



National Green Export Review of Vanuatu: Copra-Coconut, Cocoa-Chocolate and Sandalwood

VANUATU



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Acronyms

ACIAR	Australian Centre for International Agricultural Research
ACTIV	Alternative Community
AUSAID	Australian Aid
CC	Climate Change
CNO	Crude Coconut Oil
COM	Council of Ministers
COWG	Coconut Working Group
DARD	Department of Agriculture and rural Development
DFEM	Department of Finance and Economic Management
DoC	Department of Customs and Inland Revenue
DoE	Department of Environment
DoET	Department of External Trade
DoI	Department of Industry
DoLab	Department of Labour
DoT	Department of Tourism
FDI	Foreign Direct Investment
FTDC	AU Food Technology Development Centre Analytical Unit
GAP	Good Agriculture Practices
HIES	Household Income and Expenditure Survey
IPDM	Integrated Pest and Disease Management
MALFFB	Ministry of Agriculture Livestock Fishery, Forestry and Bio security
MSG	Melanesian Spearhead Group
MSME	Micro, Small and Medium sized Enterprises
MTTICNVB	Ministry of Trade, Tourism, Industry, Commerce and Ni-Vanuatu Business
NPA	National Plan of Action
NTDC	National Trade Development Committee
PAA	Priority Action Agenda
PARDI	Pacific Agriculture Research Development Initiatives
PHAMA	Pacific Horticultural Agricultural Market Access Program
PICTA	Pacific Island Country Trade Agreement
PMO	Prime Minister's Office
SLO	State Law Office
SPS	Sanitary and Phytosanitary

SWOT	Strengths Weaknesses Opportunities and Threats
TBT	Technical Barriers to Trade
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
VAC	Vanuatu Agriculture College
VADB	Vanuatu Agriculture Development Bank
VARTC	Vanuatu Agriculture Research and Technical Centre
VCCI	Vanuatu Chamber of Commerce and Industry
VCMB	Vanuatu Commodities Marketing Board
VCO	Virgin Coconut Oil
VDoF	Vanuatu Department of Forestry
VIPA	Vanuatu Investment Promotion Authority
VNSO	Vanuatu National Statistics Office
VOCGA	Vanuatu Organic Cocoa Growers Association

EXECUTIVE SUMMARY AND INTRODUCTION

About the Vanuatu NGER

Vanuatu's high levels of international competitiveness for the three value chains of coconut, cocoa and sandalwood have been demonstrated through green product space analysis presented by UNCTAD in its Baseline Report used to launch Vanuatu's National Green Export Review (NGER) in 2014. These basic commodities and value added downstream products possess considerable potential to benefit from recent global trends for a global transition to greener markets in line with the outcome of the Rio+20 Conference of 2012 which recognizes the growing market potential of sustainable production and consumption. These findings were extensively reviewed by a diverse group of national stakeholders during the NGER's First National Stakeholder Workshop in August 2014. Next, a team of three national experts was established to prepare an in-depth NGER Report of Vanuatu focusing on these three products groups in the Vanuatu context which includes recommendations and proposes a national action plan with the aim of boosting production and export capacity in the commodities and their value chains. The recommendations and sectoral action plans were presented by national experts during the NGER's Second National Stakeholder Workshop in August 2015 at which time they were reviewed, revised and adopted by national stakeholders, and presented to the Government for its support. This report presents studies of the three sectors prepared by the national team of experts of the NGER project, each concluding with a presentation of the national stakeholders' recommendations and action plans.

Vanuatu's competitive agricultural exports

Vanuatu is a relatively small country in terms of population with only 260,000 inhabitants living throughout a geographically spread archipelago of 83 islands although the majority of the population is concentrated in only a handful of these. It has a predominately agricultural economy with more than 80 percent of its population engaging in at least more than one cash crop at any given time. Despite the fact that tourism commands 40 percent of the country's GDP, statistics show that coconut, cocoa, and recently sandalwood, formed the basis of everyday economic activities undertaken by the majority of economically active population and have in fact been identified in UNCTAD's green product space (GPS) analysis as possessing Revealed Comparative Advantage (RCA) values considerably greater than one in the UNCTAD Baseline Report for the NGER and thus indicating, *ceteris paribus*, that Vanuatu is internationally competitive in the production and exports of these commodities. The need to assess the untapped potential for adding value in these sectors and diversifying existing export channels has been emphasized by stakeholders in the NGER workshops and consultations.

The value chains of these three commodities, however, have not been studied in detail apart from the PARDI technical studies undertaken on coconut and cocoa and their economic significance and comparative advantage in the global market now makes it necessary for more detailed assessments to be undertaken. This report is the combined effort of three national experts in 2015 to assess key issues particularly with respect to the legislative, institutional and trade-related dynamics of the coconut, cocoa and sandalwood value chains as the three green products most recommended for focused study by stakeholders participating in a national workshop held in Port Vila on 27-28 August 2014.

About this report

This report begins by examining Vanuatu's export advantages in the coconut sector while highlighting Vanuatu's over-dependency on copra as the principal product from the coconut tree and assesses the viability of moving up the value chain from copra to coconut oil and other by-products. The report asserts that although Vanuatu stands to gain more from the diversification of the coconut than from bulk exports of raw copra without value added. However, the mental and cultural landscape of farmers, producers and policy makers needs to be changed to make way for replanting and increased production in the sector. It is also noted that with respect to the global demand for vegetable oil, coconut oil has traditionally ranked low among consumer choices, but in recent years this has changed with growing awareness of the health benefits of cooking with coconut oil. In addition, coconut's other uses including highly popular coconut water, sports drinks, cosmetic and health care products, oleochemicals and geo-textiles all combine to make coconut products green products that are in relatively high demand.

This report also provides an assessment feedback on the cocoa value chain. Although the sector has been in existence in Vanuatu since late 1800's and has been legislated many years ago, it remains underdeveloped in terms of investment and formalization. Until recently, the cocoa sector in Vanuatu has been producing only for the bulk cocoa bean market and bean quality has been poorly managed. However, the report will demonstrate that over the last two to three years with the active involvement of Alternative Community (ACTIV) and the Department of Industry in the sector, the Pacific Agri-business for Research and Development (PARDI) has been able to collaborate with stakeholders in the sector to undertake research in order to identify the most effective methods for sustaining quality of dry cocoa beans. In so doing a revived interest in the sector among cocoa farmers has been observed and the sector is noted to be increasingly more oriented towards opportunities that exist in the regional and international niche markets for value added single source cocoa beans and chocolate products.

The third value chain identified as having a comparative advantage for Vanuatu is sandalwood. While from a historical perspective sandalwood has been a source of conflict between the Europeans and the native Erromangoans in the 19th century, the situation has contributed to prompting international demand for, and commercialization of, the local genus *S. asutrocaledonicum*. And although the stock of wild stand was near depletion in the closing years of the 20th century, the obvious economic benefit from the resource regenerated enthusiasm leading to massive replanting efforts. Reports for the years 2000-2006 showed an annual planting rate of no less than 14,000 plants. This report however, noted the limitation in the Department of Forestry's ability to compile data on the development of the sector throughout all islands in the archipelago.

This report concludes with recommendations based on analytical and empirical findings related to the economic viability, and social and environmental sustainability, of the above three green value chains. The National Action Plans (one for each sector) elaborated by stakeholders in the NGER aim to support equity and sustainability in the coconut, cocoa and sandalwood value chains in order to promote increased incomes to existing producers, the generation of new decent employment opportunities, and a sustainable and resilient natural resource base and production system. Attention is given to both market conditions and trends, and to the national policy, regulatory and institutional framework for these sectors.

Key findings

The report reviews global trends and trade in the coconut, cocoa and sandalwood sectors; the role and performance of the selected sectors in the national economy; as well as a SWOT analysis for each sector. Based on findings revealed, the report elaborates an action plan for each sector involving a wide set of stakeholders, each with specific roles based on their placement to successfully undertake needed actions and deliver desired results.

Regarding global trade and market for coconut, cocoa and sandalwood it the study found that:

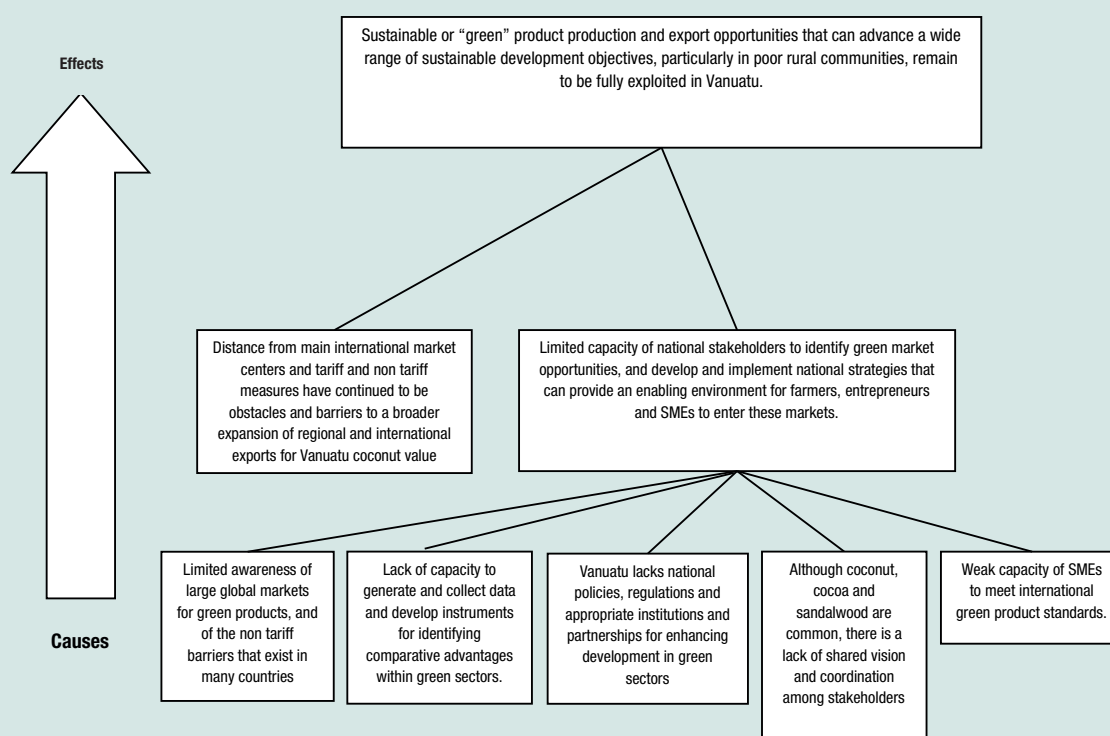
- ◇ There is an unprecedented increase in global demand in the three sectors;
- ◇ There is an obvious lack of this important information of which the consequent result has led to under production in the sector;
- ◇ There is a need to strengthen the sectors by providing a policy, legislative and institutional framework aimed at establishing a conducive environment for developing the sectors;
- ◇ With increased technical and technological advancement, the potential for greater diversification in these sectors has also increased lending more opportunities for adding value to the products and thereby broadening the country's export base.

Regarding the role and performance of the sector in the national economy, the study found that:

- ◇ Increased demand for value added products and greater ability for diversification could provide new opportunities for job creation and eventual elevation of the country's general wellbeing and livelihood;
- ◇ Increased demand has also revealed the country's current under-capacity for supplying the market given many years of retracting from the sector due to bottlenecks in the global markets;
- ◇ Diversification in the sectors will open up new opportunities for investment through FDI and local entrepreneurs with the view to expanding the country's tax and revenue base for ensuring increased and improved quality of services provided to the community.

Barriers and opportunities to green product export development

The overriding challenge confronting Vanuatu as it seeks to advance green production and export activities is to effectively address the problem of limited capacity of national stakeholders to identify green market opportunities, and to develop and implement national strategies that can provide an enabling environment for entrepreneurs and SMEs to enter these markets. However, to address this overall problem, multiple underlying causes, or sub-problems, must be successively addressed. This NGER identified ways to address these sub-problems, and thus remove the constraints that obscure national progress in advancing green market development in the coconut, cocoa and sandalwood sectors. The problem tree below illustrates the cause-effect relationship between these sub-problems.



A generalized SWOT for all three sectors can be summarized as:

Strengths

- ◇ Climatic conditions and opportunities for organic production
- ◇ Abundance of established trees suited to local conditions
- ◇ Rich value added product possibilities
- ◇ Rapid development of the tourism sector

Weaknesses

- ◇ Unreliable inter-island shipping
- ◇ Poor infrastructure
- ◇ Unimproved policy, legislative and institutional framework
- ◇ Poor coordination mechanisms for generating increase in scale and output in supply

Opportunities

- ◇ Target higher value buyers with more value added and convenient products

- ◇ Improve linkages to the tourism sector to tap the local market for artisanal products
- ◇ Improve quality and food safety to meet growing world quality standards
- ◇ Add value across entire product line to motivate replanting
- ◇ Organic certification

Threats

- ◇ Aging trees, declining supply
- ◇ Poor tree management promoting pests and disease
- ◇ Change in government policy
- ◇ Rising quality standards of markets and increasing competition from other countries

The National Plan of Action (NPA)

The National Plan of Action (NPA) aims to build on strengths, seize opportunities, address weaknesses and limit exposure to threats. Its formulation took place during the Second National Stakeholders Workshop. Elements of the NPAs were thoroughly validated through extensive focus group discussions by all key stakeholder groups in Vanuatu. Further to that, national experts have also been engaged in consultations with relevant stakeholders (farmers, industry groups and government) leading up to finalization of this report and the sectoral NPAs.

Stakeholders made recommendations that the NPAs respond to four broad objectives. These were:

1. Harness existing capacity of farmers, industries and private sector to increase and sustain market related production;
2. Strengthen the institutional capacity of the MALFFB and MTTICNVB through their relevant departments to monitor the speedy recovery of the three sectors;
3. Create a conducive and enabling environment for all three sectors to flourish; and
4. Provide support services for enhancing farmers, MSMEs and the private sector within the three value chains.

Following from the policy objectives, there are targeted strategies for each sector which comprise key prioritized actions and corresponding activities to fulfil these actions over a given period of time (5 years). This report presents the NPAs for each of the three sectors coconut, cocoa and sandalwood.

The actions and activities are formulated taking into consideration current needs, identifying a lead actor to implement each activity and other actors also involved; a timeframe for each activity; the sequencing among activities; and finally, an estimate of the funds needed to complete each activity.

The full detailed NPAs are available from the Government of Vanuatu. In this report, only the guiding stakeholder recommendations, and the agreed actions and activities are presented

For the next five years, Government of Vanuatu will be dedicated to implementing all three of the sectoral NPAs with support from development partners as part of its overall policies supporting the productive sector.

SECTION 1.

VANUATU'S COCONUT SECTOR

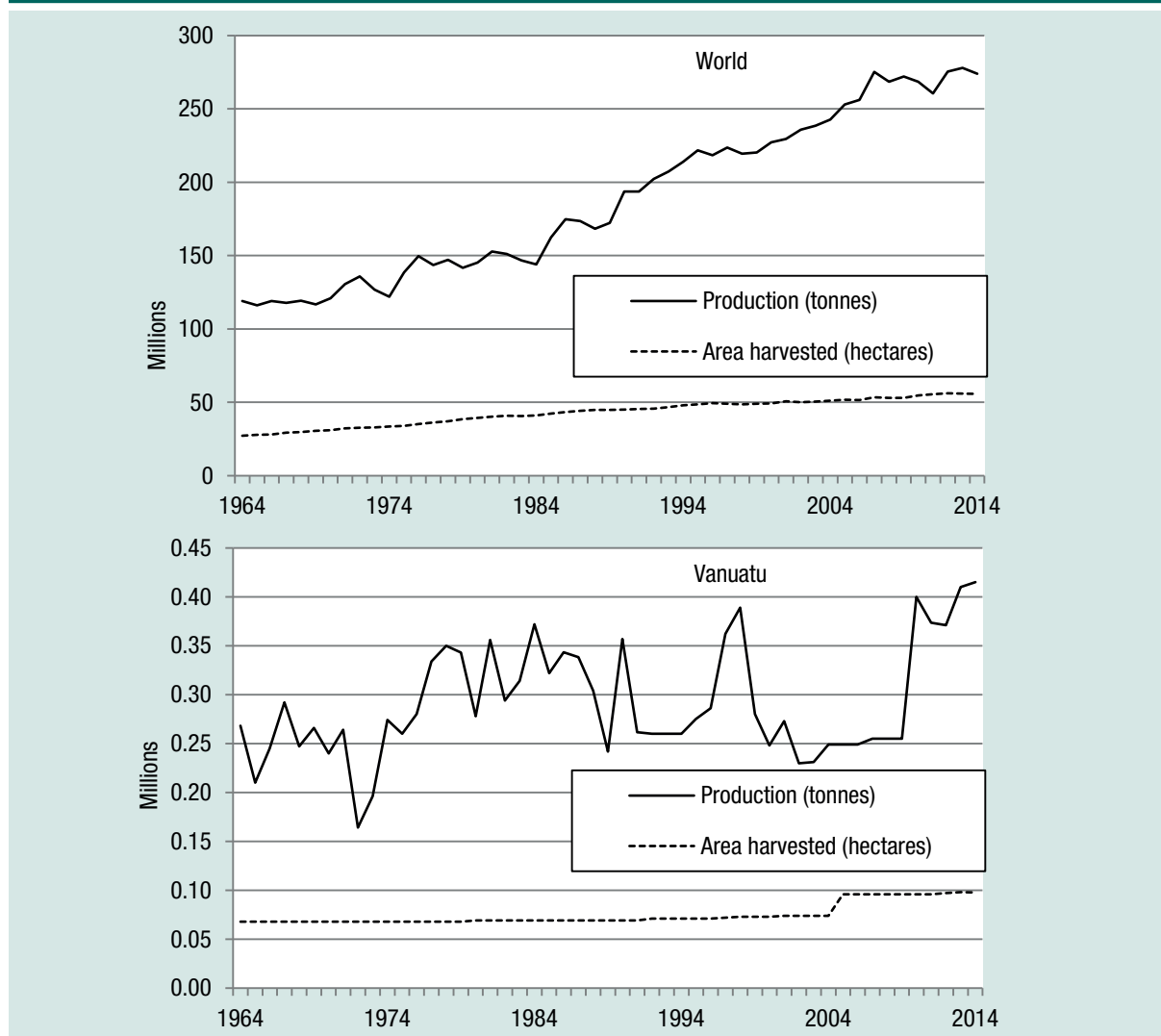
1.1 Introduction

The coconut sector provides for and supports 80 percent of Vanuatu's rural population through the provision of traditional household needs, opportunities for income generation and livelihood. From an economic point of view, copra which is the dried flesh from the coconut has until recently been the country's main foreign exchange earner. Despite the laborious and intensive nature of its production, the copra has remained Vanuatu's number one economically viable agricultural product.

However, the fact that recent statistics show a decline in coconut production raises some level of concern particularly for the provinces of Sanma, Malampa, Penama and Shefa for whom copra is their main source of income. Furthermore, it has become more noticeable that the combined value of coconut products (including copra, crude coconut oil and coconut meal) has contributed significantly to the country's GDP. Therefore, there is an urgent need to assess the main causes for the gradual decline so that it can be adequately addressed at the national level and ultimately reversed, including through strategies elaborated in this report.

This section of the report presents a study into the strengths and weaknesses of the sector. It explores

Figure 1. Coconut production (World and Vanuatu)



Source: FAOStat

general characteristics of the sector, potential market opportunities and the institutional, policy and economic environment influencing the sector. In addition to desk research, this chapter is also based on numerous consultations with national stakeholders in the sector.

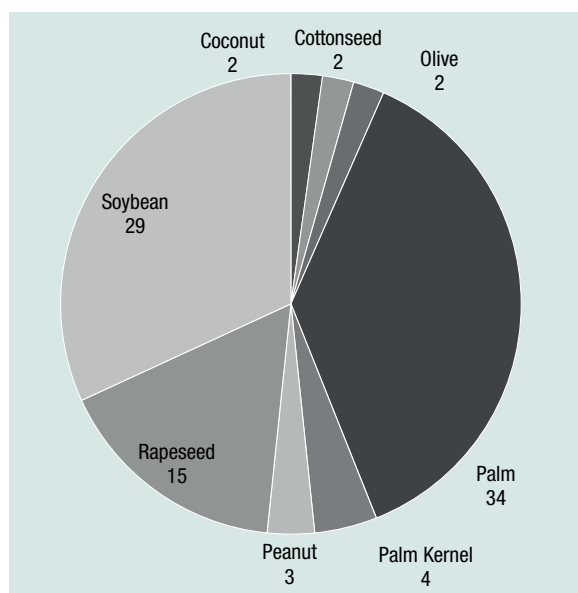
The information provided herein is particularly relevant for policymakers at the national and provincial levels. The use of this information is applicable in human resource development planning situations, allocation of financial and human resources to economic sectors and linking the sector to other economically viable sectors in the effort to manage spillovers and diversify the national economy's export basket.

1.2 Global trends and market characteristics for coconut products

Vanuatu's coconut sector and its level of performance will be greatly influenced by the performance of the global markets and its future trends. Global markets for coconut based products continue to expand, with production levels falling short of global demand during the past few years.

Coconut is an important agricultural resource as it can be used to produce a wide range of products from edible oils, food, beverages and confectionary products to cosmetic and healthcare products to carpets and construction materials. Coconut oil is the principal product derived from coconut. It is extracted from copra (the dried flesh of the coconut) in oil mills, and transformed in factories to make kitchen, medicinal, and cosmetic products. Less widely produced, but more valuable, is virgin coconut oil extracted directly from raw coconut.

Figure 2. World vegetable oil supply. Share of global vegetable oil production by type (% , 2015)



Source: FAOStat

As demand for coconut products is large and diverse, there is a lot of competition to produce and export coconut, copra and value added coconut products in world markets. Coconut production, and land area under harvest has increased significantly over the past 50 years. Vanuatu is a small producer for world markets, accounting for less than 1 percent of global production. However, Vanuatu will continue to benefit as a small supplier in the sector. Since 2009, both land area harvested and production levels have increased in Vanuatu significantly.

Data for 2015 global production levels of vegetable

Table 1. Percentage share of global vegetable oil production by type (2015/16)

Vegetable oil	Percentage share of global total	Major producing countries	Share of global total produced by major producing countries
Coconut	2	Philippines, Indonesia	73
Cottonseed	2	India, China	53
Olive	2	European Union, Syria, Tunisia, Turkey, Morocco	94
Palm	34	Indonesia, Malaysia	85
Palm Kernel	4	Indonesia, Malaysia	84
Peanut	3	China, India	68
Rapeseed	15	European Union, China, Canada	77
Soybean	29	China, United States, Argentina	57
Sunflower	8	Ukraine, Russia, European Union	74

Source: USDA, PSD Database

oil (Figure 2 and Table 1) show that coconut oil is a minor player in the world vegetable oil market. They also show that for every type of vegetable oil, a few countries dominate global production.

Vanuatu's coconut sector and its level of performance will be greatly influenced by the performance of the global markets and its future trends. Since the country's coconut sector is oil oriented, its performance will be determined to a large extent by trends of other forms of edible oils. These data suggest that for a small developing country like Vanuatu the prospect of venturing into other forms of vegetable oil is not promising and will not be beneficial in the long term. Alternatively, however, given its geographical proximity to major producers such as India and the Philippines offers Vanuatu the opportunity to capitalize on opportunities for strengthening its industrial and knowledge capacity in the vegetable oil sector in order to enhance its quantity and quality of production.

Vanuatu's closeness to major copra mills and oil markets in South East Asia has provided an opportunity for copra exports to the Philippines and oil to Malaysia. Although the comparative production levels of coconut oil are dominated by the latter countries, the increasing growth of the tourism industry presents a huge opportunity for Vanuatu with respect to the development and improvement of the tender coconut water market and to an increasing extent coconut oil as well as a result of growing consumer awareness of coconut oil's health benefits.

The tourism industry earnings for period 2006 to 2010 had an average annual increase of 16.3 percent with an estimated total earning of VT21 billion in 2010 (Annual Development Report 2010). Moreover, about 51 percent of this value represents the spending of international air tourists whose holiday duration varies from 7 to 10 days and who are mostly likely to spend 5 to 7 days out of Port Vila. The situation provides Vanuatu with favorable marketing opportunities for the promotion of Vanuatu's tender coconut water, coconut confectionery products, coconut shell artifacts, coconut oil based cosmetic products, and increasingly coconut oil itself. However, strategies and actions are needed to address capacity limitations revealed in many marketing studies. The latter show that the demand and spending capacity of a long-haul tourist visiting Vanuatu far exceeds the domestic capacity for supply.

While the coconut sector may lack comparative

advantages on the bulk oil market, the niche and high value markets for certain lauric acids attributed to the coconut oil offers greater and more market flexibility for the virgin coconut oil (VCO) industry in the global oil market. This new development related to the health benefits of coconut oil supports increased demand for oleochemicals. This has greatly impacted on the global demand for coconut oil as depicted in the graph below. There is added value in this concept given the organic nature of Vanuatu VCO, how the coconut palm is cultivated and the minimal or non-application of pesticides and fertilizers during juvenile stages of production.

1.2.1 Global markets for coconut based products

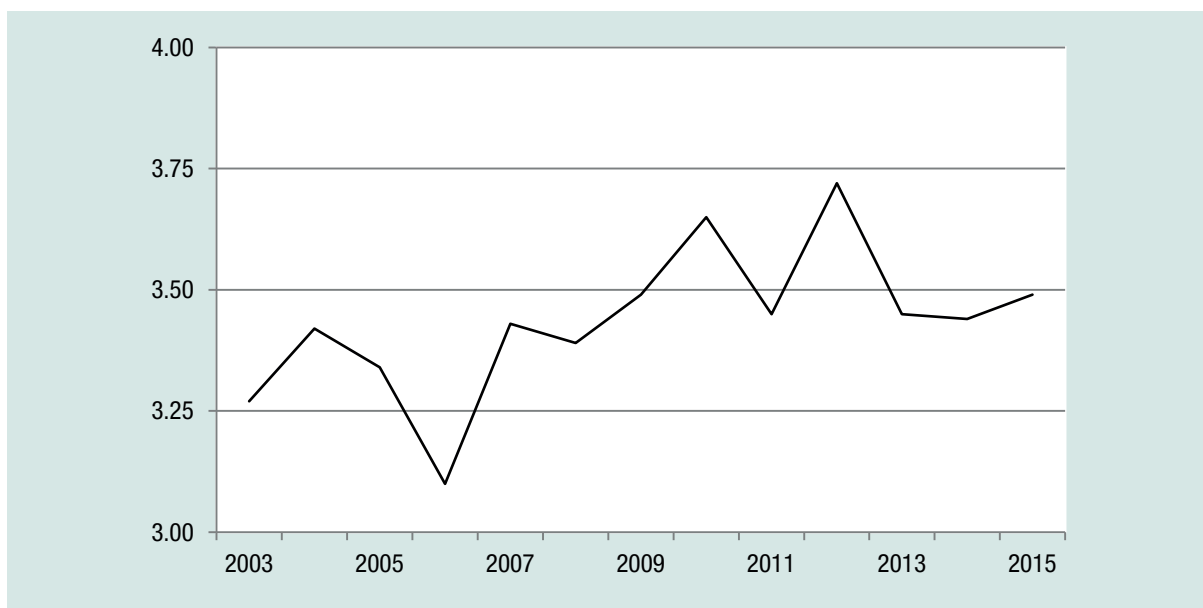
Traditionally copra which is the dried flesh of the mature coconut used to be the most usual form of coconut based commodity to be processed and exported by coconut based product producing countries. Over the recent years, advancement in technology and competition in prices have contributed to the diversification of the coconut industry in many parts of the coconut growing world. Some coconut based products that have had established markets within and outside of the region are:

- Coconut crude oil (CNO)
- Virgin coconut oil (VCO)
- Desiccated coconut
- Coconut flour
- Coconut cream/milk/powder
- Nata de coc
- Coir based products
- Coconut sugar
- Activated carbon
- And more recently oleochemicals.

Increase in global demands for these products has been notable given the increase in rate at which the products are being produced, exported and utilized around the world. This is particularly so about the increase production and export of virgin coconut oil, desiccated coconut, coconut flour, coir products and activated carbon.

1.2.2 Virgin coconut oil

Major importing countries of virgin coconut oil (VCO) are the USA, Germany, Canada, Lithuania, United Kingdom (UK), New Zealand, Australia, Russian Federation, Finland and Turkey. Almost all the major exporters of VCO come from the Asia Pacific Coconut Community (APCC) with the Philippines, Sri Lanka,

Figure 3. World supply of coconut oil 2003-2015 (million tonnes)

Source: USDA, PSD Database

Thailand, Fiji, Samoa and the Solomon Islands among the producing countries. It is very likely that the demand for VCO is very high as indicated by the unprecedented high annual rate of growth in the industry in the Philippines which is around 500 MT per annum. In the Pacific, the growth in the Solomon Islands for virgin coconut oil is 1.6 MT per annum over period 2008-2012 and in Samoa the growth is 3.1 MT per annum for period 2008-2010.

1.2.3 Desiccated coconut

Developed countries that import desiccated coconut are the USA, Europe, Canada, the Middle East, Japan, Russian Federation, Taiwan, New Zealand, Korea and South Africa. The total export capacity for year 2010 from APCC and other producing countries is 331,397 MT and has been around this vicinity for the period 2006-2010. The Philippines is the largest exporter of desiccated coconut since 1970 and currently producing more than 50 percent of the APCC total and 33 percent of total global production. Countries in the APCC region producing desiccated coconut include India, Indonesia, Malaysia, Philippines, Sri Lanka, Samoa, and Thailand. Samoa's contribution in 2010 is around 1.3 percent of the volume which is 214,400 MT. Currently Vanuatu exports a negligible amount of desiccated coconut pointing to an unexploited value added opportunity in the sector.

1.2.4 Shell charcoal and activated carbon

The market for shell charcoal and activated carbon has been gaining popularity in the USA and Europe. In the USA alone, the demand for activated carbon is around 70,000 MT per annum which represents about 64 percent of total output capacity of activated carbon from major producing countries which are the Philippines, Sri Lanka, Indonesia, Malaysia and Thailand. On the other hand, the market for shell coconut is also impressive given the growth over the period 2007-2011 in major producing countries. Indonesia exported 230,500 MT of shell charcoal in 2011 which is a 24 percent increase from the previous year. Currently Vanuatu exports a negligible amount of shell charcoal and activated carbon pointing to an unexploited value added opportunity in the sector.

1.2.5 Coir products

Coir production in India and Sri Lanka increased by 2 percent over the period 2010-2011 with coir products being exported to Germany, Netherlands, United Kingdom, Spain, China, Japan and South Africa. Current uses for coir products include:

- Coir
 - » Mattresses
 - » Mats
 - » Geo-textiles
 - » Coir ply composites
 - » High value belts and textiles

- Coir pith
 - » Medium for horticulture
 - » Organic manure
 - » Soil moisture conservation

Here too, Vanuatu has not yet entered the global market for these products although its potential to do so remains strong.

1.2.6 Coconut water

Global demand in the market for tender coconut water has increased tremendously over the last decade with lucrative markets in the USA, Japan, Brazil, Australia, Netherlands, Canada and Germany. Between January and October of 2012 an increase of 15,296,470 liters of coconut water was exported to 40 countries reflecting the exceptionally high demand for the product globally. Regionally however, a comparatively less impressive but increasingly recognized coconut water market exists as is demonstrated in the tourism market. In addition the high population growth rate in Port Vila and Luganville also offers an opportunity for the expansion of the tender water and dry coconut market.

1.3 Current status of Vanuatu's coconut sector

Continuous concerns have been registered in studies, annual reports and presentations in recent years regarding the declining status of Vanuatu's coconut sector (Landell Mills Consultant, 2005; Vanuatu Government, 2007). The declining feature of the sector is characterized by a low rate of replanting of coconut trees in all principal islands;⁴ a relatively low number of harvested mature coconuts⁵; a decreasing rate of copra production as percentage of GDP⁶; and the decline in the overall production levels of copra and coconut meal.⁷ Furthermore, the decline is evident in the obvious lack of confidence in the sector among coconut growers, copra producers, the Department of Agriculture, and other policymakers in the Vanuatu Government system.

Copra production by its very nature is labor intensive and poorly paid given the current low level of copra prices over the past 3 years. Moreover, its benefit is dependent on many variables before which the copra producers can begin to enjoy the outcome of their labor. Most obvious among these is the immediate accessibility to copra markets which could depend on factors such as level of cash flow or availability of land or sea transport. Moreover, fluctuations in

world copra prices and the immediate access of this information to the copra producers are other concerns for consideration. The industry is also challenged with the country's distance from overseas markets, the distance between smaller islands within the country as well as lack of appropriate infrastructure on smaller islands. Given the scattered nature and isolation of some smaller islands from the main business centers, prices offered to producers in the most distant island locations are usually small and unattractive, discouraging continued production.

A prevalent lack of data and information is the major undermining factor for the demise in the coconut sector. While the Department of Agriculture did undertake agriculture census' in 1990, 1991, 1992, and 2007 the nature of information collected is not sufficient to assist the respective stakeholders and authorities responsible for improvement and value adding in the sector. A household expenditure survey report was produced in 2010 which had very useful data in terms of quantitative information, but the lack of qualitative data is still an obvious deficiency.

1.4 Recent developments in the coconut sector and trade

Vanuatu's trade deficit in 2014 stood at VT2,953 million representing a 31 percent increase in imports from 2013. Although total exports of goods recorded between May 2013 and May 2014 indicated an impressive increase of 63 percent, the increase in imports was outpaced that of exports mainly due to imports of household consumption goods. Mineral fuel made up 33 percent of the value of imports, followed by machines and transport equipment which contributed to 21 percent, and by food and live animals which accounted for around 18 percent.

Total goods exported in 2014 shows that copra constituted 28 percent, coconut oil 23 percent and coconut meal 2 percent making a total of 53 percent of Vanuatu's export originating from the coconut sector. The remaining 47 percent is attributable to the export of kava, cocoa, coffee, fish and forestry products.

Up until the early 1990s, copra production was the dominant activity in the sector with exports fluctuating between 30,000 to 50,000 tonnes in the 1980s to the 1990s. However, despite huge increases in the mid-1990s, the beginning of the 21st century witnessed a continuous and gradual reduction in the exportation of copra. While it is obvious that this decline is due

to low production in the primary subsector, it is less obvious that copra export declines also reflect a recent increase of value addition in the sector. Currently there are 5 coconut oil processing mills in Vanuatu all of which are operating at under-capacity due to the low rate of production at the primary level.⁸

1.5 The effect of tariff policy on the sector

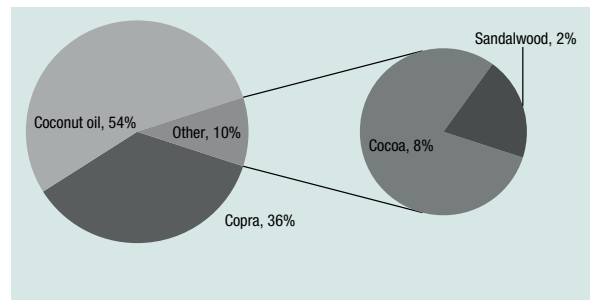
Recently with an increase in tariffs relating to the importation of chicken products aimed at developing Vanuatu's infant chicken industry and the development of the domestic capacity for growing its own poultry products, it has become necessary for poultry farmers to consider locally produced chicken feed. In this respect, although no international tariffs have been imposed on the importation of coconut products, the sector is enhanced by the protection of the poultry sector which does impact positively in the sector given the subsequent demand for coconut based chicken feed and other animal coconut based feed.

Vanuatu exports 71 percent of its copra to the Philippines and around 45 percent of its coconut oil and other copra by-products to Malaysia. At a 10 percent import duty rate Vanuatu's copra imports to the Philippines makes for a comparatively less costly base for manufacturing coconut oil and feed meal accounting for the mass exportation of copra to the Philippines in the face of domestic capacity for processing all the copra being exported. One line of action to ensure that Vanuatu's copra is processed locally would be to impose levies on exportation of raw materials for which there is adequate domestic capacity for processing and adding value.

1.6 Role and performance of the coconut sector in the national economy

Copra has been the mainstay of Vanuatu's economy for well over a century and will continue for the near future to be the second largest export after tourism. A comparative assessment of the 45 percent contribution of the three main cash crops to exports in June 2014 shows that coconut constitutes 90 percent whereas the contribution of cocoa and sandalwood makes for only 10 percent. The lack of relevant information continues to be a major constraint in determining the extent to which spinoff effects from the production of copra affect the service sector. Nevertheless, it was noted in 2003 that 6.4 percent

Figure 4. Contribution of selected green sectors to agricultural exports in 2011

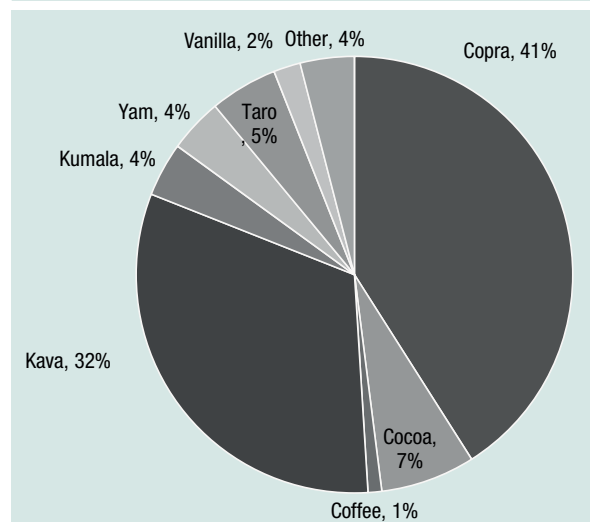


Source: VNSO

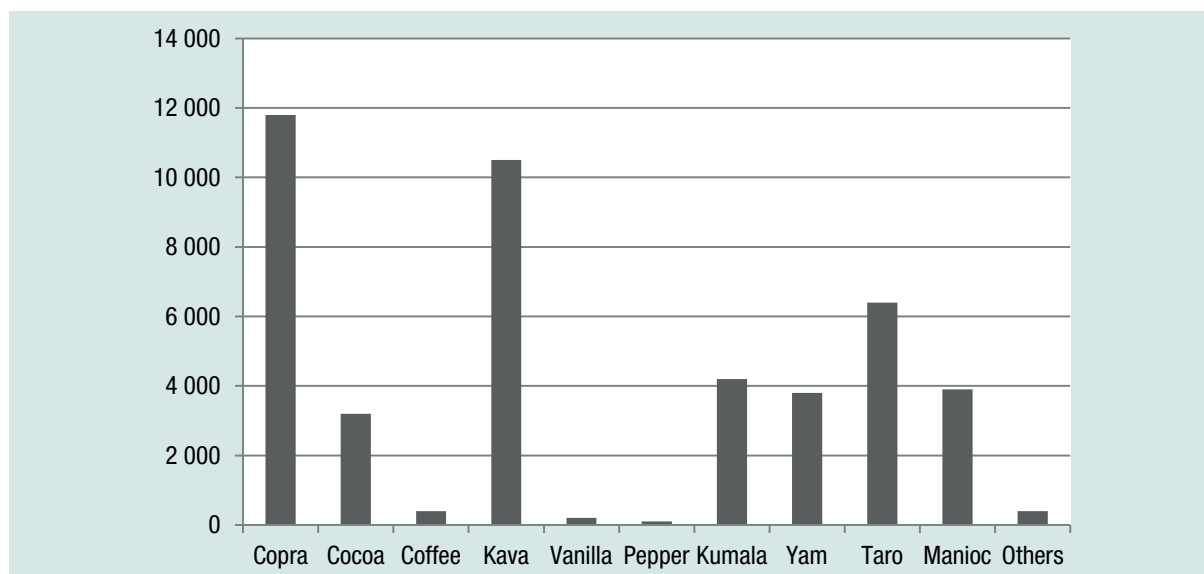
growth in the agriculture sector which consists mainly of copra registered a 1.7 percent growth in the service sector. This recorded growth was also attributed to positive impacts on maritime and land transportation and an increase in the household purchasing power.

In terms of income at the micro level, sales of copra comprised the largest contributor to monthly income for rural dwellers as recorded in the 2010 household income and expenditure survey. The survey recorded a total of 11,710 households as depending on the copra industry for their monthly income. The total income recorded as resulting from sales of copra during the survey was noted to be VT252,800,100 or the equivalent of VT21,588 per household⁹ per month. While this does not include the income from sales of tender coconut water and the dry coconut cream which forms the staple diet of average Ni-Vanuatu.

Figure 5. Total share of household income from 8 principal agricultural sources



Source: Household Income and Expenditure Survey, 2010

Figure 6. Total number of household in each principal income sector

Source: Household Income and Expenditure Survey, 2010

The contribution of the coconut sector by way of copra constitutes 41 percent of total share of household income from the 9 principal income sources, followed by the kava products which accounts for 32 percent.

1.7 Market structure of the coconut sector

Traditionally the development of the coconut sector has always been closely linked with copra and it was not until very recently that the crude coconut oil, the coconut meal, the tender coconut water, the whole mature coconut and the virgin coconut oil came to be established in the domestic market. About 71 percent of Vanuatu's coconut product in the form of copra is exported to the Philippines and the demand is obviously increasing given the recent development and advancement of the Philippine's rapidly growing tender coconut water industry and consequent reduction in its copra products.

Exportation of Crude coconut oil (CNO) constitutes around 54 percent of total of agricultural exports in 2011. This is expected to increase given the global demand on oleo-chemicals and the subsequent domestic increase in knowledge and information on new and emerging markets for coconut based products. For instance, in addition to application of coconut derivatives for prolonging shelf life of certain biscuits and crackers, the nutritional and pharmaceutical demands for coconut derivatives

has seen the creation of new markets. Coconut oil derivatives such as Medium Chain Triglycerides (MCT), structured lipids and monoglycerides are being increasingly used for manufacturing of sports drinks, infant food formulations and in the treatment of patients with certain fat disorders.

In the non-food industries, coconut oil is by far the only commercially known vegetable oil source to be very rich in lauric fatty acids, fatty alcohol, methyl esters, fatty amines and glycerol which are the bases for the manufacturing of soap, detergents, surfactants, metallic soaps, plastic and rubber products, candles and crayons, cosmetics, toiletries, synthetic lubricants and cutting oils. These market opportunities caters for Vanuatu an unprecedented offer which needs to be supported by an internal marketing and information system geared towards facilitating and enhancing farmer and producer awareness and improving investment in the coconut sector.

The domestic market for tender coconut water is yet at its juvenile stage being limited only to residents of Port Vila and available only in the open Port Vila markets. There is an obvious demand for fresh coconut water in the tourism sector but to date no available data is yet in place to determine its market characteristic and the extent of potential demand. However, prospects for the tourism sector to triple over the next decade offers a promising future for coconut farmers within the tender coconut water market and would necessitate an assessment of the potential market.

1.8 Market Environment

Vanuatu's coconut market environment is characterized by a lack of effective legislation, absence of clear policy directives, the absence of a sector strategy and a weak infrastructure for supporting and sustaining the quality required by the market. In any way the major market for the sector is basically the copra industry which is rather dominating to the disadvantage of emerging industries in the sector. The VCMB which is supposed to oversee the development of the sector is over-occupied with the copra industry and most particularly the copra subsidy fund and fail to encourage producers to engage in alternative industries within the coconut sector. The act was repealed in 2012 but was not gazette due to weak political will power from the political blocks. However, an alternative to the VCMB is the Agri-Business Promotional Regulatory Authority (APRA).

From the Policy environment, the establishment of the Industry Policy; The Trade Policy Framework (TPF); Micro, Small and Medium Enterprise Policy (MSME) all form an integrated policy framework for the coordination of scale, the creation of value

addition and the marketing of coconut products in the domestic market and abroad.

1.9 SWOT analysis for the coconut sector

The following SWOT table benefits from inputs made over the course of the NGER by UNCTAD, the national team of experts, and national stakeholders through consultations and the project's National stakeholder Workshops.

1.10 National Plan of Action for the coconut sector

The formulation of the National Plan of Action (NPA) for the coconut sector was an outcome of the second national stakeholders workshop held in Port Vila in August 2015. Stakeholders elaborated and adopted this plan based on consensus. **The full detailed NPA for coconut is available from the Government of Vanuatu.** Here, only the guiding stakeholder recommendations, and the agreed actions and activities are presented. The full NPA provides a

SWOT diagram for coconut sector	
Strengths	Weaknesses
<ul style="list-style-type: none"> Abundance of established trees suited to local conditions Coconut planted by majority of households Favorable climate Developing market network Rich value added product possibilities Low maintenance plantation management Suited to intercropping Rapid development of the tourism sector Nearness to world's international center for coconut development 	<ul style="list-style-type: none"> Insufficient mill processing capacity Unlimited value-added production, reliance on raw commodities exports to foreign markets for processing Insufficient infrastructure for manufacture and transport Lack of finance availability for smallholders Lack of incentives to replant for future supply
Opportunities	Threats
<ul style="list-style-type: none"> Target higher value buyers with more value and convenient products Improve linkages to tourism sector to tap local market for artisanal coconut products Improve quality and food safety to meet growing world quality standards Add value across entire product line to motivate replanting Harvest senile palms for flooring and other timber uses Coconut oil offers health benefits Organic certification 	<ul style="list-style-type: none"> Aging trees, declining supply Poor tree management promoting pests and disease Change in government policy Rising quality standards of markets and competing countries

timeline, responsible entities and an estimated cost figure for each activity.

Recommendation 1: Harness existing capacity of coconut farmers, industries and private sector to increase and sustain market related production

1. Take stock of existing capacities of smallholder coconut farmers, industries and associated private sector companies.
 - a. Create a Coconut Working Group (COWG) for the purpose of working directly with coconut farmers, industries and private sectors within the coconut sector.
 - b. MALFFB, MTTICNVB and COWG work together in assessing the existing capacity of coconut farmers, industries and private sector involved with the coconut sector.
 - c. Provide incentives for coconut farmers to replant coconut stands destroyed by Tropical Cyclone Pam.
 - d. Enhance capacity of the judiciary, the Malvatmauri Council of Chiefs, landowners and Ministry of lands in sorting out outstanding land issues with potential for coconut development which are currently in court.
2. Increase and sustain market related production.
 - a. Undertake product profiling in the coconut sector in coconut producing islands for the purpose of identifying and categorizing the various players in the sector.
 - b. Develop a registry of inventory of different players and the nature and level of their respective business undertakings in the sector
 - c. Provide incentives to existing small and medium industries to increase production of coconut value added products (processing or chocolate product).
 - d. Enable the private sector to provide support services to coconut farmers and MSMEs in order to enhance their productive and marketing capacities.

Recommendation 2: Strengthen the institutional capacity of the Department of Agriculture department of industry to monitor the speedy recovery of the sector

3. Improve and enhance recovery process of the coconut sector through strengthening of DARD and Dol.
 - a. Establish a coconut development Division

within the Dol structure.

- b. Allocate adequately trained and experience human resources to manage and administer the coconut development division.
 - c. Enhance the effectiveness of coconut division by providing sufficient financial resource for ensuring the speedy recovery of the sector.
4. Improve and strengthen institutional capacity of the VARTC to undertake research into resilient varieties.
 - a. Allocate adequate resources for purposes of undertaking research into coconut resilient varieties.
 - b. Develop more resilient coconut variety well suited to the climatic conditions of Vanuatu.
 5. Formalize the establishment of the CIWG and allocate resources for enhancing operation.
 - a. Formalize structure and establish the COWG under a ministerial order the functions and role of the COWG within the coconut sector.
 - b. Government to allocate financial resources for supporting a full time administration officer.
 - c. Allocate financial resources for supporting operation of the office.

Recommendation 3: Create conducive and enabling environment for the coconut sector to flourish

6. Improve the legislative and regulatory environment surrounding the coconut sector.
 - a. Develop and enact a National coconut Act for regulating the development of and for sustaining the growth of the sector.
 - b. Implement the National coconut strategy with the view to provide strategic direction and maintaining consistency and linkages with other sectoral policies.
 - c. COM to take a decisive approach in dealing with the prolonged delay in gazetting the repealed VCMB Act.
 - d. Review the proposes APRA and decide whether or not the proposed coconut should replace the functions outline in the proposed APRA.
7. Diversify and sustain increased production of coconut products for domestic markets.
 - a. Inform producers of the potential markets for emerging products in the coconut sector.
 - b. Create central markets for domestic diversified coconut products.
 - c. facilitate training opportunities to coconut

- producers in order for them to access information and support services.
- d. Provide informational linkages and connecting networks for enhancing growth and diversification of the sector.
8. Promote domestic marketing through various potential opportunities and available marketing avenues.
 - a. Enhance inter-island trade through logistical related support to coconut producers.
 - b. Create central markets for domestic diversified coconut products.
 - c. Enhance coconut producer participation in the sector through regular updates on critical market related information.
- Recommendation 4: Provide support services for enhancing coconut farmers, MSMEs and private sector within the coconut sector**
9. Establish Coconut Industry Development and Revolving Fund.
 - a. Government provide initial funding over 4 year period.
 - b. Through membership of various associations within the sector COWG encourages membership fees to support the development and revolving fund (remit of the industries).
 10. Establish National organic coconut branding for MSME producers in the sector.
 - a. Develop a National Brand for all coconut producers.
 - b. Encourage coconut producers to comply with national standards and regulatory requirements.
 - c. Provide support to MSMEs for accreditation and certification of their products as organic.
 - d. Provide training and assistance to MSMEs in developing their brand and sustaining the quality and standards of their respective brand.
 11. Ensure that coconut farmers, producers and the private sector have easy access to information and data.
 - a. Centralize the role of COWG with an information center equipped with facilities for collecting, collating and dissemination of relevant information.
 - b. Facilitate ICT training for coconut producers in the rural areas with the view to encouraging ICT use of available networks.
 - c. Effectively utilize the existing TVL and Digicel telecommunication system for collecting information from rural farmers and producers and for informing farmers of orders, prices, regulations and other product requirements in export markets.
 12. Enhance policy linkages with other relevant agencies and sectors for advancing the coconut industry.
 - a. Liaise with relevant authorities for the development of appropriate infrastructure for enhancing the development of the sector.
 - b. Liaise with relevant authorities in the productive sector for addressing issues of common interests such as the cattle and beef industry and the stock feed industry.

SECTION 2.

VANUATU'S COCOA SECTOR

2.1 Introduction

Cocoa planting in Vanuatu began in 1885 and the first reported cocoa bean export was in 1910. In Vanuatu, cocoa is grown throughout the islands with the 2007 Agriculture Census reporting cocoa trees being concentrated in the Sanma, Penama and Malampa provinces. Once the pods are mature they are harvested, the beans are then fermented, dried and exported. The 2007 Agriculture Census reported 22,153¹⁰ hectares of cocoa trees throughout Vanuatu.

The optimum climatic conditions for good cocoa production are: rainfall: 1,500 to 4,000 mm per annum; temperature: between 22 C and 31 C; sunshine: 4.5 to 6.5 hours of sunshine per day for full production; altitude: up to 600 m; and stable wind patterns cocoa cannot withstand strong steady winds or cyclones, but can recover quickly after being damaged by a cyclone (Sewell and Lau, 1993 in: McGregor, 2009).

Cocoa farming does not require the same laborious work as copra farming and provides a better return per unit effort. Once established, much of the labor input, such as the harvesting and cracking of pods, can be undertaken by women and children, which is why child labor is one of the issues related to cocoa production. A major advantage that cocoa offers smallholders is that it can be integrated into a food garden or grown under mature coconuts to multiply smallholder earnings. Following the planting of yams, cocoa seedlings can be planted along with taro, bananas, and other food crops (McGregor, 2009).

Africa alone accounts for 68 percent of the world's cocoa production; Asia and Oceania with 18 percent; and the Americas with 14 percent (ICCO, 2010). Cocoa in Melanesia delivers a significant source of community benefits as it is one of a currently rather narrow range of viable options for diversifying incomes, especially in the face of declining returns from copra.

Smallholder cocoa production in Vanuatu has always essentially been organic in the sense that chemicals and fertilizers are not used. Moreover, the majority of cocoa producers in Vanuatu grow cocoa using practices that mirror organic techniques without being certified. Therefore, this makes them 'organic by

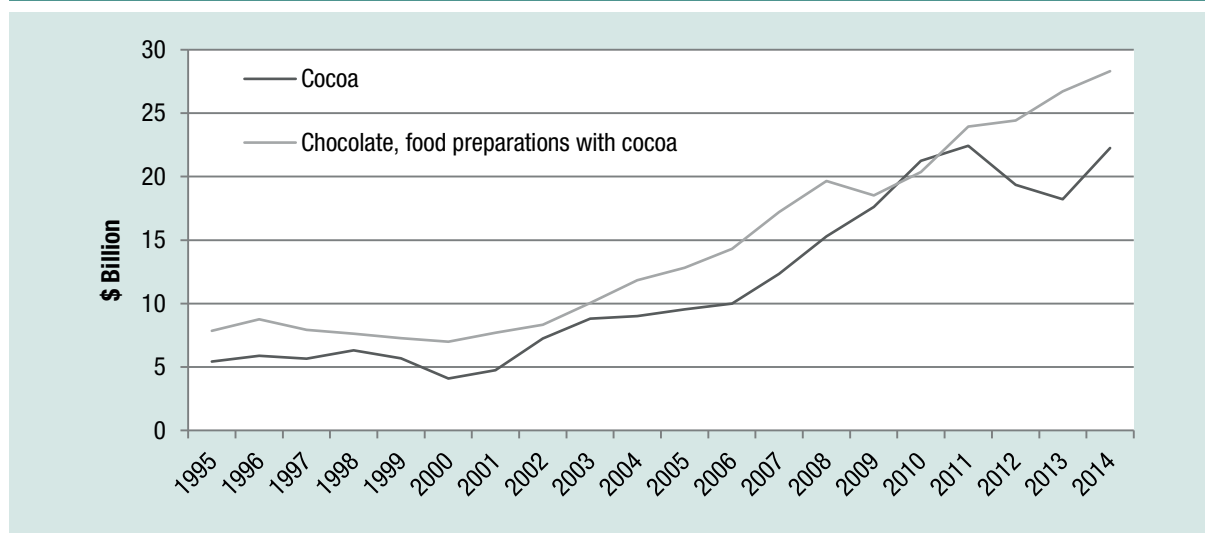
default' with the difference that all of this cocoa ends up in bulk markets with standard prices and thus no incentives are provided to the farmers to improve their quality or practices (Cocoa PRA 2011). In addition, growing tourism to Vanuatu has led consumers to associate positive attributes to products from Vanuatu, including chocolates which have recently been produced in Efate. Tourism is already providing an important retail outlet for the emerging chocolate industry in Vanuatu. However, despite this niche market, 90 percent of Vanuatu's cocoa is sold as bulk cocoa beans to Asia.

International market demand for high quality, 'single source', 'premium' chocolate is expanding rapidly, however, Vanuatu smallholders face a range of well-documented difficulties linking to markets. There is a need to improve pathways for commercialization of smallholder farming systems and to link them to higher value global markets for premium chocolates.

There remains considerable scope to improve farmer returns by increasing their productivity. Yields can be significantly improved through better management. Raising earnings in the cocoa sector could also be pursued by increasing value added production by processing beans more fully at the domestic level through the production of cocoa powder, cocoa butter and chocolate. Building linkages with the tourism sector are also critical. Tourists visiting Vanuatu represent a local door to access premium markets in global cocoa trade.

Many of these approaches towards improving earnings in the cocoa sector are already being advanced through the Cocoa Development Programme (CCDP) for 5 years (2010-2014) developed by the Department of Agriculture and Rural Development (DARD) and national stakeholders. This program is one of seven Sector Plans developed to complete the Vanuatu Agriculture Sector Policy Strategic and Operational Plan (ASOP). The National Green Export Review project provides an important catalyst to pair marketing, commercialization and trade activities to the agricultural activities of the CCDP.

This section of the report presents a study into the strengths and weaknesses of the sector. It explores general characteristics of the sector, potential market opportunities and the institutional, policy and economic environment influencing the sector. In addition to desk research, this chapter is also based on numerous consultations with national stakeholders in the sector.

Figure 7. Global merchandise trade for cocoa and cocoa products

Source: UN COMTRADE Database

2.2 Global trends and markets for cocoa products

Cocoa (*Theobroma cacao*) is native to Central and South America, but is grown around the world where environmental conditions are appropriate. According to the World Cocoa Foundation the cocoa crop worldwide supports 40-50 million people who depend on it for their livelihoods, and 4-6 million farmers around the globe who are directly involved with cocoa farming. Recently there has been increased demand for certified cocoa products, especially chocolate, leading to increased market opportunities (Bell, 2009; ICCO, 2010).

Figure 7 shows the global trends for increasing demand for cocoa and cocoa products from 1995 to 2013. The increasing demands resulted from production of other cocoa products such as chocolate and other food products using the ingredients as added value from

cocoa beans. There is a direct correlation between increasing demand for cocoa and the consumption of chocolate and other food products derived from cocoa. In 2013 alone, demand side keeps increasing while merchandise trade of cocoa itself has slightly dropped. We can anticipate that world price for cocoa beans will remain steady if the demand side continues to increase.

2.3 Current status of Vanuatu's cocoa sector

2.3.1 Vanuatu cocoa production

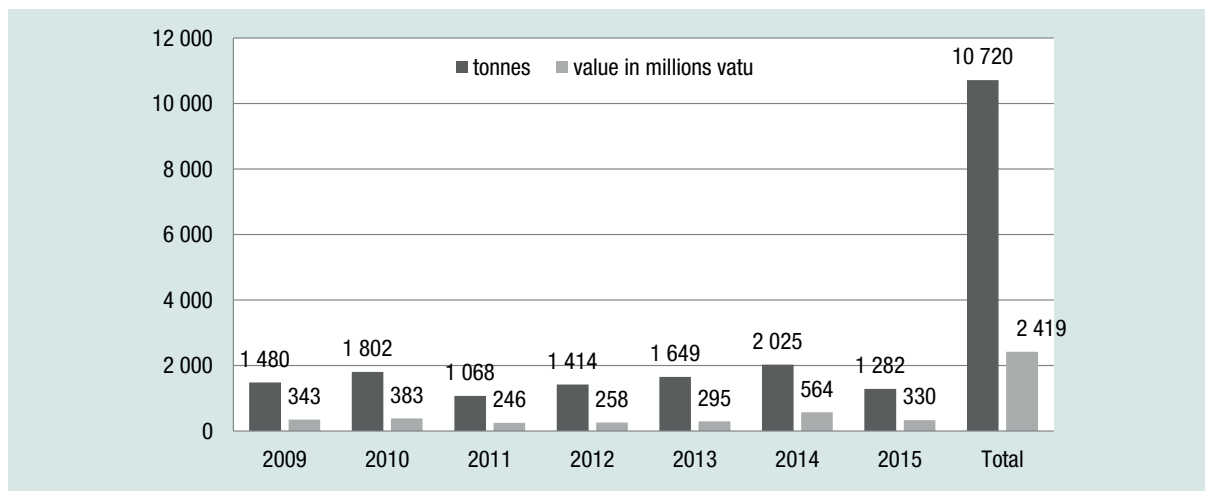
In 1910 there were 302 hectares of cocoa planted and about 1,800 cocoa trees in Vanuatu. By the 1983 census, 12 percent of households in Vanuatu reported being involved in cocoa activities with 1,297,988 trees. The 1994 census found an increase of households being involved in cocoa to 34 percent with 3,343,700

Table 2. The diversification of cocoa products and by-products in the global market

Primary	Other inputs	Added value(1)	By- products	Added value (2)
Raw cocoa beans	Human capital, drying and fermenting, stockpiling	Dried and fermented cocoa beans, roasted cocoa beans	Cocoa pods, shells, nibs	Fertilizer animal feed
Dried and fermented cocoa beans, roasted cocoa beans	Energy, water machinery, sugar	Chocolate liquor, cocoa powder, cocoa butter		
Cocoa liquor, cocoa butter, cocoa powder	Energy machinery, sugar, milk, nuts, know-how, packaging material and labeling	Chocolate, other chocolate products, cocoa beverage		

Source: UNCTAD, NGER Baseline Report

Figure 8. Vanuatu cocoa exports by volume and value



Source: VNSO

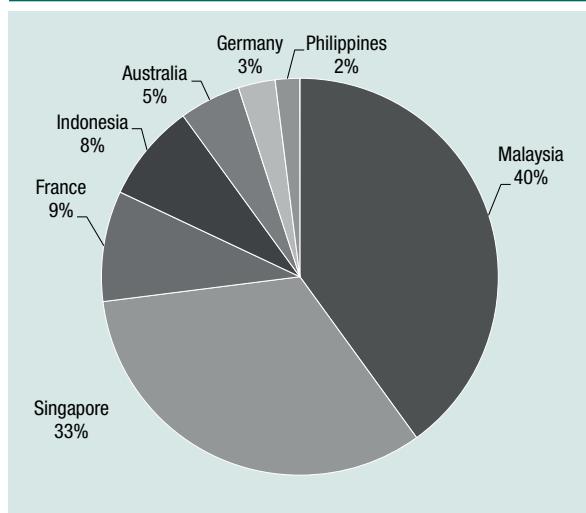
trees. These numbers then dropped in the 2007 census to 25 percent of households and 3,042,000 trees. Of the households that have cocoa trees, about 60 percent (4,882 households) sold cocoa beans in 2007. Of the cocoa trees that were counted in the 2007 Agriculture Census, over half (55 percent) were more than 20 years old.¹¹

2.3.2 Current status of the industry after Tropical Cyclone Pam

In addition to fluctuations in production trend of cocoa to date, Vanuatu’s cocoa industry will experience a decline in production over the next three years due

to the effects of tropical Cyclone PAM in 2015. There was significant damage to a number of cocoa trees especially in Shefa (Epi), however the major cocoa producing islands of Malekula and Santo were not affected and will continue to sustain the industry in the short to medium term. According to the information obtained from Epi, the Cocoa Growers Association indicated that farmers utilized their skills with an integrated pest and disease management system (IPDM) to rehabilitate their cocoa plots in the aftermath of Cyclone Pam. As a result of these extensive exercise undertakings, the cocoa trees are slowly recovering but it is expected to take few years for full production to be restored (Merib, 2015).

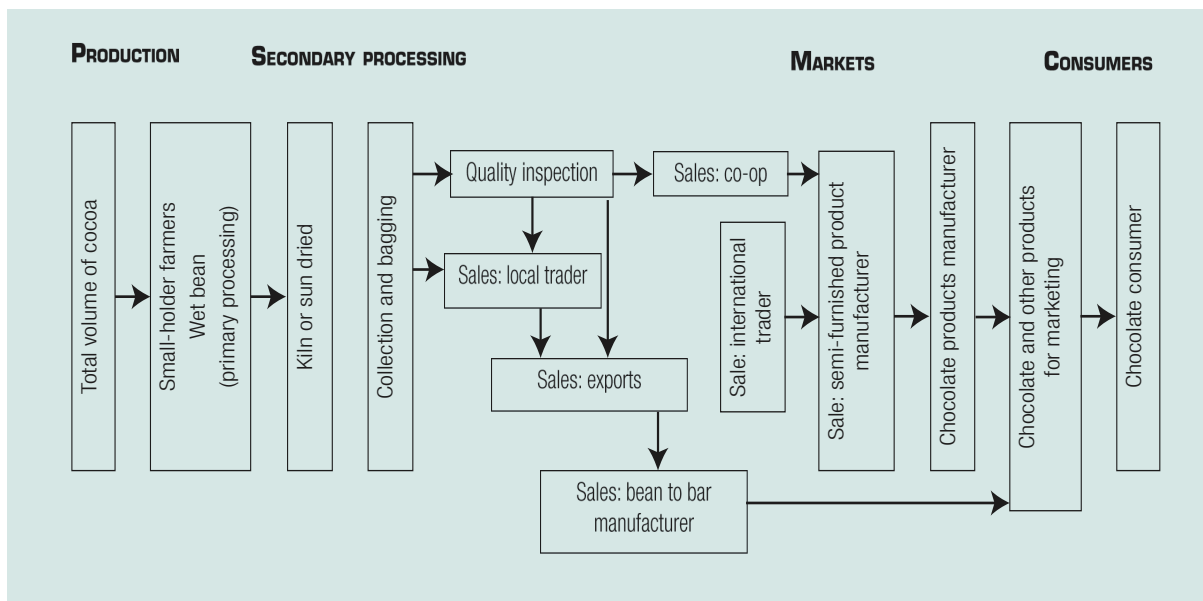
Figure 9. World cocoa exports by destination from 2009-2014 (percentage share of total)



Source: UN COMTRADE Database

From 2009 to 2013, the total tonnage of cocoa exports exceeded one thousand tonnes of which the highest record was in 2010 with 1,802 tonnes with the value of 383 million vatu. Although cocoa exports account for about 5 percent of Vanuatu’s goods exports, Vanuatu remains a very small player in the global cocoa trade representing less than 1 percent of global production (UNCTAD, 2014).

As with copra, the Vanuatu cocoa industry is regulated by the Vanuatu Commodities Marketing Board (VCMB). Cocoa quality standards established in 1981 and later updated in 2006 through the Vanuatu Cocoa Act aim to provide for the control of cocoa bean quality. Vanuatu’s grading specifications are based on the international standard Cocoa Bean Specification ISO-2451-1973; however this standard has not been effectively monitored and implemented over time which remains to be a major challenge for the industry.

Figure 10. Cocoa marketing chain

Source: Cocoa Value Chain Review, 2012, Pacific Agribusiness Research for Development Initiative (PARDI)

By meeting these standards farmers gain access to the main global cocoa markets including those in major developed country markets.

Over the 2009-2014 period, Vanuatu's largest export market destination for cocoa beans is Malaysia with accounts for 40 percent of total exports followed by Singapore with 33 percent, France 9 percent, Indonesia 8 percent, Australia 5 percent, Germany 3 percent and Philippines being the smallest with 2 percent.

Current exports (2015-2016), with the exception of organic cocoa exported to France and Germany, are mainly to the low-price cocoa product markets of South East Asia, (for powder, liquor and butter) where prices tend to be much lower than European and North American markets. A major goal for the sector is to improve bean quality to better access these latter markets.

Figure 10 illustrates the distance between smallholder cocoa producers and consumer markets. There is a need to develop pathways for commercialization of smallholder farming systems and linking them to higher value global markets. This promotes increased cash-generating opportunities for rural households, without sacrificing family and community cohesion (Cocoa PRA 2011).

2.4 SWOT analysis for the cocoa sector

The following SWOT table benefits from inputs made over the course of the NGER by UNCTAD, the national team of experts, and national stakeholders through consultations and the project's National stakeholder Workshops.

2.5 National Plan of Action for the cocoa sector

The formulation of the National Plan of Action (NPA) for the cocoa sector was an outcome of the second national stakeholders workshop held in Port Vila in August 2015. Stakeholders elaborated and adopted this plan based on consensus. **The full detailed NPA for cocoa is available from the Government of Vanuatu.** Here, only the guiding stakeholder recommendations, and the agreed actions and activities are presented. The full NPA provides a timeline, responsible entities and an estimated cost figure for each activity

Recommendation 1: Harness existing capacity of cocoa farmers, industries and private sector to increase and sustain market related production

1. Take stock of existing capacities of smallholder cocoa farmers, industries and associated private

SWOT diagram for cocoa sector	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Advantage in organic cocoa farming • Increasing international commodity price for single source cocoa beans • Good climatic conditions for cocoa production • POPACA investment into cocoa value chain in major cocoa producing islands (Malekula) with hardware, infrastructure, training and marketing information on cocoa • Ongoing technical assistance and support through regional funding initiatives such as PARDI, PHAMA, ACIAR, SPC and Government of Vanuatu • Government and donor support towards ACTIV mini chocolate processing facility in Port Vila • More farmers are investing in cocoa production have IPDM skills • Support from TVET for skills training/upgrade and training of trainers • Establishment of Cocoa Growers Association (CGA) organization framework & Epi Cocoa Farmers Association (ECFA) to support production and shared knowledge skills on best farming practice • Many islands in Vanuatu have comparative advantage in cocoa production (northern islands) • Various value chain studies undertaken for the cocoa sector • Sector was identified as one of the top 3 Vanuatu's comparative advantage in terms of green sectors export by UNCTAD NGER 	<ul style="list-style-type: none"> • Unreliable inter-island shipping service to transport bulk of cocoa to main Ports of export • Limited network communication in some isolated/ remote cocoa producing communities • Insufficient marketing information disseminated to individual farmers, groups or organizations dealing with cocoa production, processing & marketing • Poor packing and handling of bulk of cocoa on inter-island vessels • Low quality grade of some cocoa beans (fermented improperly, small bean size) • Lack of proper infrastructure to assist quality grading and certification of cocoa beans for export • VCMB inability to better control and monitor quality of all cocoa beans • VCMB major liabilities making it unable to perform its roles effectively • Lack of smallholder agri-business skills to manage cocoa farms • Poor implementation of the Cocoa Act (2006) resulting in some unregulated players and poor quality cocoa exports • Unequipped food testing facility for cocoa and other food products • Lack of sufficient funding/investment to support the development of the industry • Lack of proper documented field research information on cocoa to be shared with all farmers • Lack of proper storage facilities for producers/farmers at the main ports with very limited infrastructure
Opportunities	Threats
<ul style="list-style-type: none"> • Increasing the production of cocoa • Rehabilitate existing plantations to increase total production (Metenesel Estate) • Increase in small holder production of cocoa • Explore value addition in cocoa products such as powder, chocolate, cocoa nibs, cocoa butter etc. • Building synergies with development partners to provide funding support to the cocoa industry • Cocoa can be intercropping with other cash crops/ trees (cocoa and limes, cocoa and sandalwood) trials (e.i., Epi) • Lead farmers to become trainers of other farmers (i.e., Joseph Melrib on Epi) • Improve research and collection of cocoa varieties/ germplasm as planting materials for farmers (i.e., VARTC ongoing research) 	<ul style="list-style-type: none"> • Cocoa production may be affected by increasing number of cyclones predicted each year • Farmers poor or insufficient knowledge on IPDM tools and methods on some islands • Lack of clear policy direction for the sector which may result in lack on new investment • Conflicting legislative roles or non-existence of relevant agencies dealing with certification and standard, licensing of exports, producers groups/ individual small holder farmers • Theft of cocoa pods during harvesting reduces incentive to improve production • Political interference in the affairs of the commodity board (i.e., VCMB) • Long and overdue process to repeal the VCMB Act and replace it with a new legislative framework

<ul style="list-style-type: none"> • Higher stable prices for value addition in Vanuatu (i.e., cocoa processing at ACTIV) as incentive for cocoa producers/farmers • Lower ITC prices allows farmers/producers to improve communication and increase business deals with outside buyers/importers • Strengthen the role of VCMB or replaced it with another new legislation with clear legal mandate (not to duplicate the existing roles of various legal public institutions) 	<ul style="list-style-type: none"> • Production will decrease if attention is not given to promote new investments tax incentives to production, secondary processing (establishment of industry) and marketing (export) • Continued poor quality by some producers may result in loss of market or make it hard to penetrate high value niche markets
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sector companies.

- a. Strengthen the current cocoa Industry Working Group (CIWG) for the purpose of working directly with the farmers, industries and private sectors within the cocoa sector.
 - b. Ensure that MALFFB, MTTICNVB and CIWG work together in assessing the existing capacity of cocoa farmers, industries and private sector involved with the coconut sector.
 - c. Provide production subsidies as an incentive for cocoa farmers to rehabilitate and replant cocoa stands destroyed by Tropical Cyclone Pam.
 - d. Enhance capacity of the judiciary, the Malvatmauri Council of Chiefs, landowners and Ministry of Lands in sorting out outstanding land issues with potential for cocoa development which are currently in court.
2. Increase and sustain market related production.
- a. Undertake product profiling in the cocoa sector in cocoa producing islands for the purpose of identifying and categorizing the various players in the sector.
 - b. Develop a registry of inventory of different players and the nature and level of their respective business undertakings in the sector
 - c. Provide incentive to existing small and medium industries to increase production of cocoa value added products (processing or chocolate product).
 - d. Enable the private sector to provide support services to cocoa farmers and MSMEs in order to enhance their productive and marketing capacities.

Recommendation 2: Strengthen the institutional capacity of the Department of Agriculture department of industry to monitor the speedy recovery of the sector

3. Improve and enhance recovery process of the cocoa sector through strengthening of DARD and Dol.
 - a. Investigate the option for setting up a dedicated division to coordinate the overall development cocoa sector as the secretariat for all issues relating to cocoa.
 - b. Allocate adequately trained and experience human resources to manage this division to support cocoa sector development.
 - c. Enhance the effectiveness of the division by providing sufficient financial resource for ensuring the speedy recovery of the sector.
4. Improve and Strengthen institutional capacity of the VARTC to undertake research into resilient varieties.
 - a. Allocate adequate resources for purposes of undertaking research into cocoa resilient varieties.
 - b. Develop more resilient cocoa variety well suited to the climatic conditions of Vanuatu.
5. Formalize the establishment of the CIWG and allocate resources for enhancing operation.
 - a. Formalize structure and establish the CIWG under a ministerial order the functions and role of the CIWG within the cocoa sector.
 - b. Government to allocate financial resources for supporting a full time administration officer.

Recommendation 3: Create conducive and enabling environment for the cocoa sector to flourish

6. Improve the legislative and regulatory environment surrounding the cocoa sector.
 - a. Review and Make amendments to specific provisions of the National Cocoa Act for regulating the development and for sustaining the growth of the sector.
 - b. COM to take a decisive approach in dealing with the prolonged delay in gazetting the repealed VCMB Act.
 - c. Review the proposes APRA and request COM to decide on the replacement of VCMB (this will have implications of cocoa).
7. Diversify and sustain increased production of cocoa products for domestic markets.
 - a. Inform producers of the potential markets for emerging products in the cocoa sector (niche market for chocolate production).
 - b. Facilitate Integrated pest disease management to small holder farmers.
 - c. Provide informational linkages and connecting networks for enhancing growth and diversification of the sector.
8. Promote domestic marketing through various potential opportunities and available marketing avenues.
 - a. Enhance inter-island trade through logistical related support to cocoa producers.
 - b. Investigate options for adding cocoa value into other cocoa by-products.
 - c. Enhance cocoa producer participation in the sector through regular updates on critical market related information though MIS.

Recommendation 4: Provide support services for enhancing cocoa farmers, MSMEs and private sector within the cocoa sector

9. Establish Cocoa Industry Development and Revolving Fund.
 - a. Government provide initial funding over 4 year period.
 - b. Through membership of various associations within the sector CIWG encourages membership fees to support the development and revolving fund (remit of the industries).
10. Establish National organic cocoa branding for MSME producers in the sector.
 - a. Develop a National Brand for all coconut producers.
11. Ensure that MSMEs are conscious and aware of compliance to international safety standards.
 - a. Government to fast track the process of establishing the Vanuatu bureau of Stands (VBS) and the development of the National Diagnostic Laboratory (NLD).
 - b. Government to find other options internally or externally for ensuring the conformity of MSMEs to standards in their products .
12. Ensure that cocoa farmers, producers and the private sector have easy access to information and data.
 - a. Centralize the role of CIWG with an information center equipped with facilities for collecting, collating and dissemination of relevant information.
 - b. Facilitate ICT training for cocoa producers in the rural areas with the view to encouraging ICT use of available networks.
 - c. Effectively utilize the existing TVL and Digicel telecommunication system for collecting information from rural farmers and producers and for informing farmers.
13. Enhance policy linages with other relevant agencies and sectors for advancing the cocoa industry.
 - a. Liaise with relevant authorities for the development of appropriate infrastructure for enhancing the development of the sector.
 - b. Liaise with relevant authorities in the productive sector for addressing issues of common interests to help build synergies.

SECTION 3.

VANUATU'S SANDALWOOD SECTOR

3.1 Introduction

Sandalwood is a commercially and culturally important plant species belonging to the family *Santalaceae* and the genus *Santalum*. Sandalwood oil extracted from the heartwood has been used for perfumery, medicinal, religious and cultural purposes over the centuries. In addition to oil, the wood and its powder are used for religious, cultural and medicinal purposes especially in the Asian and the Arab regions. The heartwood is used for ornamental or ceremonial carvings, or powdered for the manufacture of incense and other products valued in the international agarbatti market (Page, T et al., 2012).

There are around 18 species belonging to the genus *Santalum* which are; *S. freycinetianum*, *S. haleakalae*, *S. ellipticum*, *S. peniculatum*, *S. pyrularium*, *S. involutum*, *S. boninese*, *S. insulare*, *S. astralecaledonicum*, *S. yasi*, *S. macgregorii*, *S. acumminatum*, *S. murrayanum*, *S. obtusifolium*, *S. laceolatum*, *S. fernandezianum*, *S. salicifolium* and *S. spicatum*. All sandalwood species are identified as obligate wood hemi-parasites which means they absorb certain nutrients such as phosphates and nitrates from the host trees via root connections called haustoria (Subasinghe, 2013).

The global distribution of the sandalwood family is between 30 degrees N and 40 degrees S from Indonesia in west to Juan Fernandez Island in the north to New Zealand in the south. These species are mainly found in India, Indonesia, Australia, Timor, Hawaii, etc. Out of the 18 species mentioned above, about 6 species can be found in Hawaii Islands which shows the highest sandalwood diversity.

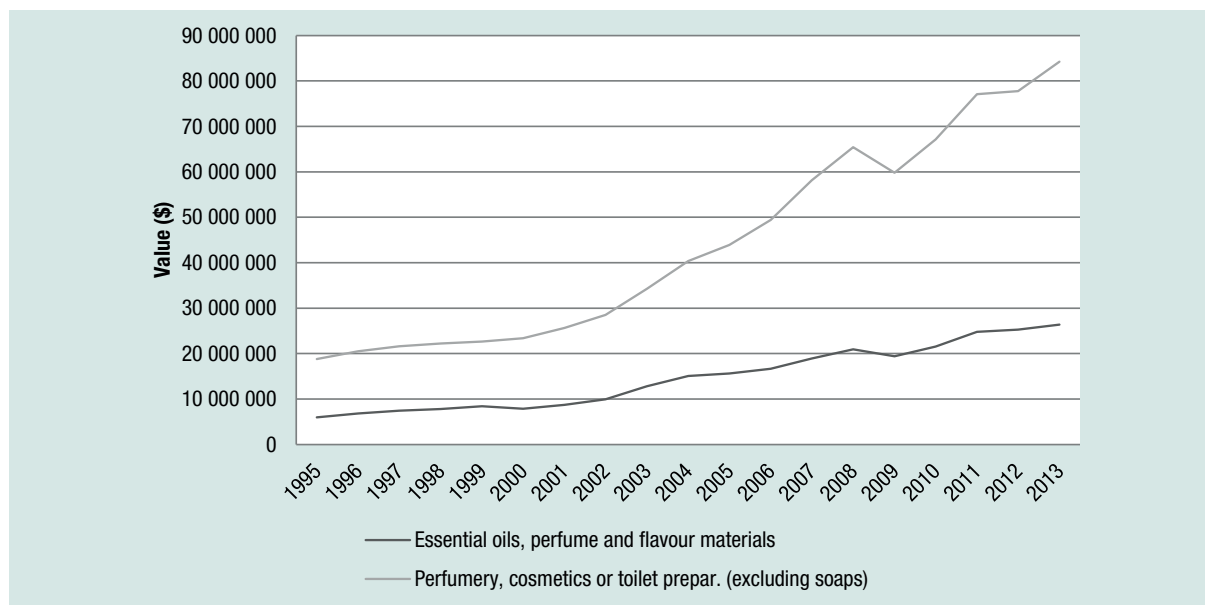
Sandalwood oil contained in the sandalwood timber represents the main economic and cultural value behind its trading. However, heartwood oil content varies widely between species and even within species. *S. album* known as Indian Sandalwood is renowned for its oil, which is highly rated for its sweet, fragrant, persistent aroma and its fixative property which is highly demanded by the perfume industry. Oil and timber prices are highly dependent on their

quality. Due to the high value of oil and timber, and its traditionally dominant role in sandalwood markets, *S. album* has been central among all sandalwood species in the aspect of research.

Currently most of the world demand of sandalwood is supplied from Australia using *S. spicatum* known as Australian sandalwood. Due to high value and demand, it was reported there is a growing attention in establishing sandalwood, especially *S. album* plantations in the tropical region including Sri Lanka alongside other forest plantation species, i.e. teak, mahogany etc. by the private sector plantation companies, due to growing domestic demand and existing high demand in world markets. In accordance with that, there is a trend in sandalwood plantation establishment in Australia, India, Sri Lanka, China and, more recently, Fiji. However, the plantation sector lacks experience with sandalwood cultivation and harvesting practices, which is identified as a great risk for output and profit maximization goal. Without sufficient information and experience on nursery techniques, host suitability, plantation establishment, growth rates and oil characteristics, managers of sandalwood plantations might face difficulties in achieving their expected outcomes.

Traditionally, the supply of sandalwood from Vanuatu has been harvested from wild stands by farmers/smallholders with customary rights over the land. Most smallholders harvest sandalwood for sale or to collect seedlings for planting. Although only small volumes are harvested from wild sources in Vanuatu (80-120 tonnes annually, representing about 2 percent of world supply), sandalwood contributes significant revenue and provides significant income to sandalwood harvesters. Current export markets for Vanuatu sandalwood include Australia, Hong Kong, China and India among others. Realizing its commercial value and through active promotion by the Vanuatu Department of Forestry (VDoF), many smallholder farmers have now invested in planting sandalwood. From 2000 to 2006, the annual planting rate was very high at 14,270, mirroring growing levels of demand growth in export markets.

This section of the report presents a study into the strengths and weaknesses of the sector. It explores general characteristics of the sector, potential market opportunities and the institutional, policy and economic environment influencing the sector. In addition to desk research, this chapter is also based on numerous consultations with national stakeholders in the sector.

Figure 11. Indicative trend in global demand of sandalwood-based products

Source: UNCTAD Statistics, 2015

3.2 Global trends and market characteristics for sandalwood products

The global demand for sandalwood continues to increase while supplies continue to decline. As a result, the future is looking very bright for the producers of sandalwood. Every year the amount of available sandalwood for sale on the world market is going down while the price is going up now to \$125,000/tonne for wood and \$2,000 per kilogram for oil, and expected to rise 6 percent per year for both wood and oil for the foreseeable future (Drage, 2011).

Current world market demand is thought to be around 5,000-6,000 tonnes of sandalwood per year. This figure is a total of different products sourced from a variety of sandalwood species. The lack of transparency in the production and marketing of Indian sandalwood means that information on supply and price trends is extremely difficult to obtain.

The two major sandalwood products are heartwood and oil. These are used in a wide range of markets spread across the globe. Sandalwood oil has a lucrative market according to its various uses. Table 3 indicates that the increased use of sandalwood in the pharmaceutical, perfumery, cosmetics, traditional medicine and aromatherapy industries drives a trend of growing demand in the United States and European Union markets in particular.

The quality of sandalwood oil depends on the level of santalol in the oil. Indian sandalwood is of the highest quality. Several Pacific sandalwoods are similar in quality, especially sandalwoods from Fiji, New Caledonia and Vanuatu.

Table 3. Average oil contents and origin of commercial sandalwood species

Species	Origin	Oil content %
<i>S. album</i>	Indonesia, India	6-7
<i>S. yasi</i>	Fiji	5
<i>S. astrocaledonicum</i>	New Caledonia, Vanuatu	3
<i>S. spicatum</i>	Western Australia	2
<i>S. lanceolatum</i>	Queensland	1

Source: Australian Agribusiness Group, 2006

The most important concern among the sandalwood growers is that sufficient oil quantity can be obtained from harvested trees. The oil content of sandalwood varies significantly by species. Table 3 indicates that *S. album* or Indian sandalwood has the highest oil content of sandalwood species (6-7 percent) compared to other species including *S. yasi* (5 percent), *S. astrocaledonicum* (3 percent), *S. spicatum* (2 percent) and *S. lanceolatum* (1 percent). This explains the reason Indian sandalwood is in high demand of the

Table 4. Sandalwood products, their uses and markets

Sandalwood Product	Uses	Markets
Heartwood	<p>Carvings</p> <p>Heartwood is used in small and large carvings. It is even used to make furniture. These carvings are purchased for worship, artistry and investment. In the Chinese markets, the manufacture of joss sticks for incense is popular</p>	China, Thailand
	<p>Gullies</p> <p>Gullies are pure heartwood sticks that are burned to create fragrance.</p>	Middle East, North Africa
	<p>Sawdust</p> <p>from heartwood prepared for distillation is valuable enough to be collected and sold for use as an incense for religious purposes as well as for scenting clothes and cupboards.</p>	Asia
	<p>Worship</p> <p>Wood and powder are used for many daily religious rituals like tilak as well as events like weddings and funerals where the wood is used to lift the spirits to heaven.</p>	India, Asia
Sandalwood Oil	<p>Pharmaceuticals</p> <p>Indian sandalwood oil has anti-inflammatory, anti-bacterial, anti-fungal and anti-proliferative properties. It is now the subject of clinical trials to develop prescription drugs to treat the skin.</p>	Global, especially Europe and the United States
	<p>Perfumes</p> <p>Sandalwood makes a perfume last longer (fixative properties). It is a classical fragrance ingredient: 47 percent of all perfumes created since 1790 contain sandalwood notes.</p>	Global, especially Europe and the United States
	<p>Cosmetics</p> <p>The medicinal properties of sandalwood make it a powerful cosmetic ingredient.</p>	Global, especially Europe and the United States
	<p>Traditional medicine</p> <p>Sandalwood has been used for thousands of years in traditional Chinese medicine (TCM) and Ayurveda. It is reportedly used for a wide range of conditions including bronchitis, skin conditions and stress.</p>	India, China
	<p>Aromatherapy</p> <p>Sandalwood was recently named as a top 10 essential oil for aroma therapists in the United States (D. Petersen, Perfumer and Flavorist, September 2013).</p>	Global, especially Europe and the United States

sandalwood species at the global market at \$2,125/kg (Table 5).

Outside of India, where exports of logs are prohibited, there is a thriving market for sandalwood as incense in joss-stick manufacture. Australia supplies most of this market at present, mainly from *S. spicatum* which has a low oil content and which is, therefore, less attractive as a direct source of oil. Exports of logs from Western Australia were almost 2,000 tonnes in 1989, valued at A\$11.5 million. Log exports from other sources have amounted to a few hundred tonnes or less from individual species (FAO, 2012).

Wild-harvested sandalwood is the basis of the worldwide sandalwood industry, and as most countries have severely depleted their natural reserves, plantations (with yields not expected in the near future until trees mature) are actively being established through new commercial ventures. The current downward supply trend, combined with continued demand, has resulted in sustained price increases in the international markets. Global demand for the different sandalwood species and their derivatives is estimated at 4,000-7,000 tonnes per year. However, since official data on sandalwood production does not take illegal harvesting into account, actual demand and production may be much higher.

In the flavor and fragrance industries, growth in the use of natural sources has overgrown the use of synthetic supplies for the production of flavor and fragrance productions. This has generated increasing demand for essential oils and the trend continues to grow. According to the data in Table 5, the United States markets recorded the highest price of \$2,125/kg of sandalwood used in the perfumery industry. This reflects the quality of oil from the Indian sandalwood species *S. album*.

Table 5. Price of sandalwood as perfumery oils in the United States and European Union markets

Markets	Origin	Price per Kg
United States	India	\$2,125
European Union	Fiji	\$1,100-1,500
	Australia	€750-900
	African	€650-700

Source: ITC, 2011

As the global demand for sandalwood continues to grow, a lot of sandalwood suppliers have now

invested in plantations. Tropical Forestry Services (TFS) in Australia is by far the largest producer of Indian sandalwood in the world. It has plantations in Western Australia, Northern Territory and Queensland. Between 2006-07 and 2011-12, Department of Agriculture recorded an increase of 4,834 thousand dollars from \$9,906 thousand to 14,740 thousand in gross value of production.

The full scope and value of international sandalwood market is very difficult to accurately gauge due to commercial secrecy and illegal trade in the global sandalwood market. Although efforts are made to seek data from a variety of published sources, government departments and regulators, and sandalwood traders, much of the data particularly of market volumes and prices obtained are indicative only and mostly based on the available data. In India where the harvest of sandalwood has been under the control of the government, official data (recorded at 1,000 tonnes of wood from *S. album*) is much lower as there are illegal and unofficial harvesting is thought to account for an additional 3,000-4,000 tonnes per year.

3.3 Eco-labels and quality standards

Certification schemes are becoming increasingly important within the forestry and essential oils industries and impact on both small-scale and large corporate businesses. Implementing these schemes can prove that a business complies with defined management systems. These schemes allow for transparency and traceability for product throughout the supply chain thus enhancing buyer's confidence in the supplier's capability.

TFS, as the largest supplier of Indian sandalwood in Australia have invested in eco-labelling and quality assurance systems to maximize the value of their product in the global market. In 2014, TFS has invested in planting 3.9million trees in 9,085ha with an annualized mortality of less than 1 percent. The certifications systems range from national, regional international. TFS have the following certifications ISO 9001 Quality Certified System, AS/NZS 4801 Safety Certified System and ISO 14001 Environmental Certified System undertaken by Compass Assurance Services.

3.4 Current status of Vanuatu's sandalwood sector

Sandalwood in Vanuatu is scientifically known as

Santalum austrocaledonicum. It is indigenous to Vanuatu and New Caledonia and is naturally distributed mostly in Vanuatu where it is naturally growing. With widespread awareness of its commercial value, it has been widely introduced throughout the archipelago and has been harvested and traded for over a century. A number of other sandalwood varieties have also been introduced.

The production of sandalwood in Vanuatu has three important factors favoring its commercial cultivation:

- Suitable environment: It is a native tree that is well suited to the growing environment
- Heartwood value: Vanuatu heartwood has a very high value
- Non-perishability: heartwood and associated products are non-perishable, which simplifies shipping and storage requirements

Vanuatu sandalwood trees are generally small to medium-sized (5-10m) trees that occur in dry slopes of the western part of several islands. Like all sandalwood species, it draws its water and nutrients from its host through root connections.

3.4.1 A traditional export

For the sandalwood growing regions of Vanuatu, sandalwood has been an important crop. It is the only crop that generates much needed income in remote areas of the country and in many cases it remains the only source of income in these isolated communities. Its uniqueness as a source of income for people in remote areas, as well as its value to the national economy, has encouraged the Government to develop it into a sustainably managed industry.

Since its commercialization, sandalwood has been an important part of the economy since the 1800s. Extraction and export of sandalwood in Vanuatu from 1820s to the 1850s was the dominant commercial industry. During this period, most of the sandalwood was traded by Australian merchants to Chinese consumers. After this period, the industry continued sporadically as natural populations re-established to a modest commercial size (Page et al, 2012). Until the 1970s, a small commercial industry was in operation since the 1970s and sandalwood form a basis of modest but important cash economy in Vanuatu, with trees grown and harvested from a number of locations.

Sandalwood stocks were depleted in some islands in particular Aneityum and Efate due to over-exploitation between 1800s and 1900s (Lui, 2014). In 1987, a five

year moratorium was introduced to control production and trading of sandalwood, but later started in 1988 and only lasted four years. It was not until 1995 that regulation of sandalwood started.

3.4.2 Ensuring sustainable production

Recognizing the commercial value of sandalwood, the Vanuatu Department of Forests (VDoF) actively began promoting sandalwood planting in the 1990s. In 2002, this initiative was formalized in the first objective of the VDoF's Sandalwood Policy: "to increase sandalwood stock through replanting" (VDoF, 2002).

The linkage between trade and reforestation activities is important because it guarantees the future of sandalwood industry in Vanuatu. Reforestation is ensured by the National Forest Policy (NFP) and is regulated by the Forest Act. The Vanuatu sandalwood industry has the potential to develop a niche market based on the organic and sustainable production of a highly valued natural product, which benefits smallholder producers. Planting activity in Vanuatu over the past 10-15 years has resulted in the establishment of between 700 hectares of combined smallholder and commercial sandalwood plantings. Like many forestry investments, the planting of sandalwood is a medium-to long-term venture. While these plantings mature in 2030, sustainable output levels will be at least four times the current 80 tonnes quota. Such an increase will have significant benefits to the local cash economy and ultimately improve Vanuatu livelihoods.

3.4.3 A successful market

The sandalwood sector in Vanuatu has been progressing well, as the communities, landowners and other agencies are currently taking a leading role in planting sandalwood. However, sandalwood cultivation involves considerable investment and time and while it has the potential to provide a high return on initial investment, it takes many years from the time seedlings are planted for harvesting to generate income. Sandalwood trees normally start producing heartwood at around 10-15 years. High quality sandalwood oil comes from trees that are at least 30 years old.

Traditionally, sandalwood has been harvested from wild stands by farmers/smallholders with customary rights over the land. Most smallholders harvest sandalwood for sale or to collect seedlings for planting. Although only small volumes are harvested from wild sources in Vanuatu (80-120 tonnes annually, representing about

2 percent of world supply), sandalwood contributes significant revenue and provides significant income to sandalwood harvesters. Current export markets for Vanuatu sandalwood include Australia, Hong Kong, China and India among others. Australia and India, while major producers, are also the major importer due to supply shortfalls in their domestic market.

The major consumer end uses of sandalwood in eastern markets include handicrafts and carvings, non-alcoholic fragrance, toiletries, mouth freshener, medicinal uses, incense and as a flavoring agent. Sandalwood is also valued in western societies where it features as a key ingredient in perfumes and in other value-added products such as incense, toiletries, cosmetics and aromatherapy.

The sandalwood processing industry in Port Vila produces various products, including sandalwood oil, heartwood, carving logs, sapwood, powder and hydrosol water thereby contributing to employment in the value added segment of the sandalwood market. Over the past years, only one company (South Pacific Sandalwood Ltd) is processing sandalwood oil and scents which they sell in the local market (at Summit Estate) and to a few customers overseas. Recently, another company Pacific Provender was established in Erromango which has been the major actor in sandalwood trading in Vanuatu.

Table 6. Green products that can be marketed in the tourism sector

Primary	Added Value (1)	By-products	Added Value (2)
Sandalwood tree	Sandalwood logs. Large sandalwood carvings. Sandalwood chips (incense). Sandalwood powder	Sandalwood powder (input to distillery to produce oil). Sandalwood scrap wood	Sandalwood oil. Sandalwood soap. Perfume. Medications. Small sandalwood carvings.

Source: UNCTAD, 2014

With the expanding tourism industry in Vanuatu, opportunities exist for marketing Vanuatu sandalwood products domestically, focusing on producing value-added products for sale within existing retail and agro-tourism outlets accessed by tourists. Summit Estate Ltd has been leading the production of sandalwood-

based products. Its sandalwood ingredient-based products targets the cosmetic, fragrance, therapeutic, religious, spiritual and essential oil markets with a retail price range of between AU\$7 to AUD\$470 per quantity of product. They are available at the shop and online. At its online marketing website, there are total of 132 sandalwood ingredient-based products on sale (Summit Estate, 2013). Pacific Provender is a recent joint venture investment based at the smallholder's level producing high value sandalwood oil-based products targeting the similar markets. Vanuatu has opportunities for trading sandalwood oil, soap, perfume, medications, powder and carvings as green products (Table 3).

The Vanuatu sandalwood industry will be at a very exciting position as for the first time in its recorded history the resources is expanding rapidly. Over the last 15 years, it is estimated that between 420 and 700 ha of combined smallholder and commercial sandalwood plantings. With this expanding trend in production extending to isolated communities, ACIAR (2012) conservatively estimates that national sandalwood yield in 2030 will be at least four times the current 80tonnes quota. If variations in climatic conditions remain stable, this increase would represent a significant benefit to the local cash economy and ultimately improve livelihoods.

3.4.4 Market structure challenges

The Government of Vanuatu has exerted a level of control on sandalwood harvesting and marketing. At present, there are only two licenses to buy sandalwood issued to Vanuatu processors, each with demonstrated capacity. These licenses represent a maximum 80 tonnes of sandalwood per year combined. This limit represents current estimated annual sustainable harvest from the native resource as estimated by the Vanuatu Department of Forests (VDoF). The VDoF also regulates the minimum price paid per kilogram of de-sapped heartwood for wild-harvested trees.

A technical report produced by ACIAR (2012), highlighted that the marketing duopoly operating in Vanuatu does not encourage smallholders to invest their time in establishing sandalwood woodlots. Up until 2012, the total export quota of 80 tonnes was shared between two buyers. With increasing planted woodlots by smallholders, individuals and group of farmers are demanding change in the policy and regulation to allow for more licensing and competition

for better prices to farmers.

As a result, the policy direction has changed resulting in 13 local buyers granted with sandalwood license to purchase sandalwood in any islands of Vanuatu in 2014. There are two categories of buyers, 11 annual buyers competing for 30 tonnes while there are two long term buyers consuming 50 tonnes. It is estimated that more than 70 percent of the 40 tons of wood recorded in 2013 came from planted trees. The Government through the VDoF has continued to provide licenses to encourage competition while maintaining the sustainable harvest policy and regulation of minimum prices to ensure farmers get the maximum benefit from the initiative. By April 2015, there are 23 licenses issued by the VDoF but the number may be expected to rise.

3.4.5 Other challenges

Another major constraint to the development of the industry lies in the limited availability of planter bags, in particular for smallholders. Although there was increasing demand for the production of sandalwood through the islands of Vanuatu, to the areas where sandalwood does not naturally grow, seedlings must be raised or purchased from individual or community-based nurseries. Planter bags are not available in sufficient quantity to meet the increasing demand of farmers indicating interests or are investing in establishing sandalwood woodlots.

Significantly, availability of seeds to those who are interested in growing sandalwood having realized its commercial value is a major constraint despite the growing trend of interests in planting sandalwood. This excludes them from participation. There exists a need to improve clonal seed orchards in Port Vila to provide seeds of superior genetic material. Sourcing of seeds from DoF and private nurseries should also be up-scaled. It is equally important that these seed orchard are improved and ensures that while it supplies the increasing demand of seeds and seedlings, trees producing high quality oil must be a central focus. DoF estimates commercial planting of more than 150ha and more than 300ha by smallholders. More replanting are taking place in Malekula and it could represent a shift in production in the future. However, maintaining the gene pool at the VDoF is at risk as other new species are introduced. The current sandalwood industry in Vanuatu is based on harvesting *S. austrocaledonicum*.

Enforcement of sandalwood policies and regulation is a great challenge. In 2013, records indicated

that quantity of export wood is higher than quantity recorded in the purchase register (VDoF, 2014). Sandalwood prices are still paid under the regulated prices. The lack of adequate human resources of the DoF to undertake monitoring and compliance during the harvest season contributes to this weakness in enforcement.

Although a lot of agronomic and technical researches have been undertaken with different objectives such as investigating species variance (oil quality) by CIRAD (1980s), socio-economics of sandalwood by AusAID (1993-1994), co-relation between heartwood and weight by DoF (1996), establishment of seed and gene conservation by SPRIG project (2004-2005), and oil analysis survey to determine the best phenotype by ACIAR (2004/2005). DoF still observes variance in growth rates from one islands to another and between different sites within any given island. There is an opportunity for additional research to establish information particularly to evaluate productivity and production issues in these environments and generalize strategies for addressing these challenges in order to assist farmers with interests in establishing woodlots in these areas.

Ongoing extension activities are required to ensure that appropriate establishment and management techniques are implemented to maximize the economic value of sandalwood plantings (ACIAR, 2012). Enhancing the production and distribution of awareness materials for nursery, planting, silviculture, pest management and pruning, particularly for the islands without existing plantings, would help them optimize their productivity and ultimate contribution to national export earnings. In addition, financial support is not sufficient to increase planting stock and maintain planted materials. In 2014, VDoF has initiated a sandalwood promotional program towards the tourism industry and encouraging foreign direct investments by planting sandalwood in Port Vila to become the '*Sandalwood City*' of the region.

Continuous review of existing and new legislations with direct effect on the industry is important to ensure a positive outlook for the industry. With the wild stands now depleting and planted stock increasing, the sandalwood policy and regulations should be continuously reviewed to reflect these shifts in production. There is a need to differentiate the management of planted trees (forests) and wild native forests. The new Industrial Development Act No 19 of 2014 should be reviewed as it represents a risk to

investment when it comes to regulating export levies into primary products in which sandalwood logs are categorized. This may be present some challenges among smallholders and in international-joint venture arrangements.

3.4.6 The capacity of the sector

The production of commercial tree species has been driven by market demands. In a survey conducted by the Vanuatu Chamber of Commerce and Industry (VCCI) following its distribution of nursery polybags between 2003 and 2007, whitewood and sandalwood appeared to be planted in significant numbers as compared to other commercial tree species. The other commercial species include Mahogany, Nagai species, Natapoa, Kauri and Namamau.

ACIAR (2012) reported that the market for Vanuatu sandalwood is largely based on wild-harvested heartwoods. VDoF regulates the minimum price per kilogram of de-sapped heartwood, which is reviewed and publicized at the beginning of each harvesting season. The woods are processed in Port Vila and the industry benefits both rural and the urban economies and provides income to the Government through royalties (Figure 15).

Table 7. Planting of sandalwood by smallholders across nine islands in Vanuatu between 2000 and 2006 as measured during the woodlot survey in 2007.

Island	Small-holders	Mean seedlings	Total seedlings
Santo	5	372.0	1 860
Ambae	21	100.5	2 110
Malekula	13	238.5	3 100
Nguna	1	222.0	222
Efate	4	1680.5	6 722
Erromango	76	478.2	36 340
Aniwa	92	238.5	21 939
Tanna	39	288.7	11 260
Aneityum	54	302.5	16 335
Total	305	327.5	99 888

Source: ACIAR, 2012

From 2000 to 2006, annual planting rate was 14,270 sandalwood trees (99,980 trees in total) relative to the past 7 years when it was 478 trees. Approximately 86 percent of smallholder plantings (Table 7) were in the south of Vanuatu (Tafea province) where natural sandalwood stands remain. Sandalwood plantings in Vanuatu are generally established using seedlings raised in village nurseries (Page et al, 2012). National

Agriculture Census (2007) recorded 1,854 people who were planting sandalwood while the 2007 woodlot survey (ACIAR,2007) found the mean planting rate per smallholder was 327 (Table 4). It accordingly estimated the establishment of between 303,000 and 607,000 sandalwood trees by smallholders in Vanuatu. Harvest of sandalwood in 2013 recorded by VDoF indicated sandalwood as an important source of income for the rural and urban economies and an important source of revenue for the government.

Raw sandalwood has three major uses: carvings, incense and oil. Quality specifications, and hence prices for raw sandalwood, vary considerably between species in each categories. In Vanuatu, sandalwood are normally exported in the form of oil, chips, logs, spent biomass and oil bye-products to India, Japan, Hong Kong, China and Fiji. In some instances, sandalwood sapwood was at lower price than the regulated prices. With the inclusion of the sapwood, it means more than 70 percent of the sandalwood trees can be utilized.

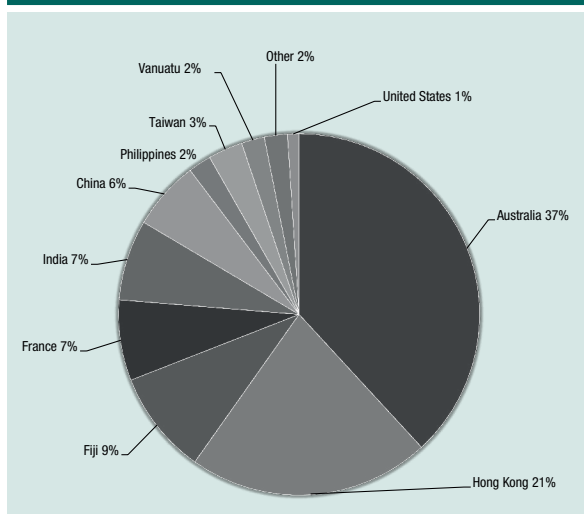
3.4.7 Vanuatu exports of sandalwood

There is no specific HS product classification for sandalwood even at the 6-digit level and so it is difficult to accurately track its trade using international trade data in the public domain. However, Vanuatu maintains statistics on exports of sandalwood and sandalwood products.

The Summit Vanuatu sells sandalwood heartwood chipped and packaged in 40-50g and sandalwood powder in 50g package. These are available on sale at their website. However, exports of Vanuatu sandalwood as reported by the Vanuatu VDoF (2014) is largely based in the form of oil, chips, logs, spent biomass and oil by-products to India, Japan, Hong Kong, China, Taiwan and Fiji. Sapwood is also exported but at a lower price than the regulated price. With the inclusion of sapwood, this could mean more than 70 percent of the sandalwood tree is being commercially utilized. While the exports of logs, chips and oil are dominant, there is a growing trend in the production of green value added products from Sandalwood by a few processors. According to Summit Estate website, it has a total of 132 products on online display from which has an ingredient from sandalwood. And these range from cosmetics, pharmaceutical, and fragrance, spiritual, religious to aromatherapy products.

National trade data indicate a downward trend in supply of wood from the forestry sector in Vanuatu.

Figure 12. Estimated world sandalwood exports (2009-2014)



Source: UNCTAD, 2014 (includes re-exports)

In 2000, exports of timber contributed approximately 11 percent of total Vanuatu exports; however this fell to 3 percent in 2007. This decline in exports has been caused by the decline in accessible commercial timber species (ACIAR, 2012). In that period, 73 percent of Vanuatu's export earnings derived from agriculture and timber resources, including sandalwood. There are opportunities in Vanuatu's capacity to source foreign exchange and royalties from timber royalties. Figure 6 presented royalties by

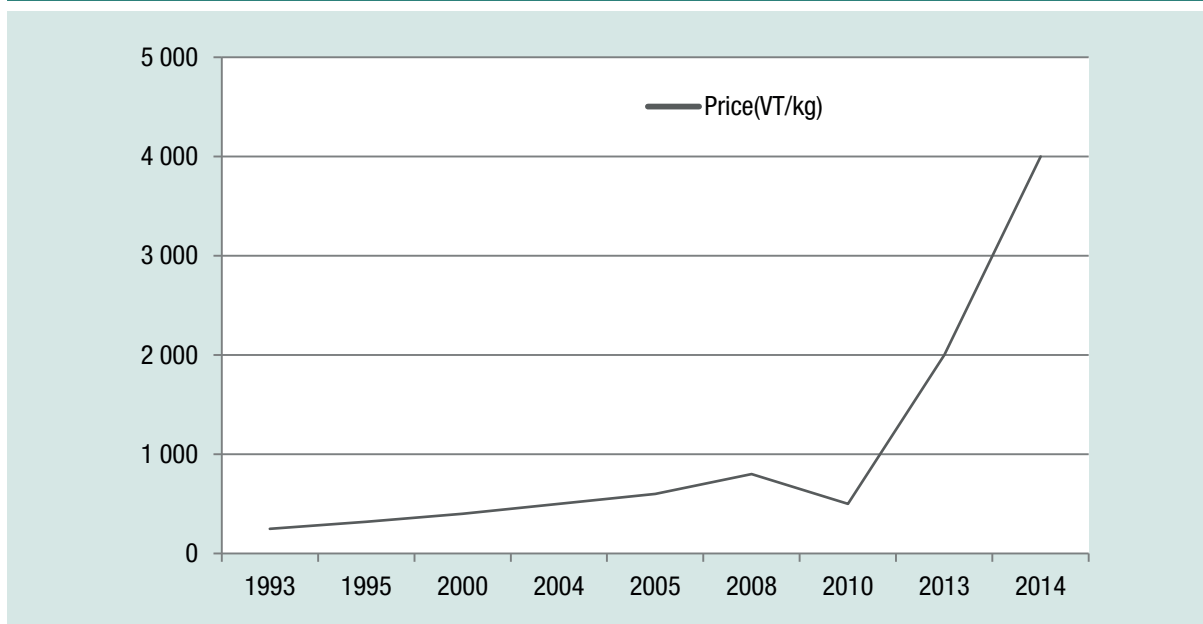
island as recorded by the VDoF.

With the exports of logs, the Vanuatu sandalwood industry has experienced a variation in prices per kilogram. In 1993, the price of logs was 250vt/kg and gradually grows and doubles in 2010 at 500vt/kg. This gradual increase in prices reflected the number of only two licensed exporters in Vanuatu. However, between 2010 and 2014 there was a dramatic change in price from 500vt/kg to 4,000vt/kg. This was a result of the government opening up of the sandalwood export licenses from 2 to 23 as of April 2015. The Vanuatu Department of Forestry still maintains the sustainable export quota of 80 in which the largest exports consumes 40 tonnes while the rest of licensees share the 40 tonnes, each having between 1-2 tonnes.

Traditionally, sandalwood is harvested from the wild stands by farmers with customary rights over the land. Since the small commercialization of the industry in the 1970s, majority of smallholders harvest sandalwood for sale or to collect seedlings for planting while a few use it as firewood or buildings and or repair (VNSO 2007).

Wild-harvested sandalwood has been a valuable source of income for many Vanuatu smallholders. This is evidently practiced in Erromango, Tanna and Malekula, the islands that have provided significant volumes of total sandalwood harvested in Vanuatu. It is assumed that wild stocks will decline to approximately

Figure 13. Variation in Vanuatu sandalwood log prices (1993-2014)



Source: Vanuatu Department of Forestry, 2014

30 tonnes by 2015 given the low total volume (209 tonnes) of resource estimated in 2008 (Page, T et al, 2012). With that, VDoF estimates that over the last 5 years wild stands have depleted and would regenerate to the sustainable harvest quota in the next 10 years (*Ioan Fiji, pers.com, 2014*). However, the current trend in planted sandalwood (Table 4) have indicated an impressive trend to reach the quota and is estimated to reach four times the current sustainable harvest quota by 2030 according to ACIAR (2012) estimates.

In Figure 14, the years 2003 and 2004 recorded the highest harvest of sandalwood in Vanuatu of 121 tons and 123 tons respectively. As harvest in the early 2000 comes traditionally from wild stands, it is evident that after 2004 total annual harvest steadily reduced. By 2012, total harvests recorded its lowest of 29.1 tonnes.

In 2013 alone, Tanna by comparison, recorded the highest harvest of 12.67tonnes for a value of vt39,149,850 reflecting an indicative price of about vt3,000/kg. This indicated the increase in planted sandalwood since 2000 (Table 7). Sandalwood grows naturally on eight main islands of Vanuatu including Tanna, Santo, Malekula, Efate, Aniwa, Futuna and Aneityum. The other islands have areas with climatic

and edaphic conditions suitable for it production. That includes Malo, Aore, Ambae, Pentecost, Ambrym, Epi, Paama and Shepherd.

Recent increase in world market prices associated with its projected high value of sandalwood has a medium to long term prospects for the industry. This has stimulated an increase in planted population in Vanuatu. By 2020 the size of the Vanuatu resource will increase but it is expected that planted stocks will begin to mature in 2015.

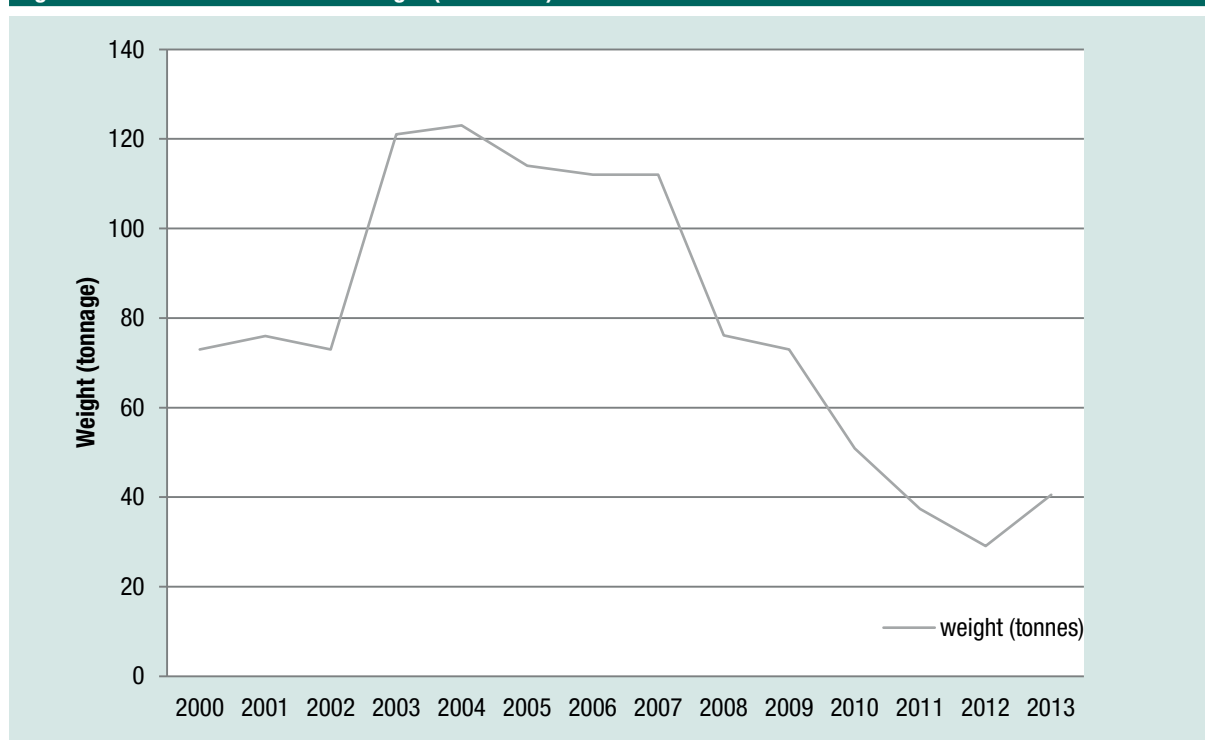
3.5 SWOT Analysis for the sandalwood sector

The following SWOT table benefits from inputs made over the course of the NGER by UNCTAD, the national team of experts, and national stakeholders through consultations and the project's National stakeholder Workshops.

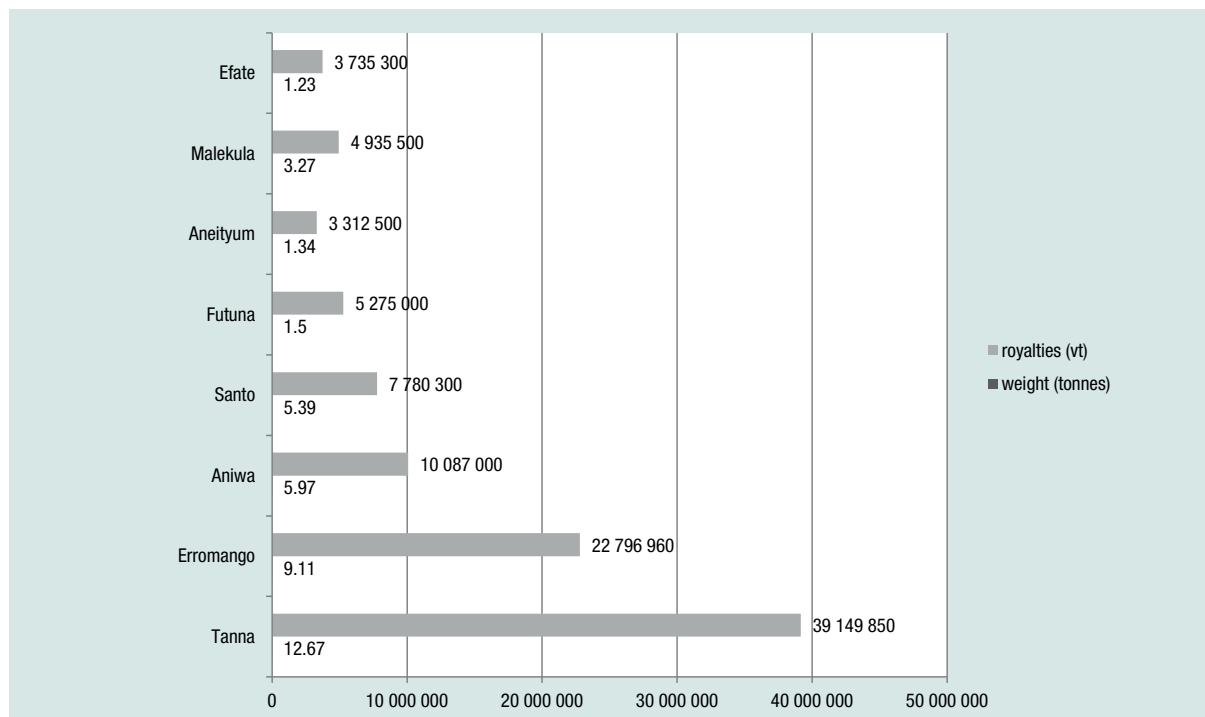
3.6 National Plan of Action for the sandalwood sector

The formulation of the National Plan of Action (NPA) for the sandalwood sector was an outcome of the second national stakeholders workshop help in Port

Figure 14. Sandalwood harvest in weight (2000-2013)



Source: Vanuatu Department of Forestry, 2015

Figure 15. Sandalwood harvest in weights and royalties, by island, in 2013

Source: Vanuatu Department of Forestry, 2015

Vila in August 2015. Stakeholders elaborated and adopted this plan based on consensus. **The full detailed NPA for sandalwood is available from the Government of Vanuatu.** Here, only the guiding stakeholder recommendations, and the agreed actions and activities are presented. The full NPA provides a timeline, responsible entities and an estimated cost figure for each activity.

Recommendation 1: Harness existing capacity of sandalwood farmers, industries and private sector to increase and sustain market related production

1. Take stock of existing capacities of smallholder sandalwood farmers, industries and associated private sector companies.
 - a. Strengthen the current sandalwood industry for the purpose of working directly with the farmers, industries and private sectors within the industry sector.
 - b. MALFFB, MTTICNVB and sandalwood industry work together in assessing the existing capacity of sandalwood farmers, industries and private sector involved with the Industry sector nationwide.
2. Increase and sustain market related production.
 - a. Undertake product profiling in the sandalwood sector for the purpose of identifying and categorizing the various players in the sector.
 - b. Develop a registry of inventory of different players and the nature and level of their respective business undertakings in the sector.
 - c. Provide incentive to existing small and medium industries to increase production of sandalwood value added products (by-products).
 - d. Enable the private sector to provide support services to sandalwood farmers and MSMEs in order to enhance their productive and marketing capacities.
3. Provide production subsidies as an incentives for sandalwood farmers to rehabilitate and replant sandalwood stands destroyed by Tropical Cyclone Pam.
4. Enhance capacity of the judiciary, the Malvatmauri Council of Chiefs, landowners and Ministry of lands in sorting out outstanding land issues with potential for sandalwood development which are currently in court (esp.: Erromango).

SWOT diagram for sandalwood sector	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Regulated and controlled industry within a sandalwood policy • Linkages are evident among government stakeholders • Native trees suited to local conditions • Significant value-added product possibilities • Low maintenance plantation management • Suited to intercropping • No major disease risks • Well-established plantations • Over 30,000 seedlings planted each year • Annual harvest quota of 80MT to rise to 300MT by 2020 • Rising sandalwood prices in global market • Vanuatu sandalwood oil is readily accepted in foreign markets as it is currently perceived as being of higher quality than <i>S. spicatum</i> • Organic certification 	<ul style="list-style-type: none"> • Long latest investment period (15 years for trees to mature) • Insufficient legislation to protect long term investors • Lack of funds committed to the planting of sandalwood by the government • Land tenure disputes • Adverse extreme weather events • High local cost of processing and shipping in Vanuatu • Insufficient awareness of sector in the remote locations of Vanuatu • Lack of standards and poor marketing strategies that ruin the reputation of certified oil
Opportunities	Threats
<ul style="list-style-type: none"> • Collaboration between private sector and government to improve product standards • Good chance of establishing niche markets through ethical certifications (Fairtrade) • Carbon credit farming • Establish funding programme geared towards local communities • Target higher value buyers with more valuable and convenient products • Improve linkages to tourism sector to tap local market for artisanal coconut products • Improve quality and food safety to meet growing world quality standards • add value across entire product line 	<ul style="list-style-type: none"> • Farmers losing land to leases • Increasing incidence of disease • Competition from other crops for valuable sandalwood growing land • Theft and illegal harvesting of young sandalwood trees and seedlings • Clearing of natural sandalwood land by developers • Poor planting practices, removal of top soil and erosion • Well financed corporations with investments that do not enhance local livelihoods

Recommendation 2: Strengthen the institutional capacity of the Department of Agriculture department of industry to monitor the speedy recovery of the sector

3. Improve and enhance recovery process of the sandalwood sector through strengthening of DoF and DoI.
 - a. Investigate the option for setting up a dedicated division to coordinate the overall development sandalwood sector within the DoF.
 - b. Allocate adequately trained and experience human resources to manage this division to support sandalwood sector development.
4. Improve and strengthen institutional capacity of the DoF Research Unit to undertake research into resilient varieties of sandalwood trees.
 - a. Allocate adequate resources for purposes of undertaking research into sandalwood resilient varieties.
 - b. Develop more resilient sandalwood variety well suited to the climatic conditions of Vanuatu.
5. Formalize the establishment of the Sandalwood Industry Association (SIA) and allocate resources
 - c. Enhance the effectiveness of the division by providing sufficient financial resource for ensuring the speedy recovery of the sector.

for enhancing operation.

- a. Formalize structure and establish the SIA under a ministerial order the functions and role of the SIA within the sandalwood sector.
- b. Government to allocate financial resources for supporting a full time SIA administration officer.
- c. Allocate financial resources for supporting operation of the office.

Recommendation 3: Create conducive and enabling environment for the sandalwood sector to flourish

6. Improve the legislative and regulatory environment surrounding the sandalwood sector.
 - a. Develop and implement a Sandalwood Industry Development Programme to increase the country's production and reliable supply of sandalwood.
 - b. Review and amend section 3 and 12 of the Industrial Development Act No 19 of 2014.
 - c. Review environmental control provision of the sandalwood legislation.
7. Diversify and sustain increased production of sandalwood products for domestic markets.
 - a. Inform producers of the potential markets for emerging products in the sandalwood sector.
 - b. Facilitate integrated pest disease management to small holder farmers.
 - c. Provide informational linkages and connecting networks for enhancing growth and diversification of the sector.
8. Promote domestic marketing through various potential opportunities and available marketing avenues.
 - a. Enhance inter-island trade through logistical related support to sandalwood producers.
 - b. Investigate options for adding sandalwood value into other sandalwood by-products.
 - c. Enhance sandalwood producer participation in the sector through regular updates on critical market related information through MIS.

Recommendation 4: Provide support services for enhancing sandalwood farmers, MSMEs and private sector within the sandalwood sector

9. Establish Sandalwood Industry Development and Revolving Fund.
 - a. Government provide initial funding over 4 year period.
10. Establish national organic sandalwood branding

for MSME producers in the sector.

- a. Develop a national brand for all sandalwood producers.
 - b. Encourage sandalwood producers to comply with national standards and regulatory requirements.
 - c. Provide support to MSMEs for accreditation and certification of their products as organic.
 - d. Provide training and assistance to MSMEs in developing their brand and sustaining the quality and standards of their respective brand.
11. Ensure that sandalwood farmers, producers and the private sector have easy access to information and data.
 - a. Centralize the role of SIA with an information center equipped with facilities for collecting, collating and dissemination of relevant information.
 - b. Facilitate ICT training for sandalwood producers in the rural areas with the view to encouraging ICT use of available networks.
 - c. Effectively utilize the existing TVL and Digicel telecommunication system for collecting information from rural farmers and producers and for informing farmers of orders, prices, regulations and other product requirements in export markets.
 12. Enhance policy linkages with other relevant agencies and sectors for advancing the sandalwood industry.
 - a. Liaise with relevant authorities for the development of appropriate infrastructure for enhancing the development of the sector.
 - b. Liaise with relevant authorities in the productive sector for addressing issues of common interests to help build synergies.

References

- AAG (Australian Agribusiness Group (2006). Market Overview the Australian sandalwood industry. Melbourne pp.3.
- Drage, K (2011), World's Largest Sandalwood Plantation Established in Western Australia. Hindu Press International. Available online <http://www.hinduismtoday.com/blogs-news/hindu-press-international/world-s-largest-sandalwood-plantation-established-in-western-australia/12536.html>(Accessed 28 April 2015).
- FAO (undated). Chapter 6: Sandalwood oil. Available online at <http://www.fao.org/docrep/v5350e/v5350e08.htm> (Accessed 13 January 2015).
- FAOSTAT, <http://faostat.fao.org/>.
- FAOStat3, <http://faostat3.fao.org>.
- Government of Vanuatu (2011) Annual Development Report 2011.
- Government of Vanuatu (2012) Revised Priority Action Agenda.
- Government of Vanuatu (2012) Trade Policy Framework.
- Government of Vanuatu (2012) Department of Industry Cocoa report.
- Government of Vanuatu (2014) Agriculture Sector Policy (still in draft).
- Government of Vanuatu (2014) Vanuatu coconut sector strategy (still in draft).
- Government of Vanuatu, (2011) National Industrial Policy 2011.
- Government of Vanuatu, (2012) National Statistics Office.
- Government Vanuatu (2007) Agricultural Census 2007.
- Government Vanuatu and AUSAID, (2007). Strategic Review of the Coconut Industry and Commodities Marketing in Vanuatu.
- International cocoa organization Quarterly statistics.
- Landell Mills Consultant, (2005). Study on the Development and Marketing of Vanuatu Cocoa and Coconut Products.
- Lui, W. (2014). Vanuatu Sandalwood Regulation and Development. Presentation prepared for the Vanuatu National Green Export Review Warwick Le Lagoon Hotel, Port Vila, Vanuatu.
- Pacific Cocoa livelihood project.
- Page T., Tate H, Bunt C., Potrawiak A. and Berry A. (2012). Opportunities for the smallholder sandalwood industry in Vanuatu. ACIAR Technical Reports No. 79. Australian Centre for International Research: Canberra pp. 14-20; 55-57; 60-63.
- PARDI, (2012) Cocoa Value Chain Review, ACIAR.
- PARDI, (2012) Coconut Value Chain Review, ACIAR.
- Summit Estate (2013). Available online at <http://www.thesummitvanuatu.com/sandalwood-oil-santalum-austrocaledonicum/>. Accessed 6 May 2015).
- UNCTAD Cocoa Review, 2014.
- UNCTAD, (2014) Presentation on the coconut sector from NGER of Vanuatu, First National Stakeholder Workshop (<http://unctad.org/en/pages/MeetingDetails.aspx?meetingid=611>).
- UNCTAD, (2014). Baseline Report for the National Green Export Review for Vanuatu.
- UNCTAD, (2015). Data Center. Available online at <http://unctadstat.unctad.org/wds/TableView/tableView.aspx> (Accessed 28 April 2015).
- USDA, PSD Database (<http://apps.fas.usda.gov/psdonline>).
- Vanuatu National Statistics Office (2007). Agriculture Census. Port Vila, Vanuatu (<http://www.vnso.gov.vu/>)
- Weightman. B, (1989) Agriculture in Vanuatu: A Historical Review.
- Western Australia Sandalwood Plantations (2011). Available online at <http://www.wasandalwood.com/index.php?id=66> (Accessed 29 April 2015).

Notes

- 1 See: http://unctad.org/en/PublicationsLibrary/webditcted2014d3_en.pdf.
 - 2 See: <http://unctad.org/en/pages/MeetingDetails.aspx?meetingid=611>.
 - 3 See: <http://unctad.org/en/pages/MeetingDetails.aspx?meetingid=876>.
 - 4 Vanuatu coconut sector strategy, 2014 (draft document).
 - 5 UNCTAD, (2014) Presentation on Expert consultation on coconut sector.
 - 6 *ibid.*
 - 7 VNSO, (2014).
 - 8 Philips.K and Kerkmann. L (2012) page 15.
 - 9 2010 household income and expenditure survey.
 - 10 Figures are quoted from the 2007 Agriculture census preliminary report.
 - 11 figures used are quoted from the 2007 Agricultural census.
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