



Strengthening food production capacity and resilience to drought on vulnerable communities

Progress Report July 2018 – June 2019

European Union funded Climate Change Resilience Action

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1. Introduction

The following report is a summary of the activities and achievements for the EU funded Action “Strengthening Food Production Capacity and resilience to drought on vulnerable communities” for the period from July 2018 to June 2019. The earlier period from the start of the Action in February 2017 – June 2018 was reported in the first interim technical report submitted to the EU office in October 2018.

2. Summarising progress towards achievement of planned outputs

2.1 Output 1 – Action effectively implemented

Indicators: <ul style="list-style-type: none">• Annual ASC organized• No. of addenda are limited• Action milestones achieved in timely manner• No request for extension• Budget fully utilized	Assessment to date Meetings convened in 2017 and 2018 No need for agenda yet On-going assessment Not applicable at this point On-going assessment but at this point still significant under-spending
Targets: <ul style="list-style-type: none">• Minimum one MOA with one local partner in each of the targeted communities	MOA’s are in preparation; agreement from 10x districts on content of MOA available

Activity 1.1: Action office established, staffed, equipped and managed for action implementation period

The Action management unit staffed initially with 1 full-time administrative officer and the Action Accountant (25% time inputs) is located at the NARI Head Office (HQ) at Sir Alkan Tololo Research Centre, Bubia. The Action office for the Action Coordinator is located in the Administrative Building (R. Ghodake Biotech Centre) of the Momase Regional Centre (MRC), Bubia, which is one of the NARI implementation centre. The other two NARI centres are the Islands Regional Centre (IRC) Keravat and the Southern Regional Centre (SRC) Laloki. In each of the centres administrative units have been established with an administrative officer and the Action Centre Coordinator.

Changes in the reporting period include the appointment of an additional administrative assistant at the Action management unit at HQ and the appointment of Dr Dave Askin as Action Coordinator in April 2019. This appointment was temporarily revoked due to administrative processes that need to be followed to comply with PNG Labour and Visa regulations for foreign nationals working in PNG. Dr Askin will however continue for the time being with the Action on a consultancy basis.

For the time being, the Action is now overseen by Program Directors Birte Komolong (Output 1, 2-4) and Laurie Fooks (Output 1 and 5) with oversight from the Deputy Director General.

Activity 1.2 Action coordination, planning and review

Action coordination is an on-going activity. Aside from the overall coordination by the appointed Action Coordinator (currently vacant), the Action is supporting four technical coordinators viz Crops and Natural Resource Management (Mr Jeffrey Waki, MRC), Livestock/Aquaculture (Dr Janet Pandi, MRC), Community engagement/socioeconomics (Clifton Gwabu, SRC), Communication (Mr James Laraki, HQ). They are supported at the Action coordination centres by the Centre coordinators (ACC) at SRC (Dr Peter Gendua), IRC (Mr Ofara Petilani) and MRC (Dr Pika Kohun).

Coordination activities include formal and informal meetings of the Action team including phone conferences with ACCs. In the reporting period a formal Coordinator meetings for planning and review were held in August 2018 (Action site activity planning) February 2019 (review and 2019 workplan, minutes available).

Activity 1.3 Local partner institutions identified for pilot and outreach sites and partners established in target sites

Two inception meetings were held in 2017:

- 25-26 October 2017 in Bubia for Momase and Islands Region; 20 participants from provincial/district DAL, NGOs, CBOs;
- 15-16 November 2017 in Bubia for Southern Region, 29 participants from provincial/district DAL, NGOs, CBOs

Reports completed and available

Aside from representatives of the target province/district/LLG administrations, representatives of a range of potential partners were invited. The following representatives of NGOs/CBOs/FBOs that were known to have had programs in target sites were represented in the meetings:

- Lutheran Development Services
- Wildlife Conservation Society
- Ok Tedi Development Foundation
- International Organisation on Migration
- Adventist Development and Relief Agency
- Baptist Union
- PNG Women in Agriculture Foundation
- FORCERT
- World Vision

The conclusion was that essentially there are no active on-going programs by non-government actors in either the tentatively designated Pilot – or Outreach sites. This meant that a major assumption made in the design of the Action that there would be organisation operating with active programs addressing climate change adaptation in a range of the sites (Outreach sites) did not hold. It also meant that the primary partners in all of the sites would be the district administrations and their agricultural managers and Rural Development Officers.

The following sites have now been selected as Pilot sites with activities aimed at building capacity of primary partners and support them to engage with target communities in selected LLGs to also build their capacity for enhance food production and adaptation to climate change of their agricultural systems.

Confirmed Pilot Sites with established Site activity plans	
Kome LLG, Menyamya District	MRC
Watut LLG, Bulolo District	MRC
Selepet LLG, Kabwum District	MRC
Teptep LLG, Raicoast District	MRC
Rigo Coastal LLG, Rigo District	SRC
Lakekamu-Titikaini LLG Kerema District	SRC
Oriomo LLG South Fly	SRC
Misima LLG Samarai-Murua	SRC
Bali-Witu LLG, West New Britain	IRC
Pobuma LLG, Manus	IRC

Outreach Sites – delivery of minimum packages based on partner requests, yet to be actioned	
Almami LLG, Bogia District	Madang PDAL is determined to pursue their own extension program with the use of crop and livestock technologies, information and training provided.
Astrolabe Bay, Raicoast	Madang PDAL is determined to pursue their own extension program with the use of crop and livestock technologies, information and training provided.
Telefomin Rural LLG, Telefomin District	The Min people of the Telefomin district are challenged by severe isolation and relatively infertile soils. The Baptist Union of PNG (BUPNG) has had a long history of medical, education and agricultural input at Telefomin station and surrounding villages. The EUCCR Action has both capable and willing partners in Community Development Workers Association (CDWA) and BUPNG. CDWA have run with Ben Heyward and Dr Askin village agriculture, including livestock training, water supplies and agroforestry as part of drought and fire rehabilitation.
Kotte, Finschhafen	Lutheran Development Services has active interests within this area and have agreed to deliver on outreach activities.
Wewak Rural, Wewak District	The need for planting material and poultry breeding stock was recognized at the Inception workshops. PDAL and RDO were involved in TOT workshop.
Target sites found to be not feasible at this point of time for inclusion in the Action	
	Comments
Gogodala, Middle fly	Very difficult access
Louisiada, Samarai-Murua	Other programs
Kiriwina, Kiriwina-Goodenough	Other programs
Dobu Rural, Esa'ala	Other programs
Afore, Ijivitari	Poor communication, little interest by partners
Kokoda Urban, Sohe	Poor communication, little interest by partners
Kaintiba, Kerema	Very difficult access

During the reporting period draft MOAs have been developed based on agreed actions in different pilot sites. MOAs are important for partnering with District Administrations as they need to be in place to release RDOs and allocate land for establishment of multiplication plots and livestock breeding units. The content of the MOAs has been agreed to by all 10x District administrations and the signing will now be progressed with urgency (Example of a Draft MOA attached in Appendix 6.1).

2.2 Output 2 - Community-driven innovation processes in climate change adaptation are established in 8-12 Pilot communities and are gender-sensitive

<p>Indicators:</p> <ul style="list-style-type: none"> • Effective establishment of innovation processes • Gender-Balance is mainstreamed in selection of CC champion 	<p>Assessment to date:</p> <ul style="list-style-type: none"> • Implementation of activities in target sites are based on participatory and consultative processes that are designed to respond to the needs of target communities as expressed and agreed to by them • As much as possible gender-balance is demanded but not always achieved due to inherent socio-cultural norms and values
<p>Targets:</p> <ul style="list-style-type: none"> • At least one champion per community and overall 50% of them women • One feedback survey/year 	<ul style="list-style-type: none"> • Primary champions in most sites are the RDOs but more champions are emerging from on-going activities and interactions • Not applicable yet (end of 2019)

Activity 2.1 Needs and vulnerability assessments in 8-12 pilot sites conducted and priority interventions identified

A desktop study was completed in August 2017 and all needs and vulnerability assessments were completed for the 8 pilot sites in June 2018. A report is available (included in the first interim technical report).

Activity 2.2 Gender-sensitive local Action plans developed by project team and local partners for 8-12 pilot sites based on vulnerability & needs assessments and Community inputs

A preliminary analysis was done after completion of the surveys especially the results from voting of communities on priority actions. This information was used for the development of site specific Action plans.

During the reporting period, detailed Action plans and budgets were completed by November 2018. Gender dimensions were taken into account in the final selection of community driven priorities with women choices given preference where necessary. Roll-out of activities as per action plans started in early 2019. A series of site travels with roll out of activities will continue for the rest of 2019 and further into 2020. Centre based learning activities for the selected primary partners will continue (workplans for 2019 and 2020 to be presented during the meeting). An example of a planned travel schedule for staff at MRC for Momase region target sites is shown in Table 1.

The full analysis of the survey and needs assessment results is in progress and the drafting of the Survey and Needs Assessment survey report has started. It is anticipated that this report will be completed by October 2019.

Activity 2.3 Facilitation of annual feedback meetings in 8-12 pilot communities

This activity is yet to be planned.

Activity 2.4 Gender and socio-cultural factors influencing community engagement determined and understood for effective selection of CC champions and outscaling of technologies and strategies

Study is yet to be conducted.

Activity 2.5 Economic Assessments of selected piloted CC adaptation options

Study is yet to be conducted.

Table 1. Example of the planned travel schedule for visit to sites coordinated by the Momase Regional Centre in the remaining months of 2019

August (wk 3-4)	September		October	November
<p>Trip 1 Raicoast Teptep (Nayudos LLG) Specify training (TOT manual-fine tune to develop Farmer Training Manual Pilot farmers to upscale technologies & drought coping strategies (Evaluated for Model Set up after 3 months during the second planned trip</p> <p>Staff: J. Pandi, J. Waki, P. Pandau, E. Solomon, A. Roberts, M. Simin, B. Buyange, K. Sitango, T. Kui</p>	<p>Trip 2 Menyamy Kome LLG Facilitate RDO Training and Resourcing of sites ; Livestock Team will also be delivering specialised training on Candling and Incubation of eggs and Management and storage of eggs for either breeding or sales whilst overseeing delivery of training by RDO. Livestock Foundation stocks of poultry will be delivered then and a Poultry Shed will be constructed (Mr Mande Kanunur to be requested to accompany the team) to house the Solar Incubator, Breeding flock and a Brooding area for hatchlings; Construction of Poultry houses for Model farmers will also be carried out-Staff: J. Waki, C. Atung, M. Simin, T. Kui/ Poultry Team -J Pandi to oversee RDO delivery of Training to farmers whilst Maima Sine and Elly will oversee construction of Model units on farmer sites and Monica Mazi to deliver Specialised Training as previous mentioned; Mr Mande Kanunur construction of Nursery & Poultry Shed</p>	<p>Technical Coordinator Site visits to NARI Stations; Site visit -NARI SRC, Laloki Staff: J. Pandi and J. Waki</p>	<p>Trip 2 Kabwum Selepet LLG Facilitate RDO Training and Resourcing of sites (Vegetable kits/Clean planting materials for site specific crops);Livestock Team will also be delivering specialised training on Candling and Incubation of eggs and Management and storage of eggs for either breeding or sales whilst overseeing delivery of training by RDO. Livestock Foundation stocks of poultry will be delivered then and a Poultry Shed will be constructed (Mr Mande Kanunur to be requested to accompany the team) to house the Solar Incubator, Breeding flock and a Brooding area for hatchlings; Construction of Poultry houses for Model farmers will also be carried out- Staff: J. Waki, C. Atung, M. Simin, T. Kui/ Poultry Team -J Pandi to oversee RDO delivery of Training to farmers whilst Arthur Roberts and Elly will oversee construction of Model units on farmer sites and Monica Mazi to deliver Specialised Training as previous mentioned; Mr Mande Kanunur construction of Nursery & Poultry Shed</p>	<p>Trip 2 Raicoast Teptep (Nayudos LLG) Facilitate RDO Training and Resourcing of sites (Vegetable kits/Clean planting materials for site specific crops);Livestock Team will also be delivering specialised training on Candling and Incubation of eggs and Management and storage of eggs for either breeding or sales whilst overseeing delivery of training by RDO. Livestock Foundation stocks of poultry will be delivered then and a Poultry Shed will be constructed (Mr Mande Kanunur to be requested to accompany the team) to house the Solar Incubator, Breeding flock and a Brooding area for hatchlings; Construction of Poultry houses for Model farmers will also be carried out- Staff: J. Waki, C. Atung, M. Simin, T. Kui/ Poultry Team -J Pandi to oversee RDO delivery of Training to farmers whilst Arthur Roberts and Elly will oversee construction of Model units on farmer sites and Monica Mazi to deliver Specialised Training as previous mentioned; Mr Mande Kanunur construction of Nursery & Poultry Shed</p>

2.3 Output 3 - Increased adoption of improved strategies and technologies to manage short and long-term climate change risks by pilot communities in 8-12 LLGs

<p>Indicators:</p> <ul style="list-style-type: none"> • Early warning system established • increased skills and knowledge of participants to use improved agricultural technologies, practices and strategies • local seed banks/livestock breeding centres established • pilot watersheds 	<p>Assessment to date:</p> <ul style="list-style-type: none"> • this indicator needs to be reworded • increase of primary partners in 10x target sites has started with various learning activities and delivery of planting materials • activities have started • activities have started with visits by the water management expert
<p>Targets:</p> <ul style="list-style-type: none"> • Early warning system designed and piloted • Up to 10-15 local learning facilitators participate in TOT events • At least 50-80 community members/target area participate in at least one learning event. • At least one improved Seed Saving and distribution strategy used in local community by end of project • At least one local supply for poultry established per district • at least one pilot watershed • 10-12 water pumps 	<ul style="list-style-type: none"> • Target needs to be revised in line with Action activities • Total 32 learning facilitators have so far participated in two TOT learning events • So far between 50-100 community members (average 30 women/37 men) in 4 sites • Initial work has started to improve seed systems • Initial work has started to establish local poultry supply • Menyama chosen as site for establishment of micro-watershed with associated management plan • Appropriate type and placement considered as part of Site Action plans

Activity 3.1 Building capacity of Local learning Facilitators (LF, from NGOs, CBOs, GOs or Model farmers) to assist in delivery of Action plans in 8-12 pilot sites

Milestones: Communication and learning specialist engaged/ Modules for learning activities (Training of Trainers [TOT], Farmer training by LF) developed

An expert in Adult communication and capacity building, Dr. Dave Askin of Kilu Consulting, was contracted to assist with a schematic preparation of the learning modules based on the identified set of available NARI technologies and training materials. The modules were to be designed to cater for the initial building of capacity of Local Learning Facilitators (LFF) in support of Training of Trainers (TOT) as well as offer suitable learning materials that the LFF can use to further extend the information and skills on agricultural technologies and strategies for improved food production in light of climate change. The contract was signed in April 2018 and concluded in December 2018 (**Appendix 6.2 consultancy completion report**).

The following TOT manuals and support materials have been developed so far:

- Root crops processing and preservation in Papua New Guinea
- Propagating Food Crops in Papua New Guinea – Training trainers
- Improved poultry production for climate resilience in Papua New Guinea - Training of trainers manual
- Sustainable fish farming for cash in times of climate change in PNG - training of trainers
- Pig husbandry in PNG- Training of trainers
- Sustainable gardens in Papua New Guinea - Trainer of trainers workbook

- Climate change - Villager manual for soil management and sustainability

The work on Learning materials and modules is work-in-progress and includes also initiatives that have started to produce instructive video-clips to support the printed information in the learning modules.

The learning materials were used in two TOT workshops:

- First TOT training for 27 RDOs in 4x pilot and 4x outreach sites in Momase region conducted in Dec 18 at MRC Bubia
- Delivery of the Second Training of Trainers program to 15 rural development officers from government and CBO's of five provinces in Southern and Islands Region, 13-17 May 2019

Appendix 6.3 TOT Workshop Reports

Activity 3.2 Adaptation and/or development of target site specific technologies, strategies, practices as arising from the needs & vulnerability assessment

The following complementary studies are planned to be implemented on issues arising from information gathered during the needs assessment surveys as well as development of generally applicable technologies and practices:

<i>Study on the SSS (Storage, Sand, Sprouting) system for sweetpotato completed</i>	Trials completed; draft report in progress - Technology to address storage of sweet potato planting material during extended drought for recovery and regeneration of gardens with quality planting material
<i>Study on Black soldier fly larvae as village based protein supplement for poultry, fish, pigs</i>	Trials in progress
<i>Study on Vegetable seed kits for disaster response in PNG</i>	Piloting of the World Vegetable Centre Disaster Relief vegetable seed kit (sufficient seed of nutritious hardy vegetables on 100sq m) 500 seed packs of 6 vegetable species (<i>Amaranthus mangostanus</i> , <i>Chorchorus olitorium</i> , <i>Abelmoshus esculentus</i> , <i>Ipomoea aquatica</i> , <i>Basella alba</i> , <i>Vigna radiata</i>) received; the disaster relief kit contains combinations of 3 of the vegetable species; they will be tested using the TRICOT methodology developed by Bioversity International and World Veg; Other vegetable seed of open-pollinated species (Tomato, pumpkin, yardlong bean, lima bean, lablab bean) were also received; Expected output: PNG specific disaster relief kit developed
<i>Study on Use of duckweed in watershed management</i>	Proposal developed implementation to start
<i>Collection of wild yam cultivars and assessment of distribution and utilization as a traditional drought food by Rigo Coastal villages</i>	Proposal in development
<i>Study on evaluation of NERICA rice varieties</i>	Proposal submitted for R&PC in the next meeting
<i>Traditional taro crop irrigation and the implications to pest and disease incidence and taste attributes</i>	Proposal in development
<i>Integrated fish-duck-ponds for efficient nutrient utilization in Taipa village, Kome LLG</i>	Proposal in development

<i>Survey of gastro-intestinal parasites affecting pigs and poultry and the impact of environmental stress on crossbred village chickens across remote pilot sites in the Islands, Southern and Momase Regions</i>	Proposal in development
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Activity 3.3 Gender-sensitive learning activities implemented by NARI technical coordinators supported by local learning facilitators with interested community members in 8-12

Milestone: Implementation according to specific site action plans for 8 (10) pilot sites
Detailed plans have been developed for each of the 10 pilot sites and roll-out of activities has started (see Activity 2.2). So far visits following the needs assessment surveys have been made to the following locations:

Location	Date	Purpose
Rigo, Kome, Watut, Kabwum	October 2018	First visit by water management expert for pilot site selection.
Kakoro, Gulf	October 2018	Lead Farmer identification and base line survey and Cassava and Taro demonstration and multiplication plots establishment.
Rigo	April/May 2019	Lead Farmer identification and base line survey and wild yam ethnobotanical information and leave samples collection.
Kome and Watut	March/April 2019	Delivery of first training to the first 40 participants who were involved in the needs assessment survey and priority setting of interventions on; <ul style="list-style-type: none"> • Crop staple diversification; • Food Processing; • Livestock: Village poultry and inland aquaculture
Kabwum	June 2019	Delivery of first training to the first 40 participants who were involved in the needs assessment survey and priority setting of interventions on <ul style="list-style-type: none"> • crop propagation practices • soil conservation and management practices using local available resources • food process and preservation • best management practices for raising local pigs, chickens or fish • Select livestock farmers to participate in on-farm pig and poultry research activities • To prepare family poultry unit site for multiplication of breeding stock for local chickens.
Misima	February & June/July 2019	Lead Farmer identification and base line survey and Cassava, sweet potato and Taro demonstration and multiplication plots establishment Delivery of first sweet potato silage making and delivery of ducks and village chicken for multiplication.

Milestone: Capacity for on-going communication with key partners in 8x pilot sites established
Participants of the TOT training for Momase, Southern and Islands region were supplied with smart phones/tablets on cost-sharing basis (50% sponsored by the project). Instructions and training on how to use social media, email etc was also included in the training.

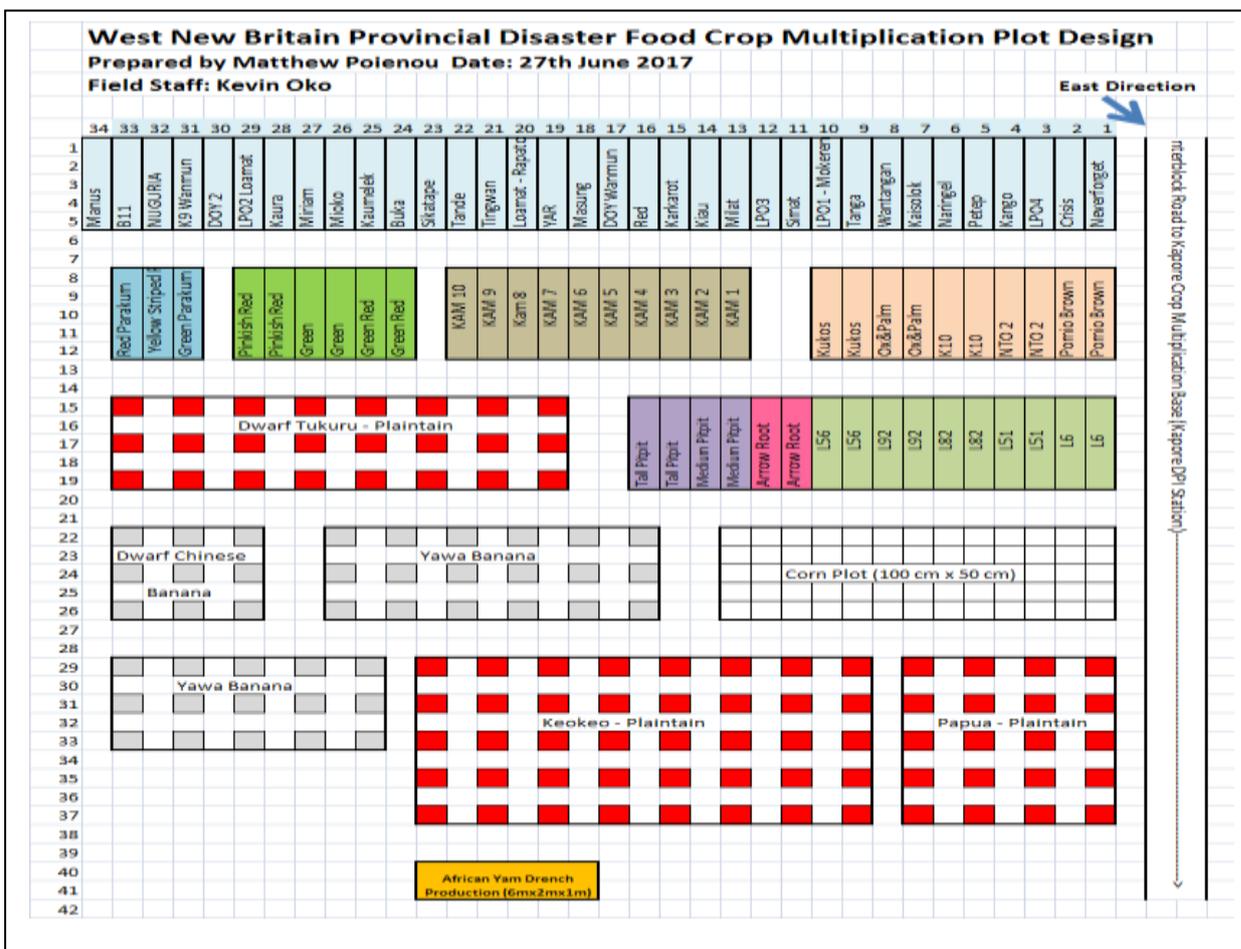
A regular system for communication, follow-up, reporting, feed-back with partners in sites is yet to be fully developed. This is further reported below under Output 5.

Milestones: Planting materials of staple and vegetable crops supplied to 8x pilot sites, Breeding stock of chicken and ducks supplied to 8x pilot sites, Learning activities facilitated in 8x pilot sites (type, number of m/f trained), infrastructure support and other materials supplied to key partners in 8x pilot sites

Planting materials and breeding stock are sourced primarily from NARI released crop varieties or recommended landraces from evaluations done by NARI and available livestock breeds of ducks and village chicken. Additional crop varieties have also been sourced from the Centre for Pacific Crops and Trees (CePaCT) at the Pacific Community (SPC) (Appendix 6.4) in Fiji and the World Vegetable Centre in Taiwan for open-pollinated vegetable species and the disaster relief kit.

The materials are bulked and multiplied at the three NARI Action Coordination Centres MRC, SRC, IRC. Imported materials received in tissue-culture or small seed lots will require the initial hardening and seed multiplication and one season of observation trials on-station and further bulking before they will be available for distribution to sites.

Part of the distribution strategy for planting material and livestock is also the establishment of multiplication centres in collaboration with the local partners. In some cases such as West New Britain and Milne Bay, the provincial administration (PA) through their agriculture divisions are already maintaining multiplication centres for planting material. NARI will further supply them with additional material. The following picture shows the seed multiplication base at Kapore, (Kimbe, WNB) that has been established through collaboration between NARI and the WNB PA.



At target LLGs, agreements have been made with the respective District Administrations to establish a District/LLG crop multiplication centre and a breeding unit for poultry. This will include delivery of a field nursery structure and poultry house using NARI developed standard design and establishment of the multiplication plots in the field. This work has started with the first delivery of planting materials to visited sites.

So far the following goods and services were supplied to sites visited.

Items	Numbers
Sweet potato cuttings:	4,530
Taro suckers:	780
Cassava cuttings:	2918
African yam:	200Kg
Rice seed:	4kg
Ducks:	20
Village chicken:	15
Learning activities delivered in 4 pilot sites:	total 401 community members participated (female 174; male 227)
Materials for the field Nursery for Kome, Watut and Selepet, Misima (Shade cloth, tools such as spades, bush knives, grafting knives, hand gloves, gum boots, tape measures, buckets, watering cans)	

3.4 Explore current status of Early Warning systems in PNG and implement in pilot sites

We are developing network of weather stations in partnership with NWS and other sister institutions (NDC, CIC, Trukai Rice, UOG) and assistance is sought from regional institutions likes RIMES and other donor agencies (UNDP) to increase the number of weather stations, better monitoring, collection, synthesis and analysis of data for developing robust EWS. We are also going to start Climate smart information Centers (CLICS) under the new ACIAR- funded climate change project. Under this project, NARI will provide the Climate Change Champions in each District with a Rain Gauge and a thermometer as EWS for Drought, so they can monitor rainfall and temperature and take on coping strategies when rainfall drops consistently with corresponding drop in night temperatures.

The activities envisaged in the Action are (i) Refurbishing and establishment of functional weather stations at NARI locations and feasible pilot sites (ii) Collection and analysis weather data (iii) seasonal weather forecast and advisories and (iv) promote climate smart and resilient technologies

Regular communication with our network is at the heart of early warning and extra TOT sessions will assist with the establishment of effective communication which will assist in early warning.

Activity 3.5 Analysis and Establishment of at least one pilot watershed established

Based on the partnership with BOKU in the previous EU funded project implemented by NARI, the water engineer Dr Ruffeis was approached for submission of an EOI based on the TOR developed by NARI for engagement of an expert to support this activity. This was in line with

plans and budgets in the Action Design Document. The contract for his supply of services as Water Management Expert (WME) was signed on 1 August 2018.

The first visit of the WME took place from 28 September - 20 October 2018. The WME visited 3 locations (11 sites within, Rigo, Kabwum, Menyamya) to select a suitable location for a pilot micro-watershed. Kome LLG, Menyamya was selected based on access to the location by road, geo-physical criteria, community response and activities already happening (**Appendix 6.5 Report on first visit of the WME**).

The second visit of the WME is taking place from 12 - 28 July. The purpose of this trip is to undertake more detailed measurements and assessment and the confirmation of the sub-site at Kome. The final output will be the micro-watershed implementation plan.

2.4 Output 4 - Improved capacity of local partners in out-scaling of Climate smart agricultural production technologies and strategies in 8-12 outreach sites

Indicators:	Assessment to date:
<ul style="list-style-type: none"> • number/type of information materials supplied • amount of planting materials or breeding stock supplied • no. of capacity building events and community members participating • training impact assessment of partners 	<ul style="list-style-type: none"> • Not started • Not started • Representatives from a number of designated outreach sites participated in TOT training events • Not applicable yet
Targets: <ul style="list-style-type: none"> • to be determined during the capacity needs assessment 	

Activity 4.1 Capacity needs assessment of identified lead partners

Representatives from all sites listed in the Action Design Document were invited to the two inception meetings conducted in 2017. Information provided by the representatives was used to confirm pre-selected pilot-sites and much of the following attention for further action was directed towards the needs assessments, development of site Action plans and roll-out of activities for those 8 sites plus the 2 outreach sites that IRC is coordinating.

NARI has not conducted any formal capacity needs assessments with identified or other potential partners in other sites so far. It was already highlighted under Activity 1.3 the core assumption for increasing adaptive capacity in the wide range of sites shown in the Action Design Document did not hold and all 22 sites would need to be essentially categorized as Pilot-Sites requiring a level of interaction and provision of goods and services that exceeds NARI's capacity at present to respond to.

The interactions with representatives from a number of currently categorized outreach sites during the inception meetings and the two TOT trainings, however, will allow for the delivery of a minimum package of goods and services without the need for repeated visits from NARI. The selected sites are shown in the table under Activity 1.3. The following is the draft minimum package. This will require some further consideration and agreements reached with the respective partners and may vary from site to site.

During the TOT trainings already provided:

- A tablet or mobile device at 50% cost-to-recipient
- A full package of NARI Toktoks and other useful agriculture and climate change information on SD card and flash drive
- Tutoring in the use of mobile devices for emailing and sharing information such as attached reports, pictures and videos, accessing Gutpela PNG Gaden website, YouTube and other web-based resources.
- Establishment of basic M&E for training and plant distribution. Much more needs to be done to implement effectively.
- Monthly allowance for mobile credits/data bundles for ongoing communications dependent on regular reporting and feedback from their respective locations **(to be discussed)**

Extension packages include:

- Crop planting materials (crop species and varieties to be advised by site partner based on what NARI can offer)
- Poultry breeding stock, DOC and eggs
- Hatchery unit with a solar incubator (depending on funding)
- Provision of further training materials as determined from ongoing Pilot site activities
- Information sharing and other interaction with RDO's for capacity building

Activity 4.2 Supply of requested materials (seed, planting material, foundation breeding stock, information, etc) to local lead partners

Representatives of designated outreach sites that participated in the two TOT workshops were supplied with small quantities of planting material. The details can be found in Appendix 6.6.

Activity 4.3 Gender-sensitive learning activities facilitated for capacity building of lead partners (out-reach sites) on climate smart adaptation options

Representatives from the designated outreach sites participated in either of the two TOT workshops. They will get opportunities to participate in any other learning activities organised for lead partners in pilot and outreach sites.

2.5 Output 5. Visibility, communication and advocacy on climate smart agricultural technologies and strategies improved

<p>Indicators:</p> <ul style="list-style-type: none"> • Information packages on new knowledge is generated and disseminated • Process of dialogue with policy makers is engaged and on-going • Number of visitors to e-platform from both, national and regional stakeholders • Visibility materials/events produced and implemented 	<p>Assessment to date:</p> <ul style="list-style-type: none"> • Work has started • Progressing • Establishment of e-platform started • A number of materials have been developed
<p>Targets:</p> <ul style="list-style-type: none"> • A range of 8-12 information packages is generated • At least 5 communities/districts or entities not involved with current project request or access information • Set of events with policy makers • 15-22 field days • E-platform is records at least 200 visits annually and visitors from at least 10 other countries in the region. • At least one national workshop with TV feature • Booklet on lessons learnt and recommendations for improved management of future events 	<ul style="list-style-type: none"> • Project fliers, posters, TOT manuals and learning materials • No records • Climate Change Policy Forum during the 2019 Annual Innovation Show • To be done in Year 4 • Establishment is progressing • Climate Change Policy Forum during the 2019 Annual Innovation Show was covered by national broadcasters • No applicable yet

Activity 5.1 Resources and methodology developed and applied for the dissemination of climate adaptation information to Action partners and other stakeholders

Milestone: Information materials and packages developed (printed, audio-visual)

A number of information materials have been developed including Action Information Flier, eight training manuals developed and pretested through TOT training in December 18 and May 19, posters and plans for production of four short instructive videos has been finalized.

Milestones: E-platform developed and functional; Mobile app developed for on- and off-line access of information

The NARI e-platform is based around the NARI website as the first point of contact with links to other services. Currently, the Action is using the site www.gutpela-png-gaden.net which was established and made available to the Action by Dr Askin as a repository of relevant information materials. Shortly, it will be linked to the newly upgraded NARI website and will act as the main repository for the EUCC Action and information. Key stories from the EUCC system will also be added to the climate change category on the main NARI website. Stakeholders are being encouraged to post stories and experiences, along with training they do onto the EUCC facebook group at EUCC Partners.¹ Information packages and videos will also be added to the new NARI library (available at <https://pngnari.net/library>) with videos accessed either directly from the NARI Youtube channel or via the library or mobile App. All project activities will be added to the new NARI Project management system (in development at <https://pngnari.net/pmjs>, with site locations also linked to Google maps via the information

¹ Closed group that stakeholders are encouraged to join at - <https://www.facebook.com/groups/682832882148357/?ref=bookmarks>

system. Friendly summaries of key public EUCC information will be available to stakeholders through published links.

Milestones: Mini-field days conducted in pilot and outreach sites; Visibility materials developed and disseminated, Visibility events

The Action team participated in the Morobe Agriculture Show 2018, Kwikila Agricultural Show 2018 and the Agricultural Innovation Show, 29 - 30 May 2019. Displays and demonstrations were set up for those occasions.

A number of items including caps, t-shirts and coffee mugs were printed with Action motif and logos to support Action visibility. So far 200 caps and shirts and 70 mugs were distributed. Action sign boards have been placed at MRC, IRC and SRC and three banners were developed for use by Action coordination centres. Signboards were also set up in a number of project sites including Kome, Watut, Taure-Lakekamu (Kerema) and Misima. Signboards in other locations will be erected as part of the next trip to the locations.

The Action is also supporting the production of the NARI Newsletter.

At MRC's BioTech facility the EUCC Office functions as a team meeting venue with data projector, maps, work plans, budgets and displays being developed.

Activity 5.2 Documentation of local knowledge and practices in managing climate variability induced risks and emergency situations

This activity has not progressed much. The development of a concept note has been initiated.

Activity 5.3 National stakeholder workshop to inform policy makers and other key stakeholders on lessons learnt and recommendations arising from the project

NARI organised for a policy forum on Climate Change as part of the 2019 Annual Innovation Show at Sir Alkan Tololo Research Centre, Bubia. This was not a specific activity supported by this Action. However, the broader issues around climate change and impacts on smallholder communities, the need for better collaborations and partnerships with districts and communities in most impacted areas was highlighted.

3. Modifications in the implementation plan impending problems and recommended solutions

The major modification to the implementation plan is the scaling down of activities in Output 4 relating to implementation in Outreach sites. This has been mentioned in previous sections with recommended actions. It is still envisaged to reach a total number of 16 sites but NARI will not be in a position to support implementation with site visits and implementation of on-site activities. However, NARI has numerous links with women's groups and other stakeholders that are able to deliver NARI technologies in varied formal and informal ways. These are being resourced as and when appropriate.

4. Lessons learnt or any other relevant observations as part of implementation

The number of target sites and spread across the country with many difficult to access locations poses a considerable challenge for NARI to deliver according to what was outlined in the Action Design Document. While this was recognized to some extent in the design with

introduction of the concepts of “Pilot sites” vs “Outreach sites” with the latter to be serviced by established partners such as NGOs, CBOs, etc through their on-going programs, reality showed that nearly all NGOs that had been active during the recent 2015/2016 severe El Nino event were not active anymore in the sites. The major reason is their project based delivery mode that does not allow them in many cases to maintain ongoing services in their area of operation. Hence, the main contacts in all of the pilot sites and nearly all outreach sites that the Action team will continue to engage with are the Government Agricultural Services established through the District Administrations who require a lot of support and interactions. Some women’s groups are independent while others are closely linked to churches. These groups will be resourced with some plant material and a kit of information materials as appropriate. Flexibility in this approach will see considerable informal progress made in the desired outputs of the Action.

Critical role of communication

Communication is critical for the realisation of outputs and outcomes generally. At each location a simple communication survey has just been established – seeking gender disaggregated information on the use of phones for texts, calls, marketing of produce all the way through to use for email and facebook.

Charging these phones is normally a substantial challenge in village settings. Our intention is to resource the pilot and some outreach sites with solar panel, battery, and controller to allow charging and some LED lights.

During training of trainer workshops participants were very keen to learn basics of wiring and calculations required for their small solar installations. Notes printed for the TOT in May 2019 are available here – <https://gutpela-png-gaden.net/library/record/view/id/97>.

Phones or tablets provided to the TOT’s have email accounts established. As we continue to interact through visits, our staff will ensure that email issues are sorted so that communication continues to improve.

5. Financial Report

The last monthly financial report ending 30 June 2019 is provided.

6. Appendices

6.1 Example of a draft MOA

MEMORANDUM OF UNDERSTANDING

Between



NATIONAL AGRICULTURAL RESEARCH INSTITUTE (NARI)

And



BALI-WITU LOCAL LEVEL GOVERNMENT (BWLLG)

And



WEST NEW BRITAIN PROVINCIAL GOVERNMENT (WNBPG)

on

Collaborative implementation of the EU funded Climate Change Adaptation Project on Strengthening food production capacity and resilience to drought on vulnerable communities

PREAMBLE

This Memorandum of Understanding (MoU), which is non-legally binding, jointly developed by the National Agricultural Research Institute, Bali-Witu Local Level Government and West New Britain Provincial Government expresses the understanding between:

- (1) The National Agricultural Research Institute (NARI);
- (2) Bali-Witu Local Level Government (BWLLG); and
- (3) West New Britain Provincial Government (WNBPG).

1. PURPOSE

This understanding is based on the following purpose;

To facilitate an enabling environment for collaborative execution of Climate Change Adaptation on Strengthening food production capacity and resilience to drought on vulnerable communities in the Bali-Witu Local Level Government.

1. BACKGROUND

(a) NATIONAL AGRICULTURAL RESEARCH INSTITUTE (NARI)

NARI is a statutory public Agricultural Research Institute engaged in research to promote innovative agricultural development of the smallholder sector in Papua New Guinea through scientific research, knowledge creation and information exchange. It has strategic objective of accomplishing enhanced productivity, efficiency, stability and sustainability of the smallholder agriculture sector so as to contribute to the improved welfare of rural families and communities who depend wholly or partly on agriculture for their livelihoods.

NARI is implementing the European Union funded project on "Strengthening food production capacity and the resilience to drought of vulnerable communities". This is a 4-year agriculture for development project targeting selected LLGs from Districts assessed in Category 4 and 5 of worst affected areas in the 2015/16 El Nino event. The project will specifically target to strengthen the adaptive capacity of 16-24 LLGs across 11 provinces to respond with appropriate agricultural technologies and strategies to abiotic stresses arising from seasonal weather patterns and climate change and impacting on /agricultural productivity. Part of the implementation modalities is to seek partnerships with local NGOs and Government organisations to draw on their local expertise and comparative advantage to implement specific activities in the targeted sites.

Through this MoU, it is expected that NARI will support Bali-Witu LLG and West New Britain Provincial Government through their existing programmes to take ownership, deliver, and sustain the project in the communities throughout the Bali-Witu LLG.

(b) BALI-WITU LOCAL LEVEL GOVERNMENT (BWLLG)

Bali-Witu LLG is one of the 6 LLGs in Talasea District of West New Britain province and has 7 wards with a total population of 17,650 people (2015 relief distribution population census).

The BWLLG has two organizational structures which include the political which is represented by Ward Councillors and headed by the President. The other is the Administration which is headed by a LLG Manager and support staff to administer projects and developments from the District/Province and other partners to the communities. In the past, the BWLLG have partnered with AusAID, EU and NGOs, etc through the West New Britain Provincial Government to address projects on climate change, water and sanitation, environmental issues, Land-use and economic developments.

This project is aligned with the BWLLG Plan and will also enhance the LLG's existing roles and responsibilities in addressing climate change and related issues throughout the communities.

(c) WEST NEW BRITAIN PROVINCIAL GOVERNMENT

West New Britain Province has a land mass of 20, 387 square kilometres with a total population of 264,264 (2011 census). It has two districts namely Kandrian-Gloucester and Talasea with 11 LLGs and currently administered from the Provincial Headquarters in Kimbe. The Province also has three political representatives at the National Government level. The Provincial Government plays an important role in the management of the people and their resources. It continues supporting and maintaining the National, Provincial, District, LLG and Ward functions in terms of policies, finance, human resources, economic developments, infrastructures, various donor projects, etc. The West New Britain Provincial Government sees this project as an opportunity to enhance their existing plans for Bali-Witu LLG. Lessons learn from this project will be improved and replicated in other 10 LLGs within the province.

2. DEFINITIONS (OF THE AGREEMENT)

2. In this MoU:

- (a) "Activities" means any project activity that is identified and funded for under the project, that needs to be implemented to achieve outcomes;
- (b) "NARI" means the National Agricultural Research Institute and the lead partner
- (c) "BWLLG" means Bali-Witu Local Level Government, and Partner 1
- (d) "WNBPG" means West New Britain Provincial Government, and Partner 2
- (e) "MoU" means Memorandum of Understanding and it specifically refers to this document
- (f) "Parties" refers to partners (NARI, BWLLG, WNBPG) identified in this MoU
- (g) "AusAID" means Australian Agency for International Development.
- (h) "EU" means European Union.
- (i) "NGOs" means Non-Government Organisations.
- (j) "Project" refers to the Climate Change Adaptation Project on Strengthening food production capacity and resilience to drought on vulnerable communities funded by the European Union (EU) and Implemented by the National Agricultural Research Institute (NARI)

3. PARTNER ROLES & RESPONSIBILITIES

3.1 NARI's roles and responsibilities

NARI, as the Implementing Lead Project Partner shall;

- a) Provide technical and financial support for the following activities:
- b) Facilitate and conduct four learning events which include: Management on livestock (pigs) and poultry (village chickens and ducks); Post-harvest and food processing of food crops, fruits and nuts; Nursery management; and Improved Pest Management to 40 champion farmers (target of 50% women).
Provide hard and electronic copies of information materials on climate smart technologies and other relevant information to Unea High School and Bali-Witu LLG. See attached list.
- c) Support construction of a Nursery facility at Unea High School (approx. 10mx5m)
- d) Re-stocking of the existing crop multiplication block in Kapore, Kimbe with preferred planting material as advised by the WNB DAL Centre officer at Kapore;
- e) Establishment of 0.5 hectare multiplication block and provision of sufficient planting material for preferred crops as advised by the Bali-Witu LLG assigned officer to be planted in the 0.5 hectare multiplication block.
- f) Support construction of a standard poultry breeding unit (approx 8x4m) and provision of 10 village chicken and 10 ducks each to Bali-Witu LLG and Kapore DAL Centre as breeding stock.
- g) Provide breeding stock of 200 village chickens and 200 ducklings to Bali-Witu LLG who will then distribute to the champion farmers attending training on livestock management.
- h) Conduct quarterly assessment and monitoring of the project implementation schedule and progress.
- i) Share data, reports and information of the project with its partners.

4.1 Bali-Witu LLG, as Partner 1 shall:

- a) Provide land for the 0.5 hectare multiplication block, the Nursery and the poultry facilities.
- b) Allocate and provide support staff with in-kind contribution (such as transport, labour, materials, etc) to implement the project.
Manage and administer the project implementation, especially preparation and maintenance of the multiplication block, managing the nursery facilities and organising delivery of planting materials. Also distribution of chickens and ducks to champion farmers.
- c) Reprint and distribute all hard and electronic copies of climate change and other relevant information provided by NARI to all Primary and Vocational Schools throughout Bali-Witu LLG. (See attached list). The cost will be met by the LLG as part of its contribution to the project.
- d) Select 40 champion farmers (target of 50% women) to participate in the four trainings which include: Management on livestock (pigs) and poultry (village chickens and ducks); Post-harvest and food processing of food crops, fruits and nuts; Nursery management; and Improved Pest Management. Also

organise logistics (such as transport, accommodations and venues) for trainings.

- e) Distribute all planting materials from the multiplication block and nursery at Unea High School to the champion farmers (targeting two women and two men from each of nine wards) and communities within Bali-Witu LLG. See attached list.
- f) Select materials from hard-wares and provide quotations to NARI for direct payments to service providers for the construction of the Nursery facility and Water system as per standard desing supplied by NARI; and also preparations & distribution of planting materials to champion farmers and communities.
- g) Submit quarterly and final project reports to NARI.
- h) Share data, reports and information generated from this project with NARI.
- i) Initiate follow-on activities within the LLG planning and budgeting process.

4.2 West New Britain Provincial Government, as Partner 2 shall:

- a) Ensure associated divisions and stakeholders assist the LLG in terms of skilled technical officers and in-kind in implementing the project successfully.
- b) Manage and administer the implementation, especially preparation and maintenance of the multiplication block at Kapore.

6) Joint commitments of the parties

The parties will jointly undertake;

- a) To carry-out the activities under this project;
 - i) NARI as the overall lead partner to provide financial and technical support to execute the activities.
 - ii) Bali-Witu LLG to manage, mobilise and execute the activities.
 - iii) WNBPG to provide enabling environment for execution of the activities.
- b) To carry out or facilitate training and participation of farmers and communities in the identified sites;
- c) Each party will keep each other updated on any new events or projects being planned in the district and LLG.

7) CONTINGENCY MANAGEMENT

- a) If required NARI will work with the Parties in this MoU to resolve any disputes, claims or compensation from individuals, groups or organization in relation to Land used for project work.
- b) If required, a third party can be approached for assistance in resolving the issue if any.

8) INSPECTION

- a) At reasonable intervals and upon being provided with reasonable notice, the Parties will allow representative(s) of the other Party access to the project sites

to inspect the project(s) and the project activities including regular joint inspections.

- b) Report would be prepared and circulated after each visit to keep each Party informed about the development and progresses related to the activity after the visit.

9) CONSULTATION

- a) Consultation meetings will be held between the parties on a mutually convenient date and venues for the purpose of
- b) Planning and coordinating the cooperation under this MoU; and
- c) Discussing and consultation on any other matter relating to the terms of this MoU and/or health related discussions and coordination;
- d) And will endeavour in a spirit of corporation and mutual trust to resolve any difficulties and misunderstandings which may arise.

10) FINANCIAL COMMITMENTS

- a) All project site activity funds will be managed by NARI.
- b) Payment for goods and services will be made directly to suppliers on quotations or invoices submitted by Bali-Witu LLG for approved budgeted activities.
- c) Partner staff supporting implementation of activities on location at Bali-Witu LLG during visits by NARI will be paid day allowances to NARI project rates for local staff;
- d) No additional incidental costs will be incurred without consent from NARI and no other sub-contractual obligations will be tendered.
- e) Minor incidental costs not exceeding K500.00 incurred during implementation of site activities may be borne by each of the Partners concerned.

11) REPORTS AND REVIEWS

- a) Quarterly, six monthly and annual project progress reports of the implemented under this MoU will be prepared jointly by the project collaborators and copies submitted to all parties.
- b) Any review of MoU should be done within the first six months of the implantation period, reflecting the project activities.
- c) Any joint field visit or visit by any party under this MoU would be complemented by a report within two weeks and supported by relevant data. The reports can be prepared using reporting templates developed by NARI.

12) INTELLECTUAL PROPERTY RIGHTS

- a) NARI, BWLLG and WNBPG will recognize each other's Intellectual Property Rights and formally request permission for usage in conjunction with works under this MoU.
- b) As a public research institution, NARI is allowed to use data generated from the project interventions and demonstrations for preparing publications for the general public as well as the scientific community.

13) DURATIONS

- a) The agreement will take effect as of the date of its signing up to the **30th Day of April, 2020**.
- b) Under a circumstance where either one on the parties wishes to withdraw from the agreement; a three months notice should be given to sort out any outstanding matters.
- c) By signing this Agreement, all parties have agreed to terms and conditions as specified above.

14) AMENDMENTS

This MoU may be amended in consultation with either parties or one party giving the other 3 months notice of Amendment.

15) INDEMNITY

- a) In the event of a time clash between a joint project under this MoU and each party's own separate project(s) (not under this MoU) the later will take precedence over the former and for which the party concerned must not be held accountable for any loss of inconvenience in the activities of the agreed project. A minimum of a month's notice would be given to avoid disruptions and allow time for rescheduling the planned activities;
- b) Either party would be responsible for their own staff member(s) and will at no stage take responsibility (financial or otherwise) for the following for each other's staff (whilst doing work under NARI/Project/Activity);
 - j) Any illnesses or accidents and injuries;
 - ii) Any cost for medical fees, deaths and related fees;
 - iii) Any additional cost for jobs not authorised and or agreed by the parties in this MoU;
 - iv) Any vehicle or office or any other equipment maintenance costs.

AGREEMENT

NARI REPRESENTATIVE

.....
 Dr Sergie Bang
 Director General

BALI-WITU LLG REPRESENTATIVE

.....
 Hon Raphael Divu (MPA)
 President

TALASEA DISTRICT DEVELOPMENT AUTHORITY REPRESENTATIVE

.....
 Hon Francis Maneke (MP)
 Chairman

WEST NEW BRITAIN PROVINCIAL GOVERNMENT REPRESENTATIVE

.....
 Hon Sasindran Muthuvel (MP)
 Governor, West New Britain Province.

Date:

6.2 Training of Trainer report covering Dec 2018, May 2019

Sent as a separate document

6.3 Report from Communications Consultant, Dr D. Askin

Sent as a separate document.

6.4 List of crop varieties received from CePaCT, Fiji

Crop	Scientific Name	New CePaCT ACC #	Variety Name	Origin	Comments
Yam	<i>D. alata</i>	DA/NGA/001	Tda 98/01174	Nigeria	Anthraco-nose tolerant
Yam	<i>D. alata</i>	DA/PNG/015	Mui (female)	Papua New Guinea	Good yield & eating qualities
Yam	<i>D. alata</i>	DA/PNG/019	Kisi	Papua New Guinea	Good yield & eating qualities
Yam	<i>D. alata</i>	DA/VUT/016	Unknown	Vanuatu	Anthraco-nose tolerant
Yam	<i>D. alata</i>	DA/VUT/031	Unknown	Vanuatu	Anthraco-nose tolerant
Yam	<i>D. alata</i>	DA/VUT/035	Unknown	Vanuatu	Anthraco-nose tolerant
Yam	<i>D. alata</i>	DA/VUT/061	Tumas	Vanuatu	Good yield & eating qualities
Yam	<i>D. alata</i>	DA/VUT/072	Red tumas	Vanuatu	Good yield & eating qualities
Yam	<i>D. alata</i>	DA/VUT/075	Makila	Vanuatu	Good yield & eating qualities
Yam	<i>D. alata</i>	DA/VUT/077	Nowaneum	Vanuatu	Good yield & eating qualities
Sweet potato	<i>I. batatas</i>	IB/SLB/020	WV5	Solomon Islands	Salt & drought tolerant
Sweet potato	<i>I. batatas</i>	IB/SLB/028	Toni	Solomon Islands	Salt & drought tolerant
Sweet potato	<i>I. batatas</i>	IB/JPN/002	Konganensengan	Japan	Drought tolerant
Sweet potato	<i>I. batatas</i>	IB/PRI/001	Bungsbunny	Puerto Rico	Drought tolerant
Sweet potato	<i>I. batatas</i>	IB/COK/001	Finlay	Cook Islands	Drought tolerant
Sweet potato	<i>I. batatas</i>	IB/PER/050	Unknown	Peru	Purple fleshed
Sweet potato	<i>I. batatas</i>	IB/PER/051	Unknown	Peru	Purple fleshed
Sweet potato	<i>I. batatas</i>	IB/PER/052	Corazon Morado	Peru	Purple fleshed
Sweet potato	<i>I. batatas</i>	IB/ECU/002	Morado	Peru	Purple fleshed
Sweet potato	<i>I. batatas</i>	IB/BOL/002	Morado	Bolivia	Purple fleshed
Sweet potato	<i>I. batatas</i>	IB/JPN/001	Okinawa purple	Japan	Purple fleshed
Sweet Potato	<i>I. batatas</i>	IB/PER/027	Unknown	Peru	Orange fleshed
Sweet Potato	<i>I. batatas</i>	IB/PER/036	Unknown	Peru	Orange fleshed
Sweet Potato	<i>I. batatas</i>	IB/PER/037	Unknown	Peru	Orange fleshed
Sweet Potato	<i>I. batatas</i>	IB/PER/038	Unknown	Peru	Orange fleshed
Sweet Potato	<i>I. batatas</i>	IB/PER/044	Unknown	Peru	Orange fleshed
Cassava	<i>M. esculenta</i>	ME/COL/001	CM 6740-7**	Columbia	Acid soil tolerant
Cassava	<i>M. esculenta</i>	ME/COL/003	CM 7514-7**	Columbia	Drought tolerant
Cassava	<i>M. esculenta</i>	ME/COL/004	CM 2772-3	Columbia	Acid soil tolerant
Cassava	<i>M. esculenta</i>	ME/COL/005	CM 2772-3	Columbia	Acid soil tolerant
Cassava	<i>M. esculenta</i>	ME/FJI/001	Yassawa Vulatolu	Fiji	Salt & drought tolerant
Banana	<i>Musa spp.</i>	MS/AUS/003	High Noon	Australia	Salt & drought tolerant
Banana	<i>Musa spp.</i>	MS/AUS/013	Robusta	Australia	Salt & drought tolerant
Banana	<i>Musa spp.</i>	MS/GLP/001	Pisang Ceylan	Guadeloupe	Salt & drought

			(Mysore)		tolerant
Banana	<i>Musa spp.</i>	MS/BDI/001	Grande Naine	Burundi	High yielding: good desert banana
Banana	<i>Musa spp.</i>	MS/THA/002	Yangambi KM 5	Thailand	Tolerant to nematode
Banana	<i>Musa spp.</i>	MS/HND/004	FHIA 17	Honduras	Salt & drought tolerant
Banana	<i>Musa spp.</i>	MS/TWN/001	GCTCV-215	Taiwan	Fusarium Wilt TR4 Resistant
Banana	<i>Musa spp.</i>	MS/TWN/005	Formosana	Taiwan	Fusarium Wilt TR4 Resistant
Xanthosoma	<i>X. sagittifolium</i>	XS/TON/001	Talo Kape	Tonga	Drought tolerant
Pineapple	<i>A. comosus</i>	AC/USA/002	White Jade	USA	Sweet and low acidity
Pineapple	<i>A. comosus</i>	AC/USA/004	63-759	USA	Sweet and low acidity

6.5 Report on the first visit of the Water Management Expert

Sent as separate file

6.6 List of planting material provided to participants of TOT workshops

Name	Organization	Position	Location	Crop	Trait(s) range	Qty/volume	Date distributed
Iso Angapese	Kome LLG	Rural Development Officer	Menyama station	Sweetpotato (7 varieties)	Early maturing, drought tolerant, Orange flesh	350 vines (10 per var.)	Mar-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	800 cuttings (200 per var.)	Mar-19
				Taro (4 varieties)	TLB resistant, High yielding	100 suckers (25 per var.)	Mar-19
				Yam (Rotundata African yam)	Drought tolerant	25Kgs	Mar-19
Jack Govara	Watut LLG	Rural Development Officer	Watut station	Sweetpotato (7 varieties)	Early maturing, drought tolerant, Orange flesh	350 vines (10 per var.)	Apr-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	800 cuttings (200 per var.)	Apr-19
				TLB resistant, High yielding	TLB resistant, High yielding	100 suckers (25 per var.)	Apr-19
				Drought tolerant	Drought tolerant	25Kgs	Apr-19
Pirepa Muta	Selepet LLG	Rural Development Officer	Kabwum station	Sweetpotato (16 varieties)	Early maturing, drought tolerant, cold tolerant, orange flesh	2400 vines	Jul-19
				Cassava (7 varieties)	Low/highland, low cyanide, drought tolerant	950 cuttings	Jul-19
				Taro (4 varieties)	TLB resistant, High yielding	80 suckers	Jul-19
				Yam (Rotundata African yam)	Drought tolerant	100 miniset	Jul-19
Benny Kium	Nayudos (Teptep) LLG)	Rural Development Officer	Nayudos	Sweetpotato (1 variety)	Early maturing, Orange flesh	2 tubers	Dec-18
				Taro (4 varieties)	TLB resistant, High yielding	20 suckers	Dec-18
				Yam (Rotundata African yam)	Drought tolerant	3kg	Dec-18

???	Astrolobe Bay LLG	Rural Development Officer		Sweetpotato (1 variety)	Early maturing, Orange flesh	2 tubers	Dec-18
				Taro (4 varieties)	TLB resistant, High yielding	20 suckers	Dec-18
				Yam (Rotundata African yam)	Drought tolerant	3kg	Dec-18
???	Almami LLG	Rural Development Officer		Sweetpotato (1 variety)	Early maturing, Orange flesh	2 tubers	Dec-18
				Taro (4 varieties)	TLB resistant, High yielding	20 suckers	Dec-18
				Yam (Rotundata African yam)	Drought tolerant	3kg	Dec-18
???	Wewak Rural LLG	Rural Development Officer		Sweetpotato (1 variety)	Early maturing, Orange flesh	2 tubers	Dec-18
				Taro (4 varieties)	TLB resistant, High yielding	20 suckers	Dec-18
				Yam (Rotundata African yam)	Drought tolerant	3kg	Dec-18
Joe Guaf and a lady???	Vanimo PDAL	Rural Development Officer		Sweetpotato (1 variety)	Early maturing, Orange flesh	2 tubers	Dec-18
				Taro (4 varieties)	TLB resistant, High yielding	20 suckers	Dec-18
				Yam (Rotundata African yam)	Drought tolerant	3kg	Dec-18
	Telefomin LLG	Agriculture Program Manager		Sweetpotato (1 variety)	Early maturing, Orange flesh	2 tubers	Dec-18
				Taro (4 varieties)	TLB resistant, High yielding	20 suckers	Dec-18
				Yam (Rotundata African yam)	Drought tolerant	3kg	Dec-18
Justin Taper	Baptist Union	BUPNG Officer Telefomin		Sweetpotato (1 variety)	Early maturing, Orange flesh	2 tubers	Dec-18
				Taro (4 varieties)	TLB resistant, High yielding	20 suckers	Dec-18

				Yam (Rotundata African yam)	TLB resistant, High yielding	3kg	Dec-18
Thecla Kanau & Paul Jete	Pobuma LLG	Rural Development Officer		Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Samuel Tauwriesa	Samarai-Mararua	Rural Development Officer		Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Annie Gima	Huhu LLG, Alotau	Rural Development Officer		Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19

				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Beriria Ninhili	Rigo Inland	Rural Development Officer		Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Sega Goruna	Rigo Coast	Rural Development Officer		Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Elsie Uriah & Thomas Mitase	Malalaua LLG, Gulf			Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19

				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Matthew Poieneu	NARI Kerevat			Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Gena Kawale	NARI Laloki			Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Enoch Nukvue & Evah Pegetsi	Bali Vitu LLG			Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19

				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Michael Ravai	DAL Goilala			Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19
Mark Bosco Isai	Central Provincial DAL			Sweetpotato (6 varieties)	Early maturing, drought tolerant, Orange flesh	60 vines	May-19
				Cassava (4 varieties)	Lowland low cyanide, drought tolerant	40 cuttings	May-19
				Taro (4 varieties)	TLB resistant, High yielding	40 suckers	May-19
				Yam (Rotundata African yam)	Drought tolerant	2-3kg	May-19
				Rice (4 lowland varieties)	High yielding, BPH tolerant	4kg	May-19
				Lima bean	Vigorous habit	10 seeds	May-19
				Lablab bean	Vigorous habit	10 seeds	May-19