

Challenges for Sustainable Rural Networking in Solomon Islands; The People First Network

David Leeming

People First Network

Rural Development Volunteers Association

P.O. Box 919, Honiara, Solomon Islands

leeming@pipolfastaem.gov.sb

Abstract

This paper describes an innovative approach to connectivity for remote, rural and underprivileged communities in Solomon Islands. The People First Network, or PFnet, was established by UNDP in 2001 but is now organised as an activity of the not-for-profit Rural Development Volunteers Association (RDVA). PFnet has piloted a model for sustainable community-owned rural access based on wireless networking in the HF band, with capacity building and facilitation of information sharing and rural networking for stakeholders in rural development and peace building. The paper focuses on the challenges the project faces in helping various groups within the rural communities to creatively overcome problems such as low bandwidth, extreme cost of Internet access, geographic and economic constraints and lack of political will and awareness.

Background

In a country such as Solomon Islands, which is recovering from ethnic conflict, good communications are a vital part of rebuilding peace. Furthermore, as 85% of the country's people live in isolated rural villages on undeveloped outer islands, it is essential to find ways to engage these disadvantaged poor in the new Information Society. The People First Network (PFnet) [1] is a project that aims to do just this.

PFnet, which has been running since early 2001, aims to promote and facilitate equitable and sustainable rural development and peace building by enabling better information sharing and knowledge building among and across communities forming the Solomon Islands. The project has established a wireless email network based on sustainable community ownership and is now working with partners to develop applications in many sectors, including distance education, farmer's networking, grassroots news, business and market advisory, consultations on constitutional and policing reform, rights awareness and women's networking.

Those embracing ICT in the service of development can expect many benefits. In small-island developing states such as Solomon Islands, however, there are many constraints and challenges to be faced if ICT is to be introduced widely. Some of these challenges are "hard"; i.e. the geography, the regional telecommunications market, lack of infrastructure, etc. Others are "soft", in that they are related to lack of awareness, training and appropriate guidance and strategy for policy makers. These problems have been compounded by years of ethnic conflict and economic collapse, culminating in an Australian-led intervention in June 2003.

This paper illustrates some of the constraints and challenges PFnet faces and highlights both the practical solutions and the needs to be addressed.

Geographic constraints on technology

Solomon Islands has over a hundred inhabited islands spread over a huge area of the southwestern Pacific. 85% percent of the population live in isolated rural villages, most of which have no power supplies or telephones. Most islands are mountainous and customary

land ownership compounded by the effects of civil unrest make infrastructure vulnerable to vandalism, theft and closure due to compensation claims. The high cost of satellite access prescribes wireless technology as the only practical, affordable solution for rural communities. However, the distances and terrain make high-speed wireless connection (VHF, 802.11) of use in only certain areas close to urban centres. The low bandwidth is particularly vulnerable to denial caused by spam and virus activity.

PFnet has developed a solution utilising the HF (SW) band, with Pactor-3 modems and solar power. The downside is that all but the latest military-aviation HF systems are slow (2kbps) and point-to-point only, with no full Internet capability. HF modems and software are still in the specialist market and are very expensive. It is necessary to creatively manage these limitations. Web for mail systems have proved themselves. PFnet has compared three services; GetWeb, WWW4MAIL and TEK [2].

Usability is an issue. Unskilled operators are unable to grasp command line operation and syntax, and because they have not previously used the Internet, they are unable to conceptualise web navigation and architecture. This makes searching very difficult. However, for retrieving content for specific URLs, they are very quick and effective. For example, retrieving the latest cyclone updates from the Joint Typhoon Warning Centre. For sheer usability, TEK is an excellent system that has added a whole magnitude of utility to the PFnet rural stations. TEK runs in a browser, returns 10-15 results pages in a single compressed file, remembers requests and avoids repetition and builds up a local searchable archive. Examples of usage during a recent deployment included seaweed farmers who were able to receive appropriate market information and information concerning counterparts in neighbouring countries and a head teacher who obtained highly relevant information on the environmental impacts of logging in Papua New Guinea for class preparation.

Issues concerning access

The disintermediation process does, however, bring new challenges. New Internet users may be unable to filter information reliably, and are vulnerable to security risks such as “419 advance payment” fraud. PFnet advises owners of applications using the network to help their rural partners to filter information and give guidance on choice of keywords. The new direct access is strongly welcomed by rural communities but it is clear there will always be a place for technical intermediaries especially concerning specific applications with their associated user groups.

In 2002, PFnet ran trials to facilitate the delivery of distance education modules to students in a remote rural village [3]. The trials proved the utility of the technology and demonstrated the improvements in turnaround and student-tutor relationship, which resulted in significantly improved marks over even the urban students who did not use ICT to study. Difficulties in identifying, locating and accessing supporting material emerged as a major issue. When relevant scientific papers were tracked down, it often required contact with the author, and quite often the material was only available in paper form. It would have helped the students and tutors greatly to have access to a standardised online catalogue of relevant scientific and academic research material with content made available in a standardised electronic format with options for low-bandwidth users. An archiving system based on CD-ROM with a way of updating the contents periodically online would provide a great service in such applications. The author has not verified if such systems and standards already exist.

Issues concerning Sustainability

With no government financial support and limited core funding, PFnet is required to develop a business arm to support the capacity needed to meet its objectives. This is based on an Internet Centre. However, the cost of Internet access in the region is amongst the highest in the world, a situation not helped by the 15-year monopoly enjoyed by the country's only ISP, to whom 60% of PFnet's revenues currently return.

The Solomon Islands is one of the poorest nations in the Pacific Islands outranked only by Kiribati [4]. Rural enterprise is constrained by lack of access to markets, market information and technical information, limited power supplies and credit facilities compounded by the difficulty in communicating within the country and with overseas. A rural communications system needs to be able to reach these isolated communities and be affordable and accessible to them. Thus far, no commercial operator has been able to find and implement a viable solution to penetrate the rural areas where the majority of the population live.

Once established, the HF radio email network used by PFnet has low running costs (notably no per minute charges are passed on to the rural stations). The revenues are thereafter utilised entirely to pay a volunteer an allowance to operate the facility, plus consumables. Long term equipment costs are shared between the management committees and PFnet, who both receive a fixed proportion of revenues above a certain minimum threshold value, which are saved in a maintenance fund. The rural email network does not require expensive connectivity and is therefore almost fully sustainable. However, until the project matures it is uncertain if the other "added value" development services (information sharing, capacity building for rural networking, etc.) can be sustainable with no government or donor support.

More generally, if the goal of the WSIS [5] for all communities to join the "Information Society" is to be achieved by 2015, there will have to be further intervention by government and/or donor-assisted programmes to address this "digital divide". More support for interventions addressing these issues is required, alongside actions to ensure a fairer market. One idea which should be revisited is the attempt by VITA [6] to create a "humanitarian bandwidth pool", which would divert unused commercial satellite capacity to non-profit users who would otherwise have no affordable access.

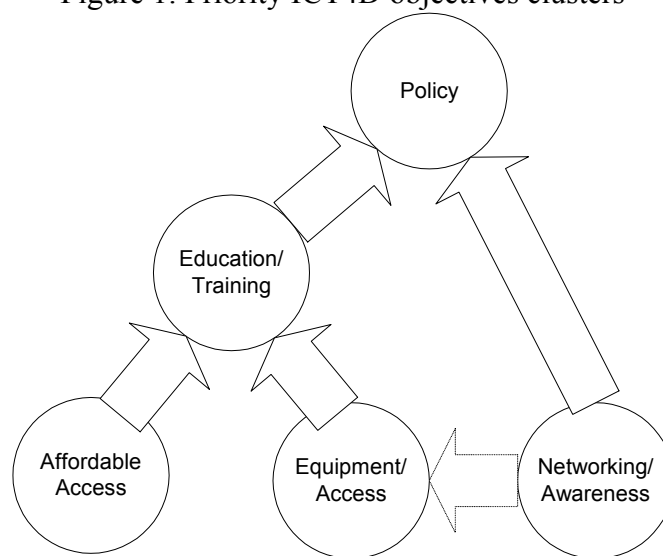
Lack of a National ICT Strategy.

Ideally, the incorporation of ICT in policy making should be guided by such a strategy if the benefits described by UNDP [7] and others are to be enjoyed. In Solomon Islands there is no such strategy in place, although the government has participated in the drafting of a regional plan [8]. Because of the cross-cutting nature of PFnet, the project has particularly noticed the lack of focus and haphazard way in which ICT is utilised by the government and development partners alike. Lack of awareness of ICT and its potential role in national development, together with lack of ICT skills seriously hinders the appropriation of these useful new technologies at policy-making levels. Coming and going of political personalities and public servants who may or may not be briefed on ICT4D issues has affected the level of support which the project expects from its government partners.

In order to address this, in February 2003 a workshop [9] was held for stakeholders to identify, analyse and prioritise objectives on national issues related to ICT for Development (ICT4D). The workshop built consensus and was intended as the first step towards the development of a National ICT Strategy. Attendees included government workers including a

Minister, members of NGOs, the private sector, donor agencies and civil society organisations. The workshop used Object Oriented Project Planning (OOPP) to build a “problem tree” by identifying all the reasons why ICT is not widely utilised in the service of development. The associated “objectives tree” was then mapped and five major clusters identified, whose relationship is illustrated in Figure 1. The diagram shows that, if ICT is to be considered and used to best effect within government policies and development strategy, there is a need to first address the underlying issues. It does not mean that no policy development can incorporate ICT before these objectives are realized, but the impacts will be less and more isolated and haphazard in nature.

Figure 1: Priority ICT4D objectives clusters



The final report of the workshop has been published [9] and is intended to provide guidance for policy makers. A steering group [9] will follow up the workshop and will be strengthened through the regional e-Pacifika program [10], which is building the capacity of regional countries to develop ICT strategies.

Need for more Research

In the interest of replication and understanding of best practice, there is a need to understand more closely the social impacts of such interventions as PFnet. In the Solomon Islands, a research collaboration [11] will in Nov 2003 study five representative rural villages connected by PFnet and will also identify the factors affecting uptake and appropriation by the target communities. The results, which should be published in June 2004, will give replication projects guidance on how to improve the targeting of their interventions.

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- [11] University of the South Pacific, funded by JICA, contact Dr. Anand Chand, chand_a@usp.ac.fj