents in and outside Bario expressed a genuine need for better means of maintaining social relations and links with migrant family members. This is

also considered very important so that the Kelabit can be on par with other Malaysian societies who have embraced these new technologies as means to greater progress.

Yet there was a concern that the technologies introduced through e-Bario would not only function well, but would in reality be a success and bring benefits to the people in Bario. This concern has emerged as a result of two different levels yet interrelated social situations. One is the Kelabit own experiences with failures of development. Of particular relevance was the 1999 Bario mini-hydro dam, which failed to deliver the *benefits* that the Kelabit had anticipated. It did not produce 24 hours electricity supply to the villages as intended at the outset of the initiative. Moreover, not only did the mini-hydro fail to generate power supply, but the way it was implemented has also led to other negative effects, particularly on social relations between villages targeted by the project. It has triggered some violent disputes between members of the community, especially arguments about which villages gained the most financially from the construction of the dam and who was responsible for its failure.

The Bario community's experience has struck a chord with a heightened awareness of poor results and widespread failures of development intervention in different parts of the world. A branch of knowledge which emerged out of this is to transform development by working within, as policy-makers, practitioners, consultants, and not just as critics, analyzers of and commentators on development processes. Henceforth, there have been practitioners and researchers who are in search for strategies that can curtail negative effects of many development interventions and ensure that local communities reap the benefits of development projects (see for instance, Gardner and Lewis, 1997; Doorman, F. 1995; Edelman, M. and Hangerud, A. 2005).

PROJECT FAILURES AND PARTICIPATIVE DEVELOPMENT IN BARIO

It was the amalgam of these two situations described above which paved the way for participative development in the Kelabit Highlands. But, why rely on participatory development in Bario? This is because a principal suggestion which emerged from the comparisons of Bario's experiences and the pursuit for better strategies for intervention was that it was not *what* the team did but *how* it was done that was of greater importance. Since participatory approaches believes that "development is not a process in single direction, but a process of continuous adaptation, problem solving and opportunity...[and] is not movement towards a fixed goal but continuous adaptation to maximize well being in a changing conditions" (Chambers 1993:10), it was adopted as a normative and practical approach in the Kelabit Highlands.

Consequently the following imperatives were placed upon the project: active participation by members of the community in Bario in the process; a good understanding by the implementers from UNIMAS of diverse local perceptions and also of the social and political processes through which the technology would be introduced and used. The overarching objective was to guarantee that the e-Bario technology would not fail like the hydro dam.

Taking all this into consideration, the research team drew from two lessons and experiences in other parts of the world. One was the experiment with Participatory Action Research (PAR) by the M.S. Swaminathan Research Foundation in Madras, India to establish six Village Information Shops that enabled rural families to access and exchange a basket of information using modern communication technologies, (Balaji & Harris, 2000). The second was the academic discipline of Community Informatics, which takes political, cultural and social aspects seriously in the use and deployment of ICT (Gurstein, 1999).

To begin with the anthropological methods of immersion and Participatory Action Research (PAR)² were adopted as specific development strategies. At the heart of the approaches is putting "grassroots knowledge" in terms of local knowledge, social arrangements and cultures at the fore front in development practices in Bario. Out of all this, two interrelated concepts were emphasized as guidelines: local context and local participation. These were vital for establishing how and with what aims the technologies would be deployed.

In other words, rather than seeing the technologies as the only source of agency (the perspective of technological determinism), people and communities were seen as the primary agents and mediators of change. Hence key areas of concerns in the implementation process were how opportunities and constraints were considered locally; and how social norms, education, culture, and the way of life in the Highlands could affect the use and application of technologies. These social and cultural factors were seen to have the capacity to enable, shape and influence a development project such as e-Bario, or, equally to resist it (Bala, 2008).

PARTICIPATIVE METHODS IN THE KELABIT HIGHLANDS

But what does this mean for e-Bario implementation in the Kelabit Highlands of Sarawak? To begin with and based on PAR methodologies the following principles were established:

- the researchers should learn about life in Bario from the community;
- the community should learn about ICTs from the researchers;
- community members should perform major portions of the research;
- the researchers should be able to identify with the community;
- as a team, the community-researchers should be capable of critically reflecting

upon iterative cycles of action in order to achieve mutually beneficial outcomes from the project.

- useful information systems will be embedded in the needs of the community;
- specific actions are required by both the researchers and the community in order to articulate those needs;
- methodologies for designing and implementing useful information systems will emerge from participatory action-oriented research activities, and
- data would be obtained using a combination of surveys, direct interviews, workshops and discussion groups.

Guided by these principles and within the context described above, the research team arrived in the Kelabit Highlands in June 1999. First of all, the team had to examine and understand how the Kelabit cope with situations and circumstances in an ever changing environment. Of particular importance, was an understanding not only what meanings the Kelabit assign to situations, but also how they act to solve critical problems of survival when new forms of economic, political and social organization are introduced or imposed upon them. This, it was suggested, would have a bearing on how members of the community would negotiate in interpreting the technology, appropriating the words of Schwarz and Thompson (1990:32) “what meanings would be given to the technology, and how the technologies could become part of the social processes and local contexts.”

This understanding was attained through ethnographic practices of immersion, random surveys, and structured interviews and dialogue sessions. Ideally these were organized in an open manner, so that they become important means of airing concerns, perceptions, or suggestions, including disappointments. This range of formal and informal participation observation and dialogue methods were reinforced by a survey of existing social capital among the Kelabit. This was done

by using a “need analysis,” a research strategy highly recommended by the World Bank as a systematic approach to the application of IT to rural communities (1998). Conducted in October 1999 through a survey, its main purpose is to examine existing communication patterns as a preliminary step towards the effective and successful introduction of ICT to rural areas.

Furthermore, the activities provided glimpses into what values the Kelabit place on peoples, objects and ideas which constantly move between the outside world and the Highlands, and how and why newcomers are integrated into or excluded from social relations at the village level. This is considered crucial since the success of any ICT applications, as suggested by Paisley and Richardson (1998), will largely depend upon their integration within local communication networks.

On top of this, researchers participated in local, communal, social and economic activities in Bario. This included attending Kelabit *iraus*, such as the name changing ceremonies (*irau mekaa ngadan*) in the longhouses, participating in local economic activities like rice planting and harvesting, and involvement in local religious activities, for instance, by attending church services at the weekends.

It was through direct engagement in these local activities the researchers gained insight into the Kelabit’s on-going engagement with ‘development’, and their ability to generate, coordinate and respond to social change. They were conducted to enable consultation between the researchers and Bario people, to provide forum for urban and rural Kelabit to discuss their perceptions and ideas about how ICT could be useful, and how to address possible negative impacts of ICT on Kelabit values. An example of this forum was the Miri Symposium, which was held on 13th March 2000 and was attended by 103 participants. This included Kelabit representatives from Miri, the former Member of Parliament for Ba Kelalan, three members of the Council of Elders, two members of Bario JKKK, representatives of the

Youth Group from Bario and the research team from UNIMAS. In short, these direct engagements become a means for the Kelabit in Bario to participate in making decisions of the potential areas for ICT development in the Highlands, and when encountering problems and challenges generated by development.

Out of these processes of dialogues and interaction, two main practical observations and suggestions were made regarding information use and communication patterns in Bario. These recommendations were:

First, it was suggested that the provision of ICT services, particularly the telephone and Internet at the Telecentre, was a logical extension to existing communication and information infrastructure in Bario. The community displayed a progressive readiness and enthusiasm for technology-induced improvements in their communications resources (for example radio, radio-telephone and the airport). It was therefore suggested that the development of a telecentre in Bario would serve one of the community's basic communication needs, to be able to communicate with friends and family members who had migrated to urban areas or overseas for work, marriage and education. With this, as with the church and airport, it was assumed that the centre would notably link people in Bario with those outside the Highlands, but also become an important place for local people to meet socially and to exchange ideas and news.

Second, since many expressed frustrations over the ineffectiveness of relaying important messages, particularly by the government servants to their bosses and supervisors outside Bario, the development of the telecentre should take into consideration the provision of reliable high capacity communication and information facilities such as email and additional telephones. From this perspective the centre is foreseen to link businesses in Bario with bigger businesses in urban areas.

With these considerations and observations the following physical and technological components were gradually introduced in Bario:

1. **Computer Laboratories:** Two computer laboratories were designed and equipped with 16 computers due to demand from students and teachers. The lab was also equipped with 2 printers and a scanner.
2. **Telephonic Equipment:** The new technologies were installed within the existing communications network, the telephones were placed at strategic locations or important meeting places in Bario, such as the airport, the shop area, the school and also the clinic.
3. **Very Small Aperture Terminals and Network Configuration:** To provide access to telephone (voice) and internet networks four internet ground station technologies known as Very Small Aperture Terminals (VSATs) were installed by Telekom Malaysia Berhad. These were located at the shop area, the clinic, the school, and the airport.
4. **Telecentre:** A permanent telecentre, known as Gatuman Bario (Bario Link), was set up in 2001. It is located at Pasar Bario and has 5 rooms: a room for computing services, a visitor's room with table and chairs for meetings and resting, 2 rooms for administration purposes – one for the e-Bario coordinator and the other for technical assistance - and another for staff to monitor and run the day to day management of the telecentre. The telecentre is equipped with 10 computers, an inkjet printer, a laser printer, a laminating machine, a photocopier and internet access.
5. **Power Supply:** Since Bario is outside the national grid, the telecentre was initially powered by diesel run generators. This power supply has evolved into a hybrid diesel (80%) – solar panel (20%) power supply, and more recently a solar panel – diesel system.

6. **Training and Skills:** An Information Technology (IT) Literacy Programme was introduced by the research team from University Malaysia Sarawak in conjunction with COMServe, a local IT company based in Kuching. Training was identified as an ongoing process, and not a one-time or once only activity. The training included word processing, key-board usage, e-mailing, browsing the web, and the management of technologies including trouble shooting.
7. **Website Creation:** Due to web hosting problems this information was incorporated into a web site designed by UNIMAS (www.e-bario.com). The web site contains information on the project, and also on the Kelabit Highlands. It was designed to promote Bario as a tourist destination, and is linked with other web sites developed by or used by Kelabit, such as the Online Kelabit Society (OKS).
8. **Storage of Information – Bario Digital Library:** An experiment with recording, documenting and disseminating Kelabit songs and dances on CD ROM has been developed under the project. It is called the Bario Digital Library (BDL). The first record contains 9 *laku* songs by women in Bario with digital images of each singer singing the *laku*. Each song has been transcribed in Kelabit, with English translation. It is a step towards the creation of an electronic record of Kelabit oral stories.
9. **Management and Administration:** “Management and Administration” is not a physical or technological component of e-Bario, but rather a management system, which has been put in place in order to manage the project in Bario, and also the community telecentre. To achieve this, a project coordinator-cum-manager has been appointed by the Council of Elders, Authority for Village Protection and Development (Malay, *Jawatankuasa Keselamatan, Kebersihan*

Kampung (JKKK)) and University Malaysia Sarawak to oversee the workings of the initiative in Bario. In addition to the project coordinator, a technical assistant was also trained and appointed to oversee the technical aspects of the project, such as trouble shooting and managing all the equipment and software.

But all this raises the question in what ways the model of participative development made a difference to e-Bario’s design and process. That is, whether or not it had a profound effect upon the way on which the project was received and adapted by the community. If yes, why and if not, what lessons can be considered for the future. This is an important issue for the project itself, but also more generally, in the light of previous research and ongoing debates within academia about the value or limitations of community participation in development projects.

To explore these questions in detail, the next section is divided into two parts. The first part will highlight impacts of e-Bario for the people of Bario especially how the technologies above have affected the well being of the people by facilitating information flow in and out of Bario, bridging the communication gaps between urban and rural communities in Sarawak, and also in narrowing the social and economic divide between members of the Kelabit society. Building on the first part, the second part will throw light on certain problematic aspects of participatory techniques encountered during the 10 years experience of e-Bario. I shall highlight these issues in the light of academic inquiry and criticism of participative development. At the same time, I shall detail some positive effects of participative techniques in Bario, and how these can be important pointers for development practices in rural areas and among communities like the Kelabit of the Kelabit Highlands.

ASSESSING E-BARIO AND PARTICIPATIVE DEVELOPMENT IN BARIO

When asked of the impacts of e-Bario, John Tarawe's response is, "it is like a dream." Referring to the payphones, he continues, "We never thought it would come. Although the ultimate goal was to bring in the Internet, the payphones were just as important to the people here. When we saw the payphones, our hearts leapt. This is because we now can communicate with our relatives and friends who are living in cities like Miri, Kuching, Marudi, Kuala Lumpur, and also with those who are currently living overseas. I have asked a shopkeeper this morning the number of phone cards she sells every month. She is selling probably 100 cards and that's just from one shop. There are five shops here. For the older generation the arrival of the telephone is good enough. They tend to think that the Internet is more relevant to their children's future."

John implies that the project has introduced new means for easy communication with diasporic Kelabit. The significance of these information and communication technologies is also reflected in the way that these technologies are perceived and use as means to position the Kelabit within wider networks of interaction that transcend their isolated position in the Highlands. In this way the Kelabit can *continue* to be integrated within (and be part of) the space of global flow of technologies, skills, communication and information. As described, although the Kelabit Highlands are geographically isolated, the Kelabit society has long been connected to the outside world through their geographic mobility, and the dispersal of families. In tandem with their experiences, the Kelabit also see themselves as a part of the wider world of progress and their contemporary acceptance of telephones, the Internet, VSATs and computers in the Highlands is seen as an extension of their existing connections to the rest of the world.

This perception is reflected in the words of 80 years-old Balang Radu, who claimed that e-Bario has enabled further progress (*iyuk*) for those living in Bario by providing the means to forge connections with the rest of the world. He stated, "With these new means of communications, our lives are made much easier, although we live isolated in the headwaters of Baram. We can now liaise with the outside world from our villages, including talking to our children in KL, Kuching and throughout the world. This is progress (*iyuk*) for us. It has made our life easier and we are connected to the rest of the world in a new way. Therefore we are basically very, very pleased with its arrival. We are now on a par with the rest of the world." Balang Radu's remarks demonstrate that the new technologies are being incorporated into the Kelabit ongoing pursuit for connections outside the Highlands. Being connected to the rest of the world through these new technologies is perceived not purely as a means of obtaining better quality information, connectedness and *iyuk*, but also as a symbol that the Kelabit are not being left behind by others.

Furthermore e-Bario has been re-made to negotiate the Kelabit social, economic and political interests in their encounters with ideas, intervention and people from the outside world. A clear example of this is the [new] technologies are being used as new forums for networking, and for acquiring skills, resources and tools for effective organization among the Kelabit. This is especially important in their engagement with the larger issues of development which the Kelabit are currently grappling with in Bario, especially with regard to road access, commercial logging and planning for the future at the state and division levels of governance. The technologies become important forum and stage from which to express compliance and at the same time resistance, and to negotiate, assess and debate the new forms, meanings and practices of 'development'. In other words, e-Bario has been fashioned as a new site to manage the interface of development between the Kelabit and external agencies.

These responses and experiences at the local level suggest that e-Bario initiative has been another milestone in terms of providing equal access to information communication technologies in the Malaysian context. Henceforth, as noted by International Telecommunications Union (ITU, 2003), technologically e Bario is one of Malaysia's most notable of internet development initiatives". At the international arena, the initiative has put Bario and the Kelabit on the world map - a remote community connected with up-to date technologies – thus named as one of the Top Seven Intelligent Communities of 2001 by The World Teleport Association in New York and of one ITU's success stories.

PROBLEMS OF PARTICIPATIVE TECHNIQUES IN BARIO

Nonetheless, reflecting upon experiences of e-Bario as a participative development project, there is no doubt that it reflected a number of problematic aspects of the participative technique as already outlined by its critics. One of the main line of criticisms is that participative development tends to gloss over significant issues of heterogeneity, social division and conflict in favour of consensus, community and locality (Gardner and Lewis, 1996; Wright, 1995). In the context of e-Bario, this situation is obvious at the initial stage of the project. Driven by the emphasis on local participation, the team attempted to reconcile any differences through processes of mediation and informal dialogues. This was partly driven by a need to secure funding from organizations and to make the project a success. The research team worked hard (through the processes I have described) to get the community to make a concerted effort to reach shared interests at the expense of "variation in meanings, experiences, historicities, debates and specificities" (Hoskins 1987:606).

As outlined by other scholars like Gardner and Lewis (1996:76), and also Wright (1995:73-

74), this tendency often times creates images of a homogeneous, solid and integrated community, which nonetheless has great implications especially on issues of "balance of power" between the different actors in the e-Bario design and process. This is because, as has been pointed by Abram and Waldren (1998:5), bottom-up approach, active participation and community involvement in the planning and implementation of the development projects often make issues of power complicated between different actors in any planned development like e-Bario.

There had been two parts to this situation in Bario. The first aspect is the asymmetrical relationships and power between those who bring development and those who receive development in the Kelabit Highlands. The other situation is the subtle issue of access to technologies and control over project processes as new symbolic and material resources in the community.

In the nutshell, both situations reflect the asymmetries between the members of the Bario community who were directly involved with e-Bario as a development initiative and those who consider themselves as mere 'by-standers.' This is very apparent between the local manager and other service users, and non-users of the technologies. Often times persons like the manager and his technical assistant were deemed to be empowered more than the other villagers, who did not have access for various reasons. In a sense ICT have introduced a new arena and means for competition among villagers to attain personal benefits. While the local manager and other users with newly acquired skills could somehow affect changes to their social position through the use and application of technologies and project processes, the non-users remained largely unaffected by specific technologies such as the Internet. This has led to tensions concerning empowerment, revealed through criticisms directed at the manager and the courting of his position by others.

At another level are the larger competing political and economic interests of members of the

community at the local level, which intersected with the working-out of status and power within the community. This is a result of changes in the local economy as a consequence of the usage and applications of ICT. The Internet has become a useful tool, linking specific businesses in the Highlands to the outside world. This is especially true for the local tourism industry, which has emerged as a major economic activity in recent years. There is a genuine perception that the telecentre serves mostly the interests of the lodge owners and tourist guides. "It enables their business to flourish. They are now competing among themselves," observed a respondent. According to another respondent, the lodge owners, who are also the most frequent users of the telecentre, have now become the new rich in the area. This is translated into their lifestyle: many today possess items such as four wheel drives (in fact ten out of the fourteen cars in Bario are owned by lodge owners), television, motorcycles, and most importantly money.

It was in relation to this imbalance of access and control that the meanings and practice of communal ownership and local participation were challenged and questioned, as individuals such as the manager were perceived as being elevated to a position of power and social status within the community. In a sense, the arrival of e-Bario had triggered a specific local crisis or what Norman Long (2001:1) identifies as "intertwined battles": different social groups in Bario were locked in disputes over the legitimate control of the telecentre as a new resource, with the meanings of local ownership of e-Bario and, the degree and style of local participation becoming sources of conflict and argument. It has created a new arena for power struggle for some members of the community, in which e-Bario and the telecentre have emerged as a new source of symbolic and material wealth, providing new access to social recognition and skills in the community, creating in the Kelabit Highlands what Preston might consider as the "complexity business of development" (1986:268). The intervention not only exacerbated

the underlying rivalries and struggles for control over limited resources, but also introduced a totally new socio-political space in which the people in Bario have to struggle and negotiate over power, status, reputation and resources.

TRANSFORMING EFFECTS OF PARTICIPATIVE DEVELOPMENT

However, it is important to note that in spite of its apparent shortcomings, the appropriation of participative methods in Bario had a transforming effect upon the project. This is apparent at two levels. The first and most obvious level is that the very manifestations of these issues and problems in the research process suggest that the emphasis on context and local participation have made it possible for the researchers to explore the richness, complexity and interrelatedness of social, cultural life and its vital role in development-induced change such as e-Bario.

The second and more complicated level is the way participatory techniques has led to the emergence of a two-way participation through which both the researchers and local people (and the technologies) were considered as catalysts of social change, with the local population participating in the development process, and the researchers joining in local life in Bario. These forms of community participation and partnership processes, in the words of Marilyn Taylor (2003:121) "have the potential to open up a new public and political space." In Bario, for example, the participative process has opened up public and political space in which negotiations, interactions, the establishing of common interests and a readjustments of social and political relations can all take place effectively within two intertwined arenas of relationships. The first space is between the researchers-cum-developers and the Bario population; and the second arena is between members of the Kelabit community themselves.

Within the first social arena, this was made apparent by the way in which the anthropological method of immersion was appropriated by the implementers, not only as a means of understanding the local context in which they were working, but most importantly as a mechanism for the researchers to join the local population at the same level, as subjects in the project's design and process. In doing so, the immersion process effectively provided a public space, in which both developers and the local population could engage in collaborative work, effective organization and action. It was a framework enabling the researchers not only to take local needs and interests into consideration, but also to enlist the local population themselves as experts on their environment and history, and consequently, appropriate agents of change. This in turn led to a diversity of approach, on-going local modification, and creativity at many levels.

In other words, rather than just attempting to bolt participative processes on to an ICTs-enabled project in Bario, the practice of community participation in e-Bario has involved a deeper approach, to ensure a genuine community empowerment. As pointed out by Michael O'Neill (1992 in Marilyn Taylor 2003:136) these are two different things. While many critics have highlighted the (ab)use of community participation as a technique to mobilize a local population and to monitor their behaviour from the centre or from above, community participation in Bario has taken a different turn. It has promoted a diversity of experiences and usage, which in turn has contributed to a user-centred and a user-owned agenda for ICTs in the Highlands.

In a similar manner, the participative process has allowed the Kelabit to open up a socio-political space for themselves, which is being used to negotiate and come up with solutions for managing the local crises triggered by the project. The participative process in the project design provided a socio-political space for the Kelabit themselves to negotiate what value to attribute to the Internet, computers and telephones, and

how to apply these technologies to their own political, social and economic circumstances. This has been particularly important in the face of the new 'development' being introduced into the area - for example, the over-arching influence of the government in introducing logging as a new industry in the Kelabit Highlands.

All this is reflected through the ways e-Bario has been re-made into a new and active venue to pursue the Kelabit community's own values and interests as they engage with larger issues of development which the Kelabit are currently grappling with in Bario. This is especially with regard to road access, commercial logging and planning for the future at the state and division levels of governance. As they grapple with these issues, participative development introduced through e-Bario have been adopted as a means to nurture cooperation among the village people, and at the same time to renegotiate dialogues or battles with visiting government officials, researchers, corporate interests, and technicians about funding, training and technology options. From this perspective, participative techniques in e-Bario have opened a space to enable collaborative efforts between the villagers and researchers, developers and other agencies to emerge.

Therefore while community participation has triggered competition and tensions at the community level, it has also enabled a strengthening of local institutions for decision making and for conflict management and resolution. One good example of this is the use of the internet, computers and telephone inspire those in Bario to reach out to those that have left the Highlands, but still maintain a strong interest in the affairs of the village. It has become a new means to maintain solidarity, within an increasingly stratified and occupationally mobile population, in the face of the new types of development intervention. The various technologies available at the telecentre, for instance desk tops, associated software and the internet, are being used to strategize the Kelabit position in their contemporary encounters with

logging. Examples of this are the documentation of oral histories and the recording of images relating to all the cultural and historical sites found in the Highlands, as well as the marking of their GPS points. All these are uploaded into a GIS database at the telecentre, to allow the construction of a land-use history in the form of a digital map, and spatial and temporal analyses of past land use in the region. These in turn are useful historical and legal documents in negotiations with agencies involved in conservation and logging in the area.

From these experiences it is clear that participative development as a working practice in Bario has caused a multi-level collaborative approach to emerge, which, according to Martin from Padang Pasir, differentiated e-Bario from its predecessor, the ‘damned’ dam project, which provided Bario with a 45minute electric dream. He says, “It has been very interesting to observe the difference. It has been 8 years now since e-Bario was first introduced to us, and the technologies are still functioning well. Most importantly, together with the team of researchers from UNIMAS, we are still exploring its potential benefits for our interests here in the Highlands. We have faced many challenges and problems. There have been disagreements and arguments among us here in Bario as a result of e-Bario. However, the emphasis on participative processes has provided time and space to discuss and work through our disagreements; something which we did not have with the dam project. It provides flexibility for us to meet and negotiate our different needs and interests. It is also learning by doing, which has made a lot of difference in e-Bario. Unlike the dam project, in which the experts came for a couple of months and left the Highlands never to return, the implementers of e-Bario keep coming back to “walk and talk” through the project process with us. It is not just the technologies that have become part of our life in Bario, but also the researchers themselves have become part of the community. Many people know who they are in the Highlands and vice versa.”

CONCLUSION

Martin’s comments lead me to my concluding remarks in this chapter. The chapter begins with reasons for participative development as an approach to introduce information communication technologies in the Kelabit Highlands before describing the application of these techniques in Bario. In the final part, it highlights some problematic aspects of the approach, as well as its contributions towards a successful development intervention among the Kelabit.

From narratives and observations illustrated above, several lessons for future considerations are offered. First, while the emphasis on local participation and context is not without issues, it does not mean that participative development has become a new tyranny for researchers to advance their agendas and interests in Bario. On the contrary, the use of participative mechanics approach has been a first step towards a more complete understanding of the richness, complexity and interrelatedness of social, cultural life and its vital role in development-induced change such as e-Bario. But the first step must be considered as an expansion of the idea of context beyond the myopic concerns of computers and internet to include historical, political and social situations. There is no substitute to for the rigour of immersion process to enhance and modify participative development in Bario. Besides enabling the research team to explore individual and collective capacities and abilities of villagers in the Highlands (for instance their technical skills, and computer awareness, their aptitude and ability to manage new technologies), the participative techniques have also opened up a social space for the local population and developers to identify, cultivate and establish social relationships both within and beyond the project’s framework.

It is these bonds of trust and obligation, developed and sustained over the longer term, that have allowed the Kelabit and the researchers to work out their social responsibilities to one

another in matters concerning e-Bario. In turn, these social contacts and relations between the Kelabit and researchers-cum-developers became the basis for trust and friendship building, or in Tsing's term collaboration (1999), rather than the usual arm's length relations between developer and recipients of development. These established social relations became the very forums for a continuous engagement and negotiations with challenges that emerged in the ongoing process of e-Bario. e-Bario is consequently quite unlike many development projects, which typically do not provide room for the 'community' to discuss and debate the outcomes of an intervention between themselves and outside developers as well as amongst themselves.

Therefore one other major lessons from the e-Bario process is the roles and values of PAR and immersion process in shifting the focus of the research and development process away from national political actions and policies for development "[which] may not coincide with the perspectives of ordinary people" (King, 1999: 33) on to social relations and grassroots organization. From experiences gained in the Kelabit Highlands, it is clear that the mechanics of participatory methods can be used as catalyst to place priority and value on local people which in turn provides space for individual residents, villages and other community groups to use their creativity and skills to negotiate the effects of development and change. This is made clear by how e-Bario as a community-based development project, instead of just creating tension and conflict in Kelabit's internal power and asset struggles, has been largely remodelled by community members to adhere to the ideas of group solidarity and shared benefits. All this is because of local participation and the bottom-up approach employed in the implementation of technologies.

These kinds of emphases and experiences in the e-Bario process resonate well with the call of Amartya Sen (1998 [1987]), an economist and ethicist. He proposes an approach to economics

and processes of development that focuses on human agency and social opportunities rather than on mega-structures such as markets or governments. By placing people as main actors at centre-stage, the process of development can empower them to participate in the decisions that shape their lives. As can be seen from the experiences of the Bario community with the e-Bario project, local residents and communities can become agents of development and change, rather than recipients or victims of failed development interventions. Nonetheless, it is important to note, this lesson of putting people and their social relations at the centre of development practices need to be investigated rigorously in other places and social contexts to ensure its replicability as an approach for ICT-enabled rural developments in different parts of the world.

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ENDNOTES

¹ (http://www.unesco.org/culture/development/briefings/html_eng/forword.shtml.

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² According to Chambers (1997) PAR is a diverse and loose methodology combining action, reflection and participation as the basis for exploring research and development, with the following ideas as guidelines:

1. professionals should reflect critically on their concepts, values, behaviours and methods;
2. they should learn through engagement and committed action;
3. they have roles as convenors, catalysts and facilitators;
4. the weak and marginalised can and should be empowered;
5. poor people can and should do much of their own investigation, analysis and planning.

APPENDIX

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