

Agriculture and Forestry Policies in the Pacific

What do they Say and Where to Next?

Baseline Study (Extract Only)



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ACRONYMS

ACIAR	The Australian Centre for International Agricultural Research
ACP	Africa, Caribbean, and Pacific
AgINTEL	Agricultural Intelligence
APP	Agriculture Policy Programme
ARC	The Agricultural Research Council
ARDYIS	Agriculture Rural Development Youth in the Information Society
CARDI	Caribbean Agricultural Research & Development Institute
CBA	Cost-Benefit Analysis
CePaCT	Centre for Pacific Crops and Trees
CIDP	Coconut Industry Development for the Pacific
CTA	Technical Centre for Agricultural and Rural Co-operation
DSAP	Developing Sustainable Agriculture for the Pacific
EDF	European Development Fund
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FACT	Facilitating Agricultural Commodity Trade
FO	Farmers Organisations
FSM	Federated States of Micronesia
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GSARS	Global Strategy to Improve Agricultural and Rural Statistics
HIES	Household Income and Expenditure Survey
HOAFS	SPC member country Heads of Agriculture and Forestry Services
IACT	Increasing Agricultural Commodity Trade
ICT	Information Communication Technology
IKM	Information Knowledge Management
KRA	Key Result Area
LRD	SPC Land Resources Division
MAFF	Ministry of Agriculture & Food, Forests and Fisheries
M&E	Monitoring & Evaluation
MIS	Market Information Systems
MoA	Fiji Ministry of Agriculture
MOAFS	SPC member country Ministers of Agriculture and Forestry Services
MOU	Memorandum of Understanding
NARES	National Agriculture Research and Extension Services
NGO	Non-Governmental Organization
R&E	Research and Extension
SIS	Small Island States

Executive Summary

Understanding the national policies of the important agriculture sector in each Pacific country is a key starting point for inclusive engagement by policy makers, farmers, business and development partners.

Over the last 12 months, SPC¹ undertook a series of assessments encompassing:

- (i) An inventory of national agriculture and forestry sector policies of 15 Pacific countries to identify key national priorities, issues and what common areas of convergence existed;
- (ii) A status of common Research and Extension (R&E) needs in the Pacific – a vital component of farmer support and agricultural value chains. The aim was to consolidate, energise and start coordinating approaches on an area that is a recurring challenge in the region.

This paper is set out in 2 parts:

Part A briefly sets out the findings or observations of the National Agriculture Sector (NAS) Policy Inventory (2015); priorities, issues, commodities and opportunities. There is a plethora of policies that affect the agriculture/forestry sector of each of the Pacific countries, but this exercise was aimed at looking at only “national-level” agriculture sector policies.

At the outset, there are some simple yet important observations to be made from this exercise. First, all countries had a national agriculture sector plan or document. The forms of these documents differed but there was still a reference that was utilised by sector planning officials in each country. Second, the coverage of the documents was extensive and there was convergence on many things; themes, objectives, commodities and issues such as soils, extension and statistics. It was also interesting that many policies contained ‘progressive’ elements referring to opportunities such as organics, agri-processing, agri-tourism, finance and private sector engagement. Third, there was little awareness by stakeholders – including within Government, about the existence, content and breadth of agriculture policies managed by Agriculture Ministries. This was probably not surprising given the extremely limited resources of Agricultural Ministries and within that, for regular communication and/or wider stakeholder engagement. Lastly and importantly, NAS documents provided legitimacy - many of these documents (national or subsector) passed through some form of Ministerial or Cabinet approval process.

Part B sets out findings from a *Pacific R&E Summit* (2015) as well as some very brief examples of work by SPC’s Plant Genetic Centre (CePACT) – a regional facility that supports R&E. This is by no means an extensive list of R&E needs or an attempt to capture all of the R&E work by SPC and other partners in the region. If anything, it is to demonstrate regional efforts to start proactively organising R&E to better advocate and influence policy, share learnings and better support farmers.

In terms of the next steps, the Policy Inventory is work-in-progress and is expected to be fully commissioned by October, 2016. The R&E work has already prompted the establishment of a new network of Pacific Extension and Research officers (PIRAS) consisting of public, private, farmer and

¹ Through the EU Agriculture Policy Program (Pacific and Caribbeans)

academic representatives as well as practitioners. Other recent work include the establishment of new electronic repositories for NAS policies (“Agriculture Policy Banks” www.spc.int/pafpnet/policy-bank), Agriculture Policy Expenditure Reviews (started in Tonga -World Bank/USP/SPC), a new draft Regional Extension strategy, a draft Agriculture Statistics Strategy (FAO/SPC) , agritourism and organic policies.

Context

Up to now, accessing NAS policy documents at the national level was difficult. In addition, there was little visibility about what plans existed, their contents, implementation status as well as the breadth of policies under the purview of a country’s Ministry of Agriculture. Lack of access meant meaningful engagement by the wider community was very limited. It can be said that this is partly attributable to limited resourcing or uptake of communications technology in Ministries.

The 2015 NAS Inventory was compiled primarily through questionnaires, desk assessments and country feedback. The focus of the Inventory was only on “national-level” NAS policies. In nearly all countries, there is an active work schedule for crafting or updating various subsector policies. By October 2016, the majority of the Pacific countries would have updated their national-level NAS policies. There is already a plethora of agriculture, health, education, food security, climate change and environment policies, plans, frameworks- national and regional those intersect with NAS. As part of a program of policy support and capacity building for sector policy officials, there are already plans for a Regional Guide or Framework that will assist national agriculture planners draw on specific policies or plans as they see relevant for their circumstances.

The R&E issues discussed in this report are primarily drawn from an R&E Summit (August 2015) in Apia, Samoa as well as some of the related work undertaken by CePACT. Prior summits of this kind have been unanimous about the need for a systematic way of storing, accessing and sharing research work in the region. The Samoa Summit revisited this idea. In essence and are now in the process of compiling an inventory. This Summit brought researchers and extension officers together. It was an opportunity to consolidate and consider the changing context for R&E in the region. Farmer organisations, private sector and other partners have emerged and are well placed to contribute further to R&E. The advent of affordable technology, ICT, web accessibility and south-south learnings mean that R&E have even greater mediums to work with – much of which is already being adopted.

PART A: The Pacific NAS Policy Inventory (Extract Only)

A1: Introduction

The Inventory undertaken by SPC PAPP in early 2015 focussed on “national level” NAS documents (in the form of policies, plans, strategies, frameworks, or agendas as may be the case) that identify and describe national **agriculture** sector priorities. Plans, policies or programs that focussed on single commodities or specific issues were not included. The inventory covered 15 countries: Cook Islands, Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu and Timor-Leste

The inventory led by a Consultant (Mr Bruce Chapman) and SPC (Vili Caniogo) was initiated in November 2014. The process included:

- A questionnaire on national policies circulated by SPC to senior Agriculture Pacific officials in November 2014.
- Initial Consultations with these senior Pacific Agriculture Policy officials (3-4 December 2014). This incorporated a presentation of the initial Inventory and country presentations from participating countries on national agriculture issues, challenges and plans.
- Desktop review of NAS and associated national planning documents (see Table 1)
- Current Agriculture Sector or Policies/Plans (including those in near-final version awaiting formal approval);
 - Where no current sector plan was available then Current Agriculture agency annual or business plans was reviewed (mainly SIS)
 - Other relevant polices/plans, such as national development plans that include an agriculture component, or the most recent non-current sector plan available
- Follow-up discussions with country representatives via email.

Table 1: List of NAS Policies

Country	Title	Type of document	Status
Cook Islands	Ministry of Agriculture Business Plan 2014/15 <i>Matairangi Parea</i>	Agriculture agency business plan	To be replaced
Fiji	Fiji 2020 Agriculture Sector Policy Agenda "Modernizing Agriculture"	National agriculture sector policy	Current
FSM	Federated States of Micronesia Agriculture Policy 2012 - 2016	National agriculture sector policy	To be replaced
Kiribati	Agriculture and livestock Division Agriculture Strategic Plan 2013 - 2016	Agriculture agency strategic plan	Current
RMI	Agriculture: Ministry of Resources and Development Strategy and Action Plan 2005 – 2010	Agriculture agency strategy	Most recent
Nauru	National Sustainable Development Strategy 2005-2025 (as revised 2009)	National Sustainable Development Strategy	Current
Niue	Niue National Strategic Plan 2009 - 2013 <i>Niue ke monuina, A prosperous Niue</i>	National Sustainable Development Plan	Most recently available
Palau	Bureau of Agriculture Strategic Plan FY 2014-2019	Agriculture agency strategic plan	Current
PNG	National Agriculture Development Plan 2007 - 2016:	Nation Agriculture sector	Current

	"Growing the economy through agriculture"	plan	
Samoa	Agriculture Sector Plan 2011 - 2015 "...farming and fishing first..."	National Agriculture sector plan	To be replaced
Solomon Is	National Agriculture and Livestock Sector Policy 2009-2014	National Agriculture sector policy	Replaced
Timor-Leste	Timor-Leste Strategic Development Plan 2011 - 2030	National development plan	Current
Tonga	Ministry of Agriculture & food, forests and fisheries Corporate plan 2014/15 - 2016/17	Agriculture agency corporate plan	To be replaced
Tuvalu	<i>Te Kakeega II</i> National Strategy for Sustainable Development 2005 - 2015 including Mid-Term Review: Action Plan 2015	National sustainable development strategy	Current
Vanuatu	Vanuatu Agriculture Sector Policy 2014 – 2024	National Agriculture sector policy	Awaiting formal approval

Chapman, SPC (2015)

This table is Work-in-Progress.

A2: What Are the Common Themes of NAS Policies?

The documents converged around four common regional themes. These were:

- 1. Food Security**
- 2. Economic growth (which includes livestock and access to funding)**
- 3. Sustainability (natural resources)**
- 4. Effective institutions**

Within these themes, over 190 sub-categories were identified, along with a record of the number of countries which made reference in the source documents to each sub-category².

Regional Themes and Most Frequently-raised Sub-Categories

1 Food Security

- a Nutrition
- b Reducing reliance on imported food (self-sufficiency)
- c Traditional knowledge and practices

2 Economic Development

- a Access to funding/credit
- b Local markets
- c Trade
- d Adding Value
- e Crop and livestock improvement
- f Infrastructure: processing and transport
- g private sector role
- h rural livelihoods and capacity to participate

² The spreadsheet setting out this data is attached as Annex D

i land access / tenure

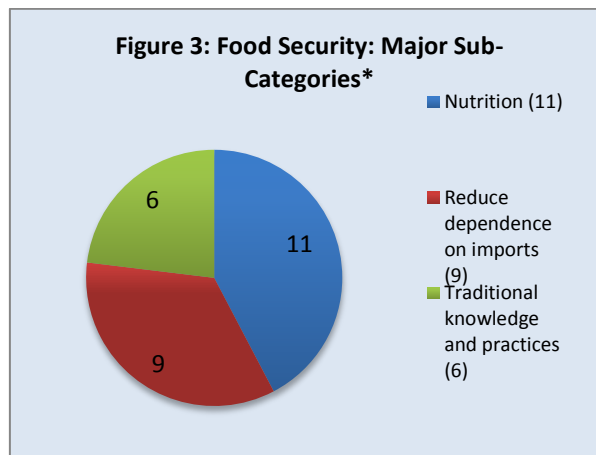
3 Sustainability

- a Soil and water
- b Biosecurity / pests and diseases
- c Climate change
- d Organic agriculture

4 Effective institutions

- a Policy / strategy / regulatory framework
- b Delivery of services (extension; training; statistics; R&D)

A2.1: Food Security



* Numeral indicates the number of countries that included the sub-category

a. Nutrition

Eleven countries included reference to the link between food, nutrition and health. Countries were clear that locally produced food, particularly traditional staples, can offer a healthy substitute for certain imported foods. As explained in the Marshall Islands national development strategy³; *“The influx and consumption [of] less nutritious imported food have induced the prevalent health problems or “life-style” diseases such as diabetes, high blood pressure, obesity, and gout among our people. To address these issues, the strategies proposed under agricultural development advocate the increase in the output of local food it is essential that our people have adequate access to quality and nutritious food”.*

b. Reducing reliance on imported food (self sufficiency)

Nine countries highlighted the goal of reducing the reliance, or dependence, on imported foods. There is a dual rationale for this; the first relates to the nutritional impacts of certain imports, the second relates to import substitution. The two issues come together through promoting the goal of self sufficiency for food/nutrition; *“Promote and support increased production, productivity and the*

³ The RMI national development strategy ‘Vision 2018’ is a linked document in the matrix.

resilience of village agriculture to ensure self-sufficiency in food and nutrition supplies for the people of Samoa and to raise rural incomes”⁴.

With respect to nutrition, concern is raised about foods that are “processed, high in sugar and salt and of poor nutrition”⁵, as well as high in fat, with one country citing turkey tails as an imported food product raising health concerns. In other cases, countries cited the high level of imports/consumption of staples such as rice as a driver for local production; “a better potential opportunity would be if significant substitution of imported starch products such as rice, noodles, ramen and flour could be achieved by encouraging greater consumption of local staples”⁶. “The Solomon Islands reported rice consumption of 100kg per capita noting that this is “the second highest amongst Pacific Islands”. Timor-Leste has a goal of being self sufficient in rice production by 2020. Further, Kiribati noted the risks of exposure to changes in the global commodity market - “We are fully aware of the fact that grain-growing countries in Asia and South America are facing great difficulties, and are looking at alternative crops that provide better returns. If this happens the people of Kiribati will starve”.

c. Traditional knowledge and practices

Six countries highlight the role of traditional knowledge and practices, for production and nutritional reasons; “growing traditional food crops will provide us with unlimited and nutritious supplies of fresh foods that will both address our food shortage and health problems”⁷, and in some cases acknowledging with regret the “diminishing traditional knowledge of farming”⁸. The theme of food security was closely linked with consumption of local produce. Of the nine countries that included food security as a priority, five described the issue in these terms, for example a priority for Tuvalu is to ‘*Increase production and consumption of local produce*’. In this way food security is closely linked with the issue increasing production; sub-categories that address ways of increasing agricultural production are discussed under the Economic Development theme.

A2.2 Economic Development

The issue of economic development or growth dominated much of the content of the source documents and more than half of sub-categories (over 100) were identified under this theme. A relatively large number of common sub-categories were identified, as shown in Figure 4, and discussed further below.

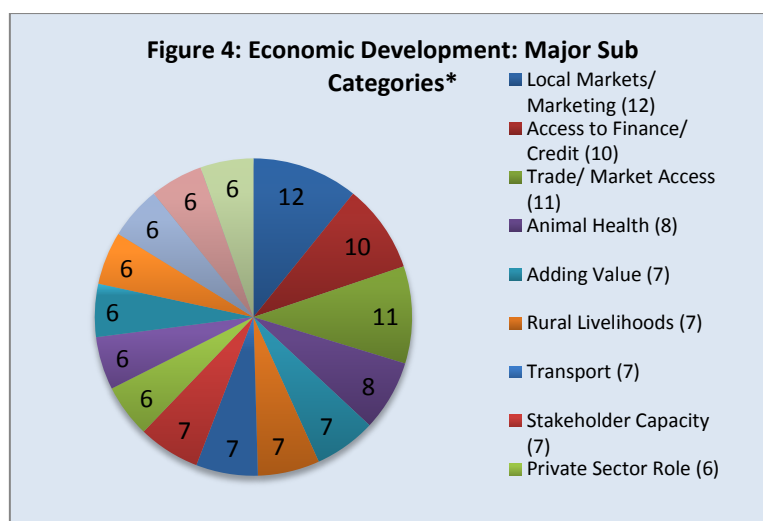
⁴ Samoa

⁵ Cook Islands

⁶ FSM

⁷ Kiribati

⁸ Tuvalu



* Numeral indicates the number of countries that included the sub-category

a. Access to finance/credit

There was clear recognition of the need for greater investment in the sector to increase production and the economic contribution of the sector. The most common single category was access to credit/finance (10 countries). Access small scale credit (or grant) facilities was identified as a particular need for small holders, who have difficulty in this area. At the same time, some countries actively promote larger scale 'industrial' agriculture, for which significant investment is required. At the national scale there were a number of general references to the need for investment or a 'well resourced sector' (5 countries). Countries also highlighted the role of donor assistance (5 countries) and foreign investment (4 countries).

b. Local markets

Local markets were identified by twelve countries as a development area. Support was evenly spread between markets (the physical locality, access etc) and the concept of marketing (9 countries and 8 countries respectively). Supporting market linkages was recognised as a 'public good'⁹ and therefore an appropriate area for government involvement. In Nauru, "So as to provide an opportunity for individuals to sell their wares, in May 2009 Nauru's weekly central market was established and has had between 25 and 42 vendors per week". RMI addressed both markets and marketing, through a 'special program to establish a physical market place'¹⁰ (see below), and through a marketing campaign; "*Be Marshallese....Buy Marshallese*" - a concept also adopted in several other countries.

Farm inputs (feed, seed, fertilizer, tools etc) were raised by six countries, including the concept of support for a market for farm inputs, in terms of both a market place and more affordable pricing: "Since marketing systems for inputs [are] almost non-existent, the government needs to provide market information and monitor market performance. Timely availability of agricultural inputs is a

⁹ FSM

¹⁰ The establishment of this market followed an earlier effort in which the building/market was established and operational, but subsequently appropriated for other uses.

major problem in remote areas and islands. In many cases the farm input supplies are not readily available and if available it is very expensive hence unaffordable.”¹¹

c. Trade

Reflecting an interest in developing export products and businesses, 11 countries highlighted trade issues, focussing on trade policy and facilitation/support for access to offshore markets. Four countries noted an interest in international marketing campaigns for local produce, and two further countries referred to the concept of a ‘unique national brand’ as a marketing tool. Discussion on commodities illustrated a regional interest in identifying and producing high value niche products for export; nine countries identified niche products such as spices (vanilla, pepper, nuts etc) as areas for development. Six countries also identified food safety as a key area, particularly compliance with international requirements for market access (including codex/HACCP¹²). This was also an issue in relation to domestic produce and consumption, *“From a food safety policy perspective, there are currently different levels of protection for the domestic market and the export marketconsideration should be given to ensuring equal protection for both domestically consumed food and food for export”*¹³

d. Adding Value

Seven countries identified value-added products as a means of increasing revenue, primarily through exports. In most cases it was raised as generalised aspiration; “The stakeholders in the horticultural industries in Fiji need assistance in improving their ability to add value to their products and business practices to improve profitability”, or focussed more on producing high value commodities (such as vanilla) rather than adding value *per se*. FSM provided examples of unique processed foods being exported for purchase by Micronesian communities living outside the country: “Another example of opportunistic exports is exports of cooked food, which now brings in more money than copra. Chuukese pounded breadfruit (kkon) and Pohnpeian banana pudding (pihlohlo), among other island foods, are being distributed and marketed to the growing FSM emigrant population overseas.”

e. Livestock and crop improvement

Identifying improved breeds was raised by six countries as a means of increasing production from livestock. The overall health and condition of livestock was also seen as a key issue; eight countries the noting the importance of animal health or veterinary services (one country proposed free vaccinations for farm animals). Crop diversity and genetics - along with identifying new crops varieties - was similarly important, being raised by five countries.

f. Infrastructure: processing and transport

Infrastructure was seen as a key element of an integrated system of production. A series of infrastructure areas were identified, the most common of which were transport (seven countries) and processing facilities (six countries). Others included energy, communications and markets. Poor transport linkages were identified as a constraint on development; the need for improved roading and ports (along with outer island connections) were raised as specific areas.

g. Private sector role

¹¹ Solomon Islands

¹² Hazard Analysis and Critical Control Points (HACCP)

¹³ Solomon Islands

There was support for the private sector taking a lead role in the sector (6 countries) and recognition of the need to create a supportive enabling environment to achieve this (3 countries). The private sector was recognised as encompassing large, potentially industrial scale, businesses and small scale subsistence and cash-crop farmers. There was specific mention by three countries of the need to encourage and train potential entrepreneurs. There was also reference to public–private partnerships and other business agreements between the private sector and the government.

Support for the private sector taking a lead role was based in part on previous experience of government interventions that had been unsuccessful, or worked against successful private initiatives eg FSM pepper.

There was some recognition of the dual pressures for government to *do something*, while at the same time keeping out of ‘the market’ itself: “possible use of targeted subsidies to address market failures may need to be considered. When subsidies are considered these will be ‘market smart’ with the aim not to distort markets for private sector activity”¹⁴. At the same time, for some, a key element of the business environment is the use of incentives provided by government to support agricultural businesses/production. Samoa included a list of possible incentives that could be employed, including tax exemptions, reduced interest lending, price and import subsidies, guarantee and insurance schemes.

h. Capacity to participate / rural livelihoods

Concerns were identified by seven countries about the importance of stakeholder participation and the capacity of farmers (e.g. farmers associations and small holders) to participate in agriculture development and see improvements in rural livelihoods (raised as a separate issue by seven countries).

Some countries/agencies undertook to make specific efforts in response for example; work with farmers associations on agricultural initiatives, or establish rural resource centres¹⁵. This aspect is closely related to the focus on extension services and training discussed below (under Effective Institutions).

i. Land access / tenure

Six countries identified difficulties in gaining access to land for farming as a constraint. This largely relates to traditional/customary land ownership structures and tenure arrangements. Several countries highlighted the fact that most land is in private (customary) ownership and commented on the potential benefits that may be gained from increasing its utilisation in agricultural production.

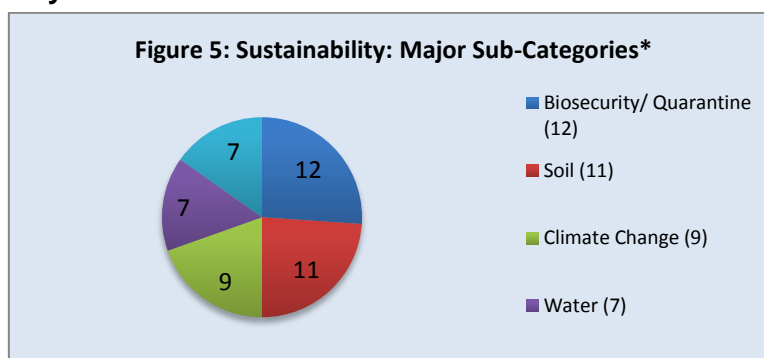
Solomons Islands: “Landowners are empowered through national legislation, to act as decision-makers for natural resources and environmental management practices on their land. It is therefore presumed to be the resource-owners’ responsibility to manage natural resources wisely for benefit of present and future generations. The Constitution recognizes the defector rights vested by customary law of ownership.”

¹⁴ FSM

¹⁵ Nauru

Samoa: “Increasing agricultural production and productivity will also largely depend on the greater economic use of customary land either by the landowners themselves or by others through leasing. In that regard, Government has taken steps to explore how to achieve greater economic utilisation of customary land through leasing arrangements. This initiative aims to clearly define and improve the terms and conditions for leasing of customary land”.

A2.3: Sustainability and Resilience



* Numeral indicates the number of countries that included the sub-category

a. Soil and water

Soil and water, as basic requirements for agriculture, featured as the sub-categories raised most commonly; water by seven countries and soil by eleven countries. For water, concerns covered water availability, watershed management, irrigation and drainage. The particularly challenges faced by atoll countries were also highlighted: “On the atolls both the limited quantity of water available and the quality of the water are limiting”¹⁶.

At the same time there was awareness of potential adverse effects on water quality due to agricultural activity with countries identifying the need to manage these so that “community and ecosystem health is not adversely affected”¹⁷. There was recognition of “increasing livestock numbers imposing pressure on ecosystems and watershed systems.”¹⁸ There was strong regional interest in soils, focused on preserving or improving soil quality (which in several instances is identified as a constraint for agriculture production – particularly for atolls) and managing erosion. The role of composting was mentioned as an option for improving soils.

b Biosecurity

A total of nine countries identified a range of issues broadly associated with border control (biosecurity and quarantine - areas where agriculture agencies commonly have statutory roles and functions). Five countries noted the associated risks of introduced pests and diseases. There was also interest in monitoring, surveillance and control of pests, to maintain agricultural production and, to some extent, for biodiversity protection (five countries) with some specific initiatives proposed for pest eradication.

¹⁶ Kiribati

¹⁷ Cook Islands

¹⁸ Samoa

c. Climate Change

The general issue of climate change was raised by nine countries; addressing a range of concerns including climate variability – temperature and rainfall; extreme events/disasters and sea level rise. Water availability and soil loss were linked with climate change, in relation to the risks of future changes in precipitation. The importance of adaptation measures was recognised in the form of the need to “Identify impacts of climate change on crops production and develop mitigating strategies”, and promote “diversification into new crops that are resistant to climate change impacts on soil and water conditions”¹⁹.

Climate change was also identified with potential risks in other areas: “Changing climatic conditions and natural hazards have implications for the transportation of agricultural produce from rural areas to markets in the main urban centres (e.g. poor road conditions, deteriorating wharfs and jetties and inconsistent shipping routes).” “Prolonged (and or shortened) wet seasons produce conditions favourable for pests and diseases harmful to plant production and crop harvesting.”²⁰

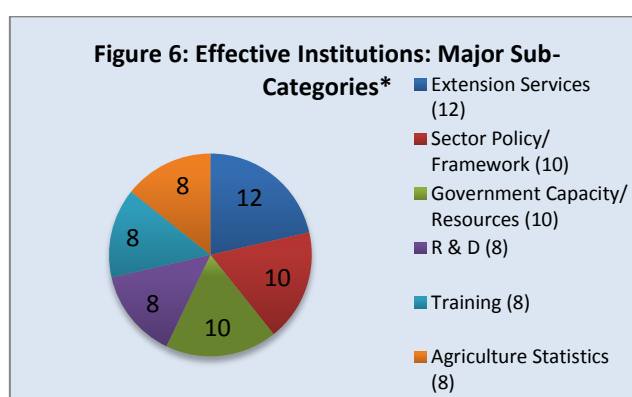
d. Organic agriculture

There was significant interest in organic agriculture (seven countries). There was also a general sense that Pacific Island countries are well placed to develop organic products: “Most crops grown in PNG use only the rich fertile soil without any fertilizer. No insecticide sprays are used; hence there are no serious problems of pesticide residues. PNG can capitalize on the world demand for organic products”.

There was also acknowledgement of the need to document this through certification (three countries): “The potential for organic labelling of PNG coffee, cocoa, etc needs to be studied and emphasized in marketing programs to maximize the value of PNG products.”

A2.4: Effective Institutions

The source documents identify a large number of issues regarding the way the government provides the policy and regulatory framework for agriculture, and about the government’s delivery of services to the sector.



* Numeral indicates the number of countries that included the sub-category

¹⁹ Samoa
²⁰ Vanuatu

a. Policy / strategy / regulatory framework

Eleven countries discussed a suite of issues around the role of government in developing a strategic approach to provide a framework for development of the agriculture sector. The issues ranged from development of sector policies (ten countries) or strategies (four countries) and the regulatory framework (six countries), as well as industry or commodity plans (five countries). There was widespread concern about the capacity and resources available to government agencies to carry out their work (ten countries). In some case countries identified collaboration between agencies as an area for improvement.

b. Delivery of services (extension; training; statistics; R&D)

There was a consistent level of support for government supply of certain services, particularly extension services, training and research, and the provision of sector data/statistics.

The documents noted the need for effective delivery of services and identified some shortcomings in this area (including comment on ineffective or inefficient government, and concern about bureaucratic 'red tape'). In some instances there were frank self-assessments "in the years since [1995], service delivery has deteriorated. On the whole, service delivery systems are dysfunctional and there remains widespread confusion over functional (who does what) and financial (who pays for what) responsibilities across the three levels of government. Institutional capacity to deliver services is generally poor"²¹.

Vanuatu observed "Poor participation of government stakeholders: poor collaboration and coordination among relevant government stakeholders (on service provision, local infrastructure, domestic market opportunities like tourism)"

Extension (12 countries), **Training** (eight countries) and **R&D** (8 countries) were seen as related areas as illustrated by Timor Leste; "The adoption of new farming techniques, equipment and research is critical to the future of the agriculture sector. We will conduct a review of our agricultural knowledge system to improve the skill level of agriculture extension workers. This will involve developing quality courses for pre-service training at agricultural secondary schools, colleges and universities. A career development program for in-service training will also be developed."

FSM described that "The effectiveness of extension services generally has declined over the last two decades due to use of inappropriate methods, inadequate operational budgets and limited human resources."

Statistics: eight countries recorded government activities in the area of agricultural data and statistics. Samoa commented on the overall situation in that country:

"The availability and quality of agricultural statistics has declined over the years and is one of the key challenges now facing the sector. Decisions about aid and/or investment efforts to foster agricultural growth need to be based on sound information.....These decisions need to be made under a broader framework that takes into account the different variables that affect the environment and influence global warming and the overall production systems. The overall impact of these factors can only be effectively measured and evaluated with appropriate statistics."

²¹ PNG

In other cases countries identified particular data needs and gaps: “urban market demand for agricultural product may exist in urban areas, suppliers from rural areas may not be aware of them and similar situation holds for international markets. Hence there is a need to disseminate market-related information to both producer and buyer”.²² Palau undertook to “maintain and provide statistics on agricultural production, farm size and numbers, and agricultural commodities in all market outlets.”

A3: What Commodities are contained in the NAS Policies

All countries included some discussion of commodities produced. In all, over 50 different plant and livestock varieties were cited, along with several general categories such as ‘root crops’ or ‘spices’. The list is dominated by food crops; because of the different treatment of livestock and forestry in the documents (i.e. some countries have separate livestock or forestry plans), these sub-sectors are less represented.

The commodity most commonly mentioned is **coconut** (13 countries). Some general observations are:

- The range of commodities listed is consistent with the emphasis on the key areas of food security, and increasing agricultural production that are described above;
- There is widespread utilisation of traditional crops, at some level of production;
- The range of novel and ‘niche’ products highlights the message that countries are seeking high value products that can supply the export market

Five of the documents include separate, substantive discussion on management of specific commodities; Fiji, FSM, PNG, the Solomon Islands and Timor-Leste. The Table below lists the commodities featured for each of these five countries, along with information on the main commodities produced and exported from these countries. Note that the table only includes information that was presented in the source documents, and excludes non-specific categories such as ‘organic and fair trade’.

Country	Commodity featured	Major production	Major Exports
Fiji	Sugar, coconut, pineapple, root crops, beef/dairy, swine, poultry, kava.	<i>Information not included</i>	Sugar, dalo, cassava, kava, copra, coconut oil, papaya
FSM	Coconut	<i>Information not included</i>	Betelnut (14% share of ‘major exports’); kava (3%); Others: copra, banana, citrus, root crop,
PNG	Grains, oil palm, coffee, cocoa, coconut, rubber, tea, apiculture	Sweet potato (64% by weight), banana (10%), cassava (6%), yam species (6%), true taro (5%), Chinese taro (5%), Coconut (2%)	2005 figures: Palm oil (295 x000 mt); coffee (72), copra oil (54), Cocoa (44), copra (22), tea (7).
Solomon Islands	Coconut, oil palm, vanilla, coffee, cocoa, rice.	<i>Information not included</i>	<i>Information not included</i>
Timor Leste	Rice, maize, coffee, candlenut, coconut, bamboo.	2010 figures: maize (72 x000 mt), rice (37),	<i>Information not included</i>

²² Solomon Islands

Part B Research and Extension

B.1 Introduction.

It is recognized that a lot of agricultural research has already been undertaken in the region. There is also a plethora of research reports for similar crops, livestock and other issues have been undertaken by other regions such as SE Asia, Caribbeans, Australia and NZ. The R&E Summit noted that:

- There were a number of good research studies being conducted in the region but accessibility was scattered and difficult
- Collating, storing and analysing results was not being prioritised
- A number of research information was too technical for extensionists and that there was a growing gap between research and extension linkages
- There was limited input from clients/beneficiaries on research prioritisation resulting in low demand for research results
- Packaging research results in a user friendly for extensionists and or farmers was hampering wide adoption of technologies

B.2 An Initial Research Inventory

The Pacific Research and Extension Network is establishing a research inventory drawing on existing databases such as the Plant Genetic Database (PAPGREN), Melanesian Agricultural Information Services etc in the region as a first step toward facilitating wider adaptation, dissemination and adoption of new technologies. This inventory is intended also to provide researchers and extensionists (and as well as farmers and general public) with a technical evidence base of past research for adoption and or to scale up appropriate technologies to greater numbers of smallholder farmers.

The focus of the inventory is to provide examples of technologies that may be good candidates for widespread adaptation and adoption, but it is not intended to be comprehensive. It would not represent an "approved" or exclusive list, and not to imply suitability of any given technology in any given context.

Table 3: R&E Summit Priorities (2015)

Focus Area	Priorities	Prioritized
Crops		
1. Value Adding	<ul style="list-style-type: none"> • Seasonal crops 	<ul style="list-style-type: none"> • breadfruit, mango, citrus
2. Plant Genetic Resources	<ul style="list-style-type: none"> • Climate Resilient Crops 	<ul style="list-style-type: none"> • Climate Resilient Crops • Salinity and Drought
3. Off-season Vegetables	<ul style="list-style-type: none"> • Tomatoes & bele • Cabbage & duruka 	<ul style="list-style-type: none"> • (protective cropping), pests, PGR, organic (suitable production)
4. Pests and Disease Control	<ul style="list-style-type: none"> • Vegetables, tree, roots, fruit crops 	<ul style="list-style-type: none"> • Vegetables, tree, roots, fruit crops
5. Market Access and Utilisation	<ul style="list-style-type: none"> • Breadfruit • Coconut • Cocoa • Taro, yam 	<ul style="list-style-type: none"> • Breadfruit – value adding(market access), pests, PGR • Coconut – value adding, pests • Taro – post-harvest research, salinity,

	<ul style="list-style-type: none"> • Xanthosoma • Ginger & swamp taro • Banana • Citrus • Papaya & sugarcane 	<p>taro beetle (pest & disease), genetic resources, nutrition of leaves, value-adding</p> <ul style="list-style-type: none"> • Sweet potato – pests, nutrition, value-adding (market access) • Banana – pests • Citrus – pests, salinity • Papaya – market access
6. Integrated farming systems (with livestock)	<ul style="list-style-type: none"> • Agroforestry 	<ul style="list-style-type: none"> • Agroforestry and food security • Agroforestry systems for climate change adaptation. • Native and introduced trees that meet production and ecological aims, as well as suiting our traditional systems. • CBA on Agroforestry • Value adding for seasonal crops e.g. breadfruit. • Suitable species for conservation and tree planting schemes. • Documentation of traditional agroforestry systems (including atoll agroforestry)
7. Livestock	<ul style="list-style-type: none"> • Conservation and Promotion of local breeds • Animal welfare/health • Promote food safety and quality for livestock products e.g. meat, eggs, milk. • Explore better ways of managing livestock waste (mainly pigs and Cattle) • Genetic Pool – compare local genetics versus exotic breeds • Identify, trial and promotion of local feed sources • Pasture Management • Livestock Policy Review (effectiveness and evidence based) • Support more market research and cost-benefit analyses • Promotion of appropriate livestock technologies • Livestock Database • Promote affordable housing and feeding systems for livestock • Gap analysis on research skills • Research into how Animal welfare, Sustainability, Intensive farming can complement each other. • Research cereals for livestock feed and pasture improvement • Technology transfer approaches and methodologies 	<ul style="list-style-type: none"> • Inventory of livestock research in the region over the last 30 yrs • Research greater use of local ingredients for livestock feed. • Identification and multiplication of local breeds – breed improvement • Research cereals for livestock feed and pasture improvement • Design better record keeping skills for non-record keepers. • Explore better ways of managing livestock waste (mainly pigs and Cattle) • Promote food safety and quality for livestock products e.g. meat, eggs, milk. • Support more market research and cost-benefit analyses. • Animal welfare approach to livestock husbandry practices • Inventory of local feed ingredient in PICTs • Livestock housing designs adapted to climate change.
8. Private Sector Support	<ul style="list-style-type: none"> • Enterprise development assistance within the value chains – production to market (FACT and IACT models to assist enterprises and farmers based organisation) • Standards and compliance for exports 	<ul style="list-style-type: none"> • Market access & enterprise development - PPP • Value chain analysis • Policy Support to strengthen PPP • Value adding • Pest and disease, soil fertility & degradation, crop field management

	<ul style="list-style-type: none"> • Livelihood opportunities and revenue generation to farmers • Pest and disease, soil fertility & crop field management techniques • Pesticide use and residue values (MRL), testing kits need upgrading & GAP • Policy, enabling environment for agribusiness • Product diversification • Off season planting, markets • Support for farmers association, voice, training, representation • In-depth knowledge of markets & quality demanded by markets • Analytical services and standards to promote food safety and water quality 	<p>techniques</p> <ul style="list-style-type: none"> • Pesticide use and residue values (MRL), testing kits need upgrading & GAP
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B.3 SPC CePACT

SPC CePACT is also an important partner and component to regional R&E. Its work includes:

- Conservation and Plant Distribution including for banana, breadfruit, cassava, ginger, Irish potato, pandanus, pineapple, sweet potato, sugarcane, vanilla, yam
- Collections and preservation through tissue culture and multiplication
- Testing and field trials for climate change resilience including drought, salt tolerance etc
- Promoting crop diversity including exchange of plant material such as Bananas (Belgium, Australia), Yams (IITA, Nigeria), Sweet potato & potato – CIP, Peru, Cassava – CIAT, Columbia
- Distribution (over 60,000 plantlets since 2005) including Palocasia, bananas, breadfruit, cassava, potato, sweet potatoes, taro and yams

B4. Extension Issues for the Pacific

There has been a noted shift towards more non-governmental and private sector engagement for service provision for extension services. The role of government is changing; they are no longer bound to RAS provision, but can engage with the private sector, NGOs and farmer based organizations in a variety of funding and service provision models. This is consistent with a number of NAS policies.

Some of the R&E issues are discussed briefly here.

- **Limited Government Support for Rural Extension and Advisory Services.** In most PICTs, REAS are a low priority service of government, despite increasing demands from farmers and farmer groups for effective and coordinated service provision. Consequently, limited budgets and staff are allocated to extension services. On average, one extension officer serves 10,000 farmers with a budget allocation of less than 0.5% of the national budget for most countries.
- **Link between Research and Extension.** Enhanced communication about research priorities

can support sub-regional specialisation that addresses regional concerns of PICTs. Doing so also provides opportunity for both higher quality research and greater investment and engagement in more effective advisory service provision.

- **Communication between stakeholders** Communication (quality and frequency) needs to improve between research, RAS, farmers and private sectors in agriculture commodity production and supply chains. In order for agriculture extension to provide wellbeing support to its clients (farmers), communication between other service providers such as health, environment, banking and social services needs to be improved. International experience shows that public-private partnerships support locally based extension service provision that is more responsive to the needs of communities, and can be delivered at lower costs.

Table 4: Services and Agencies which work with rural advisory and extension services

<i>Stakeholder group</i>	<i>Role</i>
Regional governmental groups, e.g. SPC	SPC has taken a lead role in the development of this strategy and their ongoing commitment to providing will be critical to its success
Regional and national non-governmental groups and networks, e.g. PIRAS, GFRAS	Drive networking, learning, communication and co-ordination at the regional scale
PICT National and Local Governments/Agencies	Endorse and provide resources for regional, sub-regional and national strategies and for Regional Extension and Advisory Services more broadly, and support linkages on cross-cutting issues (e.g. agricultural education)
Research organisations	University, private and government based research providers must unite to address common regional challenges identified by farmers, avoid duplication of efforts, and engage with REAS to ensure best practice and technological developments are shared across contexts
International Aid and research and extension organisations (e.g. ACIAR, FAO, IFAD)	Provide scientific and technical knowledge that addresses regional priorities of mutual interest and benefit
Educational providers (e.g. universities, schools)	Provide education and vocational training that ensures clear career pathways, extension skill development and passion for agricultural development
Farmer groups (e.g. Federated Farmer organisations)	Identify and communicate farmer needs and support best practice agricultural development through lesson sharing
Sub-regional and Non-Governmental Organisations	Work with a range of stakeholders to ensure the needs of all, including the most vulnerable, are incorporated
Private enterprises	Work with regional extension advisory services to provide skills and mentoring that enables farmers to bridge the gap between subsistence agriculture and market based agricultural economies

Conclusion

The NAS Policy Inventory shows that the Pacific countries, despite limited resources, recognise the importance of planning and providing frameworks for this important sector. Many of the common themes or issues contained in the Inventory were not surprising. Header issues such as food security, nutrition and economic development are well documented aspirations for the region. What is

welcoming is that the Pacific is already thinking – and documenting issues that go beyond commodities to a broad range of issues such as value-adding, agritourism, organic production, extension, finance and private sector development. Some countries also recognise the importance of moving towards mechanisation, capital investment, value chains, better use of statistics and evidence as well as using innovative models for working with farmers, business and other actors. The overall coverage is extensive.

There are many components in the value-chain that need revitalisation, innovation and energy. R&E is one such area. More needs to be done to better support farmers and production. One key step is simply organising research information and networks to better share information and good extension practices. The good news is that the technology is available to facilitate this. Further, new “R&E actors” such as farmer organisations and business have emerged as facilitators and brokers of knowledge.

Moving forward, areas for further support and investment includes:

Support for markets: It is clear that the connection between production and markets (domestic and external) is important for the aspirations of countries to move towards self-sufficiency. Countries have identified information gaps (eg knowledge of market needs and pricing) and infrastructure requirements to support expansion of local markets. The issue of *marketing* brings together the production and sale of local produce with the critical issue of nutrition and non-communicable diseases.

Trade: The interest in niche products and markets could be supported by some generic work on the global market for ‘niche’ products such as coffee, cocoa, vanilla, kava etc so that producers are fully aware of the opportunities and potential risks (e.g. in terms of quality and pricing).

Links between agriculture and other economic drivers such as tourism as well as Organic products are seen as a way ahead for many countries. Again, regional support could be delivered through providing market information, and support for certification / branding. There may be opportunities for regional information sharing in partnership with existing sector organisations, and South-South learning. There may also be scope to support regional approaches to specific agriculture trade issues (e.g. food safety/quality issues)

Support for R& E including R&E actors. This is vital to any value chain. Supporting actors is also vital as farmer organisations, business and other non-state actors can alleviate the pressure off Governments and help support production and research. This is already practice in many parts of the globe.

Information and farmer/business support is key. A lot of information is already available and there are many ways to capture and disseminate this information. Farmer /business collectives are also key in that they provide a convenient conduit for farmer to farmer exchanges, information sharing and policy advocacy.

APPENDICES

[To be included]