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List of abbreviations

ABCD	asset-based community development
AI	appreciative inquiry
ARoB	Autonomous Region of Bougainville
BU	Baptist Union
BWF	Bougainville Women's Federation
CBEW	community-based extension workers
DFAT	Department of Foreign Affairs and Trade (Australia)
DPI	Department of Primary Industry (PNG)
EH	Eastern Highlands province
ENB	East New Britain province
F	female
FPDA	Fresh Produce Development Agency
FFT	family farm team
GESI	gender equity and social inclusion
IATP	Integrated Agriculture Training Program, University of Natural Resources and Environment
LLG	local level government
M	male
M&E	monitoring and evaluation
NARI	PNG National Agricultural Research Institute
NI	New Ireland province
PAAR	participatory appreciative action and reflection
Pacific Women	Pacific Women Shaping Pacific Development
PAR	participatory action research
PAU	Pacific Adventist University, PNG
PD	professional development
PGF	PNG Governance Facility/Decentralisation & Citizen Participation Partnership
TADep	Transformative Agriculture and Enterprise Development Program
ToT	training of trainers
UC	University of Canberra
UniTech	University of Technology, PNG
VCE	village community educator
VfC	Voice for Change
VW	Village Extension Worker
WH	Western Highlands province

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2 Executive summary

Women farmers are key to the livelihoods of Papua New Guinea's families. They produce essential subsistence crops and generate income from surplus crops. Women play significant roles in the informal economy, in community networks and as caregivers for children, the elderly and the ill. However, these social protection roles often impact on their ability to pursue income-generating activities. Typically, women farmers face limited access to productive resources, restricted mobility, unequal divisions of labour, and low levels of schooling.

To address these challenges, the Family Farm Teams (FFT) program was developed in ASEM/2010/052 to encourage more effective, sustainable and gender equitable farming and business practices. The program used a peer education approach: local farmers were trained as Village Community Educators (VCEs) to train others in their family and community. This project investigated the expansion of the ASEM/2010/052 strategies, by out-scaling into five areas of PNG and focusing on new commodity crops:

- Highlands Hub (Eastern Highlands, Jiwaka, Western Highlands), with a focus on sweet potato, coffee and vegetables
- Islands Hub (Autonomous Region of Bougainville, New Ireland), with a focus on canarium, cocoa and traditional vegetables.

The research explored the family, cultural and gender factors that impact on the economic development of women semi-subsistence farmers.

In the five areas, a total of 266 farmers were trained as VCEs (165 F, 101 M). These VCEs trained 2,491 other farmers (1,622 F, 869 M). A further 98 people (45F, 53 M) – from FPDA, Oxfam and other agencies funded by Pacific Women Shaping Pacific Development and Pacific Governance Facility – were trained as FFT trainers. At the time of the report, they had trained a further 1,271 farmers (592 F, 679 M).

The project identified that, for maximum impact and the modelling of gender equity

1. VCE teams should have a gender balance and
2. FFT training is the most effective when attended by both women and men from a family.

These factors are recommended as key components of future delivery. The project further demonstrated that the FFT model is made up of two complementary components:

1. FFT development training workshops, which focus on reorienting women and men towards a gender equitable and more effective planned approach to farming as a small family business. This training helps families look at the work done by women, men and youth and to work towards a more equitable and effective distribution of agricultural and household work. It assists farming families to plan and make decisions together. It encourages opportunities for women to have access to their own income and promotes the wider benefits of women having a voice within the family and community.
2. Business of Farming training, which introduces farming families to a livelihoods approach, better practice agriculture, foundational business practices and financial literacy. Ideally, this training is delivered by PNG agencies.

Program delivery will depend on the area and agricultural opportunities. However, it is recommended that all delivery models begin with the FFT training so that women and men can begin to adjust their roles, workloads and family decision-making; they are then ready to engage in a more equitable approach as new farming activities generate greater income.

Further research is required, including on:

- how to engage government and major social institutions, such as churches, in agricultural development using an FFT approach
- engaging youth in agriculture as a future
- if, where and how the FFT approach could be integrated into the education system, from primary schools through to higher education
- trialling the FFT model in other Melanesian settings and beyond.

A number of committed VCE networks now exist across PNG, but each network is relatively isolated. The Family Farm Teams Facebook page has provided one small connection space (<https://www.facebook.com/pngwomenfarmers/>). However, it is now crucial to consider ways to accredit and further support these key change agents. It is through these networks that the FFT work can be further adapted by PNG people for PNG.

The program website can be found at <https://www.canberra.edu.au/research/faculty-research-centres/csc/family-farm-teams-program>

3 Background

3.1 The PNG context

Typically referred to as a ‘fragile state’, PNG faces formidable development challenges. In 2017, PNG ranked 153 out of 189 countries on the Human Development Index and 159 of 160 countries on the Gender Inequality Index (UNDP, 2018). Maternal health is poor. Of 100,000 live births, 215 women die from pregnancy related causes, and the adolescent birth rate is 52.7 births per 1,000 women aged 15–19 (CIA, 2018). PNG has the fourth highest child stunting rate in the world (48.2% in 2016); even the richest quintile has a stunting rate of 36% (Hurney et al., 2017, p. 9). PNG is a linguistically diverse nation, with 839 indigenous languages spoken (about 12% of the world’s total). Tok Pisin is the most commonly spoken language, with only 2% of the population literate in English (CIA, 2018).

Approximately 87% of the national population (over 7 million) live in rural areas, and 85% are dependent on agricultural-based activities (CIA, 2018). Women are key rural players, as they produce both subsistence crops and crops for cash to pay for education, health and daily living. While women farmers are the major producers of food in PNG (Bourke & Harwood, 2009), they face significant agricultural and gender challenges. At the agriculture level, this includes limited access to productive resources such as land, water, machinery, seeds and fertiliser, poorly developed transport systems, lack of understanding of and access to markets and, most significantly, unequal gender roles and division of labour (Bue & Halim, 2005; Sillitoe, 2006). Women also have educational disadvantages due to low school completion rates and low literacy and numeracy, which have flow-on effects such as low banking rates, limited financial skills and lack of access to credit (ADB, 2012). High rates of gender-based violence (Human Rights Watch, 2015), as well as limits to their personal safety and mobility (Lakhani & Willman, 2014), significantly impact women farmers. Further, as in other developing countries, women’s roles in family care and household management are overly privileged, so their roles as agricultural producers and economic agents are not always recognised (Manchón & Macleod, 2010).

PNG’s women are the backbone of PNG families. As Hinton and Earnest (2010) found, PNG women typically face their daily challenges with determination and strength, both of which are vital hallmarks of resilience. Women play significant roles in the informal economy, in community networks and as caregivers for children, the elderly and the ill. These social protection roles often impact on their ability to pursue income-generating activities (Jolly et al., 2015). Although the informal exchange economy continues to coexist beside the cash economy, women generally hold limited bargaining power in the distribution of household income. Further, women’s access to income from production can be a major area of intra-household conflict (Koczberski, 2007). However, when women do generate income, these funds are typically spent on the family for household expenses, childcare, education, food and other social obligations (Eves 2018; Jolly et al., 2015). Akter and colleagues (2016) note that women invest as much as 10 times more of their earnings than men do in their family’s wellbeing. Therefore, there is value in investing in the economic empowerment of women smallholders in PNG.

The ACIAR project *Examining women’s business acumen in Papua New Guinea: Working with women smallholders in horticulture* (ASEM/2010/052) had shown that, although most women farmers had strong aspirations to improve their family livelihoods and to invest in their children’s education and wellbeing, very few had the business knowledge and acumen to improve their family livelihoods. As in many developing countries, the dominant model of farmer education in PNG has been the ‘top-down’ knowledge transfer model of ‘training of trainers’ (ToT) or ‘train and visit’ – also described by some PNG farmers as ‘train and vanish’ (Pamphilon & Mikhailovich, 2017, pp. 15–16). The project therefore developed the family farm team (FFT) model, in which selected women and men farmers were trained to be peer educators (village community educators, VCEs) in their communities. These VCEs were trained in two components: ‘Family Farm Team’ development and ‘Business of Farming’ development.

The FFT activities did result in strong community engagement and the uptake of training by women and their families. The peer education and FFT approach appeared to be a culturally appropriate way to support the empowerment of women and begin the development of more gender equitable family practices. Hence, the emerging research question was:

Are the approaches developed in ASEM/2010/052 effective across a broader range of commodities, geographies and cultures? If so, how might these approaches be improved, adapted and scaled out?

This foundational research question directly aligned with the PNG National Agricultural Development Plan (2007–2016, vol. 1, p. x) goal of ‘the full participation of stakeholders ... [to address] food security, income generation and poverty alleviation’. This project contributes to achieving goal 1.7.1. of the Papua New Guinea Medium Term Development Plan III (2018–2022) to increase women’s access to economic opportunities. The more recent PNG Vision 2050 also recognises the key role of rural development that has a focus on gender. This project aligns with four of its seven strategic focus areas (pillars):

- Human capital development, gender, youth and people empowerment
- Wealth creation
- Institutional development and service delivery
- Spiritual, cultural and community development.

3.2 The partnership context

At the conclusion of ASEM/2010/052, it was clear that further research was also needed to explore how to engage a wider and more diverse range of PNG organisations in working towards gender equity in agricultural settings. The PNG constitution, developed at the country’s independence in 1975, clearly states the principle of gender equality:

We declare our second goal to be for all citizens to have an equal opportunity to participate in, and benefit from, the development of our country ... we accordingly call for ... equal participation by women citizens in all political, economic, social and religious activities. (Constitution of the Independent State of Papua New Guinea, 1975, p. 2)

However, as in many countries, women remain underrepresented as PNG extension agents, researchers and trainers, despite evidence that agricultural productivity increases when women receive the same level of advisory services as men (Bartlett, 2008). The strong patriarchal culture and the ‘masculinism of the state and formal economy’ (Jolly et al., 2015, p. 17) has led to the dominance of men in senior positions in government and national agencies. Further, as women have fewer opportunities than men to complete further study, at the field worker level, especially in agriculture, male staff outnumber females (Hamago, 2019).

Many PNG staff and trainers espouse the need to include women in training; however, they have few opportunities to develop equitable and effective approaches in their training. It was within this context that the need for training of key agency staff in gender-inclusive training practices was identified.

The project also identified the need to more directly link with related ACIAR projects. This was enabled by ACIAR’s Transformative Agriculture and Enterprise Development Program (TADEP), which comprises five projects that aim to foster agriculture projects led by the private, to increase agricultural productive capacity and to improve access to markets for farmers in PNG and Bougainville, particularly women farmers. By working innovatively with women’s groups and the private sector, both of which are lead aspects of the program, TADEP seeks to develop a new approach to translating the small-scale impacts of agricultural and forestry research into larger scale development outcomes in PNG.

The ACIAR projects that were identified as partners were:

TADEP

- HORT/2014/094: *Developing the cocoa value chain in Bougainville* (Bougainville cocoa)
- HORT/2014/096: *Enterprise-driven transformation of family cocoa production in East Sepik, Madang, New Ireland and Chimbu Provinces of Papua New Guinea* (PNG cocoa)
- HORT/2014/097: *Supporting commercial sweet potato production and marketing in the PNG Highlands*
- FST/2014/099: *Enhancing private sector-led development of the Canarium nut industry in Papua New Guinea* (PNG canarium).

Other

- FIS/2014/060: *Developing pearl industry-based livelihoods in the western Pacific*
- ASEM/2012/084: *Promoting traditional vegetable production and consumption for improved livelihoods in Papua New Guinea and northern Australia*

4 Objectives

Project goal: to support women's economic development in order to improve gender equality, family livelihoods and food security.

Project aim: to enhance the economic development of PNG women smallholders by building their agricultural and business acumen. It investigated the expansion and out-scaling of the successful strategies used in ASEM/2010/052 into five areas of PNG with different types of local partners and with a focus on new commodity crops: Highlands Hub – sweet potato, coffee, vegetables; Islands Hub – canarium, cocoa, traditional vegetables.

The research sought to contribute to the understandings of the family, cultural, and gender factors that impact on the economic development of women. Here gender refers not to women and men as such but the relationships between them. Gender is not the biological sex but it is a cultural and social construction.

Objectives:

1. **To examine the capacity development of women as community-based agricultural leaders**
 - Identify the core competencies, local women's capacities and leadership development needs
 - Assess the effectiveness of a range of capacity building strategies, including short courses, mentoring, and collaborative research and extension activities
 - Identify the leadership processes needed for effective community mobilisation and ongoing engagement
 - Collaboratively synthesise findings and lessons into those that may be transferable and those where the context may affect the outcomes
2. **To explore ways in which communities can develop partnerships with the private sector, schools and training providers that are relevant to the local context and culture**
 - Identify area assets and potential partners
 - Understand community perceptions of their assets and learning needs
 - Assess synergies and opportunities to collaborate with PNG research and agricultural extension institutions
 - Develop and evaluate ways to engage primary school teachers in school-based agricultural learning activities for women, girls and boys
 - Monitor and evaluate the effectiveness of a range of agricultural, financial and business development activities for women smallholders and their families
 - Assess the uptake and outcomes of the development activities for women smallholders and their families
3. **To further develop the peer education model of agricultural extension**
 - Identify the required capacities and composition of village community education (VCE) teams
 - Monitor and build the capacity of VCE teams as individuals and as a group
 - Evaluate the skill and group development of village community educators
 - Analyse findings to identify and address priority areas for new learning resource development
 - Apply research findings to develop hub specific VCE manuals and resources

4. To examine the uptake and impact of a family farm team approach to farming for women and girls
 - Identify appropriate mechanisms to engage female and male family heads in the Family Farm Teams program
 - Apply action research cycles to monitor and enhance the Family Farm Teams program
 - Evaluate the uptake and impact of the Family Farm Teams program for women and girls
 - Identify the affects and changes in approach that help in different contexts, commodities, markets and cultures.

5. To explore the capacity development of PNG agricultural focused agencies in gender inclusive and gender sensitive extension delivery
 - Train agency staff in the Family Farm Teams modules and approach
 - Examine the trainers' delivery of Family Farm Teams modules
 - Evaluate the capacity development of the agency staff as gender sensitive and inclusive trainers
 - Further refine the Family Farm Teams approach and materials in light of the evaluation.

5 Methodology

5.1 Research settings

This project focused on understanding how to improve the lives and economic security of women smallholder farmers in PNG. A previous ACIAR project (ASEM/2010/052) demonstrated that a whole-of-family approach to farmer learning had enabled farming families to work in a more equitable and effective way to improve their livelihoods. This project therefore sought to understand the effectiveness of the approach at scale and across a broader range of commodities and geographies.

To achieve this, the project focused on two major agricultural regions of PNG: the Highlands and the Islands. In each region, the project worked with different partners to explore how to widen the range of agencies engaged in agricultural development and to provide capacity development. Within each area, specific districts and target communities were selected in consultation with local partners or, in the case of New Ireland, in consultation with ACIAR project HORT/2014/096.¹

Table 1: Communities and partner agencies, Highlands Hub

Region	Districts	Partner agencies
Eastern Highlands	Six communities in Goroka and Daulo districts	Fresh Produce Development Agency (FPDA), an agricultural training and extension agency
Jiwaka	Six communities in North Wahgi, South Wahgi and Anglimp districts	Voice for Change (VfC), a feminist human rights agency
Western Highlands	Six communities in Alona ward (Lumusa), Mul-Baiyer district	Baptist Union (BU), a church organisation

Table 2: Communities and partner agencies, Islands Hub

Region	Districts	Partner agencies
Autonomous Region of Bougainville	10 wards in Halia constituency	Bougainville Women's Federation (BWF), a women's network agency
New Ireland	Four communities in Ward 7 and Ward 11	Tikana Local Level Government (LLG) New Ireland Department of Primary Industries (NIDPI)

Initially, the project design used only women-only leadership and teams. However, following the evaluation of the first trial area in the Western Highlands, this was adapted to include selected male leaders, male family members in the Eastern Highlands and 50% female and male participants in Jiwaka. The engagement with communities was across a 12-month period.

Based on the evaluation of the Highlands Hub, important modifications were made to the project design: engagement with communities was extended to 18 months, and the training groups incorporated a gender balance of approximately 50/50 female and male.

¹ Enterprise-driven transformation of family cocoa production in East Sepik, Madang, New Ireland and Chimbu Provinces of PNG.

5.2 Research partners

A number of PNG partners contributed significantly to the research, as shown in Table 3.

Table 3: Partner agencies and their contributions

Partner agency	Contribution
CARE PNG	Ripple effect study
PNG National Agricultural Research Institute (NARI)	Baseline and end-line surveys (hard copy and digital) Farm observations Regional agricultural data
Our Lady of the Sacred Heart School (New Ireland)	Teacher professional development and resources
Pacific Adventist University (PAU)	Independent evaluation end-line interviews Farmer financial literacy Teacher professional development and resources
University of Technology (UniTech)	Master's student projects (women's adoption of new practices; poultry production uptake) Farmer-to-farmer learning facilitation study (Jiwaka) Advanced VCEs study (Baiyer Valley)

5.3 Research approach and questions

The project used **participatory action research** (PAR; Chevalier & Buckles, 2013). PAR enables lessons learnt to be applied to subsequent activities and locations where relevant and to deepen research findings in an iterative way. PAR has three main characteristics:

- active participation of researchers and participants in the co-construction of knowledge
- promotion of critical and self awareness that contributes to individual and community change and development
- building of alliances between researchers, participants and other key stakeholders, leading to locally relevant, validated findings.

Our approach was further informed by **participatory appreciative action and reflection** (PAAR; Ghayea et al., 2008). The method uses a model of cyclic action learning, similar to action research cycles but used by an individual. Participants are each taught the learning cycle to use in their work and then, when they meet with other participants, they engage in a shared analysis of their learning and challenges. This reflection indicates to the project team where further learning opportunities should be focused to address the key issues that participants faced.

Capacity development was a key process; PNG project and partner staff were trained and mentored in the research methods. This ensured cultural appropriateness and maximum effect. As Vallance (2007, 2008) noted, depth of research knowledge depends on the collaborative development of approaches that reflect and maximise the 'Melanesian' ways of knowing and sharing. Therefore, one specific research focus was to examine the capacity development of women as agricultural leaders. (*Research question: What are the critical skills, knowledge and processes needed to develop women's leadership in rural agricultural settings?*)

A second capacity development research focus was added following the mid-term review, which identified the need to support the capacity development of PNG agencies in the area of gender-focused agricultural training and evaluation. (*Research question: What are the challenges, issues and enablers in developing the capacity of PNG agencies to deliver gender sensitive and inclusive training for PNG farmers?*)

The research used **asset-based community development** (ABCD; Green & Haynes, 2012) and the processes of **appreciative inquiry** (AI; Whitney & Trosten-Bloom, 2010). Both approaches share an ‘empowerment’ philosophy. ABCD understands local communities and community members as resilient and resourceful and aims to collaboratively identify and build on the assets in a community. AI directs the research and development attention towards ‘what works’ and ‘what strengths can be built on’ rather than focusing on deficits and needs. Effective ABCD enables communities to change their mindsets: they move from perceiving themselves as poor, without assets and reliant on outside help, to having self-confidence and self-worth. They are able to see the many assets in themselves and in their communities and are able to create better futures by building on these assets (Nel, 2017). These approaches emphasise collaborative and participatory processes in both research and development activities. Assessing the impact of an ABCD approach was a specific focus of this project. *(Research question: What are the opportunities and challenges in the development of private sector, school and training partnerships with farming communities?)*

The project used a **gender-inclusive approach** that was designed to promote gender equity and to raise awareness of the importance of asset-sharing for smallholder family livelihood development (Quisumbing et al., 2014). Hence, while the project worked with both women and men in the FFT modules, the research specifically focused on the impact of this approach on the knowledge, skills, attitudes, aspirations and outcomes for women. *(Research question: What is the uptake and impact of the family farm teams approach for women and girls?)*

The project’s **place-based pedagogy** recognised that people’s lives are shaped by the places they inhabit and that their learning is enhanced if it is directly linked to their daily lives and their specific context and relationships with their environment and culture, as well as time and space (Coughlin & Kirch, 2010). To date in PNG, the education of farmers through agricultural extension has typically focused on technology transfer and on training for the development of cash crops (Sitapai, 2011). However, this form of farmer education has primarily benefited men, who are the cash crop producers, and overlooked women’s work in the informal, subsistence sector. Further, it has often excluded women whose literacy, low education, family responsibilities and daily work on subsistence crops preclude significant engagement in this form of farmer education. Cahn and Liu (2008) noted the very strongly delineated gender roles in agriculture and argued that a lack of understanding of PNG women smallholders’ learning context and training needs have until recently been an ‘invisible barrier’. Hence, the research focus was on the **peer education model**, which meant recruiting VCEs (at least 60% women) who could both adapt the training to suit local contexts, challenges and places and – most importantly – be more accessible to other women. The development of the skills and confidence of women VCEs was a major focus. The development of visual and dual language resources for the many women farmers with low literacy was also a priority. *(Research question: In what ways does peer-based agricultural extension support the development of women as learning facilitators?)*

5.4 Research methods

This section presents the standard research methods used in the project and then outlines a number of two-way research activities that were designed to both provide learning opportunities for participants and generate research data (see Pamphilon et al., 2017). In short, it means collecting information about and from both women and men. Information about women and men contributes to an understanding of their differentiated contributions to certain agricultural activities, their unequal position in power relations, differences in access to and control over resources and the gender gaps in the social and economic arenas. Collecting sex-disaggregated data from women and men means not interviewing the ‘household head’ (usually a man) but interviewing both women and men in a household (Twyman et al., 2015, p. 2).

5.4.1 Standard methods

The research primarily used participatory qualitative methods. Quantitative data was gained from baseline and end-line surveys. Table 4 presents the data collection methods and activities. Table 5

and Table 6 present the participant numbers in the relevant activities for each hub. These activities were supplemented by informal interviews and evaluative discussions with local project staff (see Mikhailovich et al., 2016).

Table 4: Data collection methods and activities

Method	Activities
VCE baseline survey: administered livelihood survey with female and male heads of household:	<ul style="list-style-type: none"> • agricultural activities • household division of labour • training experiences and needs • business and financial practices • income • health • education • literacy • family aspirations
VCE end-line survey: administered livelihood survey with female and male heads of household,	Repeating questions from baseline survey
Baseline group work	Group interviews with community leaders: <ul style="list-style-type: none"> • community history • assets • challenges • demographics Participatory group work with female and male community members: <ul style="list-style-type: none"> • agricultural activities • crop production • income sources Community asset mapping
Baseline and end-line farm observations	Observations of crop types, planting and management practices, animal husbandry, assets
End-line group work and interviews with VCEs and farmers trained by VCEs	Key FFT messages, uptake of training, sharing of training, individual and community change (positive/negative) and challenges
VCE pre-training survey	<ul style="list-style-type: none"> • Education and literacy • Training skills • Previous training experience • Training needs
VCE post-training survey	<ul style="list-style-type: none"> • Training skills • Knowledge development
Retrospective perception survey (administered by VCE leaders and local project leader) with farmers and VCEs	<ul style="list-style-type: none"> • changes in crops • income • family and farm practices
Post-project interviews: conducted by independent evaluators	<ul style="list-style-type: none"> • individual and family changes • challenges • income • decision-making • skills and knowledge
Post-project ripple effect mapping with VCEs and farmers they had trained : conducted by independent consultant	<ul style="list-style-type: none"> • interviews • appreciative inquiry peer interviews • workshop • farm visits

Table 5: Highlands Hub research activity participant numbers (by area and gender)

Activity	E Highlands		Jiwaka		W Highlands	
	F	M	F	M	F	M
Baseline group work	34	19	21	18	50	15
End-line group work	17	3	8	9	34	8
End-line interviews	6	5	6	3	7	6
VCE baseline livelihood household survey	25	25	33	33	35	35
VCE end-line livelihood household survey	25	36	38	22	34	38
VCE pre-training skills survey	31	n/a	21	20	42	n/a
VCE post-training skills survey	13	n/a	8	9	32	n/a
Women leaders baseline survey	6	n/a	7	n/a	7	n/a
Women leaders end-line survey	6	n/a	5	n/a	5	n/a
Leaders end-line groupwork	6	n/a	6	n/a	6	n/a
Retrospective survey (VCEs and farmers)	25	36	11 ¹	11	34	38
Post-project interviews	7	1	9	6	11	4
Ripple effect mapping ²	n/a	n/a	n/a	n/a	52	22

¹ No gender specified: 36

² This long-term impact study was conducted with participants of ASEM/2010/052

Table 6: Islands Hub research activity participant numbers (by area and gender)

Activity	Bougainville		New Ireland	
	F	M	F	M
Baseline group work	16	11	37	32
End-line group work	40	23	22	21
End-line interviews	10	4	19	15
VCE baseline livelihood household survey	23	16	39	40
VCE end-line livelihood household survey	18	10	16	18
VCE pre-training skills survey	27	23	37	41
VCE post-training skills survey	19	11	36	24
Women leaders baseline survey	25	n/a	12	n/a
Leaders end-line group work	18	22	19	n/a
Retrospective survey (VCEs and farmers)	77	22	25	23
Post-project interviews	8	4	10	9
Ripple effect mapping ¹	F	M		
East New Britain	40	25		
Western Highlands	50	20		

¹ This long-term impact study was conducted with participants of ASEM/2010/052

5.4.2 Participatory methods

Participatory research methods are particularly important in PNG, where most farmers have minimal education and low literacy. The participatory methods reflect the study's ABCD orientation as they are designed to enable participants to surface and draw on their own knowledge

and can empower participants to name and hence value their own knowledge and perspectives. As Sen (1999) reminded us, a person is 'poor' not only when their income is below the poverty line but also when they have the 'unfreedoms' of capability and participation. Participatory methods are particularly valuable for surfacing gender data, as they can be not only conducted in single-gender groups but also designed to obtain age-stratified data (young men, young women etc.) or role-stratified data (village leaders, farmers, paid workers).

Visual activities in particular have been increasingly used in development contexts (e.g., see Gervais & Rivard, 2007; Marion & Crowder, 2013). Pain (2012) notes that there are two reasons for using visual methods in qualitative research:

- to enhance data collection through rapport-building, facilitating communication and the expression of tacit knowledge, fostering engagement, and promoting reflection
- to mediate the relationship between researcher and participants through enabling participant voices to be heard, valuing participants' experience and expertise in their own field, reducing the power imbalance between researcher and participants, empowering participants and therefore effecting change in individuals or communities.

Mapping

Collaborative mapping activities are meaningful ways to identify the local and place-specific geographies of communities. They provide valuable data for the researcher and help to surface the taken-for-granted knowledge of participants, as they draw on deep-seated experiential knowledge (see Carvey, Arcury & Quandt, 2007). Individual mapping similarly enables a participant to see their own family and/or community connections in a new or enhanced way. In each of the activities described below, the researcher is able (with participants' permission) to photograph the maps for later analysis, and then ideally the maps are left with the community or individual.

This section outlines the mapping methods used in the study.

Community asset mapping

Aim. This method enables participants to identify and discuss the built and natural assets in their village and to understand the different ways women and men relate to their environment. Community asset mapping provides gender and age disaggregated data and surfaces cultural and community practices.

Process. Participants are divided into four groups (young women, older women, young men, older men) and given a large piece of paper and marker pens. They are shown how to draw an asset map (using an example from a different area), with each asset category explained as part of the process (e.g. rivers, mountains, roads, tracks, hamlets, churches, schools, trade stores, main markets, informal markets, plantation crops, smallholder areas). Each group is asked to draw and present their own map, and the leader is asked to clarify details and draw out points of gender or age differences.

Eastern Highlands example. Single-gender groups recorded the main features in their villages, both natural and man-made. Both groups noted the government developments that were to be built. The women's maps emphasised the infrastructure they used (churches, schools, birth houses); the men's emphasised the natural environment and landmarks (roads, rivers, mountains).

Social organisation mapping

Aim. This method makes visible the organisational assets in a community and helps researchers to assess the gender representation in organisations. This can then be linked to the value of women's equal representation and the possible pathways for women leaders from the grassroots up.

Process. The large group is asked to identify the social organisations in their community (e.g., churches, schools, hospitals, sporting groups, ward committees). The group is then divided into smaller groups, each of which look at one type of organisation. Each group is given small pieces of paper and asked to write each part of the organisational structure on one piece. These are then placed into an organisational hierarchy. Next, participants note the gender composition at each

level and record on the papers which groups have women and men, only men or only women. This can lead to a group discussion on gender representation and pathways for women.

Western Highlands example. Analysis of a local hospital showed that all nurses were women, all doctors were men and most administrators were men. The hospital board had tried to involve more women; however, as this required a level of English and some community status, many women could not aspire to this leadership role.

Personal network mapping

Aim. This method enables participants to identify and analyse their multiple leadership roles in the family and community. This helps women see that they are leaders. It also provides research data on women's informal roles and responsibilities.

Process. Each woman is asked to draw a concept map of their family and community connections, representing the individuals or groups they lead. The next step is to represent the strength of the relationship to each person or group: participants draw a double line for a very strong relationship, a single line for an average relationship or a dotted line for a weak relationship. Arrows are then added to show whether the relationship is one-way or two-way. The leader can show her example and discuss it, but the participants are not asked to share this personal information.

New Ireland example. Women in New Ireland had very similar family relationship networks to women in other areas of PNG. However, they also had the cultural practice of 'community day': every Monday, villages have a community meeting, providing any woman with a formal space to share information.

Symbol development

One valuable way to draw on the cultural knowledge of participants is through their development of symbols that are place-based. These can be analysed as research data and used in other learning environments.

Leadership symbols

Aim. The purpose of this activity is to identify cultural symbols that relate to concepts of leadership.

Process. Each participant is given a large piece of paper and a range of coloured pencils or markers. They are given one simple example of a symbol and how it can represent a person's understanding of themselves as a leader (e.g., a tree moving in the wind shows that a leader must be flexible), and an explanation of how drawing helps us express things in a different way. Each person is asked to create a symbol that reflects them as a leader. These are presented to the group, with a discussion on meanings and cultural connections. This produces data on place, culture and gender representations of leadership.

Islands examples. Women frequently drew a boat, reflecting a culturally relevant local symbol .

We can become sailboats that go to new places and our boat can navigate different seasons and weathers. It is not just drifting around, it has purpose and direction. It can also provide shelter and keep us from sinking. Leadership can also sometimes be lonely and it needs to be steered.

To reach the destination, all women must come together. Our destination is the [Bougainville] referendum, which must be peaceful and fair.

Photo/picture work

Photo/picture elicitation has been used extensively in development contexts (e.g., see Mitchell, 2008) to gain the viewer's interpretation or understanding of an image. Photos enable participants to move beyond thinking that is linear, verbal and rational to that which is a more holistic integration of thoughts and feelings. When used in a group, it provides an opportunity to hear group reflections as well as enabling further learning in the group.

PNG photo-language kit

The PNG photo-language kit was created by Barbara Pamphilon over the life of the project. It contains both naturalistic and abstract photos in black and white (so that participants connect to the image, without being drawn to details of colour). The key to photo-language work is that all photos are place-based and draw on culturally and geographically familiar images.

This kit will be made available on the [FFT program website](#).

Aim. The activity used photos to elicit deeper research data on specific topics, such as the concepts of women and men as leaders, how farmers learn, and the cultural dimensions of the daily life of a farmer.

Process. A selection of about 30 diverse images of PNG is laid on the ground. Pictures should not be crowded but spread out so that each person can consider each photo separately. The group is given the topic that is to be discussed (e.g., ‘Choose a photo that reflects how you see yourself as a leader,’ or, ‘What are the strengths of your family?’) Participants are then asked to walk in silence past the photos and note (but not pick up) one or two that relate to the question. Participants then join in a led discussion in which each person shares what they chose and why. It is best if one person leads the discussion and one takes notes.



Trigger cards

Aim. Trigger cards are used to provide culturally relevant triggers for analysis or discussion, using pre-chosen drawings or images. Our cards helped people consider the benefits of shared and equitable financial decision-making in families.

Process. Six to eight cards (Carnegie et al., 2008; Family Farm Teams manual, pp. 7683), developed in the Melanesian context, are given to small groups for discussion. The cards portray common problems as well as one ideal situation. Groups are given discussion points that enable participants to learn as well as provide deep data. The questions in this study were: ‘What is happening in this picture?’, ‘How typical is this in your community?’ and ‘What would be the impact of this behaviour on families and family finances?’ Each small group then reports to the larger group. (This activity is best done in mixed-gender groups, so that there is no perception that one gender is criticising the other, which could lead to ramifications for individuals who present.)

Anonymous example. Women and men agreed that negative behaviours were common in their community, and they provided strong research data on why and how these behaviours arise. The group often laughed as they recognised typical behaviour – for example, a man stealing from his wife’s purse. When that card was first presented, a number of men said, ‘We all do that!’ to much further laughter. However, the ensuing discussion provided a number of insights about how men use money and their lack of understanding of how they were impacting their family. Individual change was reported in the confidential written evaluation:

The most important part of the day was the last part covering financial decision-making. It sums up the day with the concluding part so that now I know where I stand, what I need to take up, the diagnosis and treatment. (M)

Participatory analysis

Participatory processes can be used to not only collect data but begin the analysis with the participants. This means that both an indigenous and an external analysis can be generated.

Talking tables/circles

Aim. Talking tables enable participants to contribute their ideas on social issues in a safe way (in single-gender groups) that retains their anonymity. It is a modification of the World Café process (<http://www.theworldcafe.com/>), based on creating environments for dialogue.

Process. Community members are invited from four groups (young women, young men, older women, older men). Each group, ideally of six to eight participants, sits together at a table or in a circle to consider four research questions. For example, this study investigated attitudes to money management, asking questions such as ‘What do women spend money on?’, ‘What do men spend money on?’, ‘What are the positives and negatives of wantok giving?’ and ‘Why don’t people use banks?’ Each group has a scribe who records all views on a large piece of paper showing one of the questions (use a different coloured pen for each group). The papers are then moved to another group, who read the comments and add their own ideas. This is repeated. In the final round, participants are given a different coloured marker and asked to add evaluative – or ‘So what?’ – comments. This final version can be shown to the larger group, who can add further analytical comments and discuss what the results might mean for their own family.

Highlands first table results example. Answers to ‘What do women spend money on?’ included school fees, church, bride price, buying for family, buying clothes and buying tools.

Answers to ‘What do men spend money on?’ included compensation, building a good house, school fees, gambling, betel nut, beer, smokes, snooker and darts.

Answers to ‘What are the positives and negatives of wantok giving?’ included positive responses like ‘helps get money to get children to school’, ‘helps get jobs’ and ‘maintains wellbeing and relationships’ as well as negative responses like ‘concentrates too much on the extended family and the immediate family suffers’, ‘destroys the family, the community and the country’ and ‘produces unqualified people in the work place’.

Answers to ‘Why don’t people use banks?’ included ‘nowhere locally to save money’, ‘costs too much to get to bank,’ ‘criminals hold us up on the road’, ‘no training in budgeting’ and ‘don’t have enough money to save’.

Barometer of change²

Aim. The barometer of change activity enabled individual participants to reflect and give feedback on the extent of change they had made as a result of the training they received through the project.

Process. Using local materials, a line is made on the ground and objects like shells, coconuts or stones are used to mark points on a scale. The centre of the scale marks no change, and four points on either side of the centre mark negative or positive change. Individual participants are asked to choose a point on the line that represents how much they have changed (e.g. ‘How much change has this project created?’) They are then invited to explain why they have chosen that position and to describe the change. If people are speaking of their own change, this is recorded but not discussed. However, if the change is about the community, this can be discussed as a group, providing the first level of analysis. The responses are then plotted on a graph.

² Our thanks to Rebecca Robinson for introducing this activity.

Islands example.

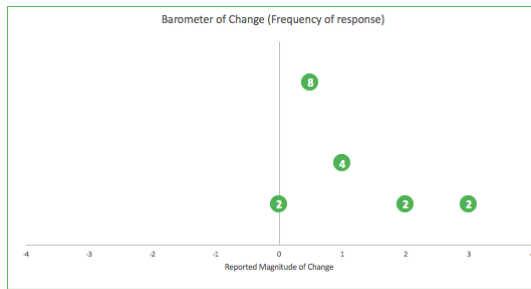
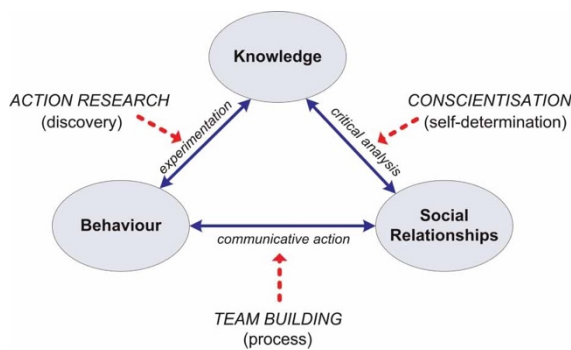


Figure 1: Barometer of change

I have chosen this place [near zero] on the scale because before my starting point was back there before the project came here [points back to the negative] ... With the training I have progressed up to where I am now. I stand here, with all the resources, everything is here, but the reason I have halted at this point, why I am stuck, is due to some challenges I face with regards to land disputes. I think that if it finishes [the land disputes] then I will move up the scale.

5.5 Training methods

The aim of the training was to support the development of the local farmers as peer educators, known as VCEs. The approach utilised a co-construction learning methodology that seeks to engage the trainees in learning activities that draw out their knowledge of their communities and families. This enables the project team and the VCEs to collaboratively adapt the learning activities that are part of the FFT program, so that they are ‘place-informed’ (Pamphilon & Mikhailovich, 2017). The priority is to develop the capacity of trainees as facilitators of learning, rather than just as people who deliver course content.



A ‘learner’ or ‘people-centred’ approach is taken, rather than the knowledge transfer model typically seen in most training of trainers. The VCEs use these skills in delivering the FFT modules to their own family, wantok and social organisations, such as churches, in their own community.³

As can be seen in Figure 2, the focus is a constructivist approach that facilitates experiential learning, relationships and action.

Figure 2: Constructivist approach to agricultural extension (Bartlett, 2008, p. 531)

5.5.1 Participatory learning needs analysis

The development of a **community learning plan** with the local community members was the first ABCD process undertaken at a site. It is important to work with the community to identify their learning priorities as well as to identify the resource agencies and local people who could contribute to addressing these needs. This approach helps communities become more resourceful and to identify and mobilise the assets already in their community. The process is one that communities can continue themselves after the project ends; in this way, it contributes to

³ See ACIAR (2017), *The Farmer-to-farmer adult learning manual: A process and resources for the development of farmers as peer educators*. ACIAR monograph 198. <http://www.canberra.edu.au/research/faculty-research-centres/aisc/png-family-farm-teams-program/publications/The-farmer-to-farmer-adult-learning-manual-v1.0.pdf>

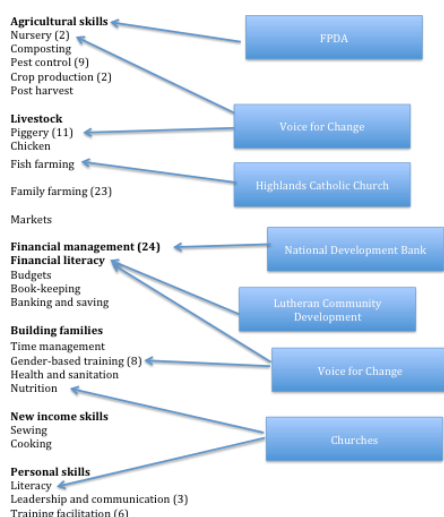


Figure 3: Jikawa Community Learning Plan 2016

sustainability. It provides valuable data on the level of connectedness of communities to services as well as their learning orientations.

Aim. The participatory learning needs analysis supports community members to identify existing local resources, potential training providers and key topics in the areas of agricultural development, financial and business skills.

Process. The project aims are presented, and participants asked to think about the training topics that would be of most value in their community to meet those aims. To ensure that both female and male perspectives are heard, groups are divided along gender lines to discuss and report back. Responses are written on large pieces of paper, using different colour pens for women and men. Topics are sorted into themes in front of the group. Next, the community is asked which providers, groups or individuals they already know who

can help with these learning topics. Responses are displayed on the paper for community awareness. This process is also used to identify preferred providers and to prioritise the brokered training program. A final community learning plan is constructed and returned to community members for their future use.

5.5.2 VCE training program

There are two facets to the training program developed by the project.

- The FFT development program focused on reorienting women and men towards a gender equitable and more effective planned approach to farming as a small family business. This was delivered by the UC team (Australian and PNG staff) in partnership with the local agency.
- The Business of Farming program introduced farming families to a livelihoods approach, better practice agriculture, foundational business practices and financial literacy. This was delivered through brokered training subcontracted to PNG agencies.

While the results of the FFT and Business of Farming programs are presented separately in this report, it is important to note that they were designed to provide complementary learning.

Family Farm Teams (FFT) program

The overall aims of the FFT program are to:

- provide one female and one male family head from a household with a series of workshops and family activities that will enable them to work together as a family farm team and to plan together the further development of their agricultural activities. The program can also be used with full family teams (adults, young adults and youth), and with other types of families (e.g., a widow and adult son, or a man and his two wives).
- begin a process of gender awareness, especially in the area of the gendered division of labour, family decision-making and financial practices
- provide learning activities and family farm development resources/tools that are suitable for those with low literacy and limited education.

Modules

There are four modules to the FFT program, outlined below.

Module 1: Working as a family team for family goals. This workshop introduces the concept of a family team as an effective and inclusive way to work as a smallholder family. Family heads

engage in activities that map their current division of labour and then together consider better ways to work as a family. The family heads also look at possible family goals and together determine farming goals, financial goals and general family goals.

Module 2: Planning your family farm as a family team. This workshop helps farming families see their agricultural activities as a farm business and a family business. Heads of family and/or family teams work together to map their gardens or blocks in order to identify their agricultural activities and space allocation, water sources, housing, animal shelters and other assets, and to note terrain and travel time, as well as gender inequities and inefficiencies. They consider the seasonal calendars for major food and commodity crops. They then draw how they would like to see their farm in five years. The final step is to identify the assets, constraints and challenges and possible solutions in order to design a one-year and three-year plan of development.

Module 3: Feeding your family team. This workshop uses group activities to enable participants to identify the range of foods they grow and the food they buy. The group works together to sort foods into food groups (i.e., energy, body-building, health protection) and consider how to plan family meals across a 24-hour period that cover all groups and to reduce their costs of low nutritional store-bought food. Families draw a plan for a FAITH garden (Food Always In The Home).⁴ This activity is also undertaken for times of drought, to enable families to have greater knowledge of how to adapt in times of food shortage.

Module 4: Communicating and decision-making as a family farm team. This workshop enables family heads to explore communication issues within the family and to consider the importance of shared decision-making, especially in the areas of family farm activities and finances. The activities cover skills and attitudes, as well as exploring the cultural and gender dimensions of communication.⁵

Business of Farming program

This program was designed to cover the four essential areas of farm business development:

- agricultural livelihood concepts
- basic business skills
- financial literacy
- income-oriented agricultural development.

PNG partners were selected on the basis of reputation, local availability and their ability to work with women and those with low literacy. The partners and their focuses are shown in Table 7.

Table 7: Partner agencies, Business of Farming program

Focus	Partner agency
Commercially oriented agricultural development	Fresh Produce Development Agency (FPDA) UniTech
Agricultural livelihood concepts	Integrated Agriculture Training Program (IATP) University of Natural Resources and Environment (UNRE)
Basic business skills	Integrated Agriculture Training Program (IATP) University of Natural Resources and Environment (UNRE)
Financial skills	Nationwide Microbank

⁴ We thank Dame Carol Kidu for this important acronym.

⁵ For further information on the FFT modules, see Pamphilon, Mikhailovich & Gwatorisa (2017), *The PNG Family Farm Teams Manual*, ACIAR Monograph No. 199. <https://www.aciar.gov.au/publication/PNG-Family-Farm-Teams-Manual>

5.5.3 VCE training process

The VCEs were trained through experiential learning workshops that incorporated ‘learning about learning’ (to develop skills as VCEs) with the FFT modules. The training was conducted by the UC team and PNG researchers/trainers: Jessie Abiuda-Mitir (NARI), Doreen Tunama (IATP) and Dr Josie Saul (an agricultural scientist working on the two ACIAR TADEP cocoa projects). The aim was to ensure that the language and cultural dimensions of the training were effective, as well as to build the capacity of the women in participatory training and research practices.

In the Highlands Hub, the FFT modules were covered over a nine-month period; however, following the evaluation this was extended to a 15-month period in the Islands Hub. The Islands Hub program also included a review workshop that assessed the value of all four modules from the VCEs’ perspectives, identified the most used activities, and investigated what the VCEs saw as the most effective and culturally appropriate ways of learning in their context.

5.5.4 VCE training materials

At the end of the training, a VCE manual for each area was produced, and awarded at graduation. This manual comprised three sections: baseline study results, helping farmers learn and the FFT modules. This document was produced in English and Tok Pisin and was amended for each area, to include local issues or adaptations. A research study was conducted in the Islands Hub in order to simplify the English and gain feedback from PNG participants about the most culturally congruent explanations of training terms (see Caffery & Hill, 2018).

Following the Highlands Hub evaluation, an FFT workbook was trialled in the Islands Hub. The aim of the workbook was to enable farmers to keep notes and have a record of the major activities from the modules, as they worked on them. It was designed to address the low literacy levels of farmers through the use of pictures, diagrams and minimum words, and it was produced in both English and Tok Pisin.

5.5.5 Training evaluation methods

The VCEs’ skill development was assessed using pre- and post-training self-administered surveys, as well as pre- and post-training participatory group discussions. A range of other activities were developed across the project.




Module evaluation

Aim. The evaluation aimed to elicit immediate feedback on learning from VCEs, especially those with low literacy.

Process. At the end of each module, all participants are given a piece of paper (different colours for females and males). Smiley face symbols are shown on a poster and explained. Participants record their responses to the questions ‘How did you feel about today’s workshop?’ and ‘What was the most valuable idea?’

Bougainville example.

Table 8: Participant evaluation of module 4, ‘How did you feel about today’s workshop?’, by gender

Participant’s feeling	Very happy		All right		Not happy	
Symbol						
Gender breakdown	Female	Male	Female	Male	Female	Male
	25	14	4	2	1*	0

Note: n=46; females=30; males=16

* This participant wrote her name on the paper but added no comments to explain her rating. The local team followed up to get direct feedback. She explained that she was ‘not happy’ about her family situation, rather than the workshop.

Table 9: Participant evaluation of module 4, ‘What was the most valuable idea?’, by gender

Idea	Female responses	Male responses
Everything	11	6
Financial decision-making	4	2
Understanding and managing anger	3	2
Body language	2	1
Communication circle	1	-
One-way communication	-	1

Helping women and men learn

Aim. This evaluation exercise aimed to enable the VCEs to give feedback on their experience of peer education with their own gender.

Process. The group is divided into small gender-specific groups to record for their own gender:

- what works to help other farmers learn
- what are the challenges.

Participants are told that it is important to stress *how* people learn, not *what* they learnt. Small groups report back to ensure that the ideas are shared across the group, as well as to provide research data. When there is time, the groups also do this activity for the opposite gender (i.e., women suggest ways to help men learn and vice versa).

Family Farm Team (FFT) module review and application

Aim. This evaluation aimed to identify if and how the VCEs had used the activities in each module.

Purpose. Laminated pictures or photographs are produced for each of the major activities. For each module, the main activities are displayed and outlined to the larger group. Participants are asked:

- Did you use this for your family? If yes, how?
- Did you use this with your neighbours? If yes, how?
- Did you use this with large groups? If yes, how?

Female and male groups then discuss their reactions module by module, in a facilitated discussion. The discussion enabled VCEs to identify any limitations of the activities as well as to hear how others had shared the learning with others.

Family Farm Team (FFT) key messages

Aim. This evaluation aimed to identify what the VCEs believed were the most important messages of the FFT program.

Process. VCEs work in gender-specific pairs or triads to record their ideas, which are reported back to the group for wider learning and/or to clarify any comments. This activity can follow the module review so that it acts as a synthesis process.

The experiential action learning cycle and the Family Farm Teams (FFT) program

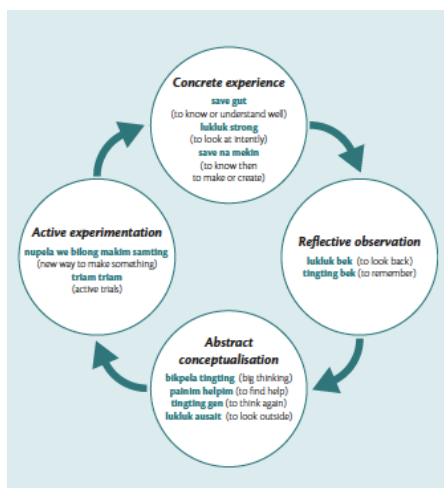


Figure 4: Experiential action learning cycle

Aim. To provide a review of the experiential action learning cycle and identify examples of which FFT modules and learning activities had enabled farmers to implement a change in their family and/or farm.

Process. The FFT program’s adaptation of the learning cycle (Kolb, 1984) of experience (concrete experience), reflection (reflective observation), big thinking (abstract conceptualisation) and trial of new ways (active experimentation) is presented to the large group. FFT activities are then proposed as part of the ‘big thinking’ phase. VCEs work in small, gender-specific groups to identify one story that illustrates how a FFT module, activity or idea had enabled new learning that led to a change in the family or farm. These are then shared with the group to foster wider learning of how the FFT activities can help farmers learn and apply that learning.

5.6 Data analysis and presentation

Table 10 describes the analysis process and notes limitations and issues of reliability.

Table 10: Research activities, analysis and issues

Activity	Analysis	Issues
Group work	Thematic by gender	Although women and men worked in separate groups, cultural norms may have had an impact.
1:1 interviews	Thematic	When interviews were completed in English, in some cases the depth of some data was limited
VCE base/end-line livelihood household surveys	Comparative Descriptive statistics	The end-line surveys are limited by some missing data, resulting in small response rates to some questions.
VCE base/end-line skills surveys	Comparative	As this was self-administered, the low education levels of participants may have had an impact on reliability.
Retrospective survey (VCEs and farmers)	Thematic by gender	Social desirability or acquiescence bias may have had an impact, as local staff administering the survey may have inadvertently influenced some participant responses.
Post-project interviews	Thematic	Validity may be increased, as the interviews were conducted in Tok Pisin by independent Tok Pisin speaking consultants.

Data presentation

While the impacts of the FFT and Business of Farming programs are presented and discussed separately in the following sections, it is important to note that the participants did not always directly link a benefit or problem to a specific program component. This reflects their holistic experience of the program (FFT training + brokered training).

In this report, the term ‘household’ refers to the VCE couples, ‘respondent’ or ‘participant’ denotes the individual females and males, ‘farmer’ refers to the farmers who were trained by the VCEs, and ‘VCEs’ are the village community educators themselves. Direct quotes are presented in italics.

6 Achievements against activities and outputs/milestones

Table 11: Results against Objective 1: To examine the capacity development of women as community-based agricultural leaders, Highlands Hub

No.	Activity	Outputs/milestones & completion date	Comments		
1.1	Women's leadership literature and program reviews (A)	Key competencies, capacity and leadership development identified 11/15	Informed content and approach of Women's Leadership program, <i>Building leadership from the inside out</i>		
			Western Highlands	Eastern Highlands	Jiwaka
1.2	Leadership and management introductory training workshop (A)	Workshop that builds women's management and leadership skills 09/15 and 02/16	7 women leaders trained, plus 21 women observers	6 women leaders plus FPDA staff member trained	7 women leaders plus 2 VFC staff trained
1.3	Community Learning Plan training (A)	Women's skills in participatory planning increased Women's knowledge informs data analysis 09/15 and 02/16	7 women leaders trained via participation	6 women leaders plus FPDA staff member trained via participation	7 women leaders plus 2 VFC staff members trained via participation
1.4	Leading and managing a VCE program (A, PC)	Women's skills in leading programs increased Women's knowledge informs M&E 06/16 and 11/16	7 women leaders trained and monitored by hub leader	6 women leaders plus FPDA staff member trained via participation, plus Hub Leader support	7 women leaders plus 2 VFC staff member trained via participation, plus hub leader support
1.5	Leading and managing a Family Teams Program (A, PC)	Women's skills in leading village education programs increased Women's knowledge informs M&E 06/16 and 11/16	7 women awarded a UC leadership development certificate	6 women awarded a UC leadership development certificate	7 women awarded a UC leadership development certificate
1.6	Monitoring and evaluation of training (A, PC)	Women's monitoring and evaluation skills increased Data generated for milestone reports 06/16 and 11/16	All women leaders trained in basic M&E and contributed to end-line group activities. The more advanced leaders in Jiwaka were trained in survey implementation and impact story collection.		
1.7	Data synthesis (A)	Milestone, <i>Highlands Hub Report: Building the capacity of rural farmers as peer educators and leaders</i> , 06/17			

Notes: Highlands Hub = Lumusa (Western Highlands); Asaro valley (Eastern Highlands); Wahgi valley (Jiwaka) – 2015 and 2016. The process was to develop the activities in Lumusa, then apply the improved version in the Asaro and Wahgi valleys.

A = Australia; F = female; FPDA = Fresh Produce Development Agency; IATP = Integrated Agriculture Training Program; M = male; M&E = monitoring and evaluation; PAU = Pacific Adventist University; PC = partner country; VCE = village community educator; VFC = Voice for Change.

Table 12: Results against Objective 1: To examine the capacity development of women as community-based agricultural leaders, Islands Hub

No.	Activity	Outputs/milestones & completion date	Comments, Bougainville	Comments, New Ireland
1.2	Leadership and management introductory training workshop (A)	Workshop that builds women's management and leadership skills 08/17	7 Community Government members, 3 young women leaders, 15 VCE leaders, all F trained	8 VCE leaders (F), 4 government. staff (F) trained
1.3	Community Learning Plan training (A)	Women's skills in participatory planning increased Women's knowledge informs data analysis 03/17	The Community Learning Plan was completed in each area as part of the baseline study. However, as the women leaders had not been appointed at that point, learning occurred through participation rather than training.	
1.4	Leading and managing a VCE program	Women's skills in leading adult learning programs increased Women's knowledge informs M&E 06/18	Given the Bougainville government policy of 50% males and females on all committees, the leadership training was opened to male VCEs (9 F; 21 M trained)	16 VCE leaders (F), 4 government staff (F) trained
1.5	Leading and managing a FFT program	Women's skills in leading village education programs increased Women's knowledge informs M&E 06/18	21 F, 16 M trained	Due to the lack of follow-through by the acting project leader, all women VCEs were invited to the training (46 F)
1.6	Monitoring and evaluation of training	Women's monitoring and evaluation skills increased, 04/18 Data generated for milestone reports, 06/18	16 F, 13 M	This training was adapted as 36 F were invited rather than the core leadership group Evaluation workshop 18 F
1.7	Data synthesis	Milestone: <i>Islands Hub Report: Building the capacity of rural farmers as peer educators and leaders</i> , 03/19		

Notes: Halia constituency (Bougainville) Ward 7 and 11, Tikana Local Level Government (New Ireland) 2017 and 2018.

A = Australia; F = female; FPDA = Fresh Produce Development Agency; IATP = Integrated Agriculture Training Program; M = male; M&E = monitoring and evaluation; PAU = Pacific Adventist University; PC = partner country; VCE = village community educator; VFC = Voice for Change.

Table 13: Results against Objective 2: To explore ways in which communities can develop partnerships with the private sector, schools and training providers that are relevant to the local context and culture

No.	Activity	Outputs/milestones & completion date	Comments		
2.1	Area situational analysis (Literature review, key informant interviews, leaders workshop) (A, PC)	Area profile, agri needs and assets analysed and priorities agreed 09/2015, 05/16 and 02/2016	Informed community workshops, baseline study and training plans		
2.2	Participatory community baseline workshops (A, PC)	Village profile, needs and assets identified by community and documented Community and family knowledge increased 09/2015 and 02/2016	Community learning plan		
			Area	Women	Men
			Bougainville	11	16
			E Highlands	34	19
			Jiwaka	21	18
			New Ireland	12	16
W Highlands	44	8			
2.3	Community learning needs analysis (A, PC)	Community training topics and providers documented Community knowledge of local assets increased 09/2015 and 02/2016	Asset-based community development process. Reported back to each VCE in FFT training manual.		
2.4	Analysis of UniTech, PAU and FPDA programs (A, PC)	Agreements for collaborative action research 10/2015 FPDA 04/16 PAU 05/16 UniTech	FPDA, trial commercial bulb onion production. Lumusa (10/15 to 10/16) and Asaro Valley (06/16 to 03/17) PAU, develop and trial a business literacy module for farmers with low literacy (2016–18) UniTech, Elizabeth Owa and William Kerua M. Phil., 2016 ongoing VCE analysis: Willian Kerua, Baptist Union (Baiyer Valley) and Veronica Bue,VfC (Jiwaka)		
2.5	Community learning plan (A, PC)	Milestones: <i>Community learning plan and brokered training report, Alona ward (Lumusa), 02/16</i> <i>Community learning plan and brokered training report, Asaro Valley (Eastern Highlands), Wahgi Valley (Jiwaka), 07/17</i> <i>Islands hub community learning plan and brokered training report, 10/17</i>			
2.6	Business/training provider engagement (A)	Milestone: Letters of agreement with business/training providers: FPDA, IATP, Nationwide Microbank, UniTech, 11/15 and 03/17			

2.7	Brokered training and/or development conducted (PC)	Evaluation report from provider	<p>Business development training</p> <table border="1"> <thead> <tr> <th rowspan="2">Area</th> <th colspan="2">Sustainable livelihoods</th> <th colspan="2">Record and book-keeping</th> <th colspan="2">Banking and saving</th> </tr> <tr> <th>F</th> <th>M</th> <th>F</th> <th>M</th> <th>F</th> <th>M</th> </tr> </thead> <tbody> <tr> <td>E Highlands</td> <td>19</td> <td>17</td> <td>19</td> <td>17</td> <td>26</td> <td>20</td> </tr> <tr> <td>Jiwaka</td> <td>16</td> <td>8</td> <td>16</td> <td>8</td> <td>18</td> <td>14</td> </tr> <tr> <td>W Highlands</td> <td>42</td> <td>7</td> <td>42</td> <td>7</td> <td>41</td> <td>5</td> </tr> <tr> <td>Bougainville</td> <td>26</td> <td>24</td> <td>26</td> <td>24</td> <td>46</td> <td>34</td> </tr> <tr> <td>New Ireland</td> <td>53</td> <td>76</td> <td>53</td> <td>76</td> <td>29</td> <td>24</td> </tr> </tbody> </table> <p>Highlands agricultural development training</p> <table border="1"> <thead> <tr> <th rowspan="2">Area</th> <th colspan="2">Bulb onion/cabbage</th> <th colspan="2">Poultry</th> </tr> <tr> <th>F</th> <th>M</th> <th>F</th> <th>M</th> </tr> </thead> <tbody> <tr> <td>E Highlands</td> <td>20</td> <td>11</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Jiwaka</td> <td>42</td> <td>7</td> <td>23</td> <td>14</td> </tr> <tr> <td>W Highlands</td> <td>42</td> <td>7</td> <td>n/a</td> <td>n/a</td> </tr> </tbody> </table> <p>Islands agricultural development training</p> <table border="1"> <thead> <tr> <th rowspan="2">Area</th> <th colspan="2">Poultry</th> <th colspan="2">Piggery</th> <th colspan="2">Vegetables</th> <th colspan="2">Soil</th> <th colspan="2">Trad vege</th> <th colspan="2">Value-adding</th> </tr> <tr> <th>F</th> <th>M</th> <th>F</th> <th>M</th> <th>F</th> <th>M</th> <th>F</th> <th>M</th> <th>F</th> <th>M</th> <th>F</th> <th>M</th> </tr> </thead> <tbody> <tr> <td>Bougainville</td> <td>13</td> <td>7</td> <td>10</td> <td>10</td> <td>13</td> <td>7</td> <td>13</td> <td>18</td> <td>28</td> <td>15</td> <td>33</td> <td>20</td> </tr> <tr> <td>New Ireland</td> <td colspan="2">84</td> <td colspan="2">75</td> <td colspan="2">67</td> <td colspan="2">63</td> <td>n/a</td> <td>n/a</td> <td>40</td> <td>30</td> </tr> </tbody> </table>	Area	Sustainable livelihoods		Record and book-keeping		Banking and saving		F	M	F	M	F	M	E Highlands	19	17	19	17	26	20	Jiwaka	16	8	16	8	18	14	W Highlands	42	7	42	7	41	5	Bougainville	26	24	26	24	46	34	New Ireland	53	76	53	76	29	24	Area	Bulb onion/cabbage		Poultry		F	M	F	M	E Highlands	20	11	n/a	n/a	Jiwaka	42	7	23	14	W Highlands	42	7	n/a	n/a	Area	Poultry		Piggery		Vegetables		Soil		Trad vege		Value-adding		F	M	F	M	F	M	F	M	F	M	F	M	Bougainville	13	7	10	10	13	7	13	18	28	15	33	20	New Ireland	84		75		67		63		n/a	n/a	40	30
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2.8	Trial of primary school trainee teachers' agriculture learning module (A, PC)	Trainee teacher university module (extended to full teacher professional development training) 11/15 to 07/18	<p>Teacher PD Action Research cycles and activities</p> <table border="1"> <tr> <td data-bbox="965 177 1133 352" rowspan="3">Cycle 1 - Agricultural and culturally relevant materials for teachers</td> <td data-bbox="1133 177 1294 240">November 2015</td> <td data-bbox="1294 177 1910 240">Planning meeting with UniTech Department of Agriculture, Sonoma Teachers college and Pacific Adventist University (PAU) for PD workshops and agricultural materials</td> </tr> <tr> <td data-bbox="1133 240 1294 288">January 2016</td> <td data-bbox="1294 240 1910 288">Trial of three-day PD workshop with primary teachers upgrading to a bachelor's degree at Pacific Adventist University (PAU)</td> </tr> <tr> <td data-bbox="1133 288 1294 352">April 2016</td> <td data-bbox="1294 288 1910 352">Delivery and refinement of a two-day PD workshop with primary teachers and teacher's college preservice teachers and lecturers in East New Britain (ENB) including new livelihood videos created by UniTech</td> </tr> <tr> <td data-bbox="965 352 1133 528" rowspan="3">Cycle 2 - Refining workshop and agricultural materials</td> <td data-bbox="1133 352 1294 400">July 2016</td> <td data-bbox="1294 352 1910 400">Conference presentation at Vaka Pasifiki Education conference in Honiara, Delivery of two-day PD workshop with primary teachers in Honiara</td> </tr> <tr> <td data-bbox="1133 400 1294 448">September 2016</td> <td data-bbox="1294 400 1910 448">Delivery and trial of three-day workshop at PAU</td> </tr> <tr> <td data-bbox="1133 448 1294 528">November 2016</td> <td data-bbox="1294 448 1910 528">Evaluation of January and April PD in Port Moresby and ENB Consultation with Ian Thompson (e-learning fellow) University of the South Pacific in Fiji Decision to create digital PD package for teachers Creation of Skills for a Changing Pacific poster</td> </tr> <tr> <td data-bbox="965 528 1133 775" rowspan="4">Cycle 3 - PD package for teaching using SD cards and low-cost mobile phones</td> <td data-bbox="1133 528 1294 592">January 2017</td> <td data-bbox="1294 528 1910 592">Delivery of 2 x two-day workshops in Lae and Balob Teacher's College with PNG teachers as facilitators</td> </tr> <tr> <td data-bbox="1133 592 1294 655">March – July 2018</td> <td data-bbox="1294 592 1910 655">Development of teacher videos</td> </tr> <tr> <td data-bbox="1133 655 1294 703">July 2017</td> <td data-bbox="1294 655 1910 703">Development of further agricultural materials for digital PD package</td> </tr> <tr> <td data-bbox="1133 703 1294 775">July 2018</td> <td data-bbox="1294 703 1910 775">Delivery of two-day PD workshop with primary and secondary teachers in New Ireland (NI) Launch of digital PD package in NI, ENB and Port Moresby.</td> </tr> </table> <p>A total of 193 female and 180 male teachers were involved in trialling the process and materials</p> <p>Milestone: <i>Educating PNG rural children for their farming futures: an exploration of the role of teacher professional development, 12/18</i></p>	Cycle 1 - Agricultural and culturally relevant materials for teachers	November 2015	Planning meeting with UniTech Department of Agriculture, Sonoma Teachers college and Pacific Adventist University (PAU) for PD workshops and agricultural materials	January 2016	Trial of three-day PD workshop with primary teachers upgrading to a bachelor's degree at Pacific Adventist University (PAU)	April 2016	Delivery and refinement of a two-day PD workshop with primary teachers and teacher's college preservice teachers and lecturers in East New Britain (ENB) including new livelihood videos created by UniTech	Cycle 2 - Refining workshop and agricultural materials	July 2016	Conference presentation at Vaka Pasifiki Education conference in Honiara, Delivery of two-day PD workshop with primary teachers in Honiara	September 2016	Delivery and trial of three-day workshop at PAU	November 2016	Evaluation of January and April PD in Port Moresby and ENB Consultation with Ian Thompson (e-learning fellow) University of the South Pacific in Fiji Decision to create digital PD package for teachers Creation of Skills for a Changing Pacific poster	Cycle 3 - PD package for teaching using SD cards and low-cost mobile phones	January 2017	Delivery of 2 x two-day workshops in Lae and Balob Teacher's College with PNG teachers as facilitators	March – July 2018	Development of teacher videos	July 2017	Development of further agricultural materials for digital PD package	July 2018	Delivery of two-day PD workshop with primary and secondary teachers in New Ireland (NI) Launch of digital PD package in NI, ENB and Port Moresby.
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2.9	Training and development partnerships uptake and outcomes study (A)	<p>Milestones: <i>Highlands Hub Report: Developing farming families through training and development activities, 08/17</i> <i>Islands Hub Report: Developing farming families through training and development activities, 05/19</i></p> <p>In production: <i>Business Training for Family Teams, A Facilitator's Manual: First steps to starting a small business (PAU)</i></p>																								

Note: A = Australia; F = female; FPDA = Fresh Produce Development Agency; IATP = Integrated Agriculture Training Program; M = male; M&E = monitoring and evaluation; PAU = Pacific Adventist University; PC = partner country; VCE = village community educator; VfC = Voice for Change.

Table 14: Results against Objective 3: To further develop the peer education model of agricultural extension, Highlands Hub

No.	Activity	Outputs/milestones & completion date	Comments, Western Highlands	Comments, Eastern Highlands	Comments, Jiwaka
3.1	Identification and selection of VCEs (PC)	VCE teams engaged 09/2015 and 02/2016	43 F VCEs selected 8 senior M VCEs added to provide community support	34 F VCEs selected 13 M recruited later	18 F and 18 M VCEs selected (gender balance model trial)
3.2	Trial of VCE training in adult learning facilitation (A, PC)	Workshops for VCEs on FFT and being a VCE 09/2015, 11/15 and 05/16 02/16, 05/16, 09/16	VCEs trained in three blocks: FFT Module 1, FFT Module 2 and 3, FFT Module 4 over 9 months		
3.3	Trial of VCE delivery of FFT Program (PC)	FFT program delivered to other farmers 09/2015 to 11/16	213 F and 50 M farmers trained	272 F and 211 M farmers trained	88 F and 62 M farmers trained
			VCE Certificates of Completion: 36 F, 7 M VCE Certificates of Participation: 7 F, 1 M	VCE Certificates of Completion: 20 F, 11 M VCE Certificates of Participation: 14 F, 2 M	VCE Certificates of Completion: 18 F, 14 M VCE Certificates of Participation: 4 M
3.4	VCE skills development evaluation (A, PC)	Milestone: <i>Highlands Hub Report: Building the capacity of rural farmers as peer educators and leaders</i> , 06/17			
3.5	Low literacy learning resources development	Milestone: New module : Feeding your family farm team, 10/16			
3.6	Hub VCE manual and resources development	Milestones: <i>The PNG Family Farm Teams manual</i> . ACIAR Monograph No. 199. 2017 <i>The farmer-to-farmer adult learning manual: a process and resources for the development of farmers as peer educators</i> . ACIAR Monograph No. 198. 2017			

Notes: Lumusa (Western Highlands); Asaro valley (Eastern Highlands); Wahgi valley (Jiwaka), 2015 and 2016.

A = Australia; F = female; FPDA = Fresh Produce Development Agency; IATP = Integrated Agriculture Training Program; M = male; M&E = monitoring and evaluation; PAU = Pacific Adventist University; PC = partner country; VCE = village community educator; VFC = Voice for Change.

Table 15: Results against Objective 3: To further develop the peer education model of agricultural extension, Islands Hub

No.	Activity	Outputs/milestones & completion date	Comments, Bougainville	Comments, New Ireland
3.1	Identification and selection of VCEs (PC)	VCE teams engaged	26 F, 24 M selected	49 F, 44 M selected
3.2	Trial of VCE training in adult learning facilitation (A, PC)	Workshops for VCEs on FFT and being a VCE	All VCEs trained in five blocks: FFT Module 1, FFT Module 2, FFT Module 3, FFT Module 4, FFT review over 15 months Lead VCEs trained in an additional workshop on advanced training skills in each block	
3.3	Trial of VCE delivery of FFT program (PC)	FFT program delivered to other farmers	314 F, 259 M farmers trained	735 F, 337 M farmers trained Certificates of Completion
			VCE Certificates of Completion: 18 F 11 M VCE Certificates of Participation: 10F, 10 M	VCE Certificates of Participation: 42 F, 41 M
3.4	VCE skills development evaluation (A, PC)	Milestone: <i>Islands Hub report: Building the capacity of rural farmers as peer educators and leaders, 03/19</i>		
3.5	Low literacy learning resources development (A)	New resources in final production: <ul style="list-style-type: none"> • VCE local manual • FFT participant workbook • PNG photo-language kit • Learning stories of change 		
3.6	Hub VCE manual and resources development (A)			

* Due to inadequate record-keeping by local staff, no full certificates could be awarded.

Notes: Halia constituency (Bougainville) Ward 7 and 11, Tikana Local Level Government (New Ireland), 2017 and 2018.

Numbers are estimated averages, as VCEs worked in teams but reported individually.

A = Australia; F = female; FPDA = Fresh Produce Development Agency; IATP = Integrated Agriculture Training Program; M = male; M&E = monitoring and evaluation; PAU = Pacific Adventist University; PC = partner country; VCE = village community educator; VfC = Voice for Change.

Table 16: Results against Objective 4: To examine the uptake and impact of a family team approach to farming for women and girls, Highlands Hub

No.	Activity	Outputs/milestones & completion date	Comments, Western Highlands	Comments, Eastern Highlands	Comments, Jiwaka																																									
4.1	Family selection and mobilisation (PC)	Engagement of families in each area 09/15 and 03/2016	6 villages (tribes) selected and mobilised: Manigiwa, Mulipisa, Kwane, Simakin, Malapine, Mano	6 villages selected and mobilised: Asaro Station, Kasena, Runumbe, Notafana, Gahuku Ifiyufa	6 villages selected and mobilised: Banz, Bunum-wo, Kudjip- Kuma, Kugark- Nol, Minj, Wara Wau																																									
4.2	FFT program Module 1 (PC)	Module delivered and evaluated 09–11/15 and 02–06/16	Farmers trained by VCEs (by gender and area) <table border="1"> <thead> <tr> <th>Area</th> <th>Female farmers</th> <th>Male farmers</th> </tr> </thead> <tbody> <tr> <td>Eastern Highlands</td> <td>272</td> <td>211</td> </tr> <tr> <td>Jiwaka</td> <td>88</td> <td>62</td> </tr> <tr> <td>Western Highlands</td> <td>213</td> <td>50</td> </tr> </tbody> </table>			Area	Female farmers	Male farmers	Eastern Highlands	272	211	Jiwaka	88	62	Western Highlands	213	50																													
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4.3a	FFT program Module 2 (PC)	Module delivered and evaluated 11/15–04/16 and 05–08/16																																												
4.3b	FFT program Module 3 (PC)	Module delivered and evaluated 11/15–04/16 and 05–08/16																																												
4.4	FFT program Module 4 (PC)	Module delivered and evaluated 04–06/16 and 09–11/16																																												
4.5	FFT and VCE approach review (A/PC)	VCE participatory workshops 07 and 11/16	Highlands VCE evaluation <table border="1"> <thead> <tr> <th rowspan="2">Activity</th> <th colspan="2">Eastern Highlands</th> <th colspan="2">Jiwaka</th> <th colspan="2">Western Highlands</th> </tr> <tr> <th>F</th> <th>M</th> <th>F</th> <th>M</th> <th>F</th> <th>M</th> </tr> </thead> <tbody> <tr> <td>End-line group work</td> <td>17</td> <td>3</td> <td>8</td> <td>9</td> <td>34</td> <td>8</td> </tr> <tr> <td>End-line interviews</td> <td>6</td> <td>5</td> <td>6</td> <td>3</td> <td>7</td> <td>6</td> </tr> <tr> <td>VCE pre-training skills survey</td> <td>31</td> <td>n/a</td> <td>21</td> <td>20</td> <td>42</td> <td>n/a</td> </tr> <tr> <td>VCE post-training skills survey</td> <td>13</td> <td>n/a</td> <td>8</td> <td>9</td> <td>32</td> <td>n/a</td> </tr> </tbody> </table>			Activity	Eastern Highlands		Jiwaka		Western Highlands		F	M	F	M	F	M	End-line group work	17	3	8	9	34	8	End-line interviews	6	5	6	3	7	6	VCE pre-training skills survey	31	n/a	21	20	42	n/a	VCE post-training skills survey	13	n/a	8	9	32	n/a
Activity	Eastern Highlands		Jiwaka		Western Highlands																																									
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4.6	FFT program uptake and outcomes study (A, PC)	Milestone: <i>Highlands Hub report: Developing farming families through training and development activities, 09/17</i>																																												

Notes: Lumusa (Western Highlands); Asaro valley (Eastern Highlands); Wahgi valley (Jiwaka)—2015 and 2016.

Due to the PNG drought and the evaluation of ASEM/2010/052 a new module was added: Feeding your Family Farm Team.

A = Australia; F = female; FPDA = Fresh Produce Development Agency; IATP = Integrated Agriculture Training Program; M = male; M&E = monitoring and evaluation; PAU = Pacific Adventist University; PC = partner country; VCE = village community educator; VFC = Voice for Change.

Table 17: Results against Objective 4: To examine the uptake and impact of a family team approach to farming for women and girls, Islands Hub

No.	Activity	Outputs/milestones & completion date	Comments, Bougainville	Comments, New Ireland																													
4.1	Family selection and mobilisation (PC)	Engagement of families in each area	Hahalis 1 & 2, Hanahan 1 & 2, Tohatsi 1 & 2, Hagus, Ketskets, Kotopan, Banis (Halia constituency)	Manggai, Loosuk, Livitua and Livitua (Ward 7 and 11 Tikana LLG)																													
4.2	FFT program Module 1 (PC)	Module delivered and evaluated 06–09/17	<i>Farmers trained by VCEs by gender and area (Average number)</i> <table border="1"> <thead> <tr> <th>Area</th> <th>Female farmers</th> <th>Male farmers</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Bougainville</td> <td>314</td> <td>259</td> <td>573</td> </tr> <tr> <td>New Ireland</td> <td>735</td> <td>337</td> <td>1072</td> </tr> </tbody> </table>		Area	Female farmers	Male farmers	Total	Bougainville	314	259	573	New Ireland	735	337	1072																	
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4.6	FFT program uptake and outcomes study (A, PC)	Milestones: <i>Building gender equity through a family teams approach: A program to support the economic development of women smallholder farmers and their families in Papua New Guinea, ACIAR Monograph No. 194. 2016</i> <i>Islands Hub report: Developing farming families through training and development activities, 09/17</i>																															

Notes: Halia constituency (Bougainville) Ward 7 and 11, Tikana Local Level Government (New Ireland), 2017 and 2018.

Due to the PNG drought and the evaluation of ASEM/2010/052, a new module was added: Feeding your Family Farm Team.

A = Australia; F = female; FPDA = Fresh Produce Development Agency; IATP = Integrated Agriculture Training Program; M = male; M&E = monitoring and evaluation; PAU = Pacific Adventist University; PC = partner country; VCE = village community educator; VFC = Voice for Change.

Table 18: Results against Objective 5: To explore the capacity development of PNG agricultural focused agencies in gender inclusive and gender sensitive extension delivery

No.	Activity	Outputs/milestones & completion date	Comments
5.1	Agreements with partner agencies (A)	Letters of agreement inc. timelines 07/17	Agreements signed with FPDA and Oxfam Additional training contracted by Pacific Women
5.2	Training of trainers (ToT) in the FFT approach (FPDA & Oxfam) (A)	5-day training model delivered and evaluated 10/17	FPDA: 8 F, 24 M trained Oxfam: 16 F 23 M trained Pacific Women/PGF: 21 F, 6 M trained
5.3	Training delivered by FPDA and Oxfam ToT teams (PC)	Training delivered and evaluated 10–11/17	FPDA: trained 255 farmers (99 F, 156 M) in six villages Oxfam: trained 596 farmers (256 F, 340 M) in 35 villages
5.4	Review of training delivery and FFT ToT modules (A, PC)	Trainee review and participatory evaluation 2-day workshop 11/17	FPDA: 4 F, 14 M Oxfam: 16 F 23 M
5.5	ToT Training HORT/2014/094 Resource Centre staff and volunteers (A, PC)	3-day training model delivered and evaluated	19 F, 19 M trained
5.6	Evaluation of FFT ToT model (A)	Milestone: <i>It opened my eyes and my mind: a report on the capacity development of PNG agencies in gender inclusive extension delivery,</i> 04/18	

Note: A = Australia; F = female; FPDA = Fresh Produce Development Agency; IATP = Integrated Agriculture Training Program; M = male; M&E = monitoring and evaluation; PAU = Pacific Adventist University; PC = partner country; VCE = village community educator; VfC = Voice for Change.

7 Key results and discussion

This section presents the key results by objective. Given that all objectives used different processes, the findings for each objective are presented in the most relevant way for that objective. This section should also be read in conjunction with Section 5, Methodology and Section 6, Achievements against activities and outputs/milestones.

7.1 Objective 1: Women's leadership

To examine the capacity development of women as community-based agricultural leaders

Research question: What are the critical skills, knowledge and processes needed to develop women's leadership in rural agricultural settings?

Two major areas of findings emerged in this objective: the changes in the women themselves and the gender issues that arose for women as leaders.

7.1.1 Women leaders' changes

Changes were seen in women's knowledge, skills, concepts of leadership, and future aspirations, as well as their status in the community.

Skills and knowledge development

All women leaders reported an improvement in their skills and knowledge from their involvement in the leadership training (Building leaders from the inside out). The strengths-based approach that began the course helped women identify and value their leadership roles in the family and the community. After that, more instrumental leadership and management skills were presented. This proved to be an affirming approach.

Women who were literate in Tok Pisin and English had the greatest potential to progress into area or regional leadership positions; however, women who were not fully literate were able to provide village leadership and contribute to the wider leadership team. In all areas, women reported their greatest development in the areas of the understanding the characteristics of good leadership, leading other people, and understanding and building support.

Before the training, I was appointed as a leader in my church and I accepted the position but I did not know what to do. The training has equipped me to be a strong leader ... The leadership training equipped me. I never knew the role I should play as a leader, but after the training, I understood my role as a leader. I now know what to do and say to others. I used to be ashamed and afraid and I cried a lot but my attitude has changed and I am a stronger person and other women respect and follow my advice. (Woman leader, WH)

Many women reported they had little understanding of how to handle conflict and problems. However, in the two highlands areas where there were strong project leaders, it was clear that this mentoring had significantly contributed to skill development in this area. In contrast, in New Ireland, where the project leadership faltered, women persisted as VCEs but did not have the confidence to continue their leadership role. In the Eastern Highlands and Western Highlands sites, women were challenged by conflict within the teams they led. They noted the need for further training in communication, conflict resolution and dealing with criticism.

Concepts of leadership



These concepts were explored through photo- and art-based activities. These proved to be culturally appropriate and individually empowering.

In the first workshop, the symbol activity helped women see their own leadership potential and build on the ways they were already working

as a leader in their family roles. The creative visual activities enabled women to use local and/or personal symbols that would help define the attributes of a good leader. These symbols included trees, boats, flowers, fish, the sun and stars, and they were always linked to the place-based connections of the woman. As one Bougainville woman reflected:

Drawing pictures reflects myself in how I feel about the people, myself and the environment.

The use of the photo-language activity at the end of the project showed how women had developed nuanced and well-developed senses of leadership, which were, again, culturally related. The women privileged the need to work with others and be adaptable as well as the importance of being a role model.

Working together



This picture means we have to work together and must submit. Working together means leaders share ideas together so the program will run well. If we put our ideas together and work together and stand together, we will make things well. United we stand, divided we fall. (NI)



The picture has different bilums in it. There is a basket from New Ireland, a bilum from the highlands, a Papuan bilum as well. A leader works across boundaries, a leader will work with any age group and be able to help and lead them. There are different people in our communities and a leader will move things. (NI)

Being adaptable



As a leader you have to be like the stone and sea. If you are a leader like the stone you will not be moved, if you are like the sea, there are times when the sea will be smooth and rough. As a leader you can be like the stone, as a leader you can be like the salt water. (NI)

Spider's web: The spider is a leader, has a web of communication and can move across the networks in any direction. (ARoB)

Being a role model



As a leader, every time I move, someone else will follow, whatever the leader does, others are watching, and they will follow. As a leader I have to walk the talk. My actions must show what I believe in and what I saw. If you do not walk the talk you are a failed leader. In my community I must walk about straight, not doing other things. You walk straight, as a leader. (NI)



In the past we did not know the light. As a leader, you have to be the light, you have changed, as a leader you must be the change, the light, so others can see you. You can live in a traditional house, but you can bring the change, the light, in the spiritual change and social change. Leadership can be inside and outside not only on the outside. A lot of us are leaders but we do not show it. We are all leaders, people do not see us as leaders but in fact we are. Ladies, we are all leaders here so keep up the good work you are doing and live up to the standard of being a leader. You must lead do not wait for others to do things. There are different types of leaders and they lead in different areas. We must respect each leader and if you want to be a leader, you must walk the talk so others can respect you. You cannot do everything so get others to help you out. Leadership means, live by example. (NI)

Overall, good leadership was thought to start at home. Leaders who led their families well gained the community's respect and confidence. The common characteristics and qualities of a good leader in all areas were honesty, kindness, trustworthiness and transparency. A recurring response

was that a leader should be a ‘servant’ of the people. The commitment to serve and help the community with their problems, a quality that came with ‘humility’, was seen as key to leadership.

Leadership aspirations

Changes in aspirations are important indicators of leadership development. In all but one area,⁶ there was evidence that at the end of the project many women no longer saw their leadership as only family-based, with some having very concrete aspirations. Common aspirations included being on the school board of management and joining church and local level government or ward committees. In Bougainville, the aspirations were very high – one woman planned to stand for election as a provincial member, and two were about to stand as the woman member for the community government.⁷ The project leader reported that most VCEs had been invited to be on community government steering committees.

Enhanced status

Many women reported that their leadership role had given them status and respect in the community. In Jiwaka, one woman expressed this clearly:

I was no one, but now I have a name in the community.

However, it is important to note that other leaders did not feel confident and felt it was difficult to take up these new opportunities without support.

The women are being asked to speak in community events more and more after the ACIAR project ... This causes some anxiety for some of the women as they do not feel confident and do not always know what they should say and how, and who to ask for help.

In Bougainville, some women leaders had been asked to assist in resolving community conflicts or reconciliations because of the skills they had developed. However, as one Bougainville woman leader noted, to be successful leaders women need to understand how to work within the positive and negative community practices.

There’s traditional local leadership, government leadership and church leadership. For local leadership to run training I have to check first with the female and male chief. I cannot do something just because I want to. I have to check and negotiate first. If they give the okay then I can run training. If they don’t give the okay then I can’t run training. Bribery also comes into this. If they aren’t completely okay with what’s planned then I must pay them so that they will say ‘yes’ to running training.

7.1.2 Gender issues

Gender issues were visible in both the all-women leadership teams and the mixed-gender teams. These revolved around women leading women, training women and men together, and women and men leading together.

Women leading women

In the Western Highlands, the process of women leading a group of women VCEs proved both satisfying and challenging. The women leaders had the task of bringing together VCEs who were not always from their own clan group. Mobilising and building collaboration and cooperation was a challenge, but there were also many successes. Those who were already recognised as leaders or

⁶ New Ireland had significant staff changes that meant that the leadership training was offered to different groups of women.

⁷ Community government is a recent ARoB initiative to replace the Council of Elders. Members are elected (10 women and 10 men per community) to represent the interests of the community members and advise on community development. See https://www.facebook.com/permalink.php?story_fbid=1186719151413858&id=739349316150846

who came from families who were clan leaders had an easier task in leading a team, even when challenges were encountered.

After the training, as the team leader in my church, I trained seven VCEs ... They often make me mad, they do not listen, but I do not worry about that. Others are asking me to join the team ... In my community, my family can all talk in public, my father is well respected and I think I am like them. In community, people respect me and are working well with me in my training. (Woman leader, WH)

The women leaders expressed frustration in dealing with community dynamics, which was exacerbated by the small payment given to the leaders, which caused some jealousy and resentment.

To be a leader in our community is tough. Other women will gossip about you and I always get angry and often confronted them. The training really helped to build me up as a leader. The leadership qualities and skills I learnt has made me a different person. The ladies are still gossiping about me but I do my best to stand up tall and keep going. (Woman leader, WH)

Women and men training together as leaders

The Islands Hub enabled a comparison of the impact of training women and men together and training women only. The New Ireland model of training only women did provide a safe space for women to share together and was primarily successful in building women's awareness that they can be leaders and already are leaders in important settings such as the family (not only wives and domestic workers). In Bougainville, the first workshop was women-only, and this did achieve a similar awareness. When the group then moved to a mixed-gender training group, the use of small group work in single-gender groups did enable such sharing to continue through ongoing group discussions. However, it also offered the opportunity for women and men to hear each other's perspectives and start to work together.

The Bougainville model suggests the value of starting with women-only and then moving to a mixed-gender training model.

Women and men working together as leaders

In the Islands Hub, both women and men worked together as leaders. This was an effective strategy as it enabled women to have a sanctioned place as leaders and modelled gender equity. However, this did not mean that women had equal voice or an equal place to men: cultural and gender norms continue to have a major influence. It is interesting to note what the Bougainville project leader, Ian Viore, reported:

The community government structure creates this opportunity for women VCEs to transfer as strength that also must be recognised and enhanced by women. With the recognition of women by the community government structure, women VCEs who had leadership roles in the community government proved proactive.

In general, women still very much need more support in building their confidence in public speaking. The challenge is to come out of the traditional norm that only men must speak. Seen in elderly women, they seem to reserve the public speaking responsibility to men which undermines their skills and knowledge of the subjects. Therefore, the challenge is to unlearn the norm that men should only be the ones to speak in public.

The male leaders who worked with the female leaders were articulate about the place of women as leaders:

In the past we use to say men had the power and knowledge ... since the training VCEs are recognised as leaders, men obey them, follow their instruction. (Male leader, EH)

Leadership is the same as conception, it needs both sexes. There should be a shared agenda. Women are not smaller. (Male leader, ARoB)

The perception that the women were now recognised as leaders in the broader community was also supported by male leaders.

In the past we never saw ladies as leaders – we are hardworking people – the project has opened up our eyes to see women as leaders. (Male leader, EH)

Yes, perceptions on leadership are changing. There is a big change. More women are coming up as leaders because many women can talk. They have the courage to speak up. They might have learnt from the conflict [Bougainville civil war, 1988 to 1998]. They are aware of gender. We encourage women not to be slaves to their husbands but to be empowered. (Male leader, ARoB)

However, in order to develop sustainable leadership roles for women, there needs to be system change, not just individual change. This was well-expressed by a Bougainville woman:

Customary leaders, ward members, all should attend training so that we can all work as one group. They should get the same knowledge that we get ... If all Halia ward members come to this training, and then all the customary leaders come to the training and get the same knowledge, then they will help us and stand together with us.

Women's leadership critical skills, knowledge and processes

The women's leadership activities demonstrated the value of helping women see that they were already leaders in their families and that they have transferable skills from these family roles. Although the instrumental management skills are important, the first building block needs to give women a sense of 'power within'. From this, they can develop their own concept of leadership. This correlates with the findings of Spark and Meki (2013, p. 1), who argue that in PNG it is primarily through being 'good wives, mothers and household managers that women become valued' and are then able to extend their influence into economic and political spheres.

Building women's capacity as leaders requires ongoing mentorship and support, especially when the women face conflict and criticism. The most effective mentors were those who were able to offer 'just-in-time' advice through their regular meetings rather than formal training workshops. Village women who stepped into a leadership role do not always have the experience of managing even small amounts of money on behalf of a team (see also Popoitai et al., 2013). However, with guidance, they did build their skills and capacity.

The FFT messages were valued in the target communities. In this way, they gave women a voice in the public sphere. This was especially notable in particular instances:

- in Jiwaka, young women in their 20s were encouraged by the community through the building of a training shelter
- in New Ireland, women regularly spoke at 'community day'
- in Bougainville, many women VCEs were invited to join community committees.

It is clear selecting both female and male leaders to work together models gender inclusion and enables greater community acceptance. This also enables both women and men to work in a complementary way. However, while mixed-gender training is relevant for a number of leadership topics, specialised women-only training is crucial. Domingo and colleagues (2015) have noted the importance of 'groupness' or solidarity in helping women develop voice and leadership. They highlight that a shared consciousness can develop from such face-to-face interactions. Voice and enhanced agency are the pre-cursors of women's development as leaders.

7.2 Objective 2: Community training partnerships

To explore ways in which communities can develop partnerships with the private sector, schools and training providers that are relevant to the local context and culture

Research question: What are the opportunities and challenges in the development of private sector, school and training partnerships with farming communities?

This section is divided into two parts: partnerships with training providers and the private sector, and partnerships with schools.

7.2.1 Developing partnerships with training providers and the private sector (brokered training)

The **community learning plans** revealed that all aspects of agricultural development were priorities for the communities. Although the project aim was introduced as helping families become better farm businesses, very few business skills were identified, and in some cases the groups needed to be prompted to think of these. The development of the learning plans showed that all of the communities had limited agricultural and related training opportunities. In all areas, the Department of Primary Industry or the Department of Agriculture and Livestock were known as names, not service providers. FPDA was only known in the Eastern Highlands sites. In the Islands, the now defunct Cocoa and Coconut Institute and the oil palm company Poliamba were known. AusAID was known as a past training provider. In all areas except Western Highlands, there was awareness of financial literacy training offered by micro and/or commercial banks. However, none of the communities had active connections with any local training providers.

The most disadvantaged community was the Western Highlands area of Lumusa, where all agencies except the church had withdrawn services, due to ongoing tribal conflict. Our project was the first new activity for 15 years. Interestingly, it was only in this site that the community recorded the indigenous and experiential knowledge of older people.

Commercial bulb onion and cabbage production

This training was conducted by FPDA in the Western and Eastern Highlands project areas using a market-oriented extension and production approach with model (demonstration) farms. FPDA had secured markets for both crops in advance of the training. VCEs and their families worked on the first demonstration farm and then were encouraged to replicate the process in their own village and become a demonstration farm for other local farmers. VCEs reported an increase in knowledge and skills that were also transferable to general food crop production. This included separate plots for each crop, soil management, nursery construction, pest management and irrigation.

The process of a model farm did demonstrate what was required for commercial production. Many of the VCEs recognised that this practical approach helped develop their knowledge and skills. However, the most significant challenge of the model farm training was the intensity of the physical work and the time commitment. The training involved two days per week for six months, which was a great challenge for the VCEs who had to maintain their own food gardens as well.

While the intention had been to have male and female couples involved in the model farm, initially only women were selected by the area leaders. Although men were then asked to participate, women continued to carry the burden of work on the model farm. Incidents of domestic violence were reported by women in both areas due to the demands of the model farm. The lack of water to the model farm site and the drought in the Western Highlands meant that women spent long hours carrying water. Men also identified the difficulties associated with the work of the model farm.

In both areas, there was significant fluctuation in the commitment and availability of farmers to work on the model farm, resulting in the committed farmers taking on significantly larger workloads and time inputs to ensure the viability of the model farm. This demonstration farm process revealed the significant shift required for semi-subsistence farmers as they begin to engage in commercial agriculture.

Poultry production

In Jiwaka, through the training provided by UniTech, VCE families were given 20 chicks each so that they could apply the learning to each stage of poultry production and use the income from the chicks to increase their poultry production or another aspect of their agricultural production. A further benefit of poultry production was that the manure could be used on the garden and/or sold to other farmers. As one male VCE noted, *‘It empowers us to build up the wealth.’*

The poultry feed was produced from local sweet potato or cassava. According to the UniTech trainer, the technology was highly accepted and the use of local feeds has reduced the poultry feed cost by 45–50%. The poultry feed training was taken up enthusiastically by female and male farmers; however, the women leaders indicated that a milling device was needed, as many injured their hands. A low-cost milling model is being investigated by UniTech. Families have made good profits from their poultry, and a number have continued beyond the trial (see Economic impacts).

In the Islands Hub, poultry has been the preferred income project for families. In New Ireland, one of the DPI officers who was not part of the project recognised this potential and has recently funded two project villages to further develop poultry, with a special focus on youth. In Bougainville, the women VCEs who are ward members are lobbying their Halia constituency member to support a hatchery, which will then provide chicks to the trained VCEs.

Overall, the poultry training saw a quick return for farmers on their time and has enabled women to have a significant and manageable role.

Other agricultural production

The training on traditional vegetable growing provided by NARI (ASEM/2012/084) was highly valued, as it gave new information on both the nutritional value of crops and their marketing potential. From the fruit and nut value-add training (FST/2014/099), the solar drying was a totally new concept; there was considerable interest in applying this technology for nuts and excess fruit. The use of the galip nut in bread and biscuits was seen as a new marketing opportunity; however, women reported that they would not use the jam recipe as the sugar cost was too high.

Agricultural livelihood skills

For both the IATP Sustainable Livelihoods and FFT training, gender equity in agricultural and financial decision-making within the family is a core concept. In the evaluation field work, it was difficult to differentiate what people learnt and put into practice from FFT training and what was learnt and put into practice from training provided on Sustainable Livelihoods by IATP. A number of participants cited sustainable livelihoods training as a prime mover for changes in household planning and communication, budgeting, agricultural production for market etc., but it was unclear whether they might also be using ‘sustainable livelihoods’ as a catch-all for both IATP and FFT training. Overall, there appeared to be a valuable synergy between the FFT modules and the content of this training. As well as identifying specific skills such as budgeting, planning or time management, VCEs also reported gaining greater confidence in problem-solving and decision-making.

Basic business skills

The main focus of business skill training was the need for record-keeping and book-keeping. This topic is an essential first step in the development of farming activities into an agricultural small business. However, although it was run immediately after the Sustainable Livelihoods training and by the same trainers, it appears to have been less valued. This is not surprising, given the low levels of education of many of the VCEs. However, at end-line 69% of Highlands VCEs (38 F, 28 M) and 66% of Islands VCEs (23 F, 28 M) reported that they now keep records individually or as a couple.

Banking

Although PNG is recognised for very high numbers of ‘unbanked’ citizens (92.92%; Eves et al., 2017, p. 6), prior to the project all groups had some access to banks in nearby towns; however, the

Western Highlands group had to travel two hours by local bus to use a bank. By the end of the project, Nationwide Microbank had trained project members in every area as bank agents, which has enabled women and families to conduct banking in or near their own village.

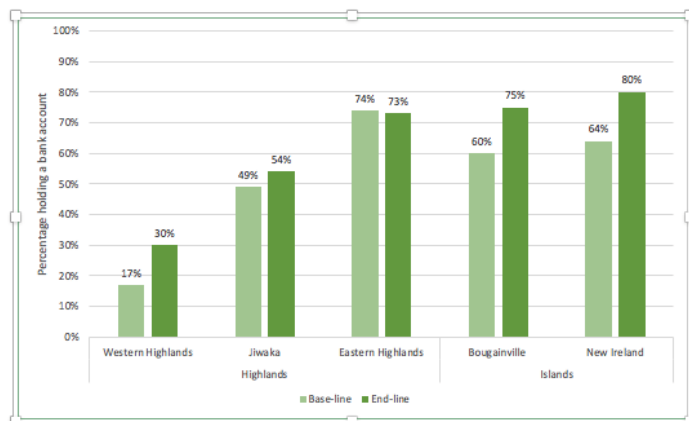


Figure 5: Percentage of VCEs with bank accounts at baseline and end-line (by area)

N=WH baseline 35/endline 36; Jiwaka baseline 32/endline 26; EH baseline 31/endline 15; ARoB baseline 35/endline 29; NI baseline 35/endline 32

As can be seen in Figure 5, in the Highlands, the most significant change was in the Western Highlands. When a local bank agent was made available, bank accounts increased by 13%. Similar increases were seen in the Islands, with increases of 15% in Bougainville and 16% in New Ireland.

Importantly, of the VCEs who had accounts, a number had used their account in the previous month (44% New Ireland, 34% Highlands, 17% Bougainville). After opening an account, use of a bank account is the next step of financial development.

Budgeting and saving

Although regular banking is long-term financial skill, the ability to budget and save are the essential components for farm and family financial management. The budgeting component of this training was highly valued, with 90% of Highlands VCEs and 79% of Islands VCEs reporting that they now budget. Many also said they now save money: 94% of Highlands VCEs, 88% in Bougainville and 84% in New Ireland. Many VCEs reported having a new attitude to the management of money.

One thing I see, before there wasn't good management. Because how we get money – we ... divert money to ... drinking, gambling ... but now, since about two months ago it is stopping, it is reducing ... Because people know about management. When you get a little money from selling copra – to use it well – for long-term things such as housing. (F community leader, ARoB)

The small trial of a Savings Club in Hahalis ward, Bougainville, involving 30 self-nominating families, showed considerable promise. Although the final report has not yet been submitted, a savings group in Gogohe constituency, Buka, that piloted the model, saved over 60,000 kina in its first cycle. Such activities enable people to develop positive savings behaviours, which are encouraged and supported by their peers in the group. Through group activities, people are able to see how much can be saved by families 'just like them'.

There is considerable debate in the literature on whether microfinance programs actually empower women. Haile and colleagues (2012) have reported that microfinance programs may empower women in three of the four dimensions of empowerment: expenditure decisions, ownership of assets (jointly or independently) and reduction of domestic conflict. However, the authors note that this type of program does not change the division of labour. The integration of financial literacy training within the FFT program, with its multi-faceted gender equity processes and change agenda, may go some way to addressing this.

Opportunities and challenges

Using the skills and knowledge gained through brokered training provides a channel through which FFT principles can be put into practice at the same time as producing visible results (e.g., market garden plots, a small poultry project, marketing new vegetable varieties). Tangible or visible results are very important as evidence to others in the community of the validity of the efforts participants

have put into their activities, and by extension the credibility of the training. Further, it increases the legitimacy of VCEs as peer educators.

Combining agricultural training with FFT training publicly legitimises participation in and implementation of FFT learning. It provides an avenue for the practice of FFT principles and increases the range of skills that VCEs can use as peer educators. It follows that, if brokered training flows on from and explicitly connects with the underpinning FFT principles, this could make a significant difference to the valuing and sustainability of FFT approaches. The challenge now is to encourage government and other institutions to invest in training opportunities that assist semi-subsistence farmers to move towards more commercially oriented agriculture.

7.2.2 *Developing partnerships with schools*

This sub-objective focused on the following research question:

How can agricultural learning be best incorporated into primary school learning?

The driver for this research was the fact that most PNG children will not continue their education beyond primary school. In rural communities of PNG, most children will become farmers.

The PNG Government has now enacted curriculum reforms that encourage the use of indigenous knowledge and language systems for teaching school subjects. However, the majority of PNG teachers have little experience in incorporating students' language, culture and prior knowledge into the curriculum. A major reason that teachers are not engaging in culturally relevant teaching is limited teacher training and professional development (Simoncini & Pamphilon, 2018). These factors led to our focus on culturally relevant learning for children who will be the farmers of the future.

Professional development (PD)

Through collaboration between UC, NARI, UniTech, PAU and Sonoma Teachers' College, a professional development (PD) package for in-service and pre-service teachers that brought together good teaching practice and agricultural and livelihood learning was trialled and developed.

A digital PD format was considered to be the most appropriate form of PD after a series of traditional face-to-face PD workshops were trialled. Secure digital (SD) cards, used with low-cost mobile phones, are pre-loaded with agricultural and livelihood teacher materials in addition to teaching strategies that promote 21st century skills.

The final PD package contains:

1. 12 agricultural information sheets adapted from NARI and ACIAR materials⁸ (not assigned to any particular grade) on:
 - composting
 - cover cropping
 - fallowing
 - manure
 - weeds
 - insect and chilli pesticides
 - crop rotation
 - mulching
 - poultry management
 - pig management
 - making cassava bread
 - making kaukau bread
2. three livelihood videos produced by UniTech on making soap, kaukau bread and peanut butter, demonstrating the use of readily available village materials
3. PDF versions of the Maria books (*Maria's family goes to market*; *Maria's family saves their kina* and *Maria's family raises chickens*)
4. Maria book posters (*FFT budgeting and saving together*; *FFT earning and saving together*; *FFT selling at the market* and *Looking after chickens*)

⁸ Making cassava bread, making kaukau bread, raising pigs and raising poultry information sheets were adapted from NARI resources. The other eight information sheets relate to crop production and use information and photos from Seta-Waken, Malie, Utama & Palaniappan (2016).

5. 'Skills for a Changing Pacific' poster, which explains how children in the Pacific need to bridge both traditional ways of life and Western influences (completed in collaboration with Ian Thompson of University of the South Pacific)
6. five teaching module videos demonstrating classroom activities, plus written supplementary information.

The PD materials are available on the [Family Farm Teams website](#).

An evaluation of the project will be conducted in late 2019 in New Ireland and East New Britain, with teachers who received the SD cards in July 2018. A comparison between teachers who attended the workshops and received SD cards and those who only received the SD cards will be made.

The New Ireland Director of Education has committed to rolling out the training and digital package across all primary and secondary schools in the province in 2019. This is a welcome outcome, as provincial support is essential for the success and sustainability of programs. Other provinces are more likely to take up the PD package if they see successful implementation in New Ireland.

Opportunities and challenges

International literature indicates that for PD to be effective it must be continuous and include training, practice and feedback, adequate time and follow-up support. Effective PD programs have teachers engage in learning activities that are similar to those of their students and encourage learning communities where teachers can share their expertise and experiences systematically (Schleicher, 2016).

The intent of the digital PD package is to facilitate a community of practice where teachers can work together to unpack the materials and teaching strategies contained on the SD card. It remains to be seen if this is what actually happens. It may be that the SD cards act only as a replacement for a traditional PD folder or manual. If the SD cards are used only as a repository for the agricultural and teaching materials, the project will still have been successful. We will have provided teachers with current and accurate agricultural and livelihood information and teaching strategies that promote culturally relevant teaching and 21st century skills. Teachers in PNG have limited access and opportunities to receive PD, and teachers can go back to the videos and re-watch them as many times as they need to understand a new skill or strategy. Communities of practice may be too ambitious at this stage of teacher readiness and capacity. It will, however, introduce this idea that may be implemented at a later date.

With the majority of the PNG population living as subsistence farmers in rural and remote villages, school education should provide children with the skills and knowledge that will help them both now and in the future. Teachers in PNG need assistance in providing students with current and accurate agricultural and livelihood information. Importantly, focusing on agriculture ensures that the curriculum is culturally relevant, thus supporting children's learning and motivation to attend and remain in school. It is expected that children will pass on knowledge to their families, as the assessment tasks focus on sharing knowledge with families and the community.

The teaching skills embedded within the agricultural modules focus on 21st century skills that are necessary for future global citizens. Although most PNG children live in farming families, they are part of a rapidly changing world. This has been an important pilot project for learning how to integrate agricultural and livelihood information into the curriculum in PNG. Given the keenness of PNG teachers to engage in place-based agricultural learning and assessment, the next research question to investigate is if, how and where FFT learning activities can be integrated into the breadth of the school curriculum.

7.3 Objective 3: Peer-to-peer agricultural extension

To further develop the peer education model of agricultural extension

In what ways does peer-based agricultural extension support the development of women as learning facilitators?

This section presents the findings of the trials of different VCE models, the VCE skill development, and the lessons learnt for the development of women VCEs.

7.3.1 Village Community Educator (VCE) models

Each area trialled a different composition of VCE teams who covered a ward and/or community.

Table 19: Gender composition of VCE teams, by area

Area	Gender mix	No. of communities
Bougainville	Equal female and male (focus on Halia Widows Association)	10 wards
Eastern Highlands	All women (with male spouses where possible)	6 communities
Jiwaka	Equal female and male	6 communities
New Ireland	Equal female and male (linked to TADEP PNG Cocoa project)	2 wards
Western Highlands	All women (with support of 8 male elders)	6 communities

In the Highlands Hub, the VCEs were selected by the partner agency, with the main criterion of 60% women. In Western Highlands and Eastern Highlands, the agencies initially chose all-women VCE teams; however, this was negotiated after the first workshop to also include men.

No requirements for education or literacy levels of VCEs were prescribed; rather, the focus was on the people who had the time and interest to be part of the project. As a result, 48% of VCEs had only attended primary school, with a further 16% (all women) never having attended school. Only 34% of VCEs were literate in English; in the Western Highlands area only 46% (all women) were literate in Tok Pisin. Although the training workshops used low literacy resources, participatory methods and in the Western Highlands Tok Ples translators, at first this style of learning was challenging for the VCEs with no education experience. Across the year, the VCEs did become more comfortable with workshop processes and became highly engaged as learners. However, some of the VCEs with low education and literacy felt they did not have sufficient confidence to fully participate in the delivery of training.

Given this, the selection of VCEs in the Islands Hub moved to equal numbers of females and males and the request that VCEs had completed primary school and had basic literacy in Tok Pisin and English. As a result, of the Islands VCEs, 96% had completed primary school or higher and all but one VCE had some English literacy. The VCEs usually chose to work in small groups in Tok Pisin, with a number being comfortable to report back in English. This literacy also enabled good use of the workbook, which was in both English and Tok Pisin. It is clear that VCE teams are most effective when they have gender balance and members who have completed primary school.

There were further lessons on the selection of VCEs from the Islands Hub.

- In Bougainville, the Bougainville Women's Federation (BWF) had chosen to focus on the widows association, as these women had the greatest needs. However, it was reported that other BWF members in Halia felt overlooked and 'actively campaigned against the project' (project leader's report).
- In New Ireland, the decision was made at the start of the project to work in two wards that were already engaged in the TADEP cocoa project. It was hoped that this would enable synergies to emerge. The two cocoa project leaders were asked to select VCEs from the farmers they were working with. In one area, this worked well; in the other, the male

leader withdrew from the project and actively campaigned against the project. This situation was eventually resolved by the chief maimai,⁹ who highly valued the project.

These two examples illustrate the tensions when bringing any form of assets into village communities. In both cases, local agencies were the project leaders; however, these dynamics still emerged and were challenging. Despite these challenges, in both areas, the agencies and the VCEs noted that communities became increasingly supportive as the program was rolled out, and there have been numerous requests for further local training.

7.3.2 VCE peer educator skill development

In the Highlands, VCEs in the FFT workshops were provided with training activities on:

- designing training programs
- planning and facilitating training sessions
- group dynamics
- evaluating training sessions.

Although respondent numbers were low in the end-line surveys in the Eastern Highlands and Jiwaka, as can be seen in Figure 6 and Figure 7 below, VCEs in all regions reported improvements in their training skills and knowledge.

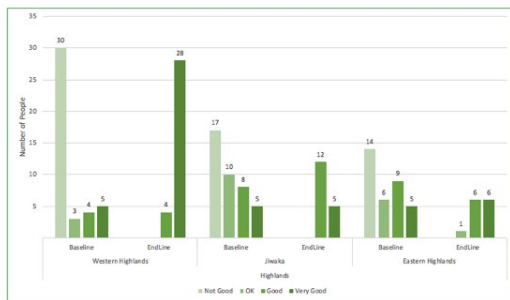


Figure 6: Highlands Hub VCE pre- and post-training knowledge development (by area)

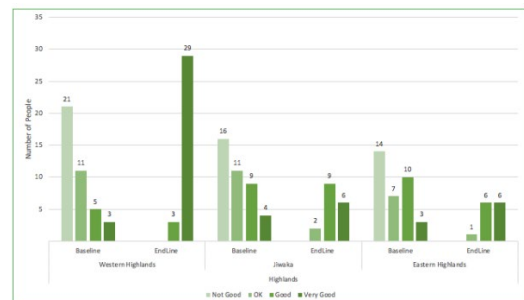


Figure 7: Highlands Hub VCE pre- and post-training skills development (by area)

In the Islands Hub, the training on being a trainer was separated out from the FFT workshops and presented on a separate day. Overall, it is clear that in this model the VCEs developed a much better understanding of their own skills and knowledge through the training process. However, as shown in Figure 8 and Figure 9 below, it appears that the VCEs' initial assessment of their own skills may reflect a misunderstanding of the question, especially in New Ireland, where most had reported they had little experience as trainers. Therefore, a pre- and post-comparison has little validity. The analysis below focuses on the post-training knowledge and skill development.

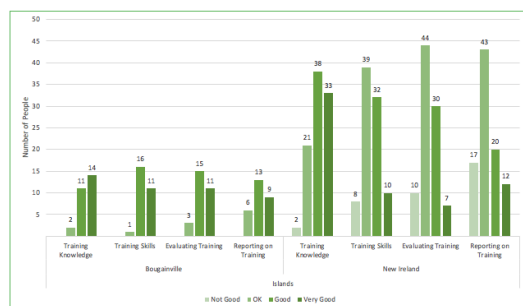


Figure 8: Islands Hub VCE pre-training knowledge and skills (by area)

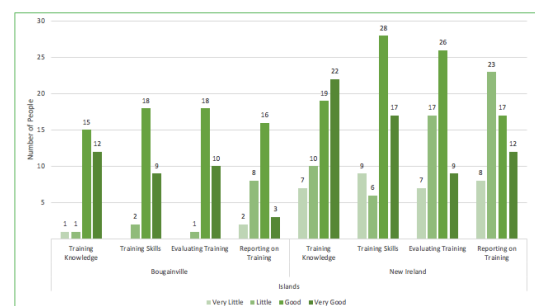


Figure 9: Islands Hub VCE post-training knowledge and skills (by area)

⁹ Malagan traditional leader.

Figure 9 shows that most Bougainville VCEs rated their skills and knowledge at the end of the project as ‘good’ or ‘very good’. It is not surprising that a number did not highly rate their reporting skills, as the VCE leaders accepted verbal reports to ensure they got regular feedback. An example of advanced knowledge of training is evidenced in the comment of a female Bougainville VCE:

When you go house-to-house you can teach the people but they also teach you.

The New Ireland post-training data show that a good number of VCEs felt that their training knowledge and skills were ‘good’ or ‘very good’, which reflects the impact of the revised program, where a day was dedicated to each module, as well as a review day for training skills and review. Although some attention was paid to evaluating and reporting on training, as there was no application of this learning due to lack of local staff leadership, it is not surprising that this skill was rated low.

7.3.3 Training other farmers

VCEs in all areas trained their own family members, some neighbours and others from their clan-based networks (wantok).

What I am doing is I have started with my immediate family and I have told them that if others see and like what they see, then please, don't say no. We will help other families to also get the same as us. I believe this will build up the whole community to the next level where we can sustain our livelihoods in each family in the communities. (VCE F leader ARoB)

However, VCEs were also asked to work in teams to deliver training to local groups. In the Highlands, this had challenges: sharing knowledge outside of wantok or clan groups can be problematic, as jealousy is common between clans. Further, many VCEs were not familiar with working cooperatively in groups to deliver training. Despite this, VCEs in all areas reported sharing their knowledge and skills with groups with whom they had an affiliation (e.g., church, saving groups).

Anna's story¹⁰

Anna attended the FFT training with a male relative, as her husband is formally employed.

Of all the trainings that Anna attended, she feels that the FFT is the best of all because it has the basic principles that families need to adopt in order to become successful and stable families in the community.

Because Anna has her network in the church, her women's group were the first to receive the FFT training from her. Anna also has a network of primary school teachers through her husband who works in the Education Department ... she conducted a two-day training to 31 primary school teachers on her own initiative without support from outside.

According to Anna, she felt she has found something precious that must be brought to the attention of other families. There is a burning desire in her and so far Anna has rolled out the FFT trainings to 200 participants in eight communities in her province. In Anna's own words:

I have to train as many as I can so families in Jiwaka must know the importance of working together and sharing of responsibilities in the home which is the foundation of a stable home.

Through Anna's active engagement, she has built her capacity and has since gained respect from her husband and people in the communities of Jiwaka.

In contrast, in Bougainville group rollouts were conducted through ward committees, the church, the widows association and the BWF. A small number of VCEs trained specialist groups, such as

¹⁰ Prepared by Veronica Bue from her research project with the VCEs from Jiwaka. Pseudonyms are used.

young people or people with drug and alcohol problems. In New Ireland, group rollouts were conducted at community day,¹¹ through the churches, and extended to one ward further down the coast and one in the more distant Namatanai. Thirty VCEs led by Pastor Motely Sarafin provided an afternoon training session to 300 Year 9 to 11 girls attending Madina Secondary School. The VCEs initiated this training as they believed it would help the young women as future family leaders as well as avoid early marriage and/or pregnancy.

It was initially difficult for the VCEs to engage other farmers in the training. VCEs noted that many farmers preferred to work in their gardens rather than attend training. This was not unexpected: the concepts of a family farm and a family team may not seem relevant to pragmatic subsistence farmers. VCE leaders reported that people in the community tended to stand back and watch the VCEs and would only be responsive once they saw the benefits.

Some people like to see it first before they will consider adopting it, they are the [doubting] Thomases. They don't have the strength to do it themselves or are lazy until they see how someone benefits from it then they do it. (M, ARoB)

VCEs used changes in their own lives as examples and opportunities to share their learning.

The community has changed. When they noticed what we are doing, they started to copy our actions and everything from our lifestyles to garden work. (F, WH)

In all areas, VCEs commented that the training positively impacted on their confidence and status in the community. While some did not feel confident to run training unassisted, all shared great pride in their achievements as trainers in their community. They noted the respect they had gained from their new skills and knowledge. This was especially important for the younger female VCEs.

You introduced a lot of new and very important concepts to us. We were simple village girls and had no status in the village but becoming a VCE has changed our status in our communities. We are more confident to stand and talk in our community meetings and our communities have recognised us as leaders. We are now confidently training others in our community. (F, EH)

However, not all VCEs were supported by their families: in the same area, there were some reports of violence against women VCEs by their husbands when they returned home from training.

The VCEs' capacity to train others was enhanced when there was strong support from the agency and VCE leaders. The area project leaders had various levels of experience as trainers and project managers, which led to varying impacts upon VCE development. The evaluations indicated that it was difficult for some VCEs to feel fully confident to train others after only one workshop. To compensate for this, agency staff and area leaders in Bougainville, Jiwaka and Western Highlands provided refresher training to VCEs. One important lesson arose in New Ireland, where, despite significant agency leadership failure, the VCEs continued to work in their communities and to extend their work to other wards. At the end of the project, the New Ireland VCEs were able to articulately explain how they worked and what they had achieved. They explained that they did lose confidence when they did not receive agency follow-up visits but instead worked together as teams to support each other and share what they had learnt.

The VCEs who had prior experience as trainers were the most confident and skilled. Through a jointly funded project between the Jiwaka agency Voice for Change and our project, two women and two men were offered advanced training to become what the agency calls FFT community-based extension workers (CBEW), joining a larger team of CBEWs with specialisations in agricultural development such as poultry and piggery (<http://www.voiceforchange.ngo/programs>). In one year, these trainers reached a further 14 communities.

¹¹ A cultural practice in which every Monday is dedicated to a large community meeting followed by community improvement or cultural activities.

As a result of the range of achievement levels of VCEs, the project website now lists [three levels of training accreditation](#). The FFT program will now seek ways to develop formal training accreditation within the PNG Community Development Worker National Standard.

7.3.4 Peer education practices

Through their training experience, a number of VCEs were able to articulate some of the ways that they can help subgroups in the community to learn, for example:

- young women: lead by example, integrate with sport, go door-to-door, provide food
- older women: tell stories, sing with them, show pictures
- young men: peer groups, as part of other activities such as hunting or fishing, delegation of roles
- older men: talking in language, participation, pictures, drama, talking together.

Practical activities were recommended for all age groups. Women VCEs reported that they used opportunities at church, school and market to share the important parts of the training.

I have shared with others, mainly with small groups of people. I talk about different topics depending on the situation. For example, when I sit with those who play cards, I would talk about the importance of gardening and selling their garden produce to earn money. When I am with women farmers, I talk about budget and saving, I also tell them about expanding their gardens. My conversation with different groups takes about 10 to 20 minutes. (F, EH)

The VCEs in all areas stressed that, before you can be a good trainer, you need to have first made the changes in your own family.

We all have different levels of knowledge and understanding, so we must understand the levels. We can't be too high. We must use the right language. You must be part of the group and participate. You also must have experience – you can't teach what you don't know, you must have done it yourself. (M, ARoB)

This need to change yourself first is epitomised by the following story from a New Ireland male VCE after he completed the family communication module where he learnt about using a talking stick in which the person with the stick talks and the other listens, then the reverse.

A male VCE's story of change

I was a stick that talked [acting that he hit out]. I swore at my family all the time. Many men here do this, but after the training I said to my wife that I would not hit her. I learnt to keep silent then use a talking stick. I have not hit her since the training and we are happy and our four children are happy. What we do is talk, listen, think, decide, talk, listen, think, decide.

7.3.5 Key Family Farm Team (FFT) learning activities

In the review process, VCEs were asked to identify which learning activities were the most effective and why. Figure 10 presents the most effective activities that were cited in all areas.

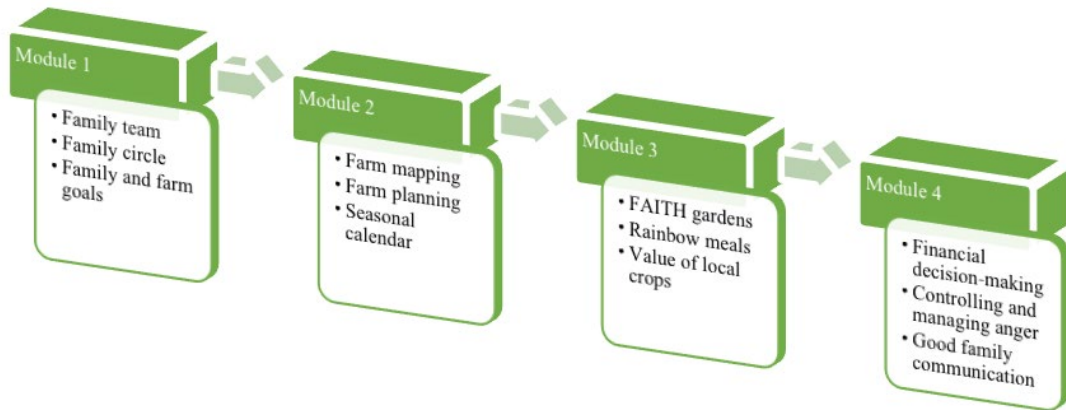


Figure 10: Most valued FFT activities by module

The experiential action learning cycle was used across the VCE training as a key theme. As part of the Islands Hub review, VCEs were asked to identify any examples of if, how or where any of the FFT activities fitted into this cycle. All groups identified that, overall, the FFT activities provided ‘big thinking’ – that is, abstract conceptualisation – for themselves and the farmers they worked with.

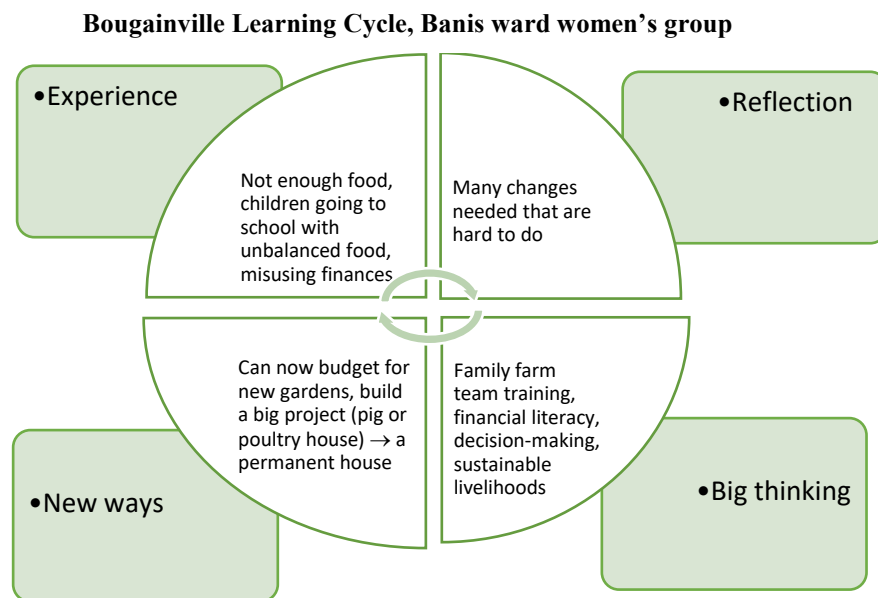


Figure 11: The learning cycle, Family Farm Team (FFT) activities

Most female and male VCEs felt comfortable with the FFT activities, as they saw them as being compatible with their culture and church. This gave them confidence as VCEs and enabled them to connect their teaching to their existing belief systems.

The FFT program doesn’t challenge our Christian values – if anything we’ve been strengthened and empowered. (F VCE leader, ARoB)

7.3.6 Development of women as peer educators

As noted above, many women found that being a VCE increased their confidence and raised their status in the community.

Christianity

The Christian faith was named by women in all areas as a source of strength. As VCEs, women found that the FFT principles were compatible with Christian family teachings. This provided a

discourse for them to engage the men and youth of their family. Groups in the Islands noted that it had been easy to adopt the training concepts because of their faith and that their faith had also been enriched by some of the concepts from the training (e.g., working as together as teams for the good of the community).¹²

In a complementary study, Eves (2016) in his work with New Ireland men who had joined Pentecostal churches similarly found that Christianity enabled men to take up a new and positive masculinity. The congruence of FFT principles with Christianity has the potential to further build the important social capital that is developed through the churches within PNG (see Hauck, 2010).

A number of practical lessons also emerged: the training timeline, the training materials and the vexed issue of allowances.

Training timeline

The training timeline was designed to enable the project to assess the effectiveness of the VCE process in a number of PNG locations. In the first hub, it was clear that the nine-month process was too short to enable the effective development of VCEs; therefore, the Islands Hub process was extended to 15 months. This did enable the action research to be conducted and the training model to be assessed. Given that women need to maintain their gardens and family life while developing their skills as trainers, the recommended model for VCE development would be to provide training and support over at least a two-year period, with all training delivered in Tok Pisin (or Tok Ples where possible). Ideally, within this program there would be regular support visits by staff and observation of and feedback to VCEs. Participatory monitoring will be key to understanding the ways that FFT training is delivered, to assess what changes participants make within their families as family farm teams (e.g., shared workloads, family decision-making) and how the community more widely is affected, and to help identify solutions to any problems that arise.

Training materials

The workbooks were valuable training adjuncts, especially for women with little education. The VCE manuals produced by the project were tailored to reflect the actual activities in each area so that VCEs could use the manual after the project conclusion. As many women have low literacy, it is crucial that all materials are in Tok Pisin and English. It is important to note that the FFT manual (ACIAR Monograph 199) is designed for experienced trainers, not for those working in their own village. We acknowledge the observation of evaluation consultant Rebecca Robinson:

In many places in PNG people don't freely share information and skills (since there is power in knowledge), and there are risks in a process that asks facilitators to decide what learning will be passed on.

We support her recommendation:

There may be advantages in having materials that are a little more prescriptive (but retain collaborative problem-solving),¹³ which can be picked up as a package and used with fewer long-term capacity building inputs, and which may require fewer external inputs to be effectively replicated. There are also advantages in having simply written materials that literate peers/participants (and non-participants) can independently read, learn from, and reflect upon ... The ability of PNG organisations to independently replicate, maintain or restart such programs comes down to many factors, and having a product that participants value and use is critical, but also critical are having a readily available, clearly laid out, easily implemented process, and easily reproduced and easily followed materials.

¹² Focus groups have been conducted with women and men in both areas to explore the compatibility of family farm teams and the Christian teachings. Findings from the focus groups are being written up as a journal article.

¹³ Even if materials are more prescribed, as facilitators gain experience and confidence they adapt and change how they use them.

Further materials for the use of PNG agencies and village leaders will be developed and placed on the project website.

Allowances

VCEs were not paid to be trained but were given a small allowance when they trained others and provided a report (usually verbal). This allowance is important for many women, as they can use it to buy food et cetera to compensate for the days they are not in the garden, or to placate a non-supportive spouse.

In the Eastern and Western Highlands, the trainers' allowance caused some conflict between VCEs and leaders. The more experienced leaders managed this effectively; however, the less experienced leader found the situation a challenge.

When they notice that VCEs were inviting people to attend their training, they refused to join because they were saying these group of women are trying to make money out of us so ignore them. (F, EH)

Despite these issues, most VCEs focused more on the benefits gained for themselves and the community than they did on financial gain.

Two forms of payment were given to VCEs in the Islands Hub. In Bougainville, VCEs received a small allowance to cover their travel to the training venue and to buy food, as food was not provided in the one-day workshops. In New Ireland, the VCEs were provided with a good meal during training and not given an allowance. In both areas, training numbers were consistent; it did not seem that the provision of a meal or the allowance was the reason for attendance. The second form of payment was to give a small allowance to VCEs when they rolled out the training to others. This was to cover the costs of not being in their gardens as well as their transport and food costs. In Bougainville, this payment was given by the project leader on the receipt of a report. However, the project leader noted:

The main challenge I have picked up from the men VCEs is the understanding of the project goals and aims. Most men VCEs were in the project for allowances, which overshadowed the purpose and goal of the project to families and the community. As a major challenge, most men VCEs placed importance on allowances then the outcome of the knowledge and skills.

A different problem occurred in New Ireland: the acting project leader did not require any reports and paid large numbers of VCEs for attending the rollout training to groups even when they did not actually contribute to any training activity.

It is clear that providing an allowance is a problematic issue that requires further consideration. There is a growing concern about the abuses and downsides of 'per diems' or allowances.¹⁴ There are arguments that it may be better to work with a smaller number of motivated farmers who are early adopters rather than be caught in the many challenges that come from even small payments, as in this project. This issue needs to be considered on an area by area basis.

7.3.7 Other Family Farm Team (FFT) training models

Although the major focus was on the further development of the VCE model that was first developed in ASEM/2010/052, four other models of training were piloted in the Islands Hub in order to develop other forms of FFT module delivery that could be used in agricultural projects and agencies. The adaptations will now be incorporated in the second edition of the FFT training manuals.

¹⁴ See for example GlobalDev (2018), *Per diem: the petty corruption that hurts African development*. <http://globaldev.blog/blog/diem-petty-corruption-hurts-african-development>

Intensive training for trainers

This trial was conducted as part of the TADEP Collaborative Grant in partnership with the Bougainville Cocoa project (HORT/2014/094). The aim was to train key staff in the cocoa project who could then deliver the training to farmers attending the resource hubs developed as part of that project. The three-day model was found to be adequate for initial training, but follow-ups and refreshers are now required.

Intensive training for farmers

This trial was conducted as part of the TADEP Collaborative Grant in partnership with the PNG Cocoa project (HORT/2014/096). The aim was to determine how to deliver intensive training for farmers. The trial indicated that the FFT activities could be covered in three full days, with module 1 on the first day, modules 2 and 3 on the second day and module 4 on the final day.

Training for fishing families

This trial assessed whether the FFT modules could be adapted to meet the needs of fishing-based communities. It was conducted with the fishing families of Nusa Lik Island, near Kavieng, New Ireland, who were involved with the jewellery making training conducted as part of FIS/2014/060 *Developing pearl industry-based livelihoods in the western Pacific*. The trial showed that the modules could be successfully adapted for fishing families.

Family farm planning concepts for farmers

This trial assessed whether a one-day introductory FFT training run at a local agri-business would be appropriate for the business and of interest and value to farmers. The evaluation showed that the farmers valued the concepts of a farm as a family business and the processes of planning (daily and across the year). The business believed this was a good value-add they could provide to farmers, that would have benefits to their business if farmers were able to plan for purchases such as tools, seedlings and pesticides.

7.3.8 Peer education model of agricultural extension

There has been ongoing concern about the effectiveness of the traditional model of agricultural extension, focused on top-down, expert driven transfer of technology. This is especially so in PNG, because of the traditional model's ineffectiveness in reaching women smallholders (Cahn & Liu, 2008). This is further exacerbated by the fact that there are limited extension services of any kind in every province of PNG. Given this context, it is important to understand how and where a peer education model can be effectively applied.

The project has demonstrated that peer-to-peer learning is an appropriate model in PNG: it builds on cultural norms that focus on the collective rather than individual. This does not mean that peer-to-peer learning will necessarily extend across a whole community, as most people share primarily within their wantok¹⁵ network, the traditional process for ensuring the good of the collective through sharing and mutual support. Although the wantok system is seen to be breaking down and/or becoming a form of asset manipulation, it does provide a culturally sanctioned and long-standing sustainable practice for sharing skills and knowledge. These sharing networks are enhanced by the role model or 'copy-cat' effect, in which PNG farmers adopt new practices when they see the concrete effects of change in other families.

Although the four FFT modules have been designed to introduce the concepts of equitable and effective family farm businesses in a scaffolded way, as peer educators the VCEs take on and share what is relevant and valuable to them, their families and their context. As such, the work aligns with Krupar and Prinz's (2016) concept of 'Training for Transformation'. The FFT participatory training model seeks to empower and hence trust the farmers who are trained. The VCEs know

¹⁵ A set of relationships and obligations between individuals, usually characterised by common language, kinship group and geographical area of origin.

their family, their community and where to start. However, they also need to have ongoing support and a safe environment to explore the challenges they face and see in others. With such support, VCE peer educators can become effective and dynamic local change agents.

The training of VCEs as peer educators through a participatory process based on Freirean principles (1970) holds that farmers are not empty vessels to be filled but people with prior knowledge that should be built on, extended and challenged. If they are engaged with ‘problem-posing’ education, they are empowered to make decisions relevant to their own context and place. This is what Rickards and colleagues (forthcoming, p. 5) have called ‘scaling down: embedding change in the mental models and cultural worldviews of those involved’. As Lauzon (2013, p. 250) argued, the focus of agricultural extension should be on capacity development which is:

... more than simply acquiring knowledge and skills, but putting knowledge and skills to work in meaningful ways and reflecting and continuing to adapt and refine one’s knowledge and skills to meet emergent challenges, improving performance and increasing developmental value.

7.4 Objective 4: Family farm teams

To examine the uptake and impact of a family farm team approach to farming for women and girls

What is the uptake and impact of the family farm teams approach for women and girls?

This section reports on the changes in families following the training: working as a team, shared roles and workload, improved family relationships, changes in family aspirations and improvements in nutritional security. Further impact data is found in Section 8, Impacts.

Domingo and colleagues (2015, p. 62) have noted that as women have a triple burden from their reproductive, productive and community management roles, interventions should combine improving women’s access to economic assets or income with providing training or knowledge, engaging with men and reducing women’s triple burden.

7.4.1 Working as a family team

The majority of families reported that they were now working together in a more cooperative and effective way. Both females and males spoke of the value of working as a family team. Their comments show that family teamwork extended from farm roles through to family roles.

Before the training [my] husband went on his own and I would struggle to work along in the garden and tried to do other things for the family. After the training we are always together in church and everywhere else and we work together. (F, WH)

I have changed, I help my wife and children to do work for our family. (M, WH)

Because of the training we are clear what is the work of the father, what is the work of the mother; part for the father part for the mother and I feel that this is alright, that it is balanced now. People say now that my husband isn’t as he was before. And his mother too she says he isn’t like he was. He didn’t used to help. Now he helps. Now when I talk, he listens; before when I talked or wanted to point out something he would over-rule me and not admit his wrongs. But now he listens. Now my husband feels pride (F, NI)

7.4.2 Shared roles and workload

Changes in roles were reported all areas. While women often kept the role of marketing, in other areas of work – such as household duties, planting, looking after food gardens and harvesting crops – both women and men reported that much of this work was ‘sometimes’ or ‘always’ done together. Both women and men noted the value of planning how best to allocate roles to their family and helping everyone to see the importance of the family as a whole. Time management was an important facet of negotiating and managing workloads.

My husband and I have learnt to manage our time, this has been the secret of our success. Without managing our time, we will not be able to do everything we have achieved so far.

Managing of time and sharing of our work has been the greatest work we have done so far. (F, Jiwaka)

A number of women and men spoke of shifting the way household and garden work was done within the family. The qualitative data suggest that participants gained an increased consciousness of the value of shared work, which did lead to behaviour change.

As a family we focus on making a large house. Also raising money within the family... Before we didn't work together – each did their own thing – it wasn't good. Now we talk and plan together. (F, ARoB)

As can be seen in Figure 12 in the retrospective survey both Highlands female and male VCEs perceptions of women's workloads as greater than men's had changed. In Jiwaka and the Eastern Highlands a large number of men did acknowledge that at the end of the project they could see that women did have a greater workload than they did. In the Eastern Highlands and Jiwaka, more men than women noted that the workload was always higher. There were smaller changes in the Western Highlands however both genders did clearly acknowledge that women had higher workloads.

Life is much better because my whole family is sharing the work equally. We make decisions together. I listen to my wife and work with her. I always invite my children to express their views about the plans my wife and I make. (M VCE leader, Jiwaka)

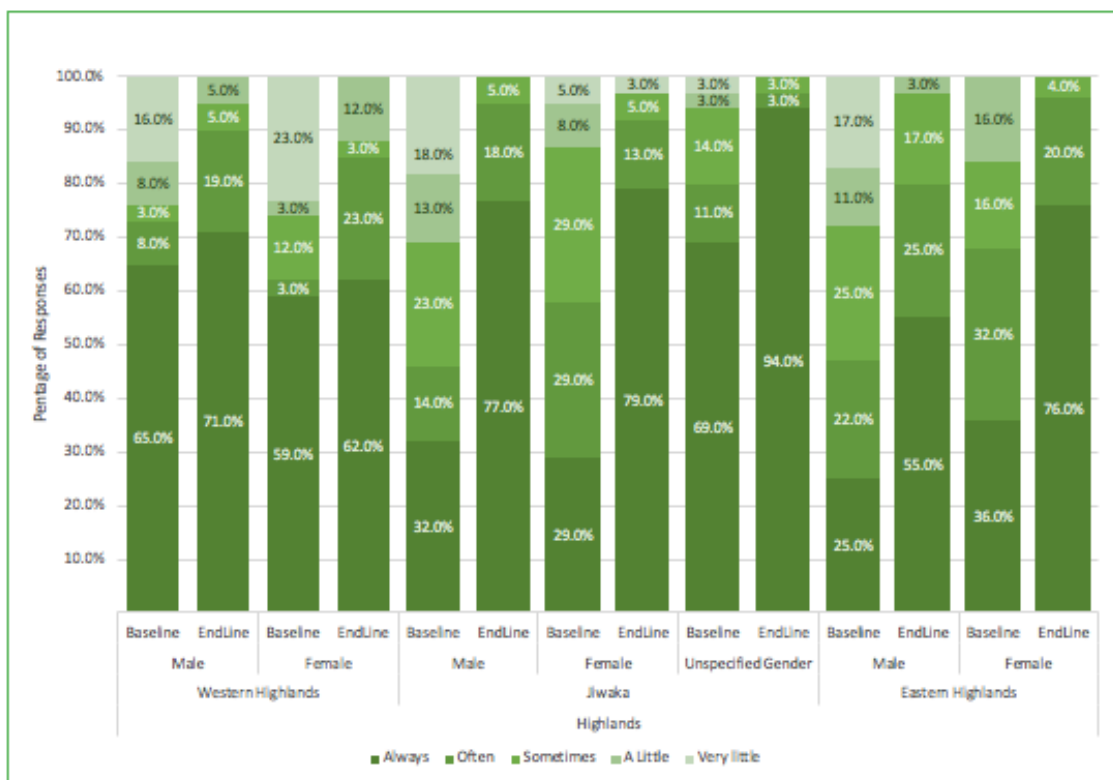


Figure 12: Highlands VCEs retrospective assessment of women's workloads as higher than men's

N = WH 38 M, 34 F ; EH 36 M, 25 F; Jiwaka 22 M, 28 F, 36 gender unspecified

Figure 13 shows that in the Islands both female and male VCEs saw women's workloads as greater at both baseline and end-line, with the New Ireland groups showing a changed and strong awareness at the end of the project that women 'always' or 'often' had greater workloads than men.

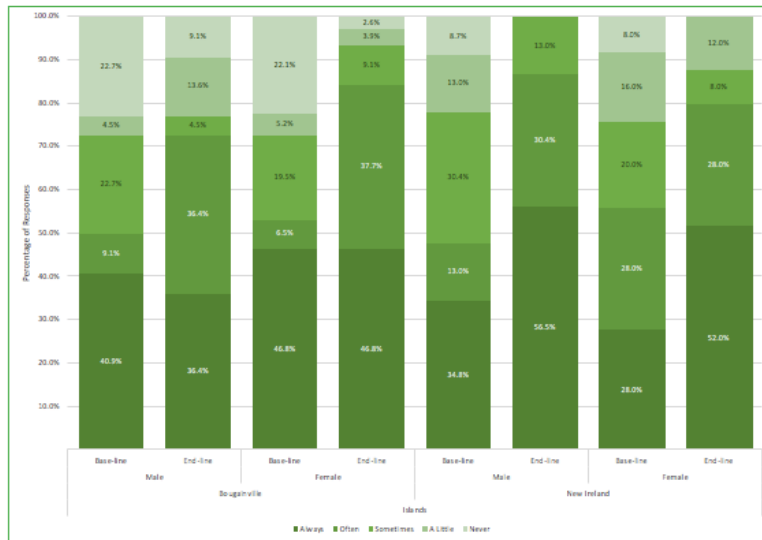


Figure 13: Islands VCEs retrospective assessment of women’s workloads as higher than men’s

N= ARoB 22 M, 77 F; NI 23 M, 25 F

This could suggest that women are now working harder than men. However, the qualitative data shows that many families have begun gender equitable work and, importantly, that both genders now see the real workload of women when compared to men. While the ultimate aim is to have equal workloads across a day and a week, it is a significant finding that both women and men now acknowledge that women have a greater workload. This visibility and acknowledgment is a first step to change.

The families that have changed their workloads will become local exemplars of gender change.

Lucy’s story (NI)

Before my husband didn’t really help. He’d fool me. He’d say he was coming [to work on the gardens], and I’d wait and then eventually go without him. It meant I couldn’t make big gardens. I had to carry all the tools, and by myself clear the garden, hoe the garden and plant. And then when it was ready it wasn’t really enough – because it was just me.

But once we had been through the training, we would discuss and then go cut up the garden area and plant sweet potato, taro, banana. We would cut the bush together, then let it dry. Then come back and till the ground together. Then I plant the plots.

This work I do now is alright now. My husband does his gardening work and I do mine and my work is lighter now. Not heavy as it was before. Before I would cut firewood and carry it back myself. Now we go to garden together and he carries the firewood and I’m able to carry the garden produce that women can carry. And I feel it is alright.

Because of the training we are clear what is the work of the father, what is the work of the mother – part for the father part for the mother and I feel that this is alright, that it is balanced now. People say now that my husband isn’t as he was before. And his mother too – she says he isn’t like he was. He didn’t used to help. Now he helps.

7.4.3 Improved family relationships

While some participants some said that not much had changed with relationships in the family, or that change was slow, others indicated that they had learnt things in the training that had a significant impact on the quality of their communication and relationship with their spouse.

In my family we don’t argue. Before the training if he was speaking I wouldn’t wait to hear him out, I would start speaking – we would argue with each other! We went into the

training, and now we follow this communication – this talking stick¹⁶ – and so now we follow this – when he speaks I listen, and when he has finished then I speak and he listens. This is how it is with us now. And in our family our children [adults] too are learning this – that when someone is speaking – to sit and listen, and when they've finished then it is their turn to speak. Talking back and forth/arguing – we have got rid of that way now and have gone to the way of having one person talk at a time. (F,NI)

A critical factor was to have at least two FFT participants from each household. If only the woman attended the training, her ability to influence change in household relations was limited (with the exception of widows, who were usually the head of the household).

In the Highlands, there were a number of reports of changes in polygamous families. This demonstrates that the FFT activities can be adapted to other family forms.

My husband never gardened with me before, even his first wife and I argued a lot. After the training I went home and did a huge peanut garden myself. Everyone thought I was crazy, but after I received K1000 from selling my peanuts my husband came around the house and asked what I had done. I told him about the training and he went and spoke to the first wife. She later came with him to the garden and helped me. I was very happy. Now we have a good relationship because the first wife and I garden together and don't argue or fight like we used to. (F, WH)

There were indicators of decreased violence in some families.

In the past, every money I earned in a day would be taken and used by my husband. He would ask for the money and I used to be scared so I would give him everything. The training has changed all those practices. My family today plans and works together to make our family budget and we are saving our money. This is the greatest thing that has happened to my family. (F, WH)

However, in all Highlands areas women reported that some men continued their violent control of women, even though the women were learning new skills to improve the families' livelihoods.

Transportation was unreliable and often we would arrive late at home and our husbands would beat us. (F, EH).

In Jiwaka, the pro-active role against violence by a female VCE leader is an important indicator of gender empowerment.

I had six VCEs and after the first training we conducted some of them were beaten by their husbands. I supported them when their husbands beat them.

However, there were also indications that a number of men were changing. Highlands and Islands men reported that they had learnt new ways of communicating.

The anger body map is true. Men hit women and men hit men, everyone hits their children. It is also linked to alcohol. We have helped people stop gambling, now we need to help people to stop alcohol. (M, NI)

People don't always get the right message, so they need to be reminded about communication and listening. Body language tells me a story. (Older M, ARoB)

As the following suggests, a number of men linked good family communication to a strong family, and acknowledged their need to change.

Think before talking. What you say cause problems or happiness within the family. (M, WH)

¹⁶ Talking stick is a technique for assisting people to listen while another is talking. When someone has the stick they have the turn to speak while another person listens. This is then reversed.

7.4.4 Personal and family aspirations

From interviews and group observation, there was noticeable change in the way women participated in group activities and spoke about their hopes for the future. Many women spoke assertively and confidently about their role in the community and how they would be ‘agents of change’.

Most participants at baseline had limited but important aspirations, such as building a permanent house and furthering their children’s education. At end-line, their new aspirations can be classified under four themes: asset acquisition, farm production related, family life and cultural commitments. These indicate that the VCEs had more extensive and focussed aspirations at the end of the project.

Table 20: Common family aspiration examples at end-line (all areas)

New assets Permanent/semi-permanent house PMV (bus) Sewing machine Set up a food bar Build a guesthouse Trade store	Farm production Vehicles to transport produce Feed mill for animal feed Piggery and/or poultry Vegetable nursery Increase food crop volume Set up local market
Family life House renovations Electricity/solar Water tank Generator Fridge School fees Adult education courses	Cultural Set money aside for bride price, funerals, compensation Contribute to community feasts Contribute to the church every week

7.4.5 Food and nutritional security

A new module, Feeding your Family Farm Team, was added to the FFT training in the first year of the project, in response to the 2015–2016 drought induced by El Niño. In Lumusa, the Western Highlands project site, the drought had led to food insecurity as all the vegetables, tubers and greens had died, and the community had no income for store-bought food (see Gwahirisa et al., 2017). However, some women did report that they were able to maintain family food supplies.

Some people are lazy – they just loiter around wasting their time. Women work hard – some have more children so they work hard and by the end of day they are so tired. Some people do not budget their time well – they spent most of the time gambling, not doing worthwhile things in the garden – just hanging around – those were really affected [by the drought]. They did not have enough to eat. My family had food because we work hard. (F, WH)

Following the FFT training, all Highlands households indicated that they now ‘always’ or ‘mostly’ had enough food for the family. However, in the Islands, a small number reported that they ‘only sometimes’ or ‘not often’ had enough food in the home. This may reflect the challenges for coastal communities in growing food crops on less fertile, sandy soils or individual family profiles (e.g., families with chronically ill or disabled members).

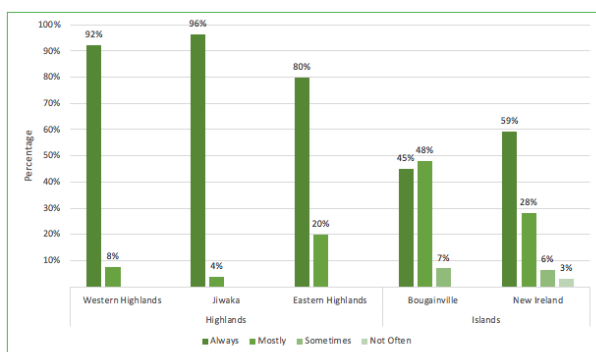


Figure 14: Percentage of households with enough food in the home (by area)¹⁷

N = WH 26; Jiwaka 26; EH 15; ARoB 29; NI 32

During the evaluation workshops, comments were frequently made about food. Many participants identified improvements in food availability. These improvements are likely to have been a result of new skills and knowledge of crop production, planning and time spent on food production in FAITH gardens near the home for household consumption.

After the training we went and did exactly what I had learnt. I would like to tell my friends that my project is going well now. In my FAITH garden beside my house I have planted cabbage, peanuts – and I am really happy because my project is getting big now. It encourages us all – a big thing is family – I have one small child and the child benefits from the garden. (F, ARoB)

Many families had taken up the concept of the three food groups and a balanced daily diet. This was important in the Highlands, where the module activities showed that most families had inadequate protein. Families in all areas consumed excess carbohydrates, especially from low-nutrition items such as white rice, white flour products and soft drinks. Both women and men commented on changed family practices.

In the past, we usually eat only [sweet potato] with water. During the training, we learnt about the three food groups and today, we are always mindful that we need to include food from each food groups in our meals. We always have a balanced meal these days. (F, WH)

After the training we are a happy family. The project introduced new food crops and we are having three meals a day. In the past we would just have sugarcane and banana during lunch but we learnt a new thing and that is having a balanced meal and we are practising it. (M, WH)

In the past we grew vegetables but did not have much variety. We mainly ate energy food and that was not good for our health. Now we always add vegetables and fruit. We have explained this to our family – and now they have food to eat and to sell. (F, NI)

Food is very, very, tasty. We really love rainbow food – all we now buy is salt, oil and a little tinned fish – so tasty. (M, NI)

7.4.6 FFT topics

All modules were highly valued by women and men. The workbook process supported the experiential learning process and proved to be effective for the many farmers with low literacy. The key activities were typically those that were visual based and that could be immediately applied. The following activities were key to gender awareness and change.

¹⁷ This question was asked retrospectively at end-line only.

Family circle

Women reported that this activity made unequal family workloads visible to the whole family. Men noted that this activity had raised awareness of community-wide problems that children did all the work and often did not go to school as they were kept home to do garden work.

Day in the life of a farmer

Although this activity did raise awareness of the different workloads of women and men, it was also applied by the VCEs as a planning and family time management tool. Both women and men noted that using this tool as a daily ‘time budget’ made each day more rewarding and reduced drudgery (see also Njuki, 2016, p. 105).

Family balance tree

The metaphor of a family tree with balanced branches and roots for each gender was quickly understood and applied. It resonated with VCEs’ knowledge of agriculture, with many commenting on the need to feed roots (grow income) or prune branches (alcohol, gambling, extra woman).

The tree should be a model tree for your family. Get your tree right. Prune off branches that are not good for your family. (M, NI)

Some VCEs noted the congruence between the family circle and the family balance tree.

This family circle we link back to the tree – for our family we need to feed, grow, feed, grow and we will reach our goals. (M, NI)

Seasonal calendar

This annual planning tool enabled family role allocation for the planting, management, harvesting and marketing of both cash crops and vegetables, leading to more negotiated roles, as well as improved and regular income. As one female NI VCE reported:

Some people have copied this idea and are making more money than our VCEs!

FAITH gardens

The concept of a FAITH garden was readily taken up by men as well as women. While the women quickly related to the benefit for family meals and nutrition, men particularly valued the money saved from reducing store-bought food with ‘empty’ nutrition.

FAITH garden big thinking means that we are no longer walking long distances to the gardens. We have enough food for visitors and there is no longer any need to go to neighbours for help. (F, ARoB)

Anger body map

This activity enabled women and men to acknowledge and begin to address the taken-for-granted norms of family violence. Both genders saw that violence can be avoided. The intent to change violence towards children within the family was often a shared commitment.

Talking stick

This very practical activity that enabled family members to discuss conflict areas or make decisions was taken up by many families. Both females and males valued the process, with one Highlands man carving a family talking stick with the family’s ancestral symbols.

Dramas/role-plays

Both women and men found the dramas key for learning. The process in which a short drama was presented by the UC team, followed by VCE small groups who then designed their own local drama, grounded the learning in the PNG context. Creating dramas was a non-threatening way for both genders to acknowledge negative family behaviours. The use of humour in dramas was a

further non-threatening connection for the audience. The main topic of dramas was the ‘unbalanced’ and ‘balanced’ family, using a ‘*boxing match family*’ as the illustration.

Actions speak louder than words and gives deeper explanations. (M, ARoB)

The following FFT additions have been recommended by partners and/or VCE leaders:

- Module 1: Engaging youth in the family
- Module 2: Integrating cash crops, finding markets
- Module 3: Basic family and food hygiene; boiling water, especially in drought; feeding pregnant women and young children
- Module 4: Teaching good communication to children

Church partners have also recommended that Bible readings could be added to each module opening and closing.

7.4.7 Impact for women and girls

As can be seen in the previous sections, a number of positive changes for women have taken place through the uptake of FFT principles and activities within farming families. The following gender equity lessons from the FFT delivery provide further insights about the factors that contribute to family change and the flow-on to women and girls (see also section 8.4, Social impacts).

The concepts of a family farm business typically engage women and men in different ways: women connect with the focus on the family, while men respond to the notion of a farm business. These are complementary; together, they provide a discourse that unites the genders. Family goals are readily agreed in most families and provide an immediate point of consensus and shared focus. This enables women and men to work together over the longer term, with a sense of unity and purpose. As they achieve their short-term goals (the low-hanging fruit), these rewards further encourage women and men to continue to work in the new patterns. As others see the changes in the family, both women and men have a wider reward and increased status in the community.

In some areas, resistance to change may be seen. However, these need to be considered with a wider gender lens. For example, women may continue to take the major burden of marketing, which initially suggests the lack of a shared workload. However, investigation may show that a number of women report that they choose to maintain this role as it gives them ready and regular access to money. In the ideal scenario, they are able to spend the money as mutually agreed within the family; in the worst-case scenario, they are able to purchase key family needs as well as bring home some money to the man. This is an important indicator of (some) ‘control over assets’. Similarly, a planned approach to harvesting and marketing would suggest that women need to spend less time at the market, as planned marketing can be done less frequently and more strategically; however, for many women the time at the market is an important part of their social relationships and develops their social capital.

It is also important to acknowledge the gift and exchange processes that PNG women utilise in the informal economy. While asset exchange through the informal economy is important, many of the benefits in this economy are relational and cannot be monetarised (see also Curry & Koczberski, 2013; Freitas, 2016).

It is well recognised that agricultural interventions can add to the workload of women. Therefore, women’s workloads must continue to be assessed. Although the reduction of women’s workloads is a goal, and was achieved in a number of families, it was also very important that women’s workloads did not increase. Women did report that having greater decision-making ability over their daily roles reduced drudgery and gave them more variety across the week. Women’s workloads are now visible and publicly acknowledged by men as well as women. This is the first step towards gender change.

7.5 Objective 5: Gender-inclusive agricultural extension

To explore the capacity development of PNG agricultural focused agencies in gender inclusive and gender sensitive extension delivery

What are the challenges, issues and enablers in developing the capacity of PNG agencies to deliver gender inclusive training for PNG farmers?

This section reports on the two forms of training of trainers (ToT) and concludes with the lessons learnt.

The project's mid-term review identified that, although the gender-inclusive FFT training has been well received by farming families, agency staff do not always have the gender awareness to appropriately lead and manage the program. Christoplos (2010, p. 23) has argued:

... rather than 'shooting the messenger,' the failures of extension in supporting gender equity should be seen as an indicator of the importance of more closely analysing how approaches to agricultural knowledge and information systems and overall policies fail to equitably address gender.

Therefore, this objective was designed to increase the gender awareness of agricultural leaders and their staff, with the aim of enabling these agencies to better integrate the gender-inclusive approach in their agricultural extension. Given the agency opportunities and available funding, there were two delivery models:

- Model 1: FFT training of trainers, delivery of FFT training by trainees, follow-up workshop, focus group and agency interviews (FPDA and Oxfam)
- Model 2: FFT training and workshop impact evaluation only (Pacific Women/ PNG Governance Facility).

7.5.1 Fresh Produce Development Agency (FPDA)

Participants were FPDA staff who represented all FPDA regional centres: Goroka, Kokopo, Lae, Mount Hagen and Port Moresby. The group was not gender balanced (8 F, 24 M), but this does represent the current gender profile of FPDA staff.

All trainers stated that their gender awareness and understanding changed as a result of the training, rating the change as 'good' or 'a lot'.

I learnt a lot of new skills in assisting/facilitating gender awareness to the communities.
(F)

This training added more value and knowledge to my understanding about gender and reinforced gender knowledge. (M)

Significantly, 10 of the 14 men stated that their understanding had changed 'a lot'. Although there was a higher number of male than female participants in the training and evaluation workshops, the training appears to have deepened the understanding of the men in particular to the gender issues for both females and males in PNG. As a result of the ToT training and their own field training, it is evident that their capacity to deliver gender-based FFT training greatly improved and raised awareness of issues that most training had not previously explored. As they deliver their extension programs, it is anticipated that their capacity will be further developed.

FPDA senior staff reported that those FPDA staff who delivered the training were enthusiastic about its value for farmers. One senior staff member who co-led one group was impressed with the farmers' responses (listening carefully, participating, enjoying), and observed that women and men were equally keen. He noted that some FPDA staff would benefit from further training in facilitating social science-based learning and recommended a six-month follow-up be added to this form of capacity-building.

The FFT program complements FPDA's Village Extension Worker (VW) program, and it will now be integrated as a formal component. FFT will be delivered first, followed by agricultural training.

Each VW will be now be trained in the FFT activities and will be responsible for the ongoing support of 12 village farmers. FPDA senior staff are advocating for the inclusion of FFT up to the executive and the board, as well as to the local field program managers. Robert Lutelele, Executive Manager/Production and Value Chain Division, has reported that FPDA are working to 'ensure that the FFT approach eventually becomes an integral platform for FPDA to mainstream gender, child rights and other gender equity and social inclusion (GESI) responses in FPDA'. A policy document integrating the FFT into the extension and development policy and operational framework is under development.

7.5.2 Oxfam

Participants were selected from the Sustainable Livelihoods program community-based organisation partners: KG Wan, Individual Reformation and Restoration Movement, Henagaru Village Development Cooperative, Helping Hands Honey and Highlands Honey. One female staff member from the Eastern Highlands province Office of the Governor, Women and Youth Economic Empowerment unit, along with three female and two male Oxfam staff, also completed the training. There was a reasonable gender balance (16 F, 23 M).

The Oxfam trainers' gender awareness was evidently built during the training, as they all successfully incorporated the FFT gender approach in their training program with other Highlands farmers. All Oxfam trainers stated that their gender awareness and understanding had changed as a result of the training (5 F, 6 M and 3 no gender 'a lot'; 5 F and 7 M 'good'). The training approach was effective for males:

When government etc. talk about women's empowerment we don't like it and think 'what about us' but this training helped us understand what it means and we are happy to be in this training. (M)

The majority of the Oxfam trainers had only taught one training session prior to the FFT training; therefore, their responses indicated the differences between experienced and inexperienced trainers. The following excerpt from a training report and discussion shows the skill of one female trainer.

It was a challenge for parents when doing some of the activities – planning, for example. They didn't know how to include the youth as they do their own thing and don't really communicate with the parents. Solution: To link the discussion to the communication module, she suggested turning the negative communication of the children to a positive and talking about it with them. She then ran a role-play on that issue. Her participants discussed the issue further then performed a negative then a positive role-play on how they will solve the issue themselves. Some of the women did talk about the issue at home, with some early success. However, she said it was clear that parents and trainers need to keep talking with the youth about the issue.

This challenge in engaging youth in agriculture is an emerging issue in PNG (see Koczberski & Curry, 2016), and it is encouraging to see this local training adaptation. Similar skills can be seen in the following male trainer's response:

Village and organisation management mindset is hard to change. They have a traditional mentality so it is hard to get them to support the training. Solution: keep talking and doing the training and they will change their mindset.

Many inexperienced trainers struggled with the management of the gender dynamics in a group.

Women were reluctant to talk in front of men. It was very hard to get the women to talk in the training, which is probably because they are culturally required to do what the man want/say and the men are the head of the family. We need to consider this for future training. (M)

These trainers also faced considerable challenges; most had said they were literate in English, but they clearly faced challenges in working across English and Tok Pisin.

I had trouble translating the concepts into Tok Pisin. I learnt the FFT modules in English and struggled to translate them into Tok Pisin. Solution: I would write on the board first in

English then think about it then write it in Tok Pisin. The more I taught the easier it became but it is really hard to translate something if you learn it in another language. (F)

Communication is one of the biggest challenges. Extension worker training is in English so it's hard to translate it correctly into Tok Pisin – even in Tok Pisin it is a hard language therefore hard to explain to people who don't speak much Tok Pisin then even harder to translate into Tok Ples. (M)

Oxfam will use the FFT within their Sustainable Livelihoods program and are trialling an adapted version in their gender justice program.

The Eastern Highlands province Office of the Governor, Women and Youth Economic Empowerment Unit planned to use the FFT approach as a key platform for women's economic empowerment; however, they have not been able to access funds from their own department and are exploring partnerships with local level government, church partners and other stakeholders.

7.5.3 Pacific Women

Pacific Women agencies included UN Women, Femili PNG, FHI 360, Oxfam Gender Justice, Population Services International, Target Community Empowerment and PanAust Frieda River. PNG Governance Facility's (PGF's)¹⁸ District Development Agency program sent community women leaders from Manus, Talasea district (West New Britain), Naewab district (Morobe), Mul-Baiyer district (Western Highlands), Sohe district (Oro) and Nuku district (Sandaun). The group was not gender balanced (21 F, 6 M).

As the Pacific Women agencies staff worked in non-government organisation (NGO) gender projects, their gender awareness was already developing. In contrast, for the women sent by PGF, this was their first exposure to learning about gender issues – but as active semi-subsistence farmers they had grounded experience of the challenges. This diversity was utilised in the training by dividing trainers into small groups with two women farmers in each. Their lived experiences and local knowledge were then used as the setting for each of the FFT activities. This gave the village women status in the group and allowed the paid staff to interact and examine grounded examples for their gender and cultural issues. A number of participants commented on the value of considering cultural context along with the gender context.

One thing that is more common within the men farmers is the 'big man' culture. In order to change/transform men's mindset we have to heavily involve or encourage more men with these things. Slowly doing these will have an impact on others' lives. (F)

The women's responses typically focused on communication and planning in a gender-inclusive way, for the benefit of children and the whole family.

I must be a role model in my family because it will be registered in my children's mind and they will learn so they can be a role model in the future. (Farmer)

Planning a family goal as a family team work because more often I do forget my husband's input in plans for the family. That has resulted in my paying for everything for the family. As a married couple we had to come to an agreement/budget that there's equal participation and distribution of role. By doing these together we would be able to live happily sharing roles/goals for the better future. (Staff member)

The men (all staff) also showed that they had a commitment to change and to being more gender equitable in their own families.

The improved communication with my wife as well as understanding her and planning for our family because it demonstrate how ignorant I was to her needs, and the work load I put her under and to also align our goals collectively and help her more.

¹⁸ ABT Associates. (2018). *Bolstering governance in Papua New Guinea*.
<https://www.abtassociates.com/projects/bolstering-governance-in-papua-new-guinea>

I will discuss and train my own family when I return because I have realised the mistakes I do as a father in my family.

These personal changes are a strong marker of increased gender awareness, as they have been taken up as something not just for others (farmers) but for the trainers' own lives.

All agencies reported that they would use the FFT training either as part of existing training programs or as a standalone program. A number of the NGOs will use the FFT in their violence prevention and survivor rehabilitation work and for health issues, including HIV/AIDS. The trainers from PGF have the opportunity to work through ward committees and in one case through their agricultural extension program.

7.5.4 *Lessons learnt*

There were a range of **training backgrounds** in the cohorts, which had a direct relationship to participants' ability to fully engage in the training. This ranged from farmers who had just begun to learn about being training facilitators (Oxfam, PGF) through to highly experienced trainers (FPDA, Pacific Women agencies). In the Oxfam and PGF groups, the trainers engaged as farmers first and learnt through applying the concepts to their own family, whereas the experienced trainers were able to move quickly to identify the gender and cultural dynamics that they could anticipate when training farmers. Despite the lack of experience of the Oxfam cohort, the 39 trainers trained 596 farmers (256 F, 340 M) in one month.

The training experience of the trainers was also evident in their feedback after delivering the FFT activities. A number reported being challenged when working in mixed-gender groups, where men took the right to speak and women needed encouragement to speak up. Some trainers found it difficult to work when children were present, again indicating a lack of experience, or experience working with technical training where only adults attend. Both female and male trainers reported that male farmers were often defensive and rationalised their actions. When the FFT is led by highly experienced trainers, this dynamic is rarely present, as the facilitation focuses on creating a strengths-based approach that privileges the family unit and raises questions of greater good, not individual blame. This is, however, an advanced skill that would require further training.

Some trainers found it difficult to move from **English to Tok Pisin** when training. This is not surprising, as most trainers would have had Tok Ples as their first language, then learnt Tok Pisin and finally English at school. For those who had only primary education, their competency in English would be minimal. A further complicating factor for even the educated FPDA trainers was that they have mainly been trained and train others in technical areas, where there are straightforward technical terms and skills (pruning, fertiliser measurements etc.) Working with social concepts and values-based learning is significantly different and, again, best learnt through supported/mentored training experience.

In all cohorts, both female and male trainers gave feedback that they found the focus on **gender equity** an empowering and inclusive approach. A number had experienced training based on a gender rights approach and had seen people walk out of such training. The UC training presented the key points of gender equity on the last day, after relationships had been built and a shared language about gender had emerged. This appears to have been an important process. The **practical activities** and the experiential learning process of the FFT training could be immediately grasped by most trainers, who could apply it to their own family and see the benefits. After the practical outcomes of each activity were obvious, the family issues could then be explored for their equity and effectiveness. Focusing on the farm as a family business seemed to be an easily transferable message from trainers to farmers, and within this the gender equity issues could be raised.

One issue that arose in all cohorts was that many of the female and male roles were seen as 'our cultural way'. However, in all groups there were trainers who expressed to the group that their **culture was changing**. In a patriarchal culture, male power is often invested in certain cultural practices; however, when men speak up about the need for change and identify the new masculinities, this can have a powerful impact. This was seen in the Pacific Women group, where two young men challenged other men to value their culture as a living and changing entity.

All cohorts have recommended six-monthly or annual **refresher training**. Given the time needed to build skills in gender-inclusive training practices, this is a very logical recommendation. However, given the wide range of areas in which the trainers work, and the cost of transport and accommodation in PNG, this would be costly. PAU and UC are now exploring funding sources for an annual refresher training event.

The activities for this objective have shown that paid staff and farmer trainers are eager to explore how to engage both women and men in change, within their family and in their farm activities. The practical approach of experiencing the major FFT activities and then being invited to analyse them for their application in the trainers' own area appears to have been a non-threatening and empowering approach. It enabled them to identify and name for themselves the major gender inequities in farming families.

Further, in the training, the trainers were able to surface the many cultural dynamics that also needed to be considered. One of the most important indicators of changed gender awareness was that the majority of trainers reported that they now saw gender inequities in their own families and that most outlined priority areas for changing their own behaviour. This ownership of gender inequities augurs well for the future work of these cohorts of trainers.

It opened my eyes and my mind. (F)

A different person is going home, not the same one who came to the course. (M)

8 Impacts

The primary impacts of this project are socio-economic, with an emphasis on gender equity and women's empowerment in the rural agricultural context. The project has developed an impact pathway that shows the relationship of our work to the Sustainable Development Goals (SDGs) (Appendix 1):

- Goal 1: End poverty in all its forms everywhere
- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3: Ensure healthy lives and promote wellbeing for all at all ages
- Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5: Achieve gender equality and empower all women and girls.

The project's indicators of change framework can be found in Appendix 2 (economic indicators) and Appendix 3 (social indicators). It is important to view these indicators of change from a systems perspective – that is, sustainable impacts require an integrated multi-level approach. For women farmers, this would include building on their social networks, improving their access to knowledge and services, and increasing their capacity to engage in decision-making so that they are able to be more responsive to agricultural innovations. Equally, the institutions that are part of the agriculture system need to understand and effectively engage in an ongoing way with the dynamics of gendered and cultural learning and development (Kingiri, 2013, p. 538)

8.1 Scientific impacts – now and in five years

A number of PNG agencies have integrated the FFT approach and learning activities in their work: FPDA Village Extension Worker program and Gender Equity and Social Inclusion policy, Oxfam Sustainable Livelihoods program, PanAust Women in Mining (Extractives), and Voice for Change Women's Economic Empowerment program. It has also been adapted by Oxfam and Femili PNG for their gender justice, violence prevention and recovery programs.

Individually driven impacts can be seen in the work of one female VCE who has negotiated support for FFT training through the Catholic Diocese Jiwaka, with 358 farmers now trained (198 F, 160 M). The book 'Maria's family saves their kina' has been translated into Lakurumau (New Ireland language) by Dr Lidia Federica Mazzitellin of the Department of Linguistics, University of Cologne.

Given that the project now has formal links with ACIAR projects and through the TADEP program, it is anticipated that further impacts will be seen and wider uptake will occur.

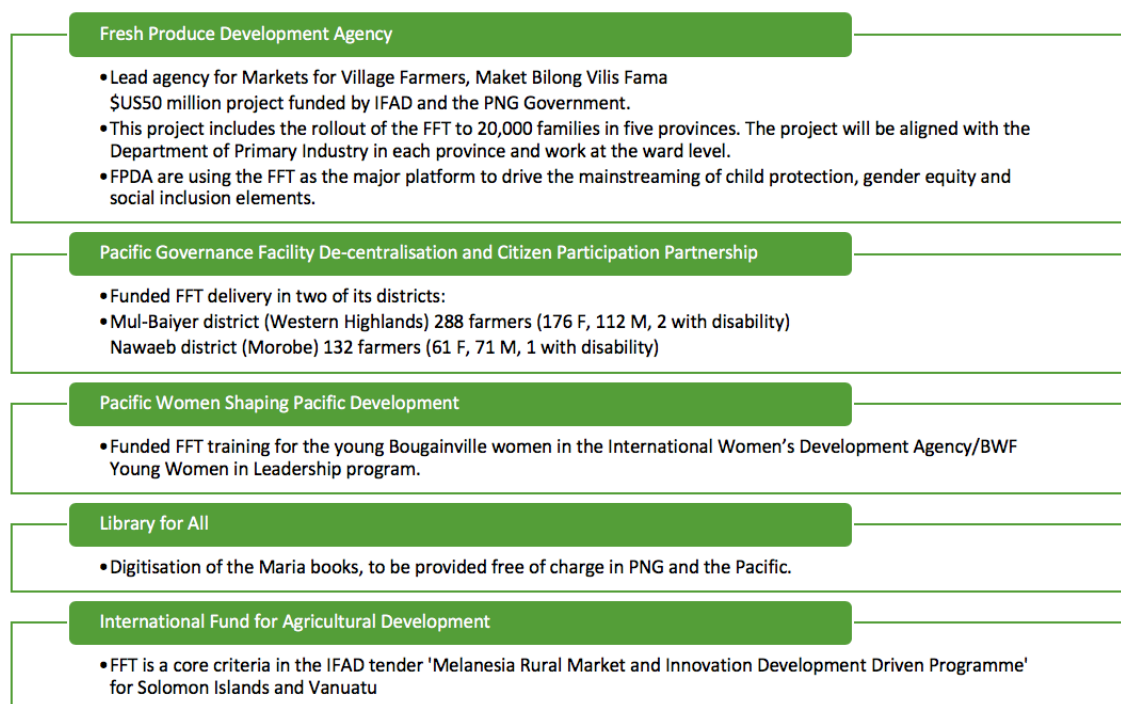


Figure 15: Scientific impacts by agency

8.2 Capacity impacts – now and in 5 years

Capacity-building impacts occurred at four levels:

- farming families (see Objective 4)
- VCEs (see Objective 3)
- women leaders (see Objective 1)
- professional staff development.

It is anticipated that, as individuals continue to apply their new knowledge and skills, they will consolidate their learning, which will lead to wider impacts over a five-year period.

8.2.1 Professional staff development in participatory research

Two-way capacity-building was an important facet of the project for both PNG and Australian team members. The collaborative development of culturally appropriate research tools, research process and data analysis was a key feature. Individual team members reached significant personal achievements through their contributions:

- BWF: Ian Viore was awarded an Asia Pacific Leadership Program Scholarship and has won an Australia Awards place at Curtin University to study a Bachelor of Agribusiness¹⁹
- CARE PNG: the trial and development of ripple effect mapping has proved to be a valued process. Gloria Nema was funded by the Australasian Evaluation Society and Pacific Women to present this process both in PNG and Australia (see Conference presentations). She is now planning postgraduate study in Australia.
- IATP(UNRE): Doreen Tunama was subcontracted to the project and is now integrating FFT activities and philosophy in the training modules of IATP
- NARI: the use of the CommCare digital survey tool provided important capacity development for NARI. Jeromy Kavi, a junior scientist, is now highly skilled in the use of this tool and is able to train others.

¹⁹ East-West Center. (n.d.). *Professional development: What is the APLP?* <https://www.eastwestcenter.org/professional-development/leadership-programs/asia-pacific-leadership-program-aplp/what-the-aplp>

- PAU: School of Education (2 F) and Sonoma Teachers College (3 F, 1 M) academic staff have built capacity in the use of place-based teaching in rural communities. This will flow on to their student cohorts. Dr Lalen Simeon is mentoring PAU staff in participatory and gender-inclusive research and training processes.
- PAU: School of Business: four academics have been trained in the Family Farms Teams First Steps to Financial Literacy ‘games-based’ training. Three of these staff are now developing a model that uses other forms of learning.
- Joint publications have been completed with Veronica Bue (UniTech), Lalen Simeon and Elisapesi Manson (PAU) and Fredah Wantum (BU).

8.3 Community impacts – now and in 5 years

8.3.1 Economic impacts

The economic impacts arose from both a planned approach to farming and improved agricultural practices.

8.3.2 Planned agriculture

A key development for semi-subsistence farmers is to move from opportunistic and traditional agriculture to a planned, business approach. The planned approach to farming was evident in all areas and was enthusiastically embraced by both women and men. The key economic impact was that farmers who were introduced to the concepts of a seasonal calendar, where crops are grown for regular income and harvest times are planned, are now selling the whole harvests, rather than following the subsistence practice of irregularly selling small surpluses.

In all areas, the retrospective survey showed that the percentage of farmers who were now planning their production increased significantly, as shown in Figure 16.

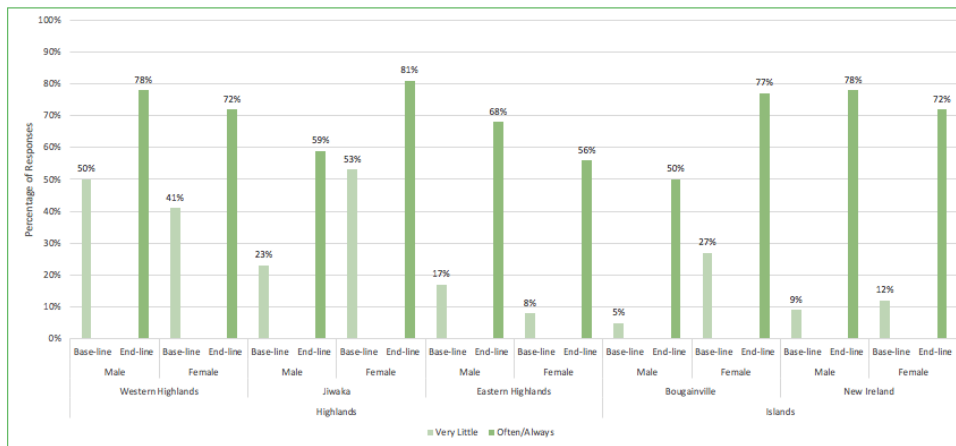


Figure 16: Farmers planning their production, pre- and post-training (by area and per cent)

N = WH 38 M, 34 F; Jiwaka 22 M, 28 F; EH 36 M, 25 F; AroB 22 M, 77 F; NI 23 M, 25 F

The increased value that farmers placed in planning their crop production shows a move towards a business approach to family agriculture, which in some cases has also led to farmer groups.

Before the training we were planting different types of crops but today, we are planning the type of crops we have to plant. Greens plot, sweet potato ... The training helped me to see the different ways of making money. Farming, gardening, selling at the market, poultry, piggery etc. We formed several groups and we are now working hard to achieve our goals. The government is helping us to develop these projects. We are so lucky because this training prepared us to understand the techniques of planning the different projects and ways of making money and saving money. (M, NI)

As one Jiwaka VCE female leader reported, although many farmers were now planning their agriculture and making money, some community members remained sceptical.

Before training there was no gardening pattern or plans e.g. one garden at a time. Through training there were plans put in place for gardening and this brought in money. Farmers now involved in chicken and pig production and feed management. There is change in our village but also challenges. Criticisms from the village members saying we are wasting our time and that nothing good will come from the project.

However, in the four-year follow-up ripple effect mapping that Nema (2018) conducted with ASEM/2010/052 farming families, it was clear that, as FFT participants began to make profits from planned farm practices, communities saw them as role models.

The first time I practised separating my crops and planting many of the women commented on how I was wasting the land by not filling up all the space. I didn't bother, I just did what I learnt. After my crops began growing very nicely the same women saw the improvement and asked if they could try it too. (F, WH)

That's right. Farmers like me who were not formally trained saw what the VCEs were doing and copied their gardening style. Their crops seemed to be faring better than ours so we took the chance in trying something new. I am happy I did. (M, WH)

8.3.3 New crops

Many farmers in both the Highlands and the Islands had diversified their crops to increase income and meet market demands. The most commonly grown new crops varied per site and reflect the types of crops that would either travel well (e.g., cabbages in the very remote Western Highlands site), bring quick profit (e.g., peanuts in Jiwaka and Western Highlands) or be readily sold (e.g., beans in Bougainville, New Ireland and Western Highlands).

Table 21: Three most common new crops for marketing (by area)

Area	Crop 1	Crop 2	Crop 3
Bougainville	Beans	Capsicum	Sweet potato
Eastern Highlands	Onion	Carrot	Cabbage
Jiwaka	Peanut	Sweet potato	Corn
New Ireland	Sweet potato	Beans	Capsicum
Western Highlands	Cabbage	Beans	Peanuts

The need for diversified incomes was stressed in the training as a key business principle. Farming families were encouraged to look at market demand as well as to plan their planting and harvesting of a range of crops using an annual seasonal calendar in order to have monthly incomes for family costs, farm re-investment and cultural activities.

8.3.4 Commercial crops

Bulb onions

The Highlands trial of introducing commercial crop production to semi-subsistence farmers through bulb onion farming did result in economic gains for a small number of farmers. As can be seen in Table 22, even in the first trial of growing bulb onions in the Eastern Highlands, families were able to generate good incomes.

Table 22: Results of Eastern Highlands bulb onion trial, 2016

Project Site	No. of committed VCEs & farmers currently	Bulb Onion production land area	Number of seeds sowed in nursery	Germination	Losses in the nursery	Number of seedlings transplanted	Losses in the field	Number of bulb onions harvested	Estimated Yield harvested (kg)	Income Earned from Sales (K)
Kasena	11	629m ²	31950	80% (25560)	20% (6390)	25560	40% (10224)	15336	767 kg	K1,086.60
Runumbe	4	432m ²	21600	80% (17280)	20% (4320)	17280	61% (10541)	6739	337 kg	K500.00
Asaro	7	325m ²	15000	70% (10500)	30% (4500)	10500	95% (9975)	525	26.25 kg	Not sold
Ifiufa	2	468m ²	23400	60% (14040)	40% (9360)	14040	30% (4212)	9828	491.4 kg	K500.00
Notofona	6	357m ²	30000	80% (24000)	20% (6000)	24000	50% (12000)	12000	600 kg	K1,300.00
Gahuku	2	135m ²	6750	60% (4050)	40% (2700)	4050	80% (3240)	810	40.5 kg	K162.00

Source: FPDA

Eastern Highlands VCEs reported earning 7,400 kina in subsequent harvests, with four VCEs producing 2,700 kg of onions in total.

However, as was discussed in the Objective 2 findings, this was a very challenging transition and one in which many women, especially in the Western Highlands site, carried an unacceptable extra burden. The trial showed that there needs to be the formal expectation that women and men are equally involved for all stages of production. If equal contributions are not seen, families should be advised that their membership of the program will cease. The only way that commercial production can be effectively introduced to semi-subsistence farming families is with the expectation of gender equity, noting to the families that, once they begin to make profits, there will be the potential to buy in labour.

Poultry

Raising poultry was a highly valued new income stream for many VCEs, especially women. Chicks could be raised for immediate sale, for later sale as layers, or for use for family nutrition (eggs and meat). The manure was a bonus. Poultry could be raised near the house, which enabled mothers or elderly women and children to be easily involved.

VCEs reported that they made good income from the sale of chickens. For example, one woman had sold 25 birds at 25 kina each from her first trial, with a gross income of 500 kina. One family had successfully raised and sold three batches in under six months, indicating the potential income that could be generated. Another family moved into larger production within a year, with the aim of raising between 1,000 and 2,000 chickens. This form of commercial agriculture proved to be an appropriate first step for semi-subsistence farmers, especially women.

8.3.5 Family income from agriculture

A majority of the Highlands VCEs indicated that they had increased their usual income from selling food crops. In the Islands sites, the food production training was only completed four months before the end-line survey; therefore, income changes would not be expected.

Inferential statistics on the difference in income between baseline and end-line across all sites showed that income at end-line (median = 175.0; mean rank = 93.61) scored higher than income at baseline (median = 25.0; mean rank = 51.49). Mann-Whitney U-value was found to be statistically significant $U = 908.0$ ($Z = -6.131$), $p < 0.05$, and the difference between the end-line and baseline surveys was medium ($r = -0.48$).

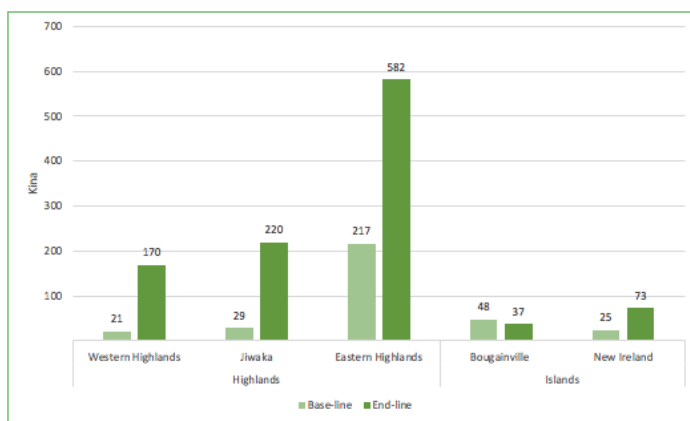


Figure 17: Mean usual food crop income at baseline and end-line (by kina and area)

N= WH baseline 35, endline 26; Jiwaka baseline 28, endline 26; EH baseline 29, endline 8; AroB baseline 32, endline 20; NIbaseline 39, endline 13

In the Highlands, access to markets was a factor, as the Western Highland site was at least two hours to a major market. In contrast, both the Eastern Highlands and Jiwaka groups had access to large food markets. In the Islands, both sites had good access to large markets. However, there were also positive local factors. For example, in New Ireland a businessman had arranged a regular truck service to collect produce for sale from villages. In Bougainville, some VCEs had begun their own local roadside markets. These initiatives have encouraged farmers to maintain planned production and marketing and are likely to influence future income improvements.

Use of income

An important proxy indicator of livelihood improvement is where new income is spent. In a project that focuses on gender equity, it is important to analyse the spending patterns for their gender impact. Women and men in all project areas reported that both genders' spending on alcohol and gambling had been reduced.

Major expenditure items now show an investment in the farm, the family and the community, as shown in Table 23.

Table 23: Family investments after involvement in the FFT training program

Area of investment	Examples of investments
Family	School fees, home equipment, bedding, furniture, health and medical care
Housing	Building materials, water tanks
Small business enterprises	Trade stores, food bar, baking
Farming assets	Mowers, tools, seedlings
Farm improvement	Extending cash crop and food gardens, livestock (chickens, pigs)
Social/cultural obligations	Church, problem resolution, compensation, bride price, funeral

8.4 Social impacts

Social impacts can be seen within many of the families who were trained as VCEs. The early ripple effects from these families have led to wider community uptake. Other social impacts are described in section 7.4, Objective 4: Family Farm Teams.

8.4.1 Equity in the family

Improved gender equity and changes in the roles of children in the family were key indicators of social impact. In the reported sequence of change, families saw the inefficiency and inequity of their current roles and workloads, then understood that the family would not have a secure and sustainable future.

When families developed family and farm goals together, they had a shared vision that they could commit to. Through planned farming, families met their short-term goals, and the whole family benefited and could see the tangible benefits of working together in a new and equitable way.

Improved communication and the management of conflict was an important factor in enabling the family to continue to work together.

Working as a family farm team

The majority of respondents in all areas indicated that, before the training, they had organised their own work and did not know much of what the others did in the day. This pattern changed after the training, with the majority reporting in the retrospective survey, that they were working more as teams and in greater unity.

A great awakening for women and husbands to work together as one body/spirit and children observe and follow and do the same thing. (F, NI)

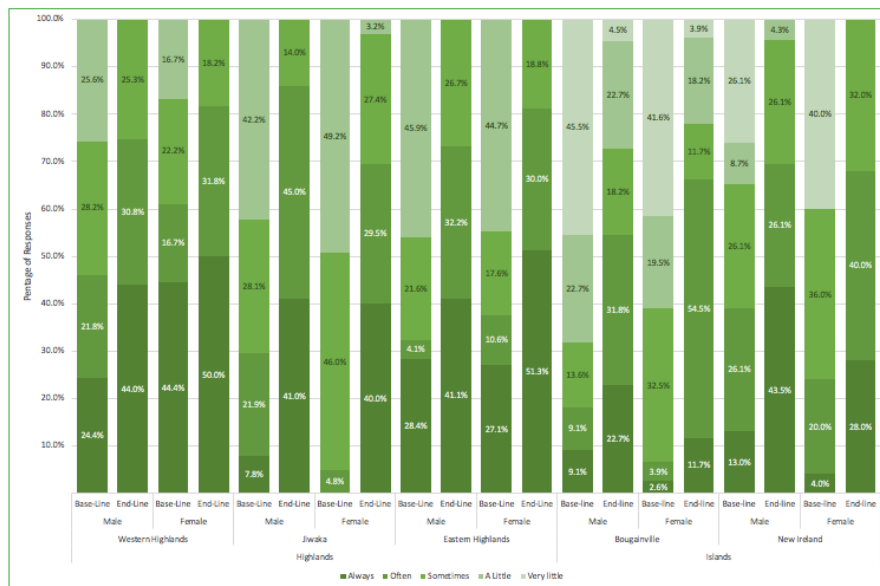


Figure 18: Working as a family farm team before and after training (by gender and area)

N = WH 38 M, 34 F; Jiwaka 22 M, 28 F; EH 36 M, 25 F; ARoB 22 M, 77 F; NI 23 M 25 F

Changes in gender roles and sharing the burden of work by working as a family farm team were evident in all areas. However, again in all areas, women remained the primary sellers of food crops. Some women explained that they preferred to keep this role, as it gives them ready access to cash.

A number of women and men spoke of shifting the way that household and garden work was done within the family. Many participants had gained an increased consciousness of the value of shared work. This had had the greatest impact on women.

It [the project's training] helped change my husband's negative attitude. My husband used to beat me before but he completely changed when he attended the training with me. In the past, I used to hide and save money from my husband, but after the training he started working together with me. We are now working as a team and saving our money together. (F, Jiwaka)

As was discussed in section 7.4, Objective 4: Family Farm Teams, women and men both reported that, even after the training, women still had a greater workload than men. However, most women

reported that their workload had improved . They valued how the concept of a ‘balanced family circle’ and a ‘family balance tree’ enabled them to negotiate within the family for the family good. Men also acknowledged these tools as important for the whole family.

Time is money; talk about your day and understand what each person is doing and then manage that well; this is a valuable planning tool, it is useful with older children, it helps us have a daily routine. We can see the different workloads of women and men. I am very happy with this tool – it is now up here in my brain box. (M, NI)

An important indicator of greater family equity was the number of men who acknowledged the importance of addressing children’s role in the family.

What we were doing with our children was child abuse – using them in the garden, selling smokes, child labour in the home. People are changing this slowly – but it has changed in our own families. (M, NI)

You need to know the ages of all your children to make sure that there is no ‘slave’ in the family. In the past, we have used women and children as slaves. (M, ARoB)

Family and farm goals

When women and men decide together on family and farm goals, these goals provide an agreed and shared direction for the whole family. Family goals often focused on school fees, house improvements or other household needs, while farm goals typically focused on preparing new or larger gardens, establishing a piggery or raising chickens for sale. Smaller goals included buying equipment such as tools or a wheelbarrow. Many farming families reported that their family goals helped them plan their farming, budget more carefully and work towards their family vision in a cooperative and peaceful way. The most successful families were those who used the benefits from short-term goals (e.g., selling a large crop of watermelons) to invest in long-term goals (e.g., using the income from the watermelons to buy a pregnant sow to begin a piggery project).

My family plans together and set goals. We achieved the goal on school fees. We also want to have a permanent house and we are slowly saving towards it. I have started a trade store beside the road, not far from here. I am also looking after piglets and some pigs. (M VCE, WH)

At the start of the project, people reported that they had dreams (*driman*) but that they did not use the concept of family goals. At the end of the project, in the retrospective survey the majority of farmers reported that they ‘always’ or ‘often’ had family/farm goals.

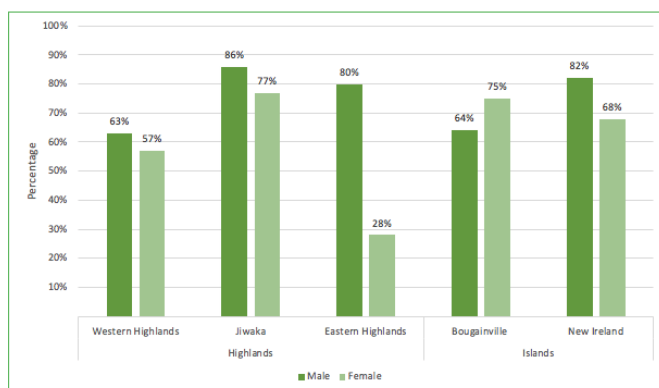


Figure 19: Female and male farmers who ‘always’ or ‘often’ had family/farm goals at end-line (by area and per cent

N = WH 38 M, 34 F; Jiwaka 22 M, 28 F; EH 36 M, 25 F; Bougainville 22 M, 77 F; NI 23 M, 25 F

Family communication

Families were very articulate about the changes that had been made in their family to improve communication. The most valuable indicator of change was both the woman and the man adjusting how they worked, talked together and agreed to make decisions collaboratively.

We are following what we learned, but when we went through more training this strengthened us to follow this... This kind of change, women are making these changes [in communication], but when women and men attend training together and both together learn, it helps the couple to hear and listen to what the other is saying and the decision they are making and follow this. If I make a decision then he must follow it, and if he makes a decision then I must follow it. (F, NI)

At the start of the project, family violence was explained as commonplace – not just between a man and a woman but also woman to man, woman to woman and all adults to children. It is important note that family violence was reduced in many, but not all, families. However, most adults acknowledged the importance of improved communication in the family.

This activity has made me re-think how I communicate. Many times I do harsh talking. When my children do wrong, I am too harsh and I even use a stick. But hugging deeply expresses your love. This teaches us that we don't talk to our kids – but what will be the effect? I am going to focus myself on building my communication. It will help me build a stabilised family. (M, ARoB)

Five years on – the ripple effect

The following example from our research in East New Britain (Nema, 2018, p. 24) illustrates the possible ripple effects that could be anticipated from this project.

- The first ripples included working together as a family, setting goals, communication and decision-making, farm planning, stronger focus on food and nutrition, and budgeting.
- The second ripples included family members realising their responsibility, young children helping their parents more, couples beginning to help each other, changes in gender roles for men, setting short- and long-term family goals, families having a sense of direction and purpose for the future, setting business goals, couples deciding together, parents listening to children and including them in family discussions, women gaining confidence and reaching out to other women, planning and managing land, applying farm planning approaches to family activities, women learning new ideas in preparing and cooking healthy meals, area beautification, and women learning about health and hygiene.
- Third ripples included families working together as a unit, youths helping their parents more, male youths farming cocoa, couples not trained in FFT asking questions of and copying ideas from trained couples, three permanent houses being built as a result of setting family goals, two trade stores being built by two families, improved relationships between couples themselves and their children, fewer arguments and fights between couples, women gain confidence in public speaking, and family members using time for productive activities.
- Fourth ripples included two significant changes: other families from different districts residing within the community mobilising and working together, and men from other families within the community beginning to change gender roles.
- The fifth ripple shows changes on a larger scale: the community attracting other families to settle and emulate what is now seen as the culture of that community, three cocoa cooperatives being established as a result of community collaboration, and members of the community setting community goals.

Impact for women and girls

Although PNG is a collectivist culture that does not privilege the individual, many of the women were able to take up some new discourses about their family role, place, skills and community contributions. These discourses appear to have been empowering, as they gave women language

that made visible their multiple roles in the family and elevated their place as leaders in the family, albeit in most cases still with the male as titular head. For many, this enabled them to see themselves as more than ‘just a wife and mother’.

As the women applied skills and knowledge that helped their family, they then were able to help other families, which in turn raised their own sense of self-esteem and worth. Others saw the skills, and also saw the family progress, which elevated that woman and her family in the community. Again, this gave the women an enhanced sense of self and the concomitant language. The knowledge of ways to become a stronger family farm team enabled a number of women to contribute to their community, either formally through the church and community cultural processes or through increased gifting and more generous exchange. For some women, this strengthened their existing contributions to the community; for others, it gave them enhanced contributions with which to engage in their wider community.

Importantly, there was also evidence that a number of men had taken up new discourses that focused on the family as a unit. This created space for men to consider how they could lead a family to be successful and united. Concrete changes – such as in family food and nutritional security – immediately resonated for women, but also, through the participatory family process, men saw their own roles and responsibilities. The FFT activities made visible the workloads of women and children as well as the need for effective non-violent communication. This in turn creates a family environment in which women and girls can grow and develop. The FFT approach has provided an enabling discourse of gender cooperation and teamwork.

8.5 Environmental impacts

Leaders have reported that farmers are now more aware of the safe use of chemicals, the place of plant-derived pesticides and the importance of maintaining their soil. Given the land pressures in all areas, there is a greater awareness of natural asset management of the existing land.

8.6 Communication and dissemination activities

8.6.1 Strategic engagement

Project conference: *Looking back, looking forward*. Agencies represented: NARI, FPDA, Baptist Union, BWF, CARE PNG, Oxfam, Pacific Women, PAU, Target Community Empowerment, UniTech and UC. NARI, Lae, 21–22 November 2018.

Pamphilon, B., & Simeon, L. *Family Farm Teams training of trainers 5-day workshop*, Pacific Women Supporting Pacific Development, Port Moresby, 2017.

Pamphilon, B. *First International Forum on Empowerment through Household Methodologies: a practitioners' forum*, IFAD, Oxfam and Hivos. Barbara Pamphilon, 27–30 July 2016.

Pamphilon, B., & Harri, S. *Interagency Roundtable: Gender and rural women in PNG*, Australian High Commission, Port Moresby, 11 April 2016.

Transformative Agriculture and Enterprise Development Program (TADEP) annual meetings, Kerevat, PNG, 2016; Cairns, Australia, 2017; Kavieng, PNG, 2018.

8.6.2 ICT tools

Project website

University of Canberra (2017), *The PNG Family Farm Teams Program*.

<https://www.canberra.edu.au/research/faculty-research-centres/csc/family-farm-teams-program>

An analytics analysis shows that the majority of people accessing the website are outside PNG.

Facebook page

Facebook (2019), *PNG Family Farm Teams*.

<https://www.facebook.com/pngwomenfarmers/timeline>

The page engages a wide range of PNG people, who increasingly use Facebook for communication with others.

8.6.3 Conference presentations

Pamphilon, B., Nema, G., & Kavi, J. Gender-inclusive learning/research activities: a workshop on the Family Farm Teams approach, *Seeds of change: Gender in agricultural research for development*, University of Canberra, Australia, 2–4 April 2019.

Simoncini, K. Low cost mobile phones to deliver professional development for teachers in Papua New Guinea. *Vaka Pasifiki Education Conference*, University of the South Pacific, Suva, Fiji, 5–6 July 2018.

Pamphilon, B. Family Farm Teams key outcomes and learnings, *Pacific Women Annual Learning workshop*, Port Moresby, 2–4 May 2018.

Simeon, L., & Vanua, H. Games based business skills, *Pacific Women Annual Learning workshop*, Port Moresby, April/May 2018.

Nema, G. Using ripple effect mapping to understand the impact of a family teams approach for PNG farming families, *Australasian Evaluation Society Conference: Evaluation Capital*, Canberra, 4–6 September 2017.

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Caffery, J. Building gender equity through linguistically and culturally relevant capacity building programmes: Language matters in aid effectiveness, *Australasian Aid Conference*, Australian National University, 15–16 February 2017.

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Pamphilon, B. Weaving knowledges: The development of an empowering intercultural learning space for smallholder farmers and university researchers in Papua New Guinea. Keynote address. *Korean Multicultural Education Association*, Seoul, Korea, 1–2 May 2015.

9 Conclusions and recommendations

The discourse of ‘family’ and ‘family farm business’ has proven to be a uniting concept for both women and men. It provides them with a shared language and a shared goal. Such shared language provides a point from which women can speak and negotiate within the family. Further, women’s roles and contributions become evident in their community and its social organisations. The concept of an equitable family invites women and men to negotiate shared, valued and agreed roles in the family. From this starting point, the discourse can be utilised to engage youth and children into gender equitable family and farm practices.

There are a number of key lessons. Most importantly, to be successful both women and men from a family need to be engaged in the FFT activities. As women and men work through the activities together and in gender-specific groups where relevant, the new language and discursive concepts are introduced and then embedded. Although there were examples of women convincing their spouse to consider changes, there were also reports of how hard it was to engage a male who did not attend. It is clear that for sustainable change both women and men from a family need to be exposed in an ongoing way to the concepts. The worst-case scenario occurs if the women of a family take up the concepts of planned farming, as they see the benefits, but their daily labour increases and the men continue to control the income.

Mandating attendance in FFT activities by ‘family pairs’ (one female, one male) reinforces the gender-inclusive principles and ensures that women do not have the burden of convincing the men. This criterion may mean that initially fewer families will engage; however, these early adopters will become role models. PNG people often say they are ‘copy-cat’ people, more recently expressed as ‘copy-and-paste’ people. Training local families as peer educators who are also role models and leverages this dynamic. As trained families apply the learning, other families see the tangible economic and social outcomes as the families become more productive, peaceful and secure. This begins a ripple effect.

It follows that FFT training teams themselves should be made up of equal numbers of females and males. Shared leadership and complementary training roles of both genders demonstrate gender equity in action. At a village level, women are able to speak powerfully and with authority about certain areas, as are men. This is particularly important in domains where male change is needed; men are the most powerful advocates for the new masculinities that are emerging in PNG. However, gender-balanced training teams are a particular challenge in agricultural organisations, as there are predominantly male staff, many of whom are yet to see the ramifications of gender inequities in agriculture. There are encouraging indications from the staff who have been trained in FFT; however, the gender imbalances across the industry will continue to provide challenges.

The diversity of families in PNG needs to be carefully considered. Polygamous families, female-headed households and those with members with a disability experience different gender equity challenges. However, they too can map their workloads and together consider what equity means in their context. Facilitators may need to support these families to identify other ways to ensure effective roles and explore different income generation activities to the dominant family types. Nevertheless, shared decision-making amongst the family farm team, whatever its composition, is the core equity process.

9.1 Future models

Supporting semi-subsistence farmers to move towards more planned, equitable and effective family farming requires three key and complementary components:

- working as a family farm team
- financial literacy and business skills
- agricultural production skills.

Training local farmers as peer educators (VCEs) is the key process for sustainability and for the harnessing of essential place-based knowledge. VCEs need to apply the learning in their own families first, so that they are able to speak from experience and show their community that they

live what they teach. As is the cultural expectation in most of PNG, farmers will then share with their wantok. This means that there will be significant clan-based learning networks across a community. However, wider dissemination needs to be more directly fostered. Existing and trusted social organisations provide the most fruitful avenues – for example, through the church, community-based organisations or ward committees.

The way the program can be best delivered will depend on the area and opportunities. However, it is recommended that all delivery models begin with the FFT training so that women and men can begin to adjust their roles, workloads and family decision-making and are then ready to engage in more equitable practices as new farming activities generate greater income.

- A development agency may choose to reach a whole community by running the program across a number of villages and hamlets concurrently. This model would be best across a minimum of two years. The FFT modules would be delivered first, followed by financial literacy training from a microbank (ensuring that budgeting and saving is in place), then training on agricultural production relevant to the area.
- An agricultural agency could use the seasonal crop cycles as the basis for program planning. For example, in a coffee area, FFT and financial literacy would be completed before the main coffee flush and its large income, which can then be used for the planned farming improvements, income diversification and saving for family goals.

Most importantly, in both models, VCEs require regular refreshers and support. This will ensure that cultural or community dynamics are managed as they arise, and that families are supported as they face challenges – such as engaging resistant youth. Emerging gender issues will surface. Regular monitoring will enable these to be handled proactively and effectively.

Across PNG, people are looking for ways of living and working that are more rewarding. As families work together to develop their family goals and their family farm businesses, they are creating their own sustainable future. Families that plan their family farm business collaboratively are able to draw on the multiple knowledges of both the women and the men of the family. The planning process can engage youth and adult children in meaningful roles and shared futures. By living and working as a family farm team, such families are change agents. They model to others the value of peaceful and productive family farm lives. Gender equity and transformation can only happen family by family.

9.2 Recommendations

The FFT model has been demonstrated to be a culturally relevant and gender empowering way to support and develop PNG women farmers and their families. The following research is now recommended:

- examining how to engage government and major social institutions, such as churches, in agricultural development using an FFT approach
- exploring how to engage youth in agricultural activities across the whole value chain
- exploring how the FFT approach can be utilised by PNG agricultural research agencies and projects
- examining if, where and how the FFT approach can be integrated in the education system, from primary schools through to higher education.
- trialling the FFT model in other Melanesian settings and beyond.

The impact pathway theory of change developed by the project provides a starting point for consideration by other research and/or development projects. As all family and community change is complex and non-linear, longer term research into points on these impact pathways would also provide important insights into contextual specificities and deepen the underlying theory of change.

There are now a number of committed VCE networks across PNG, but each network is relatively isolated. The FFT Facebook page has provided one small connection space. However, it is now crucial to consider ways to accredit and further support these key

change agents. It is through these networks that the FFT work can be further adapted by PNG people for PNG.

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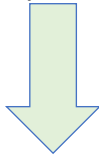
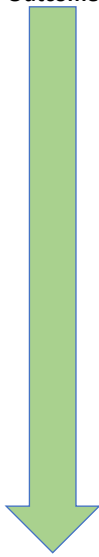

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11 Appendixes

11.1 Appendix 1: ASEM 2014/095 Impact pathways (theory of change)

	Women's leadership training	Village Community Educator (VCE) training	Family Farm Teams training	Business acumen training	Financial literacy training	Agriculture training
Input 	Training sessions	Peer learning facilitation training	Module 1 Module 2	Livelihoods training	Banking and savings training	Family food security training
	Mentoring	Mentored training delivery	Module 3 Module 4	Record-keeping training	Budget training	Women and men plan family food security
	Team building	Training evaluation	Review	Market awareness	Credit and loan training	Food crop production training
Outcome 	Enhanced ability to network	VCEs who can facilitate training	Women and men understand and begin to work as a family farm team	Women and men understand planned family livelihoods and income streams	Women and men agree on a family budget and saving goal	Women and men plan food crop production
	Women's local network established	VCEs who can work individually and as a team	Increased number of families working as a family farm team	Women and men have skills to keep business records	Women and men work together on a saving plan	Commodity crop training
	Increased community building skills	VCEs who can evaluate training	Increased family farm planning involving women	Women and men understand how to access and develop markets	Families have a bank account	Women and men plan commodity crop production
	Increased leadership capacity	VCEs who are role models	Women and men understand and apply joint farm planning	Families have a planned approach to marketing	Families use their bank account	Families plan cash and subsistence crops
	Community recognition of women's ability to lead	Increased involvement of women in training	Women and men understand and apply shared communication and decision-making	Families demonstrating business-like approach to farming	Women and men understand the process of safe credit	Diversified family farm production
	Increased number of women in community roles	Increased number of village peer educators (women and pairs)	Improved communication and reduction of violence in families	Some women and families engaging in entrepreneurial activities	Women are part of family financial decision-making	Women are involved as decision makers for farm production
Impact 	Greater gender equity in community leadership	Villages as learning communities	Greater gender equity and cohesiveness in families	Improved family farm business viability	Improved family financial viability	Improved family food security and farm livelihood
SDGs	Achieve gender equality and empower all women and girls Lifelong learning opportunities for all			End poverty Sustainable agriculture, healthy lives, food security and nutrition		

11.2 Appendix 2 Family Farm Teams economic indicators of change

Economic domain	Characteristic	Indicators
Agriculture	Improved agricultural production	Improvement in crop management Increase in crop production Introduction of new crops
	Improved marketing	Planned marketing frequency Planned places to market
	Improved agricultural business acumen	Agricultural work seen as a small business Annual seasonal production plan Family farm plan Investment in new equipment Engagement in new agricultural activities Engagement in entrepreneurial activity Family maintains business records of farming activity
Family	Collaborative decision-making	Shared decisions on: <ul style="list-style-type: none"> • budgeting and saving • asset purchase • agricultural production • marketing
	Improved income	Increase in family income from agriculture
	Improved family livelihoods	Families have enough money for daily living, school fees and health costs Women and men have individual/shared bank accounts Types of use of increased income
Personal	Control over income earned	Type of income that women have control over Use of her income

11.3 Appendix 3: Family Farm Teams social indicators of change

Social domain	Characteristic	Indicators
Community	Improved status of women in the community (power with)	Recognition of women as leaders by community leaders and men Increased range of positions held by women Increased women's networks
	Villages as emerging learning communities	Number of women and men trained as VCEs Number of women and men reached by VCEs Number and type of community organisations engaged with VCEs
	Schools as sites for early agricultural learning	Number of teachers and schools engaged in professional learning trial Teachers adoption of agricultural and livelihood teaching practices
Family	Improved family relationships	Decreased violence against women and children Shared family decision-making Increased family unity Evidence of new narratives
	Greater gender equity and cohesiveness in the family	Women and men involved in family financial decision-making in the family Evidence of new narratives
	Greater gender equity and cooperation in farm practices	Women and men involved in farm planning Women and men negotiate farm activities Women and men report more equitable farm roles and labour Evidence of new narratives
	Improved family nutrition	Adoption of three food group, rainbow and garden eating
Personal	Women's enhanced personal power (power within) as a woman and/or leader	Recognition of personal skills, knowledge and worth Women can articulate expanded personal aspirations
	Increased knowledge and skills in facilitating training	Women and men VCEs can articulate their process of peer education Women and men VCEs can recognise and report stories of change