

# Improving market access for Vanuatu sawn timber

A description of existing trade and priority activities for the sector

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Client: Department of Foreign Affairs and Trade

ABN: 47 065 634 525

Prepared by

**AECOM Services Pty Ltd**

Level 28, 91 King William Street, Adelaide SA 5000, Australia

T +61 8 7223 5400 F +61 8 7223 5499 www.aecom.com

ABN 46 000 691 690

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## Table of Contents

Acronyms	i
Executive Summary	ii
1.0 Introduction	1
1.1 Report purpose and scope	1
2.0 The sawn timber industry in Vanuatu	2
2.1 Industry structure	2
2.2 Industry scale	5
2.3 Exports of Vanuatu Whitewood	8
2.4 Exports of other hardwoods	10
2.4.1 Sawn timber exports	10
2.4.2 Slab exports	10
2.5 Imports of sawn timber	12
3.0 Industry opportunities and challenges	15
3.1 Lack of industry coordination	15
3.2 Potential for Vanuatu Whitewood	15
3.3 Other hardwoods	18
4.0 Options for improving market access for sawn timber exports	19
4.1 Proposed activities	19
4.2 Next steps	20
5.0 Standard Limitation	21
Appendix A	
Stakeholder consultation	A
Appendix B	
Summary of industry strengths, opportunities, weaknesses and threats	B

## Acronyms

Abbreviation	Description
ACIAR	Australian Centre for International Agricultural Research
AU	Australian Dollar
CIF	Cost, Insurance and Freight
FOB	Free on board
ha	hectare
ISO	International Standards Organisation
PHAMA	Pacific Horticultural and Agricultural Market Access
SPC	Secretariat of the Pacific Community
US	United States Dollar
VDOF	Vanuatu Department of Forests
VT	Vanuatu Vatu

## Executive Summary

The purpose of this report is to provide specific guidance to PHAMA, the Vanuatu Department of Forests (VDOF) and other stakeholders on the priority activities for improving market access for the sawn timber industry in Vanuatu. This report is based on a desktop analysis of recent industry studies and market data, with in-country consultation with industry stakeholders during November 2016 and February 2017.

The sawn timber industry in Vanuatu comprises a diverse range of processing operations, including:

- Timber yards in Port Vila and Santo - some of which have their own sawmill operations, either onsite (small-scale semi-stationary mill configurations such as a Mahoe saw) or portable sawmills (such as a Lucas mill). These yards typically purchase green rough sawn timber from portable sawmillers (either their own operations, or buying from separate community-based producers), as well as importing timber, mainly treated radiata pine from New Zealand;
- One stationary sawmill located at Luganville on Santo - the Melcoffee sawmill is the largest processor and exporter of Vanuatu Whitewood, while also processing other timber species; and
- An array of mobile sawmills (typically Lucas portable sawmills) located across the islands. These portable sawmills are operated by small scale businesses or landholders and farmers, often as part of other farming businesses and interests. These sawmills produce rough sawn timber that is generally then transported (by road or boat) to timber yards in Port Vila or Santo, or the sawmill in Luganville on Santo, for direct sale or further processing.

Total production of sawn timber has been around 10-15 000 cubic metres (m<sup>3</sup>) per year, worth indicatively A\$5-10 million in end-products. Estimating total employment in the industry is limited by lack of any reliable census data. Indicatively, total employment across the processing industry and supply chains in Vanuatu could be in the order of 500-800 people. This estimate excludes the specialist furniture manufacturers and joinery companies; and other downstream consumers such as builders.

Except for the Melcoffee sawmill, timber processing operations in Vanuatu are focussed primarily on domestic markets. There is a high level of demand for construction timbers in Vanuatu, reflecting the economic growth and property development in the main centres of Port Vila and Luganville. In this context, there is minimal interest in pursuing export markets, which are generally perceived to have more onerous requirements in terms of timber grade and continuity of supply, for minimal margin gain.

Regarding sawn timber exports from Vanuatu, there are currently two distinct sets of export activity:

- Vanuatu Whitewood – primarily exports by and through the Melcoffee sawmill at Santo, which has exported sawn and dressed boards, main (rough sawn boards) and moulding products to countries including New Caledonia and Japan over an extended period; and
- Other hardwoods, notably Kohue (Kwila, *Instia* sp.) and Bluewater (Rosewood, *Pterocarpus indicus*) – comprising primarily rough-sawn boards, which is in a formative stage of development and there is minimal trade of sawn timber products at present.

Vanuatu Whitewood provided for a relatively substantive export trade during the 1980s and 1990s, underpinned by sawn timber exports to Japan averaging 2 000 m<sup>3</sup> per year, and over 3 500 m<sup>3</sup> in 1998. At sawn timber prices between US\$650 and US\$1 100/m<sup>3</sup>, the value of sawn timber exports to Japan during that period was in the order of US\$1.5 -2 million per year.

However, the Whitewood forest supply is constrained now by the exhaustion of natural stands following exploitation during the 1980s and 1990s, and the transition time required before the relatively small estate of planted Whitewood (totalling approximately 700 ha, mostly on Santo) reaches maturity. Furthermore, there are impediments to further expansion of the plantation estate, including the lack of 'market pull' through on prices offered by sawmills and timber yards; which is in turn constrained by strong competition from imported pine products, notably treated radiata pine from New Zealand.

As such, Vanuatu Whitewood producers face two key opportunities and challenges. The first is to increase their competitiveness relative to imported pine, to supply local and domestic demand for treated

construction timbers and untreated furniture products. The second is to identify, secure and maintain niche export markets in which Vanuatu Whitewood is preferred – such as those in New Caledonia and Japan, which account for all Whitewood exports currently - indicatively, in the order of 500 m<sup>3</sup> per year.

In the case of other hardwoods, there is minimal trade at present, and limited capacity within the existing industry to pursue the development of export markets. PHAMA is aware of one company now looking to establish a sawn timber export trade that can support a model for smallholder cooperatives across Vanuatu, by providing a premium market for high quality sawn timber products. The target market is Australian timber importers, and the proposition is exporting the highest grade Kohue and Bluewater timbers for a premium price over local markets (indicatively 20-30% higher), while supplying the local market with timbers that do not meet the premium export grade.

This model is yet to be developed and demonstrated, and there is no significant volume of export trade to date. However, it is noteworthy because it represents a Ni-Vanuatu enterprise model for aggregation and coordination of an otherwise fragmented timber supply, and it advocates responsible management of forest resources, through initiatives that include training for sawmill operators, and active regeneration and replanting of native trees after all harvesting operations. This type of operating model will require business management and financial support to achieve a significant scale of operations.

In addition, there is an export operation set up for landholders in Santo to export large slabs of Bluewater (rosewood) to markets in China. In 2016, approximately 1 400 m<sup>3</sup> was exported, worth around VT 43 million (A\$530 000) in total payments. This export trade is not part of the sawn timber industry *per se*, as there is no substantive domestic processing; landholders are currently cutting the Bluewater out in large slabs and then delivering it to the port for loading and export. However, it is noted as export trade relating to timber products, and there may be scope for further processing of these slabs in the future if industry capacity develops to more effectively compete and extract value from this resource.

In summary, the scope for PHAMA to assist the Vanuatu sawn timber industry is limited by the relatively low levels of production capacity and the primary orientation towards domestic markets at present. In this context, it is proposed PHAMA's support should be targeted to specific requirements of existing businesses and programs that are working to support enterprise development relating to international trade in sawn timber products. Two specific initiatives to improve market access and support further investment in responsible management of timber resources are listed below (see Table ES 1).

Subject to further stakeholder input on the proposed activities and resourcing constraints, it is recommended PHAMA, the Vanuatu sawn timber industry and its partners proceed with support for the two immediate priorities, which are enabling activities to improve market access. These activities are:

1. Provide business support functions for industry enterprises seeking to establish market access for sawn timber exports. This support should be directed to enterprises with a demonstrable focus on export-oriented operations, for example:
  - a. emerging cooperative structures that are developing models for improved timber utilisation and value recovery based on accessing export markets that can pay a premium for high quality sawn timber, e.g. high grade Kohue and Bluewater sawn timber boards to New Caledonia or Australia;
  - b. re-establishing access to export markets for Vanuatu Whitewood where it is recognised and valued for its special wood properties, e.g. boards and mouldings to New Caledonia and Japan.
2. Explore opportunities to provide support to ACIAR-led projects relating to enhancing returns from high-value agroforestry species in Vanuatu, and processing systems for small-diameter Whitewood, potentially through reviewing the program scope relating to market access opportunities.

The industry's response to and support for these activities will provide important feedback on the level of industry interest in collaborative efforts, and the potential for market access benefits to arise from providing further program support. Additional support could include scope for collaborating with the VDOF, and potentially ACIAR, to convene an industry development workshop on sawn timber exports, to provide broader support for local interests and share PHAMA insights and experience with market access challenges for different commodity products.

Table ES 1 Proposed activities to improve market access for the Vanuatu sawn timber industry

Proposed activities	Market access benefits	Potential next steps
<p>1. Provide specific business support functions, on request, to industry enterprises with the capacity to either establish or improve market access for sawn timber exports, notably for:</p> <p>a. high grade Kohue and Bluewater sawn boards</p> <p>b. Whitewood boards and mouldings</p>	<ul style="list-style-type: none"> <li>Enhance prospects for establishing export markets for high grade timbers, where business plans exist that require support, such as technical expertise or assistance with applications for grants and loans, introduction to buyers and trade missions</li> <li>Support the further development of cooperative models that can better coordinate timber harvest and milling operations and aggregate supply for downstream processors</li> <li>Build on PHAMA's work with market access challenges for the sawn timber industry in other countries (e.g. Solomon Islands)</li> </ul>	<ul style="list-style-type: none"> <li>On request, provide business management support to specific market access initiatives, in accordance with PHAMA scope and broader range of activities in Vanuatu</li> <li>Faciliate linkages with other programs or institutions that may offer support that is more aligned with specific industry requirements</li> <li>If interest from businesses is sufficiently high, an industry workshop on timber exports could be convened to provide support for local interests and share PHAMA insights into market access challenges for different products.</li> </ul>
<p>2. Explore opportunities to provide support to the ACIAR-led projects relating to processing systems for small-diameter Whitewood, and enhancing returns from high-value agroforestry species in Vanuatu, potentially through engaging directly on the program scope relating to markets and market testing</p>	<ul style="list-style-type: none"> <li>Build on ongoing ACIAR work to ensure smallholder activities relating to Whitewood and other timber products are closely aligned with market requirements and opportunities</li> <li>Support ongoing ACIAR work on the further development of local capacity for treatment of Whitewood, to more effectively compete with imported pine in domestic markets in the first instance, and potentially improve market access to niche export markets, subject to resource availability</li> </ul>	<ul style="list-style-type: none"> <li>Engage with VDOF on future plans for the ACIAR-led research program on Whitewood development in Vanuatu; specifically the extension or subsequent work to previous studies on processing systems for small-diameter Whitewood (FST/2012/042), and proposed work on enhancing returns from high-value agroforestry species in Vanuatu (under development)</li> <li>Discuss further the alignment of programs and potential for PHAMA support functions that can be managed in Vanuatu</li> </ul>



## 1.0 Introduction

### 1.1 Report purpose and scope

The purpose of this report is to provide specific guidance to PHAMA, the Vanuatu Department of Forests (VDOF) and other stakeholders on the activities that PHAMA could consider supporting to improve market access for the sawn timber industry in Vanuatu.

For this report, the sawn timber industry is defined as entities and individuals that process merchantable timber from natural forests and planted forests, producing sawn timber and value added timber products, for sale in domestic and export markets.

The forest resources underpinning the sawn timber industry in Vanuatu comprises two main groupings of tree species. These are:

1. Vanuatu Whitewood (*Endospermum medullosum*), which is one of Vanuatu's premium native timber species, a priority species for the VDOF; and currently the primary focus for plantations to produce sawn timber; and
2. A range of other tropical hardwoods, which are harvested from native forest resources across the Islands. The primary species for timber harvesting in native forests include Kohue (also known as Natora, Kwila or Merbau, i.e. *Instia bijuga*), Bluewater (Rosewood, *Pterocarpus indicus*) and a range of other species (e.g. Tamanu, *Calophyllum neo-budicum*; Stingwood, *Dysoxylum gaudichaudianum*; and Nakavika, *Syzygium malaccense*).

The scope for this report *excludes* coverage of Vanuatu sandalwood, which is addressed through a separate report for PHAMA.

This report is based on a desktop analysis of recent industry studies and market data, together with in-country consultation with industry stakeholders during November 2016 and January/February 2017. A list of the stakeholders consulted during this study is presented in [Appendix A](#).

The scope of this report for PHAMA is limited to referencing previous studies, and complementing the existing knowledge base with industry consultation and current market data. For example, the structure of the Vanuatu Whitewood sector has been described in various research reports and papers published over recent years. Notable examples include:

- a comprehensive review of the market prospects for Vanuatu Whitewood, with a specific focus on the Japanese market, published in 2009<sup>1</sup>;
- a review of challenges and opportunities for use of Whitewood in export and domestic markets, published in 2012<sup>2</sup>; and
- a further review of the Whitewood value chain in Vanuatu and impediments to development of a plantation -based industry, published in 2015<sup>3</sup>.

Market developments for other native hardwoods have not been addressed in research reports and papers to the same extent. For this reason, this report for PHAMA draws more on industry consultation and available market data to inform the assessment.

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<sup>1</sup> Koko Siga (Fiji) Ltd (2009) *Prospects for Endospermum medullosum (whitewood) from Vanuatu, with particular emphasis on the Japanese market*. Report prepared as part of ACIAR Project Number: FST/2005/089.

<sup>2</sup> Viranamanga, R., Palmer, G. and Glencross, K. (2012) Plantation-grown Whitewood timber in Vanuatu: challenges and opportunities for export and domestic use. *International Forestry Review*, Vol.14(4), 2012.

<sup>3</sup> Viranamanga, R., Glencross, K., Palmer, G., Nichols, J.D. (2015) The Whitewood (*Endospermum medullosum*) Value Chain in Vanuatu and Impediments to Development of a Plantation-based Industry. *Small-scale Forestry*, 14: 139-153.

## 2.0 The sawn timber industry in Vanuatu

### 2.1 Industry structure

The sawn timber industry in Vanuatu comprises a diverse range of timber processing and value adding enterprises, predominantly based on Efate around Port Vila and on Santo. These enterprises source timber from native forest timber harvesting operations across Efate, Santo and other islands. Typically, native forest logs are milled near the point of harvest, using portable sawmills or more basic chainsaw setups, and then transported to Port Vila or Santo in small vessels for further processing and predominantly domestic use.

The sawn timber industry in Vanuatu comprises a diverse range of processing operations, including:

- Timber yards in Port Vila and Santo, some of which have their own sawmill operations, either onsite (small-scale semi-stationary mill configurations such as a Mahoe saw) or portable sawmills (such as a Lucas mill). These yards typically purchase green rough sawn timber from portable sawmillers (their own operations or from multiple community-based producers), as well as importing timber, mainly radiata pine from New Zealand;
- One stationary sawmill located at Luganville, Santo (the Melcoffee sawmill), which is the largest processor and exporter of Vanuatu Whitewood, as well as processing a small range of other timbers;
- A large array of mobile sawmills (mainly Lucas portable sawmills) located across the islands. These portable sawmills are operated by small scale businesses or landholders and farmers, often as part of other farming businesses and interests. These sawmills produce rough sawn timber that is generally then transported (by road or boat) to timber yards in Port Vila or Santo, or the sawmill in Luganville on Santo, for direct sale or further processing.

Regarding Vanuatu Whitewood, the Melcoffee sawmill at Luganville on Santo has been the largest processor and exporter of Whitewood timber. Their log supply has included natural stands and its own plantation logs (from a resource base established within 50 kilometres of the mill on Santo); and the company engages its own staff or local contractors to fell the trees with chainsaws and transport the logs (or in some cases flitches from a portable sawmill operation) to the main mill.

Regarding other hardwoods, most of the harvesting is conducted by local communities, using chainsaws and mobile sawmills (mainly Lucas portable sawmills) to process logs into flitches and boards (see Figure 2-1 and Figure 2-2 below). These are then transported to timber yards in Port Vila or Santo; generally, through supply chains based on previous trade and family/business relationships.

Estimating total employment in the industry is limited by lack of any reliable census data. Indicatively, total employment in the timber yards and sawmills in Port Vila and Luganville is estimated to be in the order of 150-200 people, based on stakeholder consultation conducted for the study. This estimate of jobs excludes the specialist furniture manufacturers and joinery companies; and other downstream consumers such as builders. These enterprises utilise Vanuatu sawn timber, but are not wholly dependent on its supply, as some if not most of it can be replaced by timber imports.

The number of people involved in harvesting and processing of timber in forests is also difficult to quantify, but indicatively could be in the order of an additional 300-600 people across the main islands, based on estimates of the productivity of community based timber harvesting operations and comparing this with the total production of sawn timber in Vanuatu. Stakeholder consultation conducted for this study noted there are existing community-based operations producing approximately 200 m<sup>3</sup> of sawn timber per year. Each community based operation may have 5-6 people with substantive ongoing involvement in the process of harvesting, milling and transporting the timber to downstream markets. Noting the total sawn timber production in Vanuatu is currently in the order of 10 – 15 000 m<sup>3</sup> per year, total employment in harvesting and mobile sawmilling could be 300-600 people.

Therefore, total employment across the sawn timber industry and supply chains in Vanuatu could be in the order of 500-800 people. Based on stakeholder consultation and several mill inspections conducted during this study, the large majority of this employment is male; but not exclusively so.

Figure 2-1 Typical portable mill set up on Efate, processing melek trees on farms



Figure 2-2 Typical portable sawmill setup, with mill crew and supervisory team (plus PHAMA)



Image sources: Indufor

Figure 2-3 A selected range of Vanuatu timbers processed and sold in domestic markets



Figure 2-4 Local furniture production using Vanuatu sawn timbers



Image sources: Indufor

Except for the Melcoffee sawmill, timber processing operations in Vanuatu are focussed primarily on domestic markets. There is a high level of demand for construction timbers in Vanuatu, reflecting the economic growth and property development in the main centres of Port Vila and Luganville. In this context, there is minimal interest in pursuing export markets, which are generally perceived to have more onerous requirements in terms of timber grade and continuity of supply, for minimal margin gain.

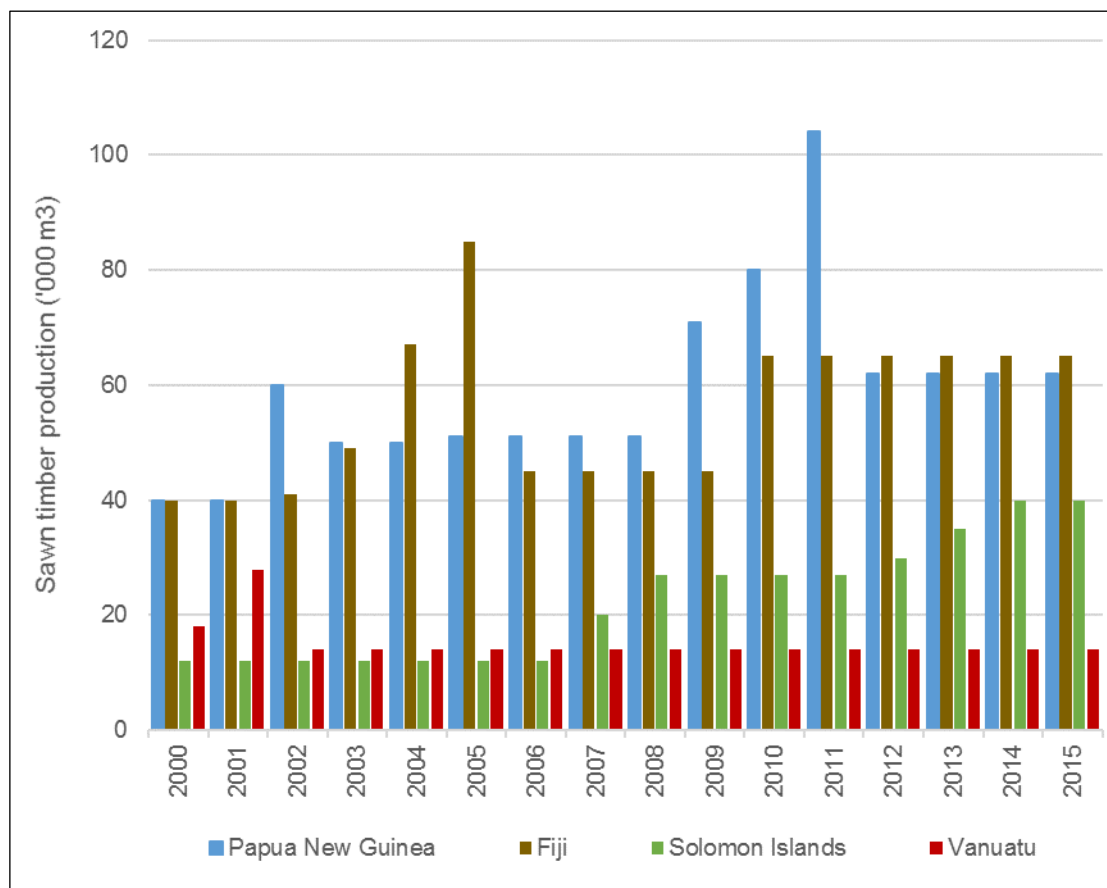
Regarding sawn timber exports from Vanuatu, there are now two distinct sets of export activity, comprising:

- *Vanuatu Whitewood* – primarily exports from the Melcoffee sawmill at Santo, which has exported sawn and dressed boards, main (roughsawn boards) and moulding products to countries including New Caledonia and Japan over an extended period; and
- *Other hardwoods, notably Kohue and Bluewater* – comprising primarily rough-sawn boards, of there is minimal trade at present. In addition, in recent years there has been an increasing level of export sales of Bluewater timber slabs from Santo. These slab exports are arguably outside the scope of this assessment, as they do not constitute sawn timber; however, the trade is outlined below.

## 2.2 Industry scale

Vanuatu's forestry sector and sawn timber industry is smaller than some of the other Pacific nations, notably Papua New Guinea and the Solomon Islands (Figure 2-5); particularly when roundwood log exports are considered. However, the socio-economic contribution of the sawn timber industry remains significant to Vanuatu, and it represents an important component of industry development within major centres such as Port Vila and Santo, as well as more broadly across the islands.

Figure 2-5 Comparison of Vanuatu sawn timber production with other selected countries



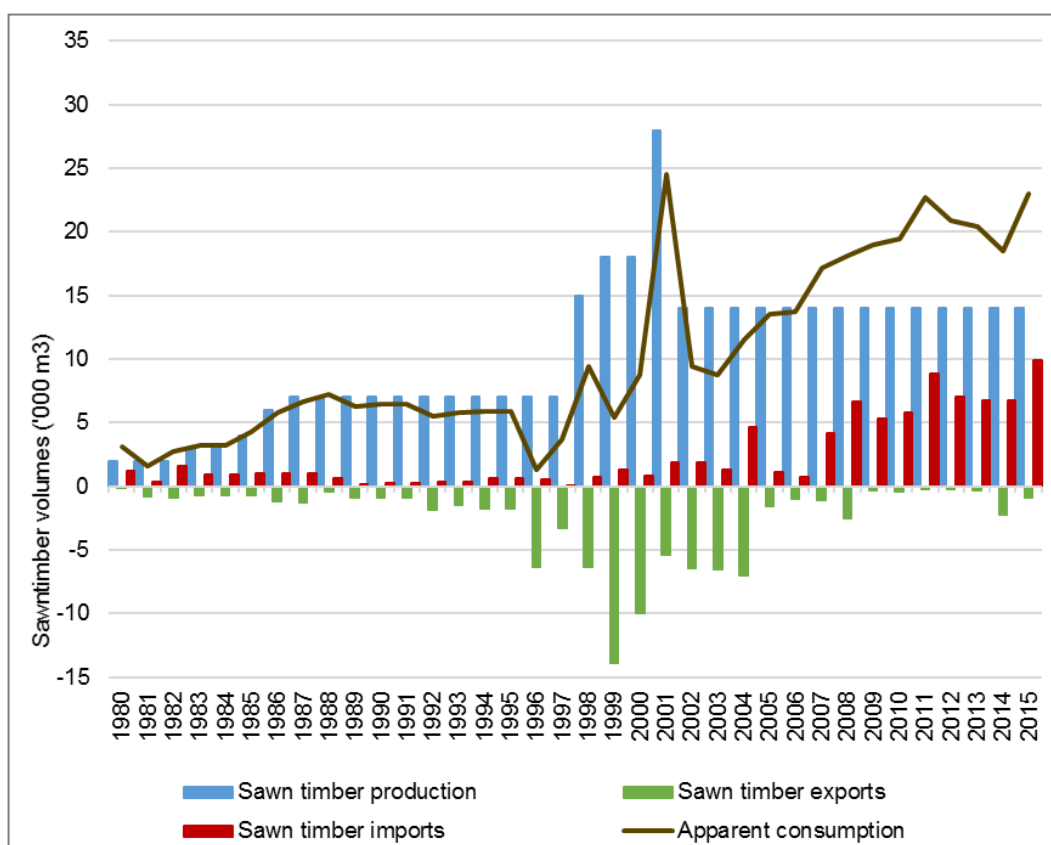
Source: FAO

Detailed production and trade data for the forestry industry in Vanuatu is limited; and for sawn timber production, Indufor has needed to rely largely on FAO's international data collection service to date; with some complementary data from specific research studies on the Whitewood sector, such as those conducted by ACIAR over the past 10 years.

According to FAO Statistics (FAOSTAT), the total production of sawn timber in Vanuatu in 2015 was around 14 000 cubic metres (m<sup>3</sup>)<sup>4</sup>. This data represents a slightly higher level of production than observed during the in-country visits, which suggested current production closer to 10 000 m<sup>3</sup> per year. For this study, it is reasonable to observe that total production levels over the past three years has been around 10 – 15 000 m<sup>3</sup> per year.

A profile of Vanuatu's sawn timber production and exports is set out below (Figure 2-6). In the late 1990s and early 2000s, Vanuatu was largely self-sufficient in timber for domestic construction, and was exporting relatively large quantities of sawn timber, notably to Japan. Since that time, exports have declined and imports of sawn timber have increased steadily.

Figure 2-6 Apparent consumption of sawn timber in Vanuatu, 1980 to 2015



Source: FAOSTAT

Two key factors have contributed to this shift in the trade balance. The first of these was the impact of extensive logging of native forest resources across Vanuatu during the 1980s and 1990s, which largely exhausted the supply of native timber species including Whitewood<sup>5</sup>, and is now constraining supply across a range of other hardwood species.

A recent review by VDOF and Southern Cross University observed that during this period, three Malaysian logging companies entered the country in competition with five existing logging companies, creating a situation of intensive exploitation in which the remaining merchantable volumes of Whitewood in natural stands were removed, and exported mostly as logs, within the space of 15 years<sup>6</sup>.

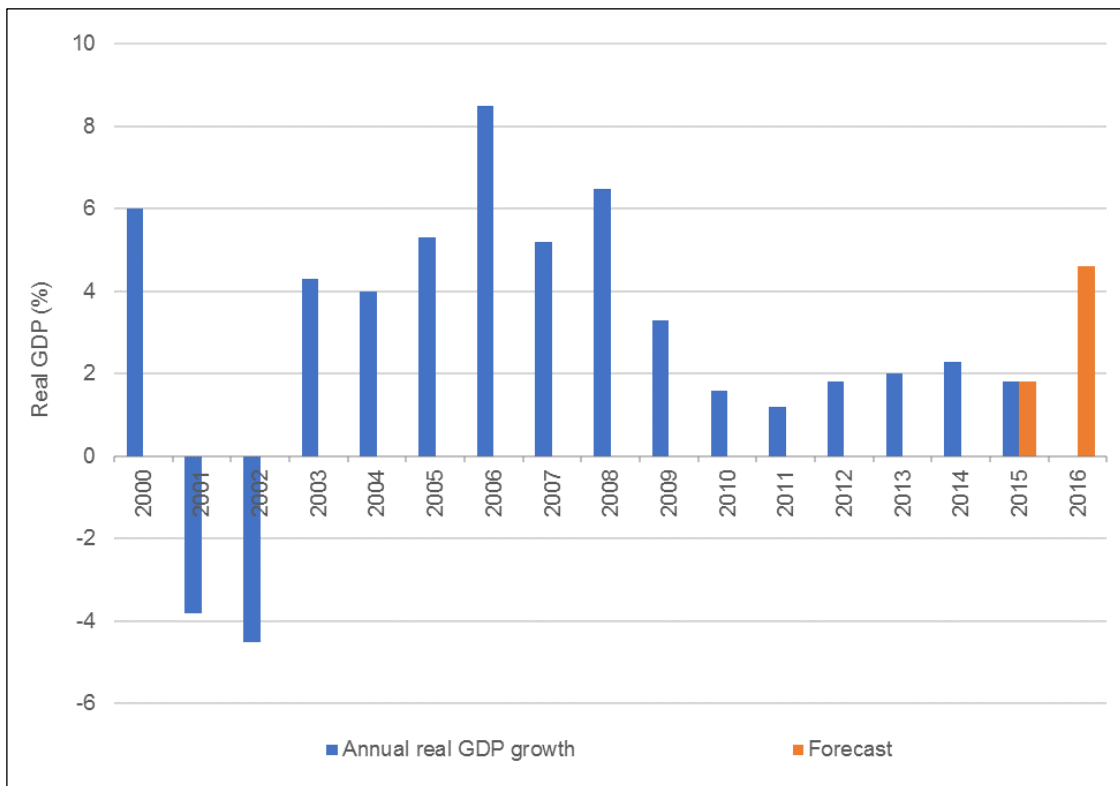
<sup>4</sup> FAOSTAT online database – accessed December 2016.

<sup>5</sup> Koko Siga (Fiji) Ltd. (2009) *ibid.*

<sup>6</sup> Viranamanga et al. (2015) *ibid.*

The second key factor is the economic growth within Vanuatu over the past decade, particularly within and around Port Vila. There has been real GDP growth over most of this period (Figure 2-7), which has created generally strong demand locally for the available supply of sawn timber, and led to increasing imports, notably of New Zealand treated pine for construction purposes.

Figure 2-7 Vanuatu real GDP growth, 2000 to 2016



Source: Reserve Bank of Vanuatu Quarterly reports (various issues)

Vanuatu’s primary export commodities are shown below (Figure 2-8). In the five years between 2011 and 2015, average annual export earnings from copra, coconut oil and kava have *each* ranged between US\$7-11 million in FOB terms, and in total these three commodities have accounted for between 40% and 60% of Vanuatu’s total agricultural products overseas trade.

By comparison, the value of sawn timber exports over the past 10 years has averaged between US\$1.5 - 2 million, or around 3-5% of total export value.<sup>7</sup>

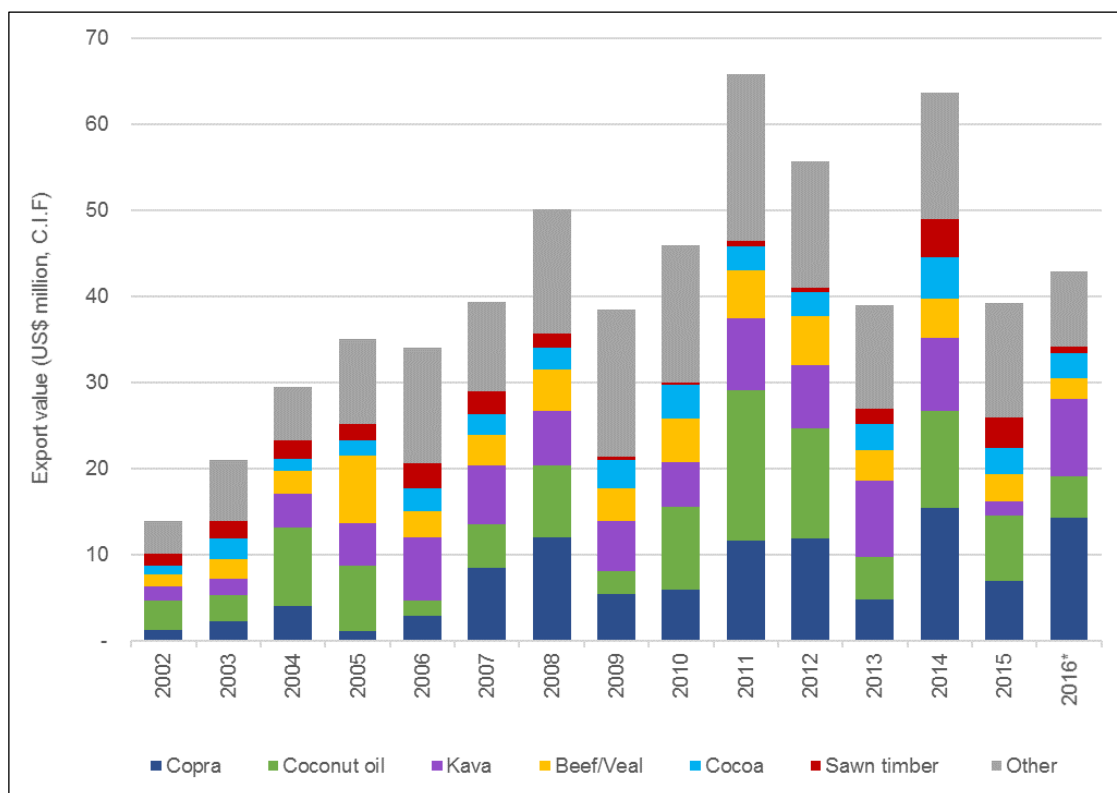
The national statistics indicate the value of sawn timber exports increased in the period between 2013 to 2015. Based on in-country consultation, this can be attributed largely to the recommencement of Whitewood sawn timber exports from Santo, which have waxed and waned over the past 10 years. However, this data does not align neatly with other data sets, notably the Global Trade Atlas records for sawn timber exports. In this regard, the Vanuatu National Statistics Office acknowledges the limitations of data for the forestry sector, stating in its 2014 report:

*“Forestry and fishing has [sic.] shown positive growth overtimes, however lack of data from these two industries were difficult to collect and reconcile with export and final domestic used”.*<sup>8</sup>

<sup>7</sup> Vanuatu National Statistics Office (2014) *ibid*.

<sup>8</sup> Vanuatu National Statistics Office (2014) *ibid*.

Figure 2-8 Export value of selected Vanuatu commodities, 2002 to 2015



Source: Vanuatu National Statistics Office, 2016 (note: data up to October 2016)

## 2.3 Exports of Vanuatu Whitewood

The history of harvesting Vanuatu Whitewood follows the pattern of settlement and development seen elsewhere in the Pacific. Large scale clearing of forests began soon after the arrival of European settlers in the early 1900s, mainly to establish cattle grazing and crops including coconuts, cotton and coffee<sup>9</sup>. Pressure on natural stands of Whitewood continued to grow as Indigenous people changed from traditional small scale shifting cultivation to subsistence farming combined with efforts to earn cash in the new commercial society brought in by settlers.

The early logging tended to target the dense durable timber species, including Kohue and Bluewater; and it was only in the 1980s and early 1990s that the lighter-coloured low density timbers, particularly Whitewood, were discovered to be excellent timber species. At that time, three Malaysian logging companies entered the market and competed with five existing logging companies, which created a situation of exploitation in which most of merchantable volumes of Whitewood in natural stands were harvested within a period of 15 years (mid 1980s to late 1990s)<sup>10</sup>.

As harvesting of Whitewood (and other species) increased towards its peak during the 1990s, Vanuatu producers of Whitewood secured a niche market for mouldings in Japan, where Whitewood was favoured for its weight, appearance and workability.<sup>11</sup> Most of the Whitewood exported to Japan at that time was harvested from native forests and processed by the Melcofee Sawmill Company in Santo into kiln dried material comprising clear boards and finger jointed laminated boards.<sup>12</sup>

<sup>9</sup> Viranamanga, et al. (2015) *ibid.*

<sup>10</sup> Viranamanga, et al. (2015) *ibid.*

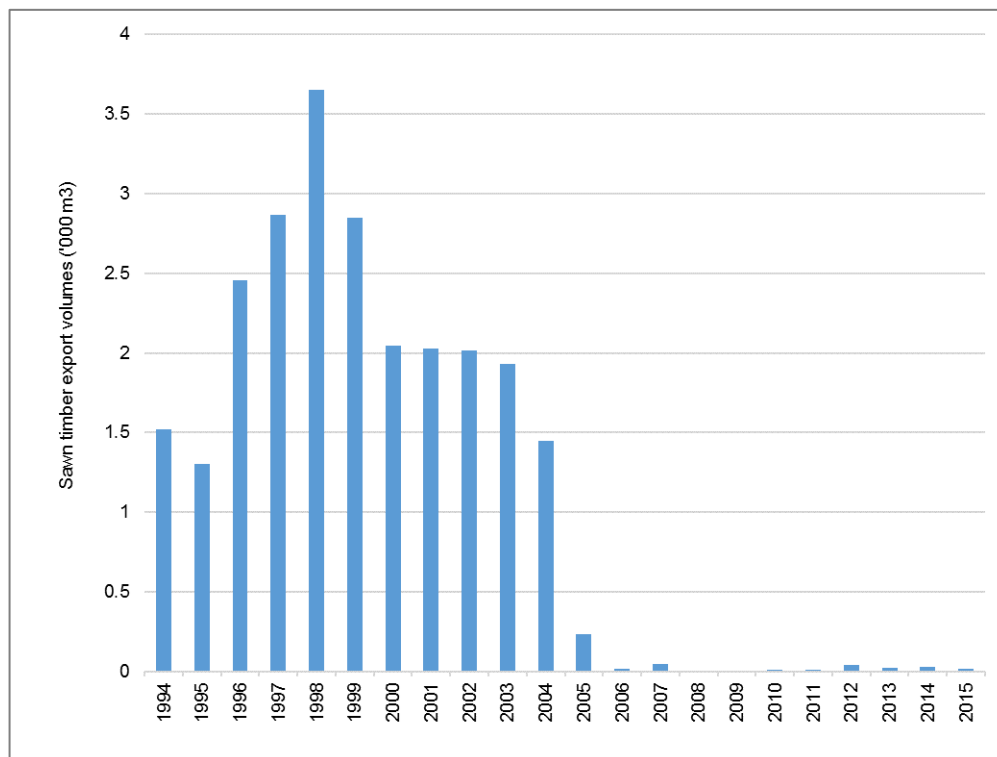
<sup>11</sup> Thomson, L. (2006) *Species profiles for Pacific Island Agroforestry; Endospermum medullosum (Whitewood)*. SPC Forestry Program, Suva, Fiji.

<sup>12</sup> Viranamanga, R., Palmer, G. and Glencross, K. (2012) Plantation-grown Whitewood timber in Vanuatu: challenges and opportunities for export and domestic use. *International Forestry Review*, Vol.14(4), 2012.



This market underpinned sawn timber exports to Japan averaging 2 000 m<sup>3</sup> per year, and over 3 500 m<sup>3</sup> in 1998 (Figure 2-9). At sawn timber prices between US\$650 and US\$1100/m<sup>3</sup>, the value of sawn timber exports to Japan during that period was in the order of US\$1.5 -2 million per year.<sup>13</sup>

Figure 2-9 Vanuatu exports of sawn timber to Japan, 1994 to 2015



Source: Global Trade Atlas

As shown in the chart above, these exports ceased in 2008 and have not returned to a substantial level; although the Melcoffee sawmill is currently exporting rough sawn boards to New Caledonia and Japan at levels that may exceed the data captured by the Global Trade Atlas.

Koko Siga, a Fiji-based agribusiness consulting firm, conducted a review of the prospects for Vanuatu Whitewood in 2009, with specific emphasis on the Japanese market. They reported that imports into Japan stopped largely because of extensive logging particularly on the island of Espiritu Santo and following the suspension of a 2007 pilot reforestation program for Vanuatu Whitewood on Santo.<sup>14</sup> This suggests there were concerns in the Japanese market regarding the sustainability of harvesting Whitewood from native forests and transition to a plantation resource. As noted above, following extensive logging on Santo through the 1980s and 1990s, Vanuatu's accessible Whitewood resource in natural stands is nearly exhausted and there have been much lower levels of exports in recent years.

Since that time, the VDOF and other stakeholders (including ACIAR) have focused on the further development of plantation-grown Whitewood; particularly on Santo but also Efate and other islands<sup>15</sup>. Over the past 15 years, ACIAR has conducted research on the development of Whitewood germplasm, the development of silvicultural practices and processing systems for small-diameter Whitewood logs. Over the past four years, ACIAR has worked closely with selected smallholder farmers and community groups that are growing Whitewood, and establishing semi-regular field days and events to engage these community interests in processing trials and provisional research outcomes.

<sup>13</sup> Viranamanga et al. (2012) *ibid.*

<sup>14</sup> Koko Siga (Fiji) Ltd. (2009) *ibid.*

<sup>15</sup> ACIAR's investments in Vanuatu whitewood have included: the development of whitewood germplasm, conducted under Project numbers FST/2002/078 and FST/2008/010; enhancing knowledge of silvicultural practices, under FST/2007/057; and processing systems for small-diameter whitewood under FS/2012/042.

A Southern Cross University study of the challenges and opportunities for plantation-grown Whitewood timber in Vanuatu observed the total area of plantations was around 730 hectares (ha) in 2012. Most of this area (470 ha) is located on the east coast of Santo (near the Melcoffee sawmill); with the remainder spread across over 250 sites over 12 islands<sup>16</sup>.

While this existing area represents an important base for further development, the quality of the existing plantations is generally considered 'poor', due to limited use of improved genetic stock, and lack of good silvicultural practices during establishment and over the rotation to date<sup>17</sup>. Furthermore, industry research reports suggest a considerably larger-scale resource is needed before significant domestic and export markets can be redeveloped or investment in value-adding process infrastructure can be attracted.<sup>18</sup> Impediments to further expansion of the plantation estate include the lack of 'market pull' through on prices offered by sawmills and timber yards; which is in turn constrained by strong competition from imported pine products, notably the treated radiata pine products from New Zealand.

These factors constitute the main constraints on scope for Vanuatu to re-establish Whitewood exports at levels last seen in the late 1990s. The Melcoffee sawmill is continuing to export sawn timber products to Japan and New Caledonia; and this trade could be supported with specific assistance as required to maintain market access and diversification in the customer base. However, allocating broader support to Vanuatu sawn timber exports needs to account for the relatively small and fragmented resource base underpinning potential supply.

## 2.4 Exports of other hardwoods

### 2.4.1 Sawn timber exports

In the case of other hardwoods, there is minimal trade at present, and limited capacity within the existing industry to pursue the development of export markets. PHAMA is aware of only one company now looking to establish an export trade that will support a model for smallholder cooperatives across Vanuatu, by providing a premium market for high quality sawn timber products. The target market is Australian timber importers, and the proposition is exporting the highest grade Kohue and Bluewater timbers for a premium price over local markets (indicatively 20-30% higher), while supplying the local market with any timbers that do not meet the premium export grade.

This model is yet to be developed and demonstrated, and there is no significant volume of export trade to date. However, it is noteworthy because it represents an Ni-Vanuatu enterprise model for aggregation and coordination of an otherwise fragmented timber supply, and it advocates responsible management of forest resources, through initiatives that include training for sawmill operators, and active regeneration and replanting of native trees after all harvesting operations. This type of model will require business management and financial support to achieve a significant scale of operations. There will also be a need to develop familiarity with and understanding of importing customers and market expectations for quality and contracting and delivery arrangements.

### 2.4.2 Slab exports

In addition to this emerging model for increased sawn timber exports through grower cooperatives, there is currently an active export operation set up for landholders in Santo to export large 'slabs' (essentially large squared logs) of Bluewater (Rosewood) to markets in China (Figure 2-10 and Figure 2-11 below). In 2016, approximately 1,400 m<sup>3</sup> was exported, worth around VT 43 million (A\$530 000) in total payments. This export trade is not part of the sawn timber industry *per se*, as there is no substantive domestic processing. Landholders are currently cutting the Bluewater out in large slabs and then delivering it to the port for loading and export. However, it is noted as export trade relating to timber products, and there may be scope for further processing of these slabs in the future if industry capacity develops further to more effectively compete and extract value from this resource.

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<sup>16</sup> Viranamanga et al. (2012) *ibid*.

<sup>17</sup> Koko Siga (Fiji) Ltd. (2009) *ibid*. Note: Koko Siga referred specifically to "current plantation practices" as "generally poor". Indufor concurs with this view, based on observations during brief field inspections, January 2017.

<sup>18</sup> Viranamanga et al. (2012) *ibid*.

The VDOF has advised that its Regional Managers approached most timber yards in Santo and Port Vila during 2016 to inquire about their interest in purchasing and processing these slabs; and in broad terms, the VDOF found a lack of interest due to perceptions of poor quality and challenges associated with transporting, processing the slabs and achieving a reasonable recovery and return. As a result, the VDOF has facilitated the sale of these slabs by smallholder farmers, directly to exporters, who are understood to be sending the containers to China.

**Figure 2-10 Bluewater (Rosewood) slabs harvested and presented by smallholder farmers for export**



**Figure 2-11 Bluewater (Rosewood) slabs loaded into container in readiness for shipping to China**

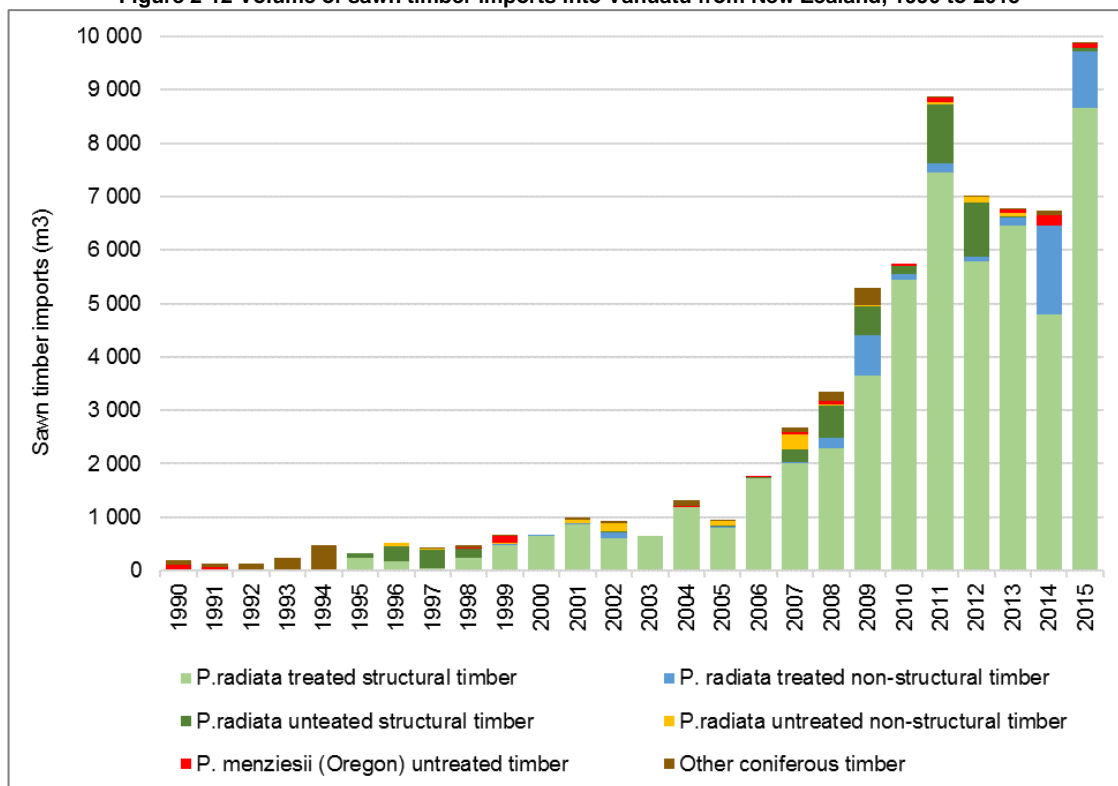


Image sources: Indufor

## 2.5 Imports of sawn timber

While Vanuatu's sawn timber exports have fallen away, there has been increasing imports; most significantly, treated pine from New Zealand, as show below (Figure 2-12).

Figure 2-12 Volume of sawn timber imports into Vanuatu from New Zealand, 1990 to 2015



Source: Global Trade Atlas

There are multiple factors contributing to this demand for imported pine. It is generally supplied kiln dried, dressed and in standard 6-metre lengths, providing a stable and easily handled product; and it is readily available (unlimited quantities) and can be delivered to project sites by hardware stores<sup>19</sup>. Trade data from the Global Trade Atlas shows the imported New Zealand timber is mostly structural grade (potentially low grade structural) and preservative treated (Figure 2-12).

Furthermore, treated pine from New Zealand provides an assurance of durability that untreated Whitewood cannot match; a consequence of Whitewood treatment aimed at preventing degrade during trade, rather than during service.<sup>20</sup> Most builders in Vanuatu lack sufficient knowledge of timber grading and durability and choose imported pine for its convenience, even when Whitewood may have been suitable for the specific application.

In addition, imported treated pine is highly competitive on price, particularly when prices are compared on the basis that imported pine comes in standard sizing and is guaranteed to be fully treated. In 2012, the selling price for preservative treated Whitewood in Port Vila was higher than the price paid New Zealand pine imports (Table 2-1). Over the last 10 years, nominal prices for New Zealand exports to Vanuatu have effectively remained steady or declined slightly on a FOB basis (Figure 2-13). The weighted average price for the first three quarters of 2016 was around US\$330/m<sup>3</sup> FOB<sup>21</sup>. This data excludes the cost, insurance and freight to deliver to Vanuatu; but the trend reflects its competitiveness over time.

<sup>19</sup> Viranamanga et al. (2012) *ibid*.

<sup>20</sup> Viranamanga et al. (2012) *ibid*.

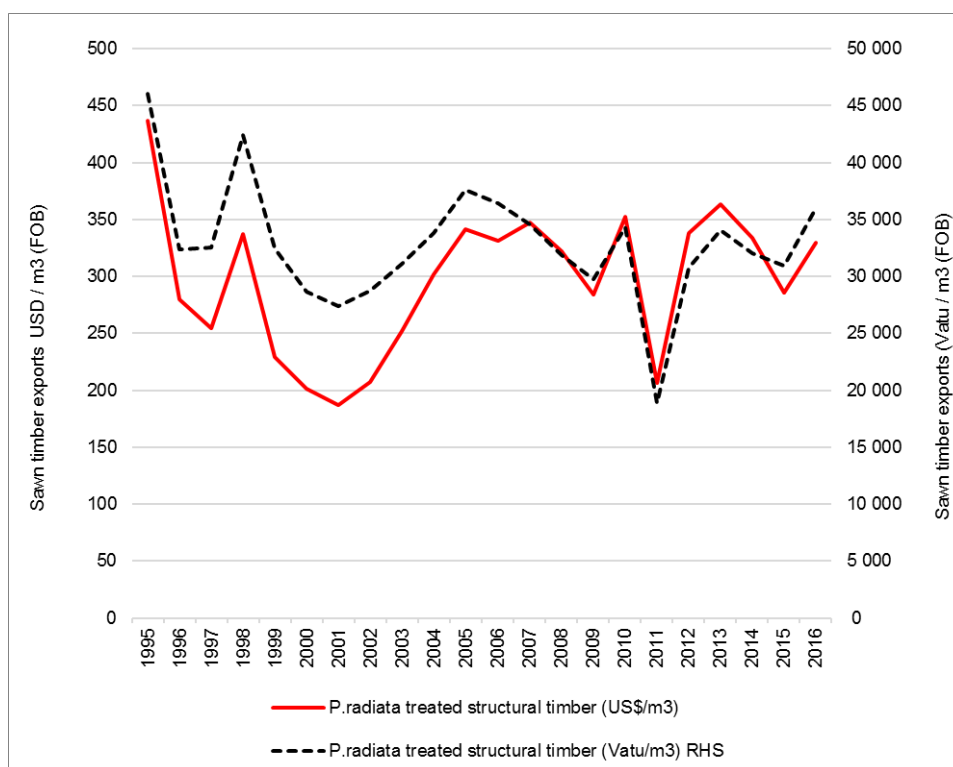
<sup>21</sup> Global Trade Atlas (2016) – accessed online.

Table 2-1 Indicative prices for Vanuatu Whitewood and imported sawn timber, 2012

Processing stage	Radiata Pine (NZ) landed in Port Vila (USD/m <sup>3</sup> )	Whitewood Port Vila (USD/m <sup>3</sup> )	Whitewood Espiritu Santo (USD/m <sup>3</sup> )
Green sawn (1 <sup>st</sup> grade)	n/a	310 - 420	310 - 420
Air dried (1 <sup>st</sup> grade)	n/a	630 - 730	820
Preservative treated	680	520 - 890	520 - 570

Source: Viranamanga et al. (2014); price guidance in USD derived from selected data in Vatu

Figure 2-13 Export price trend for New Zealand radiata pine treated structural timber, on FOB basis, 1995 to 2010



Source: Global Trade Atlas

While the data above presents a range of prices and suggests Vanuatu Whitewood could be competitive, stakeholder consultation with timber yards in late 2016 indicated that Vanuatu Whitewood is generally selling for prices slightly higher than imported NZ pine. To be competitive with imported radiata pine, Vanuatu Whitewood may need to be appreciably cheaper, given its limitations and disadvantages compared to imported radiata pine – that is:

- Vanuatu Whitewood is often delivered in variable lengths rather than set length packs;
- Vanuatu has limited capacity for treating the Whitewood timber with the consistency and conformance of treatment standards applicable to New Zealand and Australian radiata pine – notwithstanding the ongoing ACIAR work to develop reasonable standards and systems for Vanuatu; and
- The limited supply of Vanuatu Whitewood, compared to the (almost unlimited) supply of New Zealand radiata pine, which can be delivered in consistent, set length packs, with internationally recognised standards for preservative treatment.

On this basis, it appears that Vanuatu Whitewood will continue to struggle to compete in domestic markets on the price proposition for imported radiata pine from New Zealand.

As such, there are two market access challenges for Vanuatu Whitewood producers. The first is to increase their competitiveness relative to imported pine, to supply the local market for treated construction timbers and untreated furniture products. The second is to identify, secure and maintain niche export markets in which Vanuatu Whitewood is preferred – such as those in New Caledonia and Japan, which account for all the current Whitewood exports (indicatively, up to 500 m<sup>3</sup> per year)<sup>22</sup>.

However, in both cases, continuity of supply is and will be constrained by the scale of the existing planted resource and the minimal extent of new plantings.

**Figure 2-14 Use of New Zealand radiata pine in construction of beach resort on Santo**



Image sources: Indufor

<sup>22</sup> VDOF (2017) Sawmill production data submitted to the VDOF, January-June 2016.

## 3.0 Industry opportunities and challenges

To inform this review and assessment of the sawn timber industry in Vanuatu, a summation of the notable strengths and weaknesses was compiled and is presented in [Appendix B](#). This summary delineates between the Whitewood sector and the processing of other hardwood timbers. Key strengths and challenges for these two sectors, as well as industry coordination more broadly, are outlined below.

### 3.1 Lack of industry coordination

This review has observed there is no peak industry body representing the sawn timber industry in Vanuatu, nor an established forum for discussion of industry challenges and opportunities. The industry relies largely on the VDOF for information, guidance or support on matters relating to government policy and timber supply; but there is minimal support provided to the whole industry on matters relating to demand and market trends.

The lack of an industry body or forum for these types of discussions can limit cooperation and collaboration, and potentially the innovation that arises from such engagement. However, the requirement for a peak industry body is arguably less when there is no pressing imperative for coordination or collaboration – which is reflective of the current situation in Vanuatu at present.

In the Solomon Islands, the sawn timber industry and timber exporters were galvanized recently by the demands from export markets in Australia and New Zealand to demonstrate third party timber legality verification. This brought the industry together around a common and pressing industry requirement.

In Vanuatu, exports of sawn timber at a very low level compared to previous periods, and the primary focus of the industry more broadly is supplying the burgeoning domestic market. Regarding sawn timber exports, and PHAMA's interest in providing support for export-based market access, there are only 2-3 enterprises with the interest and capacity to pursue this further.

Therefore, it is proposed that targeted support be offered, to specific enterprises engaged in the Whitewood sector and community-based operations based on harvesting and processing of other hardwoods. If sufficient interest arises in due course, PHAMA could assist the VDOF and other stakeholders to convene a workshop to discuss matters that may be of common interest, such as PHAMA's insights on market access challenges for exporting a range of products, or the development of consistent sawn timber standards and some form of industry branding.

### 3.2 Potential for Vanuatu Whitewood

One of the main strengths of the Vanuatu Whitewood sector is that it has previously established niche export markets for high value products (e.g. Whitewood clear boards and mouldings sold to Japan, and more recently to New Caledonia) and the product were well received in those markets. This means there is existing capacity within Vanuatu to focus on high value markets for available Whitewood resources.

While exports of Whitewood products have ceased, there continues to be a solid level of domestic demand in non-structural application including furniture and joinery. This is an important market currently and should be supported to the extent there is supply to meet this demand.

The main challenge for the sector is transitioning effectively to a plantation-grown resource base, to replace or complement supply from the native forest resource, which was largely exhausted by intensive logging and export operations in previous years and is yet to be restored to its productive capacity.

The development of a plantation resource base is underway, mainly on Santo near existing processing facilities. The establishment of approximately 700 ha has been achieved, mainly on Santo; but a larger-scale resource will likely be needed before significant domestic and export markets can be redeveloped or investment in value-adding process infrastructure can be attracted.<sup>23</sup> Furthermore, VDOF has advised that a significant proportion of the existing estate, notably the Melcoffee holdings, has been harvested already and not yet replanted or successfully re-established.

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<sup>23</sup> Viranamanga et al. (2012) *ibid*.

Another key challenge for the industry is the lack of proper pressure treatment (in contrast to dip treatment), which has limited the extent to which Whitewood is sufficiently durable for structural applications in domestic markets. Imported treated pine from New Zealand has provided a highly competitive replacement in domestic markets to meet the increasing needs of local construction activity. ACIAR has been investigating preservative treatment options and treated product performance for Whitewood, as part of a four-year project to improve the management, productivity and profitability of planted timber resources in Vanuatu. This has involved the development and testing of new preservative treatment process and better products, specifically designed to suit the strength and working properties of young plantation grown Whitewood.<sup>24</sup>

There may be scope for PHAMA to assist ACIAR and other project partners in building on this work to improve market access for Vanuatu Whitewood. Specifically, PHAMA's support could be directed to ensuring that any ongoing work by ACIAR (transitioning between projects in Vanuatu) is directly linked to specific markets and market testing. This could be done through PHAMA representation (e.g. in-house staff) on ACIAR project steering committees; or potentially through short term advisory support to test further the market requirements and demands, e.g. conducting interviews with existing buyers in New Caledonia and Japan to reconfirm their specification requirements; or facilitating dispatch of samples of treated timber products to a range of markets to inform further investments.

**Figure 3-1 Basic 'dip' for preservative treatment of Vanuatu Whitewood on Efate**



Image source: Indufor

<sup>24</sup> ACIAR (2016) Enhancing management and processing systems for value-adding in plantation-grown Whitewood in Vanuatu. Program outline: <http://aciarc.gov.au/project/fst/2012/042>



Figure 3-2 Timber Research Facility on Santo set up with portable pressure treatment tank for treating Whitewood



Figure 3-3 Vanuatu Whitewood sawn timber treated at the Timber Research Facility on Santo



Image source: Indufor

### 3.3 Other hardwoods

In relation to other hardwoods, including Kohue (Kwila) and Bluewater (Rosewood), there is strong domestic demand that is largely absorbing the current supply coming from the islands. Like the situation for Whitewood, industry reports and stakeholder input to date indicates that much of the native forest resource that is accessible to the industry has been intensively logged over previous periods, by logging companies with relatively large scale log export operations. Timber harvesting in Vanuatu now needs to be conducted on a less intensive scale, to enable forest restoration while continuing to support local market requirements.

Much of the timber harvesting today typically comprises small scale operations by individual communities across the islands. The felled logs are milled either with a portable sawmill if there is one operating within the vicinity, or with a more basic sawmill set up. Sawmill set ups tend to be comparatively crude, leading to sub-optimal recovery of timber from the forest resources.

A key challenge for the VDOF is working on improving the quality of timber harvesting, and associated forest regeneration post-harvesting, without unduly increasing the intensity of harvesting across a broader area of forest. There may be scope for PHAMA to assist the VDOF and other stakeholders in addressing this issue, potentially through identifying practical models of community-based cooperatives that are equipped to harness the skills and equipment to harvest and mill native timbers efficiently, while recognizing the need to manage native forests on a sustainable basis. This opportunity to assist the industry may be better suited to other programs more focused on the technical and social aspects of small scale production enterprises, e.g. ACIAR, SPC-funded programs and potentially Live & Learn.

As noted above, PHAMA is aware of one company that is now looking to establish an export trade that will support a model for smallholder cooperatives across Vanuatu, by providing a premium market for high quality sawn timber products. The target market is Australian timber importers, and the proposition is exporting the highest grade Kohue and Bluewater timbers for a premium price over local markets (indicatively 20-30% higher), while supplying the local market with any timbers that do not meet the premium grade. This model is yet to be developed and demonstrated, and there is no significant volume of export trade to date. However, it is noteworthy because it represents an Ni-Vanuatu enterprise model for aggregation and coordination of an otherwise fragmented timber supply, and it advocates responsible management of forest resources, through initiatives that include training for sawmill operators, and active regeneration and replanting of native trees after all harvesting operations.

This type of model will require business management and financial support to achieve a significant scale of operations. There will also be a need to develop familiarity with and understanding of importing customers and market expectations for quality and contracting and delivery arrangements. There may be scope for PHAMA to provide business management support functions, such as assistance with applications for grants and loans, introduction to buyers and trade missions. This could be supported by facilitating linkages with other programs or institutions that may offer support that is more aligned with specific industry requirements.

Further downstream, notably in Port Vila and around Luganville, there are timber processors producing wood products for structural and appearance grade applications, in construction as well as furniture and joinery. These businesses are largely focused on meeting domestic demand for this range of products. One weakness in current processing systems is the reliance on air drying for seasoning the timber, which can take many months, and can result in variable quality in terms of timber condition and moisture content. Based on initial engagement through the first in-country input, this does not appear to be a major problem or constraint for the industry; but it does represent a challenge and a potential opportunity for assistance to improve industry competitiveness – primarily in domestic markets. PHAMA has recent experience in evaluating kiln drying systems for tropical hardwood timbers in the Solomon Islands<sup>25</sup>, and there may be merit in sharing some of this knowledge with the Vanuatu sawn timber industry.

However, the need and priority for this type of activity needs to be considered in the context of key factors constraining market access for other hardwoods. Regarding exports, the key factors constraining market access for Vanuatu sawn timber are the fragmented resource base remaining across the islands, the lack of capacity for coordinating supply, and lack of capacity to maintain continuity of supply of timbers to consistent standards, particularly for higher grades of timber products.

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<sup>25</sup> A. Piper, PHAMA Solomon Islands (personal communications, November 2016).

## 4.0 Options for improving market access for sawn timber exports

### 4.1 Proposed activities

The scope for PHAMA to assist the Vanuatu sawn timber industry is limited by the relatively low levels of production capacity and orientation towards export markets at present. During the 1980s and 1990s, exports of sawn timber (notably Vanuatu Whitewood sawn timber to Japan) represented a substantial contribution to Vanuatu's commodity trade. However, Whitewood exports declined dramatically in the mid-2000s, and have not resumed to a significant level. Today, the sawn timber industry is focussed largely on directing the available supply of native timbers to domestic construction and furniture markets.

In this context, it is proposed PHAMA's support be targeted to specific requirements of existing businesses and programs that are working to support enterprise development relating to international trade in sawn timber products. Two specific initiatives to improve market access and support further investment in responsible management of timber resources are listed below.

**Table 4-1 Proposed activities to improve market access for the Vanuatu sawn timber industry**

Proposed activities	Market access benefits	Potential next steps
<p>1. Provide specific business support functions, on request, to industry enterprises with the capacity to either establish or improve market access for sawn timber export; notably for:</p> <p>a. high grade Kohue and Bluewater sawn boards</p> <p>b. Whitewood boards and mouldings</p>	<ul style="list-style-type: none"> <li>Enhance prospects for establishing export markets for high grade timbers, where business plans exist that require support, such as technical expertise or assistance with applications for grants and loans, introduction to buyers and trade missions</li> <li>Support the further development of cooperative models that can better coordinate timber harvest and milling operations and aggregate supply for downstream processors</li> <li>Build on PHAMA's work with market access challenges for the sawn timber industry in other countries (e.g. Solomon Islands)</li> </ul>	<ul style="list-style-type: none"> <li>On request, provide business management support to specific market access initiatives, in accordance with PHAMA scope and broader range of activities in Vanuatu</li> <li>Facilitate linkages with other programs or institutions that may offer support that is more aligned with specific industry requirements</li> <li>If interest from businesses is sufficiently high, an industry workshop on timber exports could be convened to provide support for local interests and share PHAMA insights into market access challenges for different products.</li> </ul>
<p>2. Explore opportunities to provide support to the ACIAR-led projects relating to processing systems for small-diameter Whitewood, and enhancing returns from high-value agroforestry species in Vanuatu, potentially through engaging directly on the program scope relating to markets and market testing</p>	<ul style="list-style-type: none"> <li>Build on ongoing ACIAR work to ensure smallholder activities relating to Whitewood and other timber products are closely aligned with market requirements and opportunities</li> <li>Support ongoing ACIAR work on the further development of local capacity for treatment of Whitewood, to more effectively compete with imported pine in domestic markets in the first instance, and potentially improve market access to niche export markets, subject to resource availability</li> </ul>	<ul style="list-style-type: none"> <li>Engage with VDOF on future plans for the ACIAR-led research program on Whitewood development in Vanuatu; specifically the extension or subsequent work to previous studies on processing systems for small-diameter Whitewood (FST/2012/042), and proposed work on enhancing returns from high-value agroforestry species in Vanuatu (under development)</li> <li>Discuss further the alignment of programs and potential for PHAMA support functions that can be managed in Vanuatu</li> </ul>

## 4.2 Next steps

Subject to further stakeholder input on the proposed activities and resourcing constraints, it is recommended that PHAMA, the Vanuatu sawn timber industry and its partners proceed with support for the two immediate priorities, which are enabling activities to improve market access. These activities are:

1. Provide business support functions for industry enterprises seeking to establish market access for sawn timber exports. This support should be directed to enterprises with a demonstrable focus on export-oriented operations, for example:
  - a. emerging cooperative structures that are developing models for improved timber utilisation and value recovery based on accessing export markets that can pay a premium for high quality sawn timber, e.g. high grade Kohue and Bluewater sawn timber boards to New Caledonia or Australia;
  - b. re-establishing access to export markets for Vanuatu Whitewood where it is recognised and valued for its special wood properties, e.g. boards and mouldings to New Caledonia and Japan.
2. Explore opportunities to provide support to the ACIAR-led projects relating to enhancing returns from high-value agroforestry species in Vanuatu, and processing systems for small-diameter Whitewood, potentially through reviewing the program scope relating to market access opportunities.

The industry's response to and support for these activities will provide important feedback on the level of industry interest in collaborative efforts, and the potential for market access benefits to arise from providing further program support.

Additional support could include scope for collaborating with the VDOF, and potentially ACIAR, to convene an industry development workshop on sawn timber exports, to provide broader support for local interests and share PHAMA insights and experience with market access challenges for different commodity products.

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# Appendix A

## Stakeholder consultation

## Appendix A Stakeholder consultation

Contacts	Organisation	Meetings
Hannington Tate	Department of Forests	16/11/16; 1/2/17
Watson Lui	Department of Forests	1/2/17
Livo Mele	Formerly Department of Forests	14/11/16
Arua Nafuki	Mandero Timber Works	14/11/16; 2/2/17
Lele Bakokoto	Pacific Works Ltd	14/11/16; 2/2/17
Kenton Nqwalakelo	MCI Limited (Timber)	14/11/16
John Schick	Veneer Logging Ltd	31/1/17
Carolyn Ernst	TIVR Timbers	14/11/16; 3/2/17
Jimmy Kaloran	North Efate Timber	15/11/16
Seikara Situ	Melanesian Furniture	15/11/16
Jude Tabiwusu	Department of Forests	17/11/16
Sam Chanel	Department of Forests	17/11/16
Godfrey Bome	Department of Forests	17/11/16
Tony Page	University of the Sunshine Coast	By email
Graeme Palmer	Southern Cross University	By email

# Appendix B

Summary of industry strengths, opportunities, weaknesses and threats



## Appendix B Strengths and weaknesses of sawn timber industry

### Vanuatu Whitewood

#### Strengths:

- Vanuatu has previously established niche export markets for high value products (e.g. Whitewood clear boards and mouldings sold to Japan) and the product has been well received
- Whitewood is highly valued in Vanuatu for non-structural applications including furniture and joinery
- There is a consolidated plantation resource base on Santo that could be expanded further
- There is extensive experience in processing Whitewood from native forests and plantation resources
- Considerable work has been done on improving growth and yields of plantation Whitewood in Vanuatu
- Considerable work has been done on assessing market opportunities and challenges
- There are established preservative treatment facilities on Santo to produce treated Whitewood products

#### Weaknesses:

- It appears most of the native forest resource of Vanuatu Whitewood that is accessible to the industry has been exhausted by intensive logging during the 1980s and ongoing utilization since that time
- Exports have ceased for reasons that include apparent concerns about the sustainability of harvesting from native forest resource and reforestation projects
- A larger-scale plantation resource base may be needed before significant domestic and export markets can be redeveloped or investment into value-adding process infrastructure can be attracted
- The production of untreated Whitewood is struggling to compete in domestic markets for framing with imports of treated pine from New Zealand
- The existing capacity for preservative treatment is limited to operations in southeast Santo, which is approximately 200 km by sea from Port Vila and therefore subject to significant sea freight charges
- Cyclone activity continues to represent an ongoing threat to plantation resources, as evidenced by Cyclone Pam damage to planting of Whitewood (in pure stands, mixed stands and agroforestry trials on the island of Efate)

### Other hardwoods

#### Strengths:

- There is strong domestic demand for local hardwoods, which is largely absorbing current levels of supply from native forest resources
- There is extensive experience in processing hardwoods from native forests

#### Weaknesses:

- It appears most of the native forest resource that is accessible to the industry has been exhausted by intensive logging during the 1980s and ongoing utilization since that time
- Use of chainsaws for primary milling of logs is still common and represents sub-optimal processing and value recovery from native forest resources
- A lack of kiln drying capacity constrains the industry to air drying which can take many months and produce variable results