

## ANNEX VI

### INTERIM NARRATIVE REPORT

- This report must be completed and signed by the Contact person.
- The information provided below must correspond to the financial information that appears in the financial report.
- Please complete the report using a typewriter or computer
- Please expand the paragraphs as necessary.
- **Please refer to the Special Conditions of your grant contract and send one copy of the report to each address mentioned.**
- The Contracting Authority will reject any incomplete or badly completed reports.
- The answer to all questions must cover the reporting period as specified in point 1.6.

#### 1. Description

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- 1.1. Name of beneficiary of grant contract: **National Agricultural Research Institute (NARI) of Papua New Guinea** (PG-2009-ENG-1809852755)
- 1.2. Name and title of the Contact person: Dr Birte Komolong
- 1.3. Name of partners in the Action:
- 1.3.1. University of Natural Resources and Applied Life Sciences, Vienna (BOKU) (EuropeAid ID number<sup>1</sup>: AT-2007-DPL-2711241106)
- 1.3.2. Ministry of Agriculture and Livestock (MAL) (EuropeAid ID number: *(derogation sought)*)
- 1.3.3. Department of Agriculture and Rural Development (DARD) Vanuatu (EuropeAid ID number: VU-2009-FSD-1509831023).
- 1.4. Title of the Action: Generation and adaptation of improved agricultural technologies to mitigate climate change-imposed risks to food production within vulnerable smallholder farming communities in Western Pacific countries
- 1.5. Contract number: **DCI/FOOD/2010/257-394**
- 1.6. Start date and end date of the reporting period: 15 February 2011 to 14 February 2016.
- 1.7. Target country(ies) or region(s):
- 1.7.1. Papua New Guinea (Five communities at Kopafo (Bena Bena) in Eastern Highlands Province, Alkena & Kiripia (Tambul) in Western Highlands Province, Derin in Madang Province, Murukanam in Madang Province and Hisiu & Yule island in Central Province).
- 1.7.2. Solomon Islands (three communities at Aruligo in Guadalcanal Province, Buma in Malaita Province, and Hunda & Kena in Western Province).
- 1.7.3. Vanuatu (three communities at Siviri in Shefa Province, Middle Bush in Tanna Province and Esema (Malafau) in Shefa Province).
- 1.8. Final beneficiaries &/or target groups<sup>2</sup> (if different) (including numbers of women and men):
- Smallholder farmers in stress vulnerable 5 locations in Papua New Guinea (500 households), 3 in Solomon Islands (300 households) and 3 in Vanuatu (300 households). Final

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<sup>1</sup> See footnote 2.

<sup>2</sup> “Target groups” are the groups/entities who will be directly positively affected by the project at the Project Purpose level, and “final beneficiaries” are those who will benefit from the project in the long term at the level of the society or sector at large.

beneficiaries are estimated at 2.4 million smallholder crop-livestock mixed farmers in the three countries.

1.9. Country (ies) in which the activities take place (if different from 1.7): Same as in 1.7 above.

## **2. Assessment of implementation of Action activities**

### **2.1. Executive summary of the Action**

During Year 4, implementation of field level activities in the various project sites in PNG, Solomon Islands and Vanuatu picked up pace based on the final overall implementation plan and associated site implementation plans. The livestock component is leading in the number of community members who participated in various learning events on improved chicken and pig feeding systems, husbandry practices and options for integration of livestock options (fish-duck, fish-chicken, goat-coconut etc). This is due to the shorter nature of implementation cycles for livestock activities compared to the crop and soil/water interventions. In the soil/water component good progress has been made in the procurement and instalment of equipments for monitoring weather and soil data. In Vanuatu and Solomon Islands weather station equipments have been handed over to the respective National Weather Services and will help to enhance weather data collection in the countries for use in forecasting and climate modelling. Otherwise, implementation of activities in this component was affected by some civil unrest in the Aiyura Valley as well a lengthy bridge closure due to flooding that restricted their movements out of the Valley. As a result, implementation plans at sites in PNG for this component had to be revised and activities scaled down. In Vanuatu and Solomon Islands implementation in this component is affected by the very low staff capacity (skills and competencies) in MAL and DARD to support the work in-country. Implementation of Crop Improvement and Diversification activities in the three countries proceeded mostly as planned.

Cyclone Pam in March 2015 was a major disaster for Vanuatu and all implementation at pilot sites have come to a temporary stop due to the destruction by the Cyclone overall but also to trial plots, livestock structures erected in support of livestock activities etc. and the need of DARD staff and others to assist with the initial disaster assessment, relief and rehabilitation response. Implementation plans will need to be revised and it will take some time for project activities to pick up again. In order to give partners and participating farmers a fair chance to further benefit from the project, a no-cost extension of the project beyond February 2016 would be useful.

On the administrative side, the annual meeting of the Action Coordination Committee was held on the 16 December 2014 at the Head Office of NARI in Lae and attended by the assigned ACC members of their representatives (Minutes attached in Annex 1). The project team met on a quarterly basis to discuss and monitor progress of implementation, issues and other project matters. The last meeting in November 2014 was also used to plan for Year 5 of implementation and revise site and overall implementation plans accordingly. While the Year 3 financial report and request for Year 4 were submitted in July/August 2014, delays were experienced in receiving the Year 4 advance. The first instalment of the Year 4 advance was only received in November 2014, with the balance paid out in March 2015. Implementation of pilot site activities was not affected by that. Restrictions on transfer of foreign currency to Solomon Islands from the PNG Central Bank in early 2015, however, affected implementation of activities in that country. The NARI Action Coordinator, Dr W. Ayalew completed his employment with NARI in September 2014 and NARI appointed Dr Birte Komolong as his successor.

## 2.2. Activities and results

Please list all the activities of the contract implemented during the reporting period.

**Reporting period: 01. June 2014 – 31. March 2015**

Activity No.	Activity description	Implementing Body	Status of implementation
1.1	Action coordination, planning and review; Steering Committee Meetings	NARI (Applicant), BOKU (Partner 1), MAL (Partner 2) & DARD (Partner 3)	Progress is generally on track. During Year 4, the fifth meeting of the Action Coordination Committee was held in Lae on the 17 December 2014. Minutes of the last meeting are attached in Annex 1. The project team including Component leaders, MAL and DARD sub-country leaders and other implementing staff continued to meet on a quarterly basis to review progress of project implementation and address any implementation issues. A total of 3 meetings were held (1 April, 8 July, 11-13 November 2014) with the last meeting held as both a review as well as annual planning meeting for 2015 workplans. Minutes for each of the meetings are available.
1.2	Action offices established, staffed, equipped and managed	NARI, BOKU, MAL & DARD	Action offices at Applicant and Partner institutions and staff are managed as required to support action implementation. A notable change was the departure of the initial Action Coordinator Dr W. Ayalew. In his place Dr Birte Komolong was appointed the overall Action Coordinator by NARI; Year 3 Financial Reports and Year 4 budget and request for pre-financing submitted in August 2014; Year 4 advance received in November 2014 and March 2015, respectively; request for use of contingency reserve and re-allocation of budget lines granted and revised budget approved.
1.3	Action Inception Workshops	NARI, BOKU, MAL & DARD	Accomplished as planned during Year 1 from March to May 2011.
2.1	Identification of target community groups in areas of PNG, SI and VU at risk from drought, excess rainfall or sea water inundation	NARI, MAL & DARD	Completed and reported in full during Year 1.
2.2	Baseline surveys in target communities and farmer participatory workshops to assess needs, identify pilot sites	NARI, MAL & DARD	All related activities were completed in Year 1 and Year 2 of implementation and reported accordingly in respective interim narrative reports.
2.3	Community meetings for feed- back on interest, active involvement in pilot activities, challenges faced in implementing project activities, etc	NARI, MAL & DARD	Originally this activity involved annual meetings at pilot communities in the three countries but during project team review meetings it was decided to capture feed-back during technology assessment visits. Such meetings have been held in most of the sites for selected activities in the three components (water/soil, crops and livestock)

2.4	End of Action surveys and stakeholder workshops to get feedback from beneficiaries	NARI, MAL & DARD	Planned for Year 5 of implementation
3.1	Rural appraisal surveys to assess water accessibility and current water use/management by target communities in PNG, Solomon Islands and Vanuatu, and to identify pilot sites	BOKU, assisted by NARI, MAL & DARD	All planned work has been completed and reported in previous interim progress reports
3.2	Assessment of current and future impacts of climate change with respect to excess, deficit soil water content and salinity in PNG, SI and Vu and to identify suitable technologies to mitigate adverse impacts	NARI, BOKU, MAL, DARD, World Vision – Vanuatu, ADRA	<p>This activity has three milestones that have been completed between 50-70%:</p> <p><b>M1. CC scenarios for excess, deficit soil water content</b> are currently being developed. Due to lack of meteorological data for most of the sites, a decision was made to generate weather data with an online available tool called MarkSimGCM. The tool is currently being tested. The installation of the soil salinity monitoring station had to be postponed to early 2015.</p> <p><b>M2. Soil water dynamics in SP mound system and effects of excess soil moisture:</b> Calibration of sensors for a trial on-station at NARI-HRC Aiyura to monitor water balance in SP mound system and assess potential effects of excess soil water scenarios on SP production has been completed for trial set up in Q1 2015. A second study on impact of CC on soil profile water content and balance in selected study sites is progressing well.</p> <p><b>M3. Meteorological instruments set-up and functional:</b> One Automatic Weather Station, six automatic rain gauges and two manual rain gauges were ordered and delivered in 2013. In February 2015, three automatic rain gauges were officially handed over to Director of Meteo Service David Hiba Hiriasia by Dr. Dominik Ruffeis, team leader for soil and water component on behalf of NARI. NARI staff assisted with set up of one ARG at MAL Gizo (Hunda/Kena site) while the other 2 will be set up at Buma and on Russell Island.</p> <p>Two rain gauges were successfully installed by VMGD (Meteo Department) of Vanuatu at Siviri and Malafau sites in Vanuatu in August 2014.</p> <p>The additional ordered meteo equipment was received in Sept 2014 and in PNG sites the following equipments have been installed: 1 AWS (<b>Kopfao</b>), 3 ARG (<b>Aiyura, Derin, Murukanam</b>), 2 ARG + temperature and soil moisture sensor</p>

			installed ( <b>Laloki, Tambul</b> )
3.3	Develop and assess water harvesting methods, ground water availability & dynamics, irrigation techniques and management strategies at pilot sites in target communities in drought vulnerable parts of PNG, SI & Vu	NARI, BOKU, MAL & DARD	<p><b>On-station activities:</b></p> <ul style="list-style-type: none"> <li>a pilot irrigation system was installed at Aiyura station and is currently tested</li> <li>The testing of the biosandfilter at Aiyura, has been successfully completed; Communities will be trained and systems installed beginning of 2015.</li> </ul> <p><b>Kopafo</b></p> <ul style="list-style-type: none"> <li>an irrigation survey was conducted to establish baseline on water use for agricultural production and all data analyzed; draft report is available.</li> <li>Model farmers have been identified and suitable irrigation technologies identified</li> </ul> <p><b>Derin</b></p> <ul style="list-style-type: none"> <li>Regular meetings of the water committee</li> <li>5 rain water harvesting schemes were successfully installed in June 2014 and officially handed over to the community in October 2014.</li> <li>Installation of a hand-dug well completed</li> <li>Learning activities were conducted with respect to proper water management, use of Biosand Filter and solar disinfection; 5 pilot biosandfilter now available to the selected community members</li> </ul> <p><b>Vanuatu:</b></p> <ul style="list-style-type: none"> <li>Agreement reached with ADRA to carry out the installation of water supply system to an agricultural school; supply to be used by the project to demonstrate vegetable production supported by a proper irrigation system</li> <li>Model farmers have been selected and a supplier of irrigation equipment identified. The supplier agreed to facilitate training on irrigation of farmers and technical field officers</li> </ul>
3.4	Develop and assess soil water and soil management technologies under excess, deficit soil water and saline conditions at benchmark sites in target communities of PNG, SI & Vu	NARI, BOKU, MAL & DARD	<p><b>Kopafo:</b> First soil erosion monitoring and control trial completed and data analysed</p> <p><b>Tambul:</b> Soil fertility status reported back to communities; learning workshop on soil fertility improvement conducted and demonstration trial using improved practices for soil fertility improvement established</p> <p><b>Murukanam:</b> Soil fertility status assessed (nutrient status, soil-physical status) and constraints related to crop production identified</p> <p><b>Hisiu/Yule Island:</b></p> <ul style="list-style-type: none"> <li>Soil fertility status assessed (nutrient status, soil-physical status) and constraints related to crop production identified and reported back</li> <li>Demonstration trial established for improved soil management practices on Yule Island</li> </ul> <p><b>Solomon Islands:</b></p>

			Soil erosion management trials designed and established at Arughlio;
4.1	Source alternative sweet potato varieties, crops and crop varieties from national and international collections which are tolerant to precipitation excesses or deficits or saline soil conditions	NARI	<p><b>Collections assembled:</b> Various collections of sweetpotato (157 accessions), yam (20 accessions), cassava (16 accessions) established at NARI MRC Bubia; seed of improved open pollinated vegetable (32 accessions) and cold-tolerant maize (20 accessions) imported from AVRDC and CIMMYT; NERICA rice (16 accessions); Seed of improved wheat varieties imported from CIMMYT (25 accessions);</p> <p>In Solomon Islands and Vanuatu small collections of locally available as well as recommended breeding lines (in case of Vanuatu) have been assembled and are used in on-farm trials in pilot sites.</p>
4.2	Screening of indigenous germplasm, locally bred and imported varieties of sweet potato and other crops/crop varieties under simulated conditions (in vivo and in vitro) to assess tolerance to drought, moisture excess and salinity condition , and to identify promising varieties		<p><b>In-vitro screening:</b> 102 PNG local sweetpotato accessions are transferred to tissue-culture; Protocols for <i>in-vitro</i> screening for salinity and drought tolerance established and preliminary screening has started. However, progress is slow with some staff performance issues and some equipment failure hampering progress. The situation is being monitored and corrective action been taken.</p> <p><b>In-vivo screening:</b></p> <ul style="list-style-type: none"> <li>• 17 sweetpotato accessions from the climate ready collection at the Centre for Pacific Trees and Crops (SPC, Fiji) are currently undergoing preliminary screening on-station in the field for good storage root yield. Only those showing good yield potential will be selected for dissemination to pilot sites.</li> <li>• Maize and wheat varieties from CIMMYT are screened currently on-station for preliminary selections and bulking of seed. A full set of participatory on-farm trials with few selected varieties may not be possible in the current timeframe of the project.</li> <li>• Evaluation of plant parts of seedless breadfruit for vegetative propagation using non-mist propagator progressed and preliminary results available</li> <li>• The rainout shelter is now under construction at NARI MRC Bubia. Construction is progressing albeit slow and is now expected to be completed by June 2015.</li> </ul>
4.3	Validation and piloting of sweet potato adaptability to different stresses at pilot sites and introduction of other crops and crop varieties in target	NARI, MAL, DARD	This activity is based on the various site-level activities for the crop component and comprises mostly participatory evaluations of new crop species or sets of crop varieties new to the pilot site. Crops include cassava (80% completed), sweetpotato (50%), yam (80%), potato (50%), taro (100%), vegetables (20%), maize (50%), wheat (50%).

	communities in PNG, SI and Vu.		
4.4	Piloting of selected improved cultivation practices for priority staple crops in target communities in PNG, SI, and Vu according to expressed needs	NARI, MAL, DARD	This activity is also based on the various site-level activities and comprises participatory evaluations, learning workshops of improved cropping practices such as yam mini-setting, planting techniques and density for yam, sweetpotato and cassava; nursery management for vegetable production. Implementation proceeded and overall most planned activities are 70% completed.
4.5	Piloting of processing options of sweetpotato and cassava for food, feed, storage	NARI, DARD	Two pilot sites in particular (Kopafo, PNG; Middlebush, Vanuatu) were interested in processing options of sweetpotato and cassava. Learning workshops and demonstrations have been completed in the two sites. Work is 90% completed
4.6	Assessment of existing mechanisms for provision of quality seed to farming communities in PNG, SI, Vu and recommendations for improvement.	NARI, MAL, DARD	Planned for Year 5
5.1	Assessing the potential for improving farm productivity through diversifying livestock assets and improved cyclical use of crop and livestock inputs in situations where excess rainfall, moisture deficit or soil salinity conditions are problematic	NARI, MAL, KGA DARD, VARTC	In the reporting period for Year 4 (June 2014 – March 2015) implementation continued for the preferred options for diversification and integrated use of resources with new rounds of model farmers conducting relevant activities: 2 <sup>nd</sup> round engaged in (1) fish-duck integration and (2) chicken-crop integration at Murukanam and Tambul sites (PNG). 1 <sup>st</sup> round for fish-duck integration at Hisiu/Yule (PNG) and goat integration at Kopafo; Vu, rounds 1,2 and 3 farmers in Malafau and Siviri sites completed; round one was completed in Middlebush;
5.2	Sourcing and identifying forages tolerant of excess moisture and saline soil conditions, e.g. grasses, legumes, and multipurpose shrubs such as Mulberry.	NARI, MAL, DARD	No activities implemented in Year 4
5.3	Pilot test diversified livestock feeding systems in smallholder communities in target communities in PNG, SI and Vu	NARI, MAL, DARD	Activities were implemented in all sites that chose this technology option with emphasis on pig and chicken feeding and management systems. Tambul (2 rounds of Model farmers for pig and chicken), Kopafo (5 rounds pig management, 3 rounds chicken), Derin (2 rounds pig management), Hisiu/Yule (1 round pig and chicken), VU sites (3 rounds chicken for Siviri/Malafau; 2 rounds Middlebush); Solomon Islands – not reported
5.4	Assessing existing mechanisms for supplying breeding	NARI, MAL, DARD	Further work in this activity scheduled for Year 5

	stock, and demonstrating institutional or community-based breeding facilities		
6.1	Promotion of internet based discussion forums/blogs relating to crops/cropping systems, livestock and water management	NARI	Besides the project website that had been already established earlier in the year, a blog has been set up and can be accessed at the following web address: <a href="http://euardproject.wordpress.com">http://euardproject.wordpress.com</a>
6.2	Establishment / strengthening of multi-stakeholder (including research-extension provider) forums and local institutional linkages at pilot sites in PNG, SI and Vu	NARI, MAL, DARD	<p>Achievements in Year 4 include:</p> <ul style="list-style-type: none"> <li>• NARI took lead in taking stock of background situations and capturing available opportunities for possible interventions in improved information sharing and networking in partner countries Solomon Islands and Vanuatu.</li> <li>• A Terms Of Reference (TOR), containing the details of the stakeholder forums was developed</li> <li>• 2 Information and Networking workshops held in Solomon Islands (15 August 2014 – 27 participants) and Vanuatu (26 June 2014 – 26 participants)</li> <li>• The forums enhanced the project team to establish dialogues with stakeholders in agricultural research and extension in Vu and SI; scope the current extent of partnership, knowledge management and information sharing efforts among partners; and initiate pathways for increased and effective networking and collaboration,</li> <li>• The workshops centred around the following areas: <ul style="list-style-type: none"> <li><i>Information Sharing &amp; Networking Platforms</i> <ul style="list-style-type: none"> <li>○ Mandates &amp; responsibilities</li> <li>○ Partnerships &amp; collaborations</li> <li>○ Information in need (demand/audience)</li> <li>○ Communication &amp; information products and services <ul style="list-style-type: none"> <li>- who generates information</li> <li>- who manages/stores/processes</li> <li>- who disseminates information</li> <li>- what are these information products/services</li> </ul> </li> </ul> </li> <li><i>Facilities &amp; Resources</i> <ul style="list-style-type: none"> <li>○ Policies, strategies, guidelines</li> <li>○ ICT infrastructure, services <ul style="list-style-type: none"> <li>- internet, website, emails, social networking</li> </ul> </li> <li>○ Applications &amp; tools (software/hardware)</li> <li>○ Knowledge management <ul style="list-style-type: none"> <li>- libraries (mgt, size, location, purpose)</li> <li>- database systems, library catalogue, agri stats</li> </ul> </li> </ul> </li> </ul> </li> </ul>



			<ul style="list-style-type: none"> <li>○ Finance</li> <li>○ Human resources</li> <li>○ Skills and competencies</li> </ul>
6.3	Resources and methodology developed for the dissemination of adaptation information to vulnerable smallholder communities in PNG, SI, Vu	NARI	<ul style="list-style-type: none"> <li>● In September 2014 a communication assistant was engaged at NARI to assist with the packaging of information;</li> <li>● Video recordings were made at project sites on implementation of crop and livestock component activities by NARI and DARD, e.g. chicken trials in VU or SP trials and field day at Solomon Islands.</li> <li>● A number of project news were published in daily newspapers and Institute newsletters in Vanuatu, Solomon Islands and PNG</li> </ul>
6.4	Improved capacity and support services for the dissemination of adaptation information to vulnerable smallholder communities in PNG, SI, Vu	NARI, MAL, DARD	Nothing planned for reporting period

**2.3. Please list activities that were planned and that you were not able to implement, explaining the reasons for these.**

There were some delays in implementation of activities in some of the sites for some of the planned outputs. For example implementation of activities at Hisiu/Yule Island was affected by a very slow acquittal of funds by the NARI Southern Regional Centre at Laloki. Project implementation was directly supported for a while from the Project Office now at NARI HQ but some delays were inevitable due to more time spent on transfers of funds, etc. The problem is now resolved and further delays avoided.

Overall, implementation of activities in the Solomon Islands was affected by a Bank of PNG imposed limit of transfer in foreign currency from PNG to Solomon Islands in the first 2 months of 2015. This was beyond the control of NARI. Implementation of urgent livestock and soil/water activities was supported by transfer of required budgets to MAL accounts that were within the allowable limit imposed by the bank. The shortage of foreign exchange appears to be resolved now and transfers to partners can proceed as necessary.

Implementation of water/soil component activities were affected during Quarter 3 and 4 by tribal unrest in the Aiyura Valley and the collapse of a main bridge cutting off access of implementing staff from the HRC Aiyura to the main road. Most activities to be implemented in this component at Kopafu, Hisiu, Murukanam and Tambul got delayed up to 6 months. Again this was beyond NARI's control. In the Quarter 3/4 Annual Review and Planning meeting in 2014 workplans for each of the sites were revised to take those delays into consideration. For Murkanam and Hisiu the scope of activities had to be reduced while activities in other sites were rescheduled.

Significant delays are experienced with the *in-vitro* evaluation of sweetpotato cultivars. The activity was affected by a number of technical problems due to equipment failure caused by power fluctuations and time required for getting spare parts but also by some performance issues of the assigned staff. Equipments in the tissue culture lab are fully functional again and NARI has taken corrective measures to help the staff improve his performance. However, some reduction in the scope of work had to be done and less number of accessions will now be screened compared to the original plan.

Implementation in Vanuatu sites has been picking up in Quarter 3 and 4 in 2014 and in February 2015, also in the Middlebush site a number of trainings and demonstration trials were conducted.

However, the biggest negative impact on project implementation in Vanuatu was obviously caused by Cyclone Pam that devastated the Island state in March 2015. NARI is yet to receive a comprehensive report from DARD on the impacts in pilot sites but initial assessments by our colleagues at DARD state that established trials, livestock structures and trials etc have been destroyed up to 100%.

**What is your assessment of the results of the Action so far? Include observations on the performance and the achievement of outputs, outcomes and impact in relation to specific and overall objectives, and whether the Action has had any unforeseen positive or negative results (please quantify where possible; refer to Logframe Indicators).**

Implementation of activities in the different sites in the three countries has settled into a good pace and also in Solomon Islands and Vanuatu with the help of the additional field assistants, level of implementation has increased. With a specific objective to increase food production capacity, staff of NARI, MAL and DARD and other partners have conducted a range of learning events in the three major project components of crop, livestock and soil/water management. The highest number of community members that benefitted from the different learning events are in the livestock component. Alone in the PNG sites a total of more than 650 community members participated in the different learning activities on chicken, duck, pig and goat feeding systems and management practices and integrated livestock systems such as integration of duck and fish systems, while more than 270 community members in the five sites were actively engaged in testing the technologies and practices as model farmers in their communities. In the crops component more than 400 community members at PNG pilot sites were exposed to improved crop varieties and agronomic practices through learning events and actual practical application of new knowledge and skills. Improved crop varieties introduced into the communities have increased the yield potential significantly. For example some of the new Taro varieties introduced into communities at Derin and Murukanam, Madang Province are producing yields of 200% higher than the local variety.

As mentioned in the previous report, the approach chosen to work with the various communities in the pilot sites in the three countries is resource intensive. Despite the engagement of additional field technical staff, there are comments coming from members in some communities on lack of follow up visits and some members have disengaged and lost interest in participating in the project activities. There is little support available from local institutions such as government agricultural extension services to provide on-going monitoring and follow up and act as a contact point for community members. However, presence or the lack of local community leadership is also an important factor in how engaged communities are with their participation. There is a clear difference between the progress of implementation in the two sub-sites in Central Province, PNG at Hisiu and Yule Island. At Hisiu implementing project staff report of some disagreements between local leaders that divide the community and implementation only reaches a few more progressive members of the community. On the other hand at Yule Island, the local Chief provides a good coordination of activities and the community is generally more interested and eager to access the new technologies and skills. Overall, based on current information and assessments, the number of households directly benefitting from the action is likely to be smaller than anticipated.

While project staff aims to involve both gender equally in all project activities in the sites, existing gender biases and entrenched gender roles result in a lesser number of women participating directly in implemented activities. For example in the PNG Highland site at Tambul, women are actively discouraged by their male community members to participate in some of the livestock activities. On the other hand, in Vanuatu a number of the model farmers for livestock activities are women.

Unfortunately, Cyclone Pam had a major negative impact on activities in Vanuatu with crop trials, chicken sheds or other structures up to 100% destroyed by this natural disaster. With little time left in the project and limited budget remaining, it will be difficult to catch up and it is unlikely that anticipated results in this country will be achieved.

As in Year 3, also in Year 4 the project team met on a quarterly basis for review of implementation progress and to discuss areas of improvement or concern. This has helped to

improved overall coordination of activities and better communication between components and across countries.

**Please list potential risks that may have jeopardized the realisation of some activities and explain how they have been tackled. Refer to logframe indicators.**

**If relevant, submit a revised logframe, highlighting the changes.**

Overall, it is anticipated that major planned activities will be implemented as planned with the exception of activities in Vanuatu. For some activities it will be necessary to reduce the scope. For example for soil fertility and water management activities, it won't be possible to implement actual demonstration trials due to the time frame required to complete trials will exceed the end-of-project deadline. Hence, activity plans have been revised and alternative actions been planned instead to ensure that some capacity building will take place in the communities in this area.

Natural disaster such as Cyclone Pam or the destruction of a bridge in the Aiyura Valley that provides access of NARI staff at the NARI Highlands Regional Centre at Aiyura to the main Highlands Highway and hence, travel to project sites are beyond the control of NARI. However, those events have a major impact on achieving the specific objective of the project in the case of the Cyclone and the timely implementation of soil/water activities resulting in a reduction of scope of activities.

**Please list all contracts (works, supplies, services) above 10.000€ awarded for the implementation of the action during the reporting period, giving for each contract the amount, the award procedure followed and the name of the contractor.**

No single contract worth above Euro10, 000 was awarded during Year 4 of the project. The highest single payment to a service provider during this year was for the procurement of automatic rain gauges worth about Euro 13,000 for deployment in pilot sites. This was sourced from a supplier in the UK (Environmental Measurements Ltd). Others of significant amounts relate to aggregate international travel air ticket costs paid to the NARI official travel agent (PNG Travel Services) for research teams travelling to the three countries on field missions. Tickets are purchased after comparing current available ticket prices and the Official Travel Agent is given priority to match the lowest quote available, which they do in most cases. In a few instances, cheaper tickets were purchased from other service providers.

#### ***2.4. Please provide an updated action plan***<sup>3</sup>

Timelines of the refined list of activities are presented in Table 1 for the last year of implementation.

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<sup>3</sup> This plan will cover the financial period between the interim report and the next report.

**Table 1: Timelines of the planned activities of the Western pacific NARI-EU ARD project**

N°	Expected Result/Activity	Responsibility	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2
<b>Result 1: Action effectively delivering outputs in a timely, transparent and efficient manner</b>								
A1	Action coordination, planning and review	NARI ( <i>Applicant</i> ), BOKU, MAL & DARD ( <i>Partners 1- 3</i> )						
A2	Action Offices established, staffed, equipped and managed for 5 years	NARI, MAL & DARD						
A3	Action Inception , Mid-term & Completion Workshops	NARI, BOKU, MAL & DARD						
<b>Result 2: Suitable target smallholder communities in PNG, SI &amp; Vu identified, needs-assessed, and participating in the research and development process</b>								
A1	Information gathering exercises to identify suitable target community groups in areas of PNG, SI and Vu at risk from drought, excess rainfall or sea water inundation	NARI, MAL & DARD	completed					
A2	Baseline surveys in target communities to collect primary information on food security etc. and farmer participatory workshop to assess needs of target communities agree potential solution options & help identify pilot sites	NARI, MAL & DARD	completed					
A3	Annual Community feedback meetings held in pilot sites in PNG, Si, Vu	NARI, MAL & DARD						
A4	End of Action surveys and stakeholder workshops to get feedback from beneficiaries	NARI, MAL & DARD						
<b>Result 3: Innovative water management &amp; soil improvement strategies/systems to support agriculture under precipitation excess or deficit conditions available to smallholder communities in PNG, SI and Vu</b>								
A1	Rural Appraisal surveys to assess water accessibility and current water/use management by target communities in PNG, SI and Vu and to identify suitable sites for pilot testing	BOKU assisted by NARI, MAL & DARD	completed					
A2	Assessment of current and future impacts of climate change with respect to excess, deficit soil water content and salinity in PNG, SI and Vu and to identify suitable technologies to mitigate adverse impacts	BOKU assisted by NARI, MAL & DARD						
A3	Develop and assess water harvesting methods, ground water availability & dynamics, irrigation techniques and management strategies at pilot sites in target communities in drought vulnerable parts of PNG, SI & Vu	BOKU assisted by NARI, MAL & DARD						
A4	Develop and assess soil water and soil management technologies under excess, deficit soil water and saline conditions at benchmark sites in target communities of PNG, SI & Vu	BOKU assisted by NARI, MAL & DARD						
<b>Result 4: Diversification options for crop production and utilization available to smallholder communities in PNG, SI &amp; Vu in areas affected by moisture stress, excess precipitation, or saline soil conditions</b>								

N°	Expected Result/Activity	Responsibility	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	
A1	Source alternative sweet potato varieties, crops and crop varieties from national and international collections which are tolerant to precipitation excesses or deficits or saline soil conditions	NARI, MAL & DARD	completed						
A2	Screening of indigenous germplasm, locally bred and imported varieties of sweet potato and other crops/crop varieties under simulated conditions (in vivo and in vitro) to assess tolerance to drought, moisture excess and salinity condition , and to identify promising varieties	NARI							
A3	Validation and piloting of sweet potato adaptability to different stresses at pilot sites and introduction of other crops and crop varieties in target communities in PNG, SI and Vu	NARI, MAL & DARD							
A4	Piloting of selected improved cultivation practices for priority staple crops in target communities in PNG, SI, Vu according to expressed needs	NARI, MAL & DARD							
A5	Piloting of processing options of sweetpotato and cassava for food, feed, storage	NARI, MAL & DARD							
A6	Assessment of existing mechanisms for provision of quality seed to farming communities in PNG, SI, Vu and recommendations for improvement	NARI, MAL & DARD							
<b>Result 5: Livestock and fish production diversification options resilient to precipitation deficits and/or excess or soil salinity, and reliant on cost-effective locally produced feed/forages available to smallholder communities in PNG, SI and Vu</b>									
A1	Assessing the potential for improving farm productivity through diversifying livestock assets and improved cyclical use of crop and livestock inputs in situations where excess rainfall, moisture deficit or soil salinity conditions are problematic	NARI, MAL & DARD							
A2	Sourcing and identifying forages tolerant of excess moisture and saline soil conditions, e.g. grasses, legumes and multipurpose shrubs such as Mulberry	NARI	completed						
A3	Pilot test diversified livestock feeding systems and husbandry practices in smallholder communities in target communities in PNG, SI and Vu	NARI, MAL & DARD							
A4	Assessing existing mechanisms for supplying breeding stock in PNG, SI, and Vu and demonstrating institutional or community-based breeding facilities	NARI, MAL & DARD							
<b>Result 6: Linkages and information/knowledge sharing mechanisms established and/or strengthened between researchers, extension providers and smallholders providing suitable conditions for smallholder participation/input in the research process and for dissemination/outscaling of new research-based technologies to smallholders in PNG, SI and VU</b>									
A1	Promotion of internet based discussion forums/blogs relating to crops/cropping systems, livestock and water management	NARI							

<b>N°</b>	<b>Expected Result/Activity</b>	<b>Responsibility</b>	<b>2015 Q1</b>	<b>2015 Q2</b>	<b>2015 Q3</b>	<b>2015 Q4</b>	<b>2016 Q1</b>	<b>2016 Q2</b>
A2	Establishment/strengthening of regional multi-stakeholder (incl. research-extension provider) forums and local institutional linkages at pilot sites in PNG, SI and Vu	NARI, MAL & DARD						
A3	Resources and methodology developed for the dissemination of adaptation information to vulnerable smallholder communities in PNG, SI, Vu	NARI, MAL & DARD						
A4	Improved capacity and support services for the dissemination of adaptation information to vulnerable smallholder communities in PNG, SI, Vu	NARI, MAL & DARD						

### 3. Partners and other Co-operation

#### 3.1. How do you assess the relationship between the formal partners of this Action (i.e. those partners which have signed a partnership statement)? Please provide specific information for each partner organisation.

Partner 1	University of Natural Resources and Applied Life Sciences, Vienna (BOKU), University (Europe-Aid ID number: AT-2007-DPL-2711241106)	During Year 4 BOKU continued to fully meet its partnership commitments under this project. The post-doc scientist, Dr. Dominik Ruffeis, has been on duty since December 2011. Prof. Willibald Loiskandl from Boku also facilitated the first visit of the newly engaged specialist for the economic evaluation Mr. Christian Treitler to PNG in July 2015 which coincided with the second project team review meeting for 2015. Mr Treitler had discussions with the project team and visited one of the project sites at Kopafo, Eastern Highlands Province to get some feel for the situation on the ground. No operational constraints encountered.
Partner 2	Ministry of Agriculture and Livestock (MAL), Government body	As in Year 3, MAL delivered reasonably well on its commitments. The country project sub-coordinator, Mr. Jules Damutalau, has continued to competently coordinating project activities in Solomon Islands. The project senior scientist, Mr. Jimi Saelea, has been serving in this capacity even though he was appointed at the Permanent Secretary of MAL. Field implementation has increased with the assistance of four full time field assistants. Unfortunately, due to delays in the transfer of funds from PNG to Solomon Islands first due to the Christmas and New Year break and then due to delays by the Bank of PNG to allow for larger foreign exchange transactions, implementation progress suffered at Solomon Island project sites.
Partner 3	Department of Agriculture and Rural Development (DARD) Vanuatu, Government Body (Europe-Aid ID number: VU-2009-FSD-1509831023)	DARD continues to be fully committed and directly involved in the project activities during year 4. Mr Antoine Ravo after taking over from the previous country sub-coordinator Peter Iesul has settled well into his new role. Communication with DARD, participation in project review meetings and quarterly reporting has since also improved. The project senior scientist role in Vanuatu remained with Dr. Roger Malapa of VARTC. The engagement of three full-time project field assistants at the end of Year 3 has helped to increase the level of field implementation in Vanuatu. VARTC, the mandated government agricultural research institution in Vanuatu, continued to serve the project very well. The village chicken breeding unit and incubation facility are also functioning properly as specified in the sub-contract it signed with the project. Cyclone Pam had a major impact on the project. Not only did the cyclone destroy project trials and structures at pilot sites, the agricultural station and DARD Head Office in Port Vila was also substantially damaged. DARD staff are currently assisting with the recovery work in the country.

#### 3.2. How would you assess the relationship between your organisation and State authorities in the Action countries? How has this relationship affected the Action?

Also during Year 4 the project enjoyed smooth and effective collaboration with relevant Government institutions in Solomon Islands and Vanuatu as well as those in PNG. No constraints encountered during the year. In Solomon Islands, MAL, the Solomon Islands Meteorological Service and the Water Resources Department worked closely with the project team on planned project activities and contributed where required. Likewise, in Vanuatu,

DARD, VARTC, the Vanuatu Meteorological Service and the Department of Geology, Mines and Water Resources have all been readily collaborating with the project team. In both countries, two automatic rain gauges each were officially handed over to the respective meteorological services for initial use in the project but with the understanding that those agencies take ownership for continued use. On needs basis, partner institutions in the three countries handled all formal communications with them on behalf of the project, and the project office did not have to deal with state authorities directly. No operational problems of any kind were encountered during Year 4 of project implementation. Limited manpower and research facilities in all the countries appear to limit options for action.

**3.3. Where applicable, describe your relationship with any other organisations involved in implementing the Action:**

- Associate institutions: all the nine recognised institutions across the three countries officially associated with the project have continued to contribute to the project in various ways, and none of them expressed any concerns on their involvement in project activities. However, as always there are opportunities to improve the collaborations further, which are elaborated hereunder:
  - I. Department of Agriculture and Livestock (DAL) of PNG: continued efforts are made to involve provincial and district officers of DAL associated with the five project sites but with only limited success. After an initially strong involvement of the Madang Provincial DAL in the two project sites, after staff transfers in the two districts (Madang and Sumkar) only in Sumkar district project officers are accompanied on a regular basis by district DAL staff. At the other sites, active involvement is very limited.
  - II. National Weather Service (NWS) of PNG: The NWS continues to be consulted especially by the team working on the water/soil component in respect of weather forecasting services, the set up and management of weather stations and access to weather data.
  - III. Solomon Islands Meteorological Service: As mentioned above, following discussions in Year 3 on management of new weather stations set up by the project, they have officially taken over responsibility of two automatic rain gauges procured through the project and installed at two of the project sites.
  - IV. Kastom Gaden Association (KGA) of Solomon Islands: KGA continues to supply chicks to project activities from their chicken breeding and egg incubation facility as per signed sub-contract.
  - V. World Vision (WV) Pacific Development Group: As outlined in the Year 3 report, the PNG office continues to work on specific activities in the soil/water component with the PNG project team, while in Vanuatu support is now provided by ADRA (Adventist Development and Relief Agency). DARD and NARI project officers have come to a good understanding with ADRA to complement each other's activities in the Middlebush project site.
  - VI. Ministry of Mines and Energy – Water Resources Management Division of Solomon Islands: the involvement of this government division was not much required based on the needs assessment exercise. Experts from this division in Solomon Islands will continue to be invited as part of any stakeholder workshops.
  - VII. Vanuatu Meteorological Service: this associate institution continues to be very supportive of project activities throughout Year 4. It has also taken over full responsibility for the management of newly set up weather stations installed in two of the project sites (Siviri and Malafau).
  - VIII. Department of Geology, Mines and Water Resources of Vanuatu: The department continued to collaborate with project partner institutions and has agreed to provide relevant data to support planning activities of the project.



IX. Vanuatu Agricultural Research and Technical Centre (VARTC): As in the previous years, senior management as well as technical staff of VARTC have been actively engaged throughout the year in all activities that involve them. They have been managing the poultry breeding and hatchery unit on behalf of DARD, and have supplied breeding chicks for the project sites. They are also involved in the supply of planting materials for staple crops.

- Sub-contractor(s) (if any):

There are no further additions to the two previously reported sub-contract awarded to KGA and VATRC, respectively. The work with ADRA who replaced World Vision for domestic water supply and sanitation work in Vanuatu is based on a mutual understanding to complement the activities that ADRA and this project are implementing independently at the Middlebush project site. However, shortly after this understanding had been reached in February 2015, Cyclone Pam struck Vanuatu and realization of any plans is still awaiting assessment reports from our partners from DARD.

- Direct Beneficiaries and Target groups:

The line up of immediate project beneficiary communities at the eleven project sites in the three countries remains unchanged. However, in some of the sites, it may not be possible to achieve the target of 100 households especially those who were actively part in the technology validation.

- Other third parties involved (including other donors, other government agencies or local government units, NGOs, etc)

During Year 4, some other institutions not mentioned in the project design document, have been involved in the project across the three countries:

PNG:

- The Highland Piggery and Farmers and Association: this is a strong CVO active in the highlands of PNG. Their members are actively involved in the project at the Tambul site.
- The Papua New Guinea Women in Agriculture Association (PNGWiA): this is a gender-based association promoting entrepreneurship by women. The Association has active units operating in two of the five project sites, and can be instrumental in addressing emerging gender related issues at site level.

Solomon Islands:

- Vois Blong Meri Solomons: a local women-focused NGO in Solomon Islands with good networks to advance women-focused services. A few of their staff have been actively involved in project activities and will continue to do so around project sites where they are active.
- Quality Hatchery Ltd.: this private company is interested in commercialising a broiler feed formulation being tested in Solomon Islands. They have tested the feed and have attended stakeholder consultation meetings.

Vanuatu:

- Department of Livestock (DL): DARD, the partner institution in Vanuatu, does not have expertise in livestock production because of the scope of its mandate. Thus the DL has been invited by DARD to be directly involved in the project to take care of planned livestock related activities in Vanuatu. The department has also designated one of their livestock officers to take lead responsibility in this regards.
- SPC-GIZ project on Coping with Climate Change in the Pacific Islands Region by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ): this is a regional climate change related multi-country and multi-

institutional project operating under the Vanuatu Meteorological Service. This project complements our project and is ready to take up proven technologies for testing outside project sites. A new major project financed by the World Bank has also been interested to out-scale proven technologies in Vanuatu.

- Farm Support Association (FSA): a local NGO involved in extension of agricultural technologies at village level; it was represented at all consultations in Vanuatu. Their farm input trading wing has been very useful in supplying inputs around project sites. They are therefore engaged in discussions about commercialising a feed formulation that the project is testing in Vanuatu.
- Live and Learn: another local NGO delivering extension services to farming communities. They will assist in disseminating information and knowledge to farming communities outside the project sites.

### **3.4. Where applicable, outline any links and synergies you have developed with other actions.**

During Year 4, the following links and synergies, which were identified in Year 1, have been developed further:

PNG:

1. NARI is implementing a number of climate change adaptation projects among them NARI is a partner organisation in the project ‘Adapting clonally propagated crops to climatic and commercial changes’ (DCI-FOOD/2010/230-267). Strong synergies have been developed by using some of the same project sites in PNG (Derin and Murukanam in Madang Province) for implementation of project activities that meet either of the projects objectives. Another EU funded project ‘Enhanced food security through preservation and improvement of genetic diversity of sweetpotato and aibika in PNG and Solomon Islands’ (EuropeAid/130381/D/ACT/ACP) has direct links by developing crop varieties tolerant to climate change induced stresses).

Solomon Islands:

1. Pacific Adaptation for Climate Change: this project is on-going covering wider areas of the country. Information generated in this project is being made available for other areas through this project.
2. Enhancing resilience of communities in Solomon Islands to the adverse effects of climate change (SWoCK): a major broad project financed by the UNDP and complementary to this project, with substantial complementarities with our project.
3. Rural Development Project (RDP) financed by the World Bank with focus on strengthening services, like agricultural extension.

Vanuatu:

1. SPC-GIZ project on Coping with Climate Change in the Pacific Islands Region: this project operates in close collaboration with our project and is interested in extending proven technologies in Vanuatu beyond the three project sites.
2. Increasing Resilience to Climate Change and Natural Hazard (IRCCNH): this multi-institutional project financed the World Bank was launched in December 2012. Its activities are complementary and synergistic to that of our project.

**3.5. If your organisation has received previous EU grants in view of strengthening the same target group, in how far has this Action been able to build upon/complement the previous one (s)? (List all previous relevant EU grants).**

Recent EU/ACP (EuropeAid/127860/ACT/ACP) funded projects awarded to NARI indirectly supported the current action as they targeted agricultural researchers, research managers, extension staff in PNG, Solomon Islands and Vanuatu in building research skills and competencies in various areas and disciplines. There are no previous EU grants to our knowledge that supported any of the target groups in the various pilot sites.

**4. Visibility**

***How is the visibility of the EU contribution being ensured in the Action?***

During Year 4, project staff continued to distribute project publicity T-shirts with the project logo printed on them to project model farmers and field extension staff working directly on site level project activities. In all stakeholder and community level consultations, the contribution of EU has been acknowledged and recognised. The project held two National Information Sharing and Networking Forums for Vu and SI Stakeholders. The Vu workshop took place at the Melanesian Hotel, Port Vila, on June 26 2014, while in Honiara (SI), it was at the Hyundai Mall on August 15 2014.

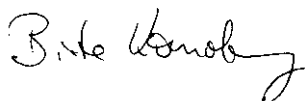
An number of publicity articles were published in the local media outlets (new papers, radio, newsletters) highlighted the contributions. Quarterly issues of Newsletters of partner institutions, namely NARI Nius for NARI, Agrikalsa Nius for MAL and Talemaot for DARD published articles providing updates, promoting project work and recognising the contribution from EU. The NARI website (<http://www.nari.org.pg/>) runs short news stories related to the project and a project blog has also been established (<http://euardproject.wordpress.com>) that supports the exchange of information and knowledge and provides a forum for discussion.

Apart from project signboards displayed in front of the project offices at Head Offices of Partner Institutions, site level sign boards identifying relevant activities and actors have been prepared and distributed. All project assets, including field vehicles and office equipment have the project stickers on them. Project offices are also identified by similar stickers. The project uses its own letter head with appropriate EU visibility marks included.

**The European Commission may wish to publicise the results of Actions. Do you have any objection to this report being published on Europe-Aid Co-operation Office website? If so, please state your objections here.**

No objections at all.

Name of the contact person for the Action: Birte Komolong



Signature:

Location: Lae, Papua New Guinea

Date report due:

Date report sent: 28/05/2015

## **Annex 1: Minutes of the fifth meeting of the Action Coordination Committee**

### **Minutes**

#### **Fifth regular meeting of the Action Coordination Committee of the Western Pacific NARI EU-ARD project**

**16 December 2014, Lae, PNG**

**Venue: Head Office of the National Agricultural Research Institute (NARI)**

#### *Present on the meeting were:*

1. Dr Sergie Bang, NARI Director General, chairperson
2. Dr A. Ramakrishna, NARI Deputy Director General, chairperson
3. Dr. Norah Omot, NARI, leader of component on smallholder community involvement of the project, member
4. Mr. Elick Guaf, NARI, leader of crop improvement component of the project, member
5. Dr. Peter Gendua, NARI, leader of the crop diversification component, Member
6. Mr. Martin Lobao, NARI, leader of the Livestock component, Member
7. Mr. Johannes Pakatul, NARI, soil moisture and conservation expert, Member
8. Dr. Dominik Ruffeis, BOKU, soil moisture and conservation expert, Member
9. Mr. Jules Damutalau, MAL, acting project sub-coordinator for SI, member
10. Mr Martin Jaiki, MAL, Deputy Director MAL Research Division, representing Mr Jimi Salea, Permanent Secretary and project senior scientist for SI, member
11. Mr. Antoine Ravu, DARD, project sub-coordinator for VU, member
12. Dr Birte Komolong, NARI, action coordinator, member
13. Mr. Abner Yalu, NARI, a/Programme Director Information and Knowledge representing the Senior Anzu, component leader for information exchange and networking, member

#### *Apologies:*

1. Mr. Joshua Ryan, NARI, M&E expert, member, on study-leave in Australia.
2. Dr. Roger Malapa, VARTC, project senior scientist for VU, member, health problems
3. Ms Imelda Kavu, Programme Officer - Rural Development, Delegation of the European Union in Papua New Guinea, representing Mr. Adrian Mourgues, observer, other work commitments

Meeting called to order at 10:00 am.

## Agenda

The following agenda items were tabled and approved for deliberation:

1. Follow up of outstanding matters from the fourth meeting of the Committee
2. Highlights of activities during year 4 of the project:
  - 2.1. Progress of project implementation (brief updates from major components)
  - 2.2. Brief update from Solomon Islands (by Jules)
  - 2.3. Brief updates from Vanuatu (by Antoine)
3. Status of project finances
4. Update on quarterly consultations by the project team
5. Action plan for Year 5
6. AOB

With no additional agenda items suggested for inclusion, and the tabled agenda items approved without modification, the meeting went ahead with deliberations.

### *Agenda 1: Follow up of outstanding administrative matters from the last meeting:*

1. Jules is to provide an update on the latest status of the lab to ACC members by Monday 20 January 2014

Briefing:

- Update in Q1 2014 Review meeting - shelves have been installed; still problems with ceiling and lack of the fridge; Resolution at the time We need a formal advice from MAL on the status and implications for project implementation (Jules to follow up with Helen and a/PS)
- Update in Q2 2014 Review meeting - SI through MAL will continue to push for the completion of the important laboratory. Reliable water and electricity are the only setbacks to the operation and running of the lab; AC responded project cannot take responsibility. Water issues should not be problem because there is some source. For electricity, there is option. EU has been informed already that responsibility is with ministry.
- Update in the ACC meeting - the laboratory is essentially ready for operation although it still requires a back-up generator due to frequent black-outs from the main grid
- There are no activities currently happening
- The laboratory is managed by the crop health section (Mrs Helen Tsatsia) and a suggestion was made to encourage more collaboration between EU ARD and Crop health

## Resolution:

**Even though the lab still requires a back-up generator, work on tissue culture should go ahead considering the risks from power black outs. Peter, Elick and Jules to work on the requirements.**

2. Inability of World Vision – Vanuatu to continue to be involved in project activities. The project team to explore alternative arrangements and consider sub-contracting such institutions to handle the pending tasks.

Briefing:

- Committee advised the project team to proceed with implementation with or without ADRA.
  - Update will be provided by Water Component Leader in the next agenda item
3. The project office should consider up-to-date budget balance to component leaders at least on budget lines that are clearly dedicated to specific components.

**Briefing:**

- Committee recommended to NARI in the last meeting to consider assigning an additional administrative staff to provide occasional support on needs basis. In particular Mrs. Mana Mazi, who has got experience in administering the ACP funded capacity building Projects, would be a suitable support staff. Project office to start generating monthly budget updates to Component leaders
- Update – recommendation did not eventuate
- Currently the assigned Admin staff (Gloria Wingawe) is on maternity leave.

**Resolution:**

**Ms Mazi to retain some time input in EU ARD project administration after return of Ms Wingawe for further support and generation of monthly budget updates**

4. Rainout shelter: Committee urges project team to fast track the construction process

**Briefing:**

- Decision was taken to only build 1 rainout shelter at Bubia
- Construction of one rainout shelter at Bubia has commenced and is approximately 70% completed
- A suggestion was made to move some of the soil moisture sensors currently used in the work of the soil/water component to the rainout shelter for further use
- This would require NARI staff at Bubia to be trained in correct use of the sensors

**Resolution:**

**The Committee agreed with the suggestion to make soil sensors available for other uses in NARI including the rainout shelter after field trials in the soil/water component have been completed.**

5. Possible Personnel changes in SI and VU
  - Administrative Assistant in SI considering resignation

**Briefing:**

The SI administrative assistant retained her position

- VU Country sub-coordinator Peter Iesul considering resignation

**Briefing:**

P. Iesul resigned and was replaced with Antoine Ravu

6. Action Plan Yr 4 resolutions:
  - Request NARI to assign replacement ACC due to appointment of the ACC at the time to DDG

**Briefing:**

This did not eventuate; change of ACC only after resignation of previous ACC from NARI

- Request to NARI to strengthen Programme 3

**Briefing:**

P3 has been strengthened with a/PD and a new Senior Scientist

- Request to EU for use of contingency reserve and budget reallocations

Briefing:

A request to EU for use of contingency reserve and budget reallocations was included in the submission of the annual financial report, technical report and request for the next advance of project funds

## **Agenda 2: Highlights of activities during year 3 of the project**

**Briefing:**

### **2.1 Highlights of activities:**

- Previous ACC resigned and left NARI at the end of September 2014; ACC prepared Hand-over report
- Year 3 official narrative and financial report was submitted to EU in July and accepted by August (delay because of under expenditure)
  - Payment of Year 4 advance (500,000 Euro) temporarily on hold due to fund shortages at the HQ; 400,000 Euro paid at the end of October 2014; 100,000 Euro yet to receive
  - Submitted request for use of contingency reserve and reclassification of some budget lines and finally granted on 12 December 2014
  - Overall project performance remained per plan and timeframe.
  - Project communication and visibility activities:
    - Acknowledgement of budget support from EU and partners
    - Publicity articles: newspapers, newsletters, website
    - Project website: <http://ard.nari.org.pg/activities/index/>
      - NARI website inaccessible since September 2014 due to server problems after changing ISP – NARI has taken some measures to resolve the problem and it is anticipated that the website will be operational again by January/February 2015
    - Office signboards, asset stickers
    - Project site signboards, Project letterhead

### **2.2 Progress in implementation by components**

#### **2.2.1 Project coordination**

##### **Activity 1. Action coordination, planning and review**

Briefing:

- Action Steering Committee meeting conducted
- Quarterly Project Progress monitoring and planning meetings with Project staff conducted (1 April, 8 July, 14-16 November 2014)
- Visibility actions implemented according to plan
- Economic evaluation of selected technologies or strategies is pending. The consultant engaged for the work (Mr Christian Treitler) visited PNG in July 2014 and send some suggestions of what could be done. Due to various issues including the extended leave on compassionate grounds by Dr Omot, component leader for Smallholder Community involvement, an agreement on the scope of work for the economic evaluation is yet to be reached but should be finalized in Q1 of 2015.

##### **Activity 2. Action Offices staffed, equipped and managed for 5 years**

Briefing:

- Achievements in this activity reported in Agenda Item 3

##### **Activity 3. Action Inception, Mid-term & Completion Workshops**

Briefing:

- There is no formal mid-term review workshop scheduled; completion workshops in all 3 countries will be held as planned towards the end of Year 5.

#### **2.2.2 Smallholder Community Involvement:**

Briefing (see Annex 1 for details):

Discussions arising:

- The component leader suggested that planning for end-of-project surveys has to start as soon as possible and given number of sites and time required, the surveys may preferably starting in Q2.

- ACC members pointed out that many of the planned activities would not be completed before end of Q2 or 3
- End-of-project survey and economic evaluation of selected technology options need to be done in a coordinated manner

**Resolution:**

**End-of-project surveys should be planned for towards Q3 and 4 given current timeframe of the project**

**2.2.2 Soil water and fertility management**

Briefing (see Annex 2 for details):

**Activity 1 “Rural Appraisal surveys to assess water accessibility and current water/use management by target communities in PNG, SI and Vu and to identify suitable sites for pilot testing”**

- M1 + 2 +3: 100% target achieved

**Activity 2 “Assessment of current and future impacts of climate change with respect to excess, deficit soil water content and salinity in PNG, SI and Vu and to identify suitable technologies to mitigate adverse impacts”**

- M1 CC scenarios for excess, deficit soil water content and rising sea water level developed: 50% target achieved
  - M2 Impact of CC scenarios on soil water conditions and salinity analyzed and potential impact on crop production determined: 50% target achieved
  - M3 Meteorological instruments set-up and functional: 70% target achieved

**Activity 3 “Develop and assess water harvesting methods, ground water availability & dynamics, irrigation techniques and management strategies at pilot sites in target communities in drought vulnerable parts of PNG, SI & Vu”**

- M1 Water management technologies for domestic water use developed on-station for further site assessment: 100% target achieved
- M2 Suitable agricultural water management technologies identified: 100% target achieved
- M3 Implementation of agricultural water management pilot site activities completed: 50% target achieved
- M4 Implementation of domestic water management pilot site activities completed 70% target achieved

**Activity 4 “Develop and assess soil water and soil management technologies under excess, deficit soil water and saline conditions at benchmark sites in target communities of PNG, SI & Vu”**

- M1 Soil and soil water management technologies for soil water deficit and soil erosion scenarios developed and evaluated on-station for further site assessment: 100% target achieved
- M2 Water dynamics of sweet potato mound system and impact of excess rainfall evaluated on-station: 40% target achieved
- M3 Impact of salt water intrusion on soil conditions monitored and evaluated and strategies to cope with saline soil conditions due to rising sea water level identified: 40% target achieved
- M4 Implementation of pilot site activities on soil and soil water management technologies for soil water deficit scenarios completed: 40% target achieved

**Explanation as to significant variances from timelines and implementation plans**

- Tribal unrest and collapse of a main bridge in Q3 2014 – **Kopafu, Murukanam, Hisiu, Tambul, Yule**
- Logistic problems - automatic rain gauges – **Solomon Islands**
- Lack of knowledge and capacity in water and soil management – **SI, Vu**
- ADRAs involvement is progressing well but implementation also depends on their schedules and plans for installation of water supply systems at **Middlebush**



### **2.2.3 Crop improvement and diversification**

Briefing (see Annex 3 for details):

#### **Activity 1. Source alternative sweet potato varieties, crops and crop varieties from national and international collections which are tolerant to precipitation excesses or deficits or saline soil conditions**

- Collection of SP and other crop varieties available for pilot site testing assembled (Sweetpotato: PNG-102, SI- 15, Vu – 10; Yam, cassava, rice, maize, wheat & breadfruit planting materials assembled and taken to sites for evaluation/demonstrations; open pollinated vegetable varieties imported from AVRDC & ACIAR Project)

#### **Activity 2. Screening of indigenous germplasm, locally bred and imported varieties of sweet potato and other crops/crop varieties under simulated conditions (in vivo and in vitro) to assess tolerance to drought, moisture excess and salinity condition , and to identify promising varieties**

- Soil moisture Excess, Deficit & Saline trials concurrently with a control for correlation with one set of SP Phenology group (70 DAP)
- Rainout shelter construction at Bubia: 70% complete

#### **Activity 3. Validation and piloting and introduction of other crops and crop varieties in target communities in PNG, SI and Vu**

- Site implementation activities 60-70% on track

#### **Activity 4: Piloting of selected improved cultivation practices for priority staples crops in target communities in PNG, SI and Vu according to expressed needs**

- Site implementation activities 60-100% completed

#### **Activity 5: Piloting of processing options of sweetpotato and cassava for food, feed and storage in target communities in PNG, SI and Vu according to expressed needs**

#### **Activity 6: Assessment of existing mechanisms for provision of quality seed to farming communities in PNG, SI and Vu and recommendations for improvement made.**

- To be implemented in 2015

Discussions:

The assessment of existing mechanisms for provision of quality seed can be potentially a very big task. There is a need to downscale the scope or also consider engaging additional staff or consultants to do the review.

#### **Resolution:**

**Crop component leaders and livestock component leader to propose best plan of action**

### **2.2.4 Livestock diversification**

Briefing (see Annex 4 for details):

#### **Activity 1. Assessing the potential for improving farm productivity through diversifying livestock assets and improved cyclical use of crop and livestock inputs in situations where excess rainfall, moisture deficit or soil salinity conditions are problematic**

M1: Preferred options for diversification and integrated use of resources are identified

M2: Appropriate demonstration trials implemented by nominated model farmers

M3: - Participatory assessment workshops held in all sites.

## **Activity 2. Sourcing and identifying forages tolerant of excess moisture and saline soil conditions, e.g. grasses, legumes and multipurpose shrubs such as Mulberry**

M1: The need and type of forages identified.

M2: Implementation of pilot site for forage development and assessment activities completed.

## **Activity 3. Pilot test diversified livestock feeding systems and husbandry practices in smallholder communities in target communities in PNG, SI and Vu**

M1: Implementation of pilot site improved feeding and management demonstration activities completed.

M2: Implementation of preferred livestock integration activities completed

M3: Participatory technology assessment workshop held in all sites

## **Activity 4. Assessing existing mechanisms for supplying breeding stock in PNG, SI, and Vu and demonstrating institutional or community-based breeding facilities**

M1: Selected breeding stock of livestock supplied to selected model farmers and established

M2: Desktop review of breeding stock supply systems in PNG, SI, Vu

M3: Stakeholder workshop on breeding stock supply systems held in PNG, SI, VU

M6: Policy brief submitted to relevant Government bodies in PNG, SI, Vu by NARI & other partners

### **2.2.5 Information/knowledge sharing and networking**

Briefing (see Annex 5 for details):

The component leader was unable to attend the ACC meeting due other commitments in another project and no presentation was made during the meeting. The six-monthly progress report is attached in Annex 5.

### **2.4 Progress of the project in Solomon Islands (by Jules Damutalau)**

Briefing:

- Implemented activities in all results for Solomon Island sites are also captured in the narrative reports of component leaders.
- Overall, implementation of crop related activities has been progressing well. Less progress was made for the livestock component and the soil/water component. There have also not been much follow ups with farming communities to capture their views on implemented activities.

Lessons learnt

- Overall project activity coordination
  - The project team to engage in regular consultations with relevant stakeholders who are willing to support the implementation of the project specific activities
  - To enhance regular consultations with the project component leaders in NARI
  - The local component leaders needed to be guided to perform as expected – regular quarterly meetings
- Documentation of project activities
  - Need to identify and engage other local MAL staff who are capable of implementing the specific task
  - Capacity building for junior officers by organizing relevant specific training and refresher workshops for the senior officers
  - To consistently consult with the senior NARI Colleagues especially project component leaders
- Local community participation
  - Well planned regular visits to the project communities will enhance community participation
  - Understanding the community and its setting boost their participation

- Availability of funds
  - Disbursement of funds should be planned and must be accorded to the planned quarterly activities

Other discussions:

- There is a need to train MAL staff in various areas of project implementation, e.g. use of soil sensors, feed formulation etc.
- Suggestion was made that such trainings can also be organised in PNG

**Resolution:**

**Component leaders to put together list of training needs for scientific and technical staff in VU, PNG, SI to be further discussed for implementation**

## **2.5. Progress of the project in Vanuatu (by Antoine Ravu)**

Briefing:

- Implemented activities in all results for Vanuatu sites are also captured in the narrative reports of component leaders.
- Overall, implementation of site activities has been progressing well.

Lessons learnt:

- Overall coordination of the Project was good with support from the local team.
- Most Siviri & Malafau farmers are more interested in village chicken.
- Farmer to farmer approached.
- Use of local expertise to carry out relevant trainings is an useful and effective option.
- Many farmers are showing interest in the Project activities and technologies (leaflets, booklet).
- Better coordination with other Climate Change Projects (adoption of technology).
- Adoption of reporting template by DARD officers.
- Farmers formulate their own livestock feed using local feed.
- Interested farmers purchase their own materials.
- NARI-EU ARD Activities has now included in DARD 2015 business plan.

Challenges:

- Delay of Project funds may results in lack of farmers trust & interest on the Project.
- Output behind schedule (Soil & Water component; Goat improvement practices).
- Increase capacity & technical knowhow on trials conducted (write up of technical report).
- NARI feed formulation concentrate still pending.
- Farmers' priorities & other commitments.
- Involvement of local team member with other Projects.
- Collaboration with other partners.
- Farmers' politics & conflict of interest.

Other discussions:

- The Networking Stakeholder workshop resolved to have more interactions with farmers; the experience of the NARI Agricultural Innovations Day was shared and there was considerable interest in doing something similar
- ACC members discussed and suggested that such activities can be supported under the visibility component
- Antoine also reporting that he is participating in various shows to promote and disseminate information and has also participated in radio talk back shows
- ACC members pointed out to ensure that such actions are well documented

### Agenda 3. Status of project finances

- At June 2014 about 54% of project budget was used up during 70% of the time frame (nearly 3.5 years) (Table 1)
- Audit report was unqualified and financial report accepted by EU
- Year 4 advance (Euro 500,000), Contingency reserve and budget reallocation approved to support the following budget lines:
  - Technicians and unskilled labour (PNG, VU, SI) – additional staff engaged to support site implementation can remain til the end of the project
  - Per diems
  - Local travel within PNG
  - Specialist equipment for water surveys
  - Irrigation schemes
  - Conferences/Seminars
- Part payment for Year 4 advance (Euro 400,000) received by NARI

**Table 1. Summary of project expenditure by year and major budget categories (status 31/5/2014)**

Categories	Total budget (€)	Year 1 costs	Year 2 costs	Year 3 costs	Total	%
Human resources	1,741,674	344,806	333,364	405,033	1,083,203	62.2%
Travel	451,005	106,023	49,178	77,034	232,234	51.5%
Equipment & supplies	798,350	193,387	16,040	157,578	367,004	46.0%
Local office costs	94,657	20,537	12,975	25,265	58,777	62.1%
Audit, visibility	65,000	12,916	7,844	31,934	52,694	81.1%
Workshops, re-granting	107,000	39,245	9,739	46,287	95,271	89.0%
Admin	239,440	50,016	21,786		71,802	30.0%
	162,884	34,024			34,024	20.9%
Total	3,660,011	800,954	450,925	743,131	1,995,010	54.5%

### Agenda 4. Update on quarterly consultations by the project team

- Project core team from the three countries held quarterly project review meetings:  
*To enable the project team to reflect on the progress of the project, discuss problems or successes during implementation and, if necessary, make decisions on corrective actions required to bring intervention back on track*
  - First: 1 April 2014
  - Second: 8 July 2014
  - Third: 11-13 November 2014 (Review and Planning meeting)
- SI and VU country teams to do monthly review meetings (updates?)

### Agenda 5. Action plan for Year 4

It was agreed that the project team across the three countries will continue implementing the planned activities as specified in the elaborate site plans. The key points pointed out for each of the major outputs were:

- Result 1: Project coordination
- Result 2: Smallholder Community Involvement – focus will be on finalizing plans for the economic evaluation work from BOKU; specific site assessments of community involvement for technology options; organization of the end-of-project surveys.
- Result 3: Soil water and fertility management: firm up pending site level activity for Middlebush and continue with planned training and demonstration activities.
- Result 4: Crop production and utilization: implementation of pending crop trials with validating stress-tolerant sweetpotato varieties at pilot sites.
- Result 5: Livestock diversification: implementation of pending activities across the three countries
- Result 6: Linkages and information sharing: support information dissemination in all three countries.

**Year 5 focus in Action Plans:**

- All site plans reviewed and updated to ensure completion of planned activities by end of 2015
- Documentation of results (needs assessment survey, site implementation activities)
- Preparation for the end-of-project survey

Other discussions:

- Component leaders and country sub-coordinators enquired on the option of requesting for a no-cost extension of the project beyond February 2016;
- A no-cost extension would enable component leaders to fully complete implementation of all project activities, give opportunity for further out scaling activities to enhance outcomes and impacts
- Due to the under-expenditure in the first 3.5 years, there should still be significant funds available

**Resolution:**

**Project Coordinator to explore options for a no-cost-extension of approx 6 months**

<i>Agenda 7. AOB</i>
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With no additional agenda items proposed or tabled for discussion, the meeting checked that there identified cross-cutting issues related to gender, HIV/AIDs or conflict resolution are addressed as part of project implementation. The current communication and visibility actions were considered adequate.

After having covered all agenda items, without leaving pending matters, the meeting was adjourned at 4:30pm.

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*Annex 1: Brief report on progress of planned work under the Component on Smallholder Community Involvement*

Component/ Expected Project Result:	Socio-economic/ Suitable target smallholder communities in PNG, SI & Vu identified, needs-assessed, and participating in the research and development process
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**1. Progress towards achievement of the milestones set for the period**

The annual community feedback meetings had been implemented through a series of community participation assessments. This is to assess the interest and active involvement of participating farmers in the pilot sites.

For quarters 3 and 4, community participation activities were held in PNG for crop (x4) activities, in Solomon Islands for livestock activities (x1) and in Vanuatu for livestock (x3) and food processing activities (x1). Structured questionnaires and focus group discussions were used for collecting data.

**2. Progress towards the overall Component objectives and Results**

Progress by end of December 2014 for community participation overall is 35% (17 out of average of 48 such activities to be implemented across components, sites and countries). For second and third quarters, overall progress is 64%

Overall progress for PNG is 40% and progress for Qs 3&4 is 75%.

Overall progress for Vu is 31% and progress for Qs 3&4 is 100%

Overall progress for SI is 7% and progress for Qs 3&4 is 20%.

**3. Explanation as to significant variances from timelines and implementation plans**

There is no variation from previous plans

**4. Modifications in implementation plans at sites and overall plans for the component, impending problems and recommended solutions**

Assessments had happened throughout the year, as and when components were ready to do their feedback evaluations. The plan was to have 2 visits per component per quarter in each site of operation in the 3 countries. This had not happened according to plan, for various reasons: in PNG, crops activities were more active in Madang and Kopafu sites so assessments were done there; other crops and livestock activities were still rolling out. There was also poor cooperation between livestock and soil/water components for field assessments. In Vu, roll out of activities were slow but livestock activities were advanced. In SI, there were slow roll out of activities but some assessment was done on livestock. Colleagues in SI and Vu were responsible for implementing assessments in their respective countries.

With 1 year remaining on the project, there is need for modification on the community assessments plan. Regardless of not achieving planned number of visits per site in each country, we have collected enough data over this last 1.5 years to provide a general feedback on farmers' interest and participation in the various crops and livestock activities. We suggest now to drop this activity from the 2015 plan and instead to combine it with the activity on end of action surveys in 2015.

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

Combining our assessment with feedback evaluations from components appears to be very useful.

*Annex 2: Brief report on progress of planned work under the soil water and fertility management component*

Component/ Expected Project Result:	Innovative water management & soil improvement strategies/systems to support agriculture under precipitation excess or deficit conditions available to smallholder communities in PNG, SI and Vu
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**1. Progress towards achievement of the milestones set for the period**

**1.1 Progress made at selected PNG sites.**

In general planned activities at selected sites in PNG are implemented according to the site activity plans and schedule. Activities and milestones, which implementation had to be deferred primarily caused by tribal unrest end of last year in the vicinity of the NARI-HRC Aiyura station are being implemented according to the revised schedule. Soil sampling activities for soil fertility assessments were conducted successfully and all laboratory data were received. Currently the data are processed and interpreted. Due to the delay of some site level activities, demonstrations and the like will not be implemented as planned. Lack of capacity and time are the main reasons why site plans for Murukanam and Hisiu had to be revised. Demonstration of positive effects and impacts of selected technologies for soil fertility improvement cannot be successfully and meaningfully implemented within the lifespan of the project. Hence it was decided to conduct and facilitate trainings and to integrate this activity in crop related trials and demonstrations. Training activities that had to be postponed for 3 to 4 months are still behind schedule, but site level activity plans for Murukanam and Hisiu were revised accordingly.

Kopafao based irrigation activities are behind schedule due to collapse of a bridge that made planned trips impossible. Additionally a road block caused by tribal tensions permitted travels to the site.

**Kopafao:**

Milestones for planned outputs for Kopafao were not achieved for all outputs within the timeframe.

For **output 1** *“Community has an improved capacity to manage available water sources for domestic and agricultural uses”* an irrigation survey (**M4**) was conducted to establish baseline on water use for agricultural production and all data analyzed. A draft report is available. Model farmers have been identified and suitable irrigation technologies identified (**M5**). Work is delayed due to the late arrival of the BOKU student. The planned research work could not be conducted as planned due to travel restriction (tribal unrest and collapse of main bridge). The detailed planning and design (**M6**) of the system was finalized and instead of constructing a demonstration irrigation system on site, a pilot system was installed at Aiyura station and is currently tested. In light of latest development and not to delay implementation of irrigation activities any further, a decision was made to additionally procure ready to use irrigation drip kits from suppliers. Depending on the weather conditions irrigation pilot sites will be set-up at model farmers’ plots in early 2015. Activities for **M1**, **M2** and **M3** had to be further postponed due to mentioned issues. The testing of the biosandfilter at Aiyura, has been successfully completed and the well tested system is now available for the communities to be utilized to purify water. Communities will be trained and systems installed beginning of 2015.

100% of the planned activities for output 2 *“Increased capacity by participating farmers to use improved soil management practices addressing constraints of soil erosion, water deficit and fertility”*, which includes activities of **M2** and **M3** were achieved. First round of activities for **M4** (monitoring and data collection) was conducted and data are currently analyzed. The planned training workshop could not be conducted due to before mentioned travel restrictions. The workshop will be held in Q4 2014. Based on the feedback from

farmers during the training, the demo plot will be modified and a second round of erosion monitoring conducted.

**Tambul:**

**Output 8** *“Increased capacities by participating farmers to use improved soil fertility management practices in sweetpotato production”*.

Activities for **M1** and **M2** were implemented according to revised schedule.

The farmer training and planting of trials was done in August 2014 (**M3**).

**Derin:**

**M1** and **M3** for output *“Capacity for improved management and use of available water sources for domestic use increased in Derin Community”* were successfully implemented within the planned timeframe.

In accordance with the locations of the water harvesting schemes and the well, members of a water committee (**M5**) were identified by the participants. The water committee members already met three times since their appointment; rules and regulations are currently developed and defined.

(**M2**) 5 RWH schemes were successfully installed in June 2014 and officially handed over to the community in October 2014. Installation of a hand-dug well is currently ongoing and will be completed end of 2014.

Model farmers in accordance to the selected sites for water supply were identified and further training was conducted with respect to proper water management, use of BSF and solar disinfection (**M5**). 5 pilot biosandfilter will be available to the selected community members by end of 2014. Further training and follow-up activities are planned throughout 2015 to complete this activity.

**Murukanam:**

The planned activities for output 1 *“Farmers have knowledge and skills on most pertinent soil fertility constraints and their causes to address limitations on crop production”* are delayed due to tribal unrest in the vicinity of NARI Aiyura station. Activities for **M1** (Soil fertility status assessed and constraints related to crop production identified) are completed and final technical reports including the results and interpretation of the soil surveys are currently produced. In light of the delay of this output the activity list was revised and demonstrations and the like will not be implemented as planned. Lack of capacity and time are the main reasons why site plans had to be revised. Demonstration of positive effects and impacts of selected technologies for soil fertility improvement cannot be successfully and meaningfully implemented within the lifespan of the project. Hence it was decided to conduct and facilitate trainings and to integrate the output of **M1** of this activity in crop related trials and demonstrations. Based on the results further recommendations and trainings to improve or sustain soil fertility will be given and organized in Q1 2015 (**M2**).

It was decided not to include irrigation as an activity for the Murukanam site. Irrigation is a labor intensive work and the fact that the farmers’ highest priority is cultivation of cacao, let to the assumption that it doesn’t allow to allocate more capacity to cultivation of vegetables by means of irrigation. Instead the water component will look into water related problems the livestock team faces and will explore options how to improve water supply for agricultural uses and how to mitigate adverse impacts of livestock activities on water sources used for domestic purposes.

**Hisiu/Yule Island:**

Planned activities at Hisiu for output 1 *“Increased capacity by participating farmers to use improved soil management practices addressing constraints of soil erosion, water deficit and fertility”* and Yule output 1 *“Farmers have knowledge and skills on most pertinent soil fertility constraints and their causes to address limitations on crop production”*



Activities for **M1** were completed and final technical reports including the results and interpretation of the soil surveys are currently produced. In light of the delay of this output the activity list for Hisiu was revised and demonstrations and the like will not be implemented as planned. Lack of capacity and time are the main reasons why site plans had to be revised. Demonstration of positive effects and impacts of selected technologies for soil fertility improvement cannot be successfully and meaningfully implemented within the lifespan of the project. Hence it was decided to conduct and facilitate trainings (**M2**) and to integrate the output of **M1** of this activity in crop related trials and demonstrations especially the vegetable evaluation and irrigation trials. Training at Hisiu will be conducted in Q1 2015. Based on farmer consultation and the results from the soil survey, suitable technologies were identified. A farmer training (**M2**) and the marking out of a demonstration were done in Q4 2014 at Yule Island. Final planting of the trial (**M3**) will be done in Q1 2015.

## **1.2 Progress made at selected sites in Solomon Island and Vanuatu:**

Implementation of activities in **Solomon Islands** and **Vanuatu** is still behind schedule. Main reason is lack of appropriate technical field staff and know-how in the respective areas. Decision was made by DARD to not engage former BOKU student Helmut Schabschneider and another graduate student from BOKU could not be involved as of yet due to various reasons. Based on this decisions activity plans and schedules were revised and chosen approach changed in order to deliver on set outputs. To improve technical knowledge, expertise and skills of involved field staff training will be organized in PNG and in Vanuatu. ADRAs involvement at Middle Bush is well on track but depends on the actual implementation of ADRAs own plans to install a water supply system. It was agreed that ADRA will carry out the installation of water supply system to an agricultural school, which then will be used by the project to promote vegetable production by means of proper irrigation.

### **1.2.1 Solomon Islands:**

#### **Aruligho and Hunda&Kena:**

Trial and demonstration plot designs for all three sites Buma, Hund&Kena and Aruligho have been finalized and implementation has started. The establishment of the erosion demonstration plots and Aruligho has already been initiated by MAL. The NARI soil cadet has not been sent to SI yet due to internal issues, therefore the set-up of the plots has not yet been completed. An alternative NARI officer was identified and will be sent to SI site beginning of 2015.

#### **Buma:**

The installation of the soil salinity monitoring station scheduled for Q4 2014, has not yet been installed. The PNG visa renewal of the involved scientist took longer than expected and thus activity had to be postponed to Q1 2015.

### **1.2.2 Vanuatu:**

#### **Middlebush:**

ADRA involvement at Middle Bush is well on track but depends on the actual implementation of ADRAs own plans to install a water supply system. It was agreed that ADRA will carry out the installation of water supply system to an agricultural school, which then will be used by the project to promote vegetable production by means of proper irrigation.

#### **Malafau and Siviri:**

Model farmers have been selected and a supplier of irrigation equipment identified. The supplier agreed to facilitate training on irrigation of farmers and technical field officers.

## 2. Progress towards the overall Component objectives and Results

**Activity 2** *“Assessment of current and future impacts of climate change with respect to excess, deficit soil water content and salinity in PNG, SI and Vu and to identify suitable technologies to mitigate adverse impacts”*

**CC scenarios for excess, deficit soil water content** are currently being developed (M1). Meteorological data is not available for most of the sites. Some institutes were also not willing to share rainfall data with the project. Decision was made to generate weather data with an online available tool called MarkSimGCM published by CGIAR program on climate change and food security. The tool is currently being tested. The installation of the soil salinity monitoring station had to be postponed to early 2015.

A trial to determine **soil water dynamics in SP mound system and effects of excess soil moisture (M2)** will be set-up on-station at NARI-HRC Aiyura to monitor water balance in SP mound system and assess potential effects of excess soil water scenarios on SP production. The test runs and calibration of the sensors are slightly behind schedule and are currently undertaken at Aiyura station. Installation of the sensors will then be done during Q1 2015.

The study on **impact of CC on soil profile water content and balance** in selected study sites (M2) is progressing well. Soil samples to measure specific soil physical properties (soil water retention characteristics) are currently collected and determination of respective soil properties done using a laboratory apparatus (Hyprop).

(M3) One AWS, six automatic rain gauges and two manual rain gauges were ordered and delivered in 2013. Two automatic rain gauges each for Vanuatu and Solomon Islands were delivered to the project partners. Installation of the rain gauges at the SI sites is still delayed due to lack of capacity and skills to handle the instruments. Due to visa issue, a planned trip to install one rain gauge at Buma site and to meet with SI Meteo department and seek their assistance had to be postponed.

Two rain gauges were successfully installed by VMGD (Meteo Department) of Vanuatu at Siviri and Malafau sites in Vanuatu in August 2014.

The additional ordered meteo equipment was received in Sept 2014 and installation at respective sites is now ongoing.

**Activity 3** *“Develop and assess water harvesting methods, ground water availability & dynamics, irrigation techniques and management strategies at pilot sites in target communities in drought vulnerable parts of PNG, SI & Vu”*

Report on all on going activities are given under point 1 *“Progress towards achievement of the milestones set for the period”* for Kopafu and Derin sites.

**Activity 4** *“Develop and assess soil water and soil management technologies under excess, deficit soil water and saline conditions at benchmark sites in target communities of PNG, SI & Vu”*

Report on all on going activities are given under point 1 *“Progress towards achievement of the milestones set for the period”* for Kopafu and Buma sites.

## 3. Explanation as to significant variances from timelines and implementation plans

Due to tribal unrest and collapse of a main bridge in Q3 2014, pilot irrigation systems could not be installed as planned at the selected Kopafa plots. Instead a pilot system was set-up at Aiyura station and installation of similar systems will be done early 2015.

Hygiene and water management training at Kopafa was postponed to Q1 2015. This was necessary mostly due to lack of manpower.

Due to the tribal unrest in the vicinity of Aiyura station, the soil surveys to assess the soil fertility status of Murukanam and Hisiu sites were delayed by over 6 months. The results of these surveys only became available in Q4 2014. A decision was made to cancel planned soil fertility management demonstration and trials, mostly because tangible effects will only become visible after some years. Therefore focus is put on intensive trainings and integration of this activity into respective crop components trials.

Due to various logistic problems, the installation of the automatic rain gauges at the SI sites is delayed.

Activities and implementation of planned trials and demonstration at the SI and Vu sites are still delayed because of capacity problem and lack of know-how within the partner organizations. The two BOKU students could not be taken on board to assist the implementation of the planned activities in the two countries. Therefore decision has been made to conduct training of trainers especially for all planned irrigation activities.

ADRAs involvement is progressing well but implementation also depends on their schedules and plans for installation of water supply systems at Middlebush.

#### **4. Modifications in implementation plans at sites and overall plans for the component, impending problems and recommended solutions**

##### **Hisiu and Murukanam:**

Activities were revised and major focus is on training of farmers rather than demonstrations and trials. Results of soil surveys should be integrated into respective crop components trials.

##### **Kopafa:**

Irrigation activities are postponed to Q1 2015

Hygiene and water management training at Kopafa is postponed to Q1 2015

##### **SI:**

Set-up of soil salinity monitoring station is delayed and will be done in Q1/2 2015

Installation of erosion demo plots is delayed and will be done Q1 2015

##### **Vu:**

Activities for all three sites were revised and schedule for implementation adjusted. The changes are reflected in the respective site activity plans.

#### **5. Lessons learnt or any other relevant observations as part of implementation**

Lack of knowledge and capacity in water and soil management is still a major concern regarding the implementation of planned activities in SI and Vu. More training is needed to close these gaps, which is however very time consuming. Unfortunately a decision was made by our Vu partner not to engage a former graduate BOKU student (environmental, land and water management engineering), who would have the capacity to not only implement planned activities but also train field officers and partner staff on the job.

*Annex 3: Brief report on progress of planned work under the Crop improvement and diversification component*

Component/ Expected Project Result 4:	Diversification options for crop production and utilization available to smallholder communities in PNG, SI & Vu in areas affected by moisture stress, excess precipitation, or saline soil conditions
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## 1. Progress of Implementation

### A1. Source alternative sweet potato varieties, crops and crop varieties from national and international collections which are tolerant to precipitation excesses or deficits or saline soil conditions

M1. Collection of SP varieties and accessions sourced from national and international collections assembled at Bubia.

The task was completed with 102 SP accessions assembled from within PNG and 55 SP introduced from CePaCT, SPC, Fiji and are in PNG Tissue Culture laboratory.

Planting material included in on-farm demonstration trials are either Pathogen Tested (PT) or Virus infestation verified with the use of ELISA kit.

M2. Other crops and crops varieties from national and international collections sourced and assembled at Bubia.

- Planting material multiplication in Tissue Culture of CePact materials:
  - Taro (*Colocasia esculenta*); from 3 varieties obtained 3 -40 vials multiplied but most have contamination problems and needs to be improved. Only a few plantlets were hardened in the shade house.
  - Taro kongkong (*Xanthosoma*); from 1 variety obtained 10 vials multiplied also develop contamination problems and also need to be improved. No plantlet was hardened in the shade house as yet.
  - Cassava accessions; 6 varieties obtained, 11 – 40 vials multiplied in TC but no further multiplication done and not hardening has been done as yet.
  - Yam (*Dioscorea alata*); 20 cultivars obtain 1 – 47 vials multiplied or cultured but develop some antitoxins problem in the vials and only a couple of plantlets has been hardened so far in the shade house.
  - The preparation is now in progress to further hardened the plantlets in the shade house.
  - Generally the Tissue culture of in-vitro mass propagation/multiplication work is very slow and not up to expectation and we are now take some measures to improve on that.
- Different Open Pollinated (OP) vegetable varieties imported for evaluation from AVRDC.
  - Thirty two (32) different OP vegetable varieties' seed multiplication and evaluation carried out at NARI Laloki completed and data and seeds are being sorted out for on-farm evaluation in Q1 of 2015.
- Cold Tolerant Maize Varieties imported from CIMMYT for evaluation.
  - Nineteen (19) cold tolerant maize varieties imported from CIMMYT in October 2014 and seed multiplication on station (Tambul) has started with monthly plantings to avoid cross pollination.
- Planting material multiplication in the field:
  - Planting materials from the 10 drought tolerant cassava (ex-Laloki) collection multiplied at Bubia were supplied to model farmers for on-farm evaluation at Murukanam for multiplication and observation.
  - 16 African Rice (NERICA rice) being multiplied at Laloki.
  - African yam (*Dioscorea rotundata*) planting materials are being further multiplied at Laloki and Bubia to be distributed to the other interested farmers at the pilot sites.
- Evaluation of Seed-less Breadfruit plant parts for rapid multiplication using non-mist propagator technology:

- Different plant parts of the seed-less breadfruit is being tested or evaluation for rapid multiplication using Non-mist Propagator technology is in progress at Laloki.
  - Preliminary results shows some good sign of shoots coming from stem and shoot tips but percentage of success is low so further testing is in progress.
- M3. On-Station screening and selection on good storageroot yield of climate ready SP varieties introduced from CePaCT-SPC.
- Included in a replicated trial on station at Bubia are; 5 PNG, 4 SI and 8 US SP varieties acquired through CePaCT, SPC, Fiji. To note that introduced PNG SP varieties from CePaCT are PRAP selected. Most SI and US varieties were imported and evaluated on-station at Bubia in previous projects. Besides, this germplasm constitute duplicates i.e. 1 variety identified with more than one IB (lab) number. Duplicates have to be confirmed and removed.
- M4. Collection of SP varieties available for pilot site testing assembled in SI
- Assembly of SP in SI was completed. Numbers of SP varieties included on sites are, Aruligo 9, Buma 7 and Hunda/Kena 7. In most cases, storage root sprout is used in on-farm demonstration trials. Virus infestations on the material have not been verified either by *Ipomoea setosa* or by the ELISA kit.
- M5. Collection of SP and other crop varieties available for pilot site testing assembled in Vu.
- An initial 10 SP varieties consisting mostly 6 locally breed lines and 3 farmer landrace and 1 exotic SI line were assembled and included in the on-farm demonstration plot in Siviri. The 10 varieties were planted in a bulking plot in Tagabe for further on-farm demonstration trials.

**A2. Screening of indigenous germplasm, locally bred and imported varieties of sweet potato and other crops/crop varieties under simulated conditions (in vivo and in vitro) to assess tolerance to drought, moisture excess and salinity condition , and to identify promising varieties**

- M1. Tissue culture laboratory in Bubia operational.
- Bubia Tissue Culture laboratory has been in operation Q1, 2012.
- M2. Tissue culture laboratory in SI rehabilitated
- Rehabilitation work was completed in 2012. However, the laboratory not yet in use pending some more work.
- M3. All SP accessions initiated in TC.
- All 102 SP accessions were established in Tissue culture laboratory in Bubia.
- M4. Protocols for in vitro screening of SP for drought and salinity standardized.
- Task completed adopted and is under modification at 70% completion. Senior scientist responsible to update on progress.
- M5. Best-bet SP accessions for tolerance to drought identified for in vivo testing.
- Task not completed; some test runs made and progress is only 20% of target. Senior scientist responsible to update on progress.
- M6. Best-bet SP accessions for tolerance to salinity identified for in vivo testing
- Task not completed; some test runs made and progress is only 20% of target. Senior scientist responsible to update on progress.
  - M7. Phenology grouping of PNG SP varieties 95% complete with 17 SP Varieties Producing Storage Root Wt  $\geq 100$  g @ 70 DAP, 30 varieties producing storage root Wt  $\geq 100$  g @ 98 DAP, 13 varieties producing storage root Wt  $\geq 100$  g @ 126 DAP, 26 varieties producing storage root Wt  $\leq 99$  g @ 126 DAP and 16 varieties producing No storage root @ 126 DAP. Writing up of this work is 80% in progress.
- M12. Construction of Bubia Rainout shelter commenced in July and is 50% complete.

### **A3. Validation and piloting of sweet potato adaptability to different stresses at pilot sites and introduction of other crops and crop varieties in target communities in PNG, SI and Vu**

#### **M1. Implementation of pilot site activities**

##### **Sweetpotato:**

- Sweetpotato activities commenced in PNG sites, Kopafa, 9 SP vars, PT and Tambul, 11 SP vars, PT, SI sites, Aruligo 9 SP vars, sprouts, Buma 7 SP vars, sprouts and Hunda/Kena 7 SP vars, sprouts and Vu site, Siviri, 10 SP vars.
- Farmer field days were conducted in PNG site, Kopafa and SI sites, Aruligo and Buma.
- Activities in the remaining PNG sites, Murukanam, Derin, Hisiu and Yule Islands to commence Q1, 2015. Activity in Hunda-Kena to be completed in Q1, 2015. To initiate activities in Vu, Siviri, Malafau and Middlebush sites.
- Pathogen Tested materials are used in PNG site. Sprouts from storage roots are used in SI and Vu.
- Improved production practices use are improved quality of planting material and flat planting of the slips in mounds.

##### **Other crops (yam, cassava, maize, potato, vegetables, breadfruit)**

- Yam (*D. rotundata*) cultivation technique evaluated at Murukanam and Kopafa pilot sites in PNG have been harvested and farmer field days held for the respective sites.
- The African yam seed multiplication is in progress on farm by model farmers using the selected yam production techniques at Murukanam and Kopafa after the successful on-farm yam production technology evaluation trials.
- The yam (*D. rotundata*) mini-sett nurseries were established at three sites at Yule Island site for the yam production technology evaluation trials to be planted early (January) next year (2015).
- Yam (*D. rotundata*) cultivation technique evaluated at all three pilot sites in Solomon Islands (Aruligo, Buma & Hunda/Kena) and Vanuatu (Siviri & Malafau) have been harvested and the technologies demonstrated assessed by the farmers through farmer field days.
- The on-farm evaluation of Yam (*D. rotundata*) at MiddleBush in Vanuatu was established only in August 2014 and is in progress.
- The cassava variety trials in Solomon Islands (Aruligo, Buma & Hunda/Kena) and Vanuatu (Siviri & Malafau) pilot sites were harvested and farmer fields held to evaluate the performance of the crop.
- Only one cassava variety evaluation trial at Murukanam in PNG was harvested and farmer field held while the other two farmer sites in Murukanam and all farmer sites in Kopafa and Hisiu are still growing.
- Local Maize variety (4 varieties) evaluation under way in Tambul pilot site.
- Three (3) PLB resistant Iris Potato varieties evaluated in two sites at Tambul pilot site harvested and farmer field day (evaluation) was held.
- Further evaluation of PLB resistant varieties on two other farmers' field is in progress.
- Taro (*C. esculenta*) variety evaluation at Murukanam and Derin harvested and farmer assessment of the varieties completed.
- Establishment of Rope & Washer Pump for irrigation system at five vegetable farmer sites at Hisiu pilot site completed.
- Different Open Pollinated vegetable varieties introduced and nurseries established at 4 farms at Hisiu pilot site for the OP vegetable variety evaluation and demonstration trials.

### **A4. Piloting of selected improved cultivation practices for priority staple crops in target communities in PNG, SI, and Vu according to expressed needs**

#### **M1. Implementation of pilot site activities**

- The Murukanam and Kopafu farmers have selected the best cultivation practices from their evaluations and are now using these practices to further cultivate or produce their yams as multiplication for the planting materials for further distribution among the communities.
- The farmer selected Yam (*D. rotundata*) cultivation technology for the three pilot sites in Solomon Islands (Aruligo, Buma & Hunda/Kena) and Vanuatu (Siviri & Malafau) have been used for further multiplication of planting materials for distribution is being carried out.
- The cassava variety evaluated at different Solomon Islands sites (Aruligo, Buma & Hunda/Kena) and Vanuatu (Siviri & Malafau) pilot sites were harvested and the planting materials distributed to interested farmers who attended the farmer field day.

#### **A5. Piloting of processing options of sweetpotato and cassava for food, feed, storage**

##### M1. Implementation of pilot site activities

- Planned activities focused on processing options of sweet potato and cassava for food, feed and storages were progressing in the two selected sites. In Kopafu, rounds 1-4 model farmers were identified and baseline information on traditional practices of processing sweet potato and cassava into food were collected. These model farmers were trained, resourced, and demonstrations in appropriate techniques for processing sweet potato and cassava for food (flour, starch, chips, pop, baked & fried products) as were completed. Similarly in Middlebush (Vu), two rounds of model were identified, baseline collected, trained, resourced and appropriate on-farm demonstrations were completed while round 3 model farmers are progressing.
- Feedback assessment for the rounds of model farmers in both sites is planned to be executed in Q1 of 2015. Documentations on these interventions for each sites have started and is planned to be completed by at least June 2015.

#### **A6. Assessment of existing mechanisms for provision of quality seed to farming communities in PNG, SI, Vu and recommendations for improvement**

##### M1. Implementation of pilot site activities

Work to commence in 2015

## **2. Assessment of progress towards the overall Component objectives and Results**

### **Sweetpotato trials:**

- Progress was on schedule but slow in the PNG highlands sites Kopafu and Tambul due to availability of SP PT material available in the Aiyura TC. Activities were slow in the lowlands PNG sites and Vu sites. Work in SI was initially with the view that the Tissue Culture Laboratory come into operation to facilitate use of PT. Besides, information on time to mature of the SP varieties is necessary firstly to group of cultivars into early, medium and late maturing and secondly for on-trial planning, when to plant, harvest and conduct field days.
- This information is not included in the planning as it was then not considered and is not available on SI and Vu varieties.
- Besides, the prerequisite information in cultivar grouping and stress tolerant screening and selection work. Again, details on how much time and what to do and how to do the work in generating appropriate information was not considered and included in the planning process.
- Staff engaged by NARI to implement crop activities at the different sites are not only homogeneously competent but specifically difficulties in especially acquitting funds and has a negative effect on the rolling out of activities at the sites.

### **Other crop trials:**

- Progress has been good at most sites and with increased staff and activities on sites. Some delay in activities at the PNG lowland sites were due to;

- Delayed climate ready and disinfested planting materials of crops and crop varieties not readily available from the Tissue Culture Laboratory.
  - Time constraint on some of our staff at Laloki had affected the implementation of some planned activities at Hisiu and Yule Island.
  - The late submission of financial acquittals from Laloki had affected the activities at Hisiu and Yule Island sites. We have talked to the Laloki Centre Management to improve on that.
  - The late start of planned activities at the Middlebush site was due to the changeover of Department staff in Tanna and this has been sorted out and the new staff taking full responsibilities of the project activities in Middlebush.
3. **Explanation as to significant variances from timelines and implementation plans.**
- Major variation on the implementation time line is due mainly to reasons established in point 2 above.
  - Learning to plant certain crop especially rice at the right time (month) to get a good crop or avoiding dry season occurring during growing stage has caused a delay in the demonstration and planting of rice at Hisiu and Yule Island pilot sites.
4. **Modifications in implementation plans at sites and overall plans for the component, impending problems and recommended solutions.**
- Rice activities in Yule Island site needs rescheduling after learning from the previous crop failure due to dry season. Four (4) farmers from Yule Island have shown some commitment and have developed paddy fields so the rice activity will continue in Yule Island during the coming rainy season. However, no rice activity will be carried out in Hisiu as the weather and soil type cannot withhold enough moisture in the soil for rice production and farmers have not shown any commitment and expecting us to do everything for them.
  - The Yam (*D. rotundata*) cultivation technique activities in Hisiu and Yule Island have been rescheduled and the yam mini-sett nursery is in progress and planting will commence in January 2015.
5. **Lessons learnt or any other relevant observations as part of implementation.**
- The Yam Farmers' field day at Murukanam and Kopafu respectively were a huge success where more than 60 to 100 farmers and other people attended and participated in the assessment and selection of the appropriate yam cultivation practices.
  - The Madang Provincial Government through the Department of Agriculture & Livestock (PDAL) has made commitment to use or adopt the Rice Model Farmer Approach (Farmer to Farmer approach) to train and disseminate the yam production technology to other farmers and communities within Sumgilbar and other districts of Madang Province.
  - A lot of work has been put into tolerant screening for saline soil condition especially in-vivo. There may be no farming community grappling saline soil conditions. In communities soil salinity is a problem, the inhabitants have alternate practices and means to food production for household consumption by gardening in other location with no saline soil stress.



*Annex 4: Brief report on progress of planned work under the livestock diversification component (Q3-4 2014)*

Component/ Expected Project Result:	<u>Result 5:</u> Livestock and fish production diversification options resilient precipitation deficits and/or deficits or soil salinity, and reliant on cost-effective locally produced feed/forages available to smallholder communities in PNG, SI and Vu
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**1. Progress towards achievement of the milestones set for the period**

**Activity 1: - Assessing the potential for improving farm productivity through diversifying livestock assets and improved cyclical use of crop and livestock inputs in situations where excess rainfall, moisture deficit or soil salinity conditions are problematic**

*M1: Preferred options for diversification and integrated use of resources are identified*

The planned activities for diversification and integrated use of resources in the specific sites were implemented in a cyclical and these were completed for this year. The second round of farmers engaged in (1) fish-duck integration and (2) chicken-crop integration were completed for Murukanam and Tambul sites. In Hisiu/Yule, the implementation of planned activities for this year was slow but the team was able to complete this milestone for round one fish-duck integration including goats. Interested farmers identified for round one goat intervention was also conducted in Kopafu. Most sites in PNG have gone ahead with specific demonstration trials with the selected groups of farmers. In Vu, the team have completed rounds 1,2 and 3 farmers in Malafau and Siviri sites. In Middlebush, round one was completed and the next group is being planned for next year. In SI, planned activities for diversification and integrated use of resources in the Hunda/Kena site remain ambiguous due to lack of consistent updates from the team in SI.

*M2: Appropriate demonstration trials implemented by nominated model farmers*

Erection of structures for on-farm demonstrations and stock distributions in this quarter for most sites were completed. On-farm demonstrations for rounds two in Derin is progressing. In Murukanam, demonstrations for chicken crop integration for round two farmers were completed, while demonstrations on fish-duck, and pigs integrations for round two were terminated as a result of (1) shortage of water source for fish pond, and (2) reduced interest and commitment of farmers due to changes in their priorities. It was noted that most farmers had shifted their attention on other on-farm activities (cocoa farming) as it generates more income for their families. Many model farmers involve in the fish-duck integration found it hard to source water for their ponds. A number of strategies were suggested during the recent project review and a participatory assessment is being planned in January to find ways forward. Round 1 and 2 farmers in Tambul is progressing well and these will completed in Q1 and Q2 next year respectively. In Hisiu/Yule, round one model farmers for fish-duck integration is progressing slowly, while for round two goat interventions will continue until Q1 next year. Similarly in Kopafu, round one goat farmers will continue to Q1 next year. In Vu, livestock diversification for rounds 1 farmers in Siviri/Malafau were completed and is progressing with round 2 farmers. The team planned to complete the demonstrations in Q1 next year as well as start round 3 and continue to Q2. In the Middlebush site, round 1 was completed and round 2 is progressing. Demonstrations involving round 2 model farmers will start in January next year including the selection of round 3 model farmers. Demonstration studies in SI sites remain unclear due apparently to lack of reports from our team in SI.

*M3: - Participatory assessment workshops held in all sites.*

Participatory assessment workshop planned for all sites in PNG, Vu and SI will be conducted in January 2015 beginning with sites in Derin/Murukanam, where the assessment would focus on identifying the issues relating to the discontinuance of on-farm demonstrations and recommend plans to assist the farmers in the site.

**Activity 2: - Sourcing and identifying forages tolerant of excess moisture and saline soil conditions, e.g. grasses, legumes and multipurpose shrubs such as Mulberry**

*M1: The need and type of forages identified.*

Identification of local forage species were completed for each of the appropriate sites and model farmers were aware and encouraged to collect. Documentation on the specific forage species is the next major activity that needs to be done.

*M2: - Implementation of pilot site for forage development and assessment activities completed.*

This planned activity is still pending and is planned for 2015.

### **Activity 3: - Pilot test diversified livestock feeding systems and husbandry practices in smallholder communities in target communities in PNG, SI and Vu**

*M1: - Implementation of pilot site improved feeding and management demonstration activities completed.*

All PNG sites currently have on-going farm demonstrations. For Tambul, round 1 farmers for pig feeding and management practices was completed while round 2 model farmers is progressing. Similarly, round 1 model farmers involved in the broiler and layer feeding and management practices was completed, and round 2 will be completed by the end of December 2014. Round 3 model farmers were identified and implementation of demonstration activities is planned to begin in January 2015. In Kopafu, rounds 1, 2, 3 and 4 model farmers engaged in the pig feeding and management practices were completed while round 5 is progressing. Furthermore rounds 1 and 2 model farmers for chicken feeding and management practices were completed and round 3 is progressing. In Derin, round 2 model farmers for pig feeding and management practices is progressing and will continue until next year. For Hisiu/Yule, round 1 model farmers for pig and chicken feeding and management practices were completed and round 2 will continue until next year. For overseas sites, Vu have progressed well with the completion of round 1 and 2 model farmers for chicken feeding and management practices and are progressing with round 3 model farmers for Siviri/Malafau. Similarly in Middlebush, rounds 1 and 2 were completed while round 3 will start in January 2015 when the team execute the feedback assessment workshop. Unfortunately for SI, it is difficult to report on the progress of activities for the three specific sites.

*M2: - Implementation of preferred livestock integration activities completed*

While all sites in PNG have completed round 1 model farmers, Tambul will complete round 2 by January 2015 while in Hisiu is progressing slowly with the round 1 farmers. Integration in Kopafu is also progressing with round 1 is very slow. Planned activities for Vu for middlebush is progressing and will be completed in January with the next round of farmers ready to begin. SI report is still pending and will be reported in the next reporting period.

*M3: - Participatory technology assessment workshop held in all sites.*

Planned participatory assessment workshops for respective PNG and Vu sites will be executed in January and February 2015. SI report will be reported in the next reporting period.

### **Activity 4: - Assessing existing mechanisms for supplying breeding stock in PNG, SI, and Vu and demonstrating institutional or community-based breeding facilities**

*M1: - Selected breeding stock of livestock supplied to selected model farmers and established*  
In PNG, Labu livestock centre will still be the strategic site for sourcing breeding stocks (chicken, ducks, fish and goats) for distribution to selected model farmers. Some model farmers engaged in the earlier rounds for on-farm demonstrations and supplied with breeding stocks have began multiplied their stocks, and through the project are supplying stocks to successive rounds of selected model farmers. Furthermore, the project also source fish stocks from thriving and well established local fish farmers. In Vu, on-farm demonstrations on feeding and management for broiler chickens has stopped due to unavailability of broilers and current activities are based in village chickens as alternative.

*M2. Desktop review of breeding stock supply systems in PNG, SI, Vu. Scheduled for 2015.*

Planned in 2015

M3. Stakeholder workshop on breeding stock supply systems held in PNG. Scheduled for 2015.

Planned in 2015

M4. Stakeholder workshop on breeding stock supply systems held in SI. Scheduled for 2015.

Planned in 2015

M5. Stakeholder workshop on breeding stock supply systems held in Vu. Scheduled for 2015.

Planned in 2015

M6. Policy brief submitted to relevant Government bodies in PNG, SI, Vu. Scheduled for 2015.

Planned in 2015

## 2. Progress towards the overall Component objectives and Results.

Accomplishments from SI sites are not reported in this report. While most specific objectives in PNG and Vu sites have been implemented on a cyclical system and are in line with the component objectives and results, considerable challenge now is on documentation of research results and interventions while at the same time implement the on-going activities. In Hisiu/Yule where implementation of planned activities began late the team was able to engaged two rounds of interventions on feeding & management practices for chicken, one round for pigs and fish-duck integration, and two rounds for goat diversification. On-farm demonstration trials for round 2 farmers in Murukanam who were involved in fish-duck integration, pig and chicken feeding and management interventions did not continue due lack of interest and commitment from the farmers. The planned participatory feedback assessment in January 2015 will assess the problem and remedial actions recommended and executed thereafter. Very good progress had been made this quarter with the completion of two rounds of farmers in Middlebush and Siviri/Malafau.

## 3. Explanation as to significant variances from timelines and implementation plans

There are no significant variances from set timelines to date.

## 4. Modifications in implementation plans at sites and overall plans for the component, impending problems and recommended solutions

- It is planned (revised livestock plan 2015) that most on-farm demonstrations in PNG and Vu sites should be completed by June/July 2015. This is necessary to allow ample time for our project officers to complete documentation of interventions/ research results and other project reports.
- The next round of on-farm demonstration for Murukanam will depend on the outcome of feedback assessment planned in January 2015.
- The consistent issue on finance, particularly at the centre level (eg. SRC Laloki) remains an impediment on the component's implementation plan at Hisiu/Yule sites. The centre through their RDC, CA and site officers should ensure financial matters are sorted accordingly.

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

- Gender biasness in the selection of model farmers were observed when selection is done by community leaders. The leaders appeared to have also been selecting their own relatives or farmers whom they have special association with them. This was obvious in our initial rounds of farmers in sites such as Hisiu/Yule, Tambul, Kopafu and Derin/Murukanam. The recommended action to screen all selected model farmers by the project officers based on experience, commitment and other criteria seemed a good approach with good representation of gender.
- Marketing has become an important determinant for farmers to continue practicing the technologies after on-farm demonstrations are conducted.
- Lack of commitment of farmers to continue implementing the on-farm demonstrations was observed in the Murukanam/Derin sites.

<i>Annex 5: Report on progress of planned work under the Communication component (annual)</i>	
Component/ Expected Project Result:	<b>Result 6:</b> Linkages and information/knowledge sharing mechanisms established and/or strengthened between researchers, extension providers and smallholders providing suitable conditions for smallholder participation/input in the research process and for dissemination/out-scaling of new research-based technologies to smallholders in PNG, SI and Vu

## 1. Introduction

Communication (Networking & Information Sharing) is the 6<sup>th</sup> component of the NARI-EU ARD Project. This component is about the establishment and/or strengthening of linkages and information/knowledge sharing mechanisms between researchers, extension service providers, development practitioners (NGOs), the private sector and rural communities; providing suitable conditions for smallholder farmer participation/input in the research process and for dissemination/out-scaling of new research-based technologies to rural communities in Papua New Guinea (PNG), Solomon Island (SI) and Vanuatu (Vu).

**Component deliverable result:** Linkages and information sharing mechanisms established and/or strengthened between researchers, extension providers & smallholders; facilitating smallholder participation and technology out-scaling.

Efforts under this component only picked up in 2014, primarily in taking stock of background situations and capturing available opportunities for possible interventions in improved information sharing and networking. The process was led by NARI, and as such much of the baseline information was required for SI and Vu. This is also due to the fact that NARI and PNG are a step ahead and the project team needed to understand the other two countries in order to pull things into line. The activities undertaken thereafter will be based on initiatives and experiences in NARI and PNG, as these Melanesian countries share a lot of similarities. Therefore this report is primarily focused on contributions made so far in the two Western Pacific countries, other than PNG.

## 2. Country Meetings – Solomon Islands and Vanuatu, March 2014

Initial country meetings were conducted in Honiara (SI) and Port Vila (Vu) between March 09 - 17, 2014. The process was facilitated by a team of NARI staff - Dr Workneh Ayalew, Action Coordinator; Dr Norah Omot, Socio-Economic Component Leader; Seniorl Anzu, Communication Component Leader; and Martin Lobao, Livestock Component Leader. Among other events, the team organized and facilitated national project stakeholder meetings for the initiation of planned activities under this component of the project.

1. The SI stakeholder consultation meeting was held on 10 March; attended by 28 representatives of key stakeholder institutions, major projects, extension staff, community representatives and project team (Annex 1). An agreement was reached to explore and formalize one of several ad hoc forums at national level. Component Leader Seniorl Anzu was tasked to draft a TOR for the national forums and discuss it further with responsible officers from NARI (PNG), Ministry of Agriculture and Livestock (SI) and the Department of Agriculture and Rural Development (DARD).
2. Participants were informed about the importance of the component, its objectives and outcomes.
3. Presentations and discussions were held on generation of information (what/who), achieving of information (what/who), processing of information (what/who) and dissemination of information (what/who); perceptions, challenges locally, and proposed activities across countries.
4. Information was captured on local actors (information producers), various other sources of information, and examples of some of the information products and services available in the two countries. Some understanding was established on the level of networking and current practices of information production and sharing along the chain.
5. Peter Walton, an advisor to MAL under a Rural Development Program, also attended the meeting and made a presentation on progress being made on MAIS (the Melanesian Agricultural Information System, covering PNG, SI and VU), especially from the SI side with 22,000 entries added since. While Peter reckons MAIS to continue under InMagic DB/Textworks, which has proved well as run-time versions, no commitment was made and this is something for further elaboration.

6. The team visited the Kastom Garden Association chicken breeding unit.
7. Updated runtime MAIS versions were provided to DARD and VARTC in Vanuatu and Bubia and Keravat libraries.
8. The VU stakeholder consultation meeting on Thursday March 11 went well as planned and agreed to formalize the establishment of a national agricultural information exchange network (forum) that will meet at least once in a year starting as early as June or July 2014. There were 16 participants, representing different organizations in Vanuatu (Annex 2). James will take lead in taking this forward and Senior1 will circulate its TOR shortly for comments. MAIS runtime version was also distributed to stakeholders in Vu.

### **3. Information Sharing and Networking Workshops in Vanuatu (June 2014) and Solomon Islands (August 2014)**

Following on from recommendations from earlier meetings, and as per Component 6 workplan for 2014, two National Information Sharing and Networking Forums were conducted for Vu and SI for Stakeholders. The Vu workshop took place at the Melanesian Hotel, Port Vila, on June 26 2014, while in Honiara (SI), it was at the Hyundai Mall on August 15 2014.

#### **3.1 The rationale**

While a lot goes on in agricultural research and development in the two countries, it is somewhat unclear on the level of networking and the extent to which information sharing is facilitated among the stakeholders and its sustainability. Seemingly most organizations operate based on their own objectives and mandates while others work on ad-hoc basis.

The aim of the forums was to initiate the development of national framework on networking and information sharing among stakeholders in the countries. This somewhat involved a rapid situational and needs analysis. The aim was realized through workshops in which current (best) practices and new opportunities have been captured and documented. The component will facilitate their promotion and implementation, involving the key actors so that in the end stakeholders will have an improved chain of information generation, knowledge management and sharing among producers, intermediaries and target beneficiaries.

#### **3.2 Terms of Reference**

A Terms Of Reference (TOR), containing the details of the stakeholder forums were drafted and shared with members of the project management team, including country coordinators. The final TOR document (attached) was tabled at the workshops and was accepted by the participants.

#### **3.3 The Workshops**

The forums enhanced the project team to establish dialogues with stakeholders in agricultural research and extension in Vu and SI; scope the current extent of partnership, knowledge management and information sharing efforts among partners; and initiate pathways for increased and effective networking and collaboration, and improved information exchange among stakeholders for increased research and dissemination of technologies in the two countries.

The anticipated outputs from these workshops were to get firsthand feedback from stakeholders so that their contributions will enable the project develop annual workplans for improved networking and information sharing. Analyzing the local context and current practices in communication, information sharing and networking has enabled the project team develop a holistic and viable workplan with deliverable set of activities and outputs planned for implementation in 2015.

The workshops centred around the following areas:

##### *Information Sharing & Networking Platforms*

- ⊙ Mandates & responsibilities
- ⊙ Partnerships & collaborations
- ⊙ Information in need (demand/audience)
- ⊙ Communication & information products and services
  - who generates information

- who manages/stores/processes
- who disseminates information
- what are these information products/services

#### *Facilities & Resources*

- ⊙ Policies, strategies, guidelines
- ⊙ ICT infrastructure, services
  - internet, website, emails, social networking
- ⊙ Applications & tools (software/hardware)
- ⊙ Knowledge management
  - libraries (mgt, size, location, purpose)
  - database systems, library catalogue, agri stats
- ⊙ Finance
- ⊙ Human resources
- ⊙ Skills and competencies

The forums created an opportunity for the generation of some up-to-date information, which may also be useful to the two countries for other purposes. Under the project, while there may be more opportunities for support, we will only consider what are achievable with the given timeframe and resources.

### **3.4 Vanuatu Forum**

The Port Vila workshop attracted 26 participants (Annex 3), representing organizations from agriculture and rural development, not only from public but also from the private sector, including NGOs. This event was facilitated by Senior1 and supported by Norah and Antoine Ravo, Vu Project Country Coordinator. Norah and Antoine provided much support in facilitating some of the discussions; Antoine also did a wonderful job in logistical arrangements. It was interesting to note the high level representation of the private sector, which provided a mix of issues and suggestions on how the mainstream public service machinery can be improved for end results at the private sector.

### **3.5 Solomon Islands Forum**

The Honiara workshop attracted relatively a large number of participants from sector wide. Participants should great enthusiasm. Positive contributions from MAL and RDP by their seniors built a positive environment for greater engagement and improved networking and information sharing. SI Country Coordinator Jules Damutalau and Elick Guaf provided a lot of support, including contributing to the discussions.

### **3.6 Filming of Project Sites**

As part of information packaging for public awareness and advocacy, selected project sites of crop and livestock components in the two countries were filmed using high definition video cameras. These were side but important undertakings during the travel to the two countries. The footages are being edited for distribution to the respective countries.

#### ***3.6.1 Vanuatu Chicken Trials***

In Vu, seven chicken trial activities in the North Efate area were filmed. The farmers were also interviewed in their local *lingua franca* (Bislama). Their new experiences and lessons were shared. The different aspects of village poultry production systems, trialed at seven settings were captured on video.

#### ***3.6.2 Solomon Is Sweet Potato trials***

In SI, two sweet potato field days were filmed. These were trial sites under the Crop Improvement component, led by component leader Mr Elick Guaf. Farmer field days were organized, during which harvesting and tasting were also done. All highlights were captured on video. The first event took place at Aruligho (Central Honiara) and the second at Buma (Malaita province).

## **4. Project Blog Site**

A project blog site has been developed: <http://euardproject.wordpress.com> . The site becomes a forum for information sharing and communication at which regular news and information posts are being made.

## 5. Staffing

Besides the component leader, a Communication Assistant (Anna Sawanga) was recruited in September 2014. Anna will be providing support in the production of information materials and facilitating online communication and networking.

DARD has nominated a Mathias Bule to be the contact and local facilitator in supporting this component's activities in Vanuatu. MAL will be asked to nominate someone. Both would be considered for a short attachment to NARI HQ in early 2015 to start with.

Component Leaders and scientists involved in the project will, by default, involve in developing and contributing contents of materials and activities under the Communication Component.

**Table 1. List of participants of the Solomon Islands stakeholders' consultation on 10 March 2014 in Honiara**

No.	Name	Institution	Phone/Mobile	Email
1	Armstem Loloani	MAL/Research Division	7458482	<a href="mailto:loloaniarmstem@yahoo.com">loloaniarmstem@yahoo.com</a>
2	Bruno Salekai	EUARD Project	8636474	<a href="mailto:Brunox@gmail.com">Brunox@gmail.com</a>
3	Kiulyn Shaldon	Project Farmer	7615542	
4	Fred Sisifiu	Project Farmer	7627208	
5	James Lakasi	Project Farmer	7680909	
6	Lindray Piasi	EUARD Project - Field Officer	7542272	
7	Carol Mafane	Project Farmer	8682507	
8	Roy Vaketo	MAL/Research Division	7471386	<a href="mailto:rvaketo@gmail.com">rvaketo@gmail.com</a>
9	Samson Tim	MAL/Extension	7455527	
10	Hezekiah Vahimana	MAL/Guadalcanal	7444578	<a href="mailto:hessyVakiamana@gmail.com">hessyVakiamana@gmail.com</a>
11	Dadley Piasi	Project Farmer	7542272	
12	Gordon Napinau	MAL/Extension	8455536	
13	Leslie Luli	Project Farmer	8545748	
14	Bama Jonathan	Project Farmer	no phone	
15	Ben Rakai	MAL Information Unit	22143	
16	Caspar Supa	MAL/PACC	28337	<a href="mailto:ckasie@gmail.com">ckasie@gmail.com</a>
17	Jimson Difeni	Quality Hatchery	38517 / 7479951	<a href="mailto:qhsl@solomon.com.sb">qhsl@solomon.com.sb</a>
18	Ella Kauhue (Emmanuella)	SWOCK Project/UNDP	7791167 / Office 27446 extn 259	<a href="mailto:emmanuella.kauhue@undp.org">emmanuella.kauhue@undp.org</a>
19	Michael Ho'ota	MAL/Extension		<a href="mailto:michaeltapa@hotmail.com">michaeltapa@hotmail.com</a>
20	Fredson Joseph	MAL/Extension	7633614	
21	Joseph Waha	MAL/Extension	7793670	
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**Table 2. List of participants of the Vanuatu stakeholders' consultation on 13 March 2014 in Port Vila**

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**Table 3. List of participants of the Vanuatu stakeholders' consultation on June 26 2014 in Port Vila**

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