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Small research and development activity

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1 Acknowledgments

This Australian Centre for International Agricultural Research (ACIAR) Small Research Activity (SRA) was a collaborative research effort over a period of 16 months, involving staff of the Pacific Community (SPC) Land Resources Division and Illudest consultancy.

We extend our gratitude to the 67 esteemed individuals from the Pacific region who contributed their time and ideas to this report. We hope their voice is appropriately reflected within these pages, encouraging them to champion the cause of greater regional research collaboration.

In addition, we wish to acknowledge Dr Peter Horne, former ACIAR General Manager, Country Programs, and other members of the project steering committee – Karen Mapusua, Director of LRD, and Mai Alagcan, ACIAR Pacific Regional Manager – for their time, feedback, insights, and overall support. Our thanks as well to Nathan Russell for editing this report.

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

2 Executive summary

In August 2021, the Pacific Heads of Agriculture and Forestry Services (PHOAFS) authorised 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 for this work.

The PHOAFS tasked the SPC with defining a shared vision, concepts, expectations, process and framework for an agriculture and forestry RRA that would deliver expected outputs in the medium term (10-15 years).

Inclusive process

The participatory, member-driven process for the development of the RRA was guided by an SPC/ACIAR steering committee and included a desk review to identify key assumptions and drivers for regional collaboration. In addition, key informant interviews were conducted with SPC member countries, government agencies, academics and other thought leaders to gather insights, review findings and test assumptions. Despite complications resulting from the COVID-19 pandemic, a series of regional consultations were held in Fiji and Brisbane as well as virtually with a wide array of participants.

Participants were asked to share their views on:

- The concept of an RRA
- Credible and fair mechanisms for identifying common regional research priorities and establishing research objectives/questions
- The types of partnerships needed for meaningful results and impact,
- Gaps in human capacity
- Funding and resources for implementation

Findings and significant results

All informants and participants in the regional consultations agreed on the need for an RRA. Pacific partners determined that regional research collaboration can deliver significant benefits by sharing risks; by creating knowledge through the exchange of information, resources and networks; by creating value and impact through efforts to tackle common research priorities and challenges together; and by informing policy in the Pacific and globally through improved scientific and research capacity. The RRA can further serve to develop a Pacific brand, reputation, and identity with global impact and influence.

The drivers of change that have influenced regional thinking on a collaborative research agenda are:

- Individual incentives for increased exposure, networks, capacities and confidence;
- Organisational incentives for increased funding as well as 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;
- Incentives to achieve impact through problem-oriented, demand-driven, high-quality research.

Conclusions

Based on the regional consultation, a process for implementing the RRA was defined that involves three steps: (i) hearing Pacific voices, (ii) peer review, and (iii) research partners defining a regional research agenda, agreeing on priorities, identifying gaps and allocating resources and people. A consensus formed amongst all parties on the need for a regional research coordination mechanism that does not create new structures and increase administrative burden on research managers but is defined by and for Pacific countries.

The RRA framework will thus be composed of:

- A secretariat to coordinate the RRA that will use current structures and existing regional institutions, such as SPC and report to the Pacific Heads of Agriculture and Forestry
- A peer review group that will be composed of regional research leaders selected from a pool of scientists nominated by the Pacific Heads of Agriculture and Forestry
- A side event in the form of a panel discussion held during the Pacific Week of Agriculture, where regional research leaders, farmers' representatives, private sector representatives, academics and ministry officials will be invited to discuss upcoming priorities and needs for the region

The RRA secretariat will coordinate the work of the peer review group and analyse the inputs provided during the panel discussion to establish research priorities as well as credible and relevant research questions that have value and impact for the Pacific region.

The secretariat will facilitate the development of an RRA by providing advice on the selection of common research objectives and flagship research topics vetted through established criteria defined by the peer review group. The secretariat will further provide a focal point for coordinating extension and research working groups around disciplines, for supplementing current regional expertise, for linking countries that conduct similar research, for accessing a pool of sustainable funding, and for leveraging benefits from research networks within the Pacific.

The RRA secretariat and the process to develop or update the regional agenda will empower decision-making and planning in the Pacific through an inclusive process, in which each country has a stake and a voice to define and implement regional research priorities. To this end, the RRA secretariat will collaborate with member countries, coordinate the meeting of the peer review group 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. In this way, scientific advice, including communication of scientific knowledge to Pacific and global leaders, will inform and influence policy.

The project team identified early on the desire of Pacific leaders and researchers to capture the Pacific 'voice' from communities to guide the RRA. To this end, it is important to engage with smallholder farmers and their communities to identify and understand their needs in agriculture and forestry. Early engagement also requires the involvement of local researchers, who can seek solutions and align these with national research strategies. Engagement with communities, smallholder farmers and researchers involves a major coordination effort, and if implemented in the Pacific, this will transform the way regional R&D is undertaken.

The findings and recommendations of this ACIAR Small Research Activity were presented to the PHOAFS during the Pacific Week of Agriculture and Forestry in March 2023. The RRA framework was endorsed and SPC tasked, in collaboration with member countries, with taking the next steps required to get the RRA framework and RRA secretariat established.

The next steps in operationalising the RRA include nomination of the peer review group and development of a first regional research initiative, with the peer review group to select a regional problem (e.g., coconut) to test the framework and report back to the PHOAFS in 2024.

3 Introduction

The Pacific region is defined by its diversity, with a combined landmass of around 552,000 square kilometres within an ocean area of more than 14 million square kilometres and a collective population of 12.8 million people, which is expected to increase to over 19 million by 2050 (Pacific Community (SPC), 2022a). Increasingly, nations of the region face significant common issues and opportunities in agriculture and forestry, making regional research collaboration essential. Currently, the Pacific Island Countries & Territories (PICTs) have no regional process that they own and manage for research coordination and collaboration in agriculture and forestry. At their 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.

Developing an RRA aligns closely with the role of SPC's Land Resources Division (LRD) in enabling the provision of regional public goods from agricultural and forestry research and development (R&D), as outlined in LRD's Business Plan 2019-2023. The business plan highlights in particular LRD's mission to provide *'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.'* An RRA would thus link PICT national strategic plans with key regional strategies. National strategic plans – where available – will be a key element for identifying priority regional research areas and projects. Another key element that can inform the RRA are regional strategies, such as the Regional Agriculture and Forestry Strategy (under construction) and the SPC Strategic Plan, both of which link to the Pacific Island Forum Secretariat (PIFS) 2050 Regional Strategy (under construction).

The RRA also aligns with ACIAR's ambition to define strategies for collaborating with the region in a different way. ACIAR's partnerships have evolved, as countries and regions have gained a stronger voice and become more capable in research. ACIAR and the Pacific may be better served by a process that focuses on 'why' and 'how' we want to work together in the medium term to achieve specific shared goals and on 'what' we agree at regular reviews to work on together. This will provide the necessary granularity to define and adjust research programs to rapidly changing contexts in the Pacific. The outputs of this SRA may well clarify that process for ACIAR.

4 Goals and objectives

The two goals of this SRA are to:

i. Define a shared definition, vision, concept and expected outputs for an RRA in agriculture and forestry services R&D.
ii. Develop the framework and processes needed to deliver those expected outputs in the medium term.

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

1. What are the current drivers, challenges and opportunities for Pacific regional research collaboration in agriculture and forestry?

This includes an assessment of the following issues:

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 shared and individual expectations and concerns of the PICTs with respect to an RRA for agriculture and forestry?

This includes an assessment of the following issues:

a. What are the visions and expectations of the PICTs for an RRA?
b. What are the expectations of the PICTs concerning its management 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 includes an assessment of the following issues:

a. What is the process for developing an RRA?
b. How can the RRA best be governed and implemented, and over what timeline?
c. What are the risks inherent in an RRA, including the risks of not developing it? What are the strategies for mitigating these risks?

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

5 Methodology

The methodology used for this SRA was Constructivist Grounded Theory or CGT (Charmaz, 2014). This is a qualitative research methodology that uses an inductive approach to a social issue for which no adequate prior theory exists. The approach provided a systematic process to generate ideas from information that emerged from the data collected using various methods; these were desktop research, key informant interviews (KIIs) and focus group discussions (FGDs). Data interpretation required systematic coding and constant cross-checking against the literature. The CGT methodology helped identify patterns emerging from the data, whilst augmenting creativity and strengthening data interpretation[1].

5.1 Desktop review

The project team reviewed 15 national development documents from PICTs (see Appendix 1: National documents referenced). The desktop review gathered information from a wide range of national, regional and global documents, and then undertook a basic analysis of the information. For this purpose, the project team used causal layered analysis (CLA), which provides a simple four-layered lens to view a social problem (Inayatullah, 2021). The literature was reviewed and analysed in a continuous process integrated with the KIIs and FGDs. Details of the analysis and the full results are presented in a sister report published by SPC (SPC, 2023).

5.2 Key informant interviews

Data collection commenced with 20 KIIs undertaken between April and August 2022. From a target pool of 30 informants, 20 key informants were interviewed. **Table 1** shows the breakdown of interviewees by gender, organisation type and country. The identities of the interviewees and the confidentiality of their information were protected through a code system. The codes were generated and assigned randomly, and a codebook was secured by one member of the project team. All participants were given a consent form for their comments to be used in public whilst retaining their anonymity.

Table 1: Key informant interviews

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

[1] Details of this methodology are presented in a companion report by the same authors, which was published by SPC: Pasifika Research Kibung (RRA)Framework for Pacific Regional Agriculture and Forestry Research Collaboration, SPC, 2023.

9	DFon	Female	Government	Fiji	19	GPUA	Male	University	PNG
10	xj7K	Female	Government	Cook Islands	20	LsP9	Male	University	Fiji

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

5.3 Talanoa/workshops

To ensure inclusivity and the participation of all key stakeholders in the consultation process, the project planned to hold at least four consultation sessions (*talanoa*) covering the three sub-regional groups (Melanesia, Polynesia and Micronesia) as well as a session with development partners. The consultations were to include interviews with key senior officials and researchers within selected PICTS. They were intended to provide strategic, technical and organisational perspectives with advice on an RRA concept and process. But with travel restrictions imposed because of the COVID pandemic, the project reduced the number of consultations to three – one held in Fiji in May 2022 with SPC, another in Brisbane in June 2022 and a virtual session. **Table 2** gives dates for the KIIs and workshops.

Table 2: Key dates

	Data collection method	Date	Participants (men:women)
1	KIIs	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 LRD. Given their long experience in regional engagement, they were able to test findings from the key informants and desktop review. This meeting presented findings from the KIIs and featured a session for gap-filling and brainstorming on the governance process and integrity. Key outcomes from the May session went into developing the agenda for the Brisbane consultation in June.

The team planned for the Brisbane consultation to include at least 30 key member countries from the three sub-regional groups as well as international development and research partners. However, limited flight availability in the Pacific at that time and restrictions due to COVID protocols reduced the number of members and development partners to 14. Nonetheless, the project still managed to have representatives from the three sub-regional groups. The meeting focused on discussing and answering questions grouped in three themes: Why should we collaborate; what do we collaborate on; and how shall we collaborate?

The virtual meeting held in August 2022 involved a larger group of participants, with the aim of engaging member countries that were not part of any earlier workshops or interviews. The aim of this online *talanoa* was to present project findings and gather final feedback on the process and governance around the RRA. At key milestones, the project team presented progress to the project Steering Committee.

Picture 1: Participants in the Brisbane workshop, 15-16 June 2022

In total, 67 individuals from 14 PICTs and 5 non-PICTs participated in KIIs and workshops in Fiji and Brisbane as well as online. Twenty-two participants chose to take part in more than one event, increasing total participation to 96. Although each workshop was designed as a stand-alone event, the team encouraged the interest and ongoing engagement of repeat participants, and their interest and support yielded useful insights about the RRA from their reflections on previous data and proposed frameworks. This feedback improved the data and final design. Twelve current PHOAFS members participated, thus ensuring some degree of socialisation and alignment of the proposed RRA framework with the expectations of the wider PHOAFS membership. Further participant details are included in a sister report to this SRA report and published by SPC (SPC, 2023).

6 Key results and discussion

6.1 Relevance of Pacific research collaboration

This first section provides a brief overview of the likely viewpoints on aid of three stakeholders: donors, ministries and smallholder farmers. Donors are defined here as organisations dedicated to distributing aid. Donor governments manage their overseas development assistance (ODA) contributions through their national development agencies, who work with recipient government ministries in the PICTs. Smallholder farmers are defined here as relying on traditional farming systems that use family labour and local resources with low capital input. Their production area, finances and knowledge are limited; moreover, they are often marginalised from decision-making in society; and they generally have limited opportunities, resulting in unfulfilled potential.

6.1.1 Donors

Regional collaboration is becoming a topical issue, as geopolitical tensions as well as foreign aid rise in the Pacific. This may therefore seem like an opportune time to strengthen relationships with donor partners through targeted programs defined by and for the region to achieve significant economic development and livelihood improvement.

During the interviews and FGDs, donors were very supportive of coordinated R&D to guide their investments. Targeted programs developed, identified and led by the region match donor's objectives and vision for partnerships and local empowerment. Donor partners encouraged and supported an inclusive process with greater collaboration led by Pacific partners.

The lesson for the Pacific community is to know its capacity and strengthen its ability to identify where aid is required to address priorities the community has identified. Insights into donor funding priorities can be used to tailor the priorities of Pacific stakeholders, so that they align with specialised areas in which some donors may prefer to invest.

6.1.2 Pacific ministries

Governments in the Pacific have expressed support for regionalism explicitly in documents developed and endorsed by Pacific leaders (SPC, 2022b; SPREP, 2014). This support is also evident from their membership in regional inter-governmental agencies, such as the Council of Regional Organisations in the Pacific (CROP)[2]. Political leaders realise that individual PICTs engaged in collaborative research have access to specialisations, skills and equipment, with a division of labour based on comparative advantage. This enhances research sophistication and leads to innovations that attract further research investment and ultimately improve the livelihoods of Pacific communities.

However, ministries seem to constantly struggle to find a balance between their limited resources and development priorities. Whilst seeking long-term solutions, they are often caught in short-term political or donor funding cycles. An old but still relevant survey from 1987 showed that involvement of local institutions was correlated with the sustainability of projects beyond the funding cycle (Cernea, 1987). Ministries are the only permanent service

[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 and Pacific Power Association.*

providers that are embedded within the communities, and their involvement and support are crucial for stewardship, change and the sustainability of projects and programs.

The importance of partners and support networks for the organisational development of ministries is well documented (Berdegué Sacristán, 2001; Bruderl & Preisendorfer, 1998; Curtis, Shindler & Wright, 2002). Social capital or the strength of partnerships and support networks, in which resources and ideas are shared between organisations, also serves as a proxy measure of an organisation's sustainability (Lee, 2009; Sandín & Pavón, 2011). The process of activating, developing and expanding support networks improves capacity to share norms and values across a network, and increases the potential for collective action and innovation, which in turn increases the likelihood 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 may provide an efficient and effective means to achieve organisational development, translating into community outcomes with support from donor partners, if required.

During the interviews and FGDs, representatives of the various ministries engaged were very supportive and found that an RRA for agriculture and forestry research is relevant. At the end of the Brisbane consultation and online consultation, participants provided input to rename the RRA and proposed to name it the Pasifika Research Kibung (PaRK). This proposal was rejected during the PHOAFS meeting in March 2023, and alternative names were proposed. The peer review group will be asked to propose some alternatives, such as the Pasifika Research *Tok*, which was proposed by Tokelau during PHOAFS.

Discussions were held to consider the risks of such collaboration. Decentralisation of research offers many benefits but also brings the added cost of managing research to serve a disparate group of farmers and sustain links between farmer groups and research centres and universities through a research extension system. Regional research collaboration should have an intellectual justification, based on high potential benefits and not on economic motivations that can lead to tension and conflict (Anderson & Steneck, 2011). Whilst businesses compete, Pacific researchers should cooperate.

6.1.3 Pacific farmers

'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 improving the agricultural production and forestry management of communities and smallholder farmers often poses more of a social than a technological problem (Oakeshott, 2020). Coordination and collaboration with smallholder farmers, farmer clusters and their communities create a challenge for ministries, which a regional agenda must embrace, based on an awareness of the need to provide ministries with support.

Partnerships with farmers offer many advantages for a regional research agenda. The Pacific Island Farmers Organisation Network (PIFON), now known as the Pacific Farmer

Organisations (PFO), has listed the following advantages of research decentralisation through engagement with farmers, farmer clusters and forestry groups (PIFON, 2016):

- Addresses the direct needs of farmers.
- Improves the probability of adoption.
- Expands the geographic spread of research, creating a 'rich' data set.
- Uses existing infrastructure and systems.
- Opens up opportunities through direct farmer input for practical solutions from farmer experience.
- Encourages ownership of the research, developing farmer capacity.

Research has not been decentralised within countries, because the necessary farmer partnerships involve many challenges:

- Added facilitation cost to engage and service a large and disparate group of farmers
- Weak linkages between research centres, universities and extension systems
- The cost of monitoring and evaluating research
- Motivation of extension staff to 'champion' the partnership and facilitation processes
- Difficulty in quantifying ex-ante estimates of benefits to justify financial commitment
- Maintenance of research quality with limited capacity and resources at the research site

The RRA aims to create an inclusive, sustainable and transparent process for engaging the beneficiaries of R&D interventions in a partnership. Although the RRA is intended to address regional issues, it must still engage farmers and farmer clusters through a decentralised R&D process to be relevant. The PFO representative who was present during the consultation process found an RRA to be needed and relevant.

6.2 Drivers, challenges and opportunities

6.2.1 Reasons for collaboration: The drivers

The key informants strongly supported regional collaboration, and some of the reasons they gave reflected the high priority they assign to the development of human and social capital (**Table 3**). Some also mentioned the opportunity to attract greater funding through coordination; however, most respondents viewed regional collaboration to share risks and create value through effective and efficient use of regional resources.

Key informants from Micronesia and atoll islands expressed a sense of isolation and the challenges of undertaking research in their environments, where resources are lacking. All the informants underlined the common issue of limited resources; they said that regional collaboration should permit greater sharing of human and physical resources and provide a platform for exchanging information to improve the region's scientific capacity. They also expressed a need to strengthen political capital between researchers, policy development and science diplomacy. Some ministries focus more on policy development in agriculture and forestry services. Informants highlighted the ability of an RRA to link national research outputs as a source of 'trusted' information, which could both inform and support ministries in national policy development.

Table 3: Why we want to collaborate

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

Figure 1 shows a word cloud generated from transcripts on why we should collaborate in the Pacific. The three most frequently used words are research, people and knowledge. Interestingly, finance and income do not appear in the word cloud, underlining the importance of social and human capital for research in the Pacific region. One key informant summarised the importance of regional research collaboration as follows:

…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 1: Why we want to collaborate.

The Papua New Guinea National Research Agenda (Matainaho, 2022), which was shared in the discussion during the Brisbane consultation meeting, offers an example of a successful R&D strategy. On the right side of the diagram in Figure 2 below are listed the reasons 'why' research is undertaken. This reflects a focus on the benefits and impacts of research for regional communities, and suggests where impacts should be evaluated. Eleven areas for investment, shown on the left side of the diagram, include tangible and intangible research outcomes, consisting of knowledge that is applied and contributes to society (right side).

6.2.2 Enablers

The enablers of successful collaboration are people or things that make it possible to achieve an end goal. SPC (2022b) have identified five key pathways designed for their Strategic Plan 2022-2031 that can enable interventions to achieve positive and measurable regional outcomes. These pathways provide useful subheadings for this section on enablers.

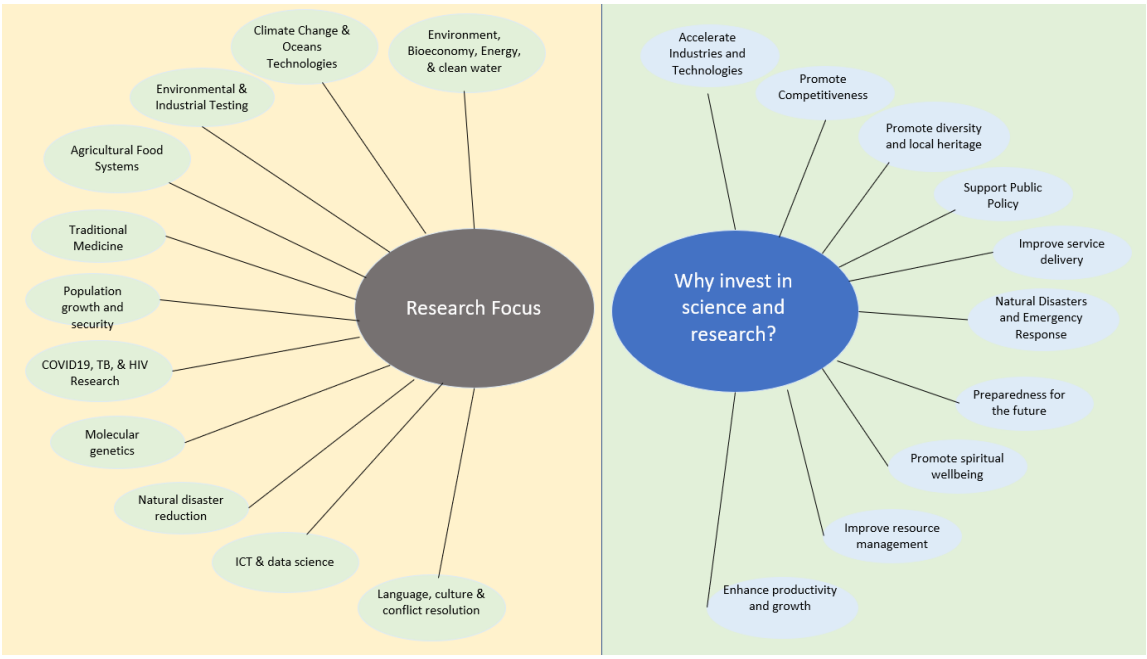

Figure 2: Research agenda - why and research focus. (Matainaho, 2022)

Policy to action

It is essential to ensure respect for the rights and needs of Indigenous populations and the most vulnerable people to inform decisions, management and any responses. This requires an inclusive governance process involving stakeholders, who can open pathways to adoption. Enablers amongst stakeholders can be early innovation adopters, farmer 'champions', fully engaged ministries, policymakers, donors or communities. Through their networks, these stakeholders can identify problems, build support and create awareness. In turn, their networks can grow exponentially and contribute to increased contacts, knowledge and resources.

Organisational and national political leaders can create environments that ensure inclusive governance, linking target beneficiaries, research staff and management. The task for leadership is to maintain commitments with target beneficiaries, within teams and their organisations, and with other collaborators in the partnership. A leadership challenge is to align the goals of national agendas with regional collaboration. Leaders can facilitate collaboration within and amongst groups (Keeley, 2007) by creating bonds that tie research teams together and by managing the bridge to external stakeholders and organisations (Emery et al., 2006). Leadership in collaboration is important at various levels, including the individual, team and organisation, both national and regional. When leaders effectively promote work though a collective network at multiple levels, then the collaboration is well positioned to succeed (Hauschildt & Kirchmann, 2001; West et al., 2015). Whether the structure functions efficiently and effectively for successful collaboration depends on the stakeholders, leaders and implementation team.

Another enabler for successful cooperation is voluntary participation. Force and coercion are not as successful as voluntary collective action (Gillinson, 2004; Grootaert, 2001). The success of the latter has been attributed to local ownership of the problems, which enhances

commitment based on knowledge of what works best for communities and their established relationships of trust. Friendship and solidary, leading to shared action and activities, develop trust. This is an important enabler for improving efficiency and effectiveness through reductions in the time and money required to monitor relationship transaction costs (Grootaert, 2001). This points to an important enabler for the Pacific communities, where individuals have a regional connection through social kinship, going beyond kinship derived through blood (consanguineal) or marriage (affinal) (Schneider, 2004). This strong social kinship is an enabler for regionalism, which continually strengthens bonds based on a shared region and the associated R&D issues in agriculture and forestry services.

Data, statistics and knowledge

Coherent data collection and analysis inform decisions about which development products are ready for adoption. Data and statistics provide information on who, when, what or where, whilst knowledge results from the use of this information and other clues to answer questions on why and how. The data collected and collection process determine the credibility of the research, lending confidence to any conceptual interpretation of the data. Credibility relates also to the validity or accuracy of the measured data as well as the reliability or consistency of a measure. If the 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 build public trust in the quality of research, enabling the data, statistics and knowledge to be used for citation, adoption as well as further research and development.

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

Innovation and research

Capacity building for research innovation has become a strategic focus for economic and institutional reform. Development of research capacity in higher education through secure and ongoing investment underpins improvement in research innovation across the Pacific region. Some claim that there is a direct linear relationship between research innovation and investment (Mayer, 2011), and that this enables economic development and ultimately increased employment. However, there is a danger in this pathway (with its focus on innovation, economics and employment) of zealous government interference in the scientific process, aimed at establishing research targets based on economics and employment through a top-down management approach.

Digitalisation and technology

This includes technology, facilities, funds, staff and any other asset needed for effective implementation. Whilst IT systems are constantly improving and back-up systems have been created, accessing the newest equipment and building human capacity are still a challenge. One change brought about by regional COVID-19 travel restrictions is the improved capacity of research teams to work remotely using various internet applications. These and user skills are rapidly increasing, serving as a key enabler for collaboration.

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[3] *Pacific Data Hub (PDH) link: https://pacificdata.org*

Capability and influence

The design, governance and engagement structure of collaboration should possess the features needed to enable and influence policy, development and behaviours. The public and stakeholders require robust and transparent systems to build 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*: All relevant stakeholders must be included.
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 authority.
d. *Effectiveness:* The regional coordinating body must have the ability to adopt and implement binding decisions, and to resolve any conflicts that arise amongst participants.

Good governance enables collaboration to function efficiently and effectively. Any 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 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.

6.2.3 Challenges and obstacles to regional collaboration

In the absence of rewards that stimulate a desired action or behaviour, individuals and organisations are unlikely to show interest or act. This section examines the disincentives that could impede regional research collaboration.

The major disincentives relate to administrative barriers. Whilst research organisations tend to compete, researchers tend to cooperate. Administrative barriers involve legal and policy issues, the alignment of organisational and partnership goals as well as the many regulatory obstacles that arise when a collaboration spans several countries. Currently, multilateral projects in the Pacific region require each partner to sign the contract before commencing. Donors may become frustrated by prolonged delays, as a contract is passed between countries, with their individual legal and financial review processes. Meanwhile, the various donor agendas and large numbers of projects may overwhelm the capacity of bureaucracies in recipient countries. Aid is more effective if coordinated (Knack & Rahman, 2007).

Laws and rules apply to any regional partnership, but this raises the questions of ‘whose laws’ and ‘why’. It is essential to have a single governance system and to apply the standards of one of the investors for finance and procurement rules. Regarding research integrity, the application of rules is based on ethics and morality, and not on organisational size and resources. One view is that Western universal ethical standards should be applied to everyone equally (universalists). Another is that ethical concepts can only be judged in the society where they appear (relativists). Pacific Islanders tend to view individuals through their kinship and community, suggesting ethics more akin to the relativist perspective (Donnelly, 1984). Research governance will require further consultation and consideration within the Pacific region.

All partners seek to understand their legal risks within a partnership and to determine how these can be minimised. Legal obligations in regional collaboration vary case-by-case, depending on the nature of the research and role of the partners. International treaties add to the complexity and require early consideration. Particularly in the Pacific region, adherence to treaties on biological material exchange, biological discoveries are important legal considerations, which may be relevant to specific research partnerships. Expectations are likely to differ, requiring clarification around the background and foreground intellectual

property (IP), patents, copyrights, trademarks, licencing of outputs and materials produced as part of the collaboration.

Collaboration also has 'behavioural ingredients', consisting of the relationships that maintain any partnership and facilitate efficient operations. Partnership issues generally involve these three principal areas: character, commitment, and communications. A wide range of considerations within each of these areas can have negative effects on the partnership. Such relationship issues are outlined below.

A further consideration is the emotional quotient of researchers in a team environment. Like any worker, a researcher may find it difficult to work in a team environment. For international research teams, this could result in limited information sharing, sharing of only satisfactory results rather than all results and a general lack of confidence to express opinions. Language, cultural and distance barriers can exacerbate the situation. Younger partners may feel overwhelmed in situations where they are expected to function as equal partners but lack the experience, resource access and influence that others have. Such situations may not be conducive to the benefits that come from informal relationship and trust creation, leading to greater potential for innovation.

As organisations grow, their management tends to focus on achieving specific goals and to this end, assigns strict key performance measures to staff. However, this model may work against collaboration and regional partnerships, which require a degree of flexibility as well as time and resources to get established. R&D managers focus on value creation when considering the benefits of collaboration. The effort and resources required to create a functional partnership are also an important consideration. Collaboration requires full organisational support, with human resource commitment and recognition of the extra time and effort involved.

6.2.4 Risks and opportunities

Regional collaboration offers opportunities for Pacific countries to move from their individual strategies into a group forum, where they share not only knowledge and resources but risks. This in turn opens opportunities for them to engage in projects aimed at transformative change with greater livelihood benefits. PICTs with limited development budgets are inclined to avoid such projects because they entail high risk and larger investments. Instead, they prefer to invest in risk-averse projects that result in small, incremental changes, involve less immediate stress and minimise the loss of resources.

The absence of regional collaboration, however, also increases the risks of wasting resources. The Pacific region has problems of project duplication, loss of research capacity, and inefficient and ineffective interventions. These are the risks of not having a process for regional collaboration. But an RRA is not a risk-free solution; if implemented, its administrators will need to manage a range of risks. For regional research collaboration in agriculture and forestry services across the Pacific, it is difficult to identify and understand the diverse food and forestry environments and cultures, different levels and types of regulation, and business supply chains, which are more adversarial than complementary. Moreover, each PICT is unique, with multiple interactions and feedback loops that can change the outcomes of regional research in unexpected directions.

RRA administrators and regional leaders need to recognise that the main risks in establishing and maintaining an RRA will centre on social rather than technical problems. Social capital forms the foundation for technical projects and programs (Emery & Flora, 2006). And this should guide the new RRA administration in determining its skill requirements. The RRA process must have integrity to ensure collaboration and lessen the risk aversion of PICTs. Where integrity and trust exist, then collaborative activities happen (Gambetta, 1988; Schurr & Ozanne, 1985); where trust is eroded, then the process is highly likely to collapse (Aldridge, Halpern & Fitzpatrick, 2002; Carroll & Stanfield, 2003). One practice that can enable the RRA to mitigate this risk is to define the ethics of Pacific regional research with the Pacific Islands University Research Network (PIURN). Establishing

standards that also define the process for investigating any research misconduct is an important step towards building a process that can be trusted.

Table 4 lists some of the key risks for RRA and possible mitigation strategies.

Table 4: Potential risks and mitigation strategies

Type of risk	Risk	Mitigation strategies
Social capital	'Client networks' are created that bring specific benefits only to those connected.	A process focused on integrity, accessibility and transparency enables peers to correct the process should it deviate.
	The RRA overemphasises internal bonding and becomes disconnected and isolated from the wider group of stakeholders.	Equal emphasis must go to relationship development and 'bridging' to external partners.
	Alignment with political parties results in projects and programs being altered or cancelled, as governments change in the election cycle.	The RRA must remain apolitical. Whilst engagement with ministries and PICT governments is part of its operations, any implied or explicit support for a political administration must be strictly avoided.
	Partners and stakeholders place their trust in the RRA administrators. This 'trust bank' is eroded by poor administration and lack of transparency, and the RRA collapses.	The 'trust bank' must be maintained through a system that is robust, transparent and focused on the integrity of its culture, systems and accountability.
	Free-rider problems arise.	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. In the RRA framework, this is accepted behaviour, as only a cluster of PICTs will collaborate actively with some countries participating as observers, and engaging only if and when they have the resources. A research agenda by the Pacific and for the Pacific will benefit all interested parties, even those who have limited capacity to contribute resources.
Human capital	Capacity is lacking to coordinate a complex regional research process.	Experienced project managers must be selected with care. They must be capable of negotiating, with support from a regional group of experts, who guide research priorities and projects. Part of the RRA agenda is to actively encourage retention and strengthening of research capacity through close engagement with the regional university network (PIURN) and higher participation of Pacific researchers in regional projects.
Financial capital	No funds are available for the RRA administration.	Start-up funding is required for both the administration and peer reviewers. Funds could be supplemented by project/program funds contributing a percentage towards administration. The funding model is discussed in a separate section of this report.

	Donor partners are more interested in bilateral projects than regional multi-lateral projects.	Donor investments will always be based on political priorities. However, donor partners regard as attractive a regional agenda, as proposed in this study, that provides a voice for the Pacific through a process with high integrity.
Natural Capital	Natural disasters and pandemics divert resources from the RRA to 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 programs will be disrupted, and all partners will require that a degree of flexibility be built into projects.
Physical capital	Members refuse to share resources.	The RRA is founded on a collective action approach, through which PICTs have access to regional resources to address their national issues through regional collaboration. Possible criteria for regional priorities are included in the section on availability of resources and networks. This involves negotiation between stakeholders when priorities are established. A complementary approach is for the RRA to undertake early on an audit of the available resources for a regional agriculture and forestry services R&D program.

6.3 RRA vision, objectives and definitions

A high-level vision and objective together with definitions were developed from transcripts and tested in FGDs, thus providing stakeholders with a clear understanding of the direction of the proposed RRA. The details of the process and all the findings and discussions that led to the points defined below are presented in a sister report published by SPC (SPC,2023). To be concise, we only refer to the SPC report but do not repeat its findings.

6.3.1 Vision

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

This vision statement emerged from the consultation, and was discussed and amended during PHOAFS in March 2023. A possible hierarchy of objectives is presented in Figure 4 below.

6.3.2 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.

6.3.3 Definitions

The reasons, incentives and drivers that will support the development of the RRA are outlined above. It is also important for all Pacific partners to have clear and common definitions of what the RRA is:

The RRA is regional research collaboration in which research conducted by **a team of scientists** who work **together** on a **specific** problem takes them **beyond the geographical boundaries** of the organisations with which they are primarily affiliated.

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

The RRA will be successful and relevant **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.*

6.3.4 Governance and roles

The proposed framework presented during the consultations is based on the literature, featuring a model with three pillars, as shown in Figure 3 below: (1) a technical pillar, which has research teams collaborating in research projects and producing results (researchers occupy this space); (2) a steering pillar, which translates the vision for regional research into priorities, and monitors and evaluates the results (Pacific Heads occupy this space); and (3) a policy or strategic pillar, which approves the vision and strategic direction (Ministers occupy this space, informed by the Pacific Heads).

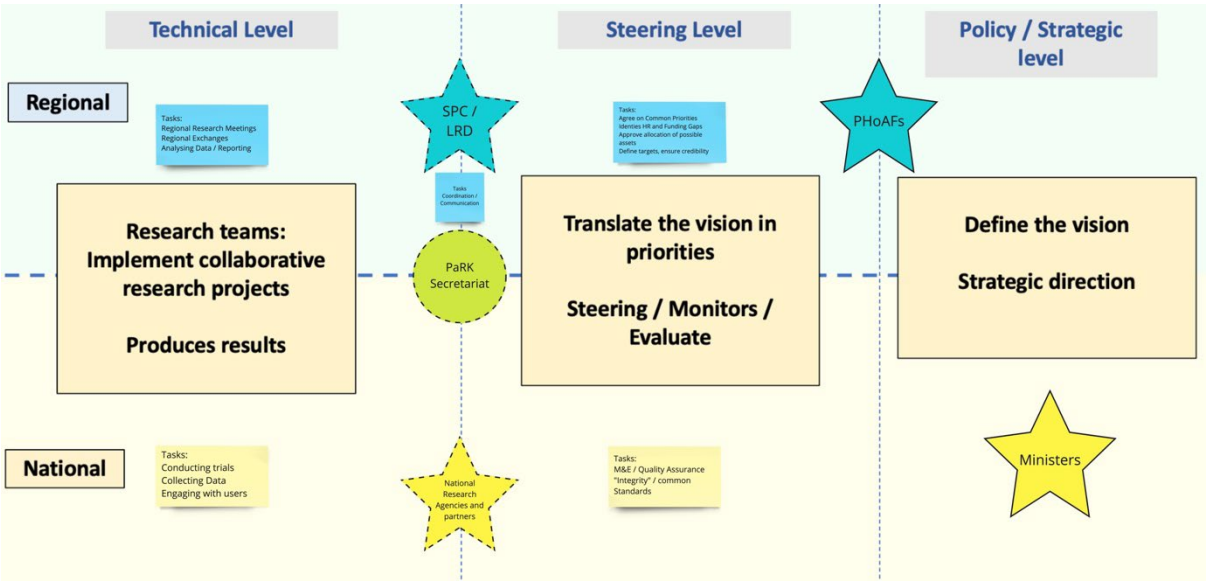

Figure 3: RRA framework.

As shown in Figure 3, the pillars are connected at various points.

The Pacific Heads occupy the space between the steering and policy/strategic levels, whilst the RRA secretariat occupies that between the technical and steering levels.

The secretariat will have a coordination role: It is proposed that a regional research coordinator will manage the secretariat and that the secretariat will be administered at first by the regional host organisation – currently SPC, as endorsed by the PHOAFS in March 2023.

A peer review group composed of regional research leaders selected from a pool of researchers nominated by their country will filter priorities based on a set of criteria and will provide advice to the PHOAFS. Peer review members will also participate in a regional research panel discussion that will be a regular side event during the Pacific Week of Agriculture.

The RRA secretariat will serve as a focal point for sharing information amongst research and working groups around disciplines.

The RRA will seek to establish a Pacific brand, sharing materials, knowledge and data that have integrity, supplementing expertise where necessary and raising the visibility of research.

Key informants and workshop participants were asked ‘who’ should take on the role of the secretariat and the peer review group, ‘where’ it should be positioned and ‘what’ functions it will perform. **Table 5** shows responses to the ‘who’ and ‘where’ questions, with respondents generally in agreement that using current structures will enhance sustainability. Only one respondent suggested the creation of a new body. Following the rule of architecture that ‘form follows function’, the secretariat should initially be embedded within SPC with established policies, particularly on human resources, procurement and finance.

Table 5: RRA Coordination body (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 regional coordinating role.*	SPC

Key informants and workshop participants were asked 'what' challenges the RRA secretariat or the peer review group would likely face. **Table 6** shows their responses, with an 'issues' column categorising the challenges as related to communications, coordination (internal and external), governance, inclusion or benefits. These issues will be explored and addressed during the operationalisation of the framework. The secretariat at first will have responsibility for communication, coordination and governance, as the first pilot initiative will be developed in 2023/2024 (see below roles and responsibilities).

Table 6: Challenges for regional research collaboration

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 and 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, 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 of people who specialise 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 get projects started in countries can also be frustrated by long delays.*	Coordination (internal and 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

6.4 RRA framework

'…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'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 in the Pacific that has the vision and fits the definition presented above. No current structures are coordinating a regional research agenda. However, existing structures and systems could be enhanced to create a new coordinating mechanism. 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 scarce resources for research can link into the RRA, ensuring that all voices are heard, that the process and system are inclusive, and that research is conducted effectively and efficiently at scale. The RRA can thus serve as a mechanism not only to grow research within the Pacific but also to develop a Pacific brand, reputation, and identity with global impact and influence.

During the consultation, participants discussed how to implement the RRA. Figure 4 shows the implementation process that was defined based on the consultation and endorsed during the PHOAFS in March 2023. It involves three steps: (i) hearing Pacific voices, (ii) peer review, and (iii) research partners defining a regional research agenda, agreeing on priorities, identifying gaps and allocating resources and people. The first two steps address a key issue identified

during the consultation process: '*Discussions on possible agriculture and forestry research priorities are already happening in various forums, however, there is no formal process to filter and prioritize possible regional priorities to a decision body - PHOAFS – that would allow them to decide'.*

A description of the steps is presented below:

1 - Hearing Pacific voices: Identifying potential regional research themes is an ongoing process and will require coordination, but it could prove transformational in the Pacific. Smallholder farmers, communities and researchers should be engaged in the process. To 'hear' all their voices using a practical method requires that "finders" listen to existing networks, civil society organisations (CSOs), research organisations, and industry bodies involved in agriculture and forestry services.

The networks established by the SPC could potentially inform regional priorities for agriculture and forestry research in the Pacific. Many of these networks focus on issues that are directly relevant to agriculture and forestry, such as climate change, disaster risk management, and invasive species. For example, the Pacific Agriculture and Forestry Policy Network (PAFPNet) brings together policymakers, researchers and practitioners to promote evidence-based policy development and implementation in the agriculture and forestry sectors. Through this network, stakeholders can share information on emerging issues, identify research priorities and develop strategies for addressing key challenges. Similarly, the Pacific Invasives Learning Network (PILN) aims to promote collaboration and knowledge sharing on invasive species management in the Pacific. This network could inform research priorities related to the development of effective control and eradication strategies for invasive species in agricultural and forestry systems.

The Pacific Week of Agriculture and Forestry (PWAF) is a biennial event that brings together stakeholders from across the Pacific region to share knowledge and expertise on issues related to agriculture and forestry. The event typically includes a range of workshops, seminars and other activities focused on different themes as well as an exhibition showcasing the latest developments in agriculture and forestry.

A new forum will be set up as a side event during the Pacific Week of Agriculture and Forestry, where a panel of experts selected from the peer review group (see below) will present the priorities identified through existing processes and then discuss with the audience any potential priorities that have not been identified. This step requires significant coordination and data interpretation. Adapting an Australian example of network coordination could be helpful in this regard (see Box 1). **An RRA secretariat** – hosted at first by SPC LRD – will be set up and resourced to collect data from the various networks and forward the long list of priorities to the peer review group for prioritisation on the regional agenda.

Box 1 - 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 and feeds it into national strategies. This is a network of 15 Rural R&D corporations (RDCs), which are either industry owned or statutory. They design research strategies and contract manage the research for their members. Members of the rural RDCs are peak industry bodies covering the full range of food and non-food rural production. Farmer associations and commodity groups already exist in many Pacific countries. Adapting this Australian example of network coordination will help Pacific 'voices' to emerge and translate them into regional projects. Coordinating such a network would involve a significant investment of time and funds for the Pacific community. According to a review of the Australian system, however, for every $1 invested by the RDCs, they gained a return of $11 in benefits along with significant social and environmental improvements (RuralRD, 2008).

2 - Peer review: The long list of research priorities drafted by the RRA secretariat will be provided to a **peer review group** composed of regional research leaders nominated by their countries. They will assess and prioritise the research themes identified in Step 1 above. This group will meet regularly – either virtually or face to face – to discuss national priorities, including those that can become regional priorities. The research leaders' group could comprise a wide range of stakeholders, including academia, farmers and research organisations, and will be selected based on a set of criteria proposed below, which will be discussed and approved by PHOAFS in their next meeting. The secretariat will coordinate this group, with funding to establish and maintain it. This step corresponds to the 'grinders', who need to define priorities, and prepare peer-reviewed documents and progress reports for the third step.

Peer review group composition: The peer review group should have enough members to ensure a diversity of perspectives and expertise yet still be small enough to allow for effective communication and decision-making. It is proposed to aim for a group of 8 to 14 members, thus allowing for a range of expertise and perspectives, whilst keeping the group manageable in terms of communication and decision-making. The exact number of members could be further discussed with the PHOAFS.

The peer review group will have an adequate gender balance, appropriately represent the ethno-geographic groupings of the Pacific (Melanesia, Micronesia and Polynesia), and have enough diverse expertise in various research areas. The RRA secretariat will ask each member country to identify suitable individuals who can represent their country's interests, whilst bringing valuable insights and expertise to the peer review process.

The quotas for gender, ethno-geographic regions and disciplines will depend on the specific goals and priorities of the RRA as well as on the availability of qualified individuals who meet the selection criteria. Here are some general guidelines that could be considered:

- **Gender:** It is important to strive for gender balance in the peer review group to ensure diverse perspectives and experiences. A general guideline is to aim for at least 40% representation of each gender in the group. The secretariat should work with member countries, encouraging them to nominate one male and one female scientist, if possible, for the peer review group
- **Ethno-geographic region:** To ensure representation of all PICTs, the peer review group should include at least two members from each major ethno-geographic region. The secretariat could encourage each sub-region to hold internal consultations to identify their preferred nominees for the peer review group. This will help ensure that the selected scientists truly represent their respective sub-regions.
- **Disciplines:** The peer review group should include members with expertise in a range of disciplines that are relevant to the potential research themes identified in the RRA. The disciplines could include the agricultural, social and environmental sciences as well as economics and others.
- **Rotating membership:** It is expected that the number of nominees will exceed the number of members needed for the peer review group. This creates the opportunity to establish a pool of candidates from which members can be selected for the group, with the understanding that they will rotate out after a set period to ensure fresh perspectives and expertise. Establishing a pool of candidates will also make it possible for a diverse range of expertise, experience and perspectives to inform the selection process. This process can thus be made more inclusive, transparent and accountable, helping to ensure that the most qualified individuals are chosen to serve on the peer review group. Additionally, having a

pool of candidates can help ensure continuity and stability in the selection process over time, providing a ready source of potential candidates for future selection rounds. The peer review group will implement a rotating membership system, in which members serve for a fixed term (perhaps 2-3 years) and a certain proportion of the group is replaced periodically by selecting new members in the pool of nominees that meet the selection criteria described below.

The quotas should not be seen as strict requirements but rather as guidelines to ensure that the peer review group has diverse representation and expertise. The actual composition of the group should be based on the availability of qualified individuals who meet the selection criteria and can contribute to the success of the RRA.

The **selection criteria for peer review group members** should ensure that they have the necessary expertise to prioritise regional research programs. These criteria could include the following:

Regional knowledge: Members should be from the Pacific region and have a sound understanding of its social, cultural, economic and environmental context. They should also have experience working with local communities, Indigenous groups and other stakeholders in the region.

Technical expertise: Members should have technical expertise in areas relevant to agriculture and forestry research, such as agronomy, forestry, soil science, economics and policy analysis. This expertise should be based on their education, research experience, and practical knowledge of agriculture and forestry systems in the Pacific.

Commitment to an RRA: Members should have a demonstrated commitment to the vision of the RRA and should be willing to invest the time and effort required to prioritise research themes based on the defined criteria. Members should also have experience in conducting or participating in research projects that involve two or more countries in the Pacific, demonstrating a commitment to regional collaboration and a good understanding of the research needs and priorities of different countries in the region.

If members are selected according to these criteria, the peer review group can be composed of individuals who have the regional knowledge, technical expertise and commitment needed to prioritise regional research programs that are relevant and feasible, with potential to make a positive impact on agriculture and forestry systems in the Pacific.

3 - Partners in research: In this step, the PHOAFS and Pacific Ministers of Agriculture and Forestry or PMAF (who set strategic directions) agree on priorities and review progress. This group of ‘minders’ will also pursue and support access to internal or external funds, if required. In addition, they will identify research partners and oversee research implementation. This is important for ensuring that the PMAF also endorse the priorities and projects, and for maintaining Pacific ownership of the RRA. Partners in research operationalise the RRA through the following steps:

a. PMAF/PHOAFS **receive advice** from the peer review group on potential research priorities.
b. They then **agree on a set of priorities,** and a **cluster of countries take on the leadership** for one of the priorities.
c. **The cluster of countries allocate resources to develop a research initiative under the identified priority**. The RRA secretariat supports this process, identifying human resources, capital and infrastructure that can be allocated to the research initiative. No countries are excluded on the basis of resource availability. Any member can participate; it need not conduct trials but can listen and contribute information to the research at minimal cost.

d. The regional team of scientists identified as described above then work on a **proposal that includes a stocktake** of current research and resources.
e. Proposals forming part of the cluster – if endorsed – are submitted for approval to the PHOAFS. Next, the first regional trials are implemented using Pacific resources, with the option of seeking partners outside the region to obtain additional expertise and resources.
f. The secretariat oversees the M&E and reporting process, and reports back to the PHOAFS.
g. Research outputs are disseminated and adopted where relevant in the region, leading to positive outcomes and impact.

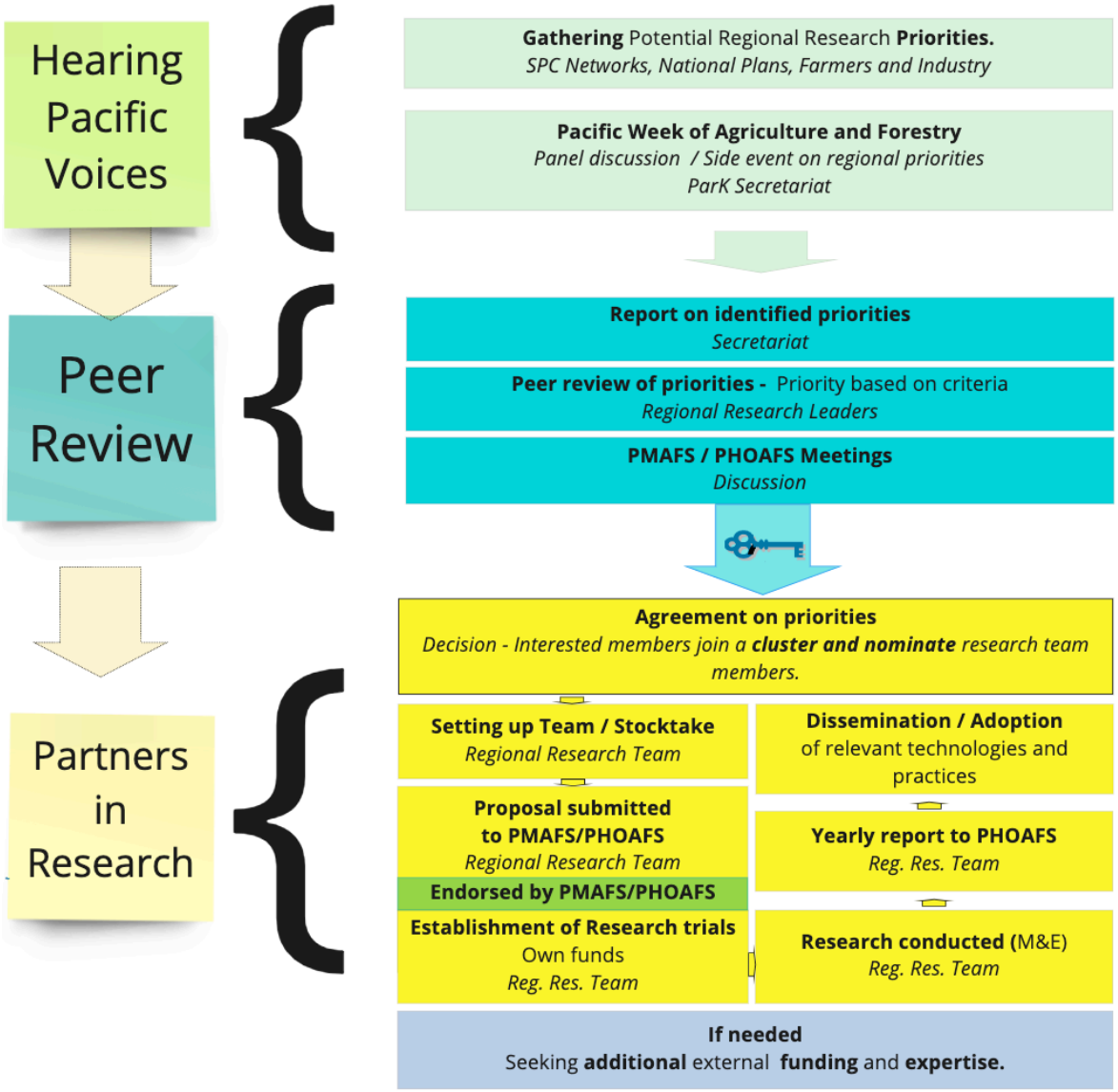

Figure 4: Agreed implementation process.

6.4.1 Roles and functions

Determining the design and details of the form that the RRA eventually takes requires an understanding of its functions and their alignment with existing organisations or associations. This section proposes a list of functions that the secretariat, peer review group and cluster of countries that are partners in research must perform for the RRA to operate effectively.

Three structures need to be developed for implementation of the RRA:

- The PHOAFS of the cluster of countries that have agreed to work together in addressing the priorities

- The RRA secretariat

- The peer review group

Each of these structures will have clearly defined roles and functions, which will be refined in the next 12 months during operationalisation of the framework. Listed below are some proposed options:

PHOAFS cluster

The roles and responsibilities of the PHOAFS of the cluster of countries involved in the regional research initiative relate to issues of governance and alignment with policy, as defined below:

1. Research priorities: They will collectively agree on research priorities of mutual interest that align with their national priorities. This decision will be based on analysis by the peer review group.
2. Resource allocation: They will allocate resources – including human resources, capital and infrastructure – to support development and implementation of the research initiative.
3. Research team and coordinator: They will nominate the research team that together designs and implements the research initiative, involving collaborative research projects and knowledge sharing. The PHOAFS will also nominate the research team coordinator.
4. Oversight: They will select amongst themselves members to oversee the research initiative, who will be responsible for monitoring progress, providing guidance and making decisions on key issues.
5. Monitoring and evaluation: They will monitor and evaluate the research initiative's progress and make necessary adjustments to ensure that it is on track to achieve its intended outcomes and impact.
6. Communication and dissemination: They will work with the secretariat and their national information services to communicate and disseminate the results and findings of the research initiative to relevant stakeholders, including policymakers, researchers, and practitioners in the agriculture and forestry sectors.
7. Sustainability: They will ensure the sustainability of the research initiative by identifying ways to maintain and build on the outcomes and impact achieved, and by exploring opportunities for future collaboration and partnership.

Overall, the PHOAFS cluster will work together to ensure that the research initiative is effectively implemented, and that it delivers value and impact for the region.

Peer review group

1. Research themes: The group will be responsible for reviewing research themes collected through the hearing Pacific voices process and for prioritising them based on the established criteria, such as relevance, potential impact and feasibility.
2. Technical advice and expertise: The group should provide technical advice and expertise to the cluster of countries on research methods, data analysis and interpretation of results.
3. Opportunities for collaboration: The group should identify opportunities for collaboration and partnerships amongst the cluster of countries as well as with external stakeholders, such as international organisations, research institutions and private sector entities.
4. Future directions: The group should advise the cluster of countries on future directions and emerging research priorities, based on ongoing analysis of trends, gaps and opportunities in the agriculture and forestry sectors.

RRA Secretariat

The secretariat will at first be hosted by SPC and will take on the key coordination and communication functions highlighted earlier. A detailed list of roles and responsibilities is presented below:

1. Coordination: The secretariat is responsible for coordinating the RRA, serves as the focal point for RRA research teams and facilitates collaboration between cluster member countries.
2. Reporting: The secretariat reports to the PHOAFS, keeping them informed about the progress and outcomes of the RRA.
3. Analysis and prioritization: The secretariat provide administrative and operational support to the peer reviewers, collects inputs provided during the PWAF panel discussion and assists the peer review group in identifying credible and relevant research with value and impact for the Pacific region.
4. Resource and network facilitation: The secretariat helps access a pool of sustainable funding and supports the networks created by the research teams working on RRA priorities.
5. Empowerment and inclusiveness: The secretariat plays a critical role in ensuring an inclusive process that gives each country a stake and a voice in defining and implementing regional research priorities.
6. Collaboration: The secretariat works closely with member countries, organizes meetings of the peer review group and coordinates research teams to implement collaborative projects.
7. Communication: The secretariat is involved in communicating scientific knowledge to Pacific and global leaders, with the aim of informing and influencing policy.
8. Innovation Broker and Partnership Facilitator: During the inception of the RRA, the secretariat will take the lead or provide support in drafting concept notes for research initiatives. As an innovation broker, the secretariat will bring together various stakeholders, and foster the development of innovative solutions. In addition, the secretariat will accompany and guide partnerships throughout the research process, ensuring that collaborations are productive and effective in achieving the goals of the

RRA. As a the RRA matures, it is expected that the secretariat role will evolve from leading to true facilitation.

6.4.2 Funding

The PHOAFS, with approval form their Ministers, will allocate funding for the regional research initiatives. In most cases, this funding will have been earmarked for national priorities that are aligned with the common research priorities they have selected. In this way, governments in the Pacific region will provide funding for regional research initiatives as part of their national development strategies or as a way to promote regional cooperation and integration.

International donors – such as development banks, multilateral organisations and bilateral aid agencies – have expressed interest in providing additional funds for research priorities that are selected through an inclusive Pacific process and contribute to their strategic engagement in the region. Donor funding that aligns with the priorities of recipient countries is a key element of effective aid and development, as defined in the Paris Declaration on Aid Effectiveness. The RRA will increase the likelihood of alignment between the priorities of Pacific countries and donor investments.

The private sector and research grants could provide other sources of funding aligned with the priorities defined in the process above.

6.4.3 Operationalising the framework – A first pilot initiative program

Coconut (*Cocos nucifera*) is ubiquitous across the Pacific and contributes importantly to regional food systems. It is known as the 'tree of life' because of its many uses – as food and fibre, in traditional roof thatching as well as for baskets, serving platters, hats, brooms and livestock feed, and as part of multi-cropping systems. Families plant coconuts to mark land boundaries and protect against coastal erosion; coconuts are also planted on the grounds of hotels and resorts for landscaping.

Many PICTs conduct research on coconuts to improve production, conserve genetic resources, combat exotic pests and diseases, and add value through many coconut-derived products. The SPC is also developing a regional coconut R&D initiative to coordinate coconut research (SPC project title: J00242 Coconut Strategic Framework; funding from New Zealand's Ministry of Foreign Affairs and Trade, or MFAT, with intent*).* This initiative highlights researchable issues that could be addressed through regional collaboration. A desktop study undertaken as part of the initiative (Adams, Tavaiqia & Toganivalu, 2022) identified national research priorities for coconuts in National Agricultural Sector Policies (NASPs) and other strategic development documents. The list of coconut priorities (included in appendix 2) provides a useful example of how the RRA's regional collaboration process could operate by identifying NASP priorities that are of common interest to clusters of countries and could benefit from regional collaborative research. The coconut priorities extracted from NASPs include a range of ideas that could be addressed through regional research to create new knowledge and develop outputs that generate benefits for society. Work already started on coconut will provide a basis for the process described in this framework and for the evaluation of its effectiveness in defining research partnerships in the Pacific.

Coconut is just one example of a crop that the RRA could focus its attention on. Other priority areas brought up by the countries during the PHOAFS and the PMAF meeting include non-communicable diseases and climate change to name a few. The final decision will be made by the peer review group on the priority area to focus their efforts on to test the model.

6.4.4 Proposed criteria for regional research partnerships

National research priorities drive national agendas. An RRA, in contrast, has a broader framework defined by common purpose, common ground, shared change, and relevance for the region or a cluster of countries within the region. To develop such an agenda involves the identification of cross-cutting issues – such as climate resilience, biosecurity, natural resource management, biodiversity and food security – on which collaboration will benefit a group of countries in the region. A key function of the peer review group is to evaluate and refine the proposed priorities that emerge from the hearing Pacific voices process. Listed below are possible criteria for this purpose that were discussed during the consultation process:

Increased benefits from collaboration

- Does the research have greater impact if it is conducted through Pacific regional collaboration?
- Is there a clear business case for collaboration (value for money)?

Research and development

- Can the problem be addressed by research?
- Is there a potential regional or sub-regional impact?
- Is it applied research/innovation that can be scaled?

Relevance and alignment with national strategies and policies

- Does the research address issues that could be relevant to the Pacific region?
- Can we identify some alignment with NASPs or other national agriculture and forestry development plans?
- Is there an indication of local stakeholder interest (e.g., from farmers or industry)?

Capacity and resources within the Pacific

- Which Pacific members have the capacity and skills to coordinate a partnership that can implement this initiative?
- Are networks and resources available (human, social, financial, physical and natural)?
- Do Pacific members have the necessary skills and expertise to carry out the research?

Other criteria, such as inclusivity and equity as well as environmental sustainability, will be discussed with the peer review group and submitted for approval at the next meeting of the PHOAFS.

These criteria should help ensure that the research themes selected for the RRA align with regional priorities, are relevant to the Pacific context, and have the potential to produce significant impact and benefits for the region.

7 Potential impacts

This SRA took participants on a journey through the four stages of collective social learning to develop a draft for the RRA framework (Brown & Lambert, 2015). The original project proposal required endorsement of the resulting draft from the PMAF at their scheduled September 2022 meeting in Fiji. This meeting, to be hosted and scheduled by the Fiji Government, was postponed until March 2023, and the RRA was endorsed at that meeting. Implementation of the RRA will lead to impact that goes beyond the boundaries of this small research activity. The project team held favourable preliminary discussions with participants from donor organisations on the possibility of obtaining 'seed' funds to implement the RRA.

Investing in a framework developed and owned by the region gives donors confidence that their investment will achieve the greatest impact. This confidence comes from the knowledge that a regional framework is demand driven and problem oriented. An investment model is more attractive when it is managed and reviewed by a range of regional experts, who can design projects to meet their needs, provide adoption pathways and critique results for the region. This focus on shared problems and solutions allows for a clear definition of partners' roles, objectives and responsibilities. Such an approach also creates opportunities for improved investment models centred on integrated programs that share and carry over resources to create impact, as opposed to stop-start single-issue projects trapped in a perpetual cycle of losing and then renewing resources. In the RRA framework, such improved investment models should be more accessible to a greater number of stakeholders.

This SRA had an impact on the Pacific region by socialising the concepts of regional research collaboration through the KIIs and FGDs. This process also made clear that there is universal support for the principals of the RRA. Any future impact from regional research depends on a process that is fair, rigorous, and transparent in three areas: accountability, systems and culture. We also learnt from discussions and the literature that to create an innovation culture requires an initial focus on social capital and then ongoing efforts to maintain it (Emery & Flora, 2006; Leite, 2022).

The RRA will be under pressure to ensure that current activities have impact in the Pacific environment and communities. This shared impact will be measured according to its contribution to multiple Sustainable Development Goals (SDGs) and to PICTs' national strategic plans and development priorities. Bibliometric indicators are used for ex-post assessment of research impacts; interestingly, international collaboration has a much higher impact on citations than does national public-only and public-private collaboration (Bloch, Ryan & Andersen, 2019). This bodes well for impact assessment of the RRA, although a forward-looking impact assessment should be carried out as well. Tools like Theory of Change (ToC) provide projects with a compass-type direction and also indicate useful incremental steps. However, since agriculture and forestry services are dynamic and uncertain, a ToC may be considered too rigid, so it may be worthwhile to change from the current focus on 'attribution' of causal relationships between research and societal changes towards a 'contribution' approach that acknowledges research engagement with societal challenges (Dotti & Walczyk, 2022).

8 Limitations, conclusions and recommendations

This study was limited to creating a framework that requires the endorsement of Pacific leaders in agriculture and forestry services before it can be socialised and further refined with a wider group of stakeholders. The study did engage with 12 current leaders from the PHOAFS, and a wider discussion with PHOAFS took place in March 2023 during the Fiji Pacific Week of Agriculture and Forestry (PWAF). At a meeting of the PHOAFS and PMAF, with their collective expertise, they validated this study and report.

Some limitations resulted from complications in accessing key informants and participants for the FGDs. The arrangement of suitable times for interviews and group meetings proved difficult at a time when the Pacific was just emerging from COVID lockdowns, and flight services were not fully functioning, making it necessary to manage face-to-face meetings online. All the interviews were recorded and then transcribed. Interviews conducted in French were translated into English. Transcription was time-consuming. Lack of time and capacity meant that all the coding was done by one team member; multiple coders would have helped address issues with inter-coder reliability and verification. The scope of the KIIs and FGDs may appear to have been limited, but the research team believes that, on the contrary, its analysis of the transcripts showed that the process reached the point of repetition.

8.1 Conclusions

The broad objective of this study was to investigate current drivers, challenges and opportunities for Pacific regional research collaboration in agriculture and forestry, leading to a proposal on how to address these. Our consultation with a broad range of stakeholders found that an RRA should include a process whereby the voices of the Pacific are heard, peer reviewed and translated into research activities, with governance and oversight provided by Pacific leaders in agriculture and forestry ministries. The consultation further 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 that already has a robust financial and procurement system, such as SPC.

Early in this study, the project team identified the desire of Pacific leaders and researchers to capture the Pacific ‘voice’ from communities to guide the agenda. This is a key issue and challenge for the RRA. To this end, it is important to engage with smallholder farmers and their communities to identify and understand their needs in agriculture and forestry. Early engagement also requires the involvement of local researchers, who can seek solutions and align these with national research strategies. Engagement with communities, smallholder farmers and researchers involves a major coordination effort, and if implemented in the Pacific, this will transform the way regional R&D is undertaken. We suggest that Pacific leaders consider RuralRD (RuralRD, 2018) in Australia and its successful network for capturing the ‘voice’ of farmers across all the commodities of concern to industry-owned or statutory R&D corporations. They then prioritise the input and contract manage research. Farmer associations and commodity groups already exist in many Pacific countries. Adapting the Australian example of network coordination will better enable Pacific ‘voices’ to be heard and translated into regional projects. The Australian process is sustainable, because it shows a significant cost-benefit ratio in financial, social and environmental terms.

Four principles emerged from the consultation 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: Value for money

These principles provide a foundation for partnerships across the Pacific agriculture and forestry research community. Similarly, four criteria emerged from the data, which can be used to assess national priorities and incorporate them into regional collaborative projects or programs. The four draft criteria (further described in section 3) are as follows:

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 made clear that there are three distinct roles in a regional collaboration process. First, at the technical level, 'finders' or research teams and their field partners (farmers and communities) know the needs and priorities. Second, priorities are fed into the steering level, where all the national priorities converge and 'grinders' assess them against criteria for designating regional priorities that can be translated into projects. Third, at the policy level, 'minders' (PMAF) provide governance and strategies, with ultimate ownership of the RRA process.

We found that a wide range of stakeholders in the public, private, CSO, and NGO sectors of agriculture and forestry services express universal support for collaborative regional research through the RRA process. The process has already yielded benefits and won growing support from stakeholders. This growing stock of social capital will attract other resources to turn RRA from an interesting idea into an operational phase, when real interventions bring about behavioural and transformational change in the agriculture and forestry services of the Pacific region. Many challenges lie ahead, but our consultation showed a consensus that these challenges are not insurmountable and are outweighed by the many opportunities for regional research collaboration.

8.2 Recommendations

The recommendations below were provided to the PHOAFS for consideration at their meeting during the Pacific Week of Agriculture in March 2023. The PHOAFS endorsed:

1. The proposed framework and nominate SPC-LRD to work with member countries to operationalise it.

2. A review of the name RRA to something that better represent a Pacific brand to be facilitated by SPC.

3. RRA Report as a Standing Agenda Item at the PHOAFS meetings.

8.3 Next steps

At the March 2023 meeting of the PMAF and PHOAFS, the framework presented in this SRA report was endorsed, and SPC LRD was authorised to work with member countries in taking the steps required to operationalise the framework. The next step is to refine and operationalise it; for this purpose, a pilot initiative on coconut will be developed, as described earlier.

9 References

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10 Appendixes

10.1 Appendix 1:

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	Schema 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)

10.2 Appendix 2:

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 area, engage 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, Giant African Snail, pasture management 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, cost reduction by producing livestock feed using the by-product of coconut.