

STDF PROJECT GRANT APPLICATION FORM

INDEPENDENT STATE OF PAPUA NEW GUINEA

**ENHANCING TRADE FOR
COCOA FARMERS IN
PAPUA NEW GUINEA**

**REQUESTED BY THE DEPARTMENT OF AGRICULTURE AND
LIVESTOCK OF THE GOVERNMENT OF PAPUA NEW GUINEA**

SUBMITTED: 4TH AUGUST 2017

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GLOSSARY

AUSAID	Australian Agency for International Development
CAC	Codex Alimentarius Commission
CEO	Chief Executive Officer
CB-PNG	Cocoa Board of PNG
CCIL	Cocoa and Coconut Research Institute Limited
CIB	Cocoa Industry Board
Cocoa-ISP	Cocoa Industry Strategic Plan
CPB	Cocoa Pod Borer
DAL	Department of Agriculture and Livestock
DSP	Development Strategic Plan 2010-2030
EDF11	Economic Development Fund
ENB	East New Britain
EU	European Union
FSD	Field Services Division
GAP	Good Agricultural Practice
GDP	Gross Domestic Product
HDI	Human Development Index
ICM	Integrated Crop Management
ICCO	International Cocoa Organisation
ICSD	Industry and Corporate Services Division
IFAD	International Fund for Agricultural Development
MDG	Millennium Development Goal
M&E	Monitoring and Evaluation
MIS	Management Information System
MRL	Maximum Residue Limit
NADP	National Agricultural Development Plan 2007-2016
NAQIA	National Agricultural Quarantine and Inspection Agency
NARI	National Agricultural Research Institute
NASAA	National Association for Sustainable Agriculture Australia Limited
NGO	Non-Governmental Organisation
OTA	Ochratoxin "A"

PAH	Poly Aromatic Hydrocarbon
PFA	Primary Farm Assurance (standard)
PHAMA-PNG	Pacific Horticulture and Agriculture Market Access
PIP	Public Investment Programme (Govt of PNG)
PMC	Project Management Committee
PNG	Papua New Guinea
PNG-AAA-2015	PNG Agricultural Administration Adjustment Bill of 2015
PPAP	Productive Partnership in Agriculture Project
PPG	Project preparation grant
RASFF	Rapid Alert System for Food and Feed
SPS	Sanitary and Phytosanitary
STDF	Standards and Trade Development Facility
TRA2	Trade Related Assistance
UNRE	University of Natural Resources & Environment
V2050	PNG Vision 2050
WB	World Bank

Exchange Rate:

US\$1 = 3.11597 Kina

Exchange rates correct as of 19 February 2017

STDF PROJECT GRANT APPLICATION FORM

Project Brief

Project Title	Enhancing trade for cocoa farmers in Papua New Guinea
Objective	Increased financial returns, yields, quality/safety and market access for smallholder cocoa growers and grower groups.
Budget requested from STDF	US\$623,275
Total project budget	US\$859,234
Duration of project	3 years
Full name and contact details of the requesting organization(s)	Dr. Vele Pat Ila'ava, Secretary, Department of Agriculture and Livestock, PO Box 2033, Port Moresby, NCD, Papua New Guinea Email: vpilaava100261@gmail.com Mobile: +675 76630267
Full name and contact details of contact person for follow-up	Mr. Boto Gaupu CEO, PNG Cocoa Board, PO Box 532, Rabaul, East New Britain Province, Papua New Guinea Email: ceo@cocoaboard.org.pg Tel.: +675 9829083

I. BACKGROUND & RATIONALE

1. Relevance for the STDF

Why is this project relevant for STDF funding? Explain how the project is related to one or more of the following: (i) the identification, development and dissemination of good practice in SPS-related technical cooperation, including the development and application of innovative and replicable approaches; (ii) STDF work on cross-cutting topics of common interest; (iii) the use of regional approaches to address SPS constraints; and/or (iv) collaborative and inter-disciplinary approaches focused on the interface / linkages between human, animal and plant health and trade, and benefiting from the involvement of two or more STDF partners or other relevant organizations. See Qn. 9 and Qn. 15 (a) of the Guidance Note.

Papua New Guinea (PNG) is a Lower Middle-Income Country (OECD DAC) where more than 37% of the population (7.3 million in 2013) lives below the poverty line. The country is ranked among the lowest (157th) on the United Nations Human Development Index (HDI), with literacy estimated at 63%. Approximately 87% of the population live in rural areas and

depend almost entirely on agriculture for their livelihood. Agriculture accounts for 22.3% of GDP (US\$3,500 per capita in 2016, ranking PNG as 184th in the world). The economy is heavily reliant on extractive industries which are ultimately unsustainable. The Government has ambitious plans to develop the agriculture sector with a focus on cash crops, adding value and supporting local businesses. Increasing trade in important exports such as cocoa, are key pillars of the Government's plan to raise household incomes in rural areas.

Cocoa was the third most important crop delivering an income of US\$96.3 million in 2015. Some 60% of this income goes directly to the growers, 90% of whom are smallholder farmers. Cocoa is grown in 14 of the 20 provinces in PNG and provides livelihood for 151,000 households. Around 14% of the population (more than 1 million people) rely on cocoa production and exports for most of their livelihood. The major production areas (producing >1,000 tonnes per annum each) are Bougainville, East Sepik, Madang, East New Britain and Morobe.

The Cocoa Industry Strategic Plan for 2016-2025 (Cocoa-ISP) underlines that investments in cocoa will benefit the majority of the population in PNG and contribute positively to the nation's Sustainable Development Goals (SDGs). It calls for a rapid ramp up in production and exports to deliver 310,000 tonnes of cocoa exports by 2030. The goal of the Cocoa-ISP is to build a dynamic, competitive and sustainable cocoa industry. Well managed business orientated small-scale farms producing consistent high-quality safe cocoa beans will support prosperous, happy and healthy rural communities. The PNG Government has set an ambitious target of 310,000 tonnes of cocoa exports by 2030 but the reality is quite different.

PNG's cocoa industry has been in decline since the serious outbreak of Cocoa Pod Borer (CPB) took hold in 2008. Cocoa exports fell from 52,579 tonnes in 2008 to 33,090 tonnes in 2015. The industry faces problems with low and stagnant yields, inconsistent quality and SPS risks associated with PAH contamination from defective dryers. This is a pity because PNG cocoa is a great product that produces excellent fine flavour chocolate and has much potential for growth. poor practices are common on many small-scale farms in PNG, but this is not universal. Some grower/processor groups have improved their operating practices and are producing some of the best cocoa in the world. Smallholders from PNG won awards at the prestigious cocoa of excellence competition (www.cocoaofexcellence.org) held biannually at the Salon du Chocolat in Paris. The 2011 competition was won by the Nikas Farmers Group. In 2015, the cocoa of excellence award was won by the Lower Watut and Wals Cocoa Cooperative.

Prospects for growth in the global market for cocoa are looking bright. According to the International Cocoa Organisation (ICCO) global consumption of cocoa is increasing by 17% per annum. Much of the increase in volume is being driven by the emerging markets in Brazil, China and India. Between 2010 and 2015 consumption of chocolate in Brazil, China and India increased by 99%, 132% and 245% respectively. According to ICCO, global demand is outstripping supply which will lead to a predicted shortfall in global cocoa supplies of 100,000 tonnes per annum by 2020. According to industry sources in Western Europe, there is already a shortfall in supplies of the highest quality "fine" cocoa's leading to higher prices for the best quality product.

The proposed cocoa project will make a significant contribution to the Government achieving the goals set in the Cocoa-ISP by supporting improvements to food safety and quality management in the cocoa value-chain in order to promote cocoa exports that benefit rural communities and reduce poverty. The proposed project is relevant for STDF support because it focuses on addressing SPS challenges throughout the value-chain to improve productivity and promoting trade. The proposed project will build on and foster synergies with other relevant past and ongoing interventions by various partners (World Bank, Australian Aid & EU) for the cocoa value-chain. By focusing on key SPS challenges the

project will add value and help consolidate the results and sustainability of these much larger investments.

The project is based on a collaborative public private partnership approach and will support the development, roll out and application of innovative and replicable approaches to build capacity in the cocoa value-chain. The proposed project was developed by Cocoa Board of PNG through an STDF PPG (requested by DAL) approved in March 2016, and has strong local ownership and demand. The project would be implemented in close cooperation with other ongoing projects targeting cocoa value-chains. This will promote a coordinated and coherent approach to SPS capacity building across the diverse range of ongoing/planned interventions for cocoa.

PNG cocoa relies on a smallholder driven supply chain, so efforts will focus on improvements for the smallholders and small-scale processors. The major problems facing the value chain are falling yields and inconsistent and falling quality and safety of product. Part of the problem is already being addressed via the nursery and farm rehabilitation programmes supported by the Government of PNG (Cocoa nurseries project) and World Bank funded PPAP project. However, planting new cocoa trees is not the complete solution. There needs to be a major change in the thinking and practices of small-scale growers and processors. They must adopt commercial thinking and practices that will support improvements to yield, safety and quality and result in higher household incomes from cocoa.

CB-PNG believe that the proposed cocoa project could make a valuable contribution to supporting innovation in the industry by supporting the development and uptake of:

- Smallholder friendly safety and quality management systems for production and processing of cocoa;
- An auditable primary farm assurance protocol for cocoa production that is adapted to the needs of small-scale growers and processors in PNG in terms of simplicity and cost-effectiveness;
- A peer group training programme with qualified instructors drawn from public and private sector agencies.

2. SPS context and specific issue/problem to be addressed

Provide an overview of the SPS situation in the country/region including details on: (i) food and agricultural trade flows and relevant SPS issues; (ii) the institutional framework for SPS management; and (iii) any SPS priorities or issues identified in [SPS-related capacity evaluations](#), the [Enhanced Integrated Framework's \(EIF\) Diagnostic Trade Integration Study \(DTIS\)](#) for least developed countries, or other relevant documents. See Qn. 15 (b) of the Guidance Note.

Also describe and analyse the key SPS issue to be addressed by the project. Explain the causes and effects of this issue, notably for animal/plant health, food safety, market access and/or poverty reduction. See Qn. 15 (c) of the Guidance Note.

2.1 Quality & safety are the key factors for the survival and growth of PNG's cocoa industry

PNG is one of only 23 countries recognised by the ICCO for its high-value fine flavour cocoa. PNG therefore has the potential to export its cocoa to high-value premium markets, provided that certain SPS challenges (PAH and cadmium contamination) throughout the supply chain are addressed. At present given these challenges most (68%) of the cocoa exports go to South East Asia (see Figure 1) for blending and the majority of PNG small-scale farmers involved in cocoa production are unable to benefit from access to these higher value markets. The Cocoa-Board of PNG and the cocoa industry are committed to working together to put in place and demonstrate robust safety and quality management systems to control PAH and cadmium contamination and other SPS issues within the value-chain, and to expand exports to high-value markets.

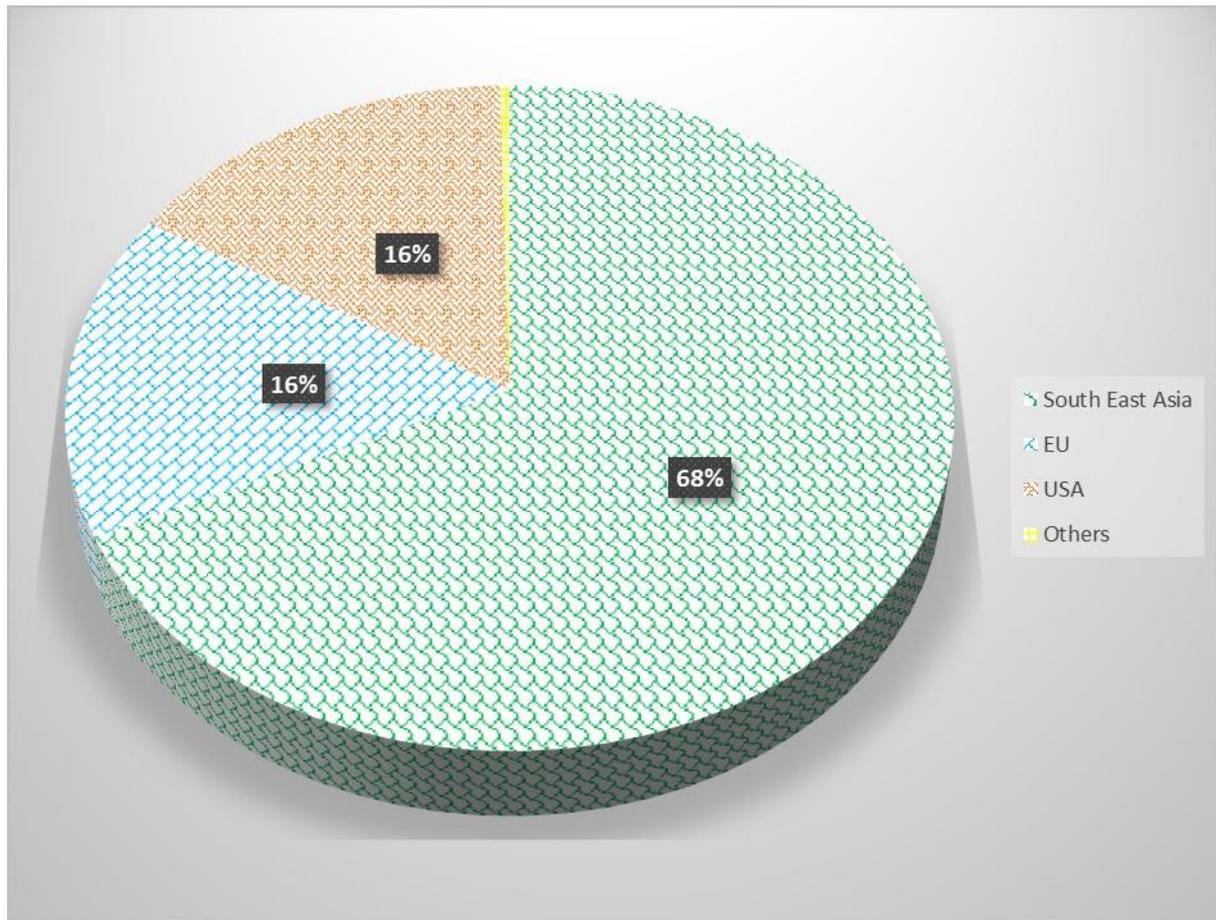


Fig 1. Export destinations for PNG cocoa in 2015

2.2 Role of smallholder farmers in the PNG cocoa value-chain

PNG has a smallholder driven supply chain. In the 2014/2015 production season (October 2015 – September 2015) PNG farmers produced 35,426 tonnes of cocoa, 98% of which was grown by smallholder farmers with just 2% coming from large plantations. Although cocoa is produced in 14 of the 20 provinces, 93% of production came from just 5 provinces (see table 1).

Table 1 Production of cocoa for the 2014-2015 season in the 5 major production areas*

Region	Production of cocoa in tonnes		
	Plantation	Smallholder	Total
Bougainville	0	9,055	9,055
East Sepik	0	8,693	8,693
Madang	101	6,574	6,675
East New Britain	565	4,426	4,991
Morobe	43	3,456	3,499
Total	670	32,243	32,913

*Total for all production areas in PNG was 35,426 tonnes

Smallholder production in PNG is currently characterised by a distinctly non-commercial approach to production by the majority of farmers. Many of the trees are senescent with falling yields. New varieties are being rapidly adopted in many areas thanks to the Cocoa-Board of PNG nursery project but the new trees are yielding at ~10-12% of their potential. The low yields are attributable to an absence of agricultural inputs and very limited adoption of good agricultural practices. The limited level of management carries over into post-harvest handling with sub-optimal usage and poor practices in the fermentaries resulting in reduced quality and increased SPS risks (discussed in detail in Section 2.4).

2.3 SPS risks associated with cocoa production and processing in PNG

For effective food safety management, it is necessary to understand the nature of the possible food safety hazards, the likelihood that they will occur (the risk), the circumstances that will increase the risk and the point in the food chain that requires management to prevent the risk from becoming a reality. The following is a summary of the known risks associated with fermented cocoa beans and cocoa powder that have significance for PNG.

Polycyclic-Aromatic Hydrocarbons (PAH) – PAHs are a large group (~660 compounds) of toxic and carcinogenic substances that are formed through the incomplete combustion of coal, oil or other fuels such as wood. The most toxic compounds are benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene and chrysene (often grouped together as PAH4). The most likely contamination routes for PAHs onto food is via processes such as smoking, heating or drying if the combustion residues come into contact with the food. During drying, contamination will occur if a direct heating system is used. Indirect heating systems are safer but problems can occur if combustion gases leak into the air stream or if the exhaust gases are poorly ventilated. PAHs usually contaminate the outer shell of the bean but being highly fat soluble and stable they will accumulate in the cocoa mass and carry through into final products such as chocolate. The EU considers PAH contamination in cocoa and cocoa products to represent a risk to consumer health. MRLs for various PAHs were introduced by the EU (EC/835/2011).

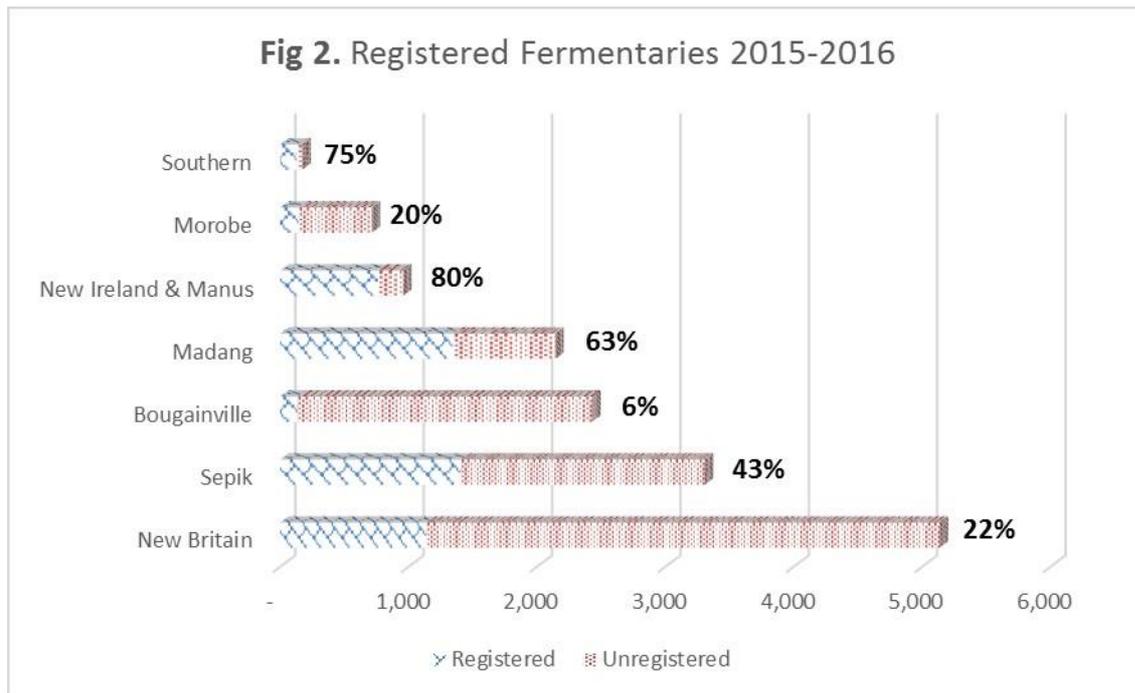
PNG cocoa has been affected by PAH contamination (smoke taint) and this issue has prevented PNG cocoa increasing their ICCO status from 90% to 100% fine or flavour cocoa. The risk of PAH contamination is associated with artificial drying. Farmers in PNG have access to a range of drying technologies ranging from solar dryers to indirectly heated kiln dryers and combination dryers that offer both solar and artificial drying in the same facility.

Solar drying is a useful technique but does not offer a complete solution due to the high rainfall and humidity levels in many of the major cocoa growing areas. Fermentation and drying of cocoa is carried out at facilities known as “fermentaries”. A typical fermentary consists of wooden boxes for fermenting the wet cocoa beans and an indirectly heated cocoa dryer.

The indirectly heated dryers make use of mild steel kiln pipe running through the middle of the dryer. The kiln pipe is made of several sections of tubing either welded or joined together with tension bands. One end of the pipe is open to allow flammable material such as wood to be fed into the pipe, the other end is fitted with a 3m high chimney to carry away the smoke. The kiln pipes face two major problems. First, all of the pipes are made from mild steel. A combination of heat and humid salty air (cocoa production is mainly in coastal lowlands in PNG) causes the pipes to corrode and perforate within 18-24 months of installation. Smoke can then escape from the holes in the pipe and contaminate the cocoa. Second, kiln pipes assembled with tension bands have the additional problem that the bands expand when hot and become loose allowing smoke to escape from the joints in the pipe. Mild steel kiln pipes are not durable and susceptible to corrosion but they are expensive to replace costing US\$589 per set. This cost is likely to influence the farmer/fermentary owner and may encourage bad practices.

The obvious technical solution would appear to be stainless steel which is available in PNG but was estimated by industry sources to be approximately four times more expensive than mild steel. On the face of it stainless steel whilst highly durable would look to be unaffordable for PNG smallholder producers. However, it would be worthwhile to look at the cost savings inherent in bulk purchasing of kiln pipes. There is also potential for the cocoa export industry to assist their growers to purchase stainless steel kiln pipes and then recover costs from cocoa sales (deduction at point of purchase) over a couple of years.

The Cocoa-Board of PNG is concerned about the condition and management of cocoa fermentaries. The Cocoa-Board has established a system for inspection and registration of fermentaries. Fermentaries that meet the Cocoa-Board standard are registered for the year. Sub-standard fermentaries are not registered and usage is prohibited until repairs are complete and re-inspection has been completed. An examination of fermentary registration figures for the 2015-2016 season (see Figure 2) paints a worrying picture. Of the 14,856 fermentaries only 34% were successfully registered in the 2015-2016 season. The rest were given warnings to make repairs and improve management practices.



Even the registered fermentaries can present problems. During preparation of this proposal, the team visited a registered fermentary in East New Britain and found the kiln pipe to be defective with small perforations and evidence that the tension bands had become loose thus allowing PAH contamination to occur.

Heavy Metals - The main potential food safety risk from heavy metals is possible contamination with cadmium. Cocoa tree can take up soluble cadmium salts and concentrate the metals in the cocoa beans. The risk here would be due to either planting of trees in soils rich in cadmium – salts such as the rich volcanic soils of PNG or as a result of applying sub-standard inorganic fertilisers (often containing cadmium salts). Cadmium is found as common contaminant of phosphate rocks, it is perfectly possible to completely remove all of the cadmium from the phosphate but this increases cost. Some cheaper sources of phosphate fertiliser often contain higher levels of cadmium and other undesirable contaminants. The EU has concluded that cadmium in cocoa and chocolate could represent a risk to health. EC/488/2014 (in force from January 2019) establishes maximum levels of cadmium in a range of foodstuffs (including cocoa and chocolate). PNG has rich volcanic soils and this could result in cadmium contamination (depending on the composition of the volcanic soil) and other related factors such as soil pH that influence uptake of cadmium by cocoa trees. As part of their 2015 ICCO fine or flavour submission samples of PNG cocoas were analysed for cadmium content. Cadmium levels were reportedly low with a range between 0.01mg/kg to 0.464mg/kg. However, only 19 samples were analysed which is too small a number to provide a representative sample. Use of inorganic fertiliser is reported to be quite low but this is likely to increase as farmers strive to increase yields. Quality of fertiliser supplies will need to be managed to avoid risks of cadmium contamination via this route.

Pesticide residues – Commercial production of cocoa will normally (the exception being organic production) involve using herbicides, fungicides and insecticides. There is nothing wrong in using compounds recommended for use on cocoa in the correct manner as part of an integrated pest or crop management system. Residues of the active ingredients accumulate on the outer shell of the beans and do not penetrate into the nib. This is an important point as regional blocks and countries such as the EU and US remove the outer

shell prior to analysis of cocoa beans for pesticide residues. Thus, it is unsurprising that the EU has never had an SPS alert for pesticides in cocoa. However, this is not the case for Japan which always analyses the whole bean. Japan is an attractive, high-value market but extra care is required to avoid violating Japanese MRL's for pesticides (Countries such as Ghana which export significant volumes of cocoa to Japan have experienced rejections in Japan for MRL violations which would not present a problem when exporting to the EU or US for reasons given above.

Ochratoxin "A" - Ochratoxin "A" (OTA) is a toxic metabolic by-product of the growth of a mould *Aspergillus ochraceus* on the outer shell of the cocoa bean. OTA is potentially carcinogenic to humans (Group 2B). *A. ochraceus* is likely to be present on most cocoa farms in PNG. OTA contamination in cocoa beans had been perceived as a potential risk and there have been detections and rejections at entry points into the EU in the past. With this in mind the CODEX Committee for Contaminants in Food developed a code of practice (CX/CF 13/7/9) for prevention of OTA contamination in cocoa. However, the EU concluded (EC/105/2010) that the risk represented by OTA in cocoa and chocolate is too low to justify setting an MRL.

Data from the EU's Rapid Alert System for Food and Feed (RASFF) for imports of cocoa from the beginning of 1996 to the end of 2016 (see Figure 3) provides some important pointers for the kind of issues that PNG needs to take seriously – especially as they seek to enter and expand exports to high-value markets. Contamination with poly aromatic hydrocarbons (PAH) during artificial drying accounts for 23% of detections which also reflects the seriousness of the issue leading to a higher priority for sampling and analysis. Ochratoxin "A" contamination was also important in the past accounting for 17% of detections but as noted above the EU has determined that OTA levels in cocoa are too low to represent a risk to health. Contamination with foodborne pathogenic microorganisms such as *Salmonella spp* and enterotoxin forming strains of *Bacillus cereus* is also a significant risk linked to poor hygiene during post-harvest processing storage and transport of cocoa beans.

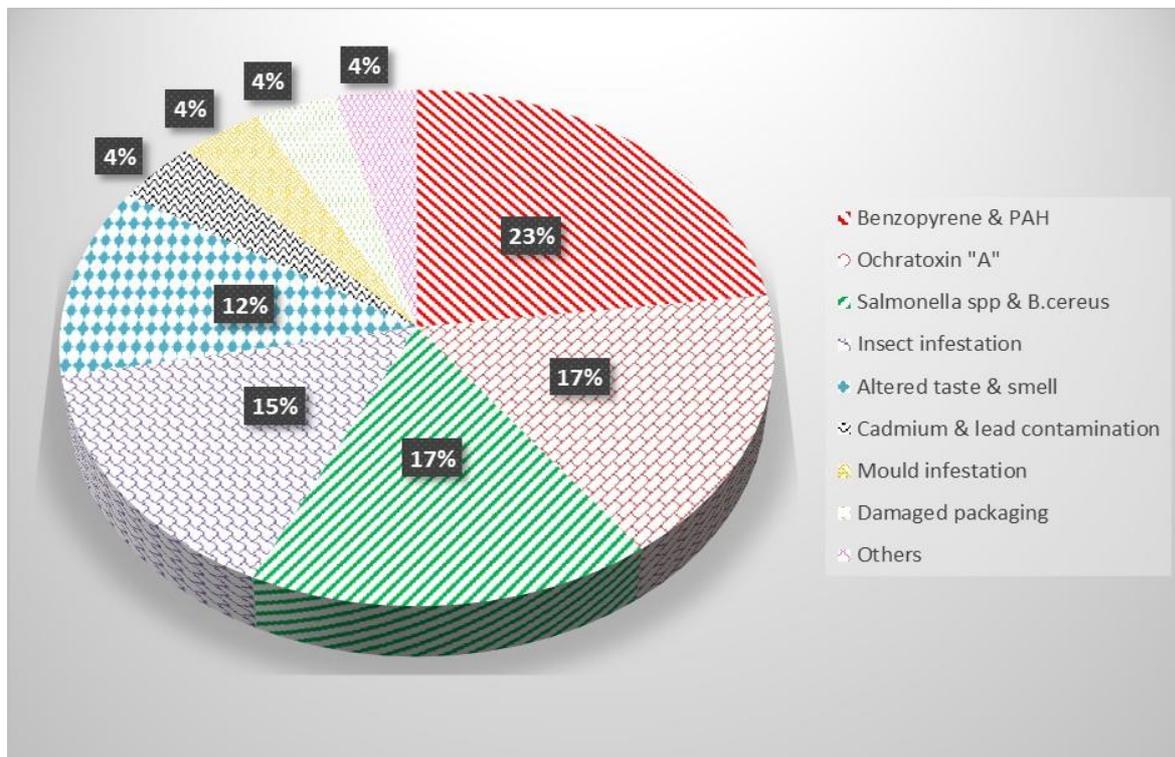


Fig 3. Summary of EU RASFF alerts for cocoa beans imported into the EU between 1996 and 2016.

Cadmium contamination has rarely been detected accounting for just 4% of alerts but is still a potentially serious risk to health that could become more prevalent if PNG increases yields and volumes sold to high-value single origin markets.

3. Links with national/regional development plans, policies, strategies, etc.

Explain how the project supports national/regional development plans, agricultural/trade/SPS policies and strategies, and any other relevant priorities. If a national/regional SPS strategy exists, indicate how the project supports this strategy. See Qn. 15 (d) of the Guidance Note.

This proposal is closely aligned to the policies of the Government of Papua New Guinea for development of commercial agriculture as a means to raise household incomes and increase development for people in rural areas who constitute the bulk of PNG's population. This section close first reviews the mission statement of the Cocoa-Board of PNG and the Cocoa-Board of PNG Industry Strategic Plan. This is followed by a summary of how the CB-PNG proposal aligns with major national policies and development plans for agricultural growth.

Cocoa-Board of Papua New Guinea Cocoa Industry Strategic Plan 2016-2025 (Cocoa-Board-ISP) – The mission statement of the Cocoa-Board of PNG (CB-PNG) states that the board is responsible for encouraging increased production, productivity, quality and competitiveness of the cocoa value-chain. In developing this proposal, CB-PNG believe that it will make a valuable contribution to enhancing quality and competitiveness of the PNG cocoa industry. If CB-PNG are successful in promoting the beginnings of adoption of good agricultural practices by at least 20% of PNG's smallholder cocoa farmers' the board is confident that it will see a significant improvement in yields away from the current level of 0.3 tonnes per hectare.

The Cocoa-Board-ISP (2016-2025) is CB-PNG's strategic plan for the next 10 years developed out of consultations with >2,000 stakeholders across the nation in 2014. The vision of the Cocoa-Board-ISP is to build a dynamic, innovative, competitive and sustainable cocoa-industry that will support prosperous, happy and healthy rural communities. Stakeholders identified production, productivity, quality and competitiveness as the key issues for growth of the industry. All of these have been built into the mission statement of the ISP. The ISP aims to increase yields from the present level of 0.3 tonnes/ha to at least 1.0 tonnes/ha for smallholder farms. With regard to quality the ambition is to increase PNG's ICCO fine or flavour cocoa status from 90% to 100%.

Most of CB-PNG's current effort and donor initiatives have focussed on solving the CPB problem and increasing production areas. In the proposed project the board has expanded its focus to address issues of quality and safety and to develop safety and quality management systems and training programmes with the potential not only to increase quality/safety but also to increase yields from smallholder farms via adoption of good agricultural practices. The ISP aims to move away from subsistence to intensive, business orientated, well managed farms, producing consistently high-quality cocoa beans. CB-PNG believe that the proposed project will make a significant contribution to achieving this aim.

PNG Agricultural Administration Adjustment Bill of 2015 (PNG-AAA-2015) – The PNG AAA-2015 redefines the role of the Department of Livestock (DAL) giving the DAL the remit and tools to support initiatives aimed at improving effectiveness and efficiency in the agricultural sector. The ultimate aim is for a better coordinated and effective sector that will help raise incomes in rural areas and address the development needs of the rural population. In developing this proposal the DAL and Cocoa-Board of PNG will be in the position to implement a programme to improve the efficiency of the cocoa value-chain.

PNG Vision 2050 (V2050) – The PNG Vision 2050 (published in 2009) calls for development and growth of agriculture and expanded production volumes and trade in all cash crops (including cocoa and coffee). Increased trade in cash crops to high value markets and value addition through downstream processing is seen as a key strategy for encouraging wealth creation with direct benefits for PNG’s predominantly rural populace. The proposed project seeks to enhance the competitiveness and efficiency of cocoa farmers in PNG with the intention of increased trade in higher quality, higher value product.

Development Strategic Plan 2010-2030 (DSP) – The stated goal of the DSP is to develop “A world class agricultural sector that is responsive to international and domestic markets for a range of products and to provide the best available income and job opportunities for the rural population”. With regard to cocoa the DSP calls on the cocoa industry to increase cocoa exports to a level of 310,000 tonnes by 2030. CB-PNG’s proposals for a smallholder friendly quality and safety management system and training programme are grounded in internationally recognised best practices (CAC & IPPC standards) and respond to market and regulatory concerns over known SPS risks in cocoa and cocoa-products. Addressing the quality and safety concerns and improving yields relative to production area have the potential to drive a renaissance in PNG cocoa. Industry experts agree that PNG’s competitive advantage is quality. PNG should play to its strengths and focus on increasing output of a consistently high quality, high value product and avoid focussing on a misguided attempt to increase volumes to the level suggested by the DSP at the expense of quality. CB-PNG’s proposal is designed to maximise quality and value of cocoa from smallholder farms.

4. Past, ongoing or planned programmes and projects

Provide detailed information about relevant past, ongoing or planned national or donor funded projects and programmes related to SPS, food safety, animal and/or plant health in the country or region, as appropriate, as well as any SPS components of broader agricultural or trade capacity building programmes. Explain how lessons learned from previous projects have been taken into account in the design of this project, and clarify how the project will complement these related initiatives. Where applicable, explain how the project relates to the EIF and/or Aid for Trade process. See Qn. 15 (e) of the Guidance Note.

A review of past, ongoing or planned programme and projects that could have relevance for the proposed cocoa project in PNG is set out in Table 2 below. As part of the development of proposed cocoa project, discussions were held with the representatives of the World Bank, European Union, Australian Government, the PPAP and PHAMA-PNG projects. Since 2005 there have been at least 7 major projects focused on support for smallholder cocoa in PNG with funding from Australia, World Bank and the EU. Four of these projects (PPAP, ACIAR ASEM/2003/015, HORT/2012/026 and HORT/2014/096) have done excellent work on improved management practices for pests and diseases, cocoa agronomy and good agricultural practices. Two projects (PHAMA-PNG & HORT/2014/094) have made valuable contributions on market linkages for smallholders and developed approaches for improving control of flavour and aroma of cocoa. The STDF funded Cocoa-Safe project (STDF/PG/381) provided valuable outputs on GAP and produced training manuals suitable for use by instructors. Cocoa-safe was also the only one of the seven projects to make a serious attempt to address food safety concerns in cocoa. However, Cocoa-Safe only worked in PNG in the final year of the project thus limiting opportunities to address practical

issues on ground. A facilitators training manual was prepared for PNG. This manual forms a useful resource but is not in a form that can be used by smallholders. Additional work is needed to develop complementary practical training materials targeted at smallholder farmers for use in peer group training. The Cocoa-Safe training manual contains excellent material on agronomy, GAP and pest and disease management. The section on food safety management is much weaker. The general principles of food safety are covered and a range of food safety hazards and potential risks are mentioned. Some useful suggestions are given on food safety management but the key risks of cadmium and PAH contamination are not addressed in enough detail. Mention is made of cadmium contamination via contaminated soil but risks associated with poor quality phosphate fertiliser are absent. General advice is given on fermentary management but practice aspects for prevention of PAH contamination are absent. Stainless steel for kiln pipes and gas tight welds for pipe connections are not mentioned.

The considerable donor investment already made should improve yields and some aspects of quality. However, having more cocoa with a better flavour and aroma will not be sufficient if food safety risks are not addressed. PAH contamination (detected by buyers as “smoke taint”) and cadmium contamination are important problems that undermine prospects of increased sales and better prices for PNG cocoa. In short, without addressing the food safety and quality management the other large interventions on cocoa production are not likely to achieve maximum results from the investments made.

The STDF has a strong focus on addressing food safety and quality management impacting on market access and thus offers an opportunity for support to address the need for smallholder friendly food safety management systems and peer group training to ensure that food safety training messages reach large numbers of beneficiaries in remote cocoa producing communities. The proposed cocoa project has synergies with the previous initiatives described above and will complement, enhance and build on these projects. The PPAP has already established strong linkages between the private sector and smallholders, an MIS system and training and extension materials on agronomy and GAP. The proposed cocoa project will make use of the materials and structures created by PPAP and related projects. The Cocoa-Safe facilitators manual will also form a useful resource for development of peer group training materials for the smallholder farmers but the food safety section will need to be revised and improved with new material.

Table 2 Summary of projects focused on the cocoa sector in PNG

Title of project	Start & end date	Donor & value	Relevance
<p>Productive Partnership in Agriculture Project (PPAP) www.worldbank.org/projects/P110959/png-productive-partnerships-agriculture?lang=en</p>	<p>29/04/10 to 30/06/19</p>	<p>Total value US\$50.2 million with commitment of US\$25 million from World Bank, plus US\$9 million from IFAD and rest from local partners. Cocoa component worth US\$25.2 million</p>	<p>The objective of PPAP is to improve livelihoods of smallholder cocoa and coffee producers/processors. Support includes better seedlings, training, tools, group governance & business management and market access. The PPAP is establishing MIS systems for the cocoa and coffee value-chains. Not directly an SPS or food safety risk management project, the objectives relate to increasing yields of cocoa and coffee and income for smallholder farmers via improved planting material and agronomic practices. The proposed cocoa project would complement the PPAP by adding the missing elements on food safety and quality essential for high-value markets. The CB-PNG is the main implementing agency and hosts the management unit of the PPAP cocoa component.</p>
<p>EU grant to PPAP cocoa component</p>	<p>01/05/14 to 30/04/17</p>	<p>European Union total value of grant €5 million</p>	<p>Enable upscaling of the cocoa component of PPAP to reach an additional 8,000 households in East New Britain Province and the Autonomous Region of Bougainville.</p>

Title of project	Start & end date	Donor & value	Relevance
<p>Developing the cocoa value chain in Bougainville ACIAR HORT/2014/094 http://aciar.gov.au/project/hort/2014/094</p>	<p>01/02/16 to 31/12/21</p>	<p>Australian Aid - A\$5,994,988</p>	<p>Focus on markets and market linkages and getting feedback from buyers on flavour and aroma of cocoa to enable farmers to improve production, post-harvest and storage practices to improve product quality. A chocolate festival was held in July 2016, cocoa from the best farmer group was purchased by Jasper & Myrtle Chocolate of Canberra a high-end boutique chocolatier. The company intends to market single origin chocolate branded as "PNG-Bougainville".</p>
<p>Cocoa-Safe STDF/PG/381 www.cocoasafe.org</p>	<p>2013 to 2015 completed</p>	<p>STDF overall US\$824,359 STDF contributes US\$604,491 co-finance of \$98,337 & counterpart funding of \$121,531</p>	<p>Improve SPS practices along cocoa supply chain & increase awareness of SPS issues among supply chain stakeholders through innovative knowledge dissemination. Train lead farmers & agro-dealers provide manuals, equipment and materials for demonstrations, exercises and presentations. Project focus was mainly in Indonesia and Malaysia but in the final year of the project, Cocoa-Safe worked with CCIL in PNG to develop a training manual for master facilitators. This manual contains a useful resource of information on GAP for cocoa production and agronomy and deals with food safety issues to some extent. This manual is available electronically and will contribute to development of more practical training materials suitable for use in a peer group training system.</p>

Title of project	Start & end date	Donor & value	Relevance
Pacific Horticulture and Agriculture Market Access (PHAMA) www.phama.com.au	2011-2017 PHAMA-PNG 2015-2017	Main project jointly funded by Australia & New Zealand PHAMA-PNG is funded bilaterally by AUSAID	PHAMA-PNG work with public and private-sectors via industry led working groups. Aim is to improve management of regulatory aspects and exploit export opportunities for cocoa & coffee. Most work has been on cocoa; a second phase is planned for 2017 onwards. Useful material on market opportunities for cocoa and general parameters for quality – Food safety & quality material is absent from website
Enhancing PNG smallholder cocoa productivity through greater adoption of disease control practices. http://aciar.gov.au/project/asem/2003/015	2005 to 2009	ACIAR A\$549,920	Main focus on better management of cocoa pests and diseases including cocoa pod borer. NOT food safety and quality.
Improved marketing strategies for cocoa in PNG. http://aciar.gov.au/project/hort/2012/026	2014-2018	ACIAR A\$1,109,194	Main focus on sustainable intensification of cocoa production through improved control of cocoa pod borer. NOT food safety and quality.
Enterprise driven transformation of family cocoa production in East Sepik HORT/2014/096 http://aciar.gov.au/project/hort/2014/096	2016-2021	ACIAR A\$4,977,862	Main focus on improved management of plant pests and diseases in cocoa, NOT food safety and quality.

5. Public-public or public-private cooperation

Explain how the project promotes cooperation between government organizations involved in managing SPS issues and/or with the private sector. See Qn. 15 (f) of the Guidance Note.

The Cocoa Board's Industry Strategic Plan for 2016-2025 calls for development and strengthening of partnerships with the private sector to drive changes in industry practices, and improve the safety and quality of cocoa and expand access to high-value export markets. This project recognizes the role of the private sector as the driver for change in the industry. It promotes public-private collaboration to improve safety and quality management practices in the cocoa sector and enhance competitiveness of the cocoa value-chain in a sustainable manner. The project approach affirms the government's role as the regulator and supporter of industry, while engaging the private-sector to roll out good agricultural practices and facilitate uptake by smallholder farmers.

In the proposed project, the CB-PNG role is as a partner in developing public goods that will benefit all stakeholders in the industry, in addition to its role as an inspector and regulator. The project will enable the various partners to share existing knowledge and experience much more widely. The private companies to be involved recognize that the development and implementation of training materials and management systems for improving the quality and safety of smallholder cocoa is non-competitive, and essential to generate competitiveness and trade. The CB-PNG plans to use the proposed intervention to add-value to ongoing collaboration with the private-sector initiated under the World Bank funded PPAP project that has helped to develop better linkages between cocoa export companies and smallholder producers and to fund a cocoa nursery and farm rehabilitation programme. The proposed project provides greater emphasis on quality and value of the product that complements the efforts made under PPAP.

In the 2015-2016 season, 15 companies were engaged in exporting cocoa from PNG. Two companies (NGIP-AGMARK and OUTSPAN-COCOA) stand out as controlling 76% of the export business between them. Two other companies (Globe Manufacturing and Pacific Trading) accounted for 8% of exports, with exports of the remaining 11 companies ranging from just 7 tonnes to 870 tonnes. Given that 98% of cocoa production for export comes from smallholder farms, partnering with NGIP-AGMARK and OUTSPAN-COCOA will ensure that smallholders directly benefit. Both companies are well resourced and have established systems for procurement of cocoa from smallholders thus creating the highest potential for establishment of a sustainable system. The primary beneficiary for the proposed project is the smallholder farmer the large export companies have been included as they create a sustainable link between the farmer and the export market. In addition, the two companies are investing resources in extension, training and support for smallholder farmer groups who supply them with cocoa. Both companies have implemented cocoa nursery and fermentary rehabilitation projects as part of the World Bank funded PPAP. Although initially funded under PPAP the companies have integrated these activities into their permanent programmes for supporting smallholder cocoa. Both companies have confirmed that they will commit their own resources in support of implementation of the proposed STDF project and would expect to integrate the outputs into their permanent programmes for procurement of smallholder cocoa.

NGIP-AGMARK are a long-established national business that has long dominated cocoa exports in PNG. In 2015-2016 the company exported 13,496 tonnes of cocoa and had a 41% of the cocoa export market. AGMARK produces three brands of cocoa, the premier brand uses beans sourced only the companies Tokiala Estate in East New Britain. The Tolai brand named after the indigenous people of the Gazelle peninsula in East New Britain uses beans sourced exclusively from smallholder farmers living on the Gazelle peninsula. AGMARK have their own extension and support system employing experienced cocoa agronomists to work with the growers and provide access to technical information mainly focused on good agronomic practices (food safety and quality remains a weak point in both commercial and public-sector extension programmes for cocoa farmers). The company also has its own farmer training centre located at the Tokiala Estate which is available for external use by non-company personnel. AGMARK have offered use of the Tokiala farmer training centre as part of their contribution to the proposed project. AGMARK have an excellent reputation with the growers and are an obvious partner for development and implementation of the smallholder friendly quality and safety management system, good agricultural practice packages and associated training programme. AGMARK has a diverse business portfolio and also owns RABWELD which is the main supplier of kiln pipe assemblies and complete cocoa drying units. There is clearly potential to work with AGMARK/RABWELD to promote a stainless-steel kiln pipe assembly as a way to eliminate the risk of PAH contamination (smoke taint) from PNG cocoa.

OUTSPAN-COCOA is a relatively new player in PNG cocoa. In 2006, they exported 4,796 tonnes of cocoa but have expanded rapidly over the last 10 years. In 2015-2016 OUTSPAN-COCOA exported 11,718 tonnes of cocoa and had a 35% share of the cocoa export market. OUTSPAN-COCOA is part of the Olam Group a multi-national with head offices in Singapore. Olam is reportedly the number one buyer of cocoa in the world with a 14% share of global cocoa sales. OUTSPAN-COCOA said they have a market for 50,000 tonnes of cocoa/annum but this season the total supply was only 32,150 tonnes indicating that there is demand and potential for expansion of the PNG cocoa industry. OUTSPAN-COCOA has operations in many parts of PNG including East New Britain, Sepik, Madang, Mutsing and Bougainville. OUTSPAN-COCOA is of interest as they are not simply a buyer or processor of cocoa they operate down to farm level and are keen to expand their activities with smallholder farmers. They believe in purchasing direct from the smallholder and not via middlemen which is useful for the purposes of this proposal. OUTSPAN-COCOA has field workers, has its own certification scheme and is involved with Rainforest Alliance (where this standard is required for market access). OUTSPAN-COCOA is keen to get major buyers more involved in sourcing of certified cocoa, they have had success with this approach in Ghana linking with Nestle and would like to do something similar in PNG. This does have some implications such as buyer exclusivity as the buyer would wish to contract the growers to supply them in return for involvement in the support programme.

6. Ownership and stakeholder commitment

Which stakeholders (e.g. government agencies, private sector organizations, relevant local coordination mechanisms on SPS, trade, agriculture, environment and/or private sector capacity building) actively support this project? Explain how these stakeholders would be involved in the project. Attach letters of support from each of these organizations. See Qn. 15 (g) of the Guidance Note

The Government of PNG has been very supportive of the STDF PPG. The Secretary for Agriculture of the Department of Agriculture and Livestock (DAL) recognises the importance of the coffee and cocoa industries for sustainable development and improvement of rural livelihoods. DAL facilitated the process of development and submission of the application for an STDF PPG to support preparation of project grant proposals for the coffee and cocoa value chains. DAL has also played a significant role in management and support during implementation of the PPG. The content of the STDF project document was prepared by a team of experts from CB-PNG and CCIL in Kokopo with the support of an international consultant (Dr Andrew Graffham) who was funded by the STDF. The Secretary for Agriculture at the Department of Agriculture and Livestock, the Chief Executive Officer of CB-PNG are supporting this proposal (see appendix 4). CB-PNG is partnering with the Cocoa and Coconut Research Institute Limited (CCIL) who are also supporting this proposal.

During project development, discussions were held with the largest cocoa export companies in PNG (NGIP-AGMARK and Outspan-Cocoa), as well as three smallholder cocoa farmer groups in East New Britain Province. These consultations confirmed the interest and support of industry and smallholders for this project to help them address concerns related to falling and inconsistent product quality from the smallholder supply-base, falling yields due to inefficient management and absence of Good Agricultural Practice (GAP) on smallholder farms, and concerns that the current training programmes did not reach a wide enough audience. NGIP-AGMARK and Outspan-Cocoa and 15 smallholder groups have committed to working with CB-PNG for implementation of the project. NGIP-AGMARK have offered access to their farmer training centre and Outspan-Cocoa have agreed in principle to provide testing of product samples for food safety and quality at their laboratories in Singapore at no cost to the project. Letters of support from NGIP-AGMARK and Outspan-Cocoa are provided in Appendix 4.

As part of the proposal development process the National Agricultural Quarantine Inspection Authority (NAQIA) was consulted. NAQIA has a mandate under the NAQIA act of 1997 to provide official control of SPS risks for most imports and exports of agricultural products. They confirmed their support and approval of the proposed STDF project.

II. PROJECT GOAL, OBJECTIVE, OUTPUTS & ACTIVITIES (LOGICAL FRAMEWORK)

7. Project Goal / Impact

What is the overall goal of the project? The goal should describe (in one statement) the expected longer-term impact or positive change to which the project will contribute, particularly in terms of market access, the SPS situation and poverty reduction.

The goal of the STDF cocoa project is for “Increased competitiveness & sustainability of PNG cocoa industry in terms of consistent supply of high quality safe cocoa from smallholder driven value-chain, resulting in increased sales to premium markets, impacts positively on the livelihoods of 1 million rural households”.

The PNG cocoa industry needs innovative approaches to support improvements to smallholder cocoa production and processing. An upward trend in volumes and value of exports will be a good indicator. However, the real indicator of the longer-term success of the STDF intervention will be an increased percentage of exports of higher quality, higher value cocoa and a reduction in exports of lower-value cocoas. Reductions in customer complaints of smoke taint would also be a good indicator of success. The PNG cocoa industry relies on smallholder growers and processors for 98% of its supply base. Improvements in the overall performance of the industry in terms of increased sales of higher quality products will have a direct impact on rural livelihoods of 1 million cocoa producing households and communities through at least a 25% increase in value of cocoa sales. This equates to an increase of at least US\$25 million per annum for rural households involved in cocoa production.

8. Target Beneficiaries

Identify the final beneficiaries (e.g. small farmers, producers, workers, consumers, etc.) and explain how they are likely to benefit from the project, quantifying these benefits as far as possible. See Qn. 15 (h) of the Guidance Note.

The proposed project takes a value-chain approach and thus has several categories of direct beneficiaries including smallholder growers & commercial grower groups.

At least 1,500 households involved in small-scale cocoa production who belong to 15 cocoa producing groups in two provinces are the primary beneficiaries.

Twelve groups have been chosen in East New Britain (ENB) Province and three groups in the Markham Valley in Morobe Province. These provinces make significant contributions to PNG’s cocoa exports. ENB and Morobe Provinces accounted for 15% and 11% of export volumes respectively in 2015/2016. ENB Province was a major producer of cocoa prior to the 2008 outbreak of Cocoa Pod Borer (CPB) and is recovering rapidly due to investments in new cocoa clones and upgraded fermentaries. Production is set to increase rapidly over the next 3-5 years making it an ideal target for intervention by the STDF. Markham Valley in Morobe Province is a relative newcomer to cocoa production but has already gained a reputation for quality. Paradise Foods (PNG) Limited sources single origin cocoa from Markham Valley for their premier range of Queen Emma chocolates

(www.paradisefoods.com.pg). Smallholders in the Markham Valley have been exporting cocoa to Dandelion Chocolates (www.dandelionchocolate.com/our-beans/markham) and Scharffenberger Chocolate (<http://shop.scharffenberger.com/Markham-Valley/>) in the USA. Cocoa is the major source of cash income for farmers in the Markham Valley. The outputs of the proposed project have the potential to increase incomes through increased sales to premium export markets based on reduced risk of PAH contamination and higher quality product.

The size of the groups varies but CB-PNG anticipates having an average of 100 committed households from each group providing at least 1,500 beneficiary households for the proposed cocoa project. The safety and quality management systems and primary farm assurance protocol for cocoa production will be implemented by these households. If the work is successful, CB-PNG and the private sector companies believe that the number of households will increase during the life of the project as more members of the grower group decide to become involved. For peer group training purposes, the aim is to train a minimum of 2 persons per household (male and female) plus group leaders, at least 3,000 people will benefit from the peer group training programme at the rural level.

The export companies will benefit directly from professional expertise to develop and implement the management systems and standards. All of the information and material generated will be in the public domain and will be publicised so that companies and groups not directly involved can access the outputs of the proposed project.

(a) Gender-related issues

Identify and address any specific needs and opportunities linked to gender in the project. This should include an analysis of the possible positive/negative effects of the project on gender equality. For instance, how are different genders involved (e.g. as producers, farmers, traders, workers in food business operations) in particular value chains of relevance to the project, what constraints (if any) do they face and how could they be addressed to take advantage of new opportunities? How are different genders expected to benefit from the project? Inclusion of gender-specific indicators, wherever possible, is encouraged.

Men and women are both involved in cocoa production and should benefit equally from access to the opportunities created by the STDF project. However, in CB-PNG and CCIL's experience, women are often excluded from access to training opportunities in the male dominated society of rural PNG. Thus, CB-PNG and CCIL will ensure that the farmer profiling and training needs analysis activities are gender equitable and inclusive. In setting up and running the peer group training sessions and any activities associated with awareness creation and implementation of the safety and quality management systems, it will be necessary to make clear to the management of the grower/processor groups that involvement in the project is conditional on women's equal participation in the project activities. This approach has proved successful in other projects such as the World Bank funded PPAP programme. The CB-PNG/ CCIL team will ensure that the core team of instructors including women and that ~50% of the farmers who receive the peer group training are female.

9. Project objective, outputs and activities (including logical framework and work plan)

Describe the immediate objective (purpose or outcome) of the project, the outputs (measurable results that contribute to the objective) and the activities that will be carried out to achieve the specified outputs. This description should be based on, and consistent with, the logical framework for the project.

The objective of the STDF cocoa project is for “increased financial returns, yields, quality/safety and market access for smallholder cocoa growers & processors and grower/processor groups”.

To be more competitive in terms of quality/safety and volume, the PNG cocoa industry needs to support the smallholder supply base to adopt better food safety and quality management systems for primary production of cocoa including post-harvest handling. The boutique market for cocoa is very quality conscious paying higher prices and premiums for the best grades of cocoa. Lower grades sell at much lower prices and tend to be used for blending during production of cheaper mass produced chocolates. Some countries rely on producing large-volumes of lower grade cocoa at the cheapest price for their competitive edge. However, the rugged geography and limited infrastructure in PNG make the bulk market unattractive due to the high transaction costs associated with cocoa production in PNG. PNG cannot be competitive as a player in bulk cocoa but is ideally placed to build on its reputation for high-quality and expand production to meet increasing demand for high-value, high quality single origin cocoas for the boutique chocolate market. To achieve this objective the industry needs to invest in the smallholder driven value-chain to improve yield and quality and manage SPS risks associated with PAH contamination (smoke taint) effectively.

CB-PNG believe that if the smallholder growers produce higher quality and bigger volumes they will not only be able to access better market opportunities but will also get a higher return on their investment. CB-PNG’s experience suggests that farmers respond positively to higher incomes and will invest more resources in their cocoa gardens creating a virtuous circle. Investments in cocoa can take several years to yield their full potential, but if at least 50% of the groups targeted by the proposed cocoa project invest in better management systems they should see at least a 15% increase in sales of cocoa in tonnes and a 20% increase in value of cocoa sales within 3 years of the start of the project. These calculations are based on an upward shift in quality, whereby at least 40% of cocoa sold by the grower groups is grade 1 standard and the percentage of beans contaminated by PAH is reduced by 40%. To deliver the objective, the STDF cocoa project has the following outputs and activities.

Output 1. Members of smallholder groups implement risk-based safety and quality management systems to improve yields, quality & safety of cocoa. Groups implement better governance and business practices.

1.1 Review of available information & existing approaches (GAP, processing, governance, business management, training etc) to create a common resource. The proposed cocoa project is intended to add value to previous efforts both in PNG and internationally. Much has already been done on various aspects of food safety and quality management of smallholder production and processing of cocoa outside of PNG. Management of PAH contamination is straightforward and well understood internationally. PNG, already has useful materials on good agricultural practices, group governance and business management and a useful selection of training materials. However, some of the materials required for a systematic approach to management of food safety and quality for smallholder production are weak or absent. Some aspects of good agricultural practice are new for farmers in PNG and the concept of peer group training is novel but has massive potential to extend coverage of extension messages cost effectively. The first activity for the proposed cocoa project is to make a review of the information and approaches already available and to prepare a resource of material to avoid wasting resources creating materials that can be had off the shelf. We will also identify the weaknesses and gaps in the current materials that will be filled in during the proposed project.

1.2 Awareness creation for smallholder grower groups (signing of stakeholder agreements). Whilst developing this proposal CB-PNG sought the interest of the two most important processors/exporters of cocoa in PNG and 15 smallholder grower groups that have shown potential to implement better practices successfully. These groups are mostly organised around groups of villages with a strong management structure and collective approach to marketing. Some of the groups have introduced large centralised fermentaries for fermentation and drying of cocoa in place of smaller units on the individual farms. CB-PNG is encouraging this practice as it reduces costs and makes management of food safety and quality easier. CB-PNG will meet with the members of the 15 groups selected for participation in the project to discuss the project in more detail and sign-up growers for active participation in adopting food safety and quality management systems, protocols and peer group training programmes. Past-experience shows that not every household in a grower/processor group will make a formal commitment at the start of the project, but records will be kept of those who seem likely to commit at a later date so that they can be bought in when they are ready to make the necessary commitments.

1.3 Updating and consolidation of existing baseline information on the grower groups. For effective management, it is essential to have a detailed profile of each household in the 15 grower groups linked to the proposed cocoa project. These profiles contain basic information on area of land planted with cocoa trees, application of good agricultural practices, use of inputs, yield figures for the previous season, grade(s) of cocoa sold with volumes etc. The profile is a useful tool for the M&E team as it sets the baseline for the project. However, it also forms a vital part of the safety and quality management system providing information to the buyer on the supply base and enabling the growers to see their current status and to compare this with improvements resulting from investment in better management practices. The grower groups will keep this information in hard format. The buyers and the CB-PNG/CCIL team will have access to the data in electronic format as part of the management information system developed by CB-PNG for the cocoa industry with PPAP support. For the STDF cocoa project, it will be necessary to prepare detailed profiles for 1,500 households (100 member households per grower group). Some information is already available as the export companies and CB-PNG already work with these groups but gaps are likely to exist and the existing information is not consolidated or in the format required for our purposes hence the need to update and consolidate the baseline information. The PPAP profiles will be used as the basis with extra modules added to cover food safety and quality effectively. The survey instruments will be prepared by the CB-PNG/CCIL team in consultation with our private sector partners. The M&E team at CB-PNG will take the lead in developing the survey instruments, carrying out data analysis and monitoring delivery of the profiling in the field. To optimise use of personnel, we intend to sub-contract the field work for the baseline and profiling activity to the University of Natural Resources and Environment (UNRE) in East New Britain Province. UNRE provided a quote for delivery of this activity as part of the development of the budget for the STDF cocoa project.

1.4 Design, piloting & roll out of smallholder friendly safety and quality management systems (production & processing) suitable for group based production/processing (group based management systems to optimise output) includes governance & business management for groups. The design and implementation of effective management systems for smallholder production of cocoa is at the heart of the proposed cocoa project for PNG. As a first step, CB-PNG will work with the private sector partners to draft guidance and record keeping documents for management of food safety and quality during production and processing of cocoa. The systems are intended primarily for use by smallholder grower groups but can also be used by individual farmers, and will include a traceability system with appropriate records to ensure both vertical and horizontal traceability of cocoa. Vertical traceability of cocoa should be to farm level; farm records to enable horizontal traceability of key

processes will be held on farm in a farmer file and also at the level of the group. Having double record sets reduces the potential for accidental loss of important data.

For primary production, focus will be on good agricultural practices (GAP). GAP measures will include planting material (for new/replacement planting and better pruning practices for established trees), efficient use of soil and water, optimal use of inorganic and organic fertilisers, effective use of crop protection products and application of integrated crop management (ICM). The ICM package will include cocoa garden scouting for identification of pests & diseases and determination of control thresholds. Management controls will be developed for correct harvesting techniques and garden hygiene to eliminate pest and disease reservoirs. Cocoa is vulnerable to cadmium contamination from application of low quality phosphate fertilisers and inappropriate use of mulched cocoa pod waste. The soil management and fertiliser systems will incorporate measures to minimise SPS risks associated with cadmium.

Post-harvest management will focus on best practices and guidance on correct procedures for breaking pods, pod disposal, fermentation, drying, storage and transport of dry cocoa beans. CB-PNG will work with the grower groups and private sector partners to support upgrading of artificial dryers with stainless steel kiln pipes to eliminate the risk of PAH contamination resulting from defective kiln pipes allowing productions of combustion to reach the surface of the beans during drying.

CB-PNG will support the grower/processor groups to introduce standardised records for production, handling and sale of cocoa (including volumes linked to grades), deliveries of cocoa to customer and receipts for delivery. These records should improve understanding within the value-chain of costs of production, yields and returns on investment linked to improvements in quality and safety.

The draft materials for the food safety and quality management systems will be piloted with 5 of the groups over a 6-month period to enable weaknesses to be identified and modifications and improvements to be made. The final version of the management systems will be rolled out to the 15 grower groups during the second year of the project, mentoring and support will be provided through CB-PNG/CCIL and private sector extension personnel. Adoption of the management systems will be monitored through examination of group records and buyer feedback (especially records of quality and volume) verified by annual audits as part of the Primary Farm Assurance protocol (PFA) for cocoa (see Output 2).

1.5 M&E to collect and synthesise data on delivery of project objectives & documentation of success stories. The monitoring evaluation component is discussed in detail in section 18 of this proposal. CB-PNG will provide the specialist personnel for the monitoring and evaluation of the STDF cocoa project. The main job of the M&E team will be to collect the data and provide the analysis necessary for measurement of delivery and impact of the project in terms of progress towards meeting the objectively verifiable indicators (OVI's) defined at objective and output level of the logical framework (see Appendix 1). The team will also document narrative and pictures for individual success stories. Success stories are useful for promotion of the outcomes of the project to the local donor community, the cocoa industry and grower groups external to the project. These stories will also be made available to STDF with contact details of stakeholders named in the story. This will allow the STDF to carry out their own follow-up of the project's impact and help tell the human story behind the proposed cocoa project.

1.6 Development of electronic resource of all information /materials generated by the project with global access, hosted via CB-PNG website. The fieldwork in PNG has obvious benefits for our cocoa industry but the outcomes of the proposed cocoa project could have much wider impact if made available to cocoa value-chain stakeholders in other cocoa producing

countries. To achieve this aim, it is essential to present the material in a widely-used language. For this reason a master set will be created in English to supplement the materials in Tok Pisin developed for use in PNG. CB-PNG will create an electronic resource of best practice for the management of quality and safety in smallholder production of cocoa. The resource will include the management systems, the PFA protocol for smallholder cocoa and the peer group training system. To ensure sustainability the electronic resource will be hosted on the CB-PNG main website and this material will continue to be updated after the end of the STDF project. Regular updating is ensured by incorporating the outcomes of the proposed project into the regular work programme of CB-PNG and the private sector partners. To raise awareness of this resource internationally, CB-PNG will request linkages between the CB-PNG website and those of the ICCO and the STDF.

1.7 Dissemination seminar for cocoa industry stakeholders & donor representatives. This activity is intended to raise awareness of the successful outcomes of the STDF cocoa project among cocoa processing and exporting companies who were not directly involved in the project. CB-PNG will representatives from our private sector partners and grower groups involved as the key messages will be stronger when presented directly by those directly involved in the cocoa value-chain. The efforts of the partners will be supported by presentations by experts from CB-PNG and CCIL. The seminar will include a discussion forum for the industry to make recommendations and plan for the wider uptake of the outcomes of the STDF project. Representatives of the major donor organisations will be invited as further donor support would be beneficial in pushing forwards with wider uptake of the outputs of the proposed cocoa project.

Output 2. Appropriate & verifiable primary farm assurance (PFA) protocol for smallholder production of cocoa developed in PNG and adopted by the cocoa industry.

2.1. Development and implementation of smallholder friendly primary farm assurance (PFA) protocol for cocoa (PNG driven certification with independent annual audit to verify compliance with control criteria for successful food safety management during production of cocoa).

CB-PNG recognise the value of the concept of independent verification of compliance with criteria aimed at maximising yield, quality and safety of the end-product. CB-PNG will work with the private sector partners to develop a PFA protocol for management food safety and quality of smallholder based production of cocoa. This standard would be a valuable tool for assessing the effectiveness of implementation of the management systems and uptake of training messages and would also highlight weak areas requiring corrective actions. The content of the PFA protocol will be based on the international standards of CAC.

The PFA protocol will define control points with compliance criteria for all aspects of production of cocoa involving smallholders. There will be an auditors' checklist and a sanction matrix for non-compliances to assess the seriousness of the non-compliances and determine if the audit score constitutes a pass or fail. Procedures will be provided for corrective actions in the event of a failing score. The protocol will have options for conventional and organic production and individual or group certification and define where control points can be deemed as non-applicable. Auditing of the protocol will be integrated into the normal inspection work of the CB-PNG and thus will not incur additional costs for the smallholder groups.

Development of the draft version of the protocol will be done by a team drawn from CB-PNG/CCIL and private sector partners. The team will put together the basic documents in consultation with the grower and processor groups. The draft version will then be piloted with two grower/processor groups to obtain feedback from the stakeholders and determine the strengths and weaknesses of the draft documents. The protocol will be modified taking

account of any issues identified during the pilot and then rolled out to the grower/processor groups involved in the proposed cocoa project. Audits will be conducted at the end of years 2 and 3 of the project. The results from the audits and requirements for corrective actions will be analysed and used to guide the extension and training teams to identify areas requiring more support.

Output 3. National cocoa curriculum for adult learners and peer group train programme developed and implemented.

3.1 Development & implementation of a peer group training programme for smallholder growers of cocoa. The provision of training on cocoa production and processing is provided by CB-PNG, CCIL private sector partners and by some non-governmental organisations such as faith groups who support smallholder cocoa production and processing. However, concerns have been raised that some instructors provide conflicting or inaccurate messages, training may take place at inappropriate times of the year and training programmes are not standardised. The number of instructors is also limited (CB-PNG estimate the ratio of instructors to growers at 1:10,000) and this has impacted adversely on the ability to reach large numbers of cocoa households on a regular basis. Provision of training for smallholder cocoa growers and processors requires innovation to introduce techniques that provide a greater reach by making more effective use of the available instructors. CB-PNG will address the first issue by developing a standardised training programme for key instructors (CB-PNG/CCIL & private sector) that covers the key training messages and latest thinking on training techniques. The final issue requires an innovative approach to reach a wider audience whilst maintaining the same level of qualified instructors. We believe that the cascading peer group training approach (used successfully in East and Southern Africa for smallholder producers of export quality fruits and vegetables) offers a way forward for our industry. The starting point for our system will be for four subject matter specialists (drawn from CB-PNG/CCIL and the private sector) to come together to adapt existing materials in the CCIL manual developed as part of the STDF funded Cocosafe Project and to create additional materials on food safety and quality management suitable for use in peer group training in PNG.

The content of the peer group training system will include:

- Template for the training needs analysis of instructors;
- Instructors manual on peer group training techniques;
- Instructors manual on good management practices for production of cocoa by smallholders;
- Instructors manual on good management practices for post-harvest management of cocoa by smallholders;
- Sample questions for oral assessment of competence of peer group trainers;
- Smallholder booklets illustrating key training messages for production of cocoa;
- Resource of material for preparation of peer group training posters including a library of line drawing artwork (prepared by a local artist) and photographs of good and bad practices.

The subject matter specialists and instructors will have access to all of the above material in electronic form. In addition, they will also have access to the following materials which are NOT intended for direct use in peer training at rural level:

- Copy of power point presentations delivered as part of the instructors' course;
- Video clips of good and bad practices in production of cocoa and peer group training techniques for use in instructor training;
- Copies of a selection of completed peer group posters (model sets) to give advice on possible layouts;

- An electronic resource of copies of relevant training and extension materials prepared in PNG and internationally;
- Guidance document on how to assess the performance of a peer group trainer during an actual peer group training session.

The subject matter specialists will provide refresher training and upgrade of skills for 40 of the best instructors. The content of the training programme will be guided by the outcome of a training needs analysis. The instructors will receive training and access to materials to enable them to provide training in peer group skills for members of the smallholder grower groups. The peer group approach is designed to equip members of the smallholder groups to create sets of training posters using a resource of line drawings and photographs of good and bad practices provided as part of the proposed project. The peer group trainers provide training to their peers using short discussion sessions (~10 minutes per poster). A training session typically involves small groups of trainees moving around a set of 6 posters hosted by 6 peer group trainers. At the end of the session the leader of the session provides a short summary of the training and answers any outstanding questions. The peer group approach is more effective than conventional methods as the peer trainers and their posters are always present within the group creating opportunity for ad-hoc refresher trainings for individual members of the group when required.

CB-PNG will support the 40 instructors to provide training for 1,500 peer group trainers across the 15 grower/processor groups over a 12-month period. The 1,500 peer group trainers will provide a much-expanded resource for training on key aspects of cocoa production at the rural level. These trainers will be able to reach all of the individuals within the households that belong to the group on a regular basis. The expert instructors will make mentoring visits to the grower groups to ensure that training messages are being delivered correctly and in an effective manner. Once the peer group system is established the expert instructors will continue to provide annual refresher training for the peer group trainers to update their knowledge and ensure that good practices are maintained.

10. Environmental-related issues

Briefly discuss any environmental-related issues and implications that are relevant to the project. This should cover the environmental implications of project activities, including any SPS control measures promoted, and their potential positive and/or negative implications or consequences. Specifically:

- ***To what extent does the project contribute directly or indirectly to environmental protection (e.g. through reduced use of pesticides/chemicals or use of less toxic pesticides, adoption of integrated pest management systems, reduced burden on land through improved animal production practices, etc.)?***
- ***Does the project have any possible negative implications on the environment (e.g. increased use of pesticides, chemicals, antibiotics)? If so, what are these consequences and how will they be managed or reduced? See Qn. 15 (j) of the Guidance Note.***

Much of PNG's smallholder production is currently either organic or only uses relatively limited amounts of herbicides and insecticides and inorganic fertilisers. This is mainly due to the farmer's perception of the high cost of inputs and lack of understanding of the costs of production versus the potential benefits of a more intensive production system. Most farmers have little knowledge of commercial farming of cocoa. Current yields are well below the potential for the available land area and varieties of cocoa. New cocoa-clones with potential yields of 2.5 tonnes/ha have been widely adopted but actual yields (for smallholder farmers) have stagnated at 0.28-0.36 tonnes/ha. It seems likely that more farmers and farmer groups will seek to increase yields from the available land resulting in an increase in

the use of chemical inputs. Without proper management, yields may be increased but at the expense of the environment and worker safety.

The outcomes of the proposed project would have a positive impact as they include introduction of a smallholder friendly safety and quality management system for primary production of cocoa. Under these systems farmers would keep basic records of farm inputs and would implement the basics of integrated crop management (ICM). Improved linkages between the farmers, CB-PNG/DAL and the private sector buyer will improve the flow of information to the farms on correct choice of chemicals, dosage, pre-harvest intervals and conditions for usage. Cocoa garden scouting will set pest and disease thresholds for use of chemical control. The ICM system will offer alternatives to pesticides and options for complementary use of reduced amounts of pesticide with other control measures.

Implementation of the outcomes of the proposed project will allow yields to be increased and quality increased in a sustainable manner without risk to the environment or worker safety. As part of our proposal, a primary farm assurance protocol for cocoa production and post-harvest handling with annual audits will be developed by CB-PNG, CCIL and the private sector partners in collaboration with the farmer groups. The PFA protocol will adapt and integrate content from international (Codex) standards so as to meet both the needs of the smallholders in PNG and the requirements of the major international buyers of PNG cocoa. The intention is to keep the PNG protocol as simple and cost effective as possible. In developing the smallholder food safety and quality management system and primary farm assurance protocol for cocoa, the CB-PNG/CCIL team and private sector partners will consider options to address organic farming, based on international market requirements (e.g. National Association for Sustainable Agriculture Australia Limited, 2016).

As part of the proposed cocoa project we intend to promote adoption of stainless steel kiln pipes for artificial drying of cocoa beans. The primary purpose of this innovation is to reduce SPS risks associated with PAH contamination and to improve the quality and value of the end-product. However, the stainless-steel pipe should provide a more efficient medium for heat transfer and this will reduce consumption of wood and volume of smoke produced by artificially heated cocoa dryers in PNG.

Overall, CB-PNG envisage only positive environmental outcomes from the activities of the proposed cocoa project and do not believe there will be any negative environmental impacts.

11. Risks

Briefly discuss the major risks identified in the logical framework and explain what actions will be taken to mitigate or manage them.

In the design of the logical framework we made the following assumptions:

- There are no unforeseen incursions by emerging pests or diseases that result in significant reductions in product volume or quality (Medium risk);
- Smallholder farmer groups are committed to implementation of better practices (Low risk);
- Private sector partners support smallholder groups to implement better practices effectively (Low risk);

- PNG cocoa achieves better access to high-value markets and obtains price premiums that feedback to the smallholder farmer (Low risk).

A failure in one or more of these assumptions would impact negatively on delivery of the proposed activities, hence the risks associated with each of these assumptions must be understood and managed effectively.

Recent experience with invasive pests has highlighted the potential seriousness of this risk. In 2006, a new strain of Cocoa Pod Borer (CPB) reached PNG. In the period between 2008 and 2012 the CPB outbreak resulted in an 80% reduction in production of cocoa in PNG. Since 2012 the industry has gradually recovered thanks to the introduction of CPB tolerant clones and a large-scale nursery and re-planting programme supported by the Government of PNG, the cocoa industry and donors such as the World Bank, EU and AUSAID. Although the industry has recovered well from the CPB outbreak, the smallholder driven supply chain remains vulnerable to any new SPS risks that might emerge in the coming years such as new strains of pod rot, canker and vascular die-back. This is due to the general lack of good management practices on most smallholder cocoa farms.

The proposed project aims to develop and roll out a smallholder friendly food safety and quality management system for production of cocoa with associated training packages and an auditable primary farm assurance protocol with annual verification of compliance. CB-PNG believe that the outcomes of the proposed project will have make a significant contribution to effective management of any future SPS risks.

The majority of PNG's smallholder cocoa farmers are unfamiliar with implementation of quality and safety management systems for production of cocoa. Experience in other parts of the world suggests that not all farmers will be willing or able to adopt the management systems developed under the STDF project. However, CB-PNG are confident that a significant percentage of farmers will adopt these measures and that such farmers will become the backbone of the future development and prosperity of the PNG cocoa industry. The experience of CB-PNG suggests that well governed commercial grower groups will self-monitor the implementation of the management system and will replace non-performers with better growers.

Market access is a vital part of the value-chain and thus for the proposed project CB-PNG has selected existing grower groups with established connections to the two major cocoa exporting companies with a track record of forming close partnerships with smallholder grower groups for mutual gain. CB-PNG recognises that the relationship between the growers and exporters is sometimes strained in PNG with both sides complaining of bad practices by the other party. Mutual distrust could become a major hindrance for delivery of the project. However, CB-PNG will act as an independent mediator to resolve any issues between the growers and exporters.

12. Sustainability

Explain how the results of the project will be sustained in the longer-term, addressing financial and institutional sustainability. See Qn. 15 (k) of the Guidance Note.

To understand the potential for long-term sustainability of the results of the proposed cocoa project it will be necessary to look at each of the main outputs of the project. The main outputs of the proposed cocoa project will be:

- A set of smallholder friendly food safety and quality management systems for production of cocoa;

- An auditable primary assurance protocol for cocoa production that is adapted to the needs of small-scale growers and processors in PNG in terms of simplicity and cost-effectiveness;
- A peer group training programme with qualified instructors drawn from public and private sector agencies.

The long-term success of the smallholder friendly food safety and quality management systems will be determined by the business case for implementation as seen by the cocoa exporting companies and smallholder groups. Positive results in terms of increased yield, higher quality and better price per kg for the end-product will encourage more growers to want to implement the systems and protocol. However, the bottom line will be determined by costs versus benefits for both the smallholder groups and the export companies. Implementation of the food safety and quality management systems will give the growers and processors a much better understanding of the costs versus income. If the benefits significantly outweigh costs this will drive the process of adoption of better management practices and encourage greater investment in cocoa production at rural level. To be successful the smallholder groups need the support of their export companies. These companies want to see more products and better and more consistent quality. The export companies (partnering with CB-PNG) already invest in their smallholder driven supply chains. They have said that they will invest in supporting the adoption of improved management systems by their grower/processor groups as long as they see a good return on their investment (in terms of a higher volume of higher quality and higher value product). Experience from elsewhere in the world both for cocoa and in high value horticulture have demonstrated the validity of this approach.

The primary farm assurance protocol for cocoa production is a good idea within the national context. However, the business case for the protocol will be determined not only by the costs of implementation and maintenance of compliance but also by the reaction of international buyers to development of the protocol by PNG. If the buyer shows no interest in the protocol, does not value a PNG certification or simply demands compliance with one of the international private voluntary standards the PNG protocol will be undermined. However, the national protocol still offers the industry value in terms of providing a harmonised mechanism for determining the level of compliance with good practices by small-scale growers of cocoa. If the costs and complexity of operation are kept to a minimum the protocol will have a good chance of becoming a successful part of the future management system for the PNG cocoa value-chain.

The peer group training system builds on the existing training and extension systems operated by CB-PNG, CCIL and the private sector. The outputs from the proposed project offer improvements in terms of quality of extension and training and ability to extend training messages to larger numbers of households in a cost-effective manner. CB-PNG, CCIL and the private sector have the necessary resources to continue to operate the systems established under the proposed project. Successful implementation of the smallholder friendly food safety and quality management system will give the smallholder groups a vested interest in expanding the peer group training programme at rural level. Communicating the right training messages to all of their members and providing regular reinforcement of these messages will be an essential part of ensuring that the group gets better yields, higher quality and better income from their product.

The proposed project will engage committed local stakeholders to develop and roll out a training programme targeted at smallholders which the public/private sector stakeholders are committed to maintain, use, sustain and scale-up in the future. It is based on strong national demand, local ownership and buy-in. This will enhance and ensure sustainability.

III. BUDGET

13. Estimated budget

Provide a detailed breakdown of the total project budget (in US\$) using the table in Appendix 3 for guidance. The budget may be prepared as a separate Excel chart or as a table in the project document. It should be prepared on the basis of the outputs identified above, and the resources needed to complete the specified activities. The budget may include expenditures for expertise, travel, training, workshops, minor equipment items, project management, general operating expenses, etc.

The budget should clearly specify: (i) the amount requested from STDF; (ii) the applicant's own contribution to the project, which may be in the form of financing or an in-kind contribution (e.g. staff time, use of premises, etc.) and is subject to audit (see Qn. 12); and (iii) the amount (if any) requested from other donors. See Qn. 10, Qn. 14 and Qn. 15 (o) of the Guidance Note for more information on the budget, and what the STDF funds (and does not fund).

A summary of the US\$ costs for the STDF cocoa project for PNG (STDF/PPG/553) is given in Appendix 3. A detailed breakdown in PNG Kina and US\$ is provided in the attached spreadsheet. The spreadsheet in PNG Kina provides details of the breakdown of individual costs in terms of numbers of days of input, costs per day etc.

14. Cost-effectiveness

Explain how the project may be considered a cost-effective contribution to addressing the SPS problem(s) identified above, compared to alternatives (including no action). See Qn. 15 (p) of the Guidance Note.

The PNG cocoa industry supports the livelihood of 14% of the population (~1 million people), the end-product has excellent potential to meet demand in high-quality, high-value international markets. However, the industry has undergone a consistent reduction in volumes and product quality over the last 10 years. Since 2012 farmers have re-planted their gardens with CPB tolerant clones that have the potential to give high yields. However, over the last 5 years, production volumes have stagnated at ~33,000 tonnes per annum. The CPB issue has been brought under control but the industry faces many problems that can be traced back to the lack of good management within the smallholder driven value-chain and cost-effective approaches for delivering and reinforcing training messages to large numbers of smallholder farmers. Innovation is essential for the survival and growth of the cocoa industry in PNG. Taking no action to address these problems is not an option as the industry could be reduced to a non-entity. This would deprive at least 1 million rural people of their livelihood and take away PNG's 3rd largest sustainable source of export income.

Our innovative approaches for creating smallholder friendly food safety and quality management systems, primary farm assurance protocol for smallholder cocoa and peer group training programmes offer value for money and long-term sustainability for the cocoa industry in PNG. The potential for increased income via improved quality safety and export out-turn far outweighs the total cost of the investment required for the STDF cocoa project. The potential benefits accruing from implementing better practices will easily outweigh the costs of maintaining compliance with international standards in the coming years. The outcomes of the project have much wider applicability for smallholder driven cocoa value-chains in other countries. Adaptation of our material should be straightforward at relatively low-cost and thus provide added value in the years to come.

IV. PROJECT IMPLEMENTATION & MANAGEMENT

15. Implementing organization

Identify the organization(s) responsible for project implementation and attach evidence of its technical and professional capacity to implement the project (i.e. a list of achievements and record of financial probity). If an STDF partner or third party acceptable to the STDF is proposed to implement the project, attach written consent from that organization (Appendix 5). See Qn. 15 (q) of the Guidance Note.

This proposal results from a PPG which was submitted to STDF by DAL. DAL and CB-PNG took the lead in forming a team to work with the international consultant to deliver the PPG and prepare the proposal for a project grant for the cocoa value-chain. DAL and CB-PNG share the viewpoint that the proposed STDF project offers a highly significant opportunity to build the capacity of CB-PNG staff in design, management and delivery of international projects independent of an international managing agency. Reliance on international agencies to manage delivery of projects is very common as this is considered a low-risk approach. However, CB-PNG believe that having complete control vested in a national organisation ensures that activities are better orientated to national requirements, provides a much greater sense of ownership and greatly improves the chances of long-term sustainability of project outcomes. For these reasons, the lead implementing organisation for the STDF cocoa project is the Cocoa Board of Papua New Guinea (CB-PNG), which is a public-sector agency coming under the Department of Agriculture and Livestock (DAL). The CB-PNG (www.cocoaboard.org.pg) was created in 1981 with the passing of the Cocoa Act of 1981 that mandated CB-PNG to regulate and provide services to the cocoa industry of Papua New Guinea.

The CB-PNG has 2 divisions with 76 permanent staff, as well as regional offices in major cocoa growing provinces:

- The Industry and Corporate Services Division (ICSD) is responsible for management, finance and economics and statistical services.
- The Field Services Division (FSD) is responsible for formulation of regulation and policy and official control of the cocoa industry (including licencing and inspection of processing and export facilities, and inspection and certification of cocoa quality prior to export). The FSD also deals with quality control and management of SPS risks in primary production.

By 2019, the CB-PNG will take over cocoa-related research, development and extension work currently carried out by the Cocoa and Coconut Research Institute Limited (CCIL). CB-PNG works closely with CCIL, which currently has the remit to conduct agronomic and breeding research to develop new varieties of cocoa and is responsible for the new higher yielding, pest and disease resistant varieties that CB-PNG is promoting to farmers. CCIL is also responsible for research into processing of cocoa and has developed artificial, solar and combination dryers of various types and sizes for use by cocoa farmers. They have laboratory facilities to conduct all basic quality tests and are the mandated lab for the PNG entries into international cocoa of excellence competition. They do not currently charge for lab analysis, however, this may be necessary in future to sustain the testing facility for the industry. They do not have facilities for more sophisticated tests such as cadmium or PAH. Cadmium is analysed at the National Agricultural Research Institute (NARI) laboratory in Port Moresby. PAH analysis is conducted by a commercial laboratory in Singapore.

CCIL provides training (including materials) in Tok-Pisin for farmers on correct techniques for fermentation and drying of cocoa. Training is always provided when a dryer is installed at a smallholder group processing site. Training covers both theory and practical sessions on cocoa processing including harvesting, fermentation, drying and quality assurance. Moisture content, acidity and use of cut tests to assess quality of fermentation are all

covered as part of the CCIL training. CCIL's training programmes will be extended under the STDF cocoa project to cover standard requirements, traceability, record keeping and wider aspects of food safety and quality management for accessing high-value markets.

The CB-PNG has a relatively diverse funding portfolio. Internal income is generated through a levy on cocoa sales, service fees for inspections and licensing and rental income from land and properties plus core funding (recurring funding from Government of PNG). CB-PNG also has access to project funds from the Public Investment Programme (PIP) of the Government of PNG. The total budget for CB-PNG for 2016-2017 is US\$9.2 million (excluding externally funded projects such as PPAP). Forty percent of funds come from industry levies, licencing and registration fees and income from property rentals and interest on investments. Recurring funding from central government accounts for 14%. The remaining 46% of funds for activities in 2016-2017 is coming from PIP support for the nursery, freight subsidy and quality assurance projects (total value US\$4.2 million per annum).

The CB-PNG of PNG has experience of successfully managing large externally funding projects. They manage the cocoa component of the World Bank funded PPAP project (loan) worth US\$25.2 million (for cocoa) and an EU funded add on component for PPAP worth €5 million (grant). The PPAP project has a management unit embedded in the CB-PNG headquarters in Kokopo in East New Britain Province. CB-PNG have support from AUSAID including being a beneficiary of the PHAMA-PNG project which is scheduled to enter a second phase of funding in 2017-2018. The PHAMA-PNG project is focusing on market access and would complement the proposed STDF projects focus on food safety and quality management.

The CB-PNG has 45 years of experience of providing technical advice and support for the cocoa industry and is well placed to take the central role in implementing the STDF cocoa project, working in close partnership with the cocoa processing and export companies and the commercial smallholder grower groups. The integration of CCIL into CB-PNG will further strengthen and confirm CB-PNG's role as the leading government entity responsible for development and support to the cocoa value chain. CB-PNG has the financial capacity to support the implementation of the STDF cocoa project and to sustain support for the successful outcomes of the project in the longer-term. Increasing output and sales of cocoa would itself have a direct benefit for CB-PNG as the income from the cocoa sales levy would rise in proportion to the increased sales by the cocoa industry.

16. Project management

Explain how the project will be managed, clearly indicating roles and responsibilities. If a Project Steering Committee is to be established for this purpose, specify its role, membership and meeting schedule, and explain how decisions will be made, etc. See Qn. 15 (r) of the Guidance Note.

The main implementing agency for the STDF cocoa project in PNG will be CB-PNG. The other public-sector partner will be CCIL which is scheduled to merge with CB-PNG to become a single entity. CB-PNG will make use of its existing management structures for project management. CB-PNG will appoint an overall project leader who will be responsible for project management including liaison with the project leaders of the partner organisations and M&E specialist and preparation of the 6 monthly progress reports (technical & financial) for the STDF. The financial side of reporting will utilise the existing structures of CB-PNG, internal financial reporting will be on a quarterly basis with phased release of funds based on successful delivery of activities from the previous phase. Financial reporting to STDF will follow the rules and guidelines defined by STDF. All external reports will be subject to approval by the CEO of CB-PNG prior to release. However, the CEO of CB-PNG will ensure

that approval is given at least 1 week prior to the scheduled release date to ensure timely delivery to the STDF.

To ensure quality control and independent oversight of delivery of the activities CB-PNG will establish a Project Management Committee (PMC) for the STDF project. The permanent membership of the Project Steering Committee will consist of the CEO CB-PNG, General Managers of CB-PNG, CB-PNG project leader, CCIL project leader and project leaders from the private sector partners and representatives of the grower groups. The PMC will be chaired by the Secretary for Agriculture of the Department of Agriculture and Livestock.

CB-PNG will invite other agencies, including interested donors and other development partners, to attend specific PMC meetings, where relevant. Attendance by external agencies will ensure the outputs, experiences and lessons achieved under the STDF project can be picked up and mainstreamed in other bigger programmes, ensuring coherence, synergies and maximising impact potential. The PMC will convene 4 weeks prior to each scheduled date for reporting to the STDF. The PMC will have an oversight of project delivery and the authority to make recommendations for any adjustments required to ensure optimal and timely delivery of project activities and work plans.

The CB-PNG project leader will have overall leadership but for the purposes of implementation the various project activities will be grouped under their appropriate CB-PNG management sections. Each section will appoint an activity leader who will normally be responsible for delivery of several activities. The activity leaders will report directly to the STDF project leader at CB-PNG, as well as their section leaders at CB-PNG. However, the section leaders will have no managerial authority with regard to the operational activities and management of the STDF project. Please note that one of the activity leaders will be responsible for the M&E team for the STDF project and will provide the project leader with the 6 monthly M&E report and data analysis.

CB-PNG will be the implementing agency and the private sector partners will sign agreements to work with CB-PNG and nominate focal points for implementation of the STDF project. CB-PNG have budgeted for the cost of development of the food safety and quality management system, protocol for production and processing of cocoa, peer group training system and initial training of instructors from both private and public-sector agencies. Costs of training instructors from the private sector will be covered by CB-PNG using funds from the STDF project. This will not involve any transfer of funds to the private sector partners or any sub-contracting. Sustained roll out of the project will be funded and maintained by CB-PNG and the private sector partners. Each partner organisation will provide the project leader at CB-PNG with a 6-monthly progress report. These internal progress reports will be scheduled for delivery 6 weeks prior to the scheduled date for reporting to the STDF. This is to allow time for the overall project leader at CB-PNG to extract material from the internal reports for incorporation into the progress report for the STDF. The 6-week interval also ensures that the findings of the internal reports can be taken into account when the PMC meets.

V. REPORTING, MONITORING & EVALUATION

17. Project reporting

Provide information on the reporting schedule, including the type and number of reports (i.e. inception report, progress reports, final report) to be prepared. These reports will provide the basis for systematically monitoring progress and give recipients an opportunity to make substantive comments on any unanticipated issues that require attention. Progress reports should normally be submitted every six months unless an alternative reporting schedule is agreed. See Qn. 15 (s) of the Guidance Note.

The management structure and internal reporting system has been described in the previous section. CB-PNG as the main implementing agency will be responsible for provision of progress reports to the STDF. These external reports will be sent by email to the STDF at 6 monthly intervals on the last working day of the month. A separate financial report with reconciliation of funds and invoice for the next 6 months of funding will also be prepared. Both narrative and financial reports will be prepared according to the requirements of the STDF as specified by them in the head contract signed by STDF and CB-PNG. The progress reports provide a record of progress that should be in the public domain and subject to feedback by stakeholders in PNG. CB-PNG assumes that STDF will make copies of the narrative sections of the progress reports available on their website. However, CB-PNG wishes to place copies of the narrative reports on their website with a facility for electronic feedback by stakeholders. This would be in addition to the publication of the reports on the STDF website.

The exact dates for each report will be determined when the start and finish dates for the project are agreed. However, an outline reporting schedule for progress reports to STDF is given below.

Year 1 end of quarter 2: Project inception report
Year 1 end of quarter 4: Progress report (end of year 1)

Year 2 end of quarter 2: Progress report
Year 2 end of quarter 4: Progress report (end of year 2)

Year 3 end of quarter 2: Progress report
Year 3 end of quarter 4: Final report including report of the dissemination seminar for the PNG cocoa industry & donor representatives

The progress reports are intended mainly for project management purposes but will also document success stories provided by the M&E team. The project implementing team will also produce technical reports and materials related to the delivery of the activities. Copies of all materials will be provided to the STDF in an electronic format. Some of these materials would be challenging to send via email to the size of the files (such as video clips and photo libraries) and will be therefore be sent on a memory stick by courier.

18. Monitoring and evaluation, including performance indicators

Describe how progress made in project implementation will be monitored and evaluated. With reference to the logical framework, provide information on the key indicators (quantified to the extent possible) that will be used to monitor and measure the success of activities carried out. See Qn. 15 (t) of the Guidance Note.

The CB-PNG has a section that specialises in providing monitoring and evaluation services for all projects directly managed by CB-PNG. The M&E team for the STDF cocoa project will have responsibility for reporting to the STDF project leader at CB-PNG. Internal M&E reports will be generated on a quarterly basis from data provided through the electronic management information system (see below). However, the half yearly reports which feed into the progress reports to the STDF will be delivered to the CB-PNG project leader by the M&E leader 6 weeks before the reporting deadline for the STDF progress report. This is to allow time for synthesise of the M&E findings into the progress report and for discussion of the M&E data by the Project Management Committee.

The main job of the M&E team will be to collect the data and provide the analysis necessary for measurement of delivery and impact of the project in terms of progress towards meeting the objectively verifiable indicators (OVI's) defined at objective and output level of the logical framework (see Appendix 1).

The objective level OVIs are that within 3 years, at least 50% of the groups targeted by the STDF project record:

- 15% increase in sales of cocoa in tonnes
- 20% increase in value of cocoa sales
- At least 40% of cocoa sold is grade 1.
- At least a 40% reduction in detection of smoky beans for processors/groups reliant on artificial drying as opposed to sun and solar techniques.

CB-PNG will continue to monitor results over a five year period. CB-PNG and the private-sector estimate that 5 years on from the beginning of the STDF project at least 50% of the smallholder groups targeted by the STDF intervention will have recorded a 20% increase in tonnage of cocoa sold and 25% increase in value of cocoa sales. At least 50% of cocoa sold will be of grade 1 quality. At least a 50% reduction in detection of smoky beans from smallholder groups reliant on artificial drying will be achieved.

These OVI's are the real measure of impact of the STDF project providing a measure of whether adoption of better food safety and quality management systems, protocols for production and peer group training programmes results in significant increases in quality, yield and income for the growers/processors. The implementation of food safety and quality management systems will provide a greater understanding of investments in costs of production versus returns in the form of increased income due to better quality product. The STDF cocoa project is intended to run for 3 years but cocoa is a seasonal crop and changes take time to become effective. The CB-PNG believe that success in the STDF project would take around 5 years to achieve significant impact. This is not a problem, as the STDF outputs will be integrated into the normal work of the grower groups, cocoa exporters and CB-PNG. The partners will continue to collect data and the STDF could benefit from an ex-post evaluation of our project 2-3 years after the project end date.

The output level OVI's are more mechanistic and will provide the project partners, CB-PNG project leader and the Project Management Committee with a measure of progress with delivery of the project. The OVI's for each output are as follows.

Output 1 By the end of year 3 of the project:

- 1.1 At least 50% of the members of the smallholder grower groups (~750 households) implement the improved management systems.

Output 2 By the end of year 3 of the project:

- 2.1 At least 60% of the members of the smallholder grower groups who implement the management system (~450 households) adopt the PFA protocol for production of cocoa and pass the verification audit by the end of year 3 of the project.

Output 3 By the end of year 2 of the project:

- 3.1 Peer group training packages completed;
- 3.2 At least 40 instructors drawn from 2 provinces complete the instructors course;
- 3.3 Instructors provide peer group training for at least 1,500 individuals in the 15 grower groups.

The M&E activities start in year 1 with updating of profiles for the members of the 15 grower groups. This activity sets the baseline for our understanding of the status of the growers. What yields do they achieve, what is the quality of their product and what income does it provide. What food safety and quality management practices are already in place and what are the areas of weakness for the groups and the individual households that impact on maximising the return on investment in cocoa production. CB-PNG will also conduct a training needs analysis to provide a baseline of the capacity and needs of the instructors prior to the STDF intervention.

In years 2 and 3 of the project the M&E will make regular monitoring visits to the grower groups and compile and analyse data on volumes of cocoa sales, quality and income. The M&E team will document individual success stories for submission as part of the 6 monthly progress reports to the STDF. The M&E team and private sector partners will be aided in the process of data collection by accessing an electronic management information system (MIS) developed as part of the World Bank funded PPAP project. This system, which is due to be fully operational by mid-2017, uses bespoke software loaded onto low cost tablets issued to field officers. The main system is web-based to provide the industry partners with a dynamic and updated picture of the status of the supply chain. However, for data collection purposes in remote field locations the system also has features that can be used offline. Members of the grower groups and field officers collect data on their tablets and then download the data on a desktop computer at the nearest cocoa buying centre. Data from the computers at the buying centres is downloaded at least twice per week and sent back to the main system at CB-PNG headquarters in Kokopo. The main system in Kokopo is not project based but is an integral part of the web based data network of CB-PNG. This system is cloud based allowing the aggregated data to be accessed by CB-PNG staff and relevant personnel from the private sector companies. The computers at the buying centres are operated by the private sector companies thus the MIS is a good example of a public/private partnership for the benefit of the industry. Officers from CB-PNG or the private sector buyer will make random checks to verify that the grower groups are entering data correctly. The MIS will be a very useful M&E tool for the STDF cocoa project but is also a very important source of information for the cocoa industry in PNG.

19. Dissemination of the projects results

Describe how the project results will be disseminated within the country and/or more widely. Explain if, and how, the project may be replicated or its results used more widely. See Qn. 15 (u) of the Guidance Note.

The proposed STDF project for cocoa is designed to draw together existing materials available in PNG and externally that can contribute towards improved yields and better management of quality and food safety for smallholder cocoa producers. CB-PNG and partners also intend to develop new materials such as a peer group training system, smallholder friendly food safety and quality management system and auditable primary farm assurance protocol for smallholder production of cocoa. These additional items are novel for the PNG cocoa industry, some of the ideas and approaches have been borrowed from successful smallholder programmes for fruits and vegetables from outside of PNG and the protocol and food safety and quality management system is based on CAC & IPPC standards. However, the actual content will be adapted by the stakeholders for use by the cocoa industry in PNG. CB-PNG believe that the outputs of the STDF cocoa proposal will provide an invaluable resource for the future growth of our industry in the longer-term. The material and concepts developed in PNG will have much wider applicability for smallholder cocoa producers outside of PNG. CB-PNG wish to share the benefits of the STDF intervention as widely as possible and hence will implement a dissemination strategy that provides not only long-term sustainability within PNG but international access to the material in a form appropriate for use outside of PNG.

As part of the delivery of the STDF project all participants will be provided with copies of all relevant materials. The strategy for longer-term sustainability is two pronged. CB-PNG will create an electronic resource centre for information and extension materials on smallholder production (covering all aspects of productivity, quality, food safety, group governance and business management) as part of the existing CB-PNG & CCIL websites in PNG. CB-PNG prefer to integrate the resource centre into our main websites rather than creating a project specific site as the institutional sites are resourced from core funds ensuring longevity. Consequently, at the end of the project the material will not be frozen to become an obsolete resource within a few years. As an integral part of our extension and advisory services the material developed with support from STDF will be a live resource subject to regular updates and additions.

The cocoa industry is driven by the cocoa exporters and smallholder producer groups, the CB-PNG plays a regulatory and supporting role. For this reason, the STDF project has been designed to make use of and strengthen partnerships between CB-PNG and the 2 biggest cocoa exporters and 15 producer groups. These private sector partners will play a key role in development and delivery of the outputs of the STDF intervention. CB-PNG have no direct control over the activities of private businesses but believe that the partners (and the wider industry in PNG) will welcome our efforts. It is hoped that the outputs developed with support from STDF will be taken up and used widely by commercial extension agents and those working for NGOs and faith based groups and will be integrated either directly or in adapted form into their own extension programmes. In order to make available the outputs of the STDF project and to encourage wider uptake CB-PNG will hold a one day seminar in the final year of the project for representatives from all of the cocoa processing and export companies. CB-PNG will also invite representatives from other stakeholder organisations such as producer groups, NGOs (involved in supporting the cocoa industry) and representatives of the major donor agencies (AUSAID, European Commission & World Bank) to attend. The one day seminar will focus on providing details of the smallholder friendly safety and quality management systems, primary farm assurance protocol for cocoa and peer group training system and the outcomes of the project. Stakeholders will have the

opportunity to discuss the implications of the STDF funded work and prepare recommendations and a strategy for wider uptake.

PNG has the most diverse culture in the world with over 800 languages in use across our territories. As a common vernacular people make use of “Tok Pisin” which is universally spoken and understood across PNG. For this reason, all of the primary material generated by the STDF project for use in PNG will be made available in Tok Pisin. However, CB-PNG recognise that Tok Pisin is not used outside of PNG. CB-PNG will provide an international section as part of the resource centre on the CB-PNG & CCIL websites. The international section will contain a complete set of all of the materials generated as part of the STDF project in English.

CB-PNG are very keen on making our material as widely available as possible and would like to explore the formation of external links to its site. CB-PNG would welcome the opportunity to have a link from the STDF website to our resource centre on the CB-PNG & CCIL websites. CB-PNG will also contact the International Cocoa Organisation (ICCO) to discuss the possibility of a link to the resource centre from their site.

APPENDIX 1: Logical Framework of the STDF cocoa proposal (STDF/PPG/553)¹

	Project Description	Measurable indicators / targets	Sources of verification	Assumptions and risks
Goal	Increased competitiveness & sustainability of PNG cocoa industry in terms of consistent supply of high quality safe cocoa from smallholder driven value-chain, resulting in increased sales to premium markets, impacts positively on the livelihoods of 1 million rural households.	<p>Increased exports of cocoa in tonnes</p> <p>Increased value of cocoa exports</p> <p>Increased percentage of grade I cocoa beans reduced percentage of grade II cocoa beans.</p> <p>Reduction in percentage of smoky beans (indicator of PAH contamination).</p> <p>Increased sales to speciality single-origin markets.</p>	<p>CB-PNG & ICCO production and export data confirms upward trend in volume and value of PNG cocoa exports.</p> <p>CB-PNG & private sector data shows improvements in quality in terms of increased percentage of grade I cocoa and reduction in percentage of smoky beans.</p> <p>Industry & CB-PNG data shows increased sales to speciality markets.</p>	<p>Industry & public-sector agencies manage incursions by invasive pests or diseases.</p> <p>Small-scale growers, processors and export companies implement improved management systems effectively.</p> <p>Government continues to recognise and support agriculture as the driver of the rural economy.</p> <p>Climatic conditions remain stable and conducive for cocoa production.</p> <p>Long-term upward trends in global market demand and value/kg are maintained.</p>

¹ See the CIDT Handbook on Project Identification, Formulation and Design, available on the STDF website, for guidance on the preparation of logical frameworks.

<p>Immediate objective (purpose)</p>	<p>Increased financial returns, yields, quality/safety and market access for smallholder cocoa growers and grower groups.</p>	<p>Within 3 years, at least 50% of the groups targeted by the STDF project record:</p> <p>15% increase in sales of cocoa in tonnes</p> <p>20% increase in value of cocoa sales</p> <p>At least 40% of cocoa sold is grade I.</p> <p>At least a 45% reduction in detection of smoky beans for processors/groups reliant on artificial drying as opposed to sun and solar techniques.</p>	<p>CB-PNG data, grower/processor group records & buyer data relating to targeted groups.</p> <p>Grower/processor groups will collect data as part of management systems, data will link into buyer & CB-PNG systems. Data will feed into the electronic MIS system established by CB-PNG & private sector partners.</p>	<p>Industry & public-sector agencies manage incursions by invasive pests or diseases.</p> <p>Small-scale growers, and export companies implement improved management systems effectively.</p> <p>Climatic conditions remain stable and conducive for cocoa production.</p>
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<p>Expected results (outputs)</p>	<p>1.0 Members of smallholder groups implement risk-based management systems to improve yields, quality & safety of cocoa. Groups implement better governance and business practices.</p> <p>2.0 Appropriate & verifiable primary farm assurance protocol (PFA) for smallholder production of cocoa developed in PNG and adopted by the cocoa industry.</p> <p>3.0 Peer group training programme for smallholder cocoa developed and implemented.</p>	<p>1.1 At least 50% of the members of the smallholder grower/processor groups (~750 households) implement the improved management systems.</p> <p>2.1 At least 60% of the members of the smallholder grower/processor groups who implement the management system (~450 households) adopt the PFA protocol and pass the verification audit by the end of year 3 of the project.</p> <p>3.1 Peer group training packages completed by the end of year 1.</p> <p>3.2 At least 40 instructors drawn from 2 provinces complete the instructors course by the end of year 1.</p> <p>3.3 Instructors provide peer group training for at least 1,500 individuals in the 15 grower processor groups by the end of year 2.</p>	<p>1.1 CB-PNG, private sector and grower group records provide evidence of successful implementation of the management systems by members of the smallholder grower/processor groups.</p> <p>2.1 CB-PNG inspection records and copies of checklists, certificates and notifications of failed audits.</p> <p>3.1 Copies of peer group training materials available.</p> <p>3.2 CB-PNG records of training needs analysis, course attendance sheets, examination records & certificates.</p> <p>3.3 CB-PNG & private sector records of training programmes including attendance records & electronic copies of posters created by trainees.</p>	<p>1.1 Members of smallholder farmer groups are committed to implementation of better practices.</p> <p>1.2 Private sector partners support smallholder groups to implement better practices effectively.</p> <p>2.1 Private sector in PNG & international buyers of cocoa see the value of a PFA protocol for smallholder cocoa production.</p> <p>3.1 Poor weather conditions in Morobe and ENB Provinces delay roll out of the peer group training programme.</p> <p>3.2/3.3 Unforeseen SPS emergency diverts instructors away from training programme to help with pest or disease control.</p>
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<p>Activities</p>	<p>1.1 Review of available information & existing approaches (GAP, processing, governance, business management, training etc) to create a common resource.</p> <p>1.2 Awareness creation for smallholder grower groups & private sector companies (signing of stakeholder agreements).</p> <p>1.3 Updating and consolidation of existing baseline information on the grower/processor groups.</p> <p>1.4 Design, piloting & roll out of smallholder friendly food safety and quality management systems suitable for group based production to optimise output includes governance & business management for groups.</p>	<p>1.1 Central resource of information created with analysis of knowledge gaps available by end of Q1 of year 1.</p> <p>1.2.1 Signing of collaborative agreements with the 2 exporters involved in the project.</p> <p>1.2.2 Awareness creation sessions and signing of collaborative agreements with 15 grower groups by end of Q1 of year 1</p> <p>1.3 Profiling of 1,500 households in the 15 grower/processor groups who have signed up to participate in the project. Profiling completed by end of Q2 of year 1.</p> <p>1.4.1 Draft materials for management system completed by end of Q2 of year 1.</p> <p>1.4.2 Piloting of draft of management systems with 5 groups & finalisation of management system materials by end of Q4 of year 1.</p> <p>1.4.3 Roll out of management system to 15 groups & 1,500 member households beginning Q1 of year 2, complete by end of Q4 of year 2.</p> <p>1.4.4 Mentoring of groups through to end</p>	<p>1.1 Electronic resource available on the STDF project page (restricted access) of the CB-PNG website & on memory sticks for use by project stakeholders.</p> <p>1.2.1/1.2.2 Copies of collaborative agreements available for private sector companies and grower/processor groups.</p> <p>1.3 Electronic copies of farm profiles & baseline report available.</p> <p>1.4.1 Copies of management system materials available electronically.</p> <p>1.4.2 Reports of piloting programme with record of revisions and modifications to management systems based on stakeholder feedback.</p> <p>1.4.3 Reports for each group detailing adoption of management systems & user feedback.</p> <p>1.4.4 Mentoring reports & final report with analysis of</p>	<p>Smallholder farmer groups are committed to implementation of better practices</p> <p>Private sector partners support smallholder groups to implement better practices effectively.</p> <p>PNG cocoa achieves better access to high-value markets and obtains price premiums that feedback to the smallholder farmer.</p> <p>There are no unforeseen incursions by emerging pests or diseases that result in significant reductions in product volume or quality.</p>
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	<p>1.5 M&E to collect and synthesise data on delivery of project objectives & documentation of success stories.</p> <p>1.6 Development of electronic resource of all information /materials generated by the project with global access, hosted via CB-PNG website.</p> <p>1.7 Dissemination seminar for cocoa industry stakeholders & donor representatives.</p> <p>2.1. Development and implementation of smallholder friendly primary farm assurance (PFA) protocol for cocoa (PNG driven certification).</p> <p>3.1. Design & field testing and roll out of peer group training system (to support adoption of better management practices)</p>	<p>of year 3</p> <p>1.5 M&E system & baseline/profiling (see 1.3 above) available at end of Q2 in year 1. M&E visits every quarter during years 2 &3.</p> <p>1.6 Activity will be ongoing with full e-resource available by end of year 3, initial version available Q1 of year 2.</p> <p>1.7 Seminar complete by end of Q3 of year 3.</p> <p>2.1.1 Completion of draft protocol documents by end of Q4 of year 1.</p> <p>2.1.2 Piloting of draft standard with 2 groups, protocol modified based on smallholder & industry feedback by end of Q1 of year 2.</p> <p>2.1.3 Roll out to grower groups in Q2 of year 2 and annual audits at end of years 2 & 3.</p> <p>3.1.1 Training needs analysis for stakeholders involved in cocoa extension activities completed by end of Q4 of year 1.</p> <p>3.1.2 Peer group training system materials developed</p>	<p>challenges & solutions for smallholder management systems.</p> <p>1.5 M&E quarterly reports and consolidated 6 monthly report with analysis, "live" data available on CB/PNG MIS system.</p> <p>1.6 E-resource available for public access on CB-PNG website.</p> <p>1.7 Report of dissemination seminar included as part of final report to STDF at end of year 3.</p> <p>2.1 Copies of draft protocol & checklist available electronically.</p> <p>2.1.2 Report of pilot of protocol with record of modifications and stakeholder feedback.</p> <p>2.1.3 Report of implementation of protocol, records of audits with analysis of grower performance and training needs.</p> <p>3.1.1 Report of training needs analysis for the selected groups.</p> <p>3.1.2 Copies of training materials for instructor & peer group training</p>	
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		<p>by end Q4 year 1.</p> <p>3.1.3 Training of core team of 40 instructors from 2 provinces completed by end of Q2 of year 2.</p> <p>3.1.4 Delivery of training messages to 1,500 members of the grower groups by instructors in an appropriate form using cascading peer group training techniques. Peer group training complete by end of year 2. Refresher training to end of year 3.</p>	<p>courses.</p> <p>3.1.3 Copies of training reports with evidence of competence.</p> <p>3.1.4 Reports of peer group training sessions with evidence of participant uptake of training messages.</p>	
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APPENDIX 2: Work Plan STDF cocoa project (STDF/PPG/553) ²

Activity	Responsibility	Year 1				Year 2				Year 3			
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Output 1 Smallholder groups implement risk-based management systems to improve yields, quality & safety of cocoa.													
1.1 Review of available information & existing approaches (GAP, processing, governance, business management, training etc) to create a common resource.	CB-PNG, CCIL & Private sector partners	1.1											
1.2 Awareness creation for smallholder grower groups & private sector companies (signing of stakeholder agreements).	CB-PNG & CCIL	1.2											
1.3 Updating and consolidation of existing baseline information on the grower/processor groups.	CB-PNG & UNRE (national consultant commissioned to collect baseline data)	1.3											
1.4 Design, piloting & roll out of smallholder friendly management systems for production & processing of cocoa.	CB-PNG, CCIL, Private sector partners & grower groups.	1.4.1	1.4.2	1.4.3				1.4.4					
1.5 M&E to collect and synthesise data on delivery of project objectives & documentation of success stories.	CB-PNG & Private sector partners	1.5											
1.6 Development of electronic resource of all information /materials generated by the project with global access, hosted via CB-PNG website.	CB-PNG, CCIL & Private sector partners	1.6											
1.7 Dissemination seminar for cocoa industry stakeholders & donor representatives.	CB-PNG & CCIL											1.7	
Intentionally left blank													

² Please shade or otherwise indicate when the activity will take place.

Activity	Responsibility	Year 1				Year 2				Year 3			
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Output 2 Appropriate & verifiable primary farm assurance (PFA) protocol for smallholder production of cocoa developed in PNG and adopted by the cocoa industry.													
2.1. Development and implementation of smallholder friendly PFA protocol for cocoa (PNG driven certification).	CB-PNG, CCIL, Private sector partners & grower groups.		2.1.1		2.1.2	2.1.3							
Output 3 Peer group training programme developed and implemented.													
3.1 Development and Implementation of peer group training system.	CB-PNG, CCIL & Private sector partners.		3.1.1 & 3.1.2		3.1.3	3.1.4	3.1.4 Refresher training						

CB-PNG (Cocoa Board of PNG), CCIL (Cocoa and Coconut Research Institute Limited) & UNRE (University of Natural Resources & Environment)

APPENDIX 3: Budget (US\$)³

The following table provides a summary of the budget for the STDF cocoa proposal (STDF/PPG/553) in US\$. Full details of budget breakdown in PNG Kina and US\$ are provided in the attached spreadsheet (Costs were estimated based on past experience).

	STDF	CB-PNG & exporter contributions	Other
Output 1. Members of smallholder groups implement risk-based management systems to improve yields, quality & safety of cocoa. Groups implement better governance and business practices.			
1.1 Review of available information & existing approaches (GAP, processing, governance, business management, training etc) to create a common resource.	US\$0	US\$1,027	
1.2 Awareness creation for smallholder grower groups & private sector companies	US\$46,470	US\$10,565	
1.3 Updating and consolidation of existing baseline information on the grower groups.	US\$19,238	US\$0	
1.4 Design, piloting & roll out of smallholder friendly management systems			
1.4.1 Design of management system	US\$36,104	US\$8,729	
1.4.2 Piloting and refinement of system	US\$15,738	US\$13,838	
1.4.3 Roll out of management system	US\$24,647	US\$60,411	
1.4.4 Mentoring and monitoring of quality	US\$33,222	US\$11,258	
1.5 M&E to collect and synthesize data on delivery of project objectives & documentation of success stories.	US\$25,161	US\$19,936	
1.6 Development of electronic resource of all information /materials generated by the project with global access, hosted via CB-PNG website.	US\$9,628	US\$0	
1.7 Dissemination seminar for cocoa industry stakeholders & donor representatives.	US\$9,467	US\$2,182	
Output 2. Appropriate & verifiable primary farm assurance (PFA) protocol for smallholder production of cocoa developed in PNG and adopted by the cocoa industry.			
2.1. Development and implementation of PFA protocol for cocoa.			
2.1.1 Development of protocol including private sector partners.	US\$4,493	US\$6,162	
2.1.2 Piloting & refining of protocol.*	US\$0	US\$0	

³ Use the headings in the budget table above as a basis to prepare a budget table, preferably as an Excel chart.

2.1.3 Roll out of protocol to groups.*	US\$0	US\$0	
2.1.4. Regular mentoring & annual audit of performance of smallholder grower groups.*	US\$0	US\$0	
Output 3. Peer group training programme developed and implemented.			
3.1 Development & implementation of peer group training programme for smallholder growers of cocoa.			
3.1.1 Training needs analysis for stakeholders involved in cocoa extension activities	US\$34,724	US\$4,698	
3.1.2 Peer group training materials developed (by subject matter specialists)	US\$67,395	US\$7,189	
3.1.3 Training of core team of instructors	US\$235,882	US\$11,528	
3.1.4 Delivery of training messages to grower groups by instructors in an appropriate form using cascading peer group training techniques	US\$61,105	US\$78,435	
STDF contribution:	US\$623,275		
Counterpart contribution:	US\$235,959		
Total Budget:	US\$859,234		
Counterpart as % of total:	27%		

*- Implementation of the protocol and auditing will be integrated into the normal work of CB-PNG and the private sector companies.

Appendix 4: Letters of support from organizations that support the project request



OFFICE OF THE SECRETARY

Telephone: +675 3007983; Facsimile: +675 3256511
3rd Floor, Central Government Office, WAIGANI, National Capital District, PNG
Department of Agriculture and Livestock, P.O. Box 2533 Port Moresby, NCD, Papua New Guinea



1st May 2017

STDF Secretariat
World Trade Organisation
Centre William Rappard
Rue de Lausanne 154
CH-1211 Geneva
Switzerland

Dear STDF Secretariat

Subject: STDF-PG-553-Coffee-DR4 - Enhancing Trade for Cocoa Farmers in Papua New Guinea - Support Letter

I am happy to submit to you a letter from the Papua New Guinea (PNG) Department of Agriculture and Livestock (DAL) in support of the project proposal "**STDF-PG-553-Coffee-DR5**" - titled "**Enhancing Trade for Cocoa Farmers in PNG**".

In December 2015, the DAL, PNG Coffee Industry Corporation (CIC) and PNG Cocoa Board submitted an application for assistance from the Standards and Trade Development Facility (STDF) within the World Trade Organisation (WTO) in Geneva to explore opportunities for access to high-value niche markets for our cocoa and coffee products. Our request was approved and we have been working with the consultant, Dr. Andrew Graffham, since November 2016 to prepare one proposal for coffee and one for cocoa.

Key priorities in agriculture by the O'Neill-Dion Government under the "Aotau Accord" were aimed at achieving three (3) outcomes for our people and our country, and these were:

1. Increase export and domestic production and/or revenues from agriculture;
2. Increase number and volume of new investments in the agriculture sector; and
3. Increase the number of indigenous men and women in small, medium and corporate businesses in the agriculture and agriculture-related sectors.

Over the past 5 years, cocoa production averaged 43,867 tons with 90% of these being produced by village farmers while 10% is from the plantation sector. Cocoa is grown in 14 of the 22 provinces of PNG with East Sepik, Bougainville, Madang, East New Britain, Morobe, West New Britain and New Ireland being the major producers.

Cocoa sustains around 151,000 families equating to about 2 million people in the country, and contributes an estimated K300 million per annum to the national economy.

Globally, PNG accounts for only 1% of the total world production. However, PNG cocoa has earned a world reputation of being one of the finest quality cocoa producers being rated by the International Cocoa Organisation (ICCO) as having a "90% fine or flavour status". The challenge for Cocoa Board, DAL, the Government and private sector in the PNG cocoa industry is *"how do we translate this high quality cocoa reputation to more money in the pockets of our cocoa farmers who live in the rural areas"*.

Since 2008, the industry has been under threat from Cocoa Pod Borer (CPB) which is present in nine (9) major cocoa growing provinces. In East New Britain, the once leading cocoa producer, production declined by 80% in 2012 due to a direct impact of the CPB. The CPB crisis further adds to the multiple setbacks that the industry faces like remoteness and lack of road access, high freight costs, lack of credit availability and markets, poor farm management and husbandry practices resulting in low farm productivity, aged cocoa trees, and lack of extension services.

In response to the numerous challenges being faced by our rural cocoa farmers and key stakeholders along the whole supply chain from farming to consumers, the PNG Cocoa Board is focussing on three key strategic programs, and they are (1) Nursery Program, (2) Freight Subsidy Program and, (3) Cocoa Quality and Market Promotion Program all of which are currently funded by the Government. Under the Nursery Program, the Cocoa Board is facilitating the propagation of the recently released ten (10) CPB tolerant cocoa clone planting materials to rehabilitate village cocoa farms. In addition, the Cocoa Board has engaged with 12 District Authorities through Memorandum of Agreements (MOA) to promote and support rehabilitation of cocoa farms, as well as increase opportunities for new SME's in the industry.

Over the last 2 years, a total of 422 ha have been rehabilitated generating over K37 million at a "Return On Investment (ROI)" rate of K2.12 for every Kina spent. Under the Freight Subsidy Program, the Cocoa Board has engaged with 12 District Authorities, 12 local SME's to provide freight services through MOA's. Over the last 2 years, the farmers in the Freight Subsidy Program in 12 participating Districts earned a net income of over K63 million and contributed over K75 million in export revenue to the national economy at a ROI rate of K14.91 for every Kina spent. Under the Cocoa Quality and Market Promotion Program, the Cocoa Board is evaluating the performance of new dryers and exploring new business models of organising farmers to

encourage a shift from subsistence farming to commercial farming through the commercialisation of every step in the cocoa supply chain.

The PNG Cocoa Board has set a target to increase area under production from 135,000 ha in 2016 to 138,000 in 2017 and 140,000 in 2018. This planting program is expected to increase production from 40,000 tonnes in 2016 to 48,000 tonnes in 2017 and to 56,000 tonnes in 2018. Families participating in the cocoa industry is forecasted to increase from 140,000 in 2016 to 150,000 in 2017 and to 160,000 in 2018.

Yours sincerely



Vele P. Ila'ava
Secretary

Copy: **Mr. Boto Gaupu**
Chief Executive Officer, PNG Cocoa Board



COCOA BOARD OF PAPUA NEW GUINEA

Head Office

PO Box 532, Balavu Street, Kokopo, 611 East New Britain Province, PNG

Phone: +675 9829115/9828560 Fax: +675 9828712, Email: ceo@cocoaboard.org.pg

File:

April 27th 2017

STDF Secretariat
World Trade Organization
Centre William Rappard
Rue de Lausanne 154
CH-1211 Geneva
Switzerland

Dear Sir/Madam,

SUBJECT: ENHANCING TRADE FOR COCOA FARMERS IN PAPUA NEW GUINEA

The Cocoa Board of PNG acknowledge and is aware of the above project proposal which was developed and submitted to the STDF Secretariat by the national Department of Agriculture & Livestock with input from a core group of technical officers from the Cocoa Board of PNG and the PNGCCIL. The project will be initially implemented in East New Britain Province and Markham Region in the Morobe Province.

The project promotes Cocoa Boards 10-year Cocoa Industry Strategic Plan (CISP) 2016-2025 including core activities of the growing districts to strengthen the post-harvest and quality control systems for the benefit of rural farming groups and communities in the project areas. It is in the farmer groups, Cocoa Board and the government's interest to see such organized project get supported and is equally important that they be funded.

The project is in line with the national government's Medium Term Development Plan (MTDP), National Agriculture Development Plan (NADP) and Vision 2050 which calls for the growing of both the rural and national economics particularly the improvement of the living standards of the rural communities.

The Cocoa Industry will support and provide necessary extension and technical advice in any way possible if required.

For further information regarding the above, please do not hesitate to contact the Senior Project Officer at Cocoa Board of PNG on email address cphillipkoel@gmail.com.

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'Boto Gaupu'.

Boto Gaupu
Chief Executive Officer



PNG COCOA COCONUT INSTITUTE LIMITED

Head Office

North Coast Road, Locked Bag 1846, Rabaul 611, East New Britain Province, Papua New Guinea

Telephone: 675 983 9131, 983 9225, 983 9228 Facsimile: 675 983 9115 Email: enemas.tade@ccipng.org.pg

Office of the Administrator

April 27th 2017

STDF Secretariat
World Trade Organization
Centre William Rappard
Rue de Lausanne 154
CH-1211 Geneva
Switzerland

Dear Sir/Madam,

SUBJECT: ENHANCING TRADE FOR COCOA FARMERS IN PAPUA NEW GUINEA

The Papua New Guinea Cocoa Coconut Institute (PNGCCIL) acknowledge and is aware of the above project proposal which was developed and submitted to the STDF Secretariat by the National Department of Agriculture & Livestock. Input to the proposal was sought from a core group of technical officers from the Cocoa Board of PNG and PNGCCIL. The project will be initially implemented in East New Britain Province and Markham Region in the Morobe Province.

The project promotes Cocoa Boards 10-year Cocoa Industry Strategic Plan (CISP) 2016-2025 including core activities of the cocoa growing districts to strengthen the post-harvest and quality control systems for the benefit of rural farming groups and communities in the project areas. It is in the farmer group, Cocoa Board and the government's interest to see such organized projects get supported and is equally important that they be funded.

The project is in line with the national government's Medium Term Development Plan (MTDP), National Agriculture Development Plan (NADP) and Vision 2050 that call for the growing of both the rural and national economies, particularly the improvement of living standards of the rural communities.

The Cocoa Industry will support and provide necessary extension and technical advice in any way possible if required.

For further information regarding the above, please do not hesitate to contact the Senior Project Officer at Cocoa Board of PNG on email address cphillipkoel@gmail.com.

Yours Faithfully,

A handwritten signature in black ink, appearing to be 'C. Phillipkoel', is written over a light blue circular stamp or watermark.



April 26th 2017

STDF Secretariat
World Trade Organization
Centre William Rappard
Rue de Lausanne 154
CH-1211 Geneva
Switzerland

Dear Sir/Madam,

SUBJECT: ENHANCING TRADE FOR COCOA FARMERS IN PAPUA NEW GUINEA

We acknowledge the above project proposal which was developed and submitted to the STDF Secretariat by the Cocoa Board of PNG for funding consideration. The project will be initially implemented in East New Britain Province and Markham Region in the Morobe Province.

As the project promotes Cocoa Boards 10-year Cocoa Industry Strategic Plan (CISP) 2016-2025 including core activities of the growing districts to strengthen the post-harvest and quality control systems for the benefit of rural farming groups and communities in the project areas. Outspan PNG Limited as the second largest cocoa buyer and exporter in PNG is happy to collaborate with Cocoa Board and other partners to ensure the smooth implementation of the project.

The project is in line with the national government's Medium Term Development Plan (MTDP), National Agriculture Development Plan (NADP) and Vision 2050 which calls for the growing of both the rural and national economics particularly the improvement of the living standards of the rural communities. It is important to see an organized project get supported and is equally important that it be funded.

For further information regarding the above, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read "Suvarna".

Tarun Suvarna
General Manager
OUTSPAN PNG LTD

Outspan Png Limited
P.O. Box 387 Rabaul ENB Province Papua New Guinea
Telephone (675) 9821711 / 9823176 Fax (675) 9821417 Email: outspan.opns@global.net.pg
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NGANALAKA COOPERATIVE

Toma Vunadidir LLG
Gazelle District
P.O Box 1746
Kokopo
ENBP

April 27th 2017

STDF Secretariat
World Trade Organization
Centre William Rappard
Rue de Lausanne 154
CH-1211 Geneva
Switzerland

Dear Sir/Madam,

SUBJECT: ENHANCING TRADE FOR COCOA FARMERS IN PAPUA NEW GUINEA

The Nganalaka Cocoa Farmers Group acknowledge and is aware of the above project proposal which was developed and submitted to the STDF Secretariat by the Cocoa Board of PNG for funding consideration. The project will be initially implemented in East New Britain Province and Markham Region in the Morobe Province.

The project promotes Cocoa Boards 10-year Cocoa Industry Strategic Plan (CISP) 2016-2025 including core activities of the growing districts to strengthen the post-harvest and quality control systems for the benefit of rural farming groups and communities like *Nganalaka Cocoa Farmers Group* situated in Toma/Vunadidir Local Level Government area of East New Britain Province. It is in the farmer group, Cocoa Board and the government's interest to see such organized project get supported and is equally important that they be funded.

The project is in line with the national government's Medium Term Development Plan (MTDP), National Agriculture Development Plan (NADP) and Vision 2050 which calls for the growing of both the rural and national economies particularly the improvement of the living standards of the rural communities.

The Cocoa Industry will support and provide necessary extension and technical advice in any way possible if required.

For further information regarding the above, please do not hesitate to contact the Senior Project Officer at Cocoa Board of PNG on email address cphillipkoel@gmail.com.

Yours Faithfully,

A handwritten signature in blue ink, appearing to read 'Tony Vigil'.

Tony Vigil
Chairman
Nganalaka Cocoa Farmers Group

Appendix 5: Written consent from an STDF partner that agrees to implement the project **OR** evidence of the technical and professional capacity of another organization proposed to implement the project.

The technical and financial capacity of CB-PNG to manage and deliver the STDF cocoa project, and prior experience of managing projects funded by external donor agencies, was discussed in detail under section 15 of this proposal.

Appendix 6: Terms of Reference for key staff involved in project implementation

If approved, CB-PNG will develop Terms of Reference for the Project Leader during the inception phase, to be approved by the STDF.