



**Pacific Horticultural &  
Agricultural Market Access  
Plus Program**

Supported by Australia and New Zealand

# Impact Assessment: Support for Cocoa Sectors in Solomon Islands and Vanuatu

October 2020



Impact Assessment: Support for Cocoa Sectors in Solomon Islands and Vanuatu

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## Acronyms

ASF	African Swine Fever
CIMMYT	The International Maize and Wheat Improvement Centre
DAF	The Queensland Department of Agriculture and Fisheries
DFAT	Australian Government Department of Foreign Affairs and Trade
FAO	Food and Agriculture Organisation
FAW	Fall Army Worm
GRDC	Grains Research and Development Corporation
HPR	Host Plant Resistance
HS	Highly susceptible to FAW attack
IITA	International Institute of Tropical Agriculture
IPM	Integrated Pest Management
IPPC	International Plant Protection Convention
NS	NS susceptible to FAW attack
PICs	Pacific Island Countries
PNG	Papua New Guinea
S	Susceptible to FAW attack
SRA	Sugar Research Australia

## Executive Summary

Cocoa is an important source of income for farming families across Melanesia, supporting the livelihoods of 8,500 households in Vanuatu and 24,000<sup>1</sup> households in Solomon Islands. Melanesia has a reputation for low quality cocoa due to smoke taint and small bean size. It is also a very small producer in global terms. Despite these limitations, properly cured cocoa from Melanesia is known for its fine flavours and is of interest to makers of premium chocolates, a consequence of both the environment in which it is grown (soil and climate) and the processing methods used.

The Pacific Horticultural and Agricultural Market Access (PHAMA) program has been supporting the cocoa sectors in Solomon Islands and Vanuatu since 2012. PHAMA's aim was to establish or increase premium cocoa markets, creating a price premium for improved quality cocoa and improving returns for cocoa business and growers. Gains were also anticipated in conventional markets by increasing price competition and better positioning exporters to negotiate more favourable terms of trade.

PHAMA's 2016 Impact Report developed projections for the financial impacts of these interventions through to 2020. This assessment has collected new data to assess progress against these projections. Through to end 2019, 91% and 66% of predicted overall financial impacts had been achieved in Solomon Islands and Vanuatu, respectively. These figures relate specifically to additional income from sales of premium and high-quality bulk cocoa, as well as terms of trade improvements. Subsequent survey data indicated that the additional export income was flowing down to farmers, increasing household incomes.

PHAMA successfully worked with numerous companies of small to large scale in both countries to improve the quality of their bulk cocoa exports and develop opportunities to access premium markets. Impact in the premium cocoa sector was significant, with PHAMA achieving 117% and 92% of its projected impacts in Solomon Islands and Vanuatu, respectively. This specifically related to PHAMA's support to develop markets for premium cocoa used by specialty chocolate makers. Processors producing premium cocoa paid approximately 60% above bulk market prices to their farmer suppliers. The premium cocoa market demands consistent, high standards, something that many Melanesian smallholder farmers will find difficult to achieve over the long term without ongoing support. Small amounts of ongoing development partner support could cover this requirement through provision of a part-time cocoa marketing specialist.

Impact in the improved quality bulk market was less than expected, with 68% of projected benefits being achieved. There is additional potential to support differentiation of bulk cocoa where exporters can maintain separation of standard and improved bulk grades. Smallholder farmers selling to agents who are unable to maintain separate quality lines are unlikely to receive a premium for their efforts to improve quality.

PHAMA's work to improve terms of trade outcomes for exporters has significant potential to bring in additional export revenue for exporters. Each percentage point of improvement to terms of trade has a large impact because the volumes of bulk cocoa exported are relatively large (compared to exports of premium cocoa). In both Solomon Islands and Vanuatu, impacts from terms of trade benefits for bulk cocoa exports were less than anticipated in the 2016 PHAMA Impact Report, achieving 91% and 58%, respectively of the projected increased value. In absolute terms, the monetary gains from terms of trade benefits were greater than those achieved from premium cocoa sales, which highlights the importance of this work to the sector. The extent to which additional gains in terms of trade are passed on to cocoa producers needs to be determined.

Transport is notoriously expensive within Melanesian countries and internationally to and from Melanesia. Improving transport efficiency has been an ongoing challenge for governments. This is a

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<sup>1</sup> Estimates range from 18,000 to 25,000 households

particular challenge for companies exporting small amounts of premium cocoa, where the cost of break bulk can soak up the higher value per kilo of the premium product. Additional attention to explore ways to ease transport costs is worthy of ongoing investment.

Results from the smallholder farmer surveys in Solomon Islands suggest that smallholder farmers are split into groups that receive training from multiple projects over extended periods, whilst others receive little or no training. On average, supported farmers earned 4.2 times more income from cocoa sales than control farmers. Further, income from cocoa sales fell by 7.9% for control farmers from 2017 to 2019, whereas it increased by 6.9% for supported farmers over the same period. Given the significantly higher income of trained farmers it would make sense for development programs to actively target farmers who have not previously received support.

PHAMA has concentrated on provision of cocoa driers to improve quality. This has achieved good results for those farmers with access to a drier. Provision of future equipment could be linked to the ability of companies to differentiate their cocoa into markets that pay for quality.

The cocoa sector in both countries is dominated by smallholder farmers producing cocoa from aging trees. Significant cocoa yields can still be achieved from these trees through regular pruning and proper farm management practises, however optimum cocoa yield can only be achieved through investing in replanting. Replanting programs have been promoted by governments and development programs but currently lag behind need. Whilst replanting programs may be outside of the scope of PHAMA Plus, there may be opportunities to collaborate with other programs working in the space.

## 1 Introduction

The Pacific Horticultural and Agricultural Market Access program (PHAMA Plus) aims to contribute to improved economic growth and rural livelihoods in 200,000 Pacific households of the six PHAMA Plus economies (Fiji, Papua New Guinea {PNG}, Samoa, Solomon Islands, Tonga and Vanuatu), as well as small island states. Access to diverse export markets, not just Australia and New Zealand, is the priority objective. PHAMA Plus started in November 2018 and will run until June 2022. It builds on the work done by PHAMA (2011-2018). PHAMA Plus is commercially focused, export oriented and inclusive. It works to address supply, demand and market access issues.

Between 2012 and 2018 PHAMA provided a package of support to the cocoa industries in Solomon Islands and Vanuatu, and in PNG from 2015. It included a combination of activities designed to:

- Increase production (through development of industry approved training manuals and training of trainers)
- Improve quality (through cost shared distribution of solar driers and post-harvest practice training)
- Improve business capacity (through detailed financial analysis and mentoring with businesses, development of export standard operating procedures (SOPs), data collection and analysis, quality assurance training, industry networking)
- Share market information (through industry events, facilitation of the Cocoa Industry Working Group (IWG) and regular engagement with farmers, buyers and service providers), and
- Provide sales brokerage (to facilitate new sales into premium cocoa markets or, in conventional markets, to introduce new buyers and improve terms of trade for local exporters).

PHAMA's aim was to establish or increase premium cocoa markets, creating a price premium for improved quality cocoa and improving returns for cocoa business and growers. Gains were also anticipated in conventional markets by increasing price competition and better positioning exporters to negotiate more favourable terms of trade.

It is now timely to assess the impact of PHAMA/PHAMA Plus activities supporting the cocoa industry

and determine how they might be improved. The report considers PHAMA/PHAMA Plus impacts in Solomon Islands and Vanuatu only, where support to the cocoa sector has been provided since 2012.

## 1.1 Objective

The objective of the consultancy was to assess the impact of support provided by PHAMA to the cocoa sectors in Solomon Islands and Vanuatu, with an emphasis on market access and trade benefits across cocoa value chain actors.

## 1.2 Methodology

The assessment comprised a review of export data and other statistics regarding the sale of cocoa from Solomon Islands and Vanuatu and compared results with the projections from the 2016 PHAMA Impact Report<sup>2</sup>. Statistics assessed included sales and prices of bulk and premium cocoa, as well as benefits accrued from improved terms of trade.

Cocoa exporters and buyers, chocolate makers and other influential stakeholders were interviewed to better understand the effectiveness of PHAMA's interventions on their businesses. This included six companies in Solomon Islands, three companies in Vanuatu and two international companies.

Smallholder producers and processors were surveyed in Solomon Islands to determine the impact of PHAMA activities at the producer level. The COVID-19 pandemic prohibited travel to Solomon Islands and Vanuatu from March 2020. As a result, the review relied on interviews by phone and internet communications, as well as surveys conducted with the assistance of the PHAMA Plus team.

Details of methodology are provided as Annex 1 and a list of those consulted is attached as Annex 2.

## 2 World cocoa supply and demand

Global cocoa production has averaged approximately 4.5 million tonnes per year over the past 10 years (Figure 1). Production is dominated by the West African countries of Cameroon, Cote d'Ivoire, Ghana, and Nigeria and Indonesia, with these top five producers accounting for nearly 80% of production. Pacific Island Countries are very small producers in global terms. Papua New Guinea dominates Pacific production, but accounts for less than 1% of global production. Solomon Islands and Vanuatu are extremely small producers.

World cocoa prices fluctuate with the seasonal conditions that impact production in West Africa. The volume of global cocoa grindings tends to follow the supply, albeit with less dramatic fluctuation. Cocoa prices have ranged from USD2,200 to USD3,200 per tonne over the past ten years (Figure 1). Since 2013 there has been a typical supply and demand response, with prices rising as supply tightens and decreasing in periods of high production. Global production has been relatively high since 2016 and consequently, prices have been low.

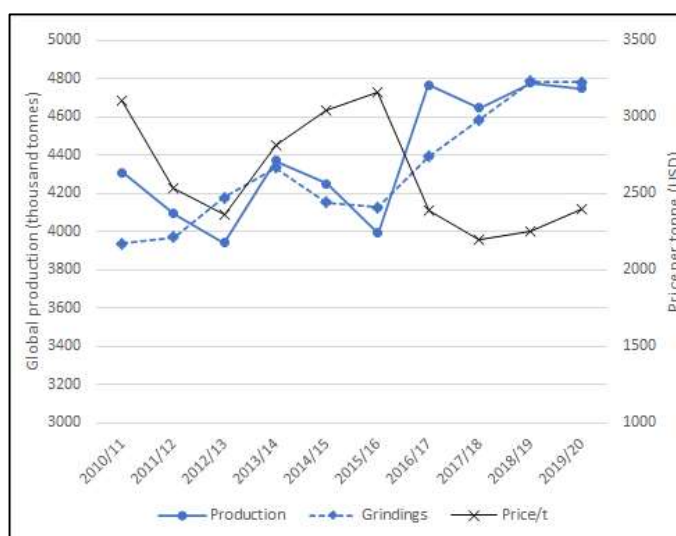
The COVID-19 pandemic has impacted chocolate sales during 2020, with retailers reporting substantially lower sales, mitigated to some extent by an increase in on-line trade. Cocoa prices were largely flat through the middle of 2020 at around USD2,300 per tonne, with prices weakening further through the third quarter.

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<sup>2</sup> The 2016 PHAMA Impact Report is an independent assessment of the impact of the PHAMA program to end 2016. It focussed on nine key commodities supported by PHAMA, including cocoa, and developed projections for impact through to end 2020.



**Figure 1 Global cocoa production, grindings and bean price over the past 10 years**



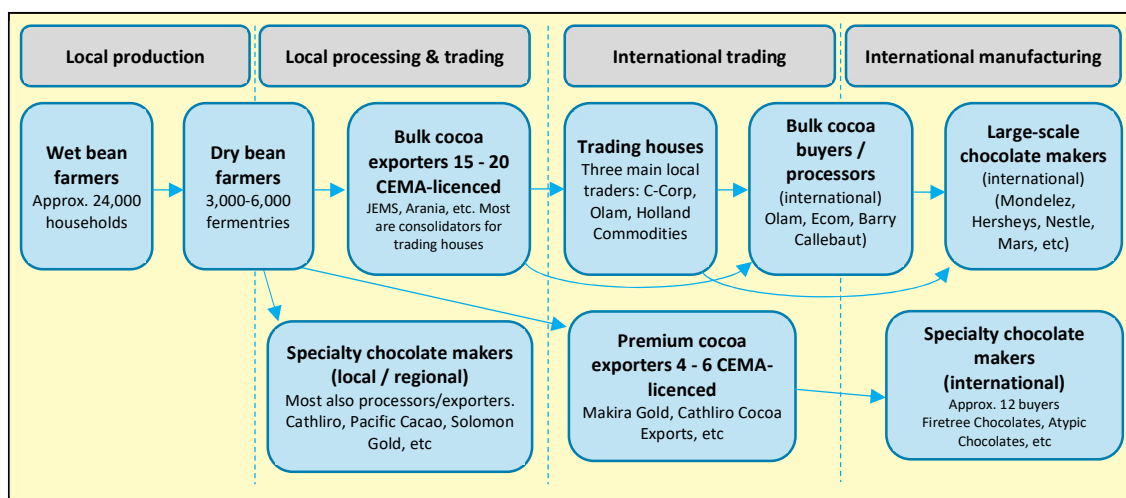
### 3 Solomon Islands cocoa industry

#### 3.1 Overview of cocoa sector

Solomon Islands’ cocoa sector is comprised of approximately 24,000 cocoa growing households which produce wet beans (Figure 2). Somewhere between 3,000 and 6,000 of these households also manage fermentaries to dry the wet beans. Dry beans are commonly sold to cocoa exporters who then re-dry and grade the beans for sale to international traders and buyers. A small number of companies manage fermentaries to produce their own high-quality premium grade cocoa for use in their own chocolates. These include Cathliro, Makira Gold and C-Corp, which manufacture chocolate in Solomon Islands or regionally (New Zealand) for retail sales. Some of these companies also sell premium grade cocoa to international speciality chocolate makers such as Firetree Chocolates and Atypic Chocolates. Less than 10% of the world’s cocoa is used by premium chocolate manufacturers, with the balance being used by large companies such as Mars, Nestle, Ferrero and Hershey.

The exporter/consolidator sub-sector in Solomon Islands is small, matching the country’s relatively small national production of 4,500 to 6,000 tonnes per year. These exporters sell to one or more of the trading houses that operate in the southwest Pacific region. Holland Commodities (HolCom) is the largest trading house, buying approximately 60% of Solomon Island production each year. HolCom buys cocoa at a base price and trades exclusively into the bulk market. HolCom has developed a business model that minimises its risk and retains a low, but consistent level of profitability by accepting the typical low-quality, smoke-tainted cocoa produced by most Solomon Island farmers. There are commercial risks in changing this model. The second largest exporter is C-Corp, with around 25% of the market. C-Corp purchases both standard quality cocoa and premium cocoa, the latter being used by its own chocolate label, Solomon Gold. The remaining commercial stakeholders are generally small-scale processor/exporters who sell small volumes into bulk and premium markets.

**Figure 2 Summary of Solomon Islands' cocoa industry product flows and roles of its stakeholders**



### 3.2 PHAMA's interventions in Solomon Islands

PHAMA provided a broad range of support to Solomon Islands' cocoa industry, from farmer-level training through to supporting large companies achieve better terms of trade in international markets. PHAMA worked in collaboration with other development programs to provide support, including most importantly the World Bank funded Rural Development Program (RDP) and DFAT's Strongim Bisnis program. Managers of both programs reported extremely well-aligned programs that utilised the capabilities of each to greatest effect. RDP was generally more focussed on 'production', whilst PHAMA focussed on the 'market-end' of the value chain. RDP provided a significant number of tools and training to improve production. PHAMA concentrated on improvements to cocoa quality and marketing. This included provision of solar driers and bubble driers – major components of the strategy to improve cocoa quality. PHAMA's support is summarised in the Table 1 below. The close collaboration between PHAMA and RDP is reflected during recent MRM surveys when some growers and processors were not able to distinguish which of the two programs had provided support.

**Table 1 Details of support provided to Solomon Islands cocoa sector**

Type of support	Details of PHAMA's support
Value Additions & Product Diversification	<ul style="list-style-type: none"> <li>Support in procuring equipment to process and export cocoa powder</li> <li>Provision of solar driers</li> <li>Establishing linkages between local exporters and importers</li> <li>Assisting local exporters to enter the premium cocoa market</li> </ul>
Market access and certification	<ul style="list-style-type: none"> <li>Coordination and cost sharing on organising SolChoc festival</li> <li>Coordinated and supported courier fees for samples of the 2017 &amp; 2018 SolChoc top 10 winners</li> <li>Supported lease extension of a storage warehouse</li> <li>On-going work towards organic certification</li> <li>Supported cost of sending exporters to Pasifika Festival in New Zealand</li> <li>Provided quality assurance equipment to large scale cocoa growers and cocoa exporters (such as cut test boards and moisture meters)</li> <li>Supported information dissemination sessions on the process of obtaining an organic certification for processors/exporters and identify ways to reduce cost of obtaining certification</li> </ul>
Access to information and training	<ul style="list-style-type: none"> <li>Support for investment in rehabilitation of tree crops and farmer training on GAP to increase yields and quality</li> <li>Facilitated industry collaboration to write a new 'tree to bar' training manual for growers and exporters</li> <li>One-on-one business mentoring for processors/exporters</li> <li>Social media and marketing training</li> </ul>

Whilst PHAMA's support to achieve better terms of trade for international markets continues to deliver benefits to the sector, PHAMA's ongoing support is targeted towards continued expansion into the premium cocoa market. Activities have therefore included brokering linkages and market penetration through participation in events such as the Solomon Islands Chocolate Festival, training and information dissemination on improved practices and consolidation of shipments to achieve to better freight rates for exporters.

### 3.3 Solomon Islands' cocoa exports

Solomon Islands predominantly exports conventional grade, bulk cocoa, which is sold into Southeast Asia's grinding market, from where it is included in a wide range of food products. The grinding market is able to use tainted beans but the price paid is lower than for high quality beans. Solomon Islands' farmers can produce high quality cocoa, but there is no incentive to do so unless cocoa exports are differentiated into premium and bulk market products. PHAMA has supported the development of markets for premium grade cocoa, which is typically smoke/taint-free, well-fermented and graded to remove impurities. Whilst this represents only a small percentage of Solomon Islands cocoa at present, there is potential for the market to grow and an incentive has been established for local growers to produce higher quality and higher value cocoa where it adds value to them.

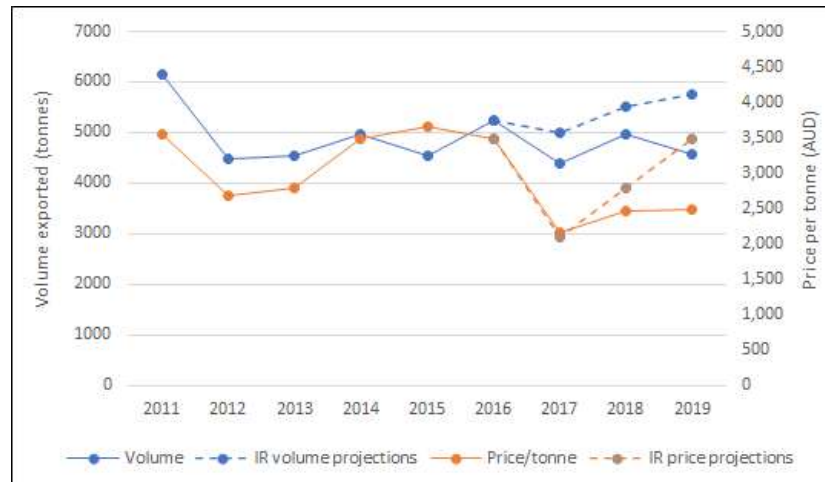
#### 3.3.1 Bulk cocoa exports

Cocoa price is generally a strong predictor of cocoa production and exports in Solomon Islands as smallholder farmers react strongly to price signals. Figure 3 shows a relatively close relationship between price and export volumes. PHAMA's 2016 Impact Report projected that cocoa exports would decline by about 5% in 2017 but then rise gradually to reach 6,000 tonnes annually by 2020. This increase was premised on the international cocoa price dropping by approximately 40% in 2017, before gradually rising again in 2018 to regain its 2016 level by 2019. Whilst price dropped according to expectations in 2017, the subsequent recovery has been far slower than anticipated.

Stubbornly low cocoa prices over the three-year period since 2017 have resulted in production being about 20% lower than anticipated in 2019 by the 2016 PHAMA Impact Report. Without programs such as PHAMA, RDP and others<sup>3</sup> help to maintain interest in cocoa production through period of low price, export volumes could have been even lower.

The COVID-19 pandemic in 2020 has resulted in slightly lower demand for cocoa by grinders, almost matched by a decline in expected production. Overall, the cocoa price is likely to remain low throughout 2020.

**Figure 3 Volume and value of Solomon Islands' cocoa exports since 2013, together with predictions from the PHAMA Impact Report (IR) for exports since 2016**



### 3.3.2 Premium cocoa exports

With PHAMA's assistance, the amount of premium cocoa exported grew from nothing to almost 2% of total export value in 2018 (Table 2). Over the period from 2013 to end 2019, the value of premium cocoa exports facilitated by PHAMA exceeded the total anticipated in the PHAMA Impact Report by \$64,000. The impacts on the COVID-19 pandemic on Solomon Island's cocoa production and global cocoa demand is expected to result in a significant decline in the value of premium cocoa exports in 2020.

**Table 2 Percentage and actual volumes and values of premium cocoa exported from the Solomon Islands and comparison with predictions from the 2016 PHAMA Impact Report**

	2013	2014	2015	2016	2017	2018	2019	Total
Percentage by volume	0.004%	0.02%	0.01%	0.04%	0.95%	1.09%	1.66%	
Percentage by value	0.01%	0.03%	0.01%	0.05%	1.99%	2.08%	3.45%	
Volume (tonnes)	0.2	1.2	0.3	1.9	42.0	55.0	77.5	
Additional value (AUD)	\$593	\$2,469	\$403	\$3,095	\$90,613	\$144,043	\$198,857	\$440,074
Predicted additional value IR (AUD)	\$0	\$0	\$0	\$16,000	\$80,000	\$120,000	\$160,000	\$376,000
Gain/loss c.w. IR (AUD)	\$593	\$2,469	\$403	-\$12,905	\$10,613	\$24,043	\$38,857	\$64,072

The companies supported by PHAMA were primarily new players in cocoa exporting. Low levels of support are still provided in relation to market linkages and contract terms, but most are now well-

<sup>3</sup> In particular the Ministry of Agriculture and Livestock (MAL), Australian Development Research Awards (ADRA) and Strongim Bisnis

established in the sector. The results highlight the need to maintain consistent but evolving support to the sector over an extended timeframe if long-term impacts are to be achieved. For example, companies previously supported to make their first export sales may need subsequent support to improve business systems and processes. This is even more important when the international price of cocoa is very low, as it has been since 2017.

### 3.3.3 PHAMA monetary impacts achieved compared with projections

Overall, PHAMA has generated AUD3.8 million of monetary benefits to the cocoa sector, which is 93% of prediction in the 2016 PHAMA Impact Report. The shortfall occurred due to the over-estimation of the tonnage of cocoa exports attracting improved terms of trade. Benefits derived from sales into the premium market exceeded the projected target. The premium cocoa market has capacity for expansion as the quality and consistent supply of Solomon Island’s cocoa improves.

**Table 3 Actual financial impacts of PHAMA for Solomon Islands cocoa to end 2019 compared with projections from the 2016 PHAMA Impact Report**

Sales category	Impact Report projections (AUD)	Actual achieved (AUD)	% of projected impact achieved
Bulk Terms of Trade	\$3,694,508	\$3,360,174	91%
Premium	\$376,000	\$440,072	117%
Total benefits	\$4,070,508	\$3,800,246	93%

### 3.3.4 Commercial stakeholder perceptions of PHAMA’s support

There are normally 15 to 20 small to medium-sized Honiara-based companies involved in processing and exporting cocoa in Solomon Islands. The exact number changes relatively frequently as companies enter and depart due to changing financial and personal circumstances. A further three medium to large-sized international companies buy conventional cocoa from Solomon Islands in relatively large volumes. These companies have all been trading for more than a decade and sourcing cocoa from Solomon Islands for most of their operating lives. Approximately half of these stakeholders were interviewed as part of this assessment. Six Honiara-based companies businesses completed a formal survey (attached as Annex 4). These companies worked directly with farmers and were sometimes also cocoa growers. Two of the international companies that purchased cocoa from Solomon Islands but did not otherwise directly interact with farmers were also interviewed. A United Kingdom-based buyer of premium cocoa was also interviewed.

### 3.3.5 Focus of PHAMA support in Solomon Islands

The Honiara-based businesses have been operating for 8.3 years on average, with most in operation for 3 to 8 years. One business has been in operation for over 20 years and another had ceased to process/export cocoa in the past year. All started working with PHAMA between 2015 and 2017. The main focus of support received from PHAMA was (in descending order of importance according to respondents):

- Understanding the expectations of premium markets;
- Accessing international markets / sending samples to buyers;
- Quality improvements required to meet premium market; and
- Business mentoring.

Over half of the companies reported that PHAMA support was crucial in maintaining their markets, mainly in relation to quality improvement, mentoring and accessing warehouse facilities. Support provided by PHAMA’s Cocoa Adviser for mentoring, understanding quality requirements and introductions to buyers was also highly rated by all companies. Specialty chocolate makers suggested

that without this support there would be no knowledge of Solomon Islands' cocoa.

### **3.3.6 Interaction with smallholder cocoa farmers**

The six Honiara-based companies purchased cocoa from a total of 624 farmers. With assistance from either PHAMA or RDP, they had trained 722 farmers in cocoa production and processing techniques in 2017 and 2018. Of these farmers, 274 (38%) were women. Of the farmers trained, 312 farmers had access to pruning saws, fermentation boxes or solar dryers as a result of PHAMA. This included approximately 125 women (40%).

### **3.3.7 Impact of training on cocoa production and quality**

Most companies reported that the volume of cocoa produced by farmers was higher after training, although impact declined somewhat after PHAMA's support stopped at end 2018. Five out of six companies said that cocoa quality was better after training, with the other reporting the quality being the same as before training.

All companies reported paying a premium price of 30 to 60% above the bulk market rate for smoke-free, well dried cocoa beans. For example, when the standard market rate was SBD1.5/kg, these companies paid SBD 2.0 - 2.5/kg. All farmers received the premium, including women.

In the three years since 2017, Solomon Islands has exported AUD 734,000 worth of premium cocoa, resulting in additional income of AUD 440,072 above the conventional market. All premium market exports were attributed to PHAMA as these sales were only possible through market linkages negotiated by PHAMA.

### **3.3.8 Constraints to business viability**

Companies reported that business viability was being constrained by:

- Increasing costs and declining profitability;
- Access to credit/finance; and
- Warehouse access and logistical constraints.

This is not surprising given the low international prices received for cocoa over the past three years. Costs of logistics in particular continue to rise whereas commodity prices have remained flat.

Access to credit has always been problematic for cocoa buyers. Farmers generally insist on being paid upfront for their cocoa beans but it will generally be several months at best before a company is paid for exported cocoa. Credit facilities have been established in the past but the relatively high rate of default, particularly among recently established companies, is problematic for lenders. One company owner reported having to return to salaried employment to maintain cash flow after experiencing liquidity issues.

A common challenge for exporters is sending small volumes of cocoa to international destinations. A container holds 15 tonnes of cocoa. The viability of a sale is severely challenged if less than 10 to 12 tonnes is available for export. Support to address transport constraints was a high priority among companies.

### **3.3.9 Impact of COVID-19 pandemic on businesses**

Companies reported that the COVID-19 pandemic had significantly impacted their business operations in 2020 due to border closures, high freight costs and limitations to staff movements. Businesses expected that it would take 3 to 12 months to return to business as usual once pandemic restrictions are lifted. Access to finance was uniformly reported as a major constraint in restarting business operations, along with the requirement for better freight options for exports.

### 3.4 PHAMA’s support to smallholder cocoa farmers in Solomon Islands

The following sector reports outcomes from the survey of smallholder cocoa farmers from Supported and Control groups (Table 4). Surveys included a *Control* group of 32 farmers, who had no interaction with PHAMA or little or no interaction from other development programs, as well as a *Supported* group of 39 farmers who had received training, equipment or other support from PHAMA and other development programs. Of the total 71 farmers surveyed, 35 were from Guadalcanal and 36 from Malaita. Guadalcanal province produces approximately 60% of Solomon Islands cocoa, with Malaita the next most important province, producing 22%. More details are provided in Annex 3.

**Table 4 Number of respondents and percentage of men and women farmers surveyed in Solomon Islands**

	Control	Supported
No. of respondents	32	39
Men	72%	74%
Women	28%	26%

#### 3.4.1 Cocoa sales

On average, the Supported farmers sold 55% more wet beans and 185% more dry beans (by weight) than the Control farmers across the three years 2017 to 2019. The Supported farmers also increased their volume of sales over the period, selling 14.1% more wet beans and 6.5% more dry beans in 2019 compared with 2017. This is a significant achievement given that international cocoa prices have been very low over the past three years. It is difficult to accurately attribute this impact among PHAMA and other programs, however PHAMA has clearly been a significant contributor based on feedback from both exporters and farmers. For example, 66% of Supported farmers surveyed had received training through a PHAMA-funded activity. Sales of cocoa by Control farmers over the 2017 to 2019 period were flat.

On average, Supported farmers earned 4.2 times more income from cocoa sales than Control farmers. Further, income from cocoa sales fell by 7.9% for Control farmers from 2017 to 2019, whereas it increased by 6.9% for Supported farmers over the same period. The drop in income for Control farmers is related to the low international price of cocoa during the period. Support from PHAMA assisted farmers to increase their production.

The large difference in incomes between the two groups suggests that PHAMA Plus may achieve significant results by targeting farmers not previously supported by development projects.

#### 3.4.2 Production and quality outcomes

Farmers achieving better production outcomes reported that improvements were primarily due to the better understanding of production and processing gained through training. Provision of tools and equipment and new plantings also contributed to improved production. For farmers with reduced production, most Control farmers reported that the decrease was due to aging trees and inadequate farm management. Bad weather and pests and diseases were low level problems for all farmers.

Almost half of the farmers in the Supported group reported achieving an increase in cocoa quality over the past three years, with most of the others reporting no change in quality. Only 5% reported a decrease in quality. In contrast, 13% of Control group farmers reported a decrease in quality and 37% reported an improvement in quality.

56% of Supported farmers reported receiving a higher price for cocoa due to quality improvement, whereas 17% of Control farmers reported receiving a higher price for cocoa due to quality improvement.

### 3.4.3 Gender impacts

There were relatively few gender differences in terms of production, quality and income within Supported and Control farmer groups. By far the most significant differences were between groups. For example, very few (<10%) men or women had received training or equipment in the Control group. In contrast, all women from the Supported group had received training, with 50% of them being trained through Cathliro, a company headed by a woman. Nearly all (90%) of the men in the Supported group had received training. Twenty percent of women in the Supported group had received solar driers whereas 34% of men had received solar driers.

## 4 Vanuatu's cocoa industry

### 4.1 Overview of cocoa sector

Vanuatu's cocoa sector is comprised of approximately 8,500 cocoa growing households (22% of all agricultural households), predominantly in the central and northern islands of Malekula, Malo and Santo. The sector earned an average of VUV 310 million (USD 2.8 million) per annum in export revenue over the last ten years. Cocoa was the third most important export commodity behind kava and coconut products. Vanuatu produces around 1,200 tonnes of cocoa annually, with volumes fluctuating between around 1,000 and 2,200 tonnes. The country is a small producer, even by Pacific Island standards.

Vanuatu's cocoa has a poor reputation for quality due to low bean count and smoky beans caused by poorly maintained hot air dryers. Production is driven by smallholder farmers who produce wet beans. Dry beans are produced by farmers with fermentaries who then sell to agents and exporters. Despite the requirement for fermentaries to be licenced, many are poorly maintained and produce smoke-tainted dry beans of low quality. Metenesel Estate is the only large-scale cocoa holding in Vanuatu, with a total of 500ha of cocoa. Most cocoa trees throughout Vanuatu are aging and require replanting. Various programs supplying seedlings to smallholders at subsidised prices have begun to address this issue.

There has been a lack of competition in the Vanuatu industry. Two companies currently dominate the bulk export market - Vanuatu Copra and Cocoa Exporters (VCCE) and C-Corp, which also operates in Solomon Islands. In addition, most cocoa (over 80% of exports in 2015) is sold to the same manufacturer. Small exporters and chocolate makers have established a presence in the premium market with support from PHAMA and there is a general trend towards processing and adding value, albeit at a small scale. There are three small-scale chocolate-making companies - Aelan Chocolates, Gaston Chocolates and Spencer Cocoa.

### 4.2 PHAMA's interventions in Vanuatu

The great majority of Vanuatu's cocoa is sold into the bulk commodity market at low prices, as is typical among cocoa-producing countries globally. PHAMA is supporting Vanuatu's cocoa sector to move away from undifferentiated bulk grade cocoa, which attracts low prices internationally, towards differentiated and specialised single origin cocoa which can sell for significantly higher prices in premium markets. Fair trade and certified organic cocoa can also attract prices above those for commodity grades when there are markets willing to pay more for certified product. There are also opportunities for value addition from downstream processing. This approach recognises that Vanuatu is a very small producer of cocoa, even among Pacific countries (compared to Solomon Islands and PNG) and must therefore adopt a niche/specialised marketing strategy.

To develop the capability to access niche markets and undertake downstream processing, PHAMA provided solar dryers and training in both production and processing to key farmers. Trade visits by



cocoa buyers were facilitated and market studies were conducted. PHAMA also negotiated improved prices and brokered sales for small amounts of speciality cocoa. Table 5 provides details of support provided through PHAMA and PHAMA Plus.

PHAMA Plus has focused on three intervention areas in Vanuatu: 1) productivity and quality; 2) replanting and 3) market and product diversification. These interventions are expected to result in an increased volume of cocoa and greater production of differentiated and single origin cocoa achieving price premiums through sales into diversified markets.

**Table 5 Details of support provided to Vanuatu cocoa sector**

Type of support	Details of PHAMA's support
Market & Product Diversification	<ul style="list-style-type: none"> <li>Co-funded a learning exchange between Atypic Chocolates (Melbourne) and Gaston Chocolates</li> <li>Coordinated and supported freight costs to Vanuatu entries into the Salon Du Chocolat awards in which Vanuatu was listed in the top 50 samples in the world</li> <li>Co-funded trade visits by cocoa buyers</li> <li>Provided one-on-one business mentoring to processors/exporters</li> <li>Provided tailored brokerage support to businesses</li> </ul>
Productivity and Quality	<ul style="list-style-type: none"> <li>PHAMA provided quality assurance equipment (such as cut test boards and moisture meters) to large scale cocoa growers and cocoa exporters</li> <li>Provision of solar driers</li> <li>Supported cost of sending exporters to Pasifika Festival in NZ</li> <li>Co-funded large-scale bio-gas drier with Vanuatu Premium Cocoa</li> </ul>
Replanting	<ul style="list-style-type: none"> <li>Support investment in rehabilitation of tree crops in partnership with Vanuatu Premium Cocoa</li> </ul>

### 4.3 Vanuatu's cocoa exports

Like Solomon Islands, Vanuatu predominantly exports conventional grade, bulk cocoa, which is sold into Southeast Asia's grinding market. The grinding market is able to use tainted beans but the price paid is lower than for high quality beans. Farmers can produce high quality cocoa, but there is no incentive to do so unless cocoa exports are differentiated into premium and bulk market products. PHAMA has supported the development of markets for premium grade cocoa, which is typically smoke/taint-free, well-fermented and graded to remove impurities. Whilst this represents only a small percentage of Vanuatu's cocoa at present, there is potential for the market to grow.

#### 4.3.1 Bulk cocoa exports

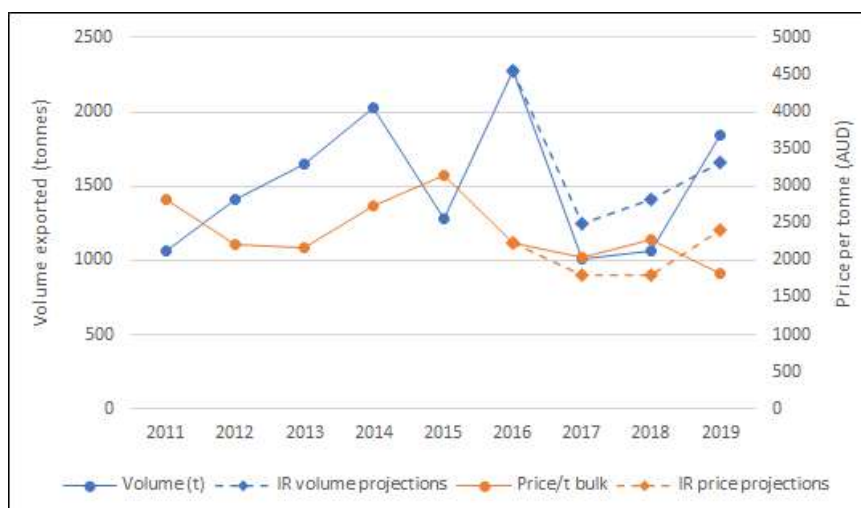
PHAMA's support in negotiating improved prices and brokering sales has resulted in a price improvement of 10-12 percent from improved contract terms for exporters of bulk cocoa. Improved contract terms also assist in ensuring that exporters receive their full contracted price, with few deductions associated with loose contracts.

Better terms of trade have been achieved for approximately 18% of bulk exports over the past three years generating an additional AUD 183,300 in export revenue. The 2016 PHAMA Impact Report predicted that between 25% and 35% of exports would attract terms of trade benefits due to PHAMA's assistance, with an anticipated AUD 314,300 increase in export revenue over the three-year period. The shortfall of AUD 130,000 is largely the result of one major exporter's preference to maintain its long-term trading arrangements with a single Australian buyer.

PHAMA has also assisted exporters to grade their cocoa to achieve higher prices for better quality bulk cocoa. As an example, in 2018 one company sold 45 tonnes of graded bulk cocoa for a premium of almost 50% over the standard bulk price, generating an additional AUD 45,000 in additional income over bulk. The 2016 PHAMA Impact Report anticipated this support for improved quality bulk cocoa

to generate approximately \$34,000 per year in additional revenue to the sector – AUD 115,200 over the period 2018 to 2019. To date, benefits have only been achieved in 2018, resulting in a shortfall on expected benefits of AUD 75,200.

**Figure 4 Volume and value of Vanuatu’s cocoa exports since 2011, together with predictions from the 2016 PHAMA Impact Report (IR) for exports since 2016**



#### 4.3.2 Premium cocoa exports

With PHAMA’s assistance, the amount of premium cocoa exported grew from nothing to over 2% of total export value in 2018 (Table 6). Over the period from 2017 to end 2019, premium cocoa exports facilitated by PHAMA generated AUD 122,600 in additional income over standard bulk prices. The volume of premium cocoa sold has also increased steadily over the period, rising to over 18 tonnes in 2019, but remained slightly below 2016 PHAMA Impact Report prediction. As in Solomon Islands, the impacts on the COVID-19 pandemic on Vanuatu’s cocoa production and global cocoa demand is expected to result in a decline in sales of premium cocoa exports in 2020.

**Table 6 Percentage and actual volumes and values of premium cocoa exported from Vanuatu and comparison with predictions from the 2016 PHAMA Impact Report**

	2013	2014	2015	2016	2017	2018	2019	Total
Percentage by volume	0.0%	0.0%	0.0%	0.0%	0.9%	1.5%	1.0%	
Percentage by value	0.0%	0.0%	0.0%	0.0%	1.7%	2.3%	2.2%	
Volume (tonnes)	0	0	0	0	9.0	15.68	18.25	
Additional value (AUD)	\$0	\$0	\$0	\$0	\$15,987	\$19,301	\$45,671	\$122,600
Predicted additional value IR (AUD)	\$0	\$0	\$0	\$0	\$24,000	\$30,000	\$30,000	\$84,000
Gain/loss c.w. IR (AUD)	\$0	\$0	\$0	\$0	-\$8,013	-\$10,699	\$11,642	-\$7,071

#### 4.3.3 PHAMA monetary impacts compared with projections

Overall, PHAMA has achieved 66% of the monetary benefits predicted in the 2016 PHAMA Impact Report. The primary shortfall occurred due to the over-estimation of the percentage of cocoa exports attracting improved terms of trade (Table 7).

Benefits derived from sales into the premium market almost achieved the projected target. The

premium and improved bulk cocoa markets have additional capacity for expansion as the quality of Vanuatu’s cocoa improves.

**Table 7 Actual financial impacts of PHAMA for Vanuatu cocoa compared with projections from the 2016 PHAMA Impact Report**

Sales category	Impact Report projections (AUD)	Actual achieved (AUD)	% of projected impact achieved
Bulk Terms of Trade	\$314,318	\$183,308	58%
Improved bulk	\$67,200	\$45,671	68%
Premium	\$84,000	\$76,929	92%
Total benefits	\$465,518	\$305,908	66%

#### 4.4 Focus of PHAMA support in Vanuatu

Vanuatu’s commercial sector is very small, comprising three small chocolate makers, two dominant exporters, numerous small-scale buying agents and one large cooperative estate. PHAMA has not directly supported smallholder farmers with provision of training and equipment in Vanuatu. Given the small number of stakeholders, PHAMA’s support tended to be very specific, with the main focus being:

- Provision of equipment to improve cocoa quality – primarily solar driers
- Linking international buyers with local producers / trade visits / sending samples to buyers
- Provision of terms of trade / brokerage advice to directly improve returns from exports
- Business mentoring.

##### 4.4.1 Commercial stakeholder perceptions of PHAMA’s support

The following sections report the outcomes of interviews with key commercial stakeholders. Quotes from those interviewed have been included to support the summary of responses. No direct engagement with smallholder farmers was undertaken due as the bulk of PHAMA’s activities targeted chocolate makers and exporters.

Over half of the companies reported that PHAMA support was crucial in maintaining their markets, mainly in relation to quality improvement, mentoring and accessing warehouse facilities.

Chocolate makers and premium cocoa exporters considered that PHAMA’s most significant assistance was in relation to cocoa quality.

This included the provision of solar driers, which have had a major impact on the quality Vanuatu’s cocoa.

*“Thanks to these new dryers we reached the premium market, with chocolate makers interested in our beans”.*

General Manager  
Vanuatu

*“The most significant assistance by PHAMA would be in the area of cocoa quality”.*

Chocolate Maker & Cocoa Agronomist  
Australia

The provision of solar driers has also led to a better understanding of quality parameters among smallholder dry bean producers and how quality relates to price, business relationships and repeat customers. This is particularly important for buyers of premium cocoa.

Stakeholders believed that the connections through or as a result of PHAMA are likely to endure. It is a major expense for buyers to establish business relationships with suppliers (exporters). As long as quality remains high business relationships are expected to persist. This includes assisting cocoa growers / exporters to develop as viable/ sustainable businesses.

PHAMA was able to link buyers of premium cocoa farmers, providing their quality records, history and capacity to supply in an impartial way. This allowed buyers to meet directly with cocoa farmers, discuss their requirements and select suppliers.

[Chocolate brand] is actively winning international prizes for chocolate and it is usually on our "South Pacific" chocolate.

Operations Director  
United Kingdom

As in the Solomon Islands, support provided by PHAMA's Cocoa Adviser for mentoring, understanding quality requirements and introductions to buyers was highly rated by all companies. There was confirmation from buyers of premium cocoa that PHAMA has assisted to place Vanuatu cocoa as a potentially superior product.

## 5 Options to increase PHAMA's impacts

The cocoa sector in Melanesia has received support from donors and governments for decades and it is likely that this support will continue. Cocoa delivers reasonable returns on labour, can be grown by smallholder farmers and remains in demand globally. PHAMA has been successful in achieving impact in the cocoa sectors of Vanuatu and Solomon Islands via provision of numerous inputs and activities.

Whilst not all projections from the 2016 Impact Report have been achieved, PHAMA has made a significant impact in the Solomon Islands and Vanuatu cocoa sectors. This has been achieved using a multi-pronged approach and working in close partnership with government and other development partners. The results of this assessment have not highlighted any particular flaws with the methodology used to support the cocoa sector to date.

PHAMA Plus has a modified methodology for implementation that requires it to work through commercial partners in formal arrangements. Whilst this approach may be broadly appropriate, the provision of ad-hoc advice and mentoring by PHAMA's Cocoa Adviser has previously been a strength of the program. The capacity to respond to requests for critical support around terms of trade, contract terms, business linkages and other critical issues should be retained if possible.

### 5.1 Terms of trade impacts

PHAMA's work to improve terms of trade outcomes for exporters has significant potential to bring in additional export revenue for exporters. This support has previously been provided in an ad-hoc manner as need arises. Because the volumes of bulk cocoa exported are relatively large (compared to exports of premium cocoa), each percentage point of improvement to terms of trade has a large impact. In both Solomon Islands and Vanuatu, impacts from terms of trade benefits for bulk cocoa exports were less than anticipated in the 2016 PHAMA Impact Report but still resulted in greater monetary gains than those achieved from premium cocoa sales. Further scaling up of impacts will require cooperation from the large exporters. Unfortunately, not all have been open to cooperation as they have well-established business models based on the sale of low-quality cocoa at comparatively low prices.

The extent to which additional gains in terms of trade are possible needs to be determined. This will require assessment of impacts achieved to date, the percentage of exports to which these benefits apply, and the likelihood that exports not covered can be impacted in the future.

## 5.2 Cost-effective freight options

Transport is notoriously expensive within Melanesian countries and internationally to and from Melanesia. Options to improve transport efficiencies have been an ongoing challenge for governments. This is a particular challenge for companies exporting small amounts of premium cocoa, where the cost of break bulk can soak up the higher value per kilo of the premium product. Additional attention to easing transport costs is worthy of ongoing investment.

## 5.3 Improved quality of bulk exports

The opportunities to improve the quality of bulk exports are likely to be enterprise specific. Companies with control over drying and processing of significant quantities of cocoa will be able to produce critical volumes of better-quality cocoa that should be able to be sold into differentiated markets. Smallholder farmers selling to agents who are unable to maintain separate quality lines are unlikely to receive a premium for their efforts to improve quality.

## 5.4 Premium cocoa sales

Whilst the development of markets for premium cocoa has been a success under PHAMA it is apparent that ongoing support will be required to maintain these markets into the future. The premium cocoa market demands consistent, high standards, something that many Melanesian smallholder farmers will find difficult to achieve over the long term without ongoing support. Once markets are lost, they can be difficult to regain. An analysis of the cost of supporting the premium / super-premium sector is warranted to ensure that a reasonable return on investment can be generated.

## 5.5 Farmer training

Results from the smallholder farmer surveys in Solomon Islands suggest that smallholder farmers are split into groups that receive training from multiple projects over extended periods, whilst others receive little or no training. The reasons for this discrepancy require further investigation. Given the significantly higher income of trained farmers it would make sense for development programs to actively target farmers who have not previously received support. This may result in easy gains as these previously unsupported farmers become more skilled and are able to produce more and better-quality cocoa.

## 5.6 Provision of tools and equipment

PHAMA has concentrated on provision of cocoa driers to improve quality. This has achieved good results for those farmers with access to a drier. Provision of future equipment could be linked to the ability of companies to differentiate their cocoa into market that pay for quality.

## 5.7 Replanting of aging cocoa trees

The cocoa sector in both countries is dominated by smallholder farmers producing cocoa from aging trees. Replanting programs have been promoted by governments and development programs but currently lag behind need. Whilst replanting programs may be outside of the scope of PHAMA Plus there may be opportunities to collaborate with other programs working in the space.

## Annex 1: Methodology for assessment of PHAMA impacts

### Background

An independent study was conducted to examine the impact of PHAMA's interventions on market players in the cocoa sectors in Solomon Islands and Vanuatu using quantitative and qualitative methods.

The study included validation of the projections made in the 2016 PHAMA Impact Report, which estimated impacts through to 2020.

### PHAMA's support to the cocoa sector

PHAMA and PHAMA Plus provided support in three broad categories to a range of market actors. These categories were:

- i. Value Additions & Product Diversification
- ii. Market Access & Certification
- iii. Access to services, information & training.

Based on preliminary assessment of the cocoa industry in Solomon Islands and Vanuatu, the market actors were found to include:

- i. Smallholder farmers
  - a. Wet bean sellers – do no processing of their own – sell to processors or community members with processing capabilities.
  - b. Dry bean sellers – process their own wet beans and sell to accumulators and exporters.
- ii. Small-scale processors
  - a. Processors buy wet beans, sort, re-dry and on-sell to large scale exporters. Some produce cocoa on their own cocoa blocks. A proportion of their output may be sold into niche markets although most is sold to cocoa buyers and exporters.
- iii. Cocoa buyers – classed as exporters by CEMA (in Solomon Islands), cocoa buyers are generally accumulators, who purchase dry beans and on-sell to large exporters – Holland Commodities and C-Corp in both countries.
- iv. Large-scale cocoa exporters – only two large-scale exporters have been consistently present in the market over the past five years: Holland Commodities and C-Corp. These exporters primarily sell dry beans into the conventional international market. C-Corp also sells small amounts of premium grade cocoa.

### Constraints to information and data collection

Due to travel restrictions as a result of the COVID-19 pandemic all information and data collection was conducted remotely.

- Farmer surveys were enumerated in the field by local PHAMA Plus staff based on Honiara.
- Surveys were completed on-line by processors and exporters.
- Interviews with other key stakeholders were conducted by phone and on-line platforms.
- Quantitative data on export volumes and prices achieved were obtained from national statistics, exporters and from PHAMA advisers.

### Qualitative data collection from smallholder farmers and small-scale processors

A survey tool was developed to assess the impact of PHAMA on livelihoods, skills and cocoa production practices of smallholder farmers and small-scale processors. Surveys were enumerated by the PHAMA plus team based in Honiara. These staff travelled to Malaita and Guadalcanal

provinces, these most significant producers of cocoa in the country.

The survey was enumerated in locations where PHAMA had been active – the Supported group, and where PHAMA had not been active – the Control group. The Supported group included 10 women (26%) and 29 men (74%) for a total of 39 respondents. The Control group included 9 women (28%) and 23 men (72%) for a total of 32 respondents.

The survey tools covered a comprehensive range of topics on livelihoods, skills development and cocoa production, processing and marketing. Results from the survey are provided as Annex 2.

### **Qualitative data collection from local processors and exporters**

Collection of information from local cocoa buyers and small-scale processors in Solomon Islands was via on-line survey. The survey was sent to 11 targets and 6 responses were received. The survey sought to understand the most significant impacts of support provided by PHAMA, collecting details on business structure, support from PHAMA, cocoa sourcing, cocoa exports and COVID-19 impacts.

Targets for exporter survey included:

<b>Contact</b>	<b>Company</b>
Francis Fono	Arania Enterprises Ltd
Brian Atkin & Henry Taro	Makira Gold
Diana Yates	Cathliro Cocoa Exports/Chan Wings
John Bimana	C-Corp
David Kebu	DKFCAC
Lucy Kasimwane	Lukasco Group
Agnes Pilopaso	Tupaghotua Cocoa Plantation
Max Totogi	Totogi Enterprises
Silas Tome	ST Exporter
Solomon Sendo	JEMS Cocoa Enterprises
Robert Waisu	Robert & Sons Cocoa Exports

A summary of survey responses is provided as Annex 3.

### **Quantitative data collection from exporters**

Data on export volumes and values of premium cocoa was obtained from both exporters and PHAMA advisers. There was a high level of agreement between the two sources of information.

Data on bulk export volumes and values were obtained from national statistics, exporters and from PHAMA advisers. There were minor discrepancies among the various data sources for value, largely based on whether the value reflected purchase or sale prices. Purchase prices were used as they more accurately represent export revenue.

The percentage and value of bulk exports attracting terms of trade benefits were predominantly obtained from the PHAMA Cocoa Adviser. Percentages were estimated based on the companies interacting with PHAMA on terms of trade matters and their contribution to overall exports. These percentages are expected to be accurate and were validated through interviews with exporters. The value of terms of trade benefits were more difficult to quantify as they rely on an understanding of previous outcomes, including an avoidance of penalties. For example, companies may have received price penalties from importers for excess moisture in cocoa, reducing revenue received. PHAMA facilitated a process by which the moisture content of cocoa was certified prior at the port of export so that moisture penalties were unable to be issued. Other terms of trade benefits arising from better contract negotiations also became accepted as the expected standard pricing over a short period of time. Whilst some exporters recalled benefits accruing from PHAMA's support several

years previously, others did not. The benefits estimated by the PHAMA Cocoa Adviser were used to determine terms of trade impacts.

Industry stakeholders contacted for data and information are listed in the table below.

**Industry stakeholders interviewed / surveyed in Solomon Islands and Vanuatu**

<b>Name</b>	<b>Company / Organisation</b>	<b>Country</b>
Alfred Maesulia	Commodity Export Marketing Authority	Solomon Islands
Basavaraj Machetty	Olams	Solomon Islands
Brian Atkin	Makira Gold – grower, processor, exporter	Solomon Islands
Brown Onahikeni	Strongim Bisnis	Solomon Islands
Clive Carroll	C-Com	Solomon Islands and Vanuatu
Dennis Meone	Previously SICCI	Solomon Islands
Diane Yates	Cocoa farmer, processor & exporter	Solomon Islands
Gabriel Hiele	Rural Development Project	Solomon Islands
James Kana	Community development, Malaita	Solomon Islands
John Bimana	C-Com Solomons Manager	Solomon Islands
Luke Spencer	Spencer Cocoa	Vanuatu
Mark Johnstone	Rural Development Project	Solomon Islands
Martyn O’Dare	Firetree Chocolate	Solomon Islands and Vanuatu
Matthieu Cedoz	Vanuatu Cocoa Premium	Vanuatu
Moses Pelomo	Chairman of MAWG & Cocoa IWG	Solomon Islands
Paterson Siliota	Commodity Export Marketing Authority	Solomon Islands
Robert Waisu	Cocoa farmer & trainer	Solomon Islands
Tim Lawther	Strongim Bisnis	Solomon Islands



## Annex 2: Solomon Islands cocoa smallholder survey results

A survey was conducted of 35 cocoa farmers on Guadalcanal and 36 farmers on Malaita. Guadalcanal province produces approximately 60% of Solomon Is cocoa, with Malaita the next most important province, producing 22%. The targeted farmers receiving assistance from PHAMA and other development programs – Support farmers, and a control group of farmers who have received little or no assistance from development programs – Control farmers. The Control group included 32 farmers and the Supported group included 39 farmers. Just over 25% of both groups were women (Table 1).

	Control	Supported
No. of respondents	32	39
Men	72%	74%
Women	28%	26%

All Supported farmers received majority of income from cocoa sales, whereas 97% of the Control farmers received majority of income from cocoa sales. Most farmers (87%) also sold vegetables. 33% sold root crops. 23% sold livestock and 23% sold copra. Only 5% had access to paid employment.

The Control group farmed an average 1.7ha of cocoa (range from 0.5 to 4.8ha), whereas the Supported group farmed an average 2.9ha of cocoa (range from 0.5 to 12ha). The 2017 national census reported that the average area farmed to cocoa was 1.1 ha. This indicates that cocoa blocks on Guadalcanal and Malaita are significantly larger than average.

### Cocoa sales by farmers

On average, the Supported farmers sold 55% more wet beans and 185% more dry beans (by weight) than the Control farmers across the three years 2017 to 2019. The Supported farmers also increased their volume of sales over the period, selling 14.1% more wet beans and 6.5% more dry beans in 2019 compared with 2017. This is a significant achievement given that international cocoa prices have been very low over the past three years. It is difficult to accurately attribute this impact among PHAMA and other programs, however PHAMA has clearly been a significant contributor based on feedback from both exporters and farmers. For example, 66% of Supported farmers surveyed had received training through a PHAMA-funded activity. Sales of cocoa by Control farmers over the 2017 to 2019 period were flat.

On average, Supported farmers earned 4.2 times more income from cocoa sales than Control farmers. Further, income from cocoa sales fell by 7.9% for Control farmers from 2017 to 2019, whereas it increased by 6.9% for Supported farmers over the same period. The drop in income for Control farmers is related to the low international price of cocoa during the period. Support from PHAMA assisted farmers to increase their production.

The large difference in incomes between the two groups suggests that PHAMA-Plus may achieve significant results by targeting farmers not previously supported by development projects.

	Control group				Supported group			
	2017	2018	2019	Change 2017-19	2017	2018	2019	Change 2017-19
<b>Cocoa production</b>								
Wet beans (kg)	1,877	1,727	1,899	1.2%	2,663	2,825	3,039	14.1%
Dry beans (kg)	3,509	4,410	3,494	-0.4%	10,808	10,062	11,512	6.5%
<b>Income from cocoa sales (AUD)</b>								
	3,316	3,874	3,054	-7.9%	14,482	13,573	15,478	6.9%

### Training in cocoa production and processing

Only 28% of the Control group had received training, predominantly from CLIP. In comparison, all Supported farmers had received training. Of these, 66% had received training through PHAMA or a PHAMA partner, with Cathliro and Robert Waisu being the most common training providers. A further 31%, 36% and 18% of farmers reported receiving training from RDP, CEMA and CLIP, respectively.

Supported farmers were highly likely to share their knowledge, with 77% of them having provided advice to an average of 10 other farmers each. This is an encouraging outcome as it indicates that a highly level of information dissemination is occurring.

	Control	Supported
<b>Percentage of farmers receiving training in:</b>	28%	100%
Under-brushing	16%	82%
Pruning	25%	85%
Shade Management	16%	82%
Pest & disease management (CPB; rat)	16%	82%
Cocoa harvest	16%	79%
Breaking the pods	19%	77%
Cocoa Fermentation	16%	56%
Cocoa Drying	16%	56%
Cocoa Grading	9%	49%
Cocoa Storage	6%	36%
Replanting	9%	49%
Grafting / cloning	3%	51%

The most commonly adopted training technique was grafting, which 51% of farmers had adopted.

31% of farmers had received individual assistance with a solar drier. The remainder (69%) had access to a solar drier through the village. All respondents said that the solar driers were easier to use and produced better quality cocoa.

### Tools and equipment

Almost half the Support respondents (49%) had received equipment, mainly secateurs. 80% of these farmers reported that the equipment had contributed to both improved production and quality of cocoa. In comparison, only 9% of the Control group had received equipment support, again predominantly secateurs. All farmers reported requiring additional training and assistance with tools.

Tools & equipment	Control	Supported
Solar drier	6%	31%
Fermentation box		13%
Moisture meter		13%
Secateurs/pruning saw	3%	49%
Ladder		3%
Wheelbarrow		5%
Spade		8%
Chainsaw		5%

### Production and quality outcomes

Farmers achieving better production outcomes reported that improvements were primarily due to the better understanding of production and processing gained through training. Provision of tools and equipment and new plantings also contributed to improved production. For farmers with reduced production, most Control farmers reported that the decrease was due to aging trees and inadequate management. Bad weather and pests and diseases were low level problems for all farmers.

	Control	Supported
<b>Production increases were the result of:</b>		
Better understanding of production	16%	51%
Better understanding of processing	6%	36%
Use of tools & equipment		28%
New plantings	16%	23%
<b>Production decreases were the result of:</b>		
Pests and diseases	9%	13%
Bad weather	13%	15%
Aging cocoa trees	25%	
Inadequate management	22%	
<b>No change in production</b>	13%	10%

Almost half of the farmers in the PHAMA-Support group reported achieving an increase in cocoa quality over the past three years, with most of the others reporting no change in quality. Only 5% reported a decrease in quality. In contrast, 13% of Control group farmers reported a decrease in quality and 37% reported an improvement in quality.

56% of PHAMA-Supported farmers reported receiving a higher price for cocoa due to quality improvement, whereas 17% of Control farmers reported receiving a higher price for cocoa due to quality improvement.

Change in quality	Control	Supported
Improved	37%	49%
Deteriorated	13%	5%
No change	50%	46%

### Processing and sales

Most Control farmers (84%) sold their cocoa to local traders – generally as wet beans. In contrast, only one-third of PHAMA-supported farmers sold their cocoa to traders. The majority (72%) sold their cocoa directly to exporters – generally as dry beans.

	Control		Supported		Farmers selling good
	Local traders	Exporters	Local traders	Exporters	
Farmers selling to	84%	34%	33%	72%	
Wet beans	62%	31%	19%	22%	
Dry beans	22%	3%	14%	50%	

quality cocoa reported that the price for dry beans increased was SBD17, approximately SBD5 (42%) above bulk market price and SBD3.5, approximately SBD1.0 above market price for wet beans to for wet beans. Farmers uniformly reported low prices and price fluctuations as being a constraint to their production. Farmers reporting no improvement in price said that price did not change even though quality had improved.

PHAMA-supported farmers received higher prices for both wet and dry beans sold to both local traders and exporters. This may be a factor of the better quality produced by PHAMA-supported farmers. PHAMA-support farmers also preferentially sold dry beans to exports, whereas Control farmers were comparatively less inclined to produce dry beans.

	Control		Supported	
	Local traders	Exporters	Local traders	Exporters
Wet beans (kgs)	1,659	3,100	2,593	2,504
Price received	SBD 2.8	SBD 3.0	SBD 3.1	SBD 3.8
Av farmer income	SBD 4,645	SBD 9,300	SBD 8,038	SBD 9,515
Dry beans (kgs)	2,794	3,527	5,560	13,533
Price received	SBD 10.4	SBD 11.4	SBD 11.4	SBD 12.4

#### a. Production challenges

For both supported and Control groups, low cocoa prices were identified as the most significant impediment on production, followed by the need for more assistance and the high cost of transport.

Challenges with cocoa sales	Control	Supported
Low prices	78%	64%
Transport to market	13%	18%
High cost of transport	19%	31%
Rejection due to low quality	6%	8%
Need more assistance with production & marketing	25%	21%

## Annex 3: Solomon Islands cocoa businesses survey results

Six Honiara-based businesses completed formal surveys, providing quantitative information on investment, benefits and training support. These businesses were primarily small cocoa processors selling product into both premium and bulk markets. The majority of survey outcomes reported below are based on these survey responses.

Managers from the international companies C-Corp, Olam and Firetree were interviewed by phone. These companies did not provide quantitative information on PHAMA's financial impacts or training and other activities undertaken at the farm level in Solomon Islands and Vanuatu. They provided subjective information on the impact of PHAMA. This has been included in the results where appropriate.

### Company profiles

Length of business operation: average 8.3 years, most 3 to 8 years

All started working with PHAMA 2015-2017, most 2016

Main focus of PHAMA support (descending order):

- Understanding market expectations - demand and quality requirements
- Accessing international markets / sending samples to buyers
- Quality improvement
- Business mentoring

### Investment in the sector

Two companies had invested SBD600,000 (AUD 103K) and SBD1.3 million (AUD 223K). Investments were for processing and drying equipment and storage sheds. The rest small amounts (SBD5,000 = AUD 856)

### Primary impacts of PHAMA support

Four of seven companies said that PHAMA support was crucial in maintaining their markets, mainly in relation to quality improvement, mentoring and accessing warehouse facilities.

PHAMA's support was responsible in accessing at least AUD 650,000 worth of sales, not including C-Corp sales to Olam's.

Most companies stated that the greatest support was that provided by the PHAMA Cocoa Adviser for mentoring and introductions to buyers. Level of satisfaction with the support was very high.

One international cocoa buyer stated that there would be no knowledge of Solomons/Vanuatu cocoa in Europe without PHAMA.

### PHAMA impacts at the local level

The local companies purchased cocoa from 622 farmers. 38% or 236 of these were women.

All companies had provided training to farmers in 2017 and 2018.

312 farmers had been trained including 125 women (40%).

Most companies reported that volumes produced by farmers were higher after training. One company said that volume declined as soon as training stopped.

Five out of six companies said that cocoa quality was better after training, with the other same as before.

Companies reported paying SBD4.0/kg for dry beans when bulk market was paying SBD2.5/kg – a premium of 60%.

All farmers received the premium, including women.

In 2019, nearly all niche market exports were attributed to PHAMA and totalled a value of AUD 183,500.

Sales into the bulk market were valued at AUD 440,000 and were also primarily attributed to PHAMA.

**Constraints anticipated due to COVID-19 (as of May 2020)**

Constraints / challenges due to COVID included 1) increasing costs (transport in particular) and declining profitability; 2) access to credit/finance; 3) warehouse and logistics

Border closures, high freight costs and limitations to staff movements were the main constraints coming out of COVID.

Access to finance was uniformly reported as a constraint, along with better freight options for exports.

Businesses expected that it would take 3 to 12 months to return to business as usual once pandemic restrictions are lifted.

## Annex 4: Applying survey and research findings to KPIs

### *KPI #1 No. of cocoa farming households benefiting through support from PHAMA*

The Solomon Islands Cocoa Impact Assessment findings shows that 1,140 of farming households had benefitted through positive net attributable income change – either through increased yield or better price offered by end markets.

### *KPI #2 Value of additional revenue earned or protected by cocoa farming households*

The Solomon Islands Cocoa Impact Assessment findings shows that Supported farmers earned an average AUD 14,511 per household per year from cocoa, whereas unsupported (Control) farmers earned only AUD 3,415 per household per year. However, most of the supported farmers had been receiving some form of assistance over the past 10 years, especially the Cocoa Livelihoods Improvement Project (CLIP). There would seem to be a justification to target farmers that have not previously received assistance in the future, as there is significant scope for them to increase their production.

Over the period 2017 to 2019, PHAMA-supported farmers increased production by 6.9% whereas unsupported farmers decreased production by 7.9%. All farmers reported the low international cocoa price as being a significant disincentive to production. Despite this, farmers supported by PHAMA increased their production. Based on their increased production, PHAMA's support increased individual household incomes by an average AUD 500 per year by 2019. This amounted to a total additional revenue of AUD 1.44 million per year, attributed equally to PHAMA and the World Bank's Rural Development Program (RDP).

### *KPI #3 Significant non-financial impact attributable to PHAMA Plus*

PHAMA achieved an exceptionally high level of collaboration with other development partners in Solomon Islands, most notably the World Bank's Rural Development Program, CEMA and DFAT's Strongim Binsnis. There has been considerable cost-sharing of activities with these development partners. The quantum of this cost-sharing was not able to be determined during the assessment.

### *KPI #4 Value of additional export revenue earned or protected (cocoa exports)*

Based on exporter records, premium cocoa sales provided additional revenue AUD 397,000 and AUD 77,000 over the period 2017 to 2019 in Solomon Islands and Vanuatu, respectively. In Solomon Islands, results from 2018 and 2019 in particular proved that addition annual revenue from premium cocoa sales of over AUD 200,000 will occur with appropriate support.

Bulk market sales attributed to PHAMA-supported companies returned an additional AUD 104,000 and AUD 45,000 over the period 2017 to 2019 in Solomon Islands and Vanuatu, respectively. This additional income is the result of introducing companies to higher-priced bulk markets.

PHAMA also assisted bulk cocoa exporters to negotiate better contract terms resulting in a 12 per cent price improvement for approximately 53 per cent and 18 per cent of all cocoa sold in Solomon Islands and Vanuatu, respectively. In addition, PHAMA has supported CEMA to take accurate measurements of moisture content of all cocoa immediately prior to export to avoid the previously common claims by importers of excessive moisture in Solomon Islands cocoa. These interventions alone have returned an additional AUD 3,360,000 and AUD 77,000 over the period 2017 to 2019 in Solomon Islands and Vanuatu, respectively.

### *KPI #7 No. of Exporters which maintain export market access*

PHAMA has support 12 exporters maintain their export market access. PHAMA has linked Solomon Island and Vanuatu exporters to over 50 cocoa distributors, grinders and chocolate companies.

<p>There are now regular, consistent sales to 5 international premium chocolate makers and new premium brand of existing suppliers.</p>
<p><i>KPI #8 Number of non-compliance incidents reported on PHAMA supported exporters</i></p> <p>PHAMA's support to CEMA in Solomon Islands addressed significant non-compliance incidents from moisture content of exported cocoa. CEMA now verifies the moisture content of all cocoa immediately prior to export.</p>
<p><i>KPI #9 Private sector investment leveraged (AUD – Cost sharing activities)</i></p> <p>Private sector partners (mostly cocoa exporters and processors) have invested total of AUD 720K in Solomon Islands. In addition, a significant exporter active in both Solomon Islands and Vanuatu has invested a substantial but undisclosed amount.</p>
<p><i>KPI #10 No. of farming households adopting to a new innovation or practice (GAP, equipment's &amp; tools)</i></p> <p>The Solomon Islands Cocoa Impact Assessment carried out in June 2020 shows that 86% (1,248) of farming household had actually adopted an innovation or practice, ranging from better cocoa block management to use of solar driers for better processing of cocoa.</p>
<p><i>KPI #11 No. of market actors adopting innovation (cocoa processors &amp; exporters)</i></p> <p>12 cocoa processors and exporters had adopted innovations facilitated through PHAMA. Based on the success of the Solar Bubble Driers trialled by PHAMA, a Solomon Islands based distributor was supported to source the products for local sale. All supported processors and contractors had adopted the use of solar driers to improve quality. The use of thermometers to track fermentation and moisture meters to confirm drying is also now common.</p> <p>Vanuatu's largest cocoa producer has also been supported by PHAMA with better quality driers and other equipment to improve quality.</p>
<p><i>KPI #12 No. of market actors exposed to innovation (cocoa processors &amp; exporters)</i></p> <p>There are 18 licenced cocoa exporters in Solomon Islands and all of them were exposed to support provided by PHAMA. Innovations ranged from introductions to niche market buyers, to better adoption of processing techniques, including use of solar driers.</p>
<p><i>KPI #13 No. of farming households with access to a new innovation or practice (GAP, equipment's &amp; tools)</i></p> <p>The Solomon Islands Cocoa Impact Assessment showed that all Supported farmers had access to a solar drier in their village and 49% had received equipment such as secateurs. 51% of Supported farmers had adopted the use of grafting, compared with only 3% of Control group farmers.</p>