Policy Brief

Farmer-led, Participatory Action Research

A New Paradigm for Agricultural Research in the Pacific

Introduction

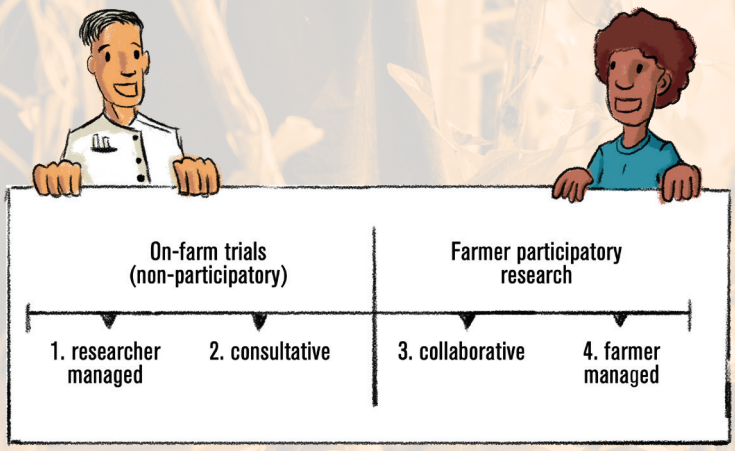
Traditional agricultural research methods are facing challenges due to limited farmer involvement, overlooking local contexts, and slow adoption rates of research outcomes. To address these issues and drive meaningful agricultural development, the Pacific region must embrace the Farmer-led, Participatory Action Research (PAR) approach. This policy brief highlights the core principles of PAR and advocates its adoption as a more effective and inclusive agricultural research paradigm.

What is Farmer-led, Participatory Action Research?

PAR places farmers at the center of the research and innovation process, ensuring active collaboration among all stakeholders throughout the research cycle. Farmers actively participate in decision-making, research activities, and knowledge exchange with researchers. The approach emphasizes sustainability, inclusivity, and empowering farmers as co-researchers.

Empowering Farmers

Farmer-led, Participatory Action Research places farmers as co-researchers, empowering them to drive agricultural innovation and create solutions that address their unique needs and challenges.



Key Elements of Farmer-led, Participatory Action Research

1. Farmer Empowerment: Recognizing farmers as knowledge holders, PAR involves them as leaders and active participants in the research process. This empowerment enhances the relevance and adoption of research outcomes.
2. Local Context Consideration: PAR prioritizes understanding diverse local contexts, including climate, soil, and culture. Context-specific solutions lead to more effective and sustainable agricultural practices.
3. Knowledge Exchange: The collaborative nature of PAR ensures mutual knowledge sharing between farmers, researchers, and other stakeholders. This integration of traditional and technical knowledge contributes to innovation and dissemination through farmer to farmer exchanges.
4. Sustainable Practices: PAR promotes sustainable farming methods that respect environmental preservation, resource management, and ecological balance.
5. Evidence-based Policy: Involving farmers in the policymaking process ensures that agricultural policies address real challenges and align with local needs.
6. Long-term Commitment: Successful PAR initiatives require long-term engagement by all stakeholders, thereby building trust, and fostering meaningful relationships among stakeholders.
7. Inclusivity and Equity: PAR emphasizes fair and equitable partnerships, recognizing the role of farmer organisations in research governance and co-constructing solutions.

Why Move Away from Traditional Agricultural Research?

Traditional agricultural research is becoming less relevant due to several challenges:

1. Limited farmer involvement leads to research outcomes that may not meet farmers' needs.
2. Overlooking local contexts results in generalized solutions that are not applicable to specific regions.
3. Sustainability concerns arise from neglecting environmentally friendly farming practices.
4. Slow adoption rates stem from farmers not seeing the relevance of new technologies or practices.
5. Ignoring traditional knowledge leads to missed opportunities for leveraging existing practices.

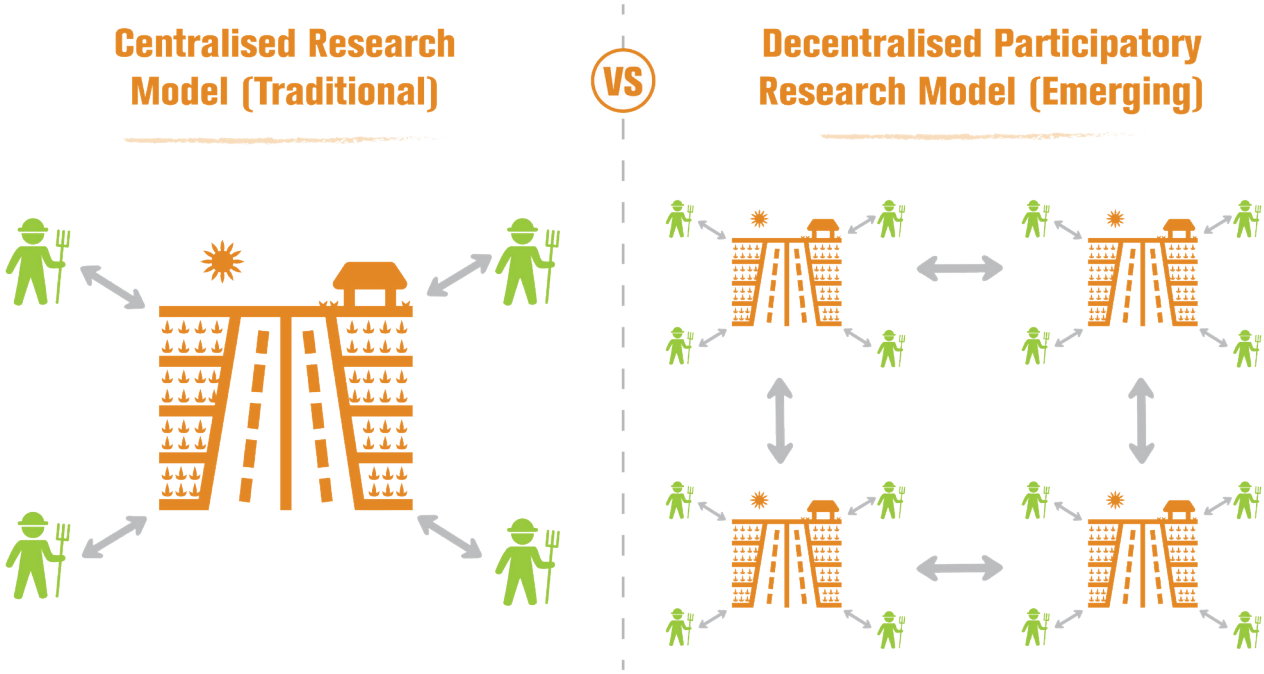
Local Context Matters

By prioritizing context-specific solutions, PAR ensures that agricultural practices are tailoredto the diverse environments and cultures in the Pacific, fostering sustainable and resilient farming systems.

Comparing Agricultural Research Models in the Pacific: Centralised vs. Decentralised Approaches

Centralised research model		Decentralised research model	
Traditional model in the Pacific where agricultural research all takes place on 1 or 2 main government run research stations.		**Decentralised research utilizes a farmer participatory model where trials are replicated on farmer sites across a wider range of agro-ecological conditions.**	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**
In the past had the resources including funding and planting material. Appropriate for breeding for resistance to a serious disease (Centralised research is required before local evaluation can be undertaken) Appropriate for facilitating the importation of improved germplasm for subsequent evaluation by farmers. Made up of academically qualified personnel who have access to the latest research technology.	Does not take into account the different climate and environmental conditions especially in large archipelago countries where climate and environmental conditions vary over relatively short distances. [1] Focus changes as per changes in government policies. Has the potential to be disconnected to the needs of farmers. In the past sufficient budget available. However, no longer assured with increasing pressure on government resources and changes in policy and focus.	Relies on extension service which is often constrained by funding and topography. Much is demanded of agricultural extension, including agricultural and marketing skills, organizing farmers and other stakeholders, developing social capital, sustainable natural resource management and food and livelihood security Increased likelihood of meeting direct needs of farmers. Increased probability of farmer uptake as they are directly involved in the research. Research outcomes cover a wider geographic area and therefore are directly relevant to more farmers. Can be especially relevant in evaluating climate smart practices, including climate smart germplasm. Farmer participatory research can be more economical as it utilizes existing infrastructure and farmer inputs. It benefits from farmers practical experience and local context. Farmers are directly engaging in research, taking their ideas, combining it with good science accessible through partnerships, and are tailor-suiting technologies and methods to their own needs. As a result, some very good local sustainable solutions have been developed — allowing farmers to address problems as well as forge a way forward (example)	Can be highly demanding in terms of management and supervision Can lack scientific rigour if not properly planned and managed. Can be disconnected from international research knowledge. Lack of funding (in particular for capital/ technical equipment)

[1] Climate Book (page 284) In Vanuatu for example climate ranges from hot tropical in the north to almost subtropical conditions in the south. Average seasonal temperatures range between 21 and 27. Therefore, a crop that grows well in one place does not grow well in another.



The ineffectiveness of the high-cost centralised research model

The Climate Change and Agriculture (Taylor et al., 2015) book, highlights an example from Vanuatu where selected cultivators of different crops developed at the Tagabe Research on Etafe performed poorly when taken north to Santo. Similarly, the performance of high yielding cocoa developed at the Vanuatu Agricultural Research and Training Centre (VARTC) at Saraoutou in southeast Santo has been disappointing when planted in the main cocoa growing area on the island of Malekula less than 100km South. Malekula farmers are now selecting their own seed despite the substantial resources devoted to cocoa selection over the years. As a result, the industry is now experiencing significant inbreeding yield depression.

Case studies: Farmer Organisations' Involvement In Successful Agricultural Research

Vanuatu Farm Support Association

The Vanuatu Farm Support Association (FSA) grew out of an earlier group, the Plantation Support Association (PSA) which was set up in 1983 to assist ni-Vanuatu landowners to run the plantations returned to them when independence was declared. By 1992, circumstances changed and the PSA became the FSA and its emphasis shifted to addressing the needs of commercially orientated small-scale farmers.

The FSA and the VARTC collaborated in a pilot project aimed at broadening the genetic diversity of taro, yams, sweet potato, and cassava in village farmers' fields and evaluating the extent of on-farm conservation in Vanuatu's traditional cropping systems. Using a series of simple indicators, farmers participated in the evaluation process and were supported by FSA and VARTC with analysis of the evaluations. Following the completion of evaluations, the same participating farmers were used to bulk the promising varieties for further distribution.

Two years after the new varieties were distributed to 10 villages, monitoring of farmers' fields showed an 86 per cent net gain in diversity for yam villages and 61 per cent gain for taro villages and importantly none of the traditional varieties were lost. The farmers explained that their decision was in keeping with their traditional system of introducing and adopting new varieties without discarding old ones.

Screening the germplasm material for distribution and establishing new varieties required significant upfront costs. However, once the 'new' germplasm was embedded in the local farming systems, which was facilitated by the FSA, and maintained by the farmers themselves, it came at no additional cost to government or donors.

By enriching farmers' varietal portfolios, the resilience of their food systems was enhanced thereby providing some protection against future pest and disease epidemics and biological disasters which are expected to increase with climate change .

Teitei Taveuni (Fiji)

Located on the island of Taveuni, Teitei Taveuni (TTT) was formed in 2009 in response to challenges that threatened the livelihood of Taveuni farmers including deforestation, unsustainable land use, decline in soil fertility, high use of chemical sprays and conventional fertilizers, and water catchment problems. These production and environmental problems were caused by the rapid expansion of monoculture taro production.

TTT was a key partner in the successful ACIAR/SPC (Australian Centre for International Agricultural Research/Pacific Community) Soil Health Project. TTT worked with the Fiji Ministry of Agriculture and other partners to establish and monitor field trials on member farms around the island. The trials included various nutrition programs and farming practices that were co-developed by lead farmers and research partners. When research results indicated that a particular treatment increased yields or improved quality, the farmers were quick to adopt the technology because they had been involved in the research from the beginning and therefore understood and had ownership over the research.

Research findings revealed that a number of new inputs were required to restore balance to the highly degraded Taveuni soils. These inputs included: mucuna bean as a cover crop, aglime, fish bone meal and rock phosphate. Because these inputs were not readily available, TTT established a farmer resource centre where they began selling these inputs to members who were interested .

Nature's Way Cooperative (Fiji)

Nature's Way Cooperative (NWC) was formed in 1996 to undertake mandatory quarantine treatment on behalf of the fresh fruit and vegetable industry. NWC currently has 290 farmer and exporter members.

Following a number of low output years, NWC realized that their farmer/exporter members required assistance in addressing a number of the bottlenecks which were affecting the supply of produce for export. NWC concluded that if they did not help address these issues the quarantine treatment business would be at serious risk.

In July 2009, the NWC Field Service was revamped to become the NWC Research and Extension Service and began implementation of the ACIAR — funded Fiji Papaya Project and later the ACIAR-funded Pacific Breadfruit Project. Through a partnership approach NWC has fostered research relationships with the Ministry of Agriculture, Biosecurity Authority of Fiji and the SPC.

[1] *McGregor et al. 2011; Camus and Lebot, 2010*

NWC works directly with its member farmers and exporters for all applied research work and has achieved a number of major successes using this model including:

i) Papaya

- Establishment of a certified seed producer's scheme for Fiji Red Papaya based on research findings which is now run as a commercial scheme managed by NWC with oversight from the Ministry of Agriculture.
- Investment in a commercial hot water dipping treatment available to Fiji papaya exporters through NWC. This treatment was developed through four years of post- harvest research led by NWC. The treatment is expected to overcome a major source of post- harvest loss currently being suffered by the industry. It has the potential to save the industry approximately FJD $2 million annually.
- Commercial investment at the farm and exporter level in organic papaya production based on research findings and economic analysis.
- Development of technologies supporting sea freight of papaya from Fiji to New Zealand. Research findings indicate a 50% savings in freight with no reduction in fruit quality, compared to air freight. NWC and exporters are making investments based on this research to make regular sea freight a part of the industry.

ii) Breadfruit

- A package of best practices developed by farmers and evaluated collaboratively with researchers for mass propagation of breadfruit using various methods including: root suckers, marcotting and tissue culture.
- Long term trials established evaluating performance of trees derived from different propagation types (root suckers, marcotting and tissue culture).
- Investment at the farm level in commercial orchards - as of July 2015, there were 42 participating farmers in the Fiji western division that had planted 2,240 breadfruit trees on eighteen (18) hectares of land.
- Data collection on commercial orchard production - farmer-owned demonstration orchards are now coming into production some 18 months ahead of expectations, greatly improving the feasibility of breadfruit as a commercial crop.
- Data collection on farmer developed models of intercropping systems with breadfruit — several trial sites have received a positive cash flow from their orchard sites from year 2 using intercropping of kumala, eggplant, cassava and pineapple.

Introduction of marcotting as an improved propagation method has reduced the time it takes for breadfruit to bear fruit which provides a significant incentive for farmers to integrate this tree crop into their agroforestry systems.

[2] *ACIAR, 2011. Final Report. Identifying pilot sites and research methods for soil health research in the Pacific region. http://era.daf.qld.gov.au/2671/1/ACIARfr2011_03_10038_Smith.pdf*

Way Forward

Action for Government and Development Partners

- Review research structure model - introduce a decentralised research model that can work in collaboration with centralised research stations.
- Provide public funding for decentralised research and establish a long-term source of multi-donor funding to support decentralised/farmer-led research.
- Pursue partnerships with FOs as part of the decentralised research approach. Farmer-led research carried out by FOs has made good progress in this regard.
- Governments and development partners should take advantage of positive contributions emerging FOs can play in applied agricultural research. By developing partnership with farmer organisations, the government will be able to get a better value for the public funds use because more farmers benefit as opposed to a centralised model where only a few benefit.
- Research undertaken should focus on the needs of farmers. Involve farmer and FOs in the setting of research priorities to ensure farmer needs are met.
- Address knowledge gaps related to the impact of climate change on agriculture: Applied research must be carried out, in collaboration with FOs to address knowledge gaps and improve our understanding of the uncertainties, the constraints and opportunities relating to climate change. This will allow more confident decision-making and a better allocation of resources and importantly foster a more proactive approach to addressing climate change challenges.

Action for Farmer Organisations

- Understand the decentralised model and the role farmers and farmer organisations can play in applied agriculture research.
- Ensure farmer focused research priorities and a decentralized approach to agricultural research is incorporated into all relevant policies.
- Seek out partnership with public research organisations and private sector to undertake the necessary research.
- Promote the production of traditional crops and farming systems. These crops and cropping systems have proven resilient to climate extremes and climate change over the years. Increasing the productivity of traditional crops is also critical for future food security of PICs in view of the forecasted increase in the real price of imported grain as a result of climate change.

Conclusion

A partnership between agriculture ministries, relevant public sector organisations and farmer organisations will increase the relevance and quality of agricultural research as well as see more comprehensive and widespread adoption of the results. The need for such an approach has assumed greater urgency with pressures of climate change, declining soil fertility, population growth and rapid urbanisation and the NDC epidemic that is currently being experienced in the region.

Collaboration for Impact

Through collaborative partnerships between farmers, researchers, and policymakers, PAR generates evidence-based policies and practical outcomes that have a meaningful impact on the livelihoods of smallholder farmers

PFO - Who We Are

Pacific Farmers Organisation (PFO) is the umbrella body for national farmer organisations in the Pacific Island Countries and Territories (PICT's). Agriculture is the main livelihood of the majority (typically 70%+) of the Pacific Islands population. Farmer organisations play a critical role in supporting small farmers to connect, influence, and access information and technologies to improve livelihoods. PFO is a key partner in supporting farmers and rural communities to respond to the challenges of climate change.

PFO is a vibrant and growing network of national farmer organisations that are supporting improved livelihoods for their members and rural communities generally. PFO began operating in 2008 comprising a small group of Farmer organisations (FO) in five countries, and following its legal establishment in 2013, it has grown to embrace 30 member organisations] and over 95,000 farming households (55% are women farmers) in 12 PICT's (Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, New Caledonia, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, and Vanuatu) and has member FOs in Hawaii (United States). PFO's Secretariat is based in Fiji with a satellite office in Hawaii.

About FO4ACP

With an implementation period of 54 months, the Farmers Organisations for Africa, Caribbean and the Pacific (FO4ACP) is expected to directly benefit 150,000 farmers in the (Pacific) region. The Program is a joint partnership between the European Union, the African, Caribbean and Pacific Group of States, the International fund for Agricultural Development and the Pacific Island Farmers Organisations Network.