

RURAL DEVELOPMENT FORESTRY NETWORK

Sustainable Forestry and Chainsawmills in Vanuatu

Stephen Wyatt

The Use of Small Portable Sawmills in Forest Management in Papua New Guinea

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Stephen Wyatt

Introduction

‘Wokabaut Somils’ have developed in Melanesia over the last decade as community-based alternatives to the hugely destructive logging practices frequently employed by foreign companies. Beginning in PNG in 1980, and in the Solomon Islands in 1986, this option was introduced to Vanuatu in 1990 through a joint Government-NGO initiative.

In Vanuatu, the Department of Forests and the Foundation for the Peoples of the South Pacific cooperated in establishing a programme of promotion, assistance, training and support to promote wokabaut somils as a way of sustainable timber harvesting. However, as the programme developed during 1992 and 1993, a number of problems became apparent.

The solution to these problems was to change both the technology, and the approach. Wokabaut somils were replaced with smaller chainsawmills as being more appropriate to the situation in Vanuatu. The approach was changed from one centred on the wokabaut somil owners, to a broader community-based one incorporating environmental awareness, participatory resource management planning, and assistance to implement such plans. The role of timber production within the project is still an important one, but it is now only one of a range of tools that may be appropriate to a community’s needs.

This paper describes the situation and challenges faced in this project, and the way in which the project has had to change in order to address these issues.

Vanuatu – its People and Forests

Vanuatu is an island nation located in the South-West Pacific, between Papua New Guinea and Fiji (see Figure 1). Culturally it is Melanesian, and there are many similarities with its neighbours, Papua New Guinea and the Solomon Islands. Vanuatu is the smallest of the three countries with a land area of about 1.2 million hectares comprising approximately 80 islands, most of which are volcanic in origin. The population is 170,000, of whom about 80% live in rural villages and are mainly engaged in subsistence agriculture or ‘gardening’. The Vanuatu Constitution, adopted when the country became independent in 1980, provides that almost all land is held under traditional systems of land tenure and cannot be sold. Investors and developers, and indeed the Government itself, can only lease land for periods of up to 75 years.

Vanuatu’s forest resources were quantified in the early 1990s by a National Forest Inventory carried out with overseas assistance. This study found an estimated 117,000 ha of natural forest (about 10% of land area), not all of which was suitable for commercial timber production. The sustainable yield from the natural forests was calculated as being between 38,000 and 52,000 m³ per year (Incoll, 1994). Current annual logged volume is between 25,000 and 30,000 m³, with Government policy requiring that all logs be sawn in the country. However, current Government commitments to the logging companies mean that future logging could be many times more than the sustainable yield.

The large-scale export logging industries that have come to dominate forestry in PNG and Solomon Islands have only recently arrived in Vanuatu, probably because of the much smaller forest resources of the country. Since 1993, several Asian based companies have been attempting to start large-scale logging operations, but so far their activities have been slowed down by a mix of Government policy, landowner actions and international concern.

However, the situation in these two neighbouring countries has served as a grim reminder to people, non-governmental organisations (NGOs) and Government in Vanuatu of what can happen to their forest resources. It was in response to this situation that, in 1989, the Vanuatu Department of Forests (DoF) and the Foundation for the Peoples of the South Pacific (FSP), an international NGO working in all three Melanesian countries, started planning the introduction of wokabaut somils into Vanuatu.



Figure 1: Map showing location of Vanuatu in the South-West Pacific.

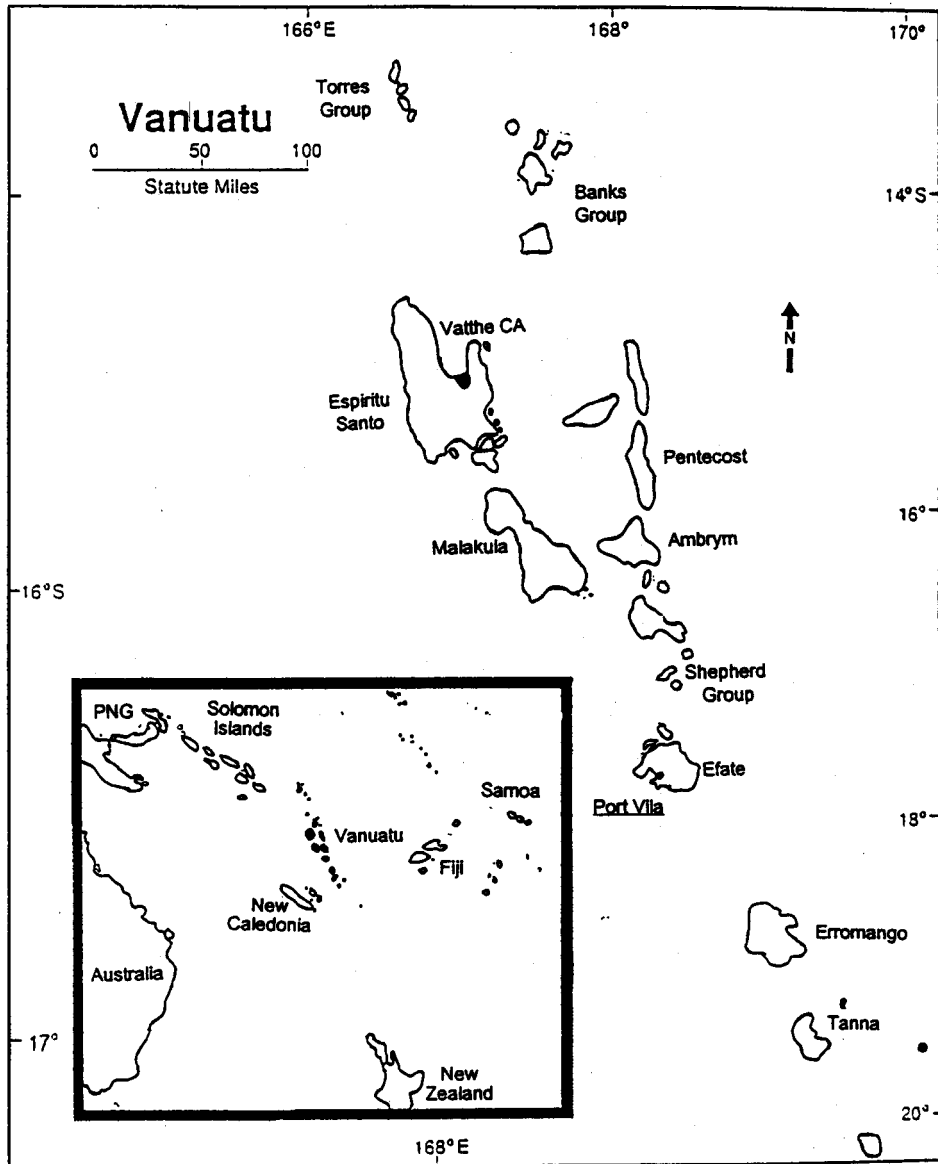


Figure 1: Map showing location of Vanuatu in the South-West Pacific.

The Small Sawmilling Solution

FSP has been involved in the development and promotion of small-scale sawmilling since 1980 through its wokabout somil activities in Papua New Guinea. In 1986 the technology was transferred to the Solomon Islands following Cyclone Namu, and then in 1990 to Vanuatu. Small-scale sawmilling basically aims to meet several needs:

- ! To encourage rural development by using small sawmills in rural forest areas to convert timber at site, thereby creating additional employment, producing a higher value product, and providing timber products for local requirements.
- ! To avoid the impacts of large-scale logging operations by enabling forest owners to generate income from small area/high value sawmilling, rather than large area/low value logging.
- ! To promote sustainable forest management by giving forest owners an increased appreciation of the timber and non-timber values of their forests, and providing a means of effective management of these forests.

In 1990 FSP and the DoF, together with several other NGOs and government agencies, established a joint project – the Vanuatu Small-scale Sawmill Programme (VSSP). The project then brought in a wokabout somil to conduct demonstrations around the country. VSSP's focus was on promoting sustainable harvesting of forests using the wokabout somil as an alternative to large-scale logging. Not surprisingly, this generated a great deal of interest, with many individuals and community groups expressing a desire to obtain such a sawmill to cut their own timber. VSSP assisted in sourcing finance through the government-owned Development Bank, carried out training in sawmilling, forest management, timber marketing and other skills, and provided extensive post-training support in mechanics, spare parts and marketing advice. The project was modelled on FSP's previous experiences in Papua New Guinea and the Solomon Islands, which showed the need for extensive and well-integrated development and support of small sawmills if they were to succeed as a new industry.

Problems Encountered

The project had good initial successes as small sawmills were established, operators trained, and requests for new sawmills outstripped the project's ability to provide them. However, during the course of 1992 and early 1993 a number of problems developed. These can be divided into institutional issues, the character of Vanuatu's forests, and operational problems.

Box 1 The Vanuatu Small-scale Sawmill Programme (VSSP): A Case Study of Government – NGO Conflicts

The VSSP partnership between the Department of Forests and FSP presents an interesting case study in the dynamics of a joint partnership between Government and an NGO. The partnership began well with both agencies providing funds and support, and establishing a project Management Committee with other Government agencies and NGOs to guide the project's activities. Then in 1992, FSP was able to attract major support from the European Community, and became the sole grant holder, thus changing the balance of power in the partnership. In early 1993, a political decision was made, without consultation with the Management Committee, that the DoF should assume sole responsibility for VSSP. This was despite advice from the donors that the funding could not be transferred to a solely Government project. As a result of this, the VSSP partnership broke up, the Committee was disbanded and FSP and the DoF no longer had any formal contacts – although informal co-operation continued.

With the benefit of hindsight, staff of both DoF and FSP have been able to identify several problems that contributed to the breakup of the VSSP:

- ! different perceptions of the role of the project;
- ! lack of written agreement on the role and inputs of each organisation within the partnership;
- ! control of finances resting with FSP and the Management Committee, and not with the DoF;
- ! failure to communicate effectively;
- ! political interference in project activities.

The experience of VSSP shows that joint projects between Government agencies and NGOs need to be based on clearly understood roles, rights and responsibilities for each partner, and that these need to be defined and agreed at the beginning of the project. Even so, there will probably still be differences and difficulties. Identification and resolution of conflicts requires good communication, both at a formal level (between directors), and at the operational level (between staff). FSP and the DoF are once again in a co-operative relationship, and it is hoped that this experience will assist other agencies who are working closely together in implementing projects.

Summarised from Matthias *et al.* (1994)

Institutional issues

- ! An external review of the project in early 1992 noted that the project had concentrated on sawmill training, and was not sufficiently addressing sustainable forestry. The review recommended greater development of the environmental and social components, either by the project itself or in association with other agencies (Wells & Siwatibau, 1992).
- ! The VSSP partnership between the DoF and FSP was experiencing some friction, and broke up in early 1993, although informal relations remained good (See Box 1).

Character of Vanuatu's forests

- ! Vanuatu has much smaller forest resources than either the Solomon Islands or Papua new Guinea (with sustainable yields of about one tenth and one hundredth respectively). Unlike in these two countries, existing sawmills in Vanuatu already cut 50-80% of the sustainable annual yield, leaving only small volumes for potential export industries.
- ! Land tenure in Vanuatu is based on customary title, but is generally held individually, rather than on a family or clan basis as is the case in PNG and Solomon Islands. Accordingly, it is very difficult to arrange unified management of any significant area of forest.

Operational problems

By mid-1993, only 3 of the 8 small sawmills established under the VSSP were operating with any regularity. All were individually owned sawmills – two being operated by men with previous sawmilling experience, and the third by a businessman (and senior public servant) close to the capital, Port Vila. The low rate of use of the other mills was not due to technical problems, but to a range of other issues, exacerbated by the absence of support services following the breaking up of the VSSP partnership between DoF and FSP. Some of the most important of these operational problems were:

- ! other demands on time for sawmill operators, such as agriculture, family, custom, other business or activities – meaning that mills were only working part-time;
- ! difficulty of operating ‘community’ sawmills, either because of friction within the community, or lack of leadership/responsibility (see Box 2);
- ! different business ethics from those in the North – conducting a business to

meet basic or social needs, rather than to maximise profits;

! local social conflicts – politics, religion, land ownership disputes, or jealousy of someone who was becoming more powerful or richer than others;

! small forest resources, either on the operator's own land, or on that of others.

Given this situation it was apparent that there was a need for a change in the original project design.

Box 2 The Social Impact of Portable Sawmills

One of VSSP's initial goals, and an assumption of the project design, was that most walkabout sawmills would be owned by communities rather than individuals. However, this has not always proved to be the best approach for the operation of sawmills, and there are a large number of related issues. FSP has not been able to prepare a comprehensive analysis of the social impacts that a portable sawmill can have on a village community, but the following are some of the major issues that have become apparent through FSP's experience.

- ! *Portable sawmills can significantly change the balance of power within a community.* Melanesian societies are strongly hierarchical, with variations in rank, power, knowledge and wealth. The arrival of new technology, and associated wealth and knowledge, can upset the traditional structures, and create new tensions. In Vanuatu, this is frequently manifested in increases in land disputes, jealousy and intra-community tensions.
- ! *Portable sawmills can change the use and value of land.* All land in Vanuatu is owned under traditional land tenure systems which generally give 'ownership' to a particular individual, but also allow user rights to the wider community. As the trees on the land acquire a cash value, through either small or large-scale logging, there is often a tendency to exert 'sole ownership', and restrict the rights of use of others.
- ! *Portable sawmills run by communities are generally less successful than those run by individuals.* Out of 4 community-run walkabouts established by VSSP, none are now operating, compared with 3 out of 4 that are privately owned. The situation with community-owned chainsawmills appears to be more encouraging, although complete information is unavailable. It appears that community-run projects suffer either from the lack of strong leadership, or conversely from resentment towards such leadership.

Changing the Solution

In 1992 the VSSP Management Committee recruited a new Project Manager to address the forest management and community issues, while continuing to provide technical training for sawmills. In early 1993, the VSSP partnership broke up, and the Department of Forests assumed full responsibility for small sawmilling, but without the staff or resources to carry out any activities. However, the NGO funding remained with FSP, thus providing the opportunity to redesign the project and activities to address the problems identified above.

Changing the small sawmill solution to fit conditions in Vanuatu required changing both the technology and the approach. This gave rise to a new name for the project – the Community and Environmental Forestry (CEF) project.

Changing the technology

The first change was the replacement of small sawmills with chainsawmills as the project's favoured technology. A chainsawmill is simply a conventional chainsaw mounted on a light frame with a guide rail. The guide rail is placed along the fallen tree, allowing the chainsaw to cut straight and smoothly. A chainsawmill is a much simpler piece of equipment than a small sawmill, and can very easily be carried from tree to tree. In Vanuatu, the cost of setting up a chainsawmill operation is about US\$ 2,000, compared with about US\$ 15,000 for newer kinds of walkabout sawmills (these are improved versions of the original 'wokabout somil'). Importantly, chainsawmills are also proving to be more suitable for the majority of Vanuatu situations than the walkabout.

The chainsawmill cuts much smaller volumes of timber than a walkabout, and is usually used much less intensively. In Vanuatu the generally low forest timber volumes, and the small or fractured land tenures mean that a sawmill operator may only have access to quite small volumes of timber. Chainsawmills therefore have the potential to operate sustainably in areas where walkabouts could not.

The chainsawmill also addresses a number of the operational problems identified above. Being cheaper and more portable than a walkabout, it is more appropriate to the amount of time that rural people have available for timber cutting, and to a different business ethic. It is within the purchasing ability of individuals (as well as communities) and hence becomes the tool and responsibility of a single person. The equipment can easily be carried home at the end of the day rather than being

left in the forest. This is a major advantage if the operator is not sure when he will next be able to work, or is worried about vandalism or theft. Equally important is that if social conflicts arise, such as jealousy or land disputes, the equipment can be removed until the situation is resolved.

However, it should also be acknowledged that chainsawmills are not generally a suitable tool for production of significant quantities of timber, or for a full-time sawmilling business. This should rightly be the role of a walkabout sawmill, with a more efficient engine and sawing system. Chainsawmill operators who have expanded to a larger sawmill have found that their chainsawmill was a valuable learning tool, the experience from which significantly contributed to the success of the larger business.

However, in Vanuatu, most chainsawmill operators have not expanded to walkabouts, while some of those who started with walkabouts have 'down-sized' to chainsawmills. This could be due to lack of resources, to absence of facilities or technical support, or it may simply be because operators feel that their needs are being met by the smaller machine.

Changing the approach

Following the 1992 evaluation and the appointment of a forester as project manager, two factors became apparent. Firstly, small sawmills in themselves did not automatically result in sustainable forestry, and secondly, short-term sawmill training courses were not an appropriate way of teaching forest management. It was necessary to find an alternative method to achieve the sustainable forestry objectives of the project.

As land is owned by individuals, and used by the wider community, forest management needs to be addressed at a community level. Reaching the wider community with forestry messages began in early 1993 by conducting public meetings in conjunction with small sawmill courses. These focussed on general environmental awareness and discussion of local environmental issues or problems. It was assumed that, where forestry issues were of concern to local people, they would be raised during environmental discussions. If forestry issues were not identified then presumably (though not always) they were of less concern to the community.

Environmental awareness programmes were greatly assisted by the growing demand for chainsawmill training in Vanuatu. In its early stages VSSP/CEF had established the principle of responding to requests. The project would not 'seek out' sites for activities, but would respond only to requests for assistance. Chainsaw training was much sought after in rural areas with more requests than it was possible to meet. Priority was given to those areas where forest resources were likely to be an important local issue. CEF was able, therefore, to use the requests for chainsawmill training as an opportunity to conduct environmental awareness programmes in nearby villages. The chainsawmill course provided both publicity and an effective focus for the meetings, resulting in better attendance than those not held in conjunction with a training course. During 1993 and 1994, some 5,000 people attended CEF meetings or activities.

The great majority of villages hosting meetings thanked the CEF team for coming, and then there was no further contact. However, a small minority of villages found the discussions with the CEF team most interesting and important, and subsequently contacted CEF for further assistance or training. It appears that 'one-off' meetings on environmental issues rarely have immediate effects, although they contribute to a general awareness and may serve as the basis for future activities.

These villages, or communities of more than one village, were encouraged to accept a resource planning exercise as a first step in order to identify the important issues – forestry or others. Workshops used basic participatory planning techniques such as group discussions (usually gender segregated), problem identification and analysis and the development of community action plans. Subsequently Participatory Rural Appraisal (PRA) tools were included. The community action plans identified actions that the community could undertake with their own resources, and those which needed outside assistance. CEF then tried to arrange this assistance, either through training by CEF staff, or requesting another NGO or government department to provide it.

To summarise, the process that CEF has adopted is to:

- ! use requests for chainsawmill training as an entry to a particular community;
- ! conduct public meetings to raise awareness about environmental issues;
- ! respond to requests for follow-up with community resource planning workshops and the preparation of community action plans; and

- ! provide or assist in identifying providers of training in the skills necessary to put these plans into practice.

Promising Results

The change in technology to chainsawmills appears to be overcoming the operational problems identified earlier. The number of chainsawmill operators around Vanuatu is growing rapidly, and in some areas operators are forming local associations or co-operatives. Timber from chainsawmills and walkabouts is being sold in Vanuatu's two main towns, and is an important way of meeting demand for sawn timber in the other islands. Walkabout sawmills have become readily accepted, and are now being promoted by several agents – a case of one of the original VSSP activities now being taken over by commercial interests. The DoF has recognised the role of chainsawmills and walkabouts, and has incorporated them into forest industry planning and regulations, complementary to large-scale sawmills operating under appropriate controls.

As a result of the change in approach, CEF is now conducting a continued programme of community activities in two areas of the country. The island of Erromango has significant (but not huge) forest resources which are sought after by foreign owned logging companies. Forestry issues are high on the list of community concerns, and training and workshops have been conducted in forest management, population issues (both the impact of increasing population on resources, and family planning methods), leadership and chainsawmilling. Different issues have arisen on several small islands of the Shepherds Group where there is little remaining natural forest – most having been cleared many years ago for coconut plantations. Here the key issue has been the establishment of village tree nurseries of locally important fruit, nut and windbreak species.

The approach of providing information and then carrying out participatory planning is also now being introduced by the DoF as a way of improving landowners' awareness and knowledge about logging operations on their land. Communities are encouraged to identify their local needs, and the role of forests in meeting these. Forestry Officers use this information as a basis for outlining different options for the landowner, and in explaining what is involved in contracts for logging operations.

Other Approaches to Forest Conservation in Vanuatu

CEF is not the only agency involved in promoting forest conservation in Vanuatu. There are several other approaches which should be considered alongside that outlined above, and some of the similarities and differences noted.

In the northern island of Espiritu Santo, the government Environment Unit (with funding through the South Pacific Regional Environment Programme, SPREP) is establishing the Vathe Conservation Area as 'Vanuatu's first National Park'. This has involved an intensive process of community consultation, initially by an expatriate and then by a Vanuatu national, to prepare a management plan for the area. The plan identified ecotourism as one of the income-generating possibilities for the traditional landowners.

In the southern island of Erromango, the DoF has been working for 20 years to establish a Reserve to protect several stands of Vanuatu's largest tree, the kauri (*Agathis macrophylla*). This was finalised in 1995 using a community based participatory approach, facilitated by an Australian researcher (Tacconi, 1994). The land for the Reserve was secured through leasing by the Government, with payments to the landowners being funded by overseas donors. On the island of Malekula the same researcher was able to use participatory tools to establish 'protected areas' without the incentive of lease payments (Tacconi, 1995). The publicity associated with these efforts, together with the rising level of environmental concern, has led to individuals in various parts of the country declaring their own protected areas and reserves.

Probably the most significant common factor in efforts by FSP, the Environment Unit and the DoF is the importance attached to community participation. All initiatives agree that if the area is to be managed for 'conservation' objectives, then ownership of these objectives by the traditional landowners is essential, together with their active support.

There are differences in other respects. Both government agencies have legally defined the areas and prepared detailed written Management Plans, while CEF has relied on community institutions and education and opted for less formal documents (such as community action plans). The effectiveness of these two approaches is yet to be tested. The Environment Unit and CEF have looked at activities which could

generate income for the community (not just the individual), while the DoF in Erromango has concentrated on estimating lease payments to compensate for timber royalties foregone (although acknowledging that income will have to be generated by the community in the future). The two government projects have had staff working primarily on the conservation areas, while CEF has a larger staff who spend most of their time conducting training activities. However, CEF's training requirements have actually proved a benefit to CEF, allowing them to respond to requests from the community, rather than having to 'push' activities in the community to justify the project's existence.

A recent arrival in Vanuatu is Participatory Rural Appraisal (PRA), which was introduced into the Pacific area by FSP and Clark University (USA) in 1994 (Bronson *et al.*, 1995). All the above projects have used and promoted PRA, which is rapidly being adopted as an essential part of any programme or activity in community awareness and development. However, it should be noted that PRA in Vanuatu is undergoing many local variations and building on the wide range of participatory techniques already being used. PRA is a new component in resource management in Vanuatu and further experience will show how effective it has been and where it requires modification for Vanuatu conditions.

Bai Yumi Go Wea Nao? Where to From Here?

'Where to from here?' or '*Bai yumi go wea nao?*' in Vanuatu Bislama – was the title given to the 1992 review of VSSP. Although a lot of progress has been made by FSP and others since that time, it remains a valid question. The establishment of a small sawmilling industry has proceeded, but environmental controls and training have not been sufficient to ensure sustainable forest management.

FSP will continue to support the development of a small sawmilling industry in Vanuatu by providing training and support, fostering local institutions, and assisting the establishment of appropriate markets. Small sawmilling is frequently the only way that local people have of generating reasonable levels of income from their forest resources, given currently existing markets. As such it can be an important interim measure, giving forest-owning communities the time and the money that they need to consider alternatives to large-scale logging.

However, the experience of FSP in Vanuatu, supported by that of the Environment Unit and the DoF, is that sustainable forestry requires more than just the appropriate technology and training in its use. It also requires the participation of the landowning communities in a sequence of steps:

- ! Providing information to the communities through awareness and education programmes;
- ! Assisting communities to identify needs and issues that they face, and how these can be addressed;
- ! Working with the community to prepare Community Action Plans detailing who will undertake specific actions;
- ! Assisting and supporting the community in implementing these actions, providing or identifying outside assistance if this is necessary.

Such a participatory process will probably identify some issues which may not seem to be forestry problems, such as the provision of health facilities. However, these still need to be addressed, perhaps by other agencies. Other matters will clearly be forestry or environmental concerns, such as logging, tree loss, firewood shortages, ecotourism or small-scale timber production. Solutions to all these concerns need to be provided.

VSSP began with a goal to promote sustainable development of forests, although these were not the words used at that time. The tool was to be the wokabout somil, but FSP found that it had to change both the technology and the approach. Small sawmilling is still one of the tools, but FSP has found that this tool needs to be built on a base of awareness and community participation. Chainsawmills alone do not make for sustainable forestry. It is the participation and commitment of the forest-owning communities in planning, and the meeting of their needs that can lead to sustainable development of Vanuatu's forests.

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