

SUMMARY PAPER

1 Rationale and development process

As part of Tonga's national planning process, the Tonga Agriculture Sector Plan (TASP) presents the vision and priorities to maximize contributions from the agriculture sector to the Kingdom's economic growth and sustained food security in the face of a changing world economy, looming climate change, and on-going natural disasters in the Pacific.

As a result, the TASP promotes a balance between export-oriented objectives, import substitution, and subsistence agriculture while incorporating a strong focus on sustainability and building resilience against climate change and natural disasters. Specifically, the TASP will (i) articulate programmes and activities to achieve sector priorities; (ii) define the roles and responsibilities of the different sector stakeholders; (iii) estimate implementation costs; and (iv) provide a framework for measuring progress over the short- and medium-terms.

The design process for the TASP emphasized the importance of: (i) integrating all stakeholders' views; (ii) considering the different circumstances in the Outer Islands; and (iii) identifying linkages with related sectors. It involved an inclusive process actively overseen by the ASGC with cooperation from: (i) all of MAFFF's divisions; (ii) the Church (four main denominations); (iii) stakeholders from the private and public sectors; and (iv) consultative workshops involving 600 men and women farmers.

2 Background, context, performance of Tonga agriculture with challenges and opportunities

How is agriculture sector performing among objectives of food security, exports and import substitution.

About 75% of Tonga's population lives in rural areas with agriculture and fisheries as the main source of livelihoods. While agriculture is the predominant economic activity in Tonga, its contribution is disproportionately small relative to its share of the population and its relative importance has decreased in recent years with GDP contribution declining from 26.3% in 2004/5 to about 19.2% in 2009/10. Rural out-migration and falling agricultural exports have contributed to the decline in GDP output of agriculture. In 2009/10 about 90% of the country's exports comprised of agricultural and fishery products, with a value estimated at T\$13.8 million, a figure significantly lower than the levels achieved in the early/mid-2000s, of about T\$20.0 million.

Food security

The factors increasing the vulnerability of Tonga's agriculture sector include rural poverty, out-migration of rural populations, an aging farmer population, and the impacts of extreme weather events which are increasingly influenced by the unfolding effects of climate change. Tonga has one of the highest rates of subsistence food production amongst Pacific Island Countries. Generally, rural poverty is concentrated among smallholder farmers who practice mixed subsistence and cash-crop production. About 25% of households in Tonga are estimated to currently live below the basic needs poverty line. Less than 10% of Tongan farmers are commercial producers who grow excess products for the formal market. The majority of Tonga's agriculture is still based on traditional/subsistence farming systems, some of which are under pressure from declining soil organic matter and declining crop diversity. Most Tongan households keep livestock but there are very few commercial livestock operations (egg production and

¹ A notable omission in terms of valuing exports is the failure to include as much as T\$4.0 million from the export of handicrafts.

small scale pig production) as livestock are kept primarily for home consumption. Livestock productivity is very low but there are some opportunities in selected areas to increase productivity to improve food security and diversity, and to generate, in some cases, excess livestock for sale – provided production and husbandry constraints are overcome.

Tonga's rural population is declining slowly, with out-migration (in 2014 Tonga's net migration rate was estimated to be -17.85 migrants/1,000 population) and a lack of incentives (limited income earning capacity, and the attraction of urban lifestyles) for young Tongans to remain in the sector. This is leading to an aging farmer population which faces farm labour shortages - a scenario which has implications in terms of staple food self-sufficiency in the longer-term.

Continued and sustained self-sufficiency in staple foods may be considered a simple objective, but one which many consider to be as important as growing exports, particularly in the face of more weather extremes - such as the current (late 2014) 1/50 year drought and the recent cyclone lan.

Exports

Tonga's export vulnerability lies in its reliance on a very few export commodities particularly squash with export volume declining from about 21,000 Mt in the early 2000s to only 846 Mt in 2010/11². One of the immediate challenges faced by the agriculture sector is the identification of commodities which have market opportunities to replicate the scale and scope of squash production and exports. In this regard, farmers are considering alternative marketing structures such as the Eastern District Farmers Council. Past focus has been on addressing opportunities which have been identified by a few individual exporters for the export of commodities such as watermelon and zucchini to off-season markets in New Zealand and Australia. Compliance with market requirements, not only in terms of quality and consistency of supply, but increasingly in terms of biosecurity requirements, has become a clear priority. In addition to meeting market access conditions, ensuring a consistent supply to satisfy potential market opportunities remains a significant challenge. The knowledge-base for the production of new export commodities is fragile, with dwindling expectations by farmers that MAFFF (through traditional adaptive research and extension services) has the capacity and skills to generate and transfer the knowledge required to introduce and produce new varieties. More recently (2014), some export businesses have decided to fund their own product-specific grower outreach extension and crop production input services as MAFFF has not been able to respond to such demands.

Import substitution

Tonga has an "unwritten" objective of not becoming dependent on imported rice in the future, not only because of the impact on the balance of trade, but also because of the "food vulnerability" element. Tonga's main agriculture imports indicate that there could be commercial opportunities to replace the importation of chicken and mutton, and to a lesser extent, beef. In 2009/10, Tongan imports of agriculture products (mainly vegetables and animal products) were valued at T\$48.8 million, while vegetables were worth T\$9.3 million. MAFFF Research has small programs on local meat production from sheep, poultry, and ducks. Small, pilot, biogas/ piggery/ vegetables systems are also fledgling import substitution activities - some of which may have potential for up-scaling, depending on reliable supplies of processed feed, and for water for biogas. Domestic production of fruit and timber for construction are also import replacement products with potential, particularly tropical hardwoods.

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² The decline in squash exports was a result of a complex set of factors that left many small scale investors with large debts, all of which need to be considered when formulating the TASP.

3 Challenges and opportunities for agriculture sector

Challenges

- Transportation logistics of servicing many islands over a large expanse of ocean
- Remoteness
- Narrow resource base
- The small size of the economy
- Population "drain" as young people travel overseas for employment
- Drain on resources from the damage caused by frequent natural calamities
- Limited land area places constraints on production scale

Opportunities

- Tonga is well-placed to strengthen its selfsufficiency in traditional root and other food crops
- Have a sound export economy based around niche products which can exploit seasonal market windows particularly in New Zealand and Japan
- Soils and climate mean that Tonga is well-suited to produce a wide range of tropical and subtropical horticultural crops

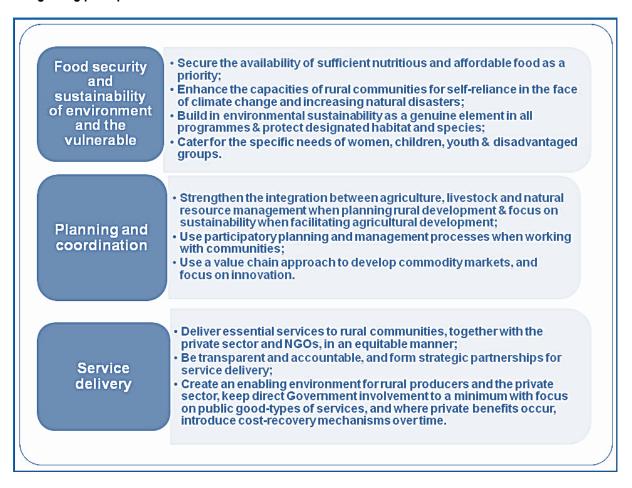
4 TASP Design and Programmes

There are three core groups of stakeholders involved with the TASP: (i) the approximately 8,000 farmers³, and the six main exporting companies, who are the primary targets in terms of incremental benefits; (ii) those who have key roles in providing improved services and advice to the primary beneficiaries (MAFFF, sector financiers, and the Church); and (iii) donors who are currently supporting the sector and are expected to continue this effort during the life of the TASP. Coordination between the stakeholders listed in (ii) and (iii) is not good at present and often leads to duplication of effort and/or the design and implementation of inappropriate programmes.

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³ From the 2011 census

The **guiding principles** for the formulation of the TASP are:

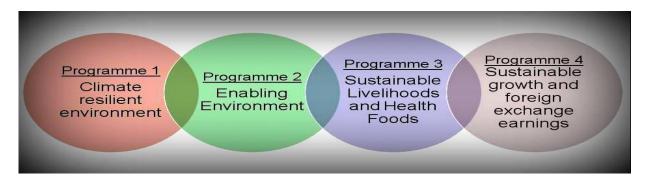


Two key rural development planning and implementation lessons factored into the TASP are the importance of:

- (i) essential community preparedness and social cohesion (defined as community readiness), prior to application of "bottom-up" planning processes; and
- (ii) fostering complementary linkages between plan components in order to generate and sustain expected benefits.

Considerations for future strategic directions for Tonga's agriculture sector, following extensive consultations throughout the Kingdom and literature review include: (i) a proactive focus on low carbon climate resilient development for the sector as a whole; (ii) varying agro-ecological resources - soils, rainfall, current levels of agro-biodiversity, etc.; (iii) access and market opportunities - proximity to sea transport services and pre-marketing processing and packaging facilities; (iv) location-specific constraints and opportunities, (v) and access to reliable technical advice and labour-saving machinery.

The four (4) sub-sectors and corresponding programmes that are the focus of TASP include:



Description of Programme 1 by sub-programme

The three specific objectives are to: (i) develop baseline knowledge for sustainable management of soil and water (for agriculture); (ii) develop climate resilient guidelines and indicators for diverse farming systems; and (iii) build capacity for climate resilient agriculture (diverse farming systems and adaptive communities - to impact on Programme 3).

Accordingly, Programme 1 has three Sub-Programmes: (i) Healthy Soils and Sustainable Water; (ii) Building Agricultural Resilience to Climate Change; and (iii) Building Agricultural Resilience to Climate Change Impact, which are outlined below.

Programme 1: Clim	ate Resilient Environment							
Sub-Programme 1: Healthy Soils and Sustainable Water								
Healthy soils	 Refurbish and Operate MAFFF's Soils Laboratory Conduct National Soil Survey and Update National Soil Maps Promotion/Awareness Raising of Soil Fertility Issues District-Level On-Farm Fertilizer Trials and On-Going Monitoring of Soil Fertility Feasibility Study on Application/Use of Vermiculture and Trial 							
Sustainable water	 Quantifying Existing Groundwater Resources Estimating Current Exploitation of Groundwater Resources Determining Groundwater Resources Locations Available for Greater Use; and Fragile Locations for Protection and/or Rehabilitation Pollution Risks to Groundwater Estimating Future Climate Change Impacts and Water Demands Community Engagement on Future Water Use for Agriculture 							
Sub-Programme 2: Building Agricultural Resilience to Climate Change								
	 Development, implementation and monitoring of climate resilient guidelines and indicators 							
Sub-Programme 3: Building Agriculture Resilience to the Impact of Climate Change								
	 3-day capacity building participatory workshops on climate resilience and climate resilient agriculture focused on a wide range of people who will be engaging with rural communities, either directly or indirectly. Feasibility study to value "whole of island approach to resilient agriculture production" 							

Description of Programme 2 by sub-programme

The ten specific objectives related to the sub-programmes listed below ensure that:

- (i) the sector's key institutional policy (MAFFF's roles and responsibilities) is appropriate, resourced and implemented;
- (ii) bio-physical policies (i.e. water, soils, biodiversity, NRM, climate change) are in place and are conducive to (or govern) sector growth;
- (iii) Government's policies on the export and import of agriculture products, mainly food products are up-to-date and relevant; and that the new Food Act is supportive of the sector;
- (iv) Tonga's farmers have access to land, labour and farm finance;
- (v) international relationships with important trading partners are maintained;
- (vi) Tonga's agriculture sector complies with national regulatory/compliance conditions and requirements;
- (vii) Tonga's agriculture sector is protected from incursions from pests and diseases, and is able to comply with international quarantine requirements;
- (viii) Tonga's agriculture sector is supported by functional and effective industry organizations;
- (ix) There is a functional and effective market information system in place; and
- (x) Improved agro-meteorological services.

Programme 2: Enabling environment Sub-Programme 1: Sector Institutional Policy institutional review of MAFFF work-shopping of the main findings and recommendations with key Government officials and national stakeholders Institutional Change Paper for MAFFF to respond to the review's recommendations support for MAFFF to implement the recommended changes provision of a one-off budget allowance to fund any recommended restructuring Sub-Programme 2: Bio-Physical Policies Soil fertility policy interpret the soils tests completed under Programme 1 and prepare recommendations prepare and publish a soil fertility policy promote the new soil fertility policy through all types of media, and at events attended by farming communities. Agriculture water policy interpretation of the hydro-geological review work and studies completed under Programme 1 recommendations on water allocation - for domestic and agricultural uses; gaining approval in principle from Cabinet for changes to Tonga's water use legislation drafting and publishing a new water policy promoting and explaining the new policy to all citizens who rely on under-ground water for domestic and livestock watering purposes updating NRM and climate change adaptation strategies Sub-Programme 3: Export and Import Policies regular surveys of how the current export/import policies are impacting on the two subsectors (export and import) regular updating and publication of policies on-going promotion of updated and relevant policies to exporters and importers Sub-Programme 4: Land and Rural Finance Policies Land policy feasibility study of expanding the Toutu'u land sharing system to longer-term crops ie tropical hardwoods to enable an expansion of Tonga's forestry industry monitor the impact of current land use and allocation policies on sustainable agriculture production, followed by recommended changes and promotion of new/revised policies, if required TASP Implementation Coordination Unit (TASPICU) to advise Government of land access and intensity of use issues Rural finance ongoing monitoring of the current results from farmer and exporter use recommend, when required, changes in rural finance policies and support services (in the event of changes, promote these to ensure that all categories of borrowers are aware of new opportunities to access rural finance) practical training for farmers and small exporters on how rural finance systems work, how to prepare and present simple business plans and how to manage cash flows Sub-Programme 5: International relationships monitoring the status of international relationships - with major donors and export recipient countries preparing (if required) and promoting papers/reports on recommended changes to Tonga's position in the "world of international trade" Sub-Programme 6: Compliance and regulations monitoring and reporting on compliance with international regulations and obligations propose solutions if Tongan regulations are hindering sectoral development and export growth an allowance for unforeseen costs as Tonga's agriculture sector changes in response to international factors

Sub-Programme 7: Quarantine

Programme 2: Enabl	ing environment						
	 assist MAFFF Quarantine in achieving its twin functions of keeping export-pathways open and preventing new pest and diseases from entering Tonga 						
Sub-Programme 8: Indu	stry organisations						
	 general one-off funding support for meetings and promotional events business training for key industry representatives planning and running industry-specific field days and learning events 						
Sub-Programme 9: Market information							
Domestic market	 comprehensive database of commodities, varieties, quality standards and weight based unit prices 						
Export market	 expand coverage of monthly publishing of export commodities price data to other commodities (vanilla, kava, frozen commodities) and the Vava'u international port information dissemination via major newspapers, MAFFF district and industry 						
	organisation offices, and phone, email or SMS enquiries						
Sub-Programme 10: Agr							
Agricultural meteorology capability	 a new technical assistant position within the Tonga Meteorological Service to establish an Agro-Meteorology Program training workshops to ensure wider understanding of agro-met knowledge and information 						
Data, knowledge and information	 dedicated agro-met stations to support improved agricultural decision making targeted research to support improved agro-met advice and decision-making Tonga-wide database of traditional knowledge and indicators relating to climate linked with modern weather and climate forecasting relevant agro-met information and communication services including a mobile phone service 						

Description of Programme 3 by sub-programme

The three specific objectives related to the sub-programmes listed below are to: (i) improve farmers' knowledge and practices of natural resource management, and diversified crop,, livestock, and handicraft, production systems; (ii) revitalize Tonga's farming future and encourage young farmers to return to the land; and (iii) support farmers and handicraft producers to produce products which are marketable in local markets, can be valued-added, and which contribute to food and nutritional security.

Programme 3: Sustainable livelihoods and healthy food

Sub-Programme 1: Farmers' knowledge and practices

•	Development of Farmer-Friendly Resilient Farming Guidelines				
•	10 champion farmers and Village Resilient Agriculture Demonstrations (VRADs)				
•	Design and Implementation Village Resilient Agriculture Plans (VRAPs)				
Sub-Programme 2: Young	people in agriculture				
•	Feasibility Study of Tupou College Upgrading				
•	Development and Operation of a VRAD for students				
•	8 Learning and Production nodes				
•	Dedicated Learning Centre - Tupou's disused abattoir				
•	Student Awards and Graduate Support Packages				
Sub-Programme 3: Saleable agriculture products – core of TASP					
•	1,762 Farmer Field Schools (FFSs) for 100 Farmer Learning Groups (FLGs) and 88				
	Handicraft Learning Groups (HLGs)				
•	Printing and Distribution of Technical Brochures				
•	Contestable Learning Grants for FLGs				

Matching Grants for FLGs farm investment

- Matching Grants for Women Handicraft Materials Farmers for production investment
- Short Value Chains for Local Products
- Feasibility Study and Matching Grants for Farm Access Roads, Livestock Water Supplies, and Micro-Irrigation Systems
- Cross-visits to Vanuatu i.e. Santo Island farmers about community organisation and planning, climate resilient agriculture practices, agriculture education in schools, and rural training
- Support for Church to Assist Farmers

Description of Programme 4 by sub-programme

The bulk of TASP support has been focused on the smallholder sector and the domestic agriculture economy, TASP supports logical recommendations for value chain development in Tonga. Tonga continues to import considerable volumes (and value) of food mainly animal products (meat) and vegetable products, including fresh vegetables. There is potential for replacement of imports of selected, widely-consumed food crops, and also for the seasonal export of products such as potatoes and onions.

Programme 4: Sustainable Economic Growth and Foreign Exchange Earnings

Sub-Programme 1: Export sales

- Study of national forestry industry, export shipping requirements, farm to pack house access constraints
- Training for all stakeholders: value chain and business training, post-harvest practices
- Technical support for value chain development
- Financing value chain development
- Support for service provision
- Investment promotion
- Infrastructure: Improvements for EU-Stabex wharf facility, feasibility study for a new packhouse in the Eastern Districts of Tongatapu
- Private sector collaboration: establishing Tongan Agribusiness Association
- Priority products for export: watermelon, beans, vanilla, squash, value adding

Sub-Programme 2: Import replacement

- Training on Domestic Markets and Import Replacement: train potential investors in how to review opportunities in domestic markets for import replacement products, prepare production, marketing and financial plans, present business cases to bankers and potential investors
- General Support for the Livestock Industry: adaptive research on pig and poultry production, the introduction of new sheep breed genetic materials, support to improve sheep flock management, a study of village-level, livestock-based production systems
- Promising Value Chains: vegetable import replacement, animal feed mills for poultry production, beef raising and domestic processing, options for mobile slaughter units for cattle and pig

5 Strategic Objectives and Expected Results

Goal

Increase and sustain resilient agriculture livelihoods

Target by Year 5

Productionoriented Subsistence- Develop diverse, climate resilient farming systems for food/nutritional security and improved livelihoods

Commercial - Increase and sustain rural incomes with rising exports and import substitution

 5% annual growth in rural incomes to T\$9,177

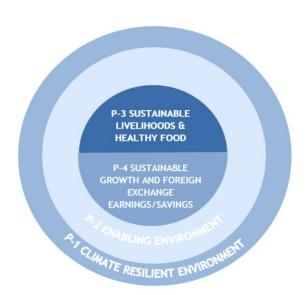
 10% annual growth in vegetable exports to 15,590Mt or T\$19.7m

 10% annual decline in meat imports to 4,600Mt or T\$22.8m

Crosscutting themes Establish climate resilient agriculture system to preserve key natural resources (healthy soils, sustainable water, diverse systems, adaptive communities)

Improve enabling environment (institutional/service capacity, policies on soil/water, exports/imports & land/rural finance, international relations, regulations, industry organisations, market information)

Figure below show the inter-relationships among the four programmes and strategic objectives framework, with Programmes 1 and 2 as cross-cutting themes supporting the two production-oriented Programmes (3 and 4).



TONGA AGRICULTURE SECTOR GOAL

<u>Programme 3:</u> Sustainable Livelihoods and Healthy Food. <u>Strategic Objective 3:</u> To develop diverse, climate resilient farming systems for the Kingdom's islands zones

Programme 4: Sustainable Growth and Foreign Exchange Earnings/Savings. Strategic Objective 4: To increase and sustain rural incomes across the Kingdom



Specific Objectives:

- (i) Farmers have the knowledge and technology required for climate resilient farming systems (includes women in agriculture, natural resource management, and diversified crop and livestock production systems)
- (ii) Young people see a future in agriculture, and are engaging in the sector
- (iii) Farmers are producing products which are saleable in local markets, can be value-added, and contribute to food and nutritional security



Specific Objectives:

- (i) Sales of exported agricultural products are increasing
- (ii) Tongan-produced agricultural products are replacing imported products





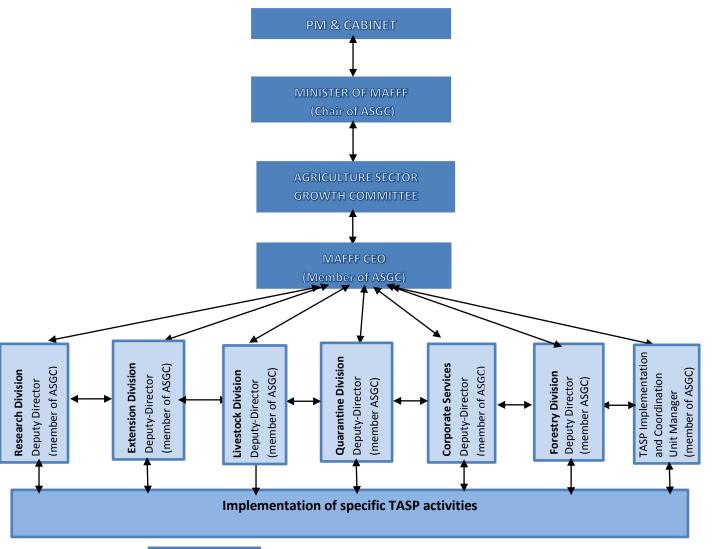
Cross Cutting Themes: Programmes 1 and 2

Programme 1: Climate Resilient Environment. Strategic Objective 1: Establish Climate Resilient Agriculture Systems. Specific Objectives: (i) Healthy Soils; (ii) Secure and Sustainable Water, (iii) Diverse Farming Systems, and (iv) Adaptive Communities

Programme 2: Enabling Environment. Strategic Objective 2: Improve the Enabling Environment: Specific Objectives: (i) Service Delivery and Institutional Capability (ii) Bio-Physical Policies/Legislation, (iii) Exports and Imports; (iv) Access to land and Finance (v) International Relations, (vi) Compliance & Regulations, (vii) Quarantine Services, (viii) Support for Industry Organizations; (ix) Market Information and (x) Agro-Meteorology

6 TASP Implementation Arrangements

A new TASP Implementation and Coordination Unit (TASPICU) will be set up within MAFFF to assist and coordinate implementation of TASP activities within the 6 existing Divisions of MAFFF as well as externally (e.g. setting-up weather stations by Tonga Met). It is envisaged that MAFFF's Corporate Services Division would absorb the functions of TASPICU after 5 years.





TASPICU is a small unit within MAFFF comprising of a Manager and Assistant plus a small secretariat staff to facilitate funding applications. A member of ASGC, the Manager will also work closely with the Deputy-Directors and CEO of MAFFF to enable and monitor implementation of TASP activities within and outside MAFFF. Reporting on implementation of TASP activities will be made regularly to ASGC.

7 Budget and timing

The first five-year phase of the TASP will cost T\$42.169million, with 34% or T\$14.498 million allocated to Programme 3 (the "action" Programme which focuses on smallholder agriculture). The 30% or T\$12.720 million for Programme Management for a stand-alone TASPICU, which includes costs associated with the establishment, staffing and operation of the island-based offices, will be revised after the MAFFF institutional review is concluded.

TASP BUDGET REQUIREMENTS

Detailed TASP Costs		(T\$'000)					
	Year 1	Year 2	Year 3	Year 4	Year 5	Total	%
Programme 1: Climate Resilient Agriculture							
SO 1.1: Healthy Soils and Sustainable Water	\$895	\$922	\$515	\$139	\$150	\$2,621	
SO 1.2: Climate Resilient (CR) Guidelines and Indicators	\$95	\$60	\$55	\$5	\$5	\$220	
SO 1.3: Building Agriculture Resilience to Impact of Climate Chang	e \$513	\$343	\$343	\$5	\$5	\$1,208	
Subtota	ıl \$1,503	\$1,325	\$913	\$149	\$160	\$4,049	10%
Programme 2: Improved Enabling Environment							
SO 2.1: Sector Institutional Policy		\$50	\$0	\$0	\$0	\$553	
SO 2.2: Bio-Physical Policies		\$15	\$15	\$15	\$105	\$428	
SO 2.3: Export and Import Policies		\$63	\$18	\$63	\$18	\$160	
SO 2.4: Land and Rural Finance Policies		\$25	\$75	\$25	\$75	\$298	
SO 2.5: International Relationships		\$38	\$38	\$38	\$38	\$188	
SO 2.6: Compliance and Regulations		\$23	\$23	\$23	\$23	\$113	
SO 2.7: Quarantine	\$250	\$250	\$250	\$250	\$250	\$1,250	
SO 2.8: Industry Organizations		\$63	\$63	\$63	\$63	\$313	
SO 2.9: Market Information Support	\$75	\$75	\$75	\$75	\$75	\$375	
SO 2.10: Agro-Met Services	\$259	\$492	\$242	\$242	\$242	\$1,477	
Subtota	ıl \$1,584	\$1,092	\$797	\$792	\$887	\$5,152	12%
Programme 3: Sustainable Livelihoods and Healthy Food							
SO 3.1: Farmers' knowledge and practices	\$350	\$95	\$118	\$160	\$193	\$915	
SO 3.2: Young people in agriculture	\$948	\$350	\$350	\$350	\$350	\$2,348	
SO 3.3: Saleable agriculture products	\$0	\$1,974	\$2,315	\$3,032	\$3,914	\$11,235	
Subtota	ıl \$1,298	\$2,419	\$2,782	\$3,542	\$4,457	\$14,498	34%
Programme 4: Sustainable Growth and Foreign Exchange Earnings							
SO 4.1: Export sales		\$1,247	\$957	\$912	\$912	\$4,118	
SO 4.2: Import replacement	\$0	\$713	\$510	\$310	\$100	\$1,633	
Subtota	ıl \$90	\$1,960	\$1,467	\$1,222	\$1,012	\$5,751	14%
TASP Programme Management							
Vehicles, Equipment and Materials	\$1,211	\$0	\$0	\$0	\$927	\$2,138	
Training and Technical Assistance		\$1,008	\$1,008	\$0	\$0	\$3,437	
Salaries and Allowances		\$843	\$843	\$843	\$843	\$4,215	
Office Operating Costs	\$398	\$353	\$353	\$353	\$398	\$1,854	
Vehicle Operation and Maintenance	\$215	\$215	\$215	\$215	\$215	\$1,077	
Subtota	ıl \$4,088	\$2,419	\$2,419	\$1,411	\$2,383	\$12,720	30%
Total	\$8,562	\$9,214	\$8,378	\$7,116	\$8,899	\$42,169	100%

