

- This month has involved desk-based work as we analyse the data from the base-line study in preparation for the end-line study that begins in June. The end-line study will look at changes in farming practices, family practices, family income and assets, as well as explore how the village community educators (VCE) have undertaken peer learning. The methods for the study will include participatory group-work, stories of change, a survey, farm observations and in-depth interviews with farmers and other stakeholders. We will also be further developing the ripple effect mapping as a potential tool for immediate impact assessment.
- Our partner research projects are in their final stages. This includes two Masters students at UniTech and two research projects conducted by UniTech staff, Dr Veronica Bue and Dr William Kerua. Our joint research project officer with CARE, Gloria Nema, is collecting the last lot of data in the Eastern Highlands. This sub-project is looking at farmer uptake of the family teams and agricultural learning two years after training was completed. The data will be used to refine the language and concepts of both CARE's and our project materials, and look at learning activities that need to be added to both programs.
- In mid-April we will be training our New Ireland and Bougainville VCEs in the final module Communicating and Decision-making as a Family Team. Later in May the VCEs will undertake agricultural training provided by the University of Natural Resources and Environment's (UNRE) Integrated Agricultural Training Program.
- We would like to advise that our wonderful Research Network Coordinator Sanna Harri has moved on to a terrific position with Abt Associates in their Investing in Women program. We wish her the very best in this role <http://investinginwomen.asia/about/#who-we-are>
- Our new Research Network Coordinator, Kila Raki has begun. FYI, Kila will be working Monday to Friday from 9am to 1pm — please feel free to contact her as needed [Kila.Raka@canberra.edu.au](mailto:Kila.Raka@canberra.edu.au)

A little bit from Kila herself:

*I come from the Central Province of Papua New Guinea and grew up partly in Port Moresby. Thanks to my father's job, I was able to live and attend school internationally for several years as well. However, I still call PNG home and speak English, Motu and Tok Pisin, in addition to some Spanish and German. I have always had an interest in community development, particularly projects that are based in or have an impact in the Pacific. I worked in PNG before I migrated to Australia in 2006, and after working in the private sector for over 5 years, I am excited to join the AISC team at UC and to get experience working on a project that is focused on both development and research. Outside of work, my interests are travelling, reading, dancing, hiking and spending time with family.*

### Planning meeting

- The Galip nut team had a project review planning meeting on Wednesday 21 March at the University of the Sunshine Coast to discuss plans for the coming season and a product launch in East New Britain and Port Moresby.
- The meeting was attended by Tony Bartlett (ACIAR), James Bushell (The Canarium Nut Co), Theo Simos (Adelaide University), Kim Jones (Cropwatch Independent Laboratories), Helen Wallace, Shahla Hosseini-Bai, Emma Kill, Brett Hodges, Graham Ashford and Bruce Randall (University of the Sunshine Coast). Participants also presented progress towards milestones and Helen briefed the meeting about the next phase of the project.
- The annual review will be on the 14 and 15 June.

### **Objective 2: Develop and undertake research-based interventions that address the needs of the private sector at all scales**

- We now have the final production factory figures for 2017. The factory more than doubled production each year, since 2014. Refer to table below. This is a result of our research on upscaling factory equipment, processing procedures and skill levels.

**Figure 1:** New developments: impact of factory

Year	Nut in pulp purchased (PGK1.00 - PGK1.50 per kg)	Number of farmers selling	Farm gate value
2014	Small volumes (<1,000kg) for research trials	N/A	N/A
2015	11 tonnes nut in pulp	243 smallholder farmers	PGK10,669
2016	25 tonnes nut in pulp	647 smallholder farmers	PGK26,349
2017	65 tonnes nut in pulp	Women selling direct, entrepreneurs collecting and selling to factory	PGK65,000

**Objective 3: Develop an appropriate commercial model for a medium scale value adding factory for the canarium industry**

**Product Launch**

- New products and packaging have been developed and these will be launched in East New Britain and Port Moresby. These products will be natural, roasted, and peeled whole kernels. Commercial packaging and labels with Galip nutritional profiles have been developed and printed. A website is also under development to market and promote these new products and the target launch date is May 2018. The site will inform consumers about Galip’s nutritional and community benefits of the project.
- The proposed launch dates are:
  - East New Britain on the 4 May, and
  - Port Moresby on the 13 June (to be confirmed).
- Theo Simons will be travelling to Kerevat from the 9 to 13 April to work with Carson Waai to supply the new labels for the product launch (see Figures 2, 3 and 4 below), ensure sufficient stock levels and finalise arrangements.

**Objective 4: Create a model for public-private partnerships in the canarium industry in PNG**

- Discussions with The Canarium Nut Co (commercial processor) have progressed with plans for the commercial processor to share the NARI factory and is working toward commercial outcomes. This meeting has provided positive progress towards public private partnerships.
- Helen and Shahla will present papers on the canarium project at the International Agroforestry Conference 2018 in Kathmandu, Nepal 27-29 April 2018.

**Figures 2, 3 and 4:**  
Photos of labels for the product launch.



**Objective 1: To improve the productivity, profitability and sustainability of cocoa and related enterprises.**

- Total of eight budwood gardens (BWG) established in March (see Figure 5 below). Other planting will follow on in April/May to complete this task.

**Figure 5:** Upcoming planting schedule.

BWG	North	South	Central
Established	1 (New BWG - Martin) 3 (old WBG)	1 (Mathew siko - old BWG)	7 (New BWG)
Field preparation	4	0	4
Outstanding – yet to establish	7	10	4



**Figure 6:** Lining in Tohatsi-North



**Figure 7:** BWG Clones transported for planting-North

**Awareness and Training in March (North)**

- Training was conducted in seed preparation and grafting techniques in Malasang.
- Awareness on nursery establishment, grafting techniques and cocoa pod borer (CPB) management in Ratsua, Siara in North. Interestingly, this is their first such awareness for this Ward area (follow up story will be written in the Ward/Villages as no CPB management intervention training were done previously). We plan to monitor their progress.



**Figure 8:** Training in Malasang



**Figure 9:** Awareness in Ratsua

- Awareness on Cocoa Research Priority setting using information from focus groups discussions (surveys) was conducted by Grant in DPI offices, both in Buka and Arawa. ACIAR staff and DPI staff in Central attended as they will be involved in the program. Focus groups will gather information on risks and problems in production, processing, marketing or the whole value chain in cocoa.



### Design and launching of DPIMR Website

- ACIAR project will support DPIMR create a website. The proposed website will be titled 'Agriculture and Livestock, Fisheries and Marine Resources in Bougainville'. DPIMR will come under this site with the Directorates (Agriculture & Livestock, Forestry, Fisheries & Marines Resources, Administration, Finance and Budgeting) and Projects (ACIAR, fresh produce, etc.)

### Bougainville Cocoa History

- Work is progressing well to write the cocoa history book in Bougainville. There are two parts to it, the colonial history that involves collating written history documents in Australian libraries while or elsewhere and the local history involves collating oral history (stories) from the old Bougainvillians and immigrants alike.

### Rare cocoa material collection expedition

- Closely associated with cocoa history is a recent expedition into Teobuin (Tinputz) forest. We collected historic 60 year old cocoa materials (see Figures 10, 11 and 12 below) which were among the first seeds distributed by Master Cooke (first Tinputz Kiap). They are now growing deep in the jungle competing with primary forest trees. This creates interest and opportunities for research and development, for example agroforestry, ecotourism, genotype selection for low light radiation, longevity and disease resistance etc. Pods and bud sticks were collected from few of the trees for conservation and further work.
- In partnership with ABG Government through DPIMR, we planned to visit former Duncan Research Station for initial discussions with chiefs/LO in April. If possible this can be a site to set our central regional hub too.



**Figures 10 and 11:** Old cocoa trees growing within the forest

**Figure 12:** Beans assessment from a pod collected from one tree



**Objective 2: To understand and raise awareness of the opportunities for improved nutrition and health to contribute to agricultural productivity and livelihoods.**

- An abstract of a paper “One Health methods to improve the livelihoods of cocoa farming communities in Sulawesi and Bougainville” was prepared and submitted for consideration to the Planetary Health Conference being held in Tanzania in July 2018.
- Data analysis for the health/livelihood survey is progressing.
- Data tables for analysis of health, income, cocoa production, other crops and livestock outcome feedback were finalised by Professor Merrilyn Walton in March.

**Objective 3: To foster innovation and enterprise development at community level**

- Construction of goat paddock fencing was initiated in Konga and is continuing. We expect it to complete in mid-April due to non-availability of corner posts.
- We initiated diversification demo plot with planting of Taro and cassava in a 8 metre spacing (see below) at Kubu after heavy pruning of 20 year old cocoa clones. Other crop species and vegetable will be planted soon.



**Figures 13 and 14:** Pruning of 20 year old cocoa trees.

- We received seed packets of different crops (carrots, onions, tomatoes, etc as well as compound fertilisers, soil pH testing kits and a rooting hormone (see below). Various vegetables demo plots and trials will be conducted soon.

**Figure 15 (right):** Seeds for demo plots



**Objective 4: To strengthen Value chains for cocoa and associated horticultural products.**

- Cocoa market newsletter #11 was produced in March by Grant. In addition, a book ‘Cocoa Market Newsletters 2017’ containing a collection of all reports in 2017 was produced and distributed.

**Bougainville Chocolate Festival Awareness and Meeting**

- Grant gave a whole list of activities to be done during the festival. These are
  - Posters of previous medal winners to be posted around the festival show ground.
  - Slide show from cocoa bean harvesting, processing and drying, bean processing and manufacturing into chocolates and other products. A narrative audition (in Pidgin) will be included in each slide.
  - Sensory evaluation training will be conducted in a class room setting with farmers by Kathleen Linnix and Julie. Farmers will have go in tasting and differentiating bad and good chocolates.

- Fermentation science seminar will be conducted to demonstrate the importance of good fermentation and the science involved.
- All chocolate farmers will have their small rooms to display their samples and market their products. They will have a chance to talk to potential buyers and explain also their production system, processing techniques, etc.
- Choc Swap – The best of the show winner's sample will be selected for Choc Swap competition in Australia (Melbourne). This happens after the Bougainville Chocolate Festival.

### Challenges

- Monitoring and getting accurate reports from VEWs is still a challenge unless hub manager constantly follow up on their progress
- Getting the VEWs to accept allowances much lower than the previous payment to survey interview team is a big challenge we will tackle.
- Getting reports in time for a monthly report is a challenge. We will now get them to report weekly or fortnightly on their progress. This will require mobile data for email and text messaging. Digicel top up credit of PGK10/week will be purchase and send to the managers for reporting purposes.
- As new research initiatives are created, there is going to be a capacity, labour and financial issues. Project partners must work together and share resources to minimise wastages where ever possible.
- North Regional Hub coordinator position is still vacant. We will make an advertisement soon for possible candidates to apply and finally select the right person.

### Madang

- A training session for CMFTs in the Usino, Bundi, Gama and Middle Ramu Districts of Madang Province (south of Madang on the road to Lae and the Highlands) was held from Tuesday 6 to Friday 9 March. The training was hosted at Korona Village by CMFT couple Steven and Margaret Topoti. The training session was well organised by the ACIAR/CCI Coordinator in Madang, Aitul Weoh, and his deputy, Bofeng Mebali, and led by Aitul, Bofeng, Trevor, Josephine and Godfried Savi, the Head of Madang DAL. The training was one of the most successful held to date, attracting 90 farmers along with the six CMFT teams, and provoking interest from farmers outside the areas covered so far by the project (e.g. Middle Ramu and Dumpu). The ACIAR Project is concentrating on areas not covered by PPAP.
- Trevor instructed on control of insect pests and Josie on control of diseases, using classroom and field teaching in some abandoned cocoa showing all the pests and diseases. DAL Officer Tomali, who has been supervising CMFTs on the Rai coast with great commitment, emphasised that all farmers had to cooperate in practising good IPDM control measures to reduce spread of pests and diseases, especially CPB, between farms. He also emphasised that rice can be cultivated alongside cocoa to replace bought rice.
- The washing away of the Iguruwe Bridge on the main highway between Madang and Lae prevented Agmark staff from attending and made for an adventurous return to Madang by Trevor, Josie, Aitul and staff, saved by the fact that Godfried Savi, the Head of DAL Madang, had a vehicle on the Madang side of the bridge.
- Trevor promoted the integration of penned or tethered goats with cocoa. The Korona community has experience with goats and free-roaming goats were evident; there have been problems with goats eating food crops, killing of goats by dogs, and theft of goats, all of which indicates the need for them to be penned or tethered and closely husbanded. The community at Korona has completed construction of a goat house and is awaiting fencing materials.
- Josie introduced the 4 modules from the Family Teams Project (1: Working as a family farm team for family goals, 2: Planning your family farm as a family team, 3: Feeding your Family Farm Team, 4: Communicating and decision-making as a family farm team), discussed the East New Britain Women & Youth in Agriculture group, and used the MINAP Cooperative Society as an example of a successful cooperative society led by a woman.
- The Provincial DAL Advisor Godfrey Savi talked to the participants about transformation and leadership. His officers for the other Districts were present for the training as well.
- Bofeng, who has recently been appointed assistant coordinator for Madang, coming out of retirement after a long career in DAL, spoke of his appreciation of the ACIAR project, which he sees as having great potential to improve farmers' lives. He asked that his appreciation be conveyed to the Australian Government.

- CMFTs attending: Steven and Margaret Topoti (Korona CMFT site, Usino Bundi District), Amos and Ada Ligai (Nuku CMFT site, Usino Bundi), Johna and Dine Kasi (Danaru, Usino/Bundi), Alas and Rhondah Gilphin (Nuku, Middle Ramu), David and Esther Gambri (Jitibu, Middle Ramu), Paul Lutawa (Igoruwe, Usino Bundi).
- In Madang, five budwood gardens have been completed and all 22 nurseries have been completed with rootstocks ready for budding; plantings in Sumkar and Bogia have been delayed by the collapse of Banap bridge on the North Coast road during the wet season. Visits have been made to four CMFT sites in Usino District, three in Raikos, two in Bogia and four in Madang. The project is being hindered by delays in payments of staff wages by the and the ownership transition of Murnass Station. ACIAR has agreed to pay 1-year rent for a house near Madang for Aitul to sustain him during the transition from CCI to the Cocoa Board. Increased cost of fuel will restrict field visits.

### **Karimui**

- John Konam organised a seminar of all cocoa stakeholders in Kundiawa on 21 March to get approval for the proposal he has prepared at the request of the Minister for National Planning and Development, Hon Richard Maru, to expand the project work at Karimui from seven Wards to all 29 Wards. John has the support of the current and previous MPs for Karimui, as well as the Simbu Provincial Government. The seminar gave support to the proposal for Karimui cocoa development.
- A separate meeting was held with MP for Karimui, Hon Geoffrey Kama to properly explain to him the proposal. He is prepared to take the document to Hon Richard Maru for submission for funding, and supports the project.
- Trevor, Peter Epaina (Senior Cocoa Breeder) and David Yinil (Executive Manager, Research and Extension, Cocoa Board) attended, along with 4 farmer representatives from Karimui. Fruitful discussions were held between Trevor and David Yinil on collaboration between the Project and Cocoa Board in other Provinces.

### **Southern Highlands**

- Following the meeting in Kundiawa, Trevor, John, Eric Gore (Simbu Provincial Government) and Peter travelled to other possible cocoa sites in the highlands taking altitude measurements.
- A night was spent in Mendi, Southern Highlands where the team met Kenneth Kwimb Toap, Acting Provincial Advisor, Division of Agriculture and Livestock. He was very supportive of the program trialling cocoa in locations in the Southern Highlands.
- The team visited Pangia which is on the border opposite Karimui. An excellent road system is in place with sealed roads to the Prime Ministers electorate. A trip out to Mele in the Apenda area was made.
- A meeting was held with Alex Aiopi, District Agricultural Officer, who was prepared to identify sites in the District to try cocoa.

### **Eastern Highlands**

- The team travelled to Goroka and held a meeting with DAL Eastern Highlands, including Naisman Mitio, Atuila Kena and John Wauwe. John is an experienced cocoa man from NGIP New Britain, who is prepared to get involved in the program. Naisman said they had identified 20 farmers in the province willing to try cocoa and wanted Project assistance to roll out the planting material to them. Caution about bringing in pods which may bring in cocoa pod borer (CPB) was discussed.
- A meeting was held with Samson Akunaii, Acting Provincial Administrator Eastern Highlands, who was very supportive of the cocoa program.

### **East Sepik**

- The Cocoa Board has appointed John Meth as their head of extension in East and West Sepik, and Trevor has had discussions with him in which it was agreed that he should be our new coordinator there.

### **New Ireland**

- Kula Daslogo continues to visit CMFTs in New Ireland although he is now employed by the Kokonas Industri Korporasen (KIK) and John Joseph, Kula's former deputy CCI extension officer, has been appointed by the Cocoa Board to head their extension section there.

### **General**

- Trevor spent Monday 19 March with Phil at LaTrobe University, meeting all relevant staff who have been supporting the project, informing them of developments, and discussing how the ACIAR Project can adapt to

the current process of transition of research and extension functions of CCI to the Cocoa Board. During a telephone hook-up with ACIAR headquarters it was decided that we should continue with the current arrangements and use the new provincial CB staff as coordinators as far as possible.

- An additional two screenhouses were constructed during February, bringing the total to 14 screenhouses built throughout the four regions of the project. These screenhouses continue to receive clean planting material and will be delivering large volumes of planting material to farmers from April onwards.
- A very successful farmers' field excursion trip to NARI-HRC-Aiyura was held on 6 March by farmers from all team sites with FPDA staff. It also provided an opportunity for NARI project staff to openly engage in discussions with the farmers from the team sites and FPDA staff. Many of the project related issues were discussed and sorted between the two institutions during that meeting, including seed orders and the cleaning of the Western Highlands SP commercial varieties.
- Phil Brown and Kirt Hainzer visited TEAM sites in March and were able to install 11 screenhouses with data loggers to record five months of temperature and humidity data. These data loggers were complimented with the installation of insect traps to monitor potential vector pressure. We received an incredibly warm welcome from our screenhouse recipients in Jiwaka, with farmers genuinely inspired by the erection of the screenhouses and formulating their own ideas to best utilise it for their production. We introduced a monitoring template of the agronomic performance of clean seed in the screenhouses, as best management practices of clean seed material in the highlands continues to evolve during the project.
- Links to market were further developed in a meeting held with the supply chain manager of NCS, PNG's largest catering company currently occupying 85% of the catering market. The aim of this meeting was to better understand their business and their sweetpotato demand, whilst further understanding how clean seed sweetpotato could integrate into their value chain.
- The TADEP story capture of our project was blessed with good weather, willing participants and smooth logistics. Working with Conor we were able to capture the key elements of our sweet potato work including visits to the clean seed multiplication facilities in Aiyura, interviews with project partners from NARI and FDPA, whilst also capturing the logistics of moving sweetpotato from harvest along the highland highway.
- Organisational planning workshops with Family/community Farmer groups in Asaro were held 26-28 March. Bennie, Debbie and Mat worked with the groups to analysis their plans to develop their organisational profiles.
- Planning is well advanced for Community Development Worker (CDW) training for FPDA Field Officers, scheduled for Monday 30 April until Friday 4 of May. This is the first of the four CDW trainings to be rolled out this year.
- Craig Henderson and the QDAF team of Sandra Dennien, Rach Langenbaker and Mike Hughes hosted a visit to Queensland by US sweetpotato expert Prof Arthur Villorden. The visit identified areas for research that are very relevant to the project, in particular looking at improving plant bed performance, enhancing production efficiency and quality, and reducing environmental impact.