AGRICULTURE SECTOR ACTION PLAN 2020-2025

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ACRONYMS

ASAP	Agriculture Sector Action Plan
CAP	Capacity Assessment Plan
EDS	Economic Development Strategy 2020-2030
EMCI	Emergency Management Cook Islands
FAO	Food and Agriculture Organisation
FMS	Financial Management Support
GDP	Gross Domestic Product
MOA	Ministry of Agriculture
MFEM	Ministry of Finance and Economic Management
MOH	Ministry of Health
MPI	Ministry for Primary Industries (NZ)
NCW	National Council of Women
NSDP	National Sustainable Development Plan
SPC	The Pacific Community
PEARL	Pa Enua Action for Resilient Livelihoods
TIS	Te Ipukarea Society

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GLOSSARY OF MAORI WORDS

arāpō	Traditional Lunar Calendar
kūmara	Sweet Potato (*Ipomoea batatas*)
kuru	Breadfruit (*Artocarpus altilis*)
maire	Scented Oak-leaf Fern (*Microsorum commutatum*)
māniota	Cassava (*Manihot esculenta*)
noni	Indian Mulberry (*Morinda citrifolia*)
‘ōporo	Chilli Pepper (*Capsicum frutescens*)
pā ‘enua	Grouping of all the islands excluding Rarotonga
pūraka	Atoll Taro (*Cyrtosperma merkusii*)
raparapa	Star Fruit (*Averrhoa carambola*)
rūkau	Taro leaves cooked with coconut cream
rūkau viti	Spinach Hibiscus (*Abelmoschus manihot*)
tai ‘akari	Sauce made from grated Coconut
tamanu	Polynesian Mahogany (*Calophyllum inophyllum*)
taro	Taro - no English equivalent (*Colocasia esculenta*)
tīporo	Lime (*Citrus aurantifolia*)
vī kavakava	Otaheite Apple (*Spondias dulcis*)

FOREWORD

The development of this Agriculture Sector Action Plan 2020 – 2025 was timely as the Cook Islands moves into an economic recovery phase post the COVID-19 pandemic. The COVID-19 pandemic is unprecedented in its global impact, particularly on the Health and Economic sectors. This has caused countries such as ours to review their primary industries as part of the Covid-19 response. This review is also part of our economic recovery as we aim to diversify the economy and reduce our reliance on tourism.

This Agriculture Sector Action Plan aims to provide some recovery pathways over the next five years with significant focus on shifting the sector to more agro-ecological farming. It also recommends broadening the range of value-added products, supporting domestic value chains and seeking to establish some international niche markets. The industry needs to be more sustainable ecologically through changed production methods and must improve resilience to climate change through adaptive methods and improved use of technology. Utilising technology as a tool to improve production and processing techniques is important now more than ever.

The government budgetary process and the economic recovery package for concessional financing in the short to medium term will aid the implementation of this Agriculture Sector Action Plan. This is also timely as support to commercial and home-garden growers, and to livestock farmers will be available to effectively implement the six key initiatives outlined in the plan.

During the process of re-setting our agriculture sector and rebuilding our economy, it is important that we do not drop our guard. In a similar manner to our national effort in keeping the Cook Islands COVID-19 free, the protection of our borders from intrusions by exotic pests and diseases is critical. Therefore, as part of our national economic recovery our Biosecurity system must remain strong to safeguard our way of life, our unique island environment and the health and wellbeing of our communities. As we face the prolonged COVID-19 pandemic, we must make every effort to keep our local food supply chain moving and to safeguard our borders.

The collaboration and unity gained nationwide during the COVID-19 situation is the key to take us through this economic recovery phase and restore agriculture back to its former status as a primary economic sector for the Cook Islands.

Meitaki Ranuinui,

Hon. Vainetutai Rose Toki Brown
Minister for Agriculture.

INTRODUCTION

Many reviews of the Agriculture Sector have described the extensive changes that the sector has been through over the last 30 years. From a major export earner and employer to a sector struggling to sustain its commercial significance, agriculture faces many challenges to stay relevant in national socio-economic discussions.

There are however, encouraging signs that indicate a change in the perceptions about agriculture in the Cook Islands. This Agriculture Sector Action Plan 2020-2025 (ASAP), is an opportunity to capitalize on those 'green shoots' and support a revitalization in the sector.

As indicated in the Foreword, the finalization of this ASAP has coincided with the dramatic impact of Covid-19. This pandemic may delay the provision of support for some of the 'green shoots' but it has also led to the immediate implementation of some of the proposed activities. There is also an increased focus on the Agriculture Sector and the role that it can play in the Cook Islands post-Covid-19 economic recovery.

Setting the Policy Background

The Ministry of Agriculture (MOA) has over the last few years completed an integrated policy and planning framework built on the Strategic Agriculture and Food Sector Plan 2015. This Plan was conducted by the Food and Agriculture Organisation (FAO) and instigated the development of the MOA Strategic Plan 2017-20 and the Cook Islands National Agriculture Policy 2017-21. These documents have developed a vision, mission goals, and strategic objectives along with principles and values to guide the development of the Agriculture Sector. The three documents have also described the alignment to national policy frameworks such as the National Sustainable Development Plan (NSDP), and the consistency with the country's international agricultural commitments. The ASAP is based on these documents and also on the Ministry of Agriculture Capacity Assessment Report 2019, which made recommendations to improve the ability of the MOA to carry out its role and function.

The ASAP aims to operationalize the policy and planning framework by describing specific activities and initiatives that the industry can undertake over the next five years. The ASAP should be ambitious but realistic, while taking definite steps towards the sector vision of:

Healthy Soils,
Healthy Foods,
Local and Appropriate,
Sustaining our Common Livelihoods.

The ASAP will not reprise the sector analysis completed as part of developing the policy and planning framework set out in the documents mentioned above. The documents are important in describing the context of the ASAP and should be considered as precursors linked to the ASAP. Our relationship diagram below illustrates the National Sustainable Development Plan (NSDP) as our guide or compass, the Agriculture Strategy as our seeds, the Agriculture Policy as the soil and the ASAP as the planting.

Planning for the activities and initiatives that will be implemented as part of the ASAP will also include consideration of other cross-cutting policy documents. The Agriculture Sector is a key area in the Cook Islands response to the impacts of Climate Change. The Cook Islands Climate Change Policy 2018-2028, is designed to guide that response and to facilitate support for sector activities with a climate change rationale.

Figure One: Planning Relationship Diagram

The National Policy On Gender Equality And Women's Empowerment And Action Plan 2019-2024 has an outcome entitled Women's Economic Empowerment. Activities are described in an Action Plan and one of the indicators is: "Improved women's role/ knowledge and skills in agriculture and fisheries and traditional livelihood."

One of the issues facing the Agriculture Sector is the inability to recruit young Cook Islanders into the sector. There is an aging, predominantly male, farming community which in Rarotonga is supplemented by imported labour. The sector needs to be aware of how Gender roles influence the industry and look to develop programmes that broaden the participation of women in the sector.

The ASAP will also reflect the emerging Economic Development Strategy 2020-2030 (EDS). The EDS plans a change in the patterns of the Cook Islands economic growth by increasing the focus on qualitative aspects[1]. As will be seen further on in this plan, this complements the initiative to shift the sector to more agro-ecological based farm practices.

This document is a sector plan, which by nature must be broad in outlook. However, this plan also takes account of the unique agricultural situations on each island, and the significant difference between the Northern and Southern Groups agricultural applicability.

[1] Economic Development Conference Papers, Rarotonga, 15 November, 2019.

AGRICULTURE TODAY

The policy and planning framework referred to above, reflects the changing mindset around farming methodologies and what is appropriate for the Cook Islands set of circumstances. If the ASAP is going to contribute to moving the sector towards a more environmentally friendly and sustainable model, what is the baseline that any change will be measured against? We can describe the agricultural sector today by looking at how the sector is influenced by some key elements.

Production

Apart from those using hydroponic systems, there is very little crop specialisation by commercial growers. Many different fruit and vegetables are produced, with the selection of crops influenced predominantly by the season. Table One below describes the main or primary crops planted and the less common or secondary crops. Apart from the *noni*, all the agricultural production is being sold on the domestic market.

Table One: Crop Production

Food Group	Primary	Secondary
Vegetable	Capsicum, tomatoes, chinese cabbage, lettuce, cucumber.	Eggplant, watermelon, cabbage, corn, courgettes.
Fruit	Bananas, pawpaw, watermelon, oranges, pineapples, mango, coconuts.	Passionfruit, dragonfruit, lychee, avocado, *noni*, honeydew melon.

Source: Ministry of Agriculture, 2019.

In the Northern Group, land suitability, limited water resources and distance from market have restricted agricultural production to crops from home gardens, swamp *taro* and *puraka*, and small-scale hydroponic crops grown by the island Agriculture Office.

Livestock, which is mainly pigs, chickens and goats, is predominantly for domestic consumption and to provide for family events such as birthdays and weddings[2]. Eggs are also only sold domestically. The MOA has begun collecting data on livestock numbers, but this is mainly in the *Pa Enua*, with livestock data surveys for Rarotonga yet to be implemented.

Domestic Market

Up to March 2020, there was a growing tourism sector demanding more local produce than could be supplied. The FAO (2014)[3] paper estimated that based on tourist numbers of 121,207, there was a demand for approximately $1.6 million per annum of fresh fruit and

[2] FAO (2014), pg 15.
[3] Ibid, Table Two, pg 28.

vegetables[4]. The estimate was based on a selection of 12 vegetables and 6 fruit which excluded pawpaw, so this value will have been underestimated. However, averaging that figure out per tourist and applying the 2018 tourist arrivals figure of 171,086, would mean that the value of the tourism demand to the domestic market would now be approximately $2.3 million.

While most of this value is spent on Rarotonga and Aitutaki, nationally it is estimated that the Agriculture Sector contributed approximately 2% to the national GDP figure of $463.2 million in the 2016/17 FY, the most recent year that full GDP figures are available[5].

The growth in tourism is also affecting the availability of land for agricultural purposes. Land used for agriculture continues to decline, as tourist accommodation provides higher returns than agricultural use. Census reports indicate that from 6934 acres in 1988, by 2011 the area under cultivation for agriculture had shrunk to 2029 acres. This figure has not been further updated officially, but the MOA believes that the area under cultivation has continued to decrease. Through the Agintel programme, the MOA itself is now collecting data on agricultural land-use.

Figure Two: Punanganui Market, Rarotonga.

[4] Unless otherwise stated, all values are in New Zealand Dollars.
[5] MFEM (2019), pg 61,

Industry Participation

There are a small number of full-time commercial growers, with a much larger percentage of part-time and household consumption growers, especially in the *Pa Enua*. The 2016 Census reported that 24.4% of households operated land for agriculture purposes. This figure represents the full-time and part-time growers. More significantly, 49% of households were engaged in growing fruit or tree crops and gathering coconuts was done by 55.7% of households[6].

Prior to Covid-19, there was anecdotal evidence that the economic returns to growers were much improved. Despite this, employment numbers in the sector are not rising, and there is an aging workforce with little recruitment into the sector by younger Cook Islanders. On Rarotonga, commercial growers have imported labour to address this issue, but in the Pa Enua this approach is being resisted.

Table Two: Value of Cook Islands Agricultural Exports 2008-2018 (NZD '000s)

Year	Agricultural Product				
	Pawpaw	**Taro**	**Noni**	**Maire**	**Total Value**
2008	23			14	37
2009	8	5		18	31
2010	20	5		58	83
2011				84	84
2012				54	58
2013				16	16
2014			316	10	317
2015			379	11	390
2016			487	5	492
2017			1,028		1,028
2018			1,186		1,186

Source: Overseas Trade Statistics, MFEM

Exports

A total export value of agricultural products in calendar 2018 of $1,186,000 was based on the export of one product, *Noni* juice[7]. There are also unrecorded small exports of value-added agricultural products such as virgin coconut oil, vanilla beans and extracts, and *Tamanu*[8] seed oil.

Agricultural exports from the Cook Islands show a history of peaks and troughs by value and product. Table Two above illustrates only the last 10 years, but prior to that pineapples and oranges in the 1960s, copra in the 1970s, and bananas in the 1980s have gone through the same cycle.

[6] MFEM (2018)

[7] *Noni* is the Indian Mulberry.

[8] *Tamanu* is the Polynesian Mahogany.

Given the small amount of suitable land, producing sufficient crop volumes to meet international market demand will always be an issue. As well, many countries can produce the same crops in greater volumes and at a lower unit cost, resulting in lower selling prices. Consequently, the Cook Islands best opportunities lie in niche markets where volume and price are more flexible.

Agricultural Production Systems

The current method of agriculture in the Cook Islands is characterised by high input of chemical based fertiliser and pesticides, utilisation of heavy machinery and intensive tilling and ploughing. Environmental impacts from chemical use and soil run-off have been evident, along with a corresponding loss of biodiversity and a decline in the use of more resilient traditional agricultural practices such as planting swamp *taro*[9].

There is an increasing interest however, in more sustainable agro-ecological and organic practices. These practices focus on soil improvement and soil management techniques which include use of composted and organic matter, green manure, cover cropping, and identifying better suited machinery that will cause less soil compaction.

Currently, mains supplied water is available at no charge. This may be changing on Rarotonga as improvements are being made to the water infrastructure and Government evaluates applying fees for commercial usage of water from the mains supply.

Value-Adding

There is a large range of agricultural products which presently have some form of value-adding being done. Traditional activities such as drying bananas and making coconut oil have become commercial activities. Similarly, bottles of coconut sauce (*tai*) are sold daily through retail outlets. *Noni* fruit is being juiced and sold locally as well as being exported. Lettuce growers sell mixed bags for salad and many food items are cooked and sold domestically such as *rukau*[10], *maniota*[11] and *taro*.

Most of the value-adding is being done at an artisanal or small commercial level. However, two skin-care ranges have also been developed locally; based on traditional formulas, which are being exported.

Climate Change

At present the climate change impacts for the Cook Islands are predicted based on the rate of change under a high, medium and low scenario[12]. The impacts will occur, but the severity will depend on which scenario eventuates.

[9] The wetland taro is Colocasia esculenta

[10] The leaves of the taro plant

[11] *Maniota* is Cassava

[12] Australian Bureau of Meteorology & CSIRO, (2011).

These potential impacts are in several areas that affect agriculture.

- Annual average temperatures will continue to rise and there will be more extreme temperature events.
- There will be more extreme rain events resulting in more flooding. Cyclones are not predicted to increase in frequency but will become more intense.
- Average annual rainfall levels are projected to remain similar, but rainfall patterns will change with more frequent and more intense extreme rainfall days. Droughts will also be pro-longed.
- Changing temperatures will change the type of invasive pests that can survive and proliferate in the Cook Islands, leading to a broader range of crop diseases.
- Sea level rise will increase salinity of low-lying growing areas such as *taro* swamps around the coastal fringe of islands. Sea-level rise, salt spray and sea water intrusion have already impacted on agricultural activities on the low-lying atolls of the Northern Group.

Ministry of Agriculture

Often viewed as the poor cousin of the four main economic sectors[13]; as the agriculture industry has experienced hard times, so the MOA has also suffered. Annual appropriation increases have been mainly related to personnel costs and funding for new projects is reliant on donor assistance. The ministry has found it difficult to recruit employees with the requisite technical expertise or relevant experience and have been unable to take on new graduates.

The 2019-20 annual appropriation for the ministry is just over $1.3 million. Of this amount, 75% is for personnel costs for the 30 staff. The personnel were employed in five divisions which also corresponded to the five outputs: Crops and Research, Biosecurity, Advisory, Policy and Projects and Corporate Services. Following the completion of the Capacity Assessment, this was reduced to four divisions with Policy and Projects merged with the Corporate Services division.

The primary role that those working in the private sector of the agriculture industry see as the most important for the MOA is that of providing technical assistance. This is normally by providing advice to address crop issues, but has also included facilitating development of export-ready products or access to domestic and international markets.

Biosecurity is also seen by the industry as an important part of the service that the MOA provides. The impacts of globalisation, free trade and climate change create differing challenges and it is becoming more and more difficult to keep out invasive species.

The MOA is also the Cook Islands point of contact for several regional organisations with an interest in agriculture. The Food and Agriculture Organisation (FAO) and the Pacific Community (PC) can provide short-term technical assistance and funding assistance to develop capacity and to enable implementation of projects.

[13] The other three being tourism, marine resources and financial services.

Figure Three: Children Learning about Planting Taro[14]

Cultural Connection

Modern agriculture has become only about harvesting and taking from the land as efficiently as possible. 'Agri' means field or land and 'culture' is normally understood to mean: the cultivating or rearing of plants and animals. A different definition of culture is: the development or improvement by special attention to[15]. The pervasive view of agriculture as an economic activity has drawn Cook Islanders away from the cultural connection to the land. Rather than only harvesting or taking from the land, the approach should be to look at our relationship to the land and how as part of agriculture, we can feed and sustain the land.

This is not a new thought but is becoming more wide-spread and several groups are trying to re-new the cultural connection to the land, by including agricultural activities in culture-based school holiday programmes[16]. Regenerating the cultural connection also complements the qualitative approach to economic development and supports a shift to more agro-ecological based farming methods.

[14] Photo by Rongohiva

[15] Collins Compact English Dictionary, 1999, HarperCollins.

[16] Two Non-Government Organisations; Manava Ora and Korero o te Orau, have included these in school holiday programmes.

AGRICULTURE TOMORROW

If we were to put some detail to the sector vision, then what would the Agricultural sector look like in ten years time?

Our "Healthy Soils" would be achieved through a shift towards more agro-ecological farming practices with a reduced use of chemicals, a focus on soil management and improved soil nutrition. We would also see that the amount of land used for agricultural purposes has increased, largely in the *Pa Enua*.

With an increase in the percentage of home-grown produce that households consume, more wide-spread utilisation of home-composting and an improved profile for agriculture in the schools, we will have made significant progress towards "Healthy Foods". Moving the commercial sector to agro-ecological production methods and sustaining the campaign against invasive species will also support "Healthy Foods". Through the Biosecurity division, the MOA will have been part of a multi-sector approach to border protection.

Broadening the value-added range of products, supporting domestic value chains and establishing some international niche markets is a step towards "Local and Appropriate". This part of the vision, along with "Sustaining our Common Livelihoods" will also be achieved by the industry being more sustainable ecologically through changed production methods and more sustainable economically by having profitable businesses relative to their scale.

Improving the returns to the industry, making it more innovative and technologically smart will hopefully have increased local participation. A longer-term response of getting agriculture back into education has also stimulated interest in agriculture and reinforced the cultural link with the land.

On top of these we want the industry to improve resilience to climate change through adaptive methods and improved technology. The sector will also have come through a downturn in tourism by developing other options like niche market value chains and a broader value-added range of products.

The following Initiatives have been designed as the steps along the path towards the agriculture sector described above. They have been formulated based on existing programmes, activities previously identified in the planning documents, addressing the dominant Agriculture sector issues and moving the industry towards the vision. Each Initiative links to an Agriculture Policy goal and a Strategic Plan Objective.

An analysis was also conducted of the agricultural activities identified in the *Pa Enua* Island Business Plans which fed into the development of the Initiatives. The Initiatives go across the Rarotonga-Pa Enua divide and will be varied according to the MOUs with each island. Each Initiative has been linked to the MOA Strategic Plan objectives and the Cook Islands National Agriculture Policy goals.

Annex One and Two contain the individual activity costing for the Initiatives and a proposed funding timeline.

AGRICULTURE SECTOR ACTION PLAN INITIATIVES

Initiative Title: Improve Household Food Security.
Policy Goal: Strengthen household and national food security and nutrition.
Strategy Objective: A Partner of Choice.
MOA Division: Crop Research, Advisory Division.

Description: There is a substantial part-time and subsistence section of the agriculture sector in the Cook Islands. Under this Initiative, every household in the Cook Islands will be encouraged to grow some fruit or vegetables that will contribute to their household diet. Households should aim to have at least 10 species around their homes that will grow and produce with minimal input from the household e.g pawpaw, banana, coconut, lemon, *raparapa, rukau viti, oporo, vi kavakava,* avocado, breadfruit, mango.

The composition of the food crops may vary from island to island and between the Northern Group and the Southern Group as soil suitability and water availability will have to be taken into account. As an example, the use of hydroponic gardening is being actively promoted in the Northern Group by the MOA.

Focussing only on growing the products will not be enough and a broader approach needs to be utilised to encourage the households to participate. In partnership with Te Ipukarea Society[17] (TIS) and Korero o te Orau, educational programmes are already being implemented in some primary and secondary schools on Rarotonga and this can be used to support the household Initiative. Similarly, in the *Pa Enua*, the MOA has a role in the climate change PEARL project, which is focussed on school gardens, nurseries and water irrigation. These activities can assist in the implementation of this Initiative.

Another activity to improve uptake could be publishing simple recipes through an article in the newspaper and on social media. Use of the different stages of the products should be illustrated such as for pawpaw: green pawpaw curry, pawpaw salad, fresh pawpaw with lime juice. Linking with the *Tutaka* programme can be done to support maintenance of the home gardens.

Increasing the number of households that grow some part of the food they consume will have health benefits as the food is more nutritional and less processed and having home-grown products is also better for family budgets as the food bill will be cheaper. This Initiative will also help families to build resilience to disasters and to climate change and will encourage planting of long-term crops such as taro, kumara and kuru, to help maintain food security. Keyhole gardening is another model suited for the household.

The programme does not have to be solely for household consumption. If a family has a bumper crop, then they can sell their excess on the domestic market. This can assist the agriculture sector to address the supply deficit to the tourism industry.

[17] TIS is an environmental Non-Government Organisation.

Women will play a key role in the growing, harvesting and cooking of the various food plants. An MOU has been developed with the National Council of Women (NCW) to assist with the development of home gardens, which will complement this Initiative[18].

In many cases the household will be growing on land owned by themselves. This is an opportunity to encourage our people to re-connect with the land. Promotion of the *arapo*, retaining practices such as burying the afterbirth and planting on top, continuing the linkage with programmes such as those run by Korero o te Orau, can help with efforts to revive the cultural connection.

Table Three: Improve Household Food Security Initiative Supporting Activities

Activity	**Activity Detail**
Educational and media campaign to support programme for homes and schools.	Develop an educational programme for schools to complement the existing schools programme. Also develop a media campaign to support implementation, promote the use of home-grown produce, promote arapo, develop recipes, encourage village competitions.
Provision of Technical Advice	Offer courses in pruning and composting to support the activity at MOA or CITTI. Keyhole gardening demonstrations carried out.
Nursery and Plant Propagation	Expand the nursery operations and grow seedlings for distribution to households. Co-ordinate with the *Pa Enua* nurseries.
Monitoring Implementation	MOA staff join in the Tutaka and Vaka Pride campaigns to provide advice and monitor progress.

Potential Activity Partner Agencies: MOH, Climate Change Office, MOE, Korero o te Orau, CITTI, NCW, TIS, Te Tango Enua[19].

Funding: The total cost for the activities in this initiative is estimated at $485,000. The major item in this amount is the expansion of the nursery.

[18] MOA is waiting for the NCW Executive to approve prior to both parties implementing.

[19] Te Tango Enua is a farmer's association on Rarotonga.

Figure Four: School Garden in Pukapuka

Initiative Title: Innovation and Technical Support.
Policy Goal: Improve production through science, research, technology and the sustainable practices.
Strategy Objective: Delivering Ministry Service Excellence.
MOA Division: Crop Research, Corporate, Advisory.

Description: In order to sustain the current economic prosperity, the Cook Islands agriculture sector must become more innovative and more adaptable to a constantly changing socio-economic and physical environment. Utilising technology as a tool to improve production and processing techniques needs to become more commonplace. In the absence of private sector research facilities, the MOA has to take the lead in introducing and testing relevant technology and providing the technical support to the agriculture sector.

Implementing a change in growing methods to incorporate agro-ecological techniques will be a significant undertaking. Land will have to be leased for demonstration plots, probably situated in the *Pa Enua.* Study tours and workshops can be carried out, and distribution of articles and media clips, sourcing of appropriate machinery and equipment are some activities that can also be undertaken. Commercial, part-time and subsistence producers should all be encouraged to adopt the agro-ecological approach.

The potential impacts of climate change on the agriculture sector are well-documented and activities to increase resilience in the sector through the introduction of improved crop varieties has already begun. This pro-active approach should be expanded as part of a targeted research programme to test other activities that can improve climate change adaptation. Assessing better water management to combat prolonged drought periods, adopting less impactful farm practices such as agro-ecology, and utilising covered production methods such as hydroponics, are possible activities.

The utility of a national brand should also be explored. The Cook Islands pearl industry has successfully employed the use of a national brand to drive both domestic and export sales. The fishing industry is currently evaluating how a national brand could work for the tuna fishery and the agriculture industry can also conduct their own assessment of the usefulness of a Brand Cook Islands. Conversations with agriculture businesses indicate that a well-managed brand could support Cook Islands products in both the domestic and the international market. The initial activity would be a discussion document to discuss the parameters of the brand, identify costs, and canvass a broader cross-section of the sector for their views.

Technical support to the sector should not only be in the form of production advice. Financial management support (FMS) is also required in the sector and the MOA can develop a financial network to support producers, processors, and exporters of agricultural products. The network can include access to low interest loans such as that offered by BTIB, financial planning advice, information on pricing structures for domestic and international markets and specialist agri-business mentoring. The MOA does not have to provide the support from in-house, but should have the network in place to be able to source the financial management support as required.

Being able to access data to inform decisions is essential to the development of any sector. Good data collection is also necessary for planning, implementing, monitoring and reviewing projects. The MOA needs to expand their present data collection to gather a wide range of information, analyse it and distribute it to the relevant areas of the sector. Establishing industry benchmarks through accurate and timely data will be an important aspect of measuring the outcomes of this plan.

Organically produced goods are becoming more popular with consumers and the range of available food products is expanding. Organic farming is still in its early stages in the Cook Islands and the MOA can explore opportunities to encourage its development. Becoming part of the authentication process of organic Cook Islands agricultural products would be a good fit with the MOA's present functions.

Table Four: Innovation and Technical Support Initiative Supporting Activities

Activity	**Activity Detail**
Promote Agro-ecological farming methods	Workshops, tours, demo plots in *Pa Enua*, publications distributed, appropriate machinery identified, targeting commercial & part-time growers.
Improving Climate Change Resilience	Expand crop bank, promote water management techniques and links to agro-ecology, targeted research programme.
Supporting Organic Farming Development	Support authentication process.
Usefulness of Agricultural Brand Evaluated	Develop a discussion document to look at the parameters of a brand, identify costs, and canvass a broader cross-section of the sector for their views.
Financial Management Support	Developing a financial network to support domestic producers, processors, exporters of agricultural products.
Data Collection Expanded	Data collection on present state of industry and activity specific data, trend analysis, production volumes before harvest, quantifying local demand, presentation and distribution of data.

Potential Activity Partner Agencies: Climate Change Office, Natura Kuki Airani, BTIB, BCI, NZ Research Institutes, FAO, Statistics Office.

Funding: The estimated total cost for this Initiative is $240,000, which is mostly for the activities around expanding the data collected, promoting the shift to agro-ecological farming methods and improving the climate change resilience of the sector. The latter two of these activities are being assessed for funding through the Climate Change Office.

Initiative Title: Expanding the Range of Value-Added Products.
Policy Goal: Increasing incomes from improved labour substituted technologies, food processing quality, food safety and market efficiency and trade.
Strategy Objective: A Partner of Choice.
MOA Division: Corporate, Advisory, Biosecurity, Crop Research.

Description: The economic benefits to the agricultural sector of developing value-added products are well established. Percentages of saleable product can be increased to generate higher returns for the producer. More jobs can be created in-country and the potential for higher value exports can also be realised.

Value-adding of food crops is already being carried out on a range of fruit and vegetables, but predominantly at the artisanal level. Cosmetic oils, chutneys, jams, dried fruit, vegetable chips and handicrafts are some of the small-scale value-added products being sold predominantly on the domestic market. Noni juice however, is being exported and there is also some export of skincare products.

Given the significant differences between the domestic and export markets, a two-tier approach should be utilised under this initiative. If the small-scale producers wish to expand, support to develop their existing value chains can be implemented. More basic processing can be carried out in the *Pa Enua*, and links to the Rarotonga market strengthened. As an example, pig growers on Atiu are exploring the domestic market for sending pork products to Rarotonga.

Figure Five: Value-added Products from Atiu.

A second level will be the assistance to further develop the export capability of existing and potential exporters. Existing exporters need technical advice and assistance to open up new high-value markets such as Japan. Advice on packaging, branding, and meeting importing country Biosecurity requirements are some issues that have been highlighted.

Improving the ability of local businesses to promote and market their value-added products domestically and internationally, should be a focus under this initiative. Links to external advisors can be facilitated by the MOA for local businesses which require specialist advice, particularly in areas that will assist the business to develop an export market for its product.

The popularity of coconut products is driving a boom in the number of different value-added coconut products available commercially. The MOA should evaluate the viability of conducting some simple processing of coconut products, including the purchase of a dryer. Reaching a competitive price point for the international market may be difficult, but supplying the domestic market could be achievable. If there is a positive assessment, then the activity can be expanded to growth trials of different coconut varieties.

Table Five: Expanding the Range of Value-Added Products Initiative Supporting Activities

Activity	**Activity Detail**
Domestic market value chain development	Identification of the availability of products by island and season, cluster building, establishing links to market on Rarotonga for *Pa Enua* producers. Providing information to growers (market capacity, pricing, buyer list). Support expanding of basic processing in *Pa Enua* through workshops to broaden the range of products, evaluate portable abattoirs, as well as exploring the use of a brand.
Export market analysis and protocol development	Seasonal international market prices information, logistics, introductions to buyers, building of clusters for commercial and small-scale growers, facilitating meeting importing country requirements.
Coconut Products	Analysis of potential simple value-added coconut products. Expand to growth trials in second year.
Promotion and marketing Support for Existing Businesses	Recruit to fill new position. Links to experts, business planning, for domestic and international market.

Potential Activity Partner Agencies: FAO, SPC, BTIB, Statistics Office, Pacific Trade and Invest, Chamber of Commerce.

Funding: Total funding for this Initiative is estimated to be $360,000. Recruitment of an individual to work in the Corporate Division is required to support implementation.

Initiative Title: Commercial Grower Support.
Policy Goal: Increasing incomes from improved labour substituted technologies, food processing quality, food safety and market efficiency and trade.
Strategy Objective: A Partner of Choice and Empowered Farmers taking Ownership.
MOA Divisions: Crop Research, Advisory, Biosecurity,

Description: There are few planters operating at a full-time commercial scale but they produce approximately 70% of the domestic supply of fruit and vegetables. While they tend to be the most independent, supporting the development of this group of growers is central to the development of the agriculture sector.

Based on a recent survey of the Rarotonga based commercial growers, the most important assistance that the MOA can provide them with is to provide research and technical advice. Other desired assistance was: to provide nursery services, to provide information on markets, the provision of funding assistance, and the maintenance of strong Biosecurity.

The Rarotonga airport and harbour and the Aitutaki port are the highest cargo traffic areas in the Cook Islands. The facilities at these entry points need to be up-graded in order to support the Border Protection functions.

In the *Pa Enua*, the commercial growers emphasised access to appropriate machinery, training and education opportunities, the provision of seedlings, and domestic market development as the areas that they would like more support from the MOA.

Figure Six: Ministry of Agriculture Nursery, Rarotonga.

There are some specialist crop producers who concentrate on single crops such as hydroponic lettuce or noni, but the majority of the commercial growers are producing a variety of crops depending on the season. The staple crops are pawpaw, bananas and watermelon, but noni, coconuts, tomatoes, capsicum, oranges, mandarins, breadfruit and passionfruit are also popular.

The commercial growers have the most potential to be part of the development of export niche markets. Part of that development will be the identification of necessary volumes to exploit those markets and if required, the building of clusters of interested growers. Stimulating the creation of the clusters can be led by MOA in the first instance, but as the relationships to the market are established, the role of the MOA can then be focussed on technical advice.

Similarly, expanding the range of value-added agricultural products can have spin-off benefits for the commercial growers. They may be able to supply the raw fruit or vegetable or directly participate in making the value-added product.

The participation of commercial growers in the change to agro-ecological production methods and the building of a more climate resilient sector will be a key element in the implementation of those two activities.

Table Six: Commercial Grower Initiative Supporting Activities

Activity	**Activity Detail**
Nursery and Plant Propagation	Expand nursery operations, separate area for ornamental plants/ floriculture, grow seedlings for sale to commercial growers, co-ordination with *Pa Enua* nurseries.
Provision of Technical Advice	Provide support to commercial growers on disease, pests, agro-ecology, modern farming methods, organic farming.
Border Protection	Improve facilities at Rarotonga Airport and Harbour. Conduct needs assessment to upgrade Border security in Aitutaki.
Promote Agro-ecological farming methods, Improving Climate Change Resilience, Domestic market value chain development, Export market analysis and protocol development.	Commercial growers will participate in these activities, but the detail of the activity is described in the above Initiatives.

Potential Activity Partner Agencies: Climate Change Office, BTIB, EMCI, Pacific Trade and Invest, Chamber of Commerce.

Funding: The total estimated cost for the activities in this initiative is $1,395,000. Within this amount, the upgrading of facilities for the Border Protection activity is estimated at $1,250,000. As Table Six indicates, activities in three of the other Initiatives also support commercial grower activity. The estimated value of these other activities is $290,000.

Initiative Title: Development of Niche Market Products.
Policy Goal: Increasing incomes from improved labour substituted technologies, food processing quality, food safety and market efficiency and trade.
Strategy Objective: A Partner of Choice.
MOA Division: Advisory, Biosecurity, Crop Research

Description: The Agriculture Sector presently produces many different seasonal fruit and vegetables which are small in volume but are higher value. They are niche market products and are only sold domestically. Growers in the *Pa Enua* have requested assistance to establish domestic markets for crops such as dragonfruit and *tiporo,* and some of these higher-value products also have export potential, which is at present unexplored.

The emphasis in the niche market initiative will be on supporting the development of whole, unprocessed products (fruit, vegetables, livestock[20]) which can generate higher returns to the producer. Dragonfruit, lime, courgettes, ginger, turmeric, and vanilla all have the potential to develop some export niche markets.

Livestock are generally cared for to meet the needs of the household and for special events. Producers on Atiu however are exploring the domestic market by sending pork to Rarotonga.

Interest in beekeeping has surged recently, driven by the increase in retail prices for honey. Supporting the expansion of honey production, particularly in the Northern Group, also has the added benefit of improving pollination rates for other crops.

The activities to develop domestic value chains for value-added products will also benefit the niche market products. There will be different logistical requirements as the niche market products will be fresh, but most of the other aspects of the value chain will be the same.

With the domestic demand for agricultural produce being so high, there is very little interest in developing export markets. However, there are some good reasons for establishing the linkages to export markets. Demand from the tourism industry may not always be this healthy, so having a small export market develops a back-up for the local producers. A second reason is that if the linkages are in place, producers may be able to quickly exploit seasonal shortages in some products in our closest markets. A recent case was the shortage of limes in New Zealand.

Table Seven: Development of Niche Market Products Initiative Supporting Activities

Activity	Activity Detail
Domestic market value chain development	As previously described above but for whole unprocessed products.
Export market analysis and protocol development	As previously described above but for whole unprocessed products.

[20] Livestock includes pigs, goats, cows and chicken.

Technical Advice on Bees and Livestock	Workshops, surveys, sourcing medicines for livestock and supporting *Pa Enua* activities to develop markets.

Potential Activity Partner Agencies: FAO, BTIB, Statistics Office, Pacific Trade and Invest, Chamber of Commerce.

Funding: The total cost for this Initiative is estimated at $140,000 and is to support the provision of technical advice and the purchasing of livestock medicines.

Figure Seven: Capturing Wild Bees for Stock

Initiative Title: Ministry of Agriculture Capacity Building.
Policy Goal: A United Agricultural Sector aimed at Growing the Industry and Developing Human Resource Potential.
Strategy Objective: Delivering Ministry Service Excellence.
MOA Division: Corporate, Advisory

Description: The implementation of the recommendations of the 2019 MOA Capacity Assessment should be coordinated with the implementation of the ASAP. Some of the CAP recommendations are included as activities in the other five initiatives but the continuing development of the capacity of the MOA will be supported primarily in this initiative.

The MOA has to become more adaptable to deal with the demands of a changing sector. Technical advice is their main mandate and carrying this out entails keeping up with the latest developments in agricultural research and technology and having the networks to facilitate industry requests.

A workforce plan has been completed to identify the human resource needs to support the advisory role of the MOA. Short term recruitment options may also be required to enable project implementation. This should be combined however with a longer-term option to build capacity in the sector by supporting agriculture in the schools, having internships available to the private sector, and funding agricultural tertiary scholarships.

Funding for capital purchases also needs to be identified. Computer hardware and software, and appropriate plant and equipment for the next five-year period will be required to support the MOA in implementing the ASAP.

Table Eight: Ministry of Agriculture Capacity Building Initiative Supporting Activities

Activity	Activity Detail
Agriculture in Education	In Partnership with the MOE, expand agricultural scholarships, develop intern programme, primary/secondary school programmes.
Capital Purchases	Hardware, software, plant and equipment needs for expanded technical/advisory role.
Short-term Recruitment	Recruit short-term to initiate projects e.g. value chain expert, branding consultant, data collection communications expert.

Potential Activity Partner Agencies: OPSC, MOE, FAO, TIS.

Funding: The total cost for this initiative is estimated to be $650,000. This is largely based on a budget for capital purchases of $320,000 over the five-year period.

IMPLEMENTATION

The lead agency for implementing the sector action plan is the Ministry of Agriculture. They will however partner with other government and non-government agencies involved on different activities.

The MOA has an annual business plan which identifies outputs that the ministry must produce with the funding it receives from Government and donors. The ASAP has to merge into this existing planning framework for the MOA, as creating a separate implementation schedule and work-plan may cause confusion. Accordingly, the Initiatives are linked to the present outputs.

The Initiatives described above are a mix of new activities and adapted existing activities, making it simple for the MOA to take an activity and insert it into their annual business plan. Or, if donor funding is required, to develop a concept note or project proposal around the activity. The Initiatives will be staggered and introduced over the first two years of the plan.

The Initiatives are not independent of each other and implementation of one will have cross benefits for the other Initiatives. The ASAP is also not an exhaustive list of activities and there are other activities that the MOA will continue to carry out. The MOA and the sector must also remain flexible enough to respond to unforeseen challenges and opportunities that will emerge over the next five years.

Funding

An estimate of the costs for implementing the ASAP has been included in the Activity Table contained in Annex One. At this stage, this figure is approximately $3,270,000 and can be summarised as:

Capital Purchases:	Border Protection Facilities	$1,250,000
	Machinery	$ 250,000
	Computer Software/Hardware	$ 130,000
	Nursery Expansion	$ 400,000
		$2,030,000
Personnel:		$ 300,000
Activity Operations:		$ 705,000
Technical Assistance		$ 235,000
		$3,270,000

In the Funding Sources Chart below, 75% ($2,455,000) of the funding will come from Donors and contact has already been initiated with potential donors for some activities. The Private Sector will contribute 2% ($50,000) of the funding for activities through a cost recovery process such as for authentication of source or seedling purchase. The MOA will provide 23% ($765,000) of the funding, and most of this is through present annual appropriation.

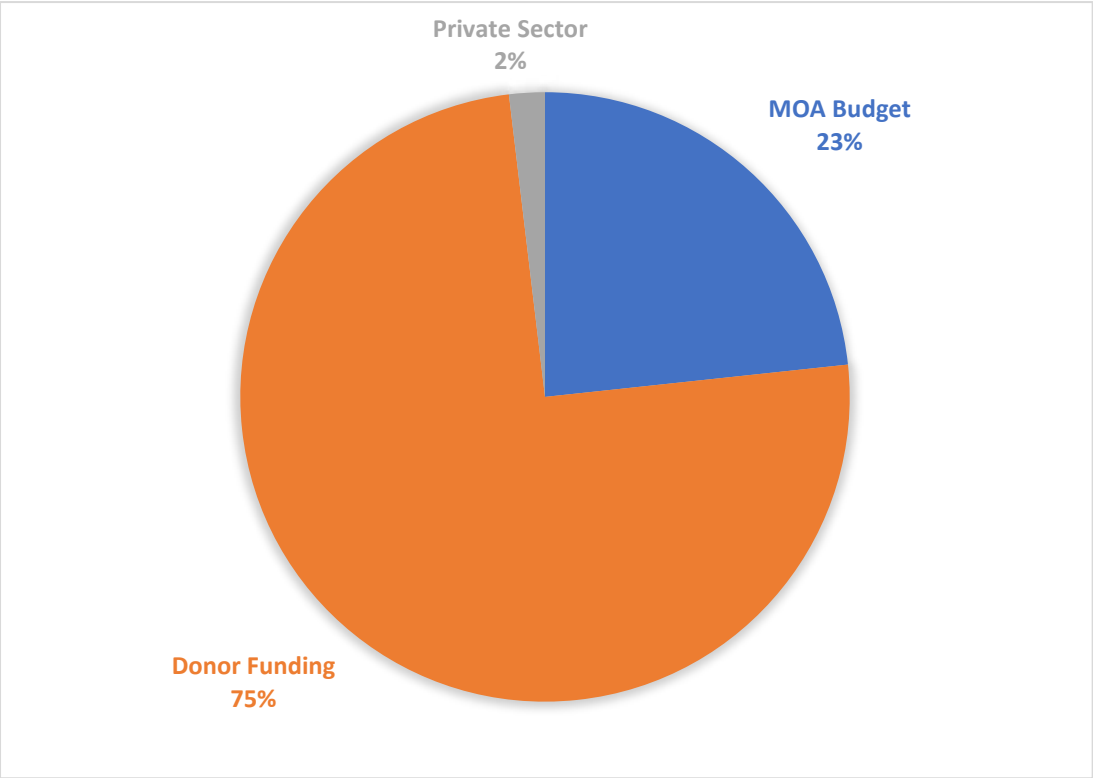

Figure Eight: Agriculture Sector Action Plan Funding Sources

Implementation Risks

As more detail is added to the activities, then specific barriers and issues that may affect implementation, will be discussed. More generally however, the capacity issues of the MOA and in the sector will influence achieving the outcomes of the initiatives. Funding limitations are also a consideration, but by dovetailing the proposed initiatives with existing activities, and identifying potential donors, it is expected that this limitation can be ameliorated. Land availability can be addressed by looking at the *Pa Enua* for demonstration plots and utilising their nurseries.

Developing export markets for niche and value-added products will be affected by external factors such as market demand and importing country requirements. Both of these are challenges that can be met through initially testing the market and maintaining good systems.

Weather is always a consideration in agricultural activities, and the impacts of climate change will add to that risk. Planning of the activities must be based on an awareness of the impacts.

Monitoring and Reporting

Monitoring the implementation of the ASAP will be the responsibility of the MOA. Reporting will be done as part of the six-monthly and Annual Report for the ministry and if donor funding is included then specific project reporting will be required.

Our vision for the Agricultural sector is based on a 10-year horizon, but the effort should be made in two five-year blocks of which this ASAP is the first part. By 2025, the progress of the initiatives will be clear, and a second five-year plan can be set out. Data collection improvements by the MOA will be important to measuring the outcomes of the initiatives and to adapting or changing the activities for the second five years.

Figure Nine: Aitutaki Growers Consultation

CONCLUSION

The document review and the consultations undertaken as part of the activities for the ASAP highlighted five main areas of concern for the sector:

- food security and nutrition and linkage to health and economy,
- shifting from old to new methods and agro-ecology,
- developing exports to build resilience for the sector,
- meeting domestic demand and,
- recruitment to the industry.

The ASAP Initiatives and the Activities that underpin them have been designed to address these concerns and to build on the work already completed for the previously completed planning documents.

Essentially, the ASAP is about support. The private sector are the drivers of development in the industry. The MOA should focus on research and technical advice and strategic thinking about the future. An example is if tourism slows, what programmes can be put in place now to support growers. Strategic thinking will also involve helping growers to adapt to the impacts of climate change.

There is a need to build flexibility into the industry to enable it to adapt to changing circumstances and unforeseen opportunities. To become technologically savvy, but without losing our traditional knowledge and base which links us to the land.

On one level, the market ultimately will determine the success of the industry, but there is also the household agricultural activity which needs to be supported. The agricultural activities in this area have an economic relevance but are more important to community health and building resilience to climate change.

The Initiatives are not all that the sector has to do and there are other activities that the MOA and the growers will continue to implement. The focus of the ASAP instead has been about aligning existing and new activities to drive outcomes in some specific areas.

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Annex One: Agriculture Sector Action Plan Activity Table

MOA Outputs	Output Activity	Activity Detail	Initiative	Activity Status	Cost Estimate	Funding Source
					(over 5 years)	
Advisory	Educational support programme for homes, schools	Develop educational programme for schools, develop media campaign to support roll-out, promote use of home-grown produce, promote arapo, develop recipes, village competitions	Improve Household Food Security	Existing	$45,000	MOA
Advisory	Monitoring Implementation	Join in Tutaka, Vaka Pride	Improve Household Food Security	New	$10,000	MOA
Crop Research/Advisory	Provision of Technical Advice	Offer courses in pruning, marcotting, composting and worm farms to support programme.	Improve Household Food Security	Existing	$30,000	MOA/MOE/TIS
Crop Research	Nursery and Plant Propogation	Expand nursery operations (hardware, equipment), area for ornamental plants and floriculture, grow seedlings for distribution, review pricing structure or get donor assistance, co-ordination with Pa Enua.	Improve Household Food Security	Existing	$400,000	MOA/Donor/Private Sector
					$485,000	
Crop Research	Promote Agro-ecological farming methods	Workshops, tours, demo plots in Pa enua, publications distributed, appropriate machinery, commercial & part-time growers	Innovation and Technical Support	New	$40,000	Climate Change
Crop Research	Climate Resilience	Expand crop bank, water management techniques, agro-ecology links, targeted research programme, training staff	Innovation and Technical Support	Existing	$60,000	Climate Change
Crop Research	Organic Farming	Support authentication process,	Innovation and Technical Support	Existing	$20,000	Donor/Private Sector
Corporate	Brand development	Confirm required parameters, authentication, costs, promotions, introducing domestic and international brand, dovetailing with individual island brands.	Innovation and Technical Support	New	$30,000	Donor/SPC
Corporate	Financial Management Support	Developing a financial network to support producers, processors, exporters of agricultural products.	Innovation and Technical Support	New	$20,000	MOA/Island Governments
Corporate/Crop Research/Advisory	Data Collection Expanded	Data collection on present state of industry and activity specific data, trend analysis, production volumes before harvest, quantifying local demand, produce and distribute data. Includes training and GIS Mapping software/hardware, agriculture census	Innovation and Technical Support	Existing	$70,000	Donor/SPC
					$240,000	
Crop Research/Advisory	Domestic market value chain development	Availability of products by island and season, cluster building, distribute on Rarotonga, quality controls, field day, packaging, feed data collection to growers (market capacity, pricing, buyer list), expand basic processing in Pa Enua, workshops to broaden the range of products, use of brand, portable abattoirs	Expanding Range of Value-added Products	Existing	$130,000	MOA/SPC
Crop Research Advisory/Biosecurity	Export market analysis and protocol development	Seasonal market prices information, logistics, introductions to buyers, building of clusters for commercial and small-scale growers, facilitating meeting importing country requirements,	Expanding Range of Value-added Products	Existing	$60,000	MOA/SPC/MPI
Crop Research/Advisory	Coconut Products	Analysis of potential simple value-added coconut products	Expanding Range of Value-added Products	New	$50,000	Donor/SPC
Corporate	Promotion and Marketing Support for Existing Businesses	Recruit person to fill position. Provide links to experts, business planning,	Expanding Range of Value-added Products	New	$120,000	MOA
					$360,000	
Crop Research	Nursery and Plant Propogation	As above, seedlings to support commercial growers, ornamentals and floriculture.	Commercial Grower Support	Existing	$100,000	MOA
Crop Research	Provision of Technical Advice	Support provided to commercial growers on disease, pests, agro-ecology, modern farming methods, organic farming.	Commercial Grower Support	Existing	$45,000	Donor
Crop Research	Promote Agro-ecological farming methods	As above, promoting benefits to commercial growers.	Commercial Grower Support	New	As above	Climate Change
Crop Research	Climate Resilience	As above	Commercial Grower Support	Existing	As above	Climate Change
Crop Research/Advisory	Domestic market value chain development	As above	Commercial Grower Support	Existing	As above	MOA
Crop Research Advisory/Biosecurity	Export market analysis and protocol development	As above	Commercial Grower Support	Existing	As above	MOA/SPC/MPI
Biosecurity/Crop Research	Border protection	Improve Rarotonga entry point facilities (Airport/Harbour). Technical Assistance for Aitutaki border protection analysis.	Commercial Grower Support	Existing	$1,250,000	MOA/Donor
					$1,395,000	
Crop Research/Advisory	Domestic market value chain development	As above	Development of Niche Market Products	Existing	As above	MOA
Crop Research Advisory/Biosecurity	Export market analysis and protocol development	As above	Development of Niche Market Products	Existing	As above	MOA/SPC/MPI
Advisory	Technical Advice on Bees and Livestock	Workshops, surveys, purchasing medicines	Development of Niche Market Products	Existing	$140,000	MOA/SPC/FAO
					$140,000	
Corporate/Advisory	Agriculture in Education	Expand agricultural scholarships, develop intern programme, primary/secondary programmes	MOA Capacity Building	Existing	$150,000	MOA/Donor
Corporate	Capital Purchases	Hardware, software, plant and equipment needs for expanded technical/advisory role	MOA Capacity Building	New	$320,000	MOA/Donor
Corporate	Short-term Recruitment	Recruit short-term to initiate projects e.g. value chain expert, branding consultant, data collection, communications expert	MOA Capacity Building	New	$180,000	Donor
					$650,000	
			Total Funding estimated over Five Years		**$3,270,000**	

NB: Existing Activity Status indicates that some part of this activity is already being carried out by the MOA.

Annex Two: Agriculture Sector Action Plan Funding Timetable

Initiative	Activity	Cost Estimate	Year One	Year Two	Year Three	Year Four	Year Five	Total
Improve Household Food Security	Educational support programme for homes, schools	$45,000	15000	5000	10000	5000	10000	45000
	Monitoring Implementation	$10,000	2000	2000	2000	2000	2000	10000
	Provision of Technical Advice	$30,000	15000	0	10000	0	5000	30000
	Nursery and Plant Propogation	$400,000	200,000	0	100000	0	100000	400000
	Improve Household Food Security Total	**$485,000**						485000
Innovation and Technical Support	Promote Agro-ecological farming methods	$40,000	30000	0	5000	0	5000	40000
	Climate Resilience	$60,000	20000	20000	0	20000	0	60000
	Organic Farming	$20,000	5000	5000	5000	0	5000	20000
	Brand development	$30,000	15000	10000	0	5000	0	30000
	Financial Management Support	$20,000	10000	0	5000	0	5000	20000
	Data Collection Expanded	$70,000	5000	5000	50000	5000	5000	70000
	Innovation and Technical Support Total	**$240,000**						240000
Expanding Range of Value-added Products	Domestic market value chain development	$130,000	60000	60000	0	5000	5000	130000
	Export market analysis and protocol development	$60,000	20000	20000	20000	0	0	60000
	Coconut Products	$50,000	25000	25000	0	0	0	50000
	Promotion and Marketing Support for Existing Businesses	$120,000	40000	40000	40000	0	0	120000
	Expanding Range of Value-added Products Total	**$360,000**						360000
Commercial Grower Support	Nursery and Plant Propogation	$100,000	20000	20000	20000	20000	20000	100000
	Provision of Technical Advice	$45,000	15000	0	15000	0	15000	45000
	Promote Agro-ecological farming methods	As Above						0
	Climate Resilience	As Above						0
	Domestic market value chain development	As Above						0
	Export market analysis and protocol development	As Above						0
	Border protection	$1,250,000	500000	500000	250000			1250000
	Commercial Grower Support Total	**$1,395,000**						1395000
Development of Niche Market Products	Domestic market value chain development	As above						0
	Export market analysis and protocol development	As above						0
	Technical Advice on Bees and Livestock	$140,000	80000	40000	0	20000	0	140000
	Development of Niche Market Products Total	**$140,000**						140000
MOA Capacity Building	Agriculture in Education	$150,000	50000	0	50000	0	50000	150000
	Capital Purchases	$320,000	150000	100000	30000	20000	20000	320000
	Short-term Recruitment	$180,000	60000	0	60000	0	60000	180000
	MOA Capacity Building Total	**$650,000**						650000
	TOTALS	**$3,270,000**	**1337000**	**852000**	**672000**	**102000**	**307000**	**3270000**

Annex Three: Agriculture Sector Action Plan Initiative Outcomes and Measures

Improve Household Food Security

Activity	Outcome	Measure
Educational and media campaign to support programme for homes and schools.	Educational support programme and media campaign developed and implemented. Recipes created and use of home-grown produce promoted.	Number of media placements locally, number of social media likes. Number of recipes published, survey of households conducted, village competitions held.
Monitoring Implementation	Join in *Tutaka,* Vaka Pride.	Data obtained on number of households with 10 or more food plants.
Provision of Technical Advice	Support provided to schools and households.	Input provided to CITTI courses; number of times assistance provided to households; number of demonstrations.
Nursery and Plant Propagation	Nursery facilities and operations expanded. Seedlings distributed.	Nursery expansion completed and number of plants produced increases. Number of food plants distributed to households.

Innovation and Technical Support

Activity	Outcome	Measure
Promote Agro-ecological farming methods	Growers adopt agro-ecological methods.	Number of workshops held; number of people attending; demonstration plots created; machinery sourced.
Improving Climate Change Resilience	Sector becomes more climate change resilient. Targeted research programme.	Crop bank varieties increased and utilised by sector. Research programme conducted to test other climate change adaptation strategies.

Supporting Organic Farming Development	More organically grown products available.	Organic authentication process put in place.
Brand Development	Discussion paper circulated to confirm required parameters.	Decision made to proceed or not.
Financial Management Support	Improved financial advice and resources available for the sector.	Financial management support network created.
Data Collection Expanded	More timely and accurate information available to MOA and the sector.	Improved and increased data produced and distributed.

Expanding the Range of Value-Added Products

Activity	**Outcome**	**Measure**
Domestic market value chain development	Improved market links within the Cook Islands. Increase in range of value-added products available domestically. Market demand and supply information available to producers.	Producer satisfaction measured by surveys. Increase in number of different value-added products. Data collected and distributed to sector.
Export market analysis and protocol development	Importing country bio-security protocols developed. International market information assembled. Wider range of products exported.	Increase in number of protocols developed. Market information distributed. Export statistics.
Coconut Products	Analysis of potential simple value-added coconut products	Analysis completed
Promotion and marketing Support for Existing Businesses	Issues for local businesses addressed.	Links to experts facilitated.

Commercial Grower Support

Activity	Outcome	Measure
Nursery and Plant Propagation	Expansion of nursery services. Co-ordination of *Pa Enua* nurseries. Support provided to commercial growers.	Numbers of plants produced increases, land leased on Rarotonga for expansion *Pa Enua* nurseries meeting island requirements Number of plants purchased by commercial growers increases.
Provision of Technical Advice	Technical Advice provided to commercial growers.	Number of requests from Growers, advice provided within three days of request, survey of grower satisfaction.
Border Protection	Project to improve Rarotonga facilities implemented.	Facilities improved; needs assessment conducted.
Promote Agro-ecological farming methods, Improving Climate Change Resilience, Domestic market value chain development, Export market analysis and protocol development.	Commercial growers participate in these activities.	Number of commercial growers participating in activity.

Development of Niche Market Products

Activity	Outcome	Measure
Domestic market value chain development	Improved market links within the Cook Islands. Increase in range of niche products available domestically. Market demand and supply information available to producers.	Producer satisfaction measured by surveys. Increase in number of different niche products. Data collected and distributed to sector.

Export market analysis and protocol development	Importing country bio-security protocols developed. Wider range of products exported.	Increase in number of protocols developed. Export statistics.
Technical Advice on Bees and Livestock	Bee-keeping advice provided Livestock surveys Sourcing livestock medicines Supporting *Pa Enua* activities	Training Workshops conducted Surveys conducted Medicines purchased Products sent to Rarotonga

Ministry of Agriculture Capacity Building

Activity	**Outcome**	**Measure**
Agriculture in Education	Agricultural scholarships available Intern programme developed Primary/secondary school programmes continued.	Number of scholarships awarded Number of interns attached to MOA Number of schools participating increases.
Capital Purchases	Equipment needs for expanded technical/advisory role are met.	Hardware, software, plant and equipment purchased.
Short-term Recruitment	Required skills for specific projects are sourced.	Number of positions filled by short-term recruitment; number of projects implemented utilising these personnel.

Annex Four: Agriculture Sector Action Plan Activity Inputs

Input	Activity Detail
Training	Crop Research division staff on agro-ecological methods
	Pa Enua staff to identify, conserve, document and distribute climate resilient/tolerant materials
	Organic farming techniques
	Biosecurity unit in use of new facilities and equipment
Capital Purchases	Nursery upgrade seedlings and materials, land lease.
	Educational programme – small machinery and garden tools
	GIS Mapping software/hardware
	Livestock medicines
	Building of Biosecurity facility at the airport and harbour.
	Offshore Clearance Vessel for Aitutaki Biosecurity
	Incinerator for Aitutaki Biosecurity
	Biosecurity Rarotonga Operations Vehicle
	Biosecurity - Hardware for ASYCUDA/DATABASE (Tablet, Computer etc)
	Tractor
	Multi-use ploughing/tilling equipment
Technical Assistance	FAO on livestock survey
	Aitutaki Port Biosecurity Needs analysis
	Climate resilience support
	Agro-ecological farming methods consultant
	Organic farming consultant
	Brand development consultant
	Data collection and analysis
	Export Market Development
Personnel	Promotion and marketing support
	Financial management network creation

Annex Five: Consultation List

The people in the first table below were involved in discussions leading up to the first draft.

Organisation	Names	Date
Rarotonga Commercial Growers	Rau Nga, Danny Mataroa, Archer Hosking, Daniel Apii, Tere Patia, Anau Manarangi, Arama Wigmore, Tereinga Maoate, Tupou Faireka Snr, Sam Napa Snr, Nat Unuka, Tearorangi Aitu, Pape Wichman, Dr. Teariki Tamarua	4/11/2019
Minister's Office	Minister for Agriculture Hon. Rose Brown, Associate Minister Hon. Patrick Arioka, Bob Williams	20/12/2019
MOA	Secretary of Agriculture Mrs. Temarama Anguna-Kamana William Wigmore, Ngatoko Ngatoko, Takili Tairi, Sanjinita Sunish	
MFEM	Nathalie Cook, Kai Berlick	
Rito Cook Islands	Robert Wylie	29/1/2020
Aitutaki Growers	Mataauri Ruta, Daniels Taua, Manuela Kitai, Teiti Teiti, Rupe Nelio, Ronald Henry, Rua Samuela, Tapita Tikiteina, Nane Herman-Purea, Koi Bishop, Vavia Puapii, Tekura Bishop, Maitoe Henry, Tiraa Arere, Mau Vaerua, Mau Kaokao, Pani Pita, Jamayne Nooroa, Pepe Raela, Tuao Messine, Tukua Charlie, John Winchester, Tereapii Kavana, Ngapia Manuela, David Ngametua, Bobby Bishop, Fred Charlie, John Baxter, Ngatere George	31/1/2020
Titikaveka Growers Association	Teava Iro	10/2/2020
Aroa Vegeland	John Whitta	11/2/2020
BTIB	Repeta Puna, CEO	25/2/2020

The above people all received a copy of the first draft for review, along with those in the table below.

Organisation	Names	Date
OPM - Climate Change Cook Is.	Wayne King, Director	22/04/2020
OPM- Policy and Planning	Valentino Wichman, Director	24/04/2020
MFEM - Economic Planning	Lafala Turepu	24/04/2020
MOE	Danielle Cochrane, Secretary	24/04/2020

OPM - Pa Enua Division	Mia Teaurima, Director	24/04/2020
NES	Nga Puna, Director	24/04/2020
Planter	Hugh Baker	27/04/2020
Korero o te Orau	Dr. Teina Rongo	24/04/2020
TIS	Kelvin Passfield, Director	24/04/2020
MOH	Dr. Josephine Aumea Herman, Secretary	24/04/2020
NCW	Rebecca Ellis, President	24/04/2020
BCI	Vaine Arioka, Managing Director	24/04/2020
Chamber of Commerce	Fletcher Melvin, President	24/04/2020
OPSC	Russell Thomas, Commissioner	24/04/2020
Private Sector	Petero Okotai	24/04/2020
MFAI	Tepaeru Herrmann, Secretary	24/04/2020