Pacific Regional Research Agenda (RRA)

Framework for a
Pacific Regional Agriculture and Forestry Research
Collaboration

November 2022

by

the Pacific Community (SPC) Land Resources Division (LRD)

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This report describes the development process for a regional agriculture and forestry research framework based on a regional consultation that aimed to capture the 'voice' of Pacific stakeholders.   Implementation of the Pacific Regional Research Agenda is conditional to endorsement from the Pacific Ministers of Agriculture and Forestry Services (PMAFS) who meet in early 2023.

Declaration by authors

This report is composed of original work, and contains no material previously published or written by another person except where due reference has been made in the text.

Keywords

Agriculture, Forestry, Pacific, Regional, Research, Grounded Theory

Acknowledgements

Dedications

This report is dedicated to the Pacific people and their environment, past, current, and future.

Abbreviations, Acronyms and Definitions

Abbreviation	Definition
ACIAR	Australian Centre for International Agricultural Research
Agriculture & Forestry Services	Broadly defined to include horticulture, forestry, land management, livestock, genetic resources, farming systems, rural sociology, market access, biosecurity, and related issues in natural resource management
ASF	Animal Source Foods or African Swine Fever
CROP	Council of Regional Organisations in the Pacific (CROP) is mandated to improve cooperation, coordination, and collaboration between Pacific Intergovernmental organisations.
CSO	Civil Society Organisations
DFAT	Department of Foreign Affairs and Trade Australia
Enabler	Helps the journey towards achievement of a goal
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FNU	Fiji National University
GM	Technology around Genetic Manipulation of plants and animals
LGU	Local Government Unit
LRD	The Pacific Community (SPC) Land Resources Division (LRD)
Members	SPC is a Pacific Regional 'owned' organisation. 'Members' refers to the 26-strong membership of SPC that includes the 22 Pacific Island countries and territories along with four of the original founders (Australia, France, New Zealand, and the United States of America). The eventual structure and process is designed to be managed by and for the 22 PICT members.
MFAT	Ministry of Foreign Affairs and Trade New Zealand
NARI	National Agriculture Research Institution (PNG)
NARS	National Agricultural Research Systems
NGO/NPO	Non-Government Organisations/Not for Profit Organisations
ODA	Official Development Assistance
PE/VC	Private Equity/Venture Capital
PFO	Pacific Farmers Organisation (previously known as Pacific Island Farmers Organisation Network - PIFON)
PHOAFS	Pacific Heads of Agriculture & Forestry Services. The PICT leaders of national agriculture and/or forestry departments.
PICT	Pacific Island Countries & Territories. PICT is also used to refer to SPC's members, but not including the four founding members: Australia, New Zealand, France, and the United States of America.
PIURN	Pacific Island University Research Network
PMAFS	Pacific Ministers of Agriculture and Forestry Services
PRAFS	Pacific Regional Agriculture & Forestry Strategy. The new research structure sits under this new strategy that was endorsed for development at the PHOAFS Meeting in 2021.
R&D	Research and Development are activities that focus on the innovation of new products or services to address the challenges facing agriculture and forestry services
RDC	Research & Development Corporations (Australia)

Research	Broadly defined within this document to include studies in both biophysical and sociology/social sciences within agriculture and forestry services
RRA	Pacific Regional Research Agenda. This was the name used when presented to the PHOAFS meeting in 2021. As the final structure and process is owned by the PICT's members and as yet not known, it is pre-emptive to use the term 'RRA' since this name will also be reviewed.
RRAAC	Regional Research Agenda Advisory Committee. This was the name used when presented to the PHOAFS meeting in 2021 for the managing committee. As the final structure and process is owned by the PICT's members and as yet not known, it is pre-emptive to use this term since the name, structure, and process may change.
SES	Socio-ecological systems (SES) is a theory that investigates the nexus between natural and human systems.
SPC	The Pacific Community (SPC)
SPC LRD	Pacific Community (SPC) Land Resources Division (LRD). LRD is one of the eight Divisions within SPC.
Spoiler	Deprives or interferes the journey towards a goal
Stakeholders	Non-SPC Members that include individuals and organisations involved in the Pacific agriculture and forestry services R&D
Steering Committee	In the context of this report, the Steering Committee refers to the Project Committee for this SRA.
Talanoa	A dialogue to bring community-style discussion; tell a story or have a conversation
USP	The University of South Pacific

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Executive Summary

In August 2021, the Pacific Heads of Agriculture and Forestry Services (PHOAFS) endorsed the Pacific Community (SPC) to lead the development of a framework for a Regional Research Agenda (RRA). The Australian Centre for International Agricultural Research (ACIAR) provided funding support.

SPC was tasked by the PHOAFS to define a shared vision, concepts, expectations, process, and a framework for an agriculture and forestry regional research agenda to deliver on expected outputs in the medium term (10-15 years).

Inclusive Process

The participatory member-driven process was guided by an SPC/ACIAR Steering Committee and included a desk review to identify key assumptions and drivers about regional collaboration; key informant interviews with SPC member countries, government agencies, academics, and other thought leaders to gather insights, review findings and test assumptions; and a series of regional consultations (Fiji, Brisbane, virtual) with a wide array of participants.

Participants were asked their views on the concept of a regional research agenda and collaboration, credible and fair mechanisms through which common regional research priorities could be identified and research objectives/questions established, the types of partnerships needed for meaningful results and impact, and gaps on human capacity, funding and resources that may affect implementation.

Findings and Results

There was agreement from all participants on the need for a regional research agenda. Pacific partners identified significant benefits in regional research collaboration to share risks (partner or perish), create knowledge through the exchange of information, resources, and networks, create value and impact through tackling common research priorities and challenges together, and inform policy in the Pacific and more globally through improved scientific and research capacity.

Current drivers of change have influenced regional thinking on a collaborative research agenda, including: individual incentives for increased exposure, networks, capacities and confidence; organisational incentives for increased funding and access to equipment, human resources and a mobile research workforce; national and regional incentives through increased alignment and coherence, a common purpose and comparative advantage; and incentives for impact through problem-oriented, demand-driven, high-quality research.

The RRA Secretariat would perform the function of coordination of regional research leaders to work with member countries to establish research priorities and credible and relevant research questions that have value and impact for the Pacific region. The Secretariat would provide advice on the selection of common research objectives and flagship research topics vetted through an established criterion, be the focal point for coordination of research and research working groups around disciplines, supplement current regional expertise, link countries conducting similar research, access and create a pool of sustainable funding, and leverage benefits from research networks within the Pacific.

Conclusions

A consensus from all parties confirmed the need for a regional research coordination mechanism.

The recommended framework for this mechanism is an RRA Secretariat that utilises current structures and existing regional institutions, such as SPC. A new entity does not need to be created – the framework will enhance existing systems and structures.

The RRA Secretariat and agenda process should empower decision-making and planning in the Pacific through an inclusive process where each country has a stake and a voice to define and implement regional research priorities. To that end, the RRA Secretariat would collaborate with member countries and coordinate regional research leaders, filter research priorities, and coordinate research teams to implement collaborative research projects producing results aligned with the strategic direction, vision and priorities set by the PHOAFS and the national strategies they manage. Scientific advice, including communication of scientific knowledge to Pacific and global leaders, will inform and influence policy.

Recommendations

1. Endorse the RRA framework.
2. Endorse the Pacific Community (SPC) to collaborate with member countries and undertake the next steps required to get the RRA framework and RRA Secretariat established.

Chapter 1: Setting the Scene

Background

The Pacific region is defined by its diversity, with a combined landmass of approximately 552,000 square kilometres within an ocean area of more than 14,000,000 square kilometres and a collective population of 12.8 million people that is expected to increase to over 19 million people by 2050 (Pacific Community (SPC), 2022a). Nations in the region increasingly have common issues and opportunities in agriculture and forestry, making regional research collaboration essential. Currently, the PICTs have no regional process that they own and manage for research coordination and collaboration in agriculture and forestry. At its August 2021 virtual meeting, the Pacific Heads of Agriculture and Forestry Services (PHOAFS) endorsed the development of a Regional Research Agenda (RRA) for agriculture and forestry in the Pacific.

This project aligns closely with the role of SPC-LRD to enable the provision of regional public goods in agriculture and forestry R&D, as outlined in LRD's Business Plan 2019-2023. In particular, LRD's business plan highlights LRD's mission as providing "effective scientific advice, capacity building and services on conservation, development, and utilisation of Plant Genetic Resources (PGR), forest and landscape management, resilient agricultural systems, diversification of livelihood strategies and access to markets to maintain ecosystem services, improving land productivity, and food and nutrition security for resilience of Pacific communities. It also highlights its mandate in "targeting urgent issues at regional and national levels through deeper consultation at design, holistic approaches addressing root causes, and prudent management of resources for implementation of projects and programmes in a geographically challenging oceanic region".

The RRA framework is proposed to sit between the PICT National Strategic Plans (NSP) and key regional strategies. PICT national strategic plans are critical for the identification of priority regional research areas and projects. These NSPs are supplemented by regional strategies for commodities, or in specific thematic areas that relate to agriculture and forestry research. An example is a regional coconut research agenda that links into the global International Coconut Community (ICC), and that will link to this RRA. The current relevant regional strategies are the Regional Agriculture and Forestry Strategy (under construction) and the Pacific Community (SPC) Strategic Plan. Both strategies link to the Pacific Island Forum Secretariat (PIFS) 2050 Regional Strategy.

The RRA also supports ACIAR's ambition to define strategies for collaboration with the region in a different way. ACIAR's partnerships with countries and regions has been evolving as the countries gain a stronger voice and are more capable in research. In many cases, it is no longer appropriate to define long-term (up to ten-years) strategies the way ACIAR did in the past (i.e., focusing on what research we agree to do together), because:

- Much of the research ACIAR now funds is discipline-diverse and systems focused, requiring a higher degree of adaptive management than before.
- The majority of ACIAR's partner countries are more confident in their engagement with ACIAR and an increasing number are able to invest significant resources in the research collaboration.
- Much of the collaboration in which ACIAR now engages is new capacity building and outreach programs that were not typically included in country strategies in the past.

ACIAR and the Pacific may be better served by a process focussing on the 'WHY' and the 'HOW' we want to work together in the medium term to achieve specific shared goals and use that platform to focus on the 'WHAT' we agree to work on together at regular reviews. This would provide the

granularity necessary to define and adjust research programs to the rapidly changing Pacific contexts. The outputs of this SRA may clarify that process for ACIAR.

The Problem

Current regional strategies for collaboration

Various strategies are in place to support regional collaboration in the Pacific. The challenges and success of selected models were analysed during the consultation process and have informed RRA development. Three examples of Pacific regional strategies are:

SAMOA Pathway
The 2014 Third International Conference on Small Island Developing States, resulted in the adoption of the *Small Island Developing States Accelerated Modalities of Action*; or *SAMOA Pathway* (UN, 2014). The Pathway includes linkages between commitments focused on sustainable energy and natural resource management, as well as an ocean-based and green economy approach and partnerships, providing a holistic view on adaptation measures for small island developing states (SIDS). SIDS leaders have already made pledges for bold climate action. A report at the mid-term review identified the importance of furthering regional and sub-regional mechanisms for SIDS (Walsh, 2019) that are supported by a SIDS Partnership Toolbox (Goransson et al., 2019) to assist facilitation of regional cooperation.

The Framework for Pacific Regionalism
This *Framework for Pacific Regionalism* was endorsed by Pacific Islands Forum Leaders in July 2014. It replaces the *Pacific Plan for Strengthening Regional Cooperation and Integration* (PIFS, 2014). The Framework is intended to support "focussed political conversations and settlements that address key strategic issues, including shared sovereignty, pooling resources, and delegating decision-making" (Forum Leaders' Special Retreat on the Pacific Plan Review, Cook Islands, May 2014). Rather than providing a list of regional priorities, it sets out a robust process through which regional priorities will be identified and implemented.

Pacific Community (SPC)
As the premier scientific and technical intergovernmental organisation in the Pacific region, SPC includes national government members from 27 countries. SPC recently released a Strategic Plan 2022-2031, (Pacific Community (SPC), 2022b) that outlines a 10-year commitment toward development of the Pacific region. The goals and key focus areas of the plan encompass five pathways:
1. Policy to action
2. Data, statistics, and knowledge
3. Innovation and research
4. Digitalisation and technology
5. Capability and influence

These five monitored pathways aim to deliver regional public goods through integration with Pacific centres of excellence, frameworks, networks, and partnerships.

Other experiences

Several other examples of collaboration in agricultural research and development from other regions can also provide insights, adaptable ideas and lessons learnt.

Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA, 2022)
Established in 1994 as a sub-regional non-profit association of the national agricultural research institutes (NARIs) across ten countries. From its efforts to catalyse and promote cross-border collaboration in agricultural research, ASARECA has learnt that increased networking amongst

researchers and more narrowly focused research addressing high-priority targets can deliver results more quickly.

The Regional Platform in Agricultural Research for Development (PRéRAD-OI) was established in 2014, based on the shared desire of the Indian Ocean Commission (IOC), French State, Réunion Region and Centre for International Cooperation in Agricultural Research for Development (CIRAD) to bring together the main public institutions (ministries), research bodies, institutions of higher education and agricultural training and technical institutes in the five member countries of the IOC (Madagascar, Mauritius, France-Réunion, the Seychelles and the Union of the Comoros). The only regional player in agricultural research for sustainable agricultural development, PRéRAD-OI, has adopted six principles to guide the collaborative work of its members:

1. Establish priority research themes/topics
2. Agree on common tropical agriculture sectors
3. Understand the desired impact
4. Provide education and training
5. Inform public policies
6. Support science diplomacy

In the Caribbean, numerous initiatives provide examples of regional collaboration, including a regional central bank, currency and monetary policies, the Caribbean Agricultural Research and Development Institute (CARDI), public sector reform, and renewable energy. Regional collaboration is based on a common agenda and purpose, together with shared governance structures and responsibilities, principles and processes, decision-making, and capacity building. The **Principle of the Three Ones** provides a basis for collaboration in the region:

1. One coordinating mechanism to manage the process (with separate national coordinating mechanisms in each country).
2. One plan that provides the framework for coordinated action by all partners ('One plan' refers to an agreed set of shared goals and objectives contained in various documents.)
3. One performance monitoring and evaluation framework to measure progress, transparency, and value for money (Each country defines its own targets, based on risk assessments and national priorities, and monitoring and evaluation, or M&E, measures.)

Research Questions and Objectives

The two specific goals of this research are:

    i.   Define a shared definition, vision, concept, and expected outputs for a Regional Research Agenda (RRA) for Agriculture and Forestry Services research and development (R&D).

    ii.   Develop the framework and processes that deliver those expected outputs in the medium term.

The objectives are framed as four questions which will collectively address the two goals:

1. What are the current drivers, challenges, and opportunities for Pacific regional research collaboration in agriculture and forestry?
   This will include assessment of:
   a. What are the current regional strategies? What are the obstacles to a coordinated approach? What are the drivers for change?

b. How should a regional approach address the current challenges and opportunities?

2. What are the PICTs individual and shared expectations and concerns about a regional research agenda for agriculture and forestry?
This will include assessment of:
   a. What are the PICTs visions and expectations of the RRA?
   b. What are the PICTs expectations of how the RRA will be managed in the medium term?
   c. What do the PICTs see as their role and contribution?

3. How can this vision be developed and implemented?
This will include assessment of:
   a. What is the process for developing a regional research agenda?
   b. How can the regional research agenda be best governed and implemented and over what timeline?
   c. What are the risks inherent in a regional research agenda, including risks if we don't do it? What are the mitigating strategies to manage these risks?

4. What systems and processes will be needed to support the RRA?

Chapter 2: Study Design

Introduction

The study design took the project team and Pacific participants on a journey through four stages of collective social learning as in **Figure 1**, (Brown & Lambert, 2015) to develop a draft of the RRA framework. The journey started with the stocktake of regional collaboration both in the Pacific and globally. This was an important first step that also socialised the concept of a collective approach to develop the framework and build Pacific ownership of the process and output. The second stage identified drivers, incentives, disincentives and enablers for Pacific regional collaboration. The third stage consisted of a discussion on a possible design, to be undertaken during the Focus Group Discussions (FGDs). This led to the fourth stage where the operational details were discussed, again during the FGDs. The project team was conscious to encourage the Pacific 'voice' to come through at all stages of the process.

Utilising the robust structure for qualitative research from the methodology provided by a Constructivist Grounded Theory (Figure 1), the project team was able to integrate data collection methods such as a desktop review, key informant interviews (KII) and FGD that were undertaken during the four stages of the collective social learning cycle.

NVivo was used to code transcripts and other documents and manage the codes and anonymity of participants. The software was useful in supporting theme and pattern identification that emerged from the data. The project team created a dedicated and secure MS Teams site within the Pacific Community (SPC) IT system to store data, share transcripts and documents, and talk with other project team members. Each site channel aligned to a specific activity milestone.

The project team met weekly online through Teams to review progress and plan activities. Project oversight was provided by a Steering Committee comprised of the SPC-LRD Director, ACIAR Country Program General Manager and the ACIAR Regional Country Manager. Apart from general monitoring, three evaluation presentations to the Steering Committee were undertaken in December 2021, March 2022, and August 2022.
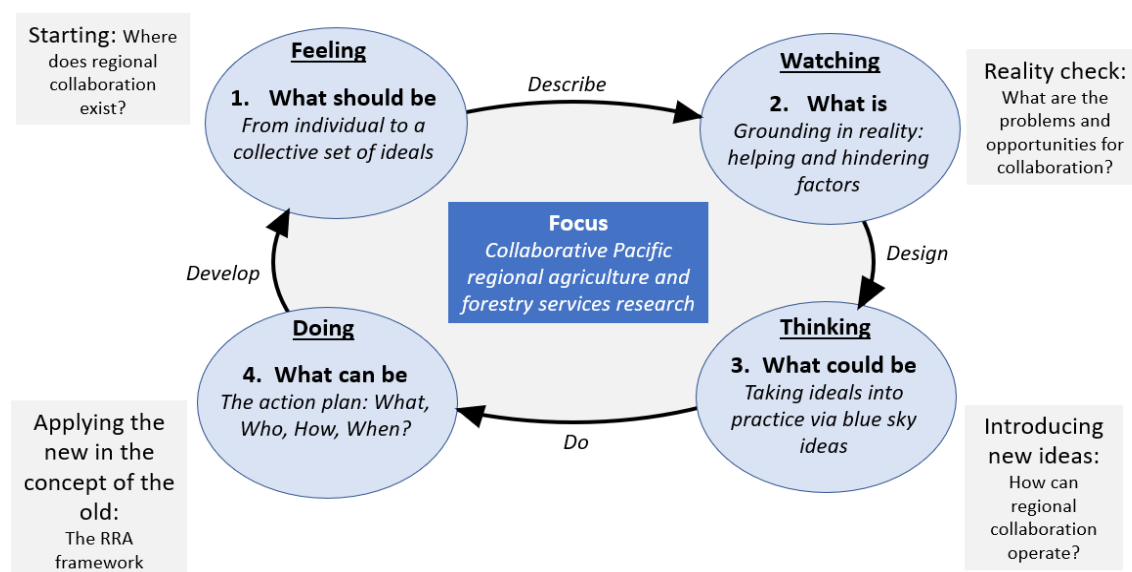

Figure 1: Stages of collective social learning (adapted from Brown & Lambert, 2015)

Methodology

The methodology used for this SRA was Constructivist Grounded Theory (CGT) (Charmaz, 2014). CGT is a qualitative research methodology that utilises an inductive approach to a social issue where no adequate prior theory exists.   In this RRA study the aim is not to utilise CGT to develop a new theory but to use the CGT methods for a robust process to understand and explore the social issues that provide the foundation for a sustainable RRA framework.

The CGT approach provided a systematic process to generate ideas from information that emerged from data collection methods. The methods included desktop research, key informant interviews (KII) and focus group discussions (FGD). Interpretation of the data required a systematic coding and consistent cross-checking against the literature. CGT methodology assisted in identifying data patterns, augmenting creativity, and strengthening data interpretation.

The CGT approach required an awareness of the researcher's unconscious biases and potential constraints due to regional beliefs that spring from the complex identities of the region's heterogeneous groups. Disregard of these constraints could hamper collaborative efforts unless RRA process is navigated with a focus on inclusivity   that lives beyond this initial study.

Desktop review

The project team utilized 15 national plans and strategies as part of the desktop review. See **Appendix 5:** National documents referenced. Six of the development strategy documents for agriculture and forestry stated the need for sector coordination. A collaborative R&D sector is regarded by the PICTs as an enabler that can improve government agricultural and forestry services.

The desktop review gathered information from a wide source of national, regional, and global documents and then undertook a basic analysis of the information. A Causal Layered Analysis (CLA) (Inayatullah, 2021) was used. The CLA a simple four-layered lens to view a social problem, an approach the Pacific Community (SPC) is investing resources in to socialise 'futures thinking' across the organisation. In this study, the four CLA layers are used to analyse obstacles to regional collaboration in Pacific agriculture and forestry R&D. This analysis is discussed in Chapter 3.

The review and analysis of the literature was a continuous process integrated with the key informant interviews and focus group discussions.

Key Informant Interview (KII)

Data collection commenced with 20 key informant interviews undertaken between April and August 2022. A target pool of 30 informants resulted in successful interviews of 20 key informants. **Interviewees had** their identities and confidentiality of information protected through a coding system. The codes were generated and assigned randomly, and a codebook was secured by one member of the project team. All participants were provided a consent form to allow their comments to be used in public whilst retaining their anonymity. Participants could withdraw and have their data deleted at any stage. All participants provided complete consent forms or indicated consent through email. No participants withdrew.

Table *1* shows the breakdown of interviewees by gender, organisation type, and country. The target key informants were Government employees active in agriculture and forestry services R&D from SPC member countries (12) and research leaders from Pacific universities involved in agriculture and forestry research (7) and a regional non-government organisation involved in agriculture and forestry services (1). Interviewees from eight PICT countries participated.

All KII's were recorded and then either manually transcribed or underwent a basic transcription using Otter.ai.

Interviewees had their identities and confidentiality of information protected through a coding system. The codes were generated and assigned randomly, and a codebook was secured by one member of the project team. All participants were provided a consent form to allow their comments to be used in public whilst retaining their anonymity. Participants could withdraw and have their data deleted at any stage. All participants provided complete consent forms or indicated consent through email. No participants withdrew.

Table 1: Key Informant Interviews

	Code	Gender	Organisation Type	Country
1	yTdo	Female	Government	PNG
2	SlYc	Male	Government	PNG
3	54PX	Male	Government	Samoa
4	YR4N	Female	Government	Fiji
5	O180	Male	Government	PNG
6	nvXs	Female	Government	Nauru
7	PMbe	Male	Government	French Polynesia
8	HeBq	Female	Government	RMI
9	DFon	Female	Government	Fiji
10	xj7K	Female	Government	Cook Islands
11	zppd	Male	Government	Solomon Islands
12	qAEf	Male	Government	PNG
13	mo39	Male	NGO	Hawaii/Fiji
14	TUch	Female	University	Fiji
15	ACA1	Male	University	Fiji
16	2mBX	Male	University	Samoa
17	Pp6y	Male	University	Fiji
18	BvTK	Male	University	Fiji
19	GPUA	Male	University	PNG
20	LsP9	Male	University	Fiji

Due to ongoing COVID meeting restrictions and the vast distances of the Pacific region, all the KIIs were conducted online except for one, code LsP9, that was available after meeting restrictions were lifted.

Talanoa / Workshops

To ensure inclusivity and participation with all key stakeholders in the consultation process, the Project planned to hold at least four consultation sessions (*Talanoa*) with participants covering the three sub-regional groups (Melanesia, Polynesia, and Micronesia) and a session with development partners. The consultations included interviews with key senior officials and researchers from selected PICTS. Participants could provide strategic, technical, and organisational perspectives, as well as advice on what an RRA concept and process might be. Due to the ongoing travel restrictions imposed by the COVID pandemic, however, the Project reduced the number to three consultations, which were held in Fiji in May 2022 with regional organisation SPC, in Brisbane in June 2022, and virtually online. **Table 2** shows the key dates for the key informant interviews and workshops.

Table 2: Key dates

	Data collection method	Date	Participants (Men: Women)
1	Key informant interviews	May to August 2022	20 (13:7)
2	Fiji workshop	25/05/2022	16 (11:5)
3	Brisbane workshop	15/06/2022	16 (4:12)
4	Virtual workshop	17/08/2022	26 (17:9)

In the May consultation in Fiji, participants were limited to the Land Resources Division; given LRD's long experience in regional engagements, participants could test the findings for key informants and the desktop review. The main agenda of the meeting was a presentation of key informant interview findings and a gap-filling and brainstorming session on the governance process and integrity. Key outcomes from the May session went into developing the agenda for the June Brisbane consultation.

The Brisbane consultation was considered to be a critical meeting. It brought together at least 30 key member countries from the three sub-regional groups, in addition to international development and research partners. The limited flight routes available in the Pacific at that time and the restrictions due to COVID protocols limited the number of member and development partner participation to fourteen. Despite this challenge, the Project managed to have representation from the three sub-regional groups. The agenda was focused on discussing and answering questions grouped in three themes: Why should we collaborate? What do we collaborate on? How shall we collaborate?

The virtual meeting held in August 2022 involved a larger group of participants and aimed to have member countries that were not part of earlier workshops or interviews engage in the process. The online *talanoa* presented project findings and gathered final feedback on the process and governance around the RRA. Key milestones were presented to the project steering committee.

Picture 1:   Brisbane workshop participants, 15-16th June 2022

Table 3 shows the breakdown of participants. In total 67 individuals participated from fourteen PICTs and five non-PICTs in key informant interviews and workshops in Fiji, Brisbane, and online. A total of

22 participants chose to participate in more than one event, increasing total participation to 96. While each workshop was designed as a stand-alone event, interest and ongoing engagement from repeat participants was encouraged since their interest and support brought further insight as they could reflect on previous data and proposed frameworks. This feedback improved the richness of the data and the final design. Twelve current PHOAFs members participated, ensuring a degree of socialisation and alignment of the proposed RRA framework can meet the expectations of the wider PHOAFs membership. **Figure 2** and **Figure 3** show the gender split and participation by organisation type. Further participant details are included **in Appendix 4: Participation**.

Table 3: Participant details

	Sub-total	Total
Number of participants[1]		67
Key informants	20	
SPC Fiji workshop	21	96
Brisbane workshop	22	
Virtual workshop	33	
Gender		
Women	29	67
Men	38	
Institutions		
Government	33	
Intergovernmental	23	
NGO	2	67
Public Sector	2	
University	7	
Countries		
PICTs	14	19
Non-PICTs	5	
Current PHOAFS members	12	

Note[1]: There were 67 individual participants. Twenty-two individuals participated in more than one event, amounting to a total participation of 96.
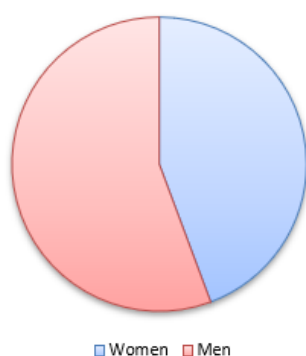
Figure 2: Participants by Gender
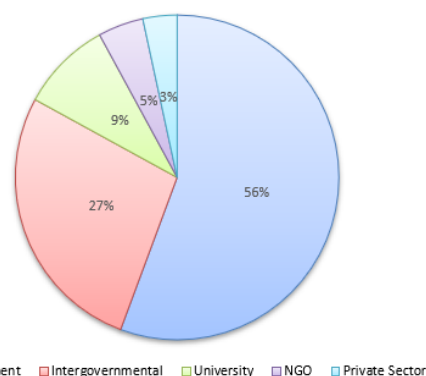
Figure 3: Participants by Organisation Type

Picture 2: Brisbane workshop participants

The Capitals Model

Looking through the large amount of information contained in the transcripts of key informant interviews and workshops, the problem became how it can be broken down into common categories to ease the reader's comprehension of the diversity comments and ideas. The Five Capitals Model was chosen because it provides a framework for understanding the value placed on each Capital by key informants and further analysis of the balance between the Capitals supported decision-making, design, and governance of the regional research system to build a sustainable future. The Five Capitals Model is appropriate for the Pacific since it has been widely utilised to understand rural and community development needs that focus on people (DFID, 1999; Emery et al., 2006). The inclusive people-centric approach is relatable to Pacific community sentiment. **Table 4** provides definitions for the five capitals (social, human, financial, natural, physical) and an extra capital for political. Political capital was included to provide additional focus on the link between turning R&D interventions into policy – an issue that emerged from key informant transcripts. Ensuring a balance of the six Capitals are incorporated into the final RRA design will support process sustainability.

Table 4: Capitals definition

Capital	Definition
Social	Values and norms are shared within or among groups which helps facilitate co-operation (Keeley, 2007)
Human	Skills, abilities, and personal characteristics of people that enable them to develop knowledge and access resources
Financial	Measures the monetary resources available to invest in the community to support and enhance businesses, charities, and local foundations. It measures financial resources and the capacity for future investment (Emery & Flora, 2006)
Natural	Measures the value that the ecosystem (geology, soil, air, water, and all living things) can yield into the future (World Forum on Natural Capital, 2019)
Physical	Refers to access to machinery, laboratories, buildings, computers, and other fixed assets created by humans, that can be used in activities over many years.
Political	An individual's ability to influence political decisions.

Chapter 3: Key Results and Discussion

Introduction

"Regional research priorities are not the sum of the national priorities. Regional research priorities indicate the areas of work best handled at the regional level. This implies that regional priorities must respond to concerns that are felt in several countries, and that the outcomes of regional research must be of use and must be accessible to several countries. An implication is that regional research priorities do not need to be comprehensive but rather complement national research." (Janssen et al., 2004)

All key informants were in favour of establishing a regional research agenda. Reasons for support aligned with issues identified from the literature review.

Figure 4 shows a diagram of five partnership levels and stakeholder engagement. This starts at the most basic level of 'inform' partners with updates on project progress that takes minimum time and effort sending out to a large number of stakeholders. Collaboration requires the most time and effort and can entail joint administration and fund arrangement. Any one of the five levels can be applied to a specific partnership and are relevant within a specific context to maximise value and benefits.

Once the need for collaboration is recognised, the nature of the collaboration is refined with details on possible modalities of partner engagement.

Figure 4: Five levels of stakeholder engagement

How partner organisations engage is determined through consideration of costs in time and money weighed against benefits, value, opportunities, access to assets and resources, and capacity building.

Further detail on the distinction between collaboration, cooperation, and coordination is tabled in **Appendix 6**: **Coordination, Cooperation, and Collaboration**.

Causal Layered Analysis

The desktop review gathered information from a wide source of national, regional, and global documents and then completed a basic analysis of the information. The basic analysis was a Causal Layered Analysis (CLA) (Inayatullah, 2021). This is a simple four-layered lens to view a social problem, an approach the Pacific Community (SPC) is investing resources in to socialise 'futures thinking' across the organisation. The CLA four levels to interpret are termed the Litany, Systemic, Worldview, and Myth, and are described further below. CLA is not unique, and many other methods and tools exist to encourage social change and collective learning. The CLA has repackaged some of the existing tools for ease of application. Process is used to support the Pacific Community (SPC) drive to socialise a common approach and promote the importance of futures thinking across staff and the region. The four layers of the CLA are used as an initial method to unpack, understand and draft an initial summary of the obstacles to regional collaboration in Pacific agriculture and forestry R&D. This summary is presented below, with further details in succeeding sections.

1. <u>Litany (Level 1)</u>: This refers to the common headlines of solutions to problems and the way things are acceptably resolved. In Pacific agriculture and forestry R&D, a common 'accepted' response to a problem is to invest more money towards an economic solution. This will allow the public to gauge the seriousness of the problem by the level of money committed.   For regional collaboration the 'litany' is generally a reactive solution that appeals to donors for a multilateral project that addresses the particular problem.
2. <u>Systemic (Level 2)</u>: This level searches for the causes of poor collaboration levels. The desktop review indicated that individual researchers support collaboration but obstacles identified at administrative, economic, and political levels acted as a major disincentive for regional collaboration.
3. <u>Worldview (Level 3)</u>: If we look at the identified disincentives, a pattern emerges of organisations operating in isolation and a new problem is automatically viewed as being outside their current budget and a short-term donor is sought as a solution. An alternative solution could be to create a process that links these organisations to support resource and knowledge sharing, as well as collaboration.
4. <u>Myth (Level 4)</u>: What is the new narrative, or soundbite, that can express the new way of thinking about the problem? The old myth was based on external funds and expertise being supplied and support from external donor organisations. The new myth to promote is defined by collective action taken through sitting and talking about an important issue.

The CLA for regional collaboration used during the desktop review is summarised in **Table 5**

Table 5: Causal Layered Analysis for Regional Collaboration

Causal Layered Analysis level	Pacific regional collaboration
Litany	<u>Problem</u>: Limited collaboration to address regional problems <u>Solution</u>: A regional problem needs donor funds to supplement limited national budgets
Systemic	<u>Problem</u>: Administration, economic and political issues act as a major disincentive to regional collaboration <u>Solution</u>: A smarter process that enables greater regional collaboration
Worldview	<u>Problem</u>: Pacific organisations are largely isolated and focussed on addressing national issues within limited budgets <u>Solution</u>: Move to a new system of developing social and human capital, sharing resources, and identifying regional issues that can be addressed with local resources
Myth	<u>Old</u>: Ask donors for funds and expertise <u>New</u>: Let's talk and take collective action

Why? Is regional collaboration relevant and effective in the Pacific context?

Different Perspectives

This section provides a brief overview of the likely viewpoints towards aid from three stakeholders: donors, ministries, and smallholder farmers. Donors are defined as an organisation dedicated to distributing aid.   Donor governments manage their Overseas Development Assistance (ODA) contributions through their National Development Agencies that work with sector donor recipient government Ministries in the PICTs. Ministries are high governmental organisations that manage a sector of public administration. Smallholder farmers are defined as those existing in intensive and traditional family labour farming systems based on local resources and low capital input. The farmers are limited in production area, finances and knowledge, are often marginalised in decision-making in society, and generally have limited opportunities that result in unfulfilled potential.

Donors and aid

'Leadership and governance are critical to getting the outcomes.' (H.E. John Ma'o Kali, 2022)

Discussion in the Pacific on regional collaboration is a topical issue. Geopolitical and foreign aid tensions are on the rise in the region. This may appear to be an opportune time to strengthen donor partner relationships with targeted programs that are defined by the region, and for the region, for significant economic development and livelihood improvements. However, aid effectiveness is not always correlated with increased funding and there are cases of both positive and negative effects on growth (Askarov & Doucouliagos, 2015).

One cautionary tale is Africa, where investment of billions of dollars in foreign aid has not always translated into poverty reduction. (Moyo, 2008). When presented with ''too much' aid, countries with weak formal institutions can fall victim to misappropriation through their political client networks (Moss, et al., 2006). Too much aid can be defined as a situation where a local institution recipient with poor oversight and monitoring of internal financial and administrative processes can quickly be overwhelmed with donor aid demands (Stephen Knack & Aminur Rahman, 2007). The recipient administrations must spend the money within an agreed timeframe and political pressure can erode the official system and lead to processes that might by-pass structured and fair procurement.

This 'too much aid' scenario, referred to as the aid-institutions paradox, can lead to:

1. The erosion legislature power through being undermined by the executive branches.
2. The fiscal contract between governments and their citizens weakening as the client-networks are allowed to establish.
3. The erosion of incentive to build strong public institutions (Yanguas, 2014), and,
4. Problems identifying accountability based on established procurement processes if many donors are involved (Easterly & Pfutze, 2008).

Aid should use country systems as much as possible and ensure the development and maintenance of robust local public institutions as they are critically important in the development process to maximise the aid effectiveness (Moss et al., 2006). Recognition of the importance of effective and efficient local institutions that foster aid-development outcomes across all aid investment sectors is one reason why Pacific Governance[1] projects received the highest amount of Australia's aid in 2019 (Dayant, 2019). When COVID-19 impacted the region, governance projects were moved down the priority list as aid was directed to projects focusing on health, disaster preparedness, and gender

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[1] Governance: defined as the exercise of political, economic, and administrative authority necessary to manage a nation's affairs (OECD, 2007).

(ACFID, 2015). Agriculture and forestry services were a lower priority receiving between 1-7% of a PICTs total donor funds (ACFID, 2015). Donor aid priorities provide insights into how the Pacific agriculture and forestry sector is regarded in relation to other investment sectors and their regional challenges. A regional collaboration in research with strong governance based on robust systems, accountability, and culture (OECD, 2022) will be an attractive initiative for donor investment.

ODA investment is also guided by The '*Busan Partnership for Effective Development Cooperation',* that in 2011 developed principles for donor aid architecture (OECD, 2011). The four general principles are:

1. Ownership of development priorities by developing countries
2. Focus on results
3. Inclusive development partnerships
4. Transparency and accountability

The Busan Partnership document also recommends that:

'Developing countries increasingly integrate, both regionally and globally, creating economies of scale that will help them better compete in the global economy.' (OECD, 2011, p. 9)

Aid coordination supports reduction of donor transaction costs and also benefits the recipients with the level of resources required in the process of implementation and delivery (Bigsten & Tengstam, 2015). The principles and aspirations outlined in the Busan Partnership align with the goals of the RRA for Pacific regional collaboration in agriculture and forestry R&D.

During the interviews and FGDs, the donors were very supportive of a coordinated R&D system that could guide their investments. Targeted programs developed and led by the region that address priorities identified by Pacific voices are aligned with donor objectives and visions of partnerships and local empowerment. Feedback from donor partners produced encouragement and support for an inclusive process with greater collaboration that is led by the Pacific partners.

The lesson for the Pacific Community is to know our capacity and identify where aid that prioritises support for agricultural and forestry services Ministries and branches of government is required. Insights into donor funding priorities can be utilised to tailor Pacific stakeholder priorities and ensure they align with the specialised areas in which some donors may prefer to invest.

Pacific ministries and aid

Ministries are in a constant struggle to find a balance between their limited resources and development priorities. While seeking long-term solutions, Ministries are often caught in short-term political or donor funding cycles. An old but still relevant survey from 1987 showed that the involvement of local institutions was correlated to project sustainability beyond the funding cycle (Cernea, 1987). Ministries are the only service providers that are permanent and embedded in the communities, and their involvement and support is crucial for project and program stewardship, change, and sustainability.

Well managed collaborative action with business partners can lead to the integration of business practices into systems, and this integration has been cited as a key requirement for success (Ho & Newton, 2002; Kouvelis et al., 2006). Success in the Pacific context might be regarded as stewardship of issues with long-term investment for change. The importance of partners and support networks for Ministries' organisational development is well documented (Berdegué, 2001; Bruderl & Preisendorfer, 1998; Curtis et al., 2002). Social capital, or the strength of partnerships and support networks where resources and ideas are shared between organisations, is also used as a proxy measure of an organisation's sustainability (Lee, 2009; Sandín & Pavón, 2011). The process to activate,

develop, and expand support networks improves the capacity to share norms and values across a network and increases the potential for collective action and innovation to occur, in turn improving the probability of development and sustainability (Keeley, 2007). In the disparate PICTs where agriculture and forestry R&D resources and capacity vary markedly, partnerships and collaboration that address governance and institutional capacity, shown in the previous section of this report to attract donor interest, can provide an efficient and effective pathway towards organisational development that translates into community outcomes.

Donors, as discussed in the previous section, are looking for guidance from verifiable Pacific 'voices' for agriculture and forestry R&D. Farmer and forestry organisations have recognised the importance of partnerships in the Pacific region. To quote a policy brief from the Pacific Farmer Organisations:

> *'…a partnership between agriculture ministries, relevant public sector organisations and farmer organisations will increase the depth and quality of agricultural research as well as see more comprehensive and widespread adoptions of the results.'* (PIFON, 2016).

Decentralisation of research has many benefits, but also brings an added cost to research quality management to service a disparate group of farmers and sustain links between farmer groups to research centres and universities through a research extension system. There is also increased risk for Ministries in managing their client-networks to ensure vendors are engaged in a fair and transparent procurement process. As Ministries are operating on limited funds, limited capacity, and deadlines, it becomes easy to divert public resources through politically favoured client-networks where *'one person's civic engagement is another's rent seeking'* (Fukuyama, 2000, p. 8).

Regional research collaborations should be based on intellectual justifications where the potential for benefits is high and not driven by economic motivations that can lead to tension and conflict (Anderson & Steneck, 2011). Businesses compete, but Pacific researchers should cooperate.

There are many advantages for Ministries to develop partnerships with donors, forestry groups, and farmer organisations, (see sections on drivers and incentives in this report); however, awareness of disadvantages, (see sections on disincentives and enablers), and creation of governance structures to manage these challenges is required (see sections on framework and process).

Pacific farmers and aid

I realised we're already sleeping on the cash (feedback from a facilitated workshop in Nadroumai, Fiji, 2018).

The quote above from a farmer organisation in Fiji indicates that agriculture production improvements and forestry management for communities and smallholder farmers is often a social problem rather than a technology problem (Oakeshott, 2020). Coordination and collaboration between smallholder farmers, farmer clusters, and their communities, is a challenge for Ministries. A regional research agenda therefore requires awareness and should embrace and provide support to Ministries.

A partnership with farmers has many advantages for a regional research agenda. The Pacific Island Farmers Organisation Network (PIFON), now known as Pacific Farmer's Organisations (PFO), has

defined the advantages of research decentralisation through the engagement of farmers, farmer clusters, and forestry groups (PIFON, 2016):

1. Addresses the direct needs of farmers
2. Improves probability of adoption
3. Greater geographic spread of research that brings a 'rich' data set
4. Utilises existing infrastructure and systems
5. Direct farmer input opens opportunities for practical solutions from farmer experience
6. Ownership of the research develops farmer capacity

Research decentralisation has not occurred within countries as these partnerships involve the following challenges:

1. Added facilitation cost to engage and service a large disparate group of farmers
2. Weak linkages between research centres, universities, and extension systems
3. The high cost of monitoring and evaluation of the research
4. Motivation of extension staff to 'champion' the partnership and facilitation processes
5. The ex-ante estimates of benefits are hard to quantify to make a financial commitment
6. Research quality can be compromised due to limited research site capacity and resources

The ambition of the RRA is to create an inclusive, sustainable, and transparent process that engages R&D intervention beneficiaries in fruitful partnerships. Keeping in mind that an RRA specifically addresses regional issues, it remains important to engage farmers and farmer clusters through a decentralised R&D process that must involve, and be managed by, agriculture and forestry ministries. The importance of Ministries partnering with farmers for stewardship and sustainability was outlined in the previous section of this report. This relationship should be supported by an RRA framework and should assist Ministries in addressing research decentralisation challenges.

Identifying what farmers and forestry groups, need from research is summarised in **Table 6** into three areas: Emotional, instrumental, and informational (Barrera, 1980; Oakeshott, 2020). An RRA is expected to focus on the 'informational' projects and programmes that provide spill-over benefits to the 'emotional' and 'instrumental' channels that generally have existing national programs to form and support RRA links.

Table 6: Farmer Support Channels

	Support Channels (Needs)	Attributes of needs and potential source (service entry point)
1	**Emotional**	a. Behavioural advice (Cluster members, religion) b. Kinship (Family)
2	**Instrumental** *(access to existing systems)*	a. Access to finance (Banks, financiers, and informal lenders) b. Buyers, suppliers, and traders c. Access to information technology (mobile network, radio, tv, internet) d. Health services (crucial for cluster sustainability with local clinics)
3	**Informational** *(advice and options for innovation)*	a. Technical production of postharvest advice (Universities, LGUs, technical sales representatives) b. Business and management advice c. Influencer (facilitator)

Adapted from Barrera (1980)

Drivers

A group of individuals collaborating for a common end is a socially optimal strategy.   This strategy of group cooperation for individual and group level survival was documented and made popular over 160 years ago by the English naturalist Charles Darwin (1859). At that time, organising cooperative structures to support people with similar needs and guide their trade already existed, such as the Rochdale cooperative in 1844, which preceded Darwin's naturalist narrative. Of course, in the Pacific, 'cooperation' always existed as essential for the survival of remote island communities. This Pacific cooperation is based around reciprocity to maintain equality, and is the foundation of various rituals that evolved across the region for social exchange (Molina et al., 2017).

Collaboration and cooperation in modern times retains the same philosophy of the past, that pooling scarce resources and working together improves livelihoods or market performance over an individual or sole trader. In modern times of precarity, indeterminacy, and specific to the RRA where there is an increasing complexity of research, collaborative approaches are tailored from experience to improve outputs through knowledge and resource sharing (Zhao et al., 2021).

Cooperation in the management of Pacific development exists as Pacific leaders have determined that regional collaboration is the best 'survival' strategy to achieve the interests of their individual nations, rather than defecting and going it alone (SPREP, 2014). The Pacific is fortunate to have leaders that have recognised the benefits of collaboration that also have a willingness to own their problems and solutions. Their political leadership and support are the key drivers and enablers for any potential regional research collaboration. This was expressed by the leaders at the Pacific Islands Forum Secretariat (PIFS) in the *Framework for Pacific Regionalism* (SPREP, 2014), where they defined their goal of Pacific regionalism as:

> *'… the sharing of institutions, resources, and markets, with the purpose of complementing national efforts, overcoming common constraints, and enhancing sustainable and inclusive development within Pacific countries and territories and for the Pacific region as a whole.'*

It is not only the Pacific leaders, but also regional donors such as the Official Development Assistance (ODA) organisations, guided by the *Busan Partnership* (OECD, 2011, p. 9), these donors encourage countries to undertake group cooperation, both regionally and globally, to improve their competitive advantage in the global economy.

This expression of support for regionalism from our Pacific leaders and donor partners has the creation of administrative regional integration as one of its aims. The underlying principle and approach for the RRA is inclusiveness and voluntary participation. It is not intended to force participation through a process that binds sovereign countries into a legal agreement. The RRA should demonstrate clear R&D benefits and positive research outcomes that justify support from individual Pacific countries.

Four categories of significant drivers for collaboration between countries have been identified as science, economy, geopolitics, and culture. Countries with large and relatively equal economic and scientific size are likely to collaborate. The co-membership of an intergovernmental organisation, such as SPC, promotes and acts as a vehicle for collaboration. Facilitating international collaboration are cultural links such as a shared language and religion (Hou et al., 2021).

At 100 percent, the key informants completely supported regional collaboration. A key reason given for support included prioritization of human and social capital development (**Table 7**).   The opportunity to attract greater funding through coordination was mentioned; however, the majority of respondents viewed the financial benefits from regional collaboration as a means of risk sharing

and value creation through effective and efficient use of regional resources. Key informants from Micronesia and atoll islands in particular expressed a sense of isolation and noted challenges in undertaking research in their environments that lacked resources. All informants faced the common issue of limited resources and believed a regional collaboration should bring benefits through human and physical resource sharing and a platform to exchange information to improve the region's scientific capacity. Political capital between researchers, policy development and science diplomacy were expressed as an area to strengthen. Some ministries are seeking a greater focus on policy development in agriculture and forestry services; however, the benefit of an RRA that links to national research outputs was regarded as an extra piece of 'trusted' information that could both inform and support ministry national policy development.

Table 7: Why we want to collaborate

Code interviewee	Comment	Benefits	Capital
GPUA	*...a research agenda allows us to kind of recognize that we have common problems*	Share risks	Financial
	...enhancing the knowledge and education of our people	Knowledge creation	Human
	...convert our knowledge of our resources into usable and tangible value	Value creation	Financial
	...creating a pipeline to move the knowledge, the research agenda to where informed the public policies	Policy creation	Political
HeBq	*...strengthening coordinated agricultural research in countries where agri sectors... very weak.*	Share assets & knowledge creation	Human & physical
O180	*...a new perspective about ways of working and thinking*	Knowledge creation	Human
	You think regionally and then then you come back to your local space, and you feel that you can contribute.	Knowledge creation	Human
sLYc	*Pacific solutions to Pacific problems by Pacific people.*	Knowledge creation	Human
ACA1	*Partner or perish…collaboration is king.*	Network	Social
	…differentiate, so not everybody being the same …be distinctive.	Network	Social
YR4N & Dfon	*…also needs to focus on forestry.*	Value creation	Human
	...Collaboration to utilise meagre resources (personnel, time, funds, etc)	Share assets & knowledge creation	Human & physical

The word cloud generated from transcripts on why we should collaborate in the Pacific is shown in **Figure 5**. The top three words frequently used are research, people, and knowledge.   Finance and income do not appear in the word cloud, showing the importance of social and human capital for research in the Pacific region. The top three words align with comments extracted from the transcripts in **Table 7**. The importance of regional research collaboration was summarised by a key informant:

'…partnerships are incredibly important if looking to impact on the Pacific Island region, then partnerships are key. One organisation or nation cannot do it alone, so need to get together.' (ACA1)

Figure 5: Why we want to collaborate

An example of a successful R&D strategy is the Papua New Guinea National Research Agenda (Matainaho, 2022) that has been adapted in **Figure 6** for the discussion on a regional RRA. On the right side of the diagram are listed the reasons 'why' research is undertaken. This helps retain the focus on the benefits and impacts of research for regional communities and where the evaluation of impacts should be measured. Eleven areas for an investment focus, on the left side of the diagram, include tangible and intangible research outcomes that create knowledge that is applied and that contributes to society (right side).
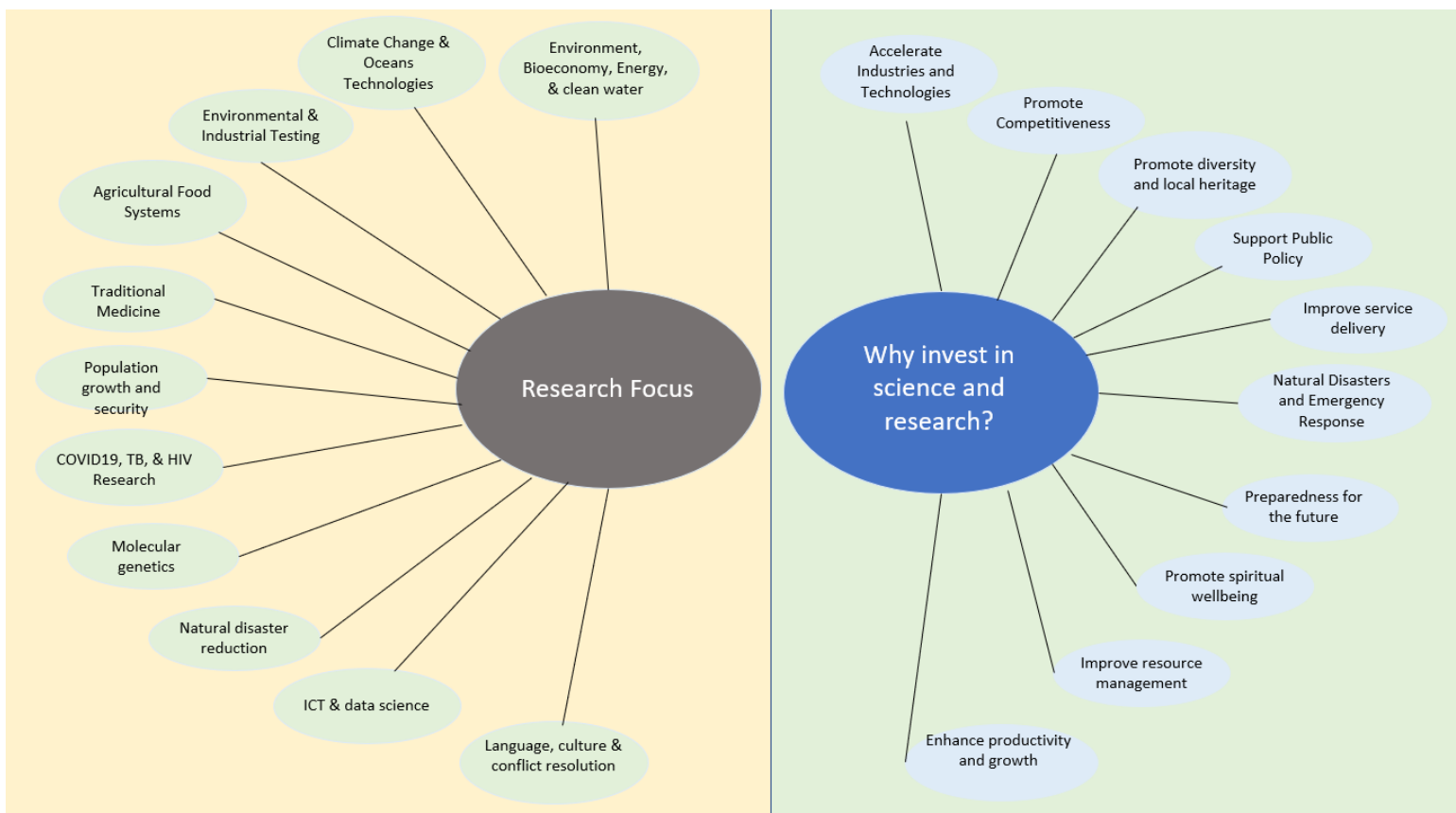
Figure 6: Research Agenda - Why & Research Focus
Source: Adapted from Matainaho, 2022

In the PICTs, where resources for agriculture and forestry R&D are limited, finding the right type and level of incentives that promote cooperation will be a challenge. The following section in this study investigates this issue further.

Figure 7 shows a sustainability framework developed for Australian agriculture (AASF). The aim of the framework is to ensure Australian industry is '*well-positioned to maintain access to competitive financial products and maintain or improve access to competitive financial products and maintain or improve markets, but also help Australian farmers future-proof their enterprises and natural capital in a fast-evolving world'* (AFI, 2022).   The AASF was developed to address the complexity, barriers, costs, and general difficulty for farmers in order to participate in sustainability and environmental stewardship programmes. The RRA will need to embrace the concepts and principles of the AASF and tailor it to meet the needs of end users in the Pacific region. The AASF was developed through a comprehensive consultation process and review of global literature, for example, the Sustainability Assessment of Food and Agriculture Systems (FAO, 2022), SAI Platform (SAI, 2022) and World Benchmarking Alliance (WBA, 2021).

Figure 7: Australian Agricultural Sustainability Framework, source: AFI (2022)

Incentives

The motivation for an individual or organisation to do something or behave in a certain way is more likely if there is a reward or a benefit to stimulate a desired action or behaviour. This section examines the incentives that contribute to successful research collaborations from the perspective of researchers, research organisations, and government.

A regional research collaboration is more likely to be successful when individual researchers are in an environment where they encounter different perspectives and have opportunities to expand their skills. Exposure to international partners and access to more and difference resources, data, networks, publishing opportunities and communities of practice stimulates interest and deepens an individual's appreciation of their discipline. This exposure leads to personal and professional growth that could lead to further research opportunities and strengthen both research capacity and credibility.

Regional collaboration can appear attractive to an organisation due to the range of benefits it offers. First, from an economic perspective, regionalism provides access to multiple sources of funding and also the ability for an organisation to transfer financial risks and avoid unintended consequences by engaging with partners better placed to manage those risks through their local knowledge. There is also an attitude change towards risk aversion that tends to reduce within a collaborative environment (Franken et al., 2022), that can lead to increased research innovation.

The high fixed entry costs of research that can be a challenge for an individual organisation can be managed through a partnership (Janssen et al., 2004). There is potential to 'cost-share' expensive equipment or facilities and achieve economies of scale.

Second the capacity development of an organisation's research workforce managed through a mobile regional team can expose the workforce to new skills and networks. This exposure to regionalism augments a researcher's human capital and can also increase employment opportunities outside the region (Simeth & Mohammadi, 2022). It may, however, also reduce the desire to move outside the region if job security exists, therefore retaining knowledge in an organisation and the region. The downside of a mobile research team is that the regional work may not align with core business. However, this may also result in beneficial expansion of an organisation's capacity outside of core competencies. Third and lastly, a 'spotlight' on a successful collaboration produces a level of goodwill that has the potential to expand to further regional or international collaborations. If, however a partnership does not work, future collaboration may evaporate.

From the perspective of government leaders in the Pacific their support for regionalism is explicit in documents developed and endorsed by Pacific leaders (Pacific Community (SPC), 2022; SPREP, 2014) and in membership to regional inter-governmental agencies, such as the nine organisations that comprise the Council of Regional Organisations in the Pacific (CROP)[2]. This political leadership stems from the realisation that individual PICTs engaged in collaborative research have the advantage of access to specialisations, skills and equipment with a division of labour based on a comparative advantage. This can improve research sophistication and innovations that lead to further research investment that will ultimately improve the livelihoods of Pacific communities.

A regional approach will consolidate and align national priorities to not only provide coherence to donors through an investment framework to manage positive externalities, but also elevate the RRA above the national political cycle, allowing for greater financial security and continuity in research undertakings (Janssen et al., 2004). Some groups can suffer from a 'free-rider' problem where members expect to receive benefits in the belief the collective action will occur without their contribution (Olson, 1965). This is similar to the 'moral hazard' problem when members will try to do as little as possible if they know they can get away with it (Rasmussen, 2001). A regional collaboration will tend to internalise and focus the partners on problems, specific roles, and their value addition, and this has the potential to reduce free-rider occurrence and moral hazard problems.

For a donor, the opportunity to invest in a framework developed and owned by the region will give confidence that the investment will achieve the greatest impact. This confidence comes from the knowledge that a regional framework is demand driven and more problem oriented. Managed and reviewed by a greater range of regional experts and their perspectives, and who can design projects to meet their needs, provide the adoption pathways, and critique results for the region, this approach is an attractive investment model. The focus on shared problems and solutions allows for a clear definition of partner roles, objectives, and responsibilities. There is greater opportunity to create improved investment models for integrated programmes that share and carry-over resources and create impact, rather than stop-start single issue projects that are in a perpetually inefficient cycle of losing, and then renewing, resources.

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[2] **CROP Organisations**: The Pacific Community (SPC), Forum Fisheries Agency (FFA), South Pacific Regional Environment Program (SPREP), Pacific Islands Development Program (PIDP), South Pacific Travel Organisation (SPTO), University of the South Pacific (USP), Pacific Aviation Safety Organisation, Pacific Power Association.

Support for the RRA is strongly motivated by the opportunity to self-organise, as well as manage its design, evaluation, research ethics, and partnership The ultimate incentive for regional collaboration, however, will be in the results. The innovations that improve the livelihoods of Pacific Island communities is the ultimate incentive for Pacific leaders and researchers, and their organisations.

Disincentives

If there is no reward that can stimulate the desired action or behaviour, then individuals and organisations are unlikely to show interest or act. This section examines the disincentives that could impede regional research collaboration.

The primary disincentives relate to administrative barriers. A general belief is that research organisations tend to compete, whilst researchers tend to cooperate. Administrative 'barriers' are the 'structural ingredients' of the collaboration such as legal, policy, organisational and partnership goal alignment of, and the regulatory obstacles that arise when a collaboration spans across several countries. Currently, multilateral projects in the Pacific region require the contract signature of each partner before commencing. This can frustrate a donor through prolonged delays as a contract is passed between countries for their individual legal and financial review processes. From a national perspective, the various donor agendas and number of projects can overwhelm bureaucratic capacity in recipient countries. Aid is therefore more effective if coordinated (Knack & Rahman, 2007).

The advantages of a decentralised research process that engages farmer organisations was covered in earlier sections of this study. In a study of cooperatives, inclusion of existing members in group activities showed an increase in market performance, while high membership diversity led to lower market performance (Miller & Mullally, 2022). Whilst internal transaction and coordination costs increase in order to achieve inclusive membership, the often corresponding increase in market performance is a benefit that can be achieved if the RRA framework minimises member diversity by operating through commodity groups built around thematic areas.

The laws and rules that apply to any regional partnership raises the questions of 'whose laws' and 'why.' A single governance system is essential, and for finance and procurement, the rules applied by the standards of one of the investors – for example the one investing the most and carrying the greatest risk – are also appropriate. The application of rules for research integrity is based on ethics and morality, and not on organisational size and resources. One view is to apply the Western universal ethical standard to everyone equally (Universalists); and another view is that ethical concepts can only be judged in terms of the society in which they appear (Relativists). There is an argument to suggest the Pacific Islanders view individuals through their kinship and community, suggesting ethics more akin to a relativist perspective (Donnelly, 1984). Research governance requires further consultation and consideration within the Pacific region.

All partners seek to understand the scope of their legal risks and how these can be minimised within a partnership. Legal obligations for a regional collaboration are 'case-by-case' depending on the nature of the research and role of the partners. The legal obligations are many and varied and legal counsel is required to ensure an individual organisation can transfer risk in an equitable manner across the partnership. International treaties are another complexity and require early consideration. Adherence to treaties on biological material exchange, biological discoveries, antiquities, or sites, are important legal considerations that can be relevant to specific research partnerships, particularly in the Pacific region. There are likely to be differing expectations and clarity required in regard to both the background and foreground of Intellectual Property (IP), patents, copyrights, trademarks, licencing of outputs, and materials produced as part of a collaboration.

Another administrative barrier is finance and procurement governance and rules. Again, whose rules apply in a partnership where only one administrative system can operate? What are the standards expected from the donors and investors so that they will trust the system and have confidence in any audits? For finance, the fluctuating currencies can cause havoc with organisational budgets in international research partnerships. A limited project budget subjected to a downturn in international currency may result in expected activities and milestones becoming unrealistic. A rise in currency will be an unexpected financial gain. The fluctuations of the international currency markets are 'risks' an organisation will need to consider before entering into any regional partnership. The differing access to domestic research between countries can influence regional collaboration, particularly in situations where one partner can access a level of national support that a partner is unable to access from their home country.

Collaboration also has 'behavioural ingredients' that serve as relationships 'glue' and that maintain the partnership and facilitate efficient operation. These ingredients can be generalised across partnerships to involve three principal areas: character, commitment, and communications. There are a range of relationship considerations within each of these three areas that could have a negative effect on the partnership. The following paragraphs outline these relationship issues.

The use of the Power Distance Index (PDI) as a measurement tool to understand relationships between authority and subordinates is important to avoid any misunderstanding in culturally diverse international collaborations (Hofstede et al., 2010). Societies with a high PDI are more likely to follow an established hierarchy where authority is respected. In these types of situations, employers are less likely to consult with workers when making decisions, and employees acknowledge their subordinate position. In a low PDI organisation with greater equality recognition, leaders and employees interact and exchange more information, and employees discuss and challenge decisions. PDI has an interesting and yet unexplored relationship between the Western donors from low PDI societies and Pacific communities suspected to have higher PDIs, with likely differences between Micronesia, Melanesia, and Polynesia. The nexus between cultures is a point of agreement, or conflict, on what to regard as inequality and where it exists. A high PDI Pacific 'collectivist' culture indicates potential to establish a hierarchy, structure, and process for a regional agenda. The downside, however, is that a high PDI, if too rigid and formal, may stifle innovation.

The emotional quotient of researchers in a team environment is another consideration. Researchers, as with any worker, may found it difficult to work in a team environment. For international research teams this could result in limited sharing of information, sharing only satisfactory results rather than all results, and a general lack of confidence to express opinions. Language, cultural, and distance barriers can exacerbate this situation. Younger partners might be overwhelmed in a situation where they are expected to function as equal partners but lack the same level of experience, access to resources, and influence. In this situation, benefits from informal relationship and trust creation that lead to improved potential for innovation may not develop.

As organisations grow, the usual management model focusses on achievement of specific goals and with strict key performance measures assigned to staff. This may work against collaboration and regional partnerships that require a degree of flexibility with time and resources to establish. Value creation is the focus of R&D managers when looking at the benefits of collaboration, and the amount of effort and resources to expend in creating a functional partnership is an important consideration. Collaboration requires full organisational support through human resources commitment and recognition for the required extra time and effort involved.

Enablers

This section covers the enablers of successful collaborations. These are the people or things that make achievements of an end-goal possible. The previous section on incentives described the aspirations and goals of partners in a collaboration, while this section focusses on pathways that aid the process to achieve those aspirations and goals. The Pacific Community (SPC) (2022b) has identified five key pathways through which interventions are enabled to achieve positive and measurable regional outcomes designed for their Strategic Plan 2022-2031. These five key pathways are useful headings for organisation of this section on the enablers.

1. Policy to Action

Policy to Action focuses on people and aims to ensure the rights and needs of indigenous most vulnerable populations are able to inform decisions, management, and responses. This refers to an inclusive governance process involving stakeholders that can enable adoption pathways. Enabler stakeholders can emerge from a number of areas. They could be early innovation adopters, farmer 'champions,' fully engaged Ministries, policymakers, donors, or communities. Through their networks and enthusiasm these stakeholders identify problems, build support, and create awareness. In turn, their networks will grow exponentially and contribute to increased number of contacts, knowledge, and more resources.

Organisation and national political leaders can create environments that ensure inclusive governance that links with target beneficiaries, their research staff, and management. The leadership task is to maintain alignment and commitment with target beneficiaries, within teams, their organisations, and the other collaborators in the partnership. The leadership challenge is this alignment of goals from their national agendas to any regional collaboration. They facilitate the collaboration within and among groups (Keeley, 2007) through support of 'bonds' that tie their team of researchers together and create and manage the 'bridge' to external stakeholders and organisations (Emery et al., 2006). Leadership in collaborations takes place at many levels, such as individual, team, organisation, national, and regional, and if these leaders can effectively promote the work as a collective network at multiple levels, then collaboration is positioned well to succeed (Hauschildt & Kirchmann, 2001; West et al., 2015). It is the stakeholders, leaders, and implementation team who enable the structure to function efficiently and effectively for a successful collaboration.

Another enabler for successful human cooperation is that it should be voluntary. Force and coercion are not as successful as voluntary collective action (Gillinson, 2004; Grootaert, 2001). The success of voluntary collective action has been attributed to local ownership of the problems that can enhance commitment through knowledge of what works best for their communities and their established and trusted relationships. Friendship and solidary benefits that leads to shared actions and activities develops trust; and trust is an important enabler that improves efficiency and effectiveness through the reduction of time and money associated with monitoring relationship transaction costs (Grootaert, 2001). This leads into an important enabler for the Pacific communities where individuals have a regional connection extending through social kinship that goes beyond kinship derived through blood (consanguineal) or marriage (affinal) (Schneider, 2004). The strength of this Pacific social kinship is an enabler for regionalism with bonds continually strengthened through a shared regional locality and the associated R&D issues in agriculture and forestry services. Annex 4: Why Cooperate, presents a list of potential cooperation motivators.

2. Data, statistics, and knowledge

Accessible and coherent data collection and analysis inform development products for adoption. Data and statistics provide information of who, when, what, or where, while knowledge interprets this information and other clues to answer questions on why and how. Confident conceptual

interpretation is a result of the research credibility of collected data, in addition to the collection process. Credibility relates also to validity, or accuracy, of the measured data and the reliability, or consistency of a measure. If data results are accurate according to the researcher's situation, explanation, and prediction, then the research is valid and dependable (CSU, 2012). These concepts are used to evaluate research that builds public trust in its quality and enables data, statistics, and knowledge for citation, adoption, and use in further research and development.

While data, statistics, and knowledge are an enabling pathway, it is also currently a challenge for research administrators to access relevant data and statistics on Pacific agriculture and forestry services. There is currently no mechanism for a Pacific region informational exchange in agriculture and forestry services research. In 2018, The Pacific Community (SPC) created the Pacific Data Hub (PDH)[3] portal to pool and centralise different web portals with the aim of developing a shared platform to meet the needs of all Pacific data producers and users. The collection of agriculture and forestry services data for R&D, have it analysed, transformed into a user-friendly format, and then shared in the PDH so that it is accessible to all partners is important for end users of research.

3. Innovation and research

Capacity building for research innovation has become a strategic focus for economic and institutional reform. Higher education research capacity development through secure and ongoing investment underpins improvement in research innovation in the Pacific region. There is a claim that a direct linear relationship exists between research innovation and research investment (Mayer, 2011); and this enables economic development and ultimately increased employment. A cautionary note with this pathway and its focus on innovation, economics, and employment is that it be in danger of government interference in the scientific process whereby research targets based on economics and employment in a top-down management approach may be established.

4. Digitalisation and technology

This includes technology, facilities, funds, staff, and any other asset needed for effective implementation. The undersea internet cable is transforming the Pacific region's global engagement capability (**Figure 1**). Online connectivity is improving along with individual capacity to use new systems. However, the eruption of Hunga Tonga Ha-apai in early 2022 highlighted the vulnerability of this undersea connection in a region faced with regular volcanic activity and other natural disaster challenges. The eruption severed Tonga's sole undersea cable, which then took five weeks to reconnect. While IT systems are constantly improving and new back-up systems created, accessing the newest equipment, and building human capacity is still a challenge. One capacity change brought on by the regional COVID travel restrictions is the improved capacity of research teams to work remotely through a range of internet applications. These applications and user skills are rapidly increasing and function as a key enabler for collaboration.

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[3] Pacific Data Hub (PDH) link: https://pacificdata.org
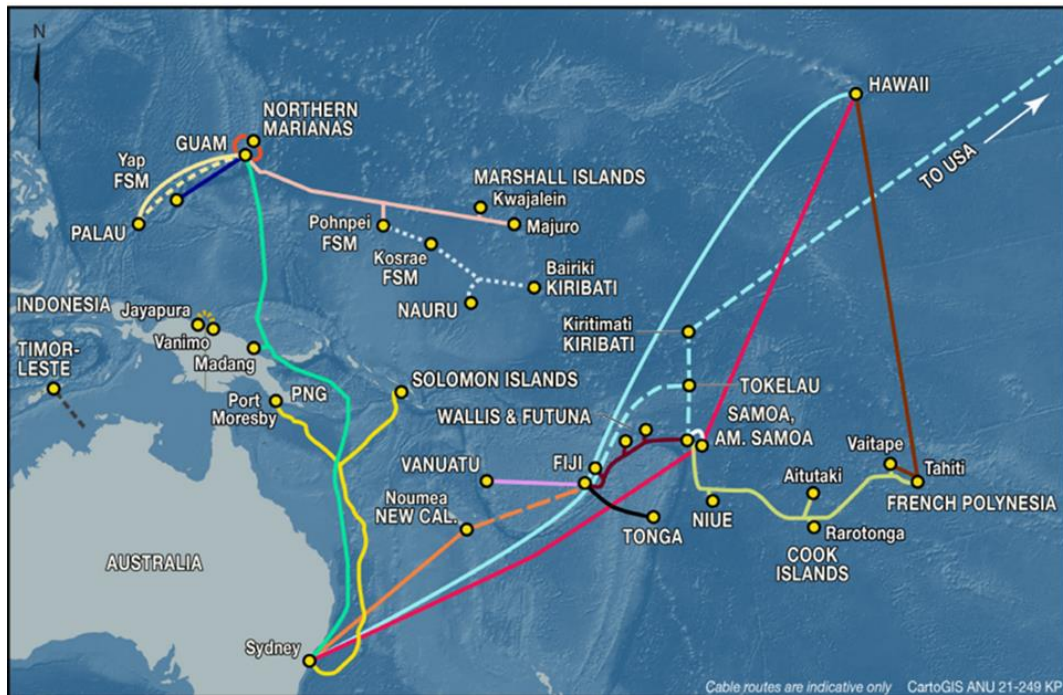
Figure 8: International Undersea Internet Cables for PICTs (Watson, 2021)

5. *Capability and influence*

Capability and influence refer to collaboration design, governance and engagement structure possessing the features needed to enable and influence policy, development, and behaviours. The public and stakeholders require robust and transparent systems to build their trust in the collaboration and to ensure that the partnership has credibility. The success of any governance system depends on four key considerations (EUI, 2008):

a. *Participation*: Inclusion of all relevant stakeholders.
b. *Capacity*: The body coordinating the regional collaboration must have the capacity to exercise governance, if given the authority.
c. *Legitimacy*: The bodies with the most relevant expertise must have the authority.
d. *Effectiveness:* The regional coordinating body must have the ability to adopt and implement binding decisions and resolve any conflicts that arise amongst participants.

Good governance enables collaboration to function efficiently and effectively. Good governance structure also embraces public integrity. OECD (2022) state in their public integrity strategy that corruption is one of the most corrosive social issues. To deal with corruption, the strategy recommends a governance structure that expects consistent adherence to ethical standards, prioritising public over private interests. Poor research governance and research misconduct will cause an organisation and the researchers involved to lose credibility. No researcher wants to work in a collaborative process that lacks ethics, integrity, and credibility.

What? A definition and vision of the RRA.

RRA Vision and Objectives

A high-level vision, objective and definitions were developed from transcripts and tested in workshops. This provides stakeholders with a clear direction for the proposed RRA.

Vision

The Regional Research Agenda (RRA) identifies common agricultural and forestry development challenges in the Pacific region. It establishes Pacific research partnerships and defines strategies to overcome these challenges. The RRA brings the decision making, leadership, and planning into an inclusive Pacific process.

This vision statement was developed during the consultation process and will need to be discussed and if needed amended by the Pacific Ministers of Agriculture and Forestry Services (PMAFS) in 2023.

Objective

Research undertaken through the RRA achieves greater benefits as a collective effort and seeks to maximise outputs by combining expertise and resources, maximise scientific impact, attract funding, expand networks, promote innovation, and promote a Pacific brand.

Definitions

Reasons, incentives and drivers that will support the development of a RRA have been provided in previous sections of this study. It is therefore important that all Pacific partners have a clear and common definition of what it is, as described below.

The RRA is <u>regional research collaboration driven by</u> **a team of scientists** that work **together** on a **specific** problem that takes them **beyond the geographical boundaries** of the organizations with which they are primarily affiliated.

The RRA is a research **model addressing challenges** and **problems** that **cross the boundaries of a single country**: Multiple countries in the same region pool human and financial resources to increase the efficiency and effectiveness of research.

The RRA will be relevant and successful only if research achieves greater benefits when it is conducted in a collaborative manner rather than in individual research systems i.e. *The whole is greater than the sum of its parts.*

The RRA identifies common agricultural and forestry development challenges in the Pacific region and establishes Pacific research partnerships to overcome them.
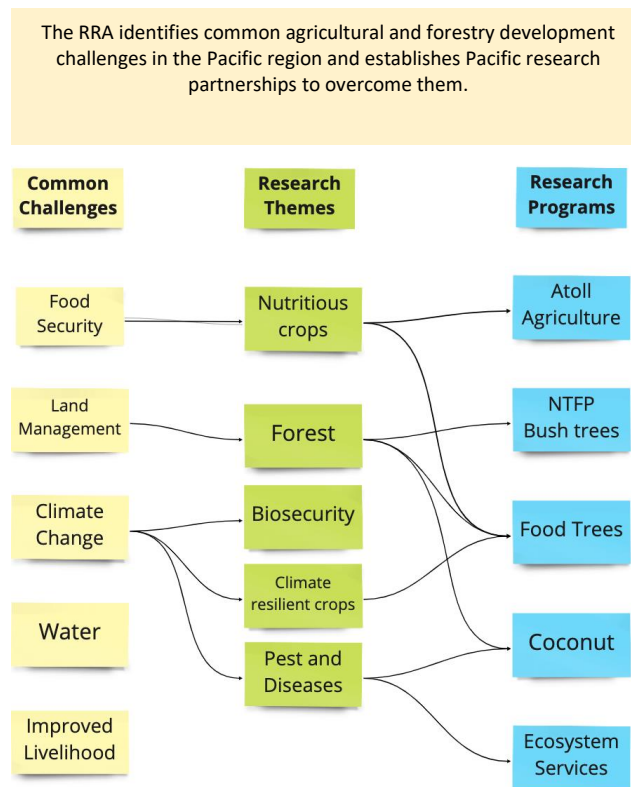
Figure 9: Hierarchy of possible objectives – RRA will identify common challenges, discuss research themes, and agree on research programs to be implemented by Pacific partners.

How? Framework and process

Collaboration, cooperation, and coordination is critical to build resilience within and across levels of governance (Syddall et al., 2022) and regional research requires a governance system, process, structure, and framework on how and where decisions are taken.

The literature review for this study revealed that management systems for research have evolved to adapt to the dynamic environment and growth of research organisations. Witte (1977) described two roles as the 'worker-experts' who undertake the detail of an activity, and the 'power holders' or leadership who manage, support, and promote the work of these 'worker-experts'. As the research cluster grows there is a need for additional human resources. The model expands with the addition of a third team member, known as the 'process *promoter*', required to deal with the increasing complexity, communication needs, and process management, as well as act as a link between all involved organizational units (Hauschildt & Kirchmann, 2001). The model can expand further with consideration of managing the support network (Goduscheit, 2014). The success of the model is defined as promotion and implementation of innovative practices. This requires leaders to adjust their style and management design to align with the growth of the cluster. This three-stage model is sometimes heard in everyday parlance as the colloquialism 'finders, minders, grinders'. The 'finders' are the worker-experts who undertake the research with field partners. The 'minders' are the process promoters who support the 'finders' with communications and administration and also collate and translate the field research into packages for the 'grinders', who design and adjust the strategy based on information from the 'minders'.

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The framework presented during the RRA consultations proposed a model set out in three pillars that was developed from the literature: a technical pillar that would have research teams that collaborate on research projects and produce results (national or regional researchers); a steering pillar which would translate the vision for regional research into priorities, monitoring and evaluating the results (Pacific Heads); and a policy or strategic level which would define the vision and strategic direction (Ministers that are informed by the Pacific Heads). This configuration is highlighted in **Figure 10**.
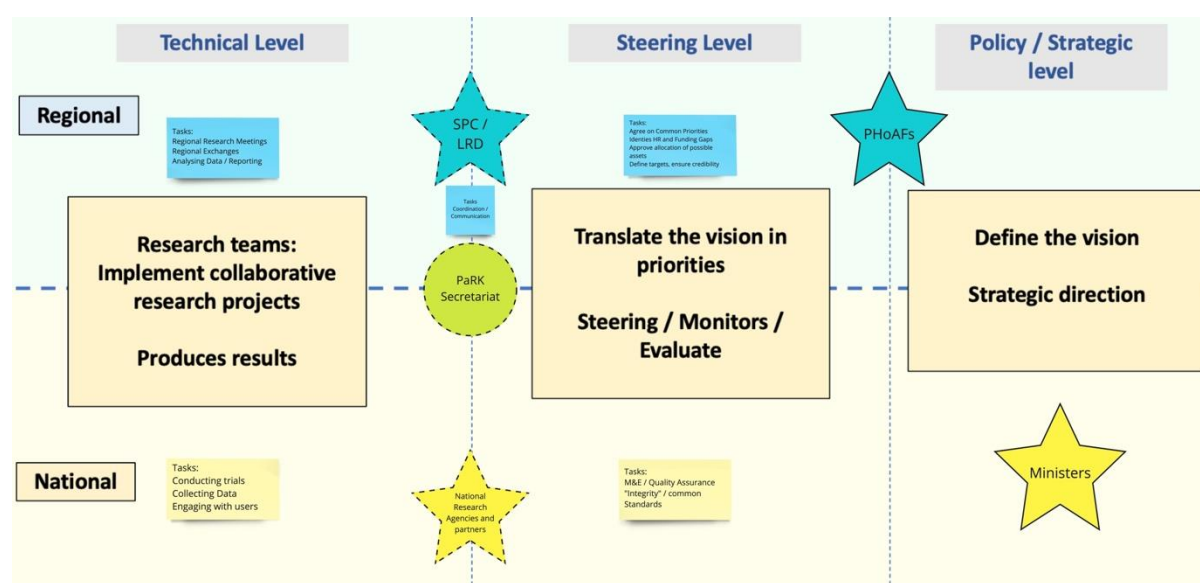
Figure 10: RRA Framework

As shown in the figure above, there are points of connection at each level.

The Pacific Heads occupy the space between the steering and policy/strategic levels, and SPC occupies the space between the technical and steering levels. It is here that a regional research planning group should be positioned and embedded within the existing infrastructure in the Pacific. This planning group would perform the function of a regional research coordinator working with member countries to establish research priorities and credible and relevant research questions that have value and impact for the Pacific region.

This regional planning group also acts as the RRA Secretariat and would manage the common research objectives and flagship research topics vetted through an established criterion, be the focal point for coordination of research and research working groups around disciplines, supplement current regional expertise, link countries conducting similar research, access and create a pool of sustainable funding, and leverage benefits from research networks within the Pacific.

This regional group would be apolitical, established for the long term for stability and resilience to the changing configuration of global drivers. It would establish a Pacific brand, sharing materials, knowledge and data that has integrity, and supplement expertise where necessary and raise the research visibility. It would action an annual research plan that includes foresight and scenarios, as well as strengthen regional research networks, research standards, and indigenous research within the Pacific, helping to inform and influence science that guides policy.

Key informants and workshop participants were asked 'who' should take on the role of the regional planning group, 'where' it should be positioned, and 'what' are examples of functions it will undertake.

Table 8 shows responses to the 'who' and 'where' questions, with respondents in general agreement that sustainability will be enhanced if current structures are utilised. Only one respondent suggested the creation of a new body. Following the 'form follows function' rule of architecture, when the expectations of the regional planning unit are considered, there will be a need to form a new regional group. For efficiency, effectiveness, and sustainability, this group should initially be embedded within an existing regional organisation with established policies, particularly around human resources, procurement, and finance.

Table 8: Regional research planning group – Who?

Code interviewee	Comment	Current or new structure
LsP9	- *possibly SPC in a Secretariat role...PIURN should be a member, along with Universities, NGOs, and Government.*	SPC
LsP9	- *Suggest a new body be formed.*	New
Tuch	- *I think the problem with having something completely new is that regional organisations are being multiplied, we do have a lot in the Pacific for such a remote region*	Not New
ACA1	- *Absolutely (SPC) is a key research provider in the region and would fit in the role of regional coordinating role.*	SPC

Key informants and workshop participants were asked 'what' likely challenges the regional planning group will encounter. **Table 9** shows responses to the challenges question of broken down into an 'issues' column for communications, coordination (internal and external), governance, inclusion, and the need to demonstrate benefits.

Table 9: Regional Research Collaboration Challenges

Code interviewee	Challenge	Issue
GPUA	- …dialogue with research leaders…really important	Communications
54PX	- they do produce the desired research outputs but then the challenge is the actual dissemination to those who should be using it.	Communications
GPUA	- …important to have a proper way to coordinate, research	Coordination (internal & external)
GPUA	- …need to make sure that we are mandated to do what we are doing. And that therefore, there is no duplication of agendas	Coordination external
GPUA	- …governance, identify the players... involved in the research, institutions where they come in, in terms of how they contribute to the implementation of the research agenda, ...the communication	Coordination external
nvXs	- …an inclusive process…a voice…	Coordination external
O180	- …inventory or people who specialize in certain areas.	Coordination external
PMbe	- …all regional partners would agree on and sign a charter with key principles for regional collaboration and clearly defined parameters defining good conduct.	Coordination external
sLYc	- …main thing is to look at the commonalities that we have…	Coordination external
54PX	- It will be a daunting task because all different members have their own unique problems	Coordination external
GPUA	- granting system in terms of how you actually provide a mechanism for which proposals are coming through…put a lot of energy to set that research proposal system	Coordination internal
54PX	- ...the problems they are similar across, but the priorities differ between countries. I foresee that as a challenge, because if we go by democracy and two thirds say we prefer to tackle this one first, then the one third that wanted the other one will be disadvantaged...it's going to be difficult.	Governance
GPUA	- Reporting…really, really important for governance	Governance
GPUA	- …policy is really important. Okay, policies are important. It sets a clear understanding of the issues that need to be addressed.	Governance
BvTK_Pp6y	- Trying to also get projects started in countries can also be frustrated by long delays	Coordination (internal & external)
BvTK_Pp6y	- ...research visas are expensive and time consuming...this could be managed ... could allow more time on research rather than time on administrative issues.	Coordination external
54PX	- the national research needs of the member countries and the research should be applied and adapted. ...rather than just doing an academic exercise.	Benefits

Shared Principles to Support High Impact Collaboration and Engagement

Four principles are presented below as guidelines for the development and operation of the RRA. These principles have been drafted to act as a foundation to underpin partnerships across the Pacific agriculture and forestry research community. They were developed from the transcripts of key Pacific informants, partners, and external advisors (Oakeshott, 2022; OECD, 2011). The Four Principles are:

Principle 1: **Transparency, integrity, accountability, and trust** – It is critical that partners have confidence that the RRA process listens to what they need and want. The RRA will work towards building and maintaining the trust of the PICTs and ensure actions and decisions are taken through an apolitical and transparent process. Integrity will be founded on robust systems, accountability, and culture (OECD, 2022). A process of high integrity and transparency provides a foundation for building and maintaining trust.

Principle 2: **Partnerships:** The PICTs will own and manage the implementation of this regional research agenda through recognition of the different roles and contributions of all stakeholders and respect for each other's different processes to work together and accommodate these differences and constraints. Effective partnership achievement will require congruence of the goals between the partners in Ministries, donors, and farmer organisations. This partnership will also include an understanding and sharing of risks, aim to reduce fragmentation of aid, and embrace an inclusive process that is open to new players and partners.

Principle 3: **Ownership and impact through co-development**: It is important for PICTs to formulate the research agenda according to their priorities. To foster excellence in Pacific research, projects are co-developed and delivered with PICT stakeholders and institutions whereby all ideas and inputs are embraced from the inception of a new concept. The RRA provides a vehicle to develop partnerships in innovative interdisciplinary approaches for increased regional collaboration in agriculture and forestry research with governments, the private sector, and non-government organisations to build regional capacity without creating a burden of work for PICTs Ministries.

Principle 4: **Demonstrates value for money**: The benefits of knowledge creation and the applied contributions to Pacific society that emanate from the RRA demonstrates the feasibility and cost-effectiveness of joint investment and collaboration. Reduced duplication, use of existing infrastructure and organisations, shared resources, in-kind contributions, voluntary contributions, and leverage of best practices are used to build the Pacific research capacity with a focus on results that maximise return on investment and increase impact.

Operations and funding (Implementation and confidence)

'…it's more the respect we share. Yes, I think it comes back to how our ancestors were brought up on our island. And that, and that's the beauty about all regional meetings, is that it happens that way. You lobby outside, and you come inside for the endorsement. There isn't really disagreement.' (sLYc).

Currently there is no institutional mechanism to support a regional research agenda in the Pacific and achieve the vision and definition presented above. However, there are structures and systems that can be enhanced to create a new coordinating mechanism. There is consensus that a regional research 'hub' or an RRA secretariat is necessary, and SPC is an option to fulfill this role.

Stakeholders have consensus that it is necessary, strategic, and tactical to come together to focus on important regional challenges the Pacific has in common, such as adaptation to climate change, biodiversity, food security and nutrition, agro-ecological transition, sustainability and changing global markets (**Figure 6** & **Figure 7**), so that assets are used more strategically, duplication is avoided and information, knowledge, capacity, and policy decisions are shared in a more cohesive way. At the same time, this consensus should not infringe on the independence, uniqueness, or sovereignty of each country. In other words, countries will continue to maintain their individual ownership for their own agriculture and forestry sector strategies and research plans.

National research priorities drive national agendas, whereas at regional level, the research agenda can be contextualised into a broader framework that is guided by common purpose, common ground, common change, and relevance at the regional/Pacific level. A regional approach can identify cross-cutting issues across the Pacific (such as resilience to climate action, natural resource management, biodiversity, food security) where collaboration will benefit all countries. Coordination is required to supplement current regional expertise, link countries doing similar research, and promote the science that can guide policy. Countries with less capacity or resource scarcity for research can hook onto the regional research agenda, ensuring not only that all voices are heard and that the process and system is inclusive, but also that research can be conducted efficiently and effectively at scale. The Agenda can serve as a mechanism to not only grow research within the Pacific, but also develop a Pacific brand, reputation, and identity with greater global impact and influence.

During the consultation process, participants discussed how to implement the RRA. **Figure 11** illustrates a proposal on how to implement the various steps to define a regional research agenda to agree on priorities, identify gaps, and allocate resources and people. Below are possible roles and functions that will be reviewed by the Pacific Ministers of Agriculture and Forestry in early 2023. The implementation process has three steps.

1. **Hearing Pacific voices:** The identification of potential research themes and priorities is an ongoing process. Those that do this work are the 'finders' that gather potential research priorities by talking to national stakeholders and allowing them to have a voice in the RRA process. This is a major coordination exercise that can be transformational if implemented regionally. Smallholder farmers, communities and researchers should be engaged in the process; however, to 'hear' all their voices in a practical method requires a network of commodity associations, Civil Society Organisations (CSOs), research organisations, and other peak industry bodies involved in agriculture and forestry services. This network can be coordinated by a new (or existing) administrative office to align the data from the 'voices' with the national agenda and then prioritise it for the regional agenda. This step entails a significant coordination and data interpretation. The Australian network of rural research and

development corporations (RuralRD, 2018), is one international example of a successful process that captures the 'voice' of farmers which feeds through the national strategies. It is a network of 15 Rural R&D corporations (RDCs) that are either industry owned or statutory that design the research strategies and contract manage the research for their members. The rural R&D corporation members are peak industry bodies for the full range of commodities and producers for food and non-food rural production. Farmer associations and commodity groups already exist in many Pacific countries and adapting the Australian example of network coordination will support Pacific 'voices' to emerge and translate into regional projects. Whilst the coordination of a network will be a significant investment in time and funds for the Pacific community, a review of the Australian system indicates that for every $1 invested by the RDCs portfolio, $11 returned in benefits, along with significant social and environmental improvements (RuralRD, 2008).

2. **Peer Review**: The identified priorities are peer reviewed by regional research leaders against an agreed criterion. The regional research leaders are a group that meets regularly to discuss national priorities and what can emerge as a regional priority. This group is also responsible to oversee research ethics and ensure the RRA process is accessible and transparent and has a high level of integrity. The research leaders' group should comprise a wide range of stakeholders that includes academics, donors, farmers, and research organisations. A Secretariat is required to coordinate the research leaders' group that will require funding to establish and maintain. This step is the responsibility of the 'grinders' that need to prepare the priorities, peer reviewed documents, and progress reports for the third step.

3. **Partners in Research**: This step involves the Ministers and Heads of Agriculture and Forestry Services that set the strategic direction and review the priorities and progress. This group of 'minders' endorse the process and support access to internal or external funds if required. This stage identifies the research partners and oversees the contract management, implementation, outputs, outcomes, and impact, which is reported back to the national governments and the (Hearing Pacific voices) and peer review stage. This allows the process to self-correct and build on the results of research. This is an important step to ensure the PMAFS endorse the priorities and projects and maintain Pacific ownership of the RRA. The Ministers' commitment to a sustainable RRA process for R&D is essential to ensure outcomes for behavioural change and impacts for transformational change or long-term impacts to occur beyond the life of any timebound project.
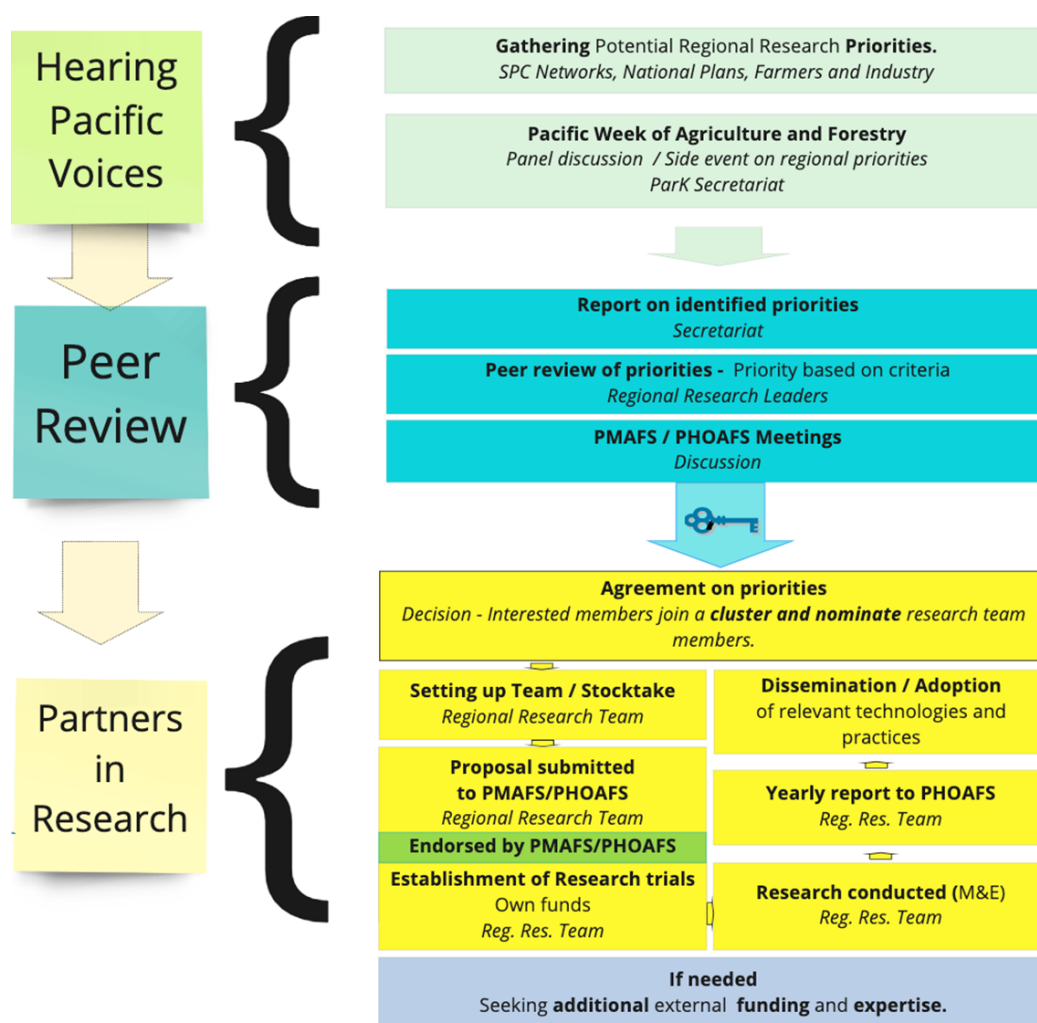
Figure 11: Proposed implementation process

Functions, Roles, and Responsibilities

Understanding required RRA functions and aligning them with existing organisations or associations aids the evolution of the design and details associated with the eventual RRA form. This section provides a proposed list of functions that existing groups and a new regional planning group are required to perform for effective RRA operation.

Once proponents have aligned national and regional strategies for their new proposal, endorsement from participating Ministries of Agriculture or Ministries of Forestry Services (PMAFS) is required prior to submitting the proposal to the RRA body to collate and present to the Pacific Heads of Agriculture and Forestry Services (PHOAFS). The PHOAFS operate in the 'Steering Level' under the vision and strategy established by the PMAFS operating at the 'Strategic Level', see **Figure 12**. The 'Technical Level' is where research projects are created and implemented, data is collated, analysed, stored, and transformed into communication styles for presentation to the Pacific Heads and Ministers or the general public.

The Technical Level administers the daily operations and create a range of outputs. A sub-committee of the PHOAFS is envisaged as required to meet regularly, make operational decisions within the established strategy, and guide administrative processes. This PHOAFS sub-committee is also tasked with presenting the regional research agenda annual report (project progress, financial, administration) to the full PHOAFS. After report review and endorsement from the PHOAFS, the PHOAFS sub-committee will present the documents to the PMAFS.
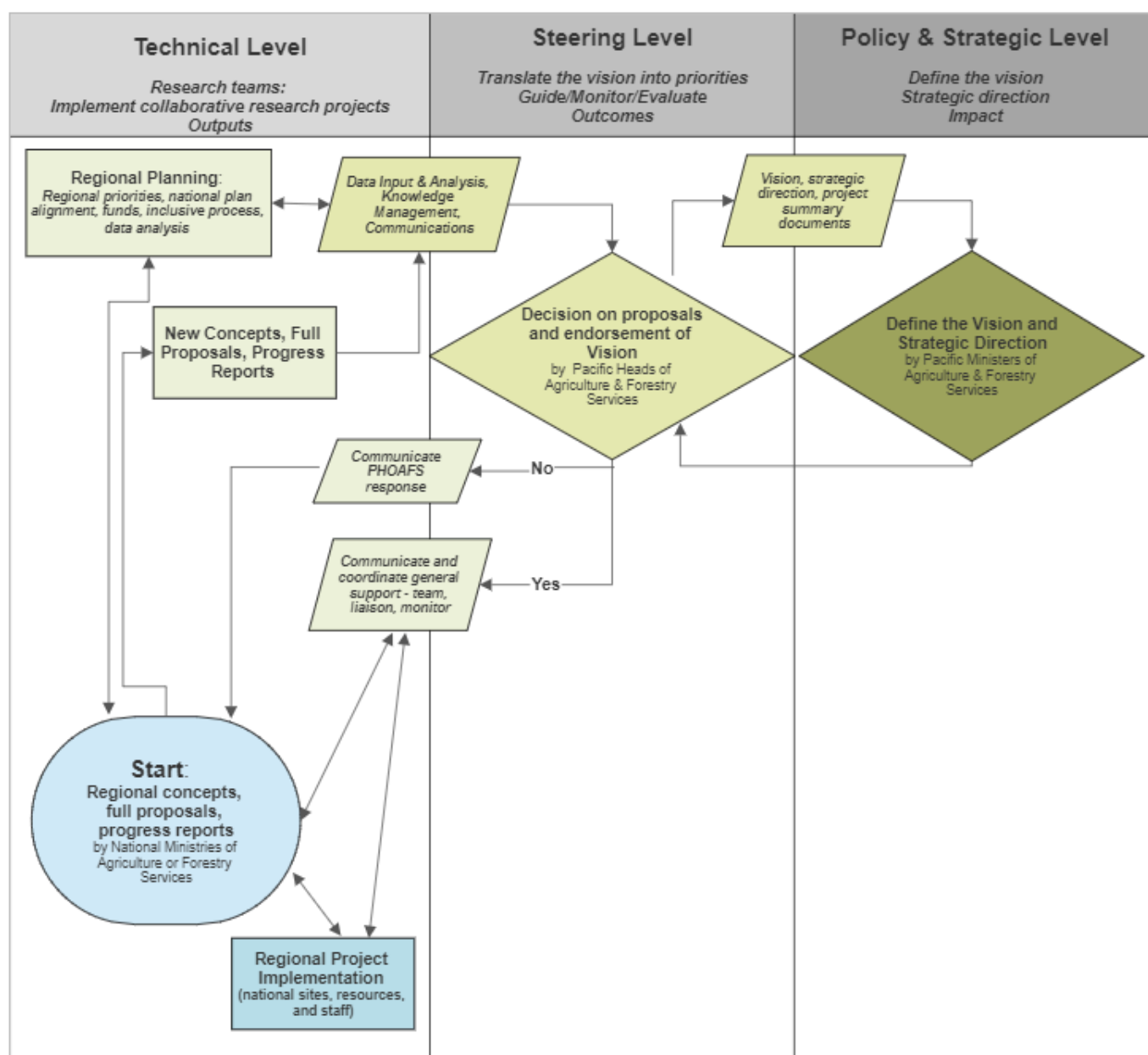
Figure 12: Flowchart of the process for regional projects

At the Technical Level, the National Ministries of Agriculture and Forestry Services undertake the crucial role to coordinate and endorse regional concepts and proposals that have emerged from their national plans before they are passed onto a regional planning group. **Table 10** outlines some of the key tasks the Ministries will need to undertake to effectively link into the regional research agenda. A

crucial role is to ensure any regional research has complementarity to national investments and priorities. Another objective of the regional planning group is not to burden national Ministries, but rather provide support and capacity for their effective engagement at the regional level. The regional planning group should provide Ministries with support in establishing the research partnerships, monitoring, evaluation, and general staff capacity building.

Table 10: Ministries of Agriculture and Forestry Services roles and tasks

Key tasks	Outputs
0. National Ministries of Agriculture and Forestry Services	
· Endorse programme and project concepts and proposals for regional R&D collaboration	Documents
· Identify assets and resources that could be utilised in regional R&D collaboration	Documents
· Liaise, support, and participate with research teams utilising national sites and resources	Documents
· Align regional R&D research with national projects and programmes, and identify benefits	Documents
· Update and share National Agriculture Sector Plans (NASPs) and relevant National strategies	Documents
· Notice of national level investments and complementarity of a regional investment	Documents
· Identify potential resources, assets, funds, in-kind, and partners for cost-effective local interventions	Documents
· Support and participate in regional monitoring and evaluation at the national level	Documents

The regional planning group also sits at the Ministry technical level. This is a support group for the Ministries that also helps liaise, facilitate, and coordinate regional R&D. This group links national into regional projects that are overseen by the PHOAFs operating under the established strategy and vision of the PMAFS. **Table 11** outlines roles and tasks required from a regional planning group to effectively support ministries under the guidance of PHOAFS. The tasks are broken down into four key roles: Secretariat and liaison, technical support, communications and knowledge management, and funds management. Under each of these four headings are further details of the role with type of expected output.

To support guidance and decisions of the regional planning group, a Research Leaders Committee is proposed to strengthen the process. This Research Leaders Committee is composed of a sub-committee of the PHOAFS, donor partners, civil society organisations (CSO), and the academe. Possible partners from the CSO sector could be a farmer's organisation and the academe membership could be from the regional or local universities. The connection to farmers is to ensure local partnerships are developed and engaged from the start to maximise sustainability.   The university connection is important to ensure the research follows robust methodology, methods and ethics, and that the results are correctly interpreted.

Table 11: Roles and Tasks of the Regional Planning Group

Key tasks	Outputs
1. Regional Planning: *Facilitation, liaison, and coordination of regional R&D Ag*	
1.a. Secretariat and Liaison	
· Manage the appointment of an inclusive PHOAFS sub-committee to advise on regional plans	Document
· Coordinate regular PRAFRDC meetings	Meeting minutes
· Maintain and update governance guidelines for PRAFRDC members	Document
· Create and maintain a database to collect, analyse, and store relevant R&D data	Information database
· Support the creation of research partnerships	Contact management database
· Liaise with key stakeholders for inclusion and currency of data	Information database
· Develop and support member presentations and papers	Presentations and documents
1.b. Technical Support	
· Create and maintain a project management database	Project Management Database
· Review and analyse concepts, proposals, reports, and data trends	Document
· Update a regional priority R&D document that describes current interventions and gaps	Document
· Support the development of regional concepts and proposals	Document
· Regional level programme and project tracking, monitoring, evaluation, and learning	Document
· Create and maintain a stocktake of regional R&D resources, assets, and capacity	Document
· Ensure alignment of national plans so that they are complementarity of any regional R&D collaboration	Document
· Ensure alignment to regional R&D strategies	Document
· Support partnerships and the co-design and delivery of projects	Document
· Create an annual research plan for regional R&D collaboration	Document
· Create an annual research progress report on regional R&D collaboration	Document
· Risk register (technical)	Document
· Recommends ways for process improvement	Document
· Support capacity building of national research through local involvement in projects	Document
1.c. Communications & Knowledge Management	
· Create and maintain a website that advocates national benefits of regional R&D collaboration	Public website
· Track and report on site views and use	Public website
· Create and post media releases	Document
· Continually improve the process to share information with key stakeholders	Website & document
· Ensure effective communication between PICT Ministries and PMHOAFS	Website & document
· Ensure availability of guidelines for partner engagement in regional R&D collaboration	Website & document
· Create and maintain an effective network with ministries and other R&D key stakeholders	Contact management database
· Facilitate the internal presentation of documents required for decisions	Document
· Develop and implement a communications strategy	Document
1.d. Funds Management	
· Robust and transparent financial and procurement processes	Policy document
· Source administration funds and advocate for required project funds when required	Financial document
· Risk register (financial)	Document
· Create and maintain a finance and procurement database	Finance database
· Demonstrate value for money	Document

The PHOAS) acts at the steering level to review, advise, and make decisions on operations that fall within the designated strategy. The majority of the PHOAFS administrative work is undertaken by a sub-committee. This sub-committee reports annually back to the full PHOAFS on progress, concepts, projects, recommendations for change, and decisions. **Table 12** outlines some of the roles and tasks required from the PHOAFS sub-committee and the full PHOAFS committee to effectively support Ministries under the guidance of PMAFS. Committee outputs are the meeting minutes from review of documents prepared and presented to them by the regional planning group.

Table 12: Roles and Tasks of PHOAFS

2. Pacific Heads of Agriculture and Forestry Services: *Decisions, review, advise, and guide the regional projects and programme*	
· Decisions on investing in new concepts and proposals	Document/meeting minutes
· Review of regional planning performance and guidance	Document/meeting minutes
· Review and guidance on current projects	Document/meeting minutes
· Annual programme and project progress report endorsed for presentation to PMAFS	Presentation/meeting minutes
· Annual financial and administration report review and endorsement for presentation to PMAFS	Presentation/meeting minutes
· Ensure regional planning aligns with regional strategy and vision (and benefits nations)	Document/meeting minutes
· Review and guidance on current projects, resources, and funds	Document/meeting minutes

The Pacific **Ministers** of Agriculture and Forestry Services (PMAFS) sits within the strategic and policy level to define and review the strategy and ensure operations within the technical and steering level comply with this designated strategy. Only documents endorsed by the PHOAFS are presented to the PMAFS. **Table 13** outlines some of the roles and tasks required from the PMAFS to effectively guide the agriculture and forestry regional R&D agenda. The PMAFS outputs are meeting minutes on documents prepared at the technical level then endorsed at the steering level by the PHOAFS for presentation at the strategic and policy level to the PMAFS.

Table 13: Roles and Tasks of PMAFS

3. Pacific Ministers of Agriculture and Forestry Services: *Decisions, review, advise, and guide the regional strategy and vision*	
· Approve annual programme and project progress report	Meeting minutes
· Approve annual financial and administration report	Meeting minutes
· Review regional strategy and vision (and make changes where necessary)	Meeting minutes
· Guidance on resources and funds	Meeting minutes
· Approve current regional project and programme investment	Meeting minutes

Implementation

The process of detailing role and responsibility functions of organisations in the RRA provides an opportunity to review and evolve its structure using the principle of 'form follows function.' Consequently, as the form, or the design, continues to evolve, **Figure 9** has emerged from the list of functions and transcripts data with a focus on three key areas:

1. **Hear the Pacific Voices**: To gather, collate, and analyse the regional priorities from secondary and primary data, networks, and stakeholders. An important event is to engage a wider audience as a regular session at the Pacific Week of Agriculture and Forestry Services to discuss the regional priorities and strategy.
2. **Peer Review**: Report on the identified priorities 'heard' which are then reviewed by Regional Research Leaders who undertake an advisory role to the RRA. Priorities are assessed against an agreed criterion and a shortlist submitted to PHOAFS and PMAFS.
3. **Partners in Research**: Agreement on a few priority proposals and interested PICT members join a cluster to form a partnership and further develop the research proposal for implementation identifying first regional and local resources. Endorsed proposals with resource gaps are supported in a search for external expertise, resources, and funds.

A critical function (in **Figure 9**) of the proposed regional planning group is to present the gathered and analysed information from the region in a format that is ready for decisions from the PMAFS and PHOAFS.

Align National Strategies and Regional Strategies

The first task of any proponent for a regional project is to align the proposal with current strategic plans at the national and regional levels, as shown in **Figure 13**. The RRA sits between national plans and regional strategies. The Regional Agriculture and Forestry Strategy (RAFS) is currently under development. It will direct the SPC LRD business plan and SPC strategic plan, and in the interim these latter two plans can be utilised for regional alignment as they are both strategies endorsed by Pacific Ministers and Heads of Agriculture & Forestry Services.
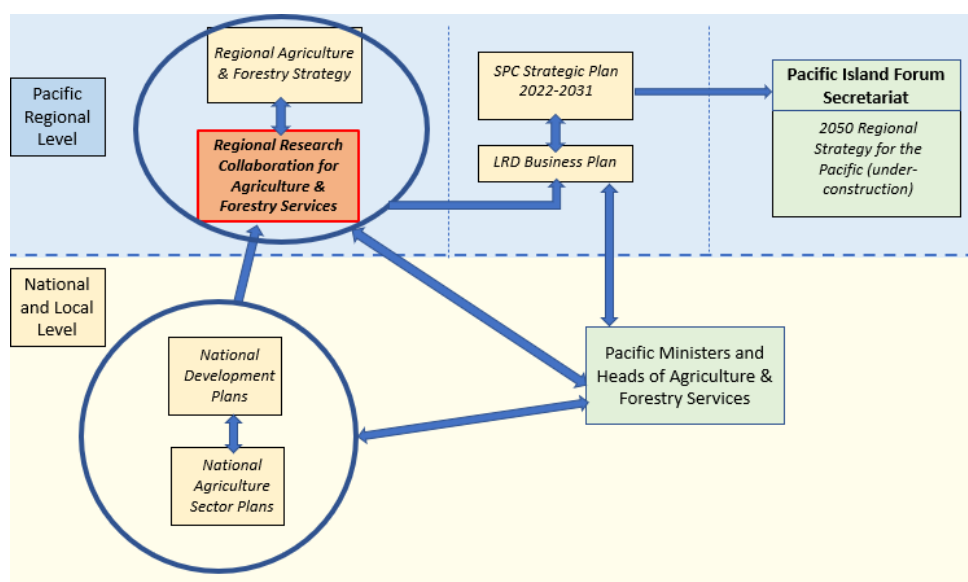
Figure 13: Alignment of National and Regional Research

Identify national priorities and link into regional programmes

Knowledge, analysis and data management to find common themes and patterns across diverse geographies and cultures that make up the Pacific region will challenge the RRA administration. As an example of how the RRA could establish areas of R&D collaboration, an initial word search query can be run over National Agricultural Sector Plans (NASP) and other national agriculture and forestry services development strategies to support identification or confirm national priorities that are shared across the PICTs. In the example in **Figure 14**, 'Food' was chosen, and eleven national strategies were searched for frequency and the combined use of the term 'food'. **Figure 14** shows the results and how 'food' appears frequently, particularly when combined with nutrition, health, local, production, products, quality, security, systems, and others. These 'food' terms can be embraced under the general heading of Food Systems. Food Systems has been identified by SPC as a regional issue through their Strategic Plan 2022-2031 (Pacific Community (SPC), 2022b). A word search of national strategies and supporting regional strategies confirms that food systems should be promoted into the Pacific regional R&D discussion. This is a simple and effective method that can be applied across other themes and commodities to consider for regional R&D collaboration.
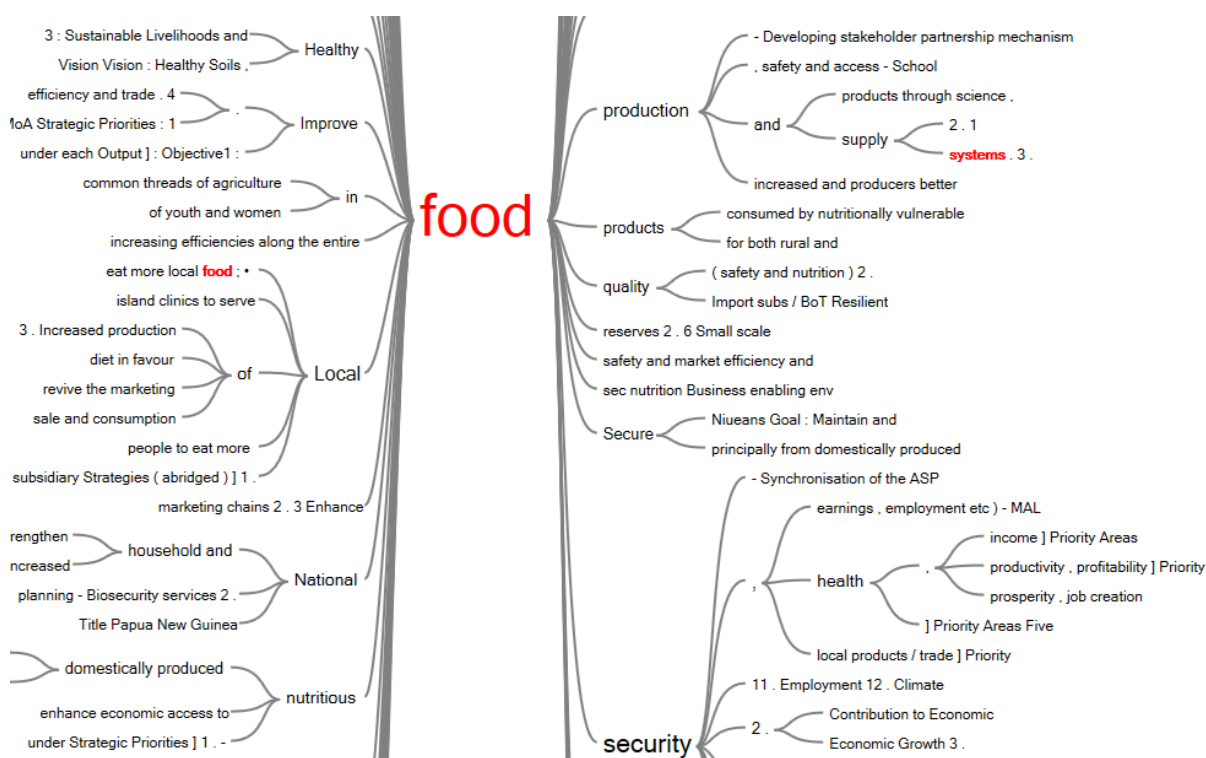
Figure 14: 'Food' word search of national agriculture strategies

Figure 15 shows eleven example research focus areas (blue area) that have been extracted from the current PNG research agenda (Matainaho, 2022) and that could also be used as initial terms to measure their appearance frequency in PICTs national strategies. Taking the example of Food Systems, it is now identified as a theme for promotion into a regional R&D dialogue.

Food systems comprises many components, disciplines, commodities, and areas of research that include, but are not exclusive to, biosecurity, food forests, pests and diseases, social drivers, and selected food commodities. A regional collaboration in any of these components has the potential to

support the outcomes and benefits of this national priority. In the **Figure 15** example, coconut as a commodity of Food Systems was selected. Components of coconut R&D interventions are undertaken as regional research that contributes to national level knowledge creation and applied useful contributions to local society.

The attribution of this work to a Food Systems programme could be measured against the current SPC monitoring and evaluation (M&E) pathways (*policy to action; data, statistics and knowledge; digitisation and technology; innovation and research; capability and influence*). The information and research outputs are shared with the national Food Systems programmes in the PICTs for use in a way that best suits their agenda and their ongoing national research activities.

The challenge for the regional planning group operating between the national research agenda and the regional research collaboration is the capacity to align national and regional programmes and country resources efficiently and effectively within an inclusive and transparent process across all the PICTs. Information maintenance will also be a challenge when operating within the dynamic Pacific research environment that necessitates maintenance of good communications and a robust knowledge management system.
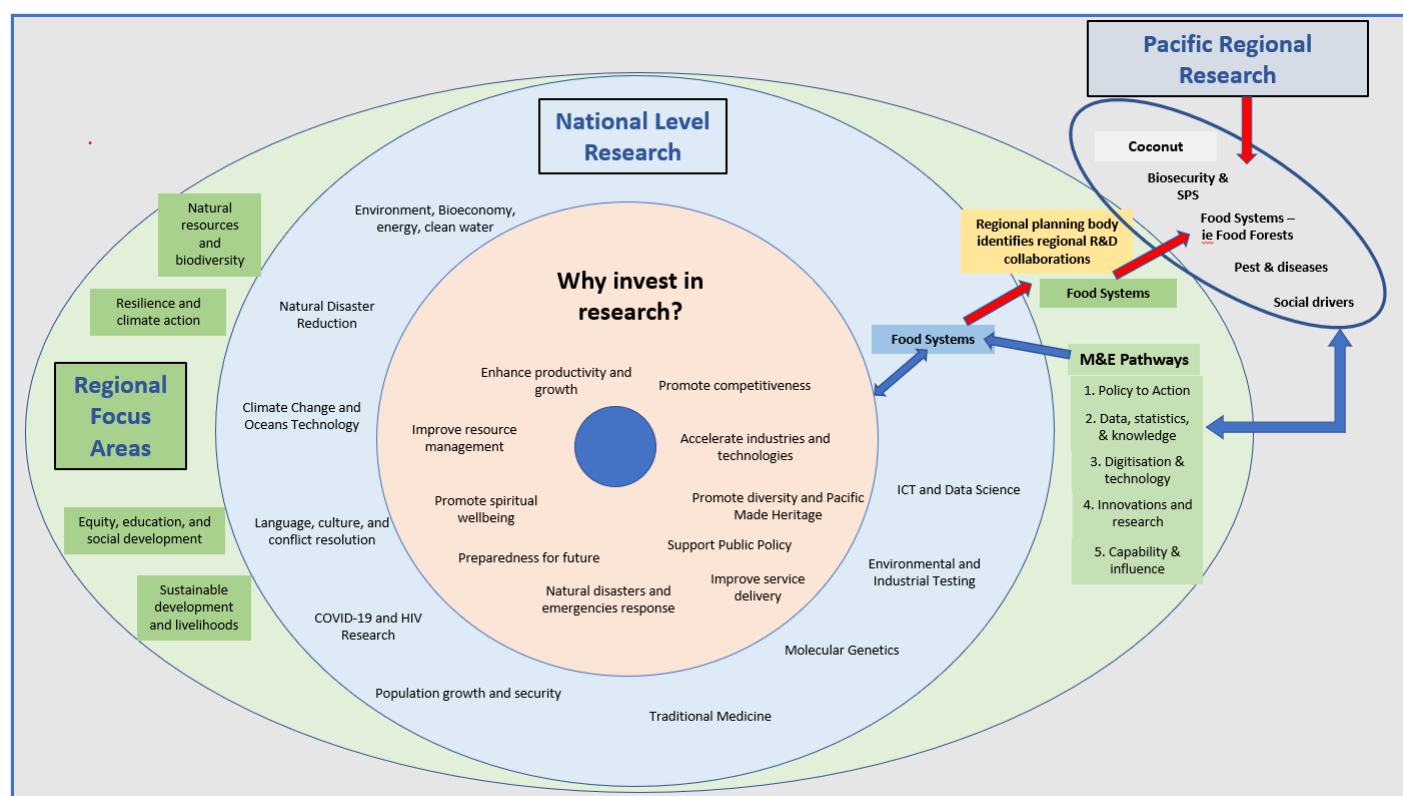
Figure 15: Illustrated process to promote national research in a regional collaboration that benefits national investment
Adapted from Matainaho, 2022

Food Systems can be broken down further into the areas identified in **Figure 14** or aligned to a new commodity that fits within the Food Systems sphere.   As an example, coconut (*Cocos nucifera*) is recognised across the Pacific for its ubiquity and importance within regional food systems. Known as the 'Tree of Life' for its many uses as food and fibre, in traditional roof thatching, for baskets and serving platters, hats, brooms, livestock feed, and as part of a multi-cropping system. Families plant

coconuts to mark land boundaries and strengthen protection from coastal erosion. Coconuts are also planted at the grounds of hotels and resorts to add value to landscaping.

Many PICTs have an interest, and undertake research, in coconuts to improve production, conserve genetic resources, combat exotic pests and diseases, and value add to the many derived coconut products. The Pacific Community is developing a regional coconut R&D initiative to coordinate regional coconut research, with the SPC project title: *J00242 Coconut Strategic Framework (MFAT Funding with Intent).* The coconut initiative feeds directly into the RRA by highlighting specific issues of research that could be undertaken collaboratively at the regional level.   A desk-top study (Adams et al., , 2022) was completed for the initiative. It extracted national research priorities for coconuts from National Agricultural Sector Plans (NASP) and other strategic development documents. Whilst the RRA is focused on the process of regional collaboration, the list of coconut priorities derived from the study will provide a useful example on how the process can operate through the promotion of 'certain' NASP priorities to a regional level for collaborative research. The NASP's extracted coconut priorities include a range of potential research ideas that could be undertaken at a regional level to create new knowledge and apply outputs that benefit societies. Details of an example regional coconut industry SWOT analysis, national priorities, and current regional R&D investments are presented in **Appendix 7:** Coconut example: Information to review for regional investment.

Typologies and cultures

The discussion in this study has focused on the process of what is required for a collaborative regional research agenda to function. Culture is a component of the discussion that explains how this will be done.

To avoid misunderstanding in culturally diverse international collaborations, partner awareness of the cultural context of Power-Distance relationships can be beneficial. This concept aims to understand relationships between authority and subordinates, and uses the Power Distance Index (PDI) as a measurement tool (Hofstede et al., 2010). Societies with a high PDI are more likely to follow an established hierarchy where authority is respected. In these types of situations, employers are less likely to consult with workers when making decisions, and employees acknowledge their subordinate position. In a low PDI organisation with greater equality recognition, leaders and employees interact and exchange more information, and employees discuss and challenge decisions. PDI has an interesting and yet unexplored relationship between the Western donors from low PDI societies and Pacific communities that are suspected to have higher PDIs, with likely differences between Micronesia, Melanesia, and Polynesia. The nexus between cultures is a point of agreement, or conflict, on what to regard as inequality and where it exists. A high PDI Pacific 'collectivist' culture indicates potential to establish the hierarchy, structure and process for a regional agenda; however, the downside is that a high PDI structure, if too rigid and formal, may stifle innovation.

While an individual's culture and rights are to be respected, those rights and culture should not be allowed to override the process of collective action where outputs are shared equally. Organisational rules override many individual cultural issues. Good leadership, with a focus on outputs to make it a demand driven process, will support the sustainability of a collaborative regional research agenda.

Regarding typology of countries, every PICT country, big or small, has unique flora, fauna, geography, and culture that can add value to regional research. Negotiating one country's access to resources for additional resources and capacity building is a unique case-by-case discussion for which the RRA should provide a forum and facilitation. Maintaining a focused collaboration based on a demand driven and problem-oriented process with intellectual justifications, and where collective benefits are high, may temper conflict or tension that arises from cultural or typology differences.

Criteria

Possible criterion to use to prioritise research themes

1. **Increased benefits from collaboration**
   a. The impact of the research is greater if done as a Pacific regional collaboration
   b. The business case for collaboration is clear (better value for money)
2. **Research and Development**
   a. Can the problem be addressed by research?
   b. Is there regional or sub-regional impact?
   c. Is it applied research/innovation that can be scaled?
3. **Alignment with national strategies and policies should include:**
   a. National Agriculture Sector Plans (NASP)
   b. Other national agriculture and forestry development plans
   c. Local stakeholder interests
   d. Regional strategies or common sub-regional strategies
4. **Capacity and resources within the Pacific**
   a. Can the Pacific members lead a partnership to implement this project?
   b. Availability of resources and networks (*human, social, financial, physical, natural*)?

Risks

A benefit of regional collaboration is the opportunity to share risk as individual Pacific countries move from their individual strategies into a group forum where knowledge, resources, and risks are shared. This can open opportunities to bring about transformative change that brings greater livelihood benefits. PICTs with limited development budgets are more inclined to avoid transformative projects that are high risk and require larger investments. Instead, the preference is to invest in risk averse projects that provide small incremental changes with the least amount of immediate stress and where losses can be minimised.

There is a high risk of resource waste if regional collaboration is not implemented. The Pacific region currently faces the risk of project duplication, loss of research capacity, inefficient, and ineffective interventions. Though this defines the risk of not implementing a regional collaboration process, the RRA is not a risk-free solution. RRA implementation will result in a range of risks its administrators need to manage. The difficulty of regional research collaboration in agriculture and forestry services across the Pacific is identifying and understanding the diversity in food and forestry environments and culture, different levels and types of regulation, business supply chains that are more adversarial than complementary, and appreciating that each PICT is unique with multiple interactions and feedback loops that can take regional research outcomes in unexpected directions.

For RRA administrators and regional leaders, it should be recognised that the main risks in establishing and maintaining the initiative will be due to social rather than technical problems. Social capital development forms the foundation for the implementation of technical projects and programmes (Emery & Flora, 2006). This recognition should guide the skill requirements for the new RRA administration. The integrity of the RRA process is vital to ensure collaboration and the general risk aversion of the PICTs. Where integrity and trust exists, collaborative activities happen (Gambetta, 1988; Schurr & Ozanne, 1985); where trust is eroded, then the potential for the process to collapse is high (Aldridge et al., 2002; Carroll & Stanfield, 2003). One mitigation practices the RRA will implement is establishment of Pacific regional research ethics together with the Pacific Islands University Research Network (PIURN). Establishing standards that also provide the process for any research misconduct investigation is an important step towards building a process that can be trusted.

Table 14: RRA potential risks and mitigation **strategies**, provides RRA key risks and type and suggested mitigation strategies.

Table 14: RRA potential risks and mitigation strategies

Type of Risk	Risk	Mitigation strategy
Social Capital	Creation of 'client-networks' that bring specific benefits only to those connected	A process that focusses on integrity, accessibility, and transparency so peers can correct the process should it deviate
	RRA primarily focusses on internal bonding and becomes disconnected and isolated from the wider group of stakeholders	Equal emphasis on relationship development and 'bridging' to external partners
	Alignment with political parties results in projects and programmes being altered, changed, or cancelled as governments change in the election cycle.	RRA must remain apolitical. Whilst engagement with Ministries and PICT governments is part of the RRA operations, any implied or explicit support for a political administration must be strongly avoided.
	Partners and stakeholders place their trust in the administrators of RRA. This 'trust-bank' of RRA is eroded by poor administration and lack of transparency and RRA collapses	Maintain the 'trust-bank' through a system that is robust, transparent, and focussed on integrity of its culture, systems, and accountability.
	RRA is not embedded within the member Ministries of Agriculture and Forestry Services	RRA will need to communicate benefits of regional collaboration and develop formal instruments of engagement with each member Ministry. This formal engagement could be through an MoU that is timeless with an annex for specific timebound activities.
	Free-rider problem	A PICT member may balance a decision to collaborate in a regional project against the benefits they receive from not participating and conserving their own resources. The only mitigation of a 'free rider' problem is a transparent process where peers set standards for equal collaboration.
Human Capital	Lack of capacity to coordinate a complex regional research process	Careful selection of experienced project managers with capability to negotiate supported by a regional group of experts to guide the research priorities and projects. Part of the RRA agenda will actively encourage the retention and strengthening of research capacity with close engagement with the regional University network (PIURN) and higher participation of Pacific researchers in regional projects.
Financial Capital	No funds for the RRA administration	Start-up funding is required for both the administration and regional advisory group of technical leaders. Funds could be supplemented by a project/programme funds contributing a percentage towards administration. The funding model is discussed in a separate section of this study.
	Donor partners more interested in bilateral projects rather than regional multi-lateral projects.	Donor investments based on political priorities will always occur; however, through this study, a regional agenda that provides a voice for the Pacific through a process with high integrity is regarded by donor partners as attractive.
Natural Capital	Natural disasters and pandemics diverting resources from the RRA into emergency responses.	This is a challenge for anyone undertaking agriculture and forestry R&D in the Pacific region. Natural disasters and pandemics are to be expected and are the 'norm' of doing business. Projects and programmes will be disrupted, and all partners will require a degree of flexibility built into projects.
Physical Capital	Refusal to share resources	RRA is founded on a collective action approach where PICTs have access to regional resources to seek solutions to their national issues through regional collaboration. The possible criteria for regional priorities includes a section on availability of resources and networks. This is a negotiation between stakeholders that occurs when priorities are established. A complementary approach is an early activity of RRA to undertake an audit of available resources for a regional agriculture and forestry services R&D programme.

Monitoring and Evaluation (M&E)

A mechanism for monitoring and evaluation (M&E) tailored for the Pacific context should be established for this initiative. At the project and programme level, the M&E process will incorporate research ethics and be created with the support of the Pacific Island University Research Network (PIURN).

The main RRA M&E challenge is the need to align with both the PICT national strategic plans and regional plans such as the Regional Agriculture and Forestry Strategy (RAFS), and the 2050 Regional Strategy for the Pacific (RSP), which are both currently under development by SPC and the Pacific Islands Forum Secretariat (PIFS) respectively. Other regional organisation planning, such as SPC Strategic Plan, and particularly the SPC Land Resources Division (LRD) Business Plan, will align their strategies to the RAFS and RSP to foster a single vision for the Pacific development. Development indicators are likely to be a dashboard on the economy, health, ecosystems, climate, and more topics to measure regional benefits and livelihood improvements.

Figure 16 details a Theory of Change process from the sphere of control of research through to the impact, or sphere of interest. Donor partners and institutions request projects indicate monitoring, evaluation, and learning (MEL) pathways to achieve behavioural and transformational changes. As **Figure 16** shows, both these changes are generally beyond the sphere of control of a project. If RRA were to focus on programmes, with no end dates, ongoing engagement and learning could bring about changes in knowledge, attitudes, relationships, and behaviour (KASRB).
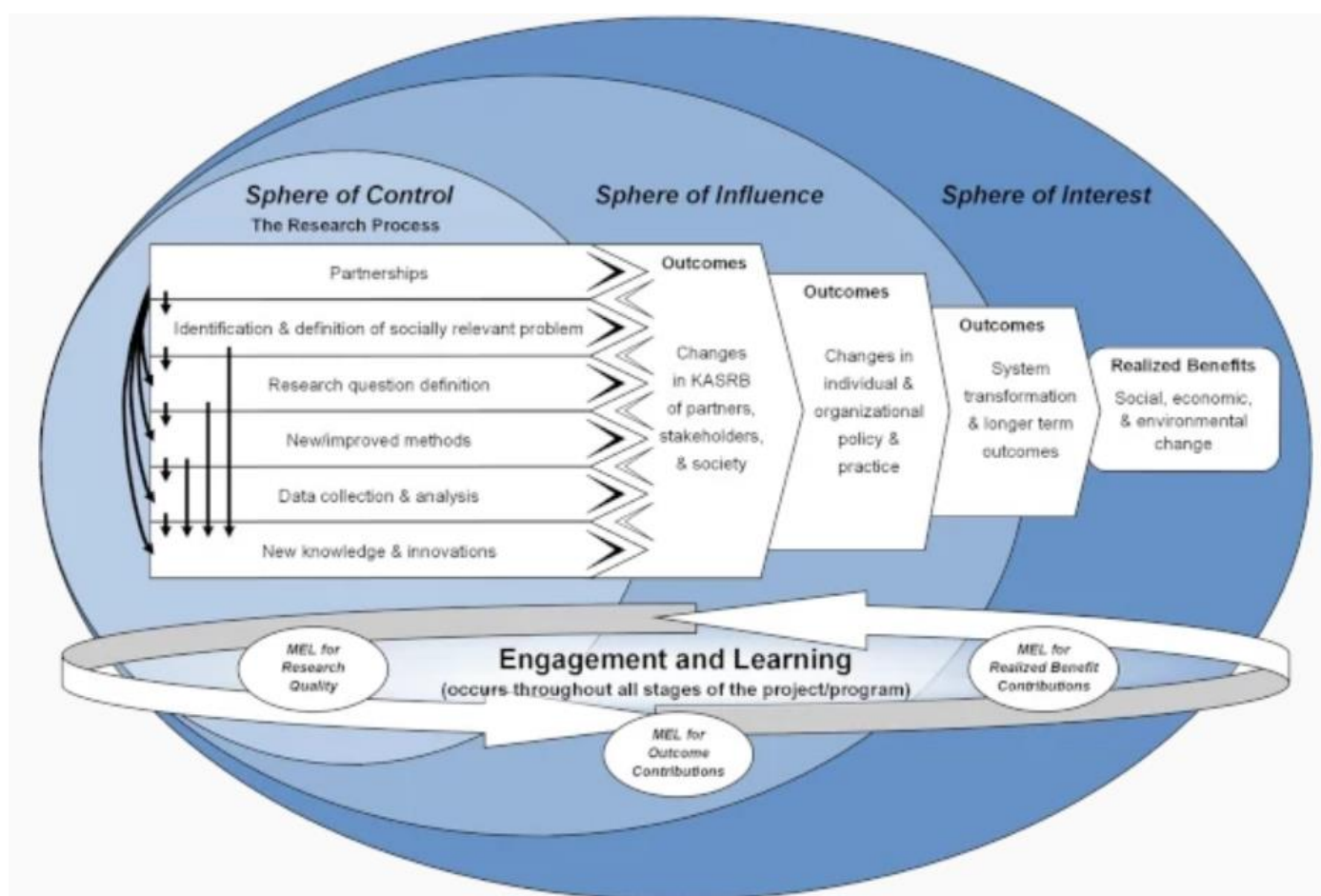
Figure 16: Theory of Change, source (CGIAR, 2022)

Funding

…research is a costly business and takes resources and research income which is important and needed to sustain. Ongoing funding is a key to sustainability and is very important (ACA1).

Regional collaboration can appear attractive to an organisation due to the range of benefits it offers. First, from an economic perspective, regionalism provides access to multiple sources of funding and also the ability for an organisation to transfer financial risks and avoid unintended consequences by engaging with partners better placed to manage those risks through their local knowledge. The high fixed entry costs of research, a challenge for an individual organisation, can be managed through a partnership (Janssen, de Janvry, & Kassam, 2004).   There is potential to 'cost-share' expensive equipment or facilities and achieve economies of scale.

External funding competition is an issue as businesses compete for funds as researchers collaborate. Adversarial and competitive organisations that claim territory or expertise raises the spectre of institutional rivalry that makes collaboration incredibly challenging. For both organisations and individuals, a regional research initiative should not be viewed as a competitor for their national funds, nor new money that directly supports their national priorities, as a regional collaboration is neither the *'sum of the national priorities, nor the derivative of global priorities'* (Janssen et al., 2004, p. 6).

Figure 15 provides comments from key informants when asked how the RRA could be funded and sustainable. Following the current funding model, donors were often identified as the funding source to approach. Some of the responders raised the question of seeking member funds first before looking outside the region to external donors. This concept was also presented in focus groups and the majority of participants endorsed the approach of looking in the Pacific region first for funds and resources for projects and programmes. The theme of ownership and a Pacific voice guiding the research agenda was constant through all the key informant interviews and focus group discussions.

Table 15: Source of Funds

Code interviewee	Comment	Source of funds	Source of funds for administration cost recovery
sLYc	- money will always come in when there is a platform that addresses collaboration.	Donors	Percentage of project and/or programme contract budgets
Tuch	- We should go to a foundation, we should go to EU...Go to every Commonwealth, French Embassies, Aust, UK, the people that are implementing in the region, they all have a research agenda. ... and we should present our research agenda as a way for them to achieve what they want to have some fundings.	Donors	Percentage of project and/or programme contract budgets
HeBq	- (Micronesian Conservation Trust[4]), they have an endowment fund that every region and country contribute to it and then every project that are coming in, …they can use the endowment fund…	Donors & members	Trust Fund - percentage or 'capped' administration fee
ACA1	- get a donor, philanthropist, and they will get a Trust	Donors & members	Trust Fund - percentage or 'capped' administration fee
sLYc	- We can contribute our scientists, which we are paying for, to support the collaboration. But if they have to travel then to the regional funds are what is available, just support them in terms of per diem, so that for us is personals, people who have the skills and expertise to contribute	Members In-kind	Various
ACA1	- strategic investments to co-invest with the partners; you have to have skin in the game to be a genuine partner and that is how you develop a partnership with equity	Members in-kind and cash	Various
Pmbe	- We have our own fund that can be used in regional research collaboration, and this will be our first source of funds, our budget has priority thematic area where we are allowed to disburse the funds, if the proposed regional collaboration fits in this area, we can use these funds.	National or Organisation fund	Percentage of voluntary contributions from national or organisational budgets
HeBq	- Financial contribution from each country to SPC. Kind of like a membership fee …and then, SPC should raise funds for operations and staff and multimillion dollar projects	SPC	Percentage of SPC membership
LsP9	- Possible that SPC core could establish the administration and current donors provide project and programme funds?	SPC	Percentage of SPC membership

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[4] Micronesia Conservation Trust (www.ourmicronesia.org) Created in 2002. The Micronesia Conservation Trust (MCT) supports biodiversity conservation and related sustainable development for the people of Micronesia. MCT accomplishes this by providing long-term, sustained funding through a grants program that encourages people to adopt sustainable and appropriate solutions to local environmental challenges. The MCT is a private corporation with a governing board of 11 members, including members from international, regional national, state, and municipal governments, NGOs, business, financial and academic institutions.

Chapter 4: Impacts

This research took participants on a journey through the four stages of collective social learning**,** (**Figure 1**), to develop a draft for the RRA framework (Brown & Lambert, 2015). The original project proposal required an endorsement of the resulting draft framework from the Pacific Ministers of Agriculture and Forestry Services (PMAFS) at their scheduled September 2022 meeting in Fiji. This meeting, hosted and scheduled by the Fiji Government was postponed until March 2023, which was beyond the control of the project team. An endorsed RRA framework requires implementation for impact assessment that was beyond the boundaries of this small research activity. The project team held preliminary discussions with participants from donor organisations on the possibility of 'seed' funds to implement an RRA. This action is on-hold until the PMAFS have an opportunity to review progress of the RRA draft framework.

For a donor, the opportunity to invest in a framework developed and owned by the region will give confidence that their investment will achieve the greatest impact. This confidence comes from the knowledge a regional framework is demand driven and more problem oriented. It is an attractive investment model as it is managed and reviewed by a greater range of regional experts with their perspectives, and who can design projects to meet their needs, provide adoption pathways and critique regional results. This focus on shared problems and solutions allows for a clear definition of the roles of partners, objectives, and responsibilities. There is a greater opportunity to create improved investment models for integrated programmes that share and carry-over resources and create impact, rather than stop-start single issue projects that are in a perpetual inefficient cycle of losing, then renewing, resources. There is an expectation that these improved investment models will also be more accessible to a greater number of stakeholders under the RRA framework.

This small research activity impacted the Pacific region by socialising the concepts of regional research collaboration through the KII and FGD process. It was also clear through this process that there was universal support for the research principals and RRA and that regional research future impact will rely on a process that is fair, rigorous and transparent in three areas: accountability, systems, and culture. It was also learned through discussions and the literature that creating a culture of innovation requires an initial focus followed by ongoing maintenance of social capital (Emery & Flora, 2006; Leite, 2022).

The RRA will be under pressure to ensure ongoing activities have impact on the future of the Pacific environment and communities as its shared regional impact will be measured against contribution to multiple Sustainable Development Goals (SDGs) and toward PICTs national strategic plans and development priorities. Bibliometric indicators are used as an ex-post method for research impacts. International collaborations have a much higher citation impact than national citations in public-only and public-private collaborations (Bloch et al., 2019). Thought this is an advantage for the for the RRA impact assessment, a forward-looking impact assessment should also be completed. The use of a tool such as the Theory of Change (ToC) provides a compass-type direction with useful incremental steps for a project, but in the uncertainty and unique dynamics of agriculture and forestry services, a ToC can be considered too rigid. A move from the current 'attribution' of causal relationships between the research and societal changes toward a 'contribution' approach that acknowledges research engagement with societal challenges (Dotti & Walczyk, 2022) can be considered. One way forward is to examine a future-oriented approach to impact assessments that focusses on four future research avenues (Strömmer & Ormiston, 2022):

1. Uncertainty
2. Values and assumptions
3. Stakeholder cooperation
4. Learning

These four avenues can be incorporated into a ToC tailored for the Pacific region under the RRA. **Appendix 8: Future-oriented impact assessment**, looks at the four research themes and summarises their methods in relation to project and programme design. Predicting stakeholder, institutional, and uncertainty factors and how they impact the integrity of the research, outputs, and the regional collaboration is a difficult but a worthy exercise in order to bring stakeholders together with a single vision. Ex post impact assessments using the ex-ante assessment as a guide, will use qualitative and quantitative field data as measurement to pinpoint research contributions toward the SDGs and national strategies.

Chapter 5: Communication and dissemination

The RRA was developed through a regional consultation process. Completion of the final framework, however, is pending the response from the Pacific Ministers of Agriculture and Forestry Services (PMAFS) who are meeting in March 2023. The PMAFS will consider the brief (**Appendix 9**) and also be provided with this more detailed report on request.

The PMAFS feedback and final endorsement, and endorsement from the donor partner ACIAR will trigger the next stage of framework communication, dissemination and socialisation to RRA stakeholders. The process will be actioned through the official PMAFs communication channels that will further communicate the framework to other partners such as donors, CSOs, and PICT Ministries. The framework will also be posted on the SPC website and SPC LRD website.

The data collection and consultation process involved 23 SPC LRD staff. The internal socialising and understanding of the RRA within SPC LRD is advanced enough that implementation activities can be undertaken by the well-informed staff once it is endorsed by PMAFS.

One of the first implementation activities after the PMAFS endorsement is to develop an RRA communications strategy. The strategy will focus on regional communications and dissemination activities that can support behavioural change through the RRA framework.

Chapter 6: Limitations, Conclusion, and Recommendations

Limitations of the research

This study was limited to the creation of a framework that requires endorsement from Pacific leaders in agriculture and forestry services before socialising and refining further with the wider group of stakeholders. Whilst the study did engage twelve current leaders from the Pacific Heads of Agriculture and Forestry Services (PHOAFS), the internal discussion within PHOAFS and their endorsement of the framework has yet to be undertaken. This is expected to occur in March 2023 during the Pacific Week of Agriculture and Forestry (PWAF) held in Fiji at the meeting of the Pacific Ministers of Agriculture and Forestry Services (PMAFS). This study is therefore limited to one interpretation of the data from which the researchers developed the framework. Ideally, this study and report will be validated and finalised by the collective expertise of the PMAFS.

Other study limitations included ability of the research team to access key informants and participants for the focus group discussions. Arrangement of suitable times to conduct interviews and bring groups together was difficult in a period during which the Pacific was exiting the COVID lockdowns and flight services were not fully functional, with face-to-face meetings managed through internet services. All interviews were recorded and then transcribed. Interviews conducted in French were transcribed into English. Transcription was a time-consuming process. Lack of time and capacity required all coding to be undertaken by one team member though multiple coders would have alleviated issues with inter-coder reliability and verification. Whilst the reach to key informants and focus groups may appear limited, the research team believes the transcript analyses revealed reaching a point of repetition.

Conclusion

The broad objective of this study was to investigate and address the current drivers, challenges, and opportunities for a Pacific regional research collaboration in agriculture and forestry. The consultation method of consultation using a broad range of stakeholders identified that the RRA is a process that describes the way the voices of the Pacific are heard, peer reviewed, and then translated into research activities, with governance and oversight by Pacific leaders in agriculture and forestry ministries, academia, and civil society organisations. The consultation process identified the need for a secretariat to manage logistics, coordinate activities, and support ministries with their networks and priority setting. It was generally agreed that the secretariat should initially be attached to an organisation with an existing robust financial and procurement system, such as the Pacific Community (SPC).

Very early in this study, the desire of Pacific leaders and researchers to capture the Pacific 'voice' from the communities to guide the agenda was identified as a key issue and challenge for the RRA. Engagement with smallholder farmers and their communities in order to understand and capture their agriculture and forestry needs is important. Early engagement also requires involvement of local researchers to capture their thinking about solutions and align this with national research strategies. Engagement with communities, smallholder farmers and researchers is a major coordination exercise that if implemented in the Pacific will be transformational in the way for regional R&D. Pacific leaders are recommended to explore the Australian network of rural research and development corporations and how they have successfully built a network to capture the 'voice' of farmers across all commodities of food and non-food items that feed into their industry-owned or statutory R&D corporations, that then prioritise, and contract manage their research. Farmer associations and commodity groups already exist in many Pacific countries and adapting the Australian example of network coordination will support the emergence of Pacific 'voices' that can be translated into

regional projects. The Australian process is sustainable as it shows a significant cost benefit in financial, social, and environmental terms.

Emerging from the data during the consultation process were four principles that can guide the RRA process:

> Principle 1: Transparency, integrity, accountability, and trust
> Principle 2: Partnerships
> Principle 3: Ownership and impact through co-development
> Principle 4: Demonstrates value for money

These Principles were outlined to act as a foundation for partnerships across the Pacific agriculture and forestry research community and are further detailed in Chapter 3. Similarly, emergent from the data were four criteria that were outlined to use for assessment of national priorities that inform and serve as the base for regional collaborative projects or programmes. These four draft criteria, elaborated further in Chapter 3, are:

1. Increased Benefits from Collaboration *(Collaboration shows greater ex-ante value)*
2. Research and Development *(The problem can be addressed by research)*
3. Alignment with National Strategies and Policies
4. Capacity and Resources within the Pacific *(Pacific research leadership)*

This study also identified three distinct roles for the regional collaboration process. Colloquially termed the 'finders, grinders, and minders', these three areas have dedicated roles that do not overlap and should be treated as distinct. The Technical level 'finders' are the research teams and their field partners (farmers and communities). This group knows its needs and priorities. The priorities feed into the Steering level, the 'grinders', where all the national priorities converge and are assessed against a criterion for regional priorities to emerge that can be translated into projects. Third, the Policy level, or 'minders', is made up of the Pacific Ministers of Agriculture and Forestry Services that provide the governance and strategy and have ultimate ownership of the RRA process.

There is universal support for collaborative regional research through an RRA process that captures a range of stakeholders in the public, private, CSO, and NGO sectors of agriculture and forestry services. RRA benefits are now socialised, and there is growing support from stakeholders. Strengthening this social capital will attract other resources to lift this initiative from an interesting idea into an operational phase with interventions that bring behavioural and transformational change to Pacific region agriculture and forestry services. Though numerous challenges have been identified, the overall consensus during the consultation was that they are not insurmountable and are outweighed by the many opportunities inherent in the regional research collaboration.

Recommendations

1. Adopt the name and mission of the RRA as a process and network for agriculture and forestry service regional collaboration.
2. Adopt the four RRA principles to guide the regional research collaboration partnerships.
3. RRA involves three distinct areas that currently require further coordination and development; 'hear the Pacific voice', 'Peer review', and 'Partnerships'. The RRA process   is ready to support development of these areas using the definitions of the five capitals: Social, Human, Financial, Physical and Natural.
4. Adapt international examples of industry-owned or statutory rural research and development organisations that engage farmers and their communities for the Pacific

region. These models capture development needs and priorities that can be assessed against a regional criterion for a Pacific regional research collaboration.

5. Adopt and continually adapt the criterion to assess national priorities for regional research collaboration.
6. Identify agriculture and forestry services research leaders to assess national priorities and projects against the criteria for regional research collaboration.
7. Seek investment partners to initiate the RRA process to support administration and research leader costs..
8. Consider a future-oriented approach for impact assessments that focusses on four avenues for future research: uncertainty, values and assumptions, stakeholder cooperation, and learning.

Next Steps

The PMAFS are invited to to endorse the RRA progress and next steps at their March 2023 meeting:

1. **Endorse the proposed RRA framework**
2. **Endorse SPC LRD to work with member countries to undertake next steps to operationalise the framework**
3. **Endorse an RRA report as a standing agenda item at PHOAFS/PMAFS meetings**

If the RRA is endorsed by PMAFS, the RRA administration will need to quickly develop:

1. Administration, finance, and procurement processes
2. A research leaders advisory committee, including guidelines on member selection and terms of reference
3. A communications strategy, that includes:
   a. Ministries engagement details to support collection of the Pacific 'voice'
   b. The process to link regional outputs to mid and long-term behavioural and transformational changes
4. Develop a Pacific Agricultural Sustainability Framework under the RRA that guides farmers and provides access to sustainability and environmental stewardship programmes designed for the Pacific.

Appendixes

Appendix 1: Achievements against activities/output/milestones

Table 16: Activities and outputs completed

Activity	Outputs	Completion date	Comments
Activity 1: Preparing the SRA Workplan/Action Plan (December 2021, 5 days).	1. Workplan document (finalised) 2. Steering Committee meeting	1. 23/12/2021 2. 21/12/2021	Endorsed by the project Steering Committee – Dr Peter Horne, Ms Karen Mapusua, Ms Mai Alagcan
Activity 2: Setting the scene (December 2021 – February 2022).	1. 'Setting the Scene' document 2. Steering Committee presentation	1. 2/3/2022 2. 17/3/2022	A literature review of drivers, definitions, supporting references for the methodology and consultation process
Activity 3: Regional Consultations (March – April 2022).	1. Key Informant interviews transcripts 2. Suva Workshop (SPC) report/PPT 3. Brisbane Workshop report/PPT 4. Virtual Workshop report/PPT 5. Steering Committee presentation	1. 12/8/2022 2. 25/5/2022 3. 16/6/2022 4. 17/8/2022 5. 23/8/2022	Consultation process was extended as PMHOAFS presentation was moved by the Government of Fiji from September 2022, then to November 2022, and now to March 2023.
Activity 4: Preparation of the RRA Concept (May 2022).	1. Project Report	1. 31/8/2022 Draftv1 2. 17/10/2022 Draft to ACIAR	
Activity 5: Developing systems and processes to support the RRA (May - June 2022).	1. Coconut IP document (MFAT) 2. Agroforestry document (FNU & ACIAR) 3. Food Systems staff appointment (SPC core) 4. TropAg2022	1. 1/12/2022 2. 1/5/2023 3. 15/7/2022 appointed 4. 2/11/2022	The activities 1-3 support the RRA and have leveraged funds to support their development. Coconut, Agroforestry, and Food Systems were used to test the RRA model. TropAg2022 provides an opportunity to socialise the RRA at an international event.
Activity 6: Briefing the broader SPC-LRD community on the RRA concept and process (June 2022).	1. Suva Workshop report/PPT 2. Virtual Workshop	1. 25/5/2022 2. 17/8/2022	Briefing the SPC team was at a 'face-to-face' meeting in Fiji (1) followed by interested SPC staff participation in the Virtual Workshop (2). Twenty (20) SPC staff participated across both events.
Activity 7: Presentation to PHOAFs & PMAFS (date to be confirmed for March 2023).	1. PHOAFS presentation & briefing paper/PPT 2. PMAFS presentation & briefing paper/PPT	1. March 2023 (TBC)	A draft final report will be submitted in Oct 2022. The final report will include an annex containing feedback from the PMAFS meeting that has been postponed until March 2023 by the meeting host, the Government of Fiji.

Appendix 2: Key Informant Interview (KII) Questions

Introduction:
A proposal to set up a Regional Research Agenda (RRA) originated from the HOAFS and MOAFS meetings in 2021. You are identified as a key participant to help inform the development of the RRA. We would like to thank you for both your time and thoughtful insights.

Your Experience:
1. Do you have any experience in regional research collaboration? If you do, was the collaboration successful and did it produce research outputs? Could you share what was achieved (or not), and what were the factors of success (or reasons for failure/constraints)?

Establishing a Regional Research Agenda:
2. Are you in favor of establishing a regional research agenda process to support regional collaboration in agricultural research?
3. In your opinion, what would be the overarching objective of such an agenda?
4. If a regional research agenda is set up, what would success look like in 10 years' time?
5. Can you think of 2 or 3 criteria that could be used to define this success?

Research Priorities:
6. We have listed below some of the key objectives of research institutions, could you select the top three from the list for your institution and add any that are missing:
    a) Improving rural incomes,
    b) Contributing to increased export and international competitiveness
    c) Improving food security,
    d) Improving living conditions of the poor
    e) Managing natural resources in a sustainable manner
    f) Developing scientific capacity
    g) Other (please indicate with order of priority).
7. In your institution, how are these priorities defined? Who or which institutions or group of stakeholders define/approve them?
8. What would differentiate a regional research agenda from your national research agenda?
9. What would you/your institution like to gain from participating in regional collaboration?

Collaboration and Governance:
10. Do you believe that existing structures could be used to coordinate a regional research agenda, (a new coordinating mechanism), or can we use what exists already?
11. Is there another governance structure that would be appropriate?
12. What would be required for you to buy into a regional research collaboration so that it is legitimate and effective?

Operations and Funding:
13. If a regional research agenda is set up, how do you foresee the involvement of your institution in the planning and implementation of this agenda and to the dissemination of research outputs?
14. What strengths of your institution could contribute to a regional research agenda?
15. In addition to funds that are regionally available, how could such a regional research agenda be funded?

Other Items:
16. Do you have any additional comments or input for us to consider in the regional consultation process?
17. Do you know any key informant that we should contact to gather their views?

Thank you for your participation.

Appendix 3: Consent Form Template

All Key Informant Interviewees (KII) were asked to read, understand, and submit a signed consent form. The signed forms were collated and securely stored. Focus Group Discussion (FGD) participants confirmed their consent via email or signed consent form.

Pacific Community
Communauté du Pacifique

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Informed Consent Form

Project Title :
Defining and designing Pacific regional research collaboration in agriculture and forestry

Background
A proposal to design and define a regional research collaboration process for agriculture and forestry services originated from the HOAFS and MOAFS meetings in 2021. We are now collecting information to inform the development of the collaboration. The two specific goals of this study are :

1. Define a shared definition and vision of this collaborative research concept and its expected outputs
2. Develop the framework and processes that deliver those expected outputs into the medium term

You are invited to participate in this survey because you are engaged in agriculture or forestry services research in the Pacific region.

Survey participant's information is confidential and the final report will not identify or link information to participants. Your participation is voluntary and you may withdraw at anytime or ask your information be deleted from this survey without prejudice or penalty.

If you have any questions concerning your participation in this project, please contact Florence Rahiria, SPC LRD Manager-Operations, email : florencer@spc.int

This study adheres to the Social and Environmental Risks (SER) guidelines of the Pacific Community (SPC) and general ethical review processes. If you would like to speak to an officer of SPC not directly involved in the study, you may contact Karen Mapusua, SPC LRD Director, email : karenm@spc.int

Consent Statement
I have read and understood the information about the survey. I am not aware of any condition that would prevent my participation, and I agree to participate in this project. I have had the opportunity to ask questions about my participation and these have been answered to my satisfaction.

Name..

Date ....

Signature...

Office Use Code

Pacific Community (SPC) Headquarters: Noumea, New Caledonia. Regional Offices: Suva, Fiji; Pohnpei, Federated States of Micronesia; Port Vila, Vanuatu.

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Siège de la Communauté du Pacifique (CPS) : Nouméa (Nouvelle-Calédonie). Antennes régionales : Suva (Fidji) ; Pohnpei (États fédérés de Micronésie) ; Port-Vila (Vanuatu).

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Appendix 4: Participation

Code	Key Informant Interviews May-August 2022	Fiji SPC Workshop 25 May 2022	Brisbane Workshop 15 June 2022	Virtual Workshop 17 Aug 2022	Gender	Organisation Type	Work Country
5Y7L			X		Male	Government	PNG
FZ9Y			X		Female	Government	New Zealand
4Q6R			X		Female	Government	Australia
16du			X	X	Female	Intergovernmental	Fiji
2S7V			X		Female	Government	Australia
ZJL6			X		Female	Government	Australia
Q9YQ			X		Female	Government	Fiji
U48T			X		Female	Government	Australia
JWXB			X		Female	Government	Australia
GLS2			X		Male	Government	New Zealand
9C8B			X		Male	Government	Fiji
0704			X	X	Female	Private Sector	Canada
6JL6		X	X		Female	Government	Fiji
5276		X	X		Female	Intergovernmental	Fiji
9822		X	X		Male	Intergovernmental	Fiji
4510		X	X	X	Male	Private Sector	Australia
1625		X	X		Female	Intergovernmental	Fiji
yTdo	X		X		Female	Government	PNG
YR4N	X		X		Female	Government	Fiji
nvXs			X		Female	Government	Nauru
GPUA	X		X		Male	University	PNG
xj7K	X		X		Female	Government	Cook Islands
FwJC		X			Male	Intergovernmental	Fiji
xjQE		X			Female	Intergovernmental	Fiji
Vs3H		X			Female	Intergovernmental	Fiji
JbLC		X		X	Male	Intergovernmental	Fiji
qdQX		X			Male	Intergovernmental	Fiji
xw86		X			Female	Intergovernmental	Fiji
5v7P		X			Male	Intergovernmental	Fiji
2nB7		X			Male	Intergovernmental	Fiji
J9GF		X			Male	Intergovernmental	Fiji
9kXQ		X			Female	Intergovernmental	Fiji
59GZ		X			Male	Intergovernmental	Fiji
kwQM		X			Male	Intergovernmental	Fiji
ELLH		X			Male	Intergovernmental	Fiji
Fp7z		X		X	Male	Intergovernmental	Fiji
kfDY		X			Male	Intergovernmental	Fiji
7j0o		X			Female	Intergovernmental	Regional
SlYc	X				Male	Government	PNG
54PX	X				Male	Government	Samoa
O180	X				Male	Government	PNG
mo39	X			X	Male	NGO	Hawaii
TUch	X				Female	University	Fiji
PMbe	X				Male	Government	French Polynesia
HeBq	X				Female	Government	RMI
ACA1	X			X	Male	University	Fiji
DFon	X				Female	Government	Fiji
2mBX	X				Male	University	Samoa
Pp6y	X				Male	University	Fiji
BvTK	X				Male	University	Fiji
zppd	X			X	Male	Government	Solomon Islands
LsP9	X				Male	University	Fiji
qAEf	X				Male	Government	PNG
63az				X	Female	Intergovernmental	Fiji
By82				X	Female	Government	Samoa
cx60				X	Female	Intergovernmental	Fiji
Et02				X	Male	Government	New Zealand
Fs25				X	Male	Government	Wallis & Futuna
26gr				X	Male	Government	American Samoa
qh72				X	Female	Government	Tokelau
77ip					Male	Government	Samoa
5k7n					Male	Government	US
2579					Male	Government	Samoa
7290					Male	Intergovernmental	Fiji
7013				X	Male	NGO	Tonga
8759					Female	Government	Kiribati
8153				X	Male	Government	Tonga

Appendix 5: National documents referenced

Government of Cook Islands	National Agriculture Policy 2017 – 2021 (Government of Cook Islands, 2017)
Republic of Fiji	Ministry of Agriculture 5-year Strategic Development Plan 2019 – 2023 "A comprehensive, Sustainable. Resilient Agriculture Sector" (Government of Fiji, 2019)
Government of French Polynesia	Schéma directeur (Agriculture) en Polynésie Française 2021 – 2030 [2021-2030 agricultural master plan] (Government of French Polynesia, 2021)
Federated States of Micronesia	Federated States of Micronesia's Strategic Development Plan (2004-2023) (FSM, 2004).
Republic of Kiribati	Kiribati Agriculture Strategy (KAS 2020-2030) (Republic of Kiribati, 2020)
Republic of Marshall Islands	RMI Agriculture Sector Plan 2021 – 2031 (Republic of Marshall Islands, 2021)
Republic of Nauru	Republic of Nauru National sustainable development strategy 2005 – 2025 *as revised 2009* (Republic of Nauru, 2009)
Government of Niue	Niue Agriculture Sector Plan 2015 – 2019 (Government of Niue, 2015)
Government of Palau	Ministry of Agriculture Fisheries and environment (MAFE) Triple bottom line strategic plan: People, Palau, and prosperity 2021-2024 (Government of Palau, 2022)
Independent State of Papua New Guinea	Papua New Guinea National Food Security Policy 2016-2025 (Independent State of Papua New Guinea, 2015)
Government of Samoa	Agriculture Sector Plan 2016 – 2020 "enhancing partnerships to develop and sustain agriculture and fisheries" Volume 1: Governance, institutional and strategic frameworks (Government of Samoa, 2016)
Government of Solomon Islands	Solomon Islands Agriculture Sector Growth Strategy and Investment Plan 2021 – 2030 (Government of the Solomon Islands, 2020)
Kingdom of Tonga	Tonga Agriculture Sector Plan 2016 -2020 (Kingdom of Tonga, 2016)
Government of Tuvalu	Government of Tuvalu T E KAKEEGA III National Strategy for Sustainable Development 2016 to 2020 (Government of Tuvalu, 2016)
Government of Vanuatu	Vanuatu Agriculture sector policy 2015 – 2030 *laef mo mane I stap long agrikalja* (Government of Vanuatu, 2015)

Appendix 6: Coordination, Cooperation, and Collaboration

	Coordination	Cooperation	Collaboration
Definition	**1.** An orderly arrangement of combined elements in the management level to attain common goals by maintaining harmony and ensuring the smooth functioning of the assigned sets of work. **2.** Ensuring all people involved in a plan or activity work together in an organised way. Aligning the objectives and operations of two or more partners in order to maximise fluidity of interactions. (i.e., short contracts, limited sharing, responding to a specific issue).	A voluntary effort of individuals who work together or adhere to the standards to accomplish organisation goals.	The process of shared creation; collectively creating something new that could not have been created by the individual users (convergencelab, 2021). Working together on a shared activity towards a shared objective.
To achieve *(SPREP, 2014)*	Open consultation and access to information; and coordinated application of shared, best-practice norms and standards.	An effective and strengthened voice in protecting and sustainably harnessing the region's physical, social, and cultural assets for the benefit of all.	Achievement of economies of scale and equitable benefits that cannot be achieved nationally.
Process	Regarded as contrived - part of the management system. Project staff directed to work together on activities to meet the required objectives. Establishing and managing agreed processes that facilitate regional dialogue and access to (and use of) information (SPREP, 2014).	Regarded as voluntary - Project staff with shared informal relations work on activities to achieve objectives and potentially add further value or insights. Developing and committing to coordinated regional or sub-regional policies and strategies (SPREP, 2014).	A mix of voluntary that brings the partners together and then contrived as partners develop a joint administration process. Information, materials, resources flow seamlessly between partners. Developing regional public goods and pooled services (SPREP, 2014).
Requirements *(SPREP, 2014)*	Voluntary consultations and agreements; possible resource sharing	Voluntary agreements to modes of regional cooperation; services are mainly funded and delivered nationally.	Voluntary agreements to modes of regional collaboration; national governments are freed from daily management of these priorities.
Continued…	**Coordination**	**Cooperation**	**Collaboration**
Needs	To meet organisational and regional goals with only publicly available information sharing.	To meet organisational and regional goals with limited non-public sharing of information and resources. Generally, involves long-term relationships where partners gain more flexibility through their informal relationships. Generally, there is an imbalanced power relationship between organisations, with one having greater control over governance, structure, and control.	To meet organisational and regional goals through joint (or single project) administration that includes sharing of a greater amount of organisational information, resources, and shared outputs.
Risk Management	Not considered	Passed onto one partner	Shared management
Scope	Global and regional - very wide	Country level	Project or discipline specific - very narrow

Cost	Minimal	Medium - can be an ambiguous, loose arrangement, and flexible based on trusted relationships	High - sophisticated and with a detailed process for partners to meet expectations to reach shared goals. Requires extensive negotiations to establish and ongoing close management to maintain.
Capital or Resource Investment	None	Possible short-term loans, exchange of expertise, or investment if one partner's performance negatively effects the others, and it is in their best interests to remedy.	Partners share expertise, joint training, joint financial investments.
Communication and M&E	No formal M&E is given or discussed.	Feedback occurs at the end of the contract when the relationship is being examined for renewal	Continuous monitoring and periodic evaluations
Types/contracts	Short contracts for specific activities, or Memorandum of Agreement (MoU). High level agreement to work together with no legal binding around non-specific corporate ideals and joint vision.	Short- and long-term contracts for specific activities, or Letter of Agreement (LoA) where an organisation is not legally bound to a list of agreed activities to complete. Short relationship.	Initial contract to start long-term relationship that establishes a joint administrative process.
Morals vs ethics in decision making	Individual staff level decisions	Individual organisation level decisions	Joint and single organisation/partner level decisions
Governance	Separate governance (individual organisations)	Separate and single governance	Single governance structure

Appendix 7: Coconut example: Information to review for regional investment

Information from the following three tables was sourced from PICTs National Agricultural Strategies (NASPs) and other national development and strategy documents (J. A. Oakeshott, 2021), a coconut workshop and key informant interviews with stakeholders in the coconut sector undertaken in late 2022.

Table 17: Pacific Regional Coconut SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Abundance of established trees suited to local conditions	Poor market understanding and access (distance from markets)	Target higher value buyers with more valuable and convenient products	Domination of natural oil markets by lower cost nut and vegetable oils from large scale production
Subsistence and famine food with cultural importance	Reliant on mature markets for commodity products	Improve quality and food safety to meet growing world quality standards	Aging trees, declining supply
Low maintenance, suits intercropping	Region lacks infrastructure for manufacture and transport	Add value across entire product line to motivate replanting	Poor tree management promoting pests and disease
Multiple products and uses	Lack of access to finance, credit, and funding models	Investigate potential health benefits from consumption and usage	Changes in government policy
	Low farm income	Harvest senile palms for engineered wood products (EWP)	Rising quality standards of markets and competing countries
	Image of unhealthy being high in saturated fats	Coconut oil is high in lauric acid which offers health benefits	Exotic coconut pest and diseases entering the Pacific region
	Lack of incentive to replant for future supply – aging palms are far less productive	Potential other nutritional and beneficial properties	Population pressure and clearing plantations for urban housing requirements
	Coconut palms are much less productive than oil palms, which is the main competing oil product	Smallholder uptake of new technology and their engagement with markets	Climate Change – environmental issues and natural disasters
	Low productivity	Power in the Pacific brand and image for marketing	
	Poor data collection, storage, and analysis	Create a regional coconut forum (SPC Secretariat under the Coconut IP)	
	No regional coconut forum		
	Limited value addition and diversification		
	Limited policy and regulatory support		
	Inadequate support for R&D and extension		
	Low labour supply		
	Land tenure issues		

Table 18: Regional Coconut R&D Priorities

No.	Priority Area	Description
1	**Enhanced trade and value chains**	Enhanced trade and marketing of high-quality copra and coconut derived products in the domestic and export markets. To ensure the provision of proper infrastructure for coconut processing systems and value chains such as low-cost mechanization, post-harvest processing and transport specifically in rural and maritime areas, do community-based training through Farmer Field Schools, increase Public – Private Partnerships (PPP), increase participation of youth and women's groups.
2	**Improved commodity processing and market infrastructure**	Establish or improve market transport and infrastructures such as commodity facilities to serve communities located far form processing centres.
3	**Increase productivity through plantation rehabilitation**	Initiate national replanting programmes to increase coconut productivity, ensure access to planting materials and varieties with high yield, intercropping and mixed cropping and establish national coconut germplasm collection centres, seed gardens and nurseries.
4	**Germplasm and crop management**	Enhance research in coconut germplasm to develop climate resilient varieties, conduct on-station and on-farm research to test and validate integrated and climate-smart crop management practices, identify integrated pest management practices for pest and diseases such as Coconut Rhinoceros Beetle, Bogia Coconut Syndrome and Giant African Snail, pasture management through specifically grazing under coconut and other silvopasture agroforestry systems, high yielding coconut hybrids, and biofuels.
5	**Capacity development**	Increase awareness of stakeholders and ministries on access to relevant data, information and knowledge of climate smart agricultural practices and innovative technologies and best practices for coconut, producer organization management, farming as a business, and farm mechanization. Make digital tools such as quality standards available online and off-line.
6	**Pest Surveillance and Control**	Conduct pest and disease survey annually targeting surveillance of Bogia Disease and Coconut Rhinoceros Beetle, ensure pest and disease list are up to date and eradication plans implemented when required.
7	**Governance and partnerships**	Review and update existing coconut strategies and industry plan to reflect current trends and technologies in coconut production, review and improve current institutional and regulatory arrangements, improve, or establish, various levels of coordinating and implementing agencies.
8	**Accessing finance and credit facilities**	Accessing finance and credit facilities: Explore opportunities to resource agribusiness and coconut industry.
9	**Energy - Biofuel**	Conduct research and implementation programmes to increase production of biofuel through replanting programmes.
10	**Livestock feed**	Improve village pig farming system through improved management practices and technical advice on suitable feeding and husbandry techniques and cost reduction by producing livestock feed using the by-product of coconut.

Table 19: Current Regional Coconut Investment, 2022

	Area	Donor	Current investment and area of interest
1	**Pests & Diseases**	MFAT; ACIAR; EU; ICC	Coconut Rhinoceros Beetle (CRB) management in the Pacific; Sanitary & Phytosanitary services; P&D awareness on research and management
2	**Genetic Resources**	ACIAR; FAO; COGENT; ICC	Coconut genetic resources protection, conservation, and distribution
3	**Markets & Value Adding**	ACIAR; EU; ICC	Engineered Wood Products (EWS); Value Chains; gender inclusivity; product development; support services; market links; trade facilitation; climate smart business support
4	**Policy**	ICC	Review existing policies on promotion of coconut-based farming systems
5	**General**	ACIAR	Coconut Flagship

Appendix 8: Future-oriented impact assessment

A process to explore themes for future research in a forward-looking impact assessment (Strömmer & Ormiston, 2022)

Research agenda.

Themes	Antecedents	Methods, Challenges	Effects	Research Questions
Uncertainty	- Organisational actors' rationales to engage with future-making in uncertain environments - Forward-looking impact assessments as coping mechanisms for uncertainty - Future studies comprehensions of uncertainty	- Approaches to enhance forward-looking impact assessment to limit uncertainties - Methods to diminish uncertainty in forward-looking impact assessments (e.g., from future studies)	- Transparency regarding uncertainty in impact assessment reports - The role of forward-looking impact assessments and innovation in highly uncertain environments (e.g., new venture creation)	- How do actors cope with the uncertain results of future-oriented assessments? - How to incorporate different comprehensions and tools to cope with uncertainty of the future? - How do new ventures demonstrate their impact in the absence of retrospective data? - What is the relationship between forward-looking impact assessment and innovation performance? - How does uncertainty shape the choice of forward-looking impact assessment methods?
Values & assumptions	- Exploring underlying assumptions and values that underpin the decision to engage in forward-looking impact assessments	- Integrating multiple value creation understanding to forward-looking impact assessments - Mirroring the practices of EIA to SIA in forward-looking assessments	- Conflict created by forward-looking impact assessments - Society's values and desires in forward-looking impact assessments	- How do values and assumptions of the assessor shape forward-looking impact assessment? - How do forward-looking impact assessments incorporate multiple value creation? - How do conflicting or changing values about the future shape forward-looking impact assessment?
Stakeholder cooperation	- External pressures to conduct forward-looking impact assessment and related resistance - The effects of interaction dynamics between stakeholders on impact assessments	- Varieties of influence/power relations stakeholders can have in the forward-looking impact assessment process - Addressing the changing preferences of stakeholders	- Co-creation of impact between stakeholders - Decision-making based on shared values visions about the future	- How and why do different stakeholders influence forward-looking impact assessments? - How does forward-looking impact assessment shape stakeholder cooperation? - How do organisations utilise forward-looking impact assessments to build shared visions of the future? - How does stakeholder pressure to assess future impact effect cooperation?
Learning	- The link between learning and innovation in forward-looking impact assessment, especially in new ventures - Future-oriented organisations and willingness to engage with learning	- Conducting forward-looking impact assessments based on learning, instead of predicting - Learning about complexities of social realities through forward-looking impact assessment	- The decision-making process based on forward-looking impact assessments - The learning types related to forward-looking impact assessment - Knowledge sharing and forward-looking impact assessment	- How and why is forward-looking impact assessment used as a tool for organisational learning? - How do forward-looking impact assessments shape organisational decisions? - What is the relationship between forward-looking impact assessment and external knowledge sharing? - What are the relationships between decision-making,

Appendix 9: PMAFS Briefing Paper (Draft)

XXXXX REGIONAL MEETING OF

PACIFIC HEADS OF AGRICULTURE AND FORESTRY SERVICES (PHOAFS)

Paper reference	
Title	
Action	Decision

Summary/short description/key points
This Paper outlines a proposed model for regional collaboration in agriculture and forestry services research and development; referred here on as the Regional Research Agenda (RRA). The objective of the RRA is to provide members the ability to identify common forestry and agriculture development challenges in the Pacific Region, establish Pacific research partnerships, and define research strategies to overcome these challenges. The RRA brings decision making, leadership, and planning into an inclusive Pacific process. This RRA framework was developed through regional consultations by the Pacific Community (SPC) Land Resources Division (LRD) led project team conducted from March to August 2022.

Recommendation
    a) **Endorse the proposed RRA framework**
    b) **Endorse SPC LRD to work with member countries and undertake the next steps required to operationalise the framework**
    c) **Endorse an RRA Report as a standing agenda item at PHOAFS meetings**

Development of a Pacific Regional Research Agenda (RRA)

Context

1. A Pacific Island Countries and Territories (PICTs) member owned and managed for research coordination and collaboration in agriculture and forestry does not exist.

2. The Pacific Heads of Agriculture and Forestry Services (PHOAFS) at their virtual meeting in August 2021 endorsed the development of a Regional Research Agenda (RRA) for agriculture and forestry in the Pacific with two recommendations:

    a. LRD coordinates with PICTs to mobilise resources and a participatory process to develop the RRA

    b. PHOAFS and PMAFM provide strategic oversight and governance of the RRA

3. The RRA provides a framework to operationalise the Pacific Agriculture and Forestry Strategy (Paper Ref: XXXX)

    4. The Australian Centre for International Agricultural Research (ACIAR) provided funds to undertake the regional consultation. Link: https://www.aciar.gov.au/project/gmcp-2021-170

Objective of Proposal

    5. The regional consultation had two specific goals:

        a. Define a shared definition and vision of the RRA and its expected outputs

        b. Develop the framework and processes for delivering those outputs in the medium term.

    6. The outputs of the regional consultation set out the shared ambitions, systems, processes and expected outcomes of the regional research collaboration that an RRA can deliver.

Background/relevant Information:

7. The participant engagement method was through twenty 'one-on-one' interviews with key informants and three workshop events. A total of eighty-eight participants from 13 PICTs participated: 39 women: 49 men, government (49), intergovernmental (24), universities (8), NGO/CSO (4), and private sector (3), and current PHOAFS members (15).

8. The regional consultation used a robust methodology to guide the analysis and search for themes and patterns that was ethical, traceable, secure, and respected participants anonymity.

9. There was full agreement from all participants on the need for an RRA. Pacific partners identified significant benefits in regional research collaboration to share risks (partner or perish), create knowledge through the exchange of information, resources, and networks, create value and impact through tackling common research priorities and challenges together, and informing policy in the Pacific and more globally through improved scientific and research capacity.

10. The regional consultation developed the following Vision for the RRA:

The Regional Research Agenda identifies common forestry and agriculture development challenges in the Pacific Region, establishes Pacific research partnerships and defines research strategies to overcome these challenges. The RRA brings decision making, leadership, and planning into an inclusive Pacific process.

11. The regional consultation developed the operational roles and activities of an RRA into a flow chart of three key areas – *Hear*, *Peer Review*, and *Partners in Research,* shown in **Figure 1**. These three areas are:
    a. *Hear:* A bottom-up approach to implement an inclusive process to gather information on projects and priority areas at the national level. Supported by the RRA Coordinator, national priorities with potential regional benefits are referred for consideration to a regional peer review.
    b. *Peer Review*: Assessment of projects and priorities against an agreed criterion by a Regional Research Leaders group.
    c. *Partners in Research*: Develop and implement research proposals with a focus on local and regional partnerships.

12. The regional consultation uncovered the features and then detailed the technical roles and activities of an RRA at three levels; these are technical, steering, and policy/strategic.

13. A majority of participants in the regional consultation recommended the RRA framework does not create a new entity but rather enhance existing regional institutions, systems, and structures.

14. Current regional consultation project (Finalisation):
    a. Finalise the RRA report for ACIAR by December 2022. This is a public report available to members.
    b. Develop the criteria to assess and peer review priorities.

15. PMAFS endorses RRA progress (proposed next steps):
    a. Confirm donor funding to operationalise the RRA model.
    b. Establish the roles and responsibilities for the RRA Secretariat.
    c. Establish the roles and responsibilities for the Regional Research Leaders group to peer review against the established criteria.
    d. Appointment of an RRA coordinator to undertake the following key activities:
        i. Consult with Ministries and support an inclusive data collection of projects and priorities to elevate for regional collaboration.

ii.   Manage the RRA Secretariat

iii. Support the creation of members and stakeholder research partnership clusters.

iv.   Manage a regional RRA dashboard to provide members with key project or programme updates and progress reports.

Recommendations:

The PHOAFS are invited to endorse the RRA progress and next steps:

16. Endorse the proposed RRA framework
17. Endorse SPC LRD to work with member countries and undertake the next steps required to operationalise the framework
18. Endorse an RRA Report as a standing agenda item at PHOAFS meetings

Figure 1: Summary of three key areas to operationalise a Pacific collaborative R&D process in agriculture and forestry services
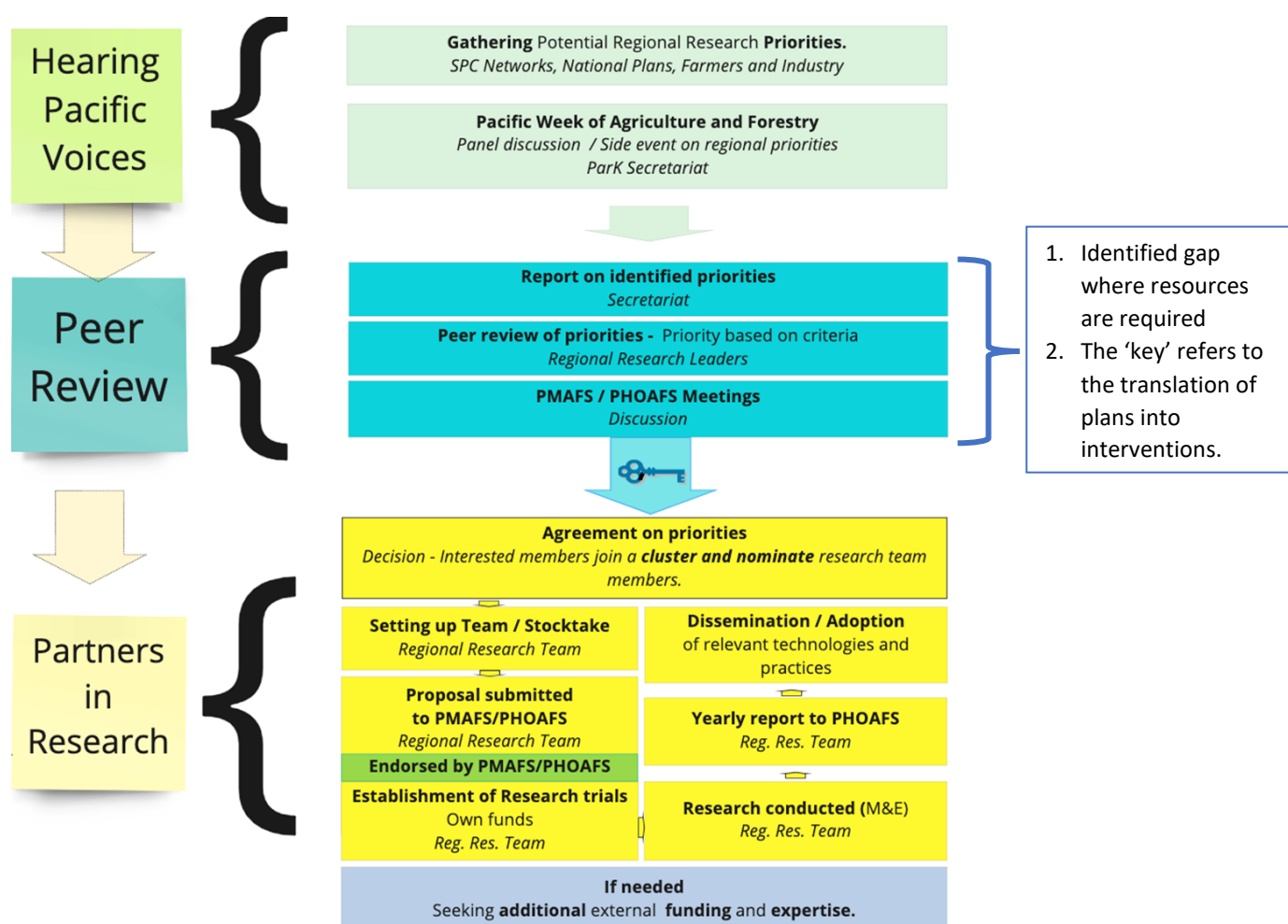
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Picture 3: The Project Team

Left to Right: Kelly Culver, John Oakeshott, Varanisese Tawake, Florence Rahiria, Julien de Meyer

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