

- Both of the projects we are conducting with Pacific Adventist University (PAU) are nearing completion.
- The financial literacy project has been conducted in collaboration with the PAU Business School, under the leadership of Dr Lalen Simeon. This aim of this project was to further develop the ‘business thinking’ training for farming families with low literacy. This training is highly experiential and uses a number of games to help families learn about how to develop small income generating activities.
- The original work was developed over many years by Heather Vanua and has now been piloted in a number of sites. The PAU team for this work was Heather Vanua, Lalen Simeon, Roboam Kakap and Camilla Vai.
- We are grateful to *Pacific Women Shaping Pacific Development* for their support of some of the pilots and of the final manual. The manual *Business training for families: a trainer manual. First steps to starting a small business* is now being produced and will be available soon.
- The teacher professional development module project has been conducted in collaboration with the PAU School of Education, under the leadership of Dr Elisapesi Manson. We have now completed the professional development (PD) materials that will help primary school teachers integrate agricultural activities into their regular teaching. Research shows that children learn best when the materials they use relate to their own lives and as we know most PNG children will be farmers in the future.
- The PD materials have been put onto SD cards so that every teacher can access the resources on their own phone. The SD cards will be distributed to teachers in East New Britain and New Ireland and evaluated in November.

Product Launch Event

- The first product launch was successfully undertaken in 4 May 2018 in East New Britain (Figure 1-3). The launch was attended by 50 participants, including the Hon Governor Nakikus Konga and senior government Ministers and received excellent media coverage (see *communication and dissemination* section below). This was a significant and proud event for NARI and local community groups and residents. It signalled a major step in commencing the testing/commercialisation of the Galip industry in PNG. The NARI team and all the other stakeholders and funders were suitably praised for their dedication to get us this far and the challenge was set to use this major accomplishment as a stepping stone for the next phase of research and development to come.



Figure 1: Hon Governor Nakikus Konga and senior government Ministers at galip product launch, ENB. Image credit: Theo Simos



Figure 2: Attendees of galip product launch in ENB. Image credit: Theo Simos



Figure 3: Galip products presented at the launch.

Two articles were published covering the launch:



Figure 4 (above left): "Development of galip nut to commercial product hailed"
<https://www.thenational.com.pg/development-galip-nut-commercial-product-hailed/>



Figure 5 (above right): Article in PNG National Paper, 7 May 2018 "First commercial galip nuts get on the shelves"

Progress towards objectives

- The official launch of the galip product range in Port Moresby is planned for July 2018.

Partnership with the private sector

- The project team has established a partnership with CPL to test the consumer potential of the nut products in the Port Moresby Market. CPL has agreed to take the role of distribution in trialling in their supermarkets and pharmacies on a commercial basis.

Media coverage

- <http://www.emtv.com.pg/galip-nut-a-global-opportunity-for-papua-new-guinea-agriculture/> The commercial potential of PNG's galip nut could soon be realised. Helen Wallace, Project Leader at the Transformative Agriculture and Enterprise Development program tells Business Advantage PNG that the strong growth in the nut industry indicates it is the right time to develop the sector.
- <https://www.youtube.com/watch?v=SzaiKwNqjXE> A newly established Galip Nut Company in East New Britain Province has launched its products. The Galip Nut Company is a joint research development between NARI, The University of Sunshine Coast, the University of Adelaide and the Australian Centre for International Agricultural Research. The Company was set up to test and commercialise the galip nut in Papua New Guinea.
- <https://twitter.com/ACIARAustralia/status/992260640382201858> Congratulations to 'The Galip Nut Company' after launching their first #galip nut products through a project we funded with @dfat.
- <https://postcourier.com.pg/aciar-trial-sales-packaged-galip-nuts-enb-port-moresby/> Papua New Guinea will soon have its own packaged Galip nuts on shop shelves.

Bougainville cocoa

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- Training of Village Extension Workers (VEW's) and the establishment of Integrated Pest and Disease Management (IPDM) demo plot establishment in Sing ward, Gogohe LLG, Buka island was conducted by Cocoa Board's Mr Anton Kamuso and Julie Rereve. Similar activity will be done in Central and South after North.
- We met with Stans Basio (Title holder for Kurwina plantation), chiefs, DPIMR Acting Secretary to formally establish our Central Regional Hub as well as DPIMR facilities on a 35ha land. Initial procuring of materials and settlement of compensation claims is underway with the funding (PGK200,000) from ABG. An MOA is being drafted and to be signed between Land owners, Title holder and DPIMR/ACIAR during the ground-breaking ceremony sometime in June/July.
- More seeds for a different variety of vegetable crops were procured with assistance from Sydney University (G.Vinning, D.Guest). South and North continued with cocoa diversification observation trials in their regional hubs. We are also working in collaboration with DPIMR Fresh Produce Development team to undertake training and trialling of different vegetables. With the increasing work load with diversification, youths and sports teams were engaged to assist in nursery and vegetable plot maintenance and upkeep.
- We initiated grafting of the 18 released clone varieties in the Kubu nursery for display during the Chocolate Festival. In addition, we are collecting useful clonal materials from the Kubu germplasm collection and farmers' collections in preparation for relocation to other site if the Kubu land is taken back by ABG for other purposes.
- Budwood garden (BWG) establishment is 90%, 70% and 50% complete for North, Central and South Bougainville respectively. The target date is June to complete all BWG establishments.
- We have obtained information from different farmer groups and are now summarising different research priority topics as well as cocoa development topics in the North and South. Central will soon initiate their meetings with farmers.
- Farmers awareness and trainings on cocoa quality improvement and marketing is continuing. Francis Kenny had visited all regions and provided a material list for dryers (modified solar dryers) in Buin DPIMR station, Konga, Kubu and Malasang. Procurement of materials will follow soon.
- Farmers and VEWs training on cocoa productivity improvement continued in which attendance was very good in several sites.
- We have received several requests for assistance from different farm groups. Some requesting information on setting dryers, nursery establishment, clone production and identification and cocoa management

trainings. Indications are that people have started to understand our programs after confusion between other cocoa projects (PPAP, CSF, World Vision etc,) in Bougainville.

- Grant Vinning continued to address the market development restrictions due to licensing requirements. Informal presentations were made to the ABG's Department of Primary Industries, members of the Bougainville Chocolate Festival Steering Committee, and personnel at DFAT. A planned presentation for the PHAMA-based Cocoa Industry Working Group of the Pacific Horticulture and Agricultural Market Access was unfortunately cancelled at the last moment. As a result, the whole issue of micro licenses will be not be discussed at this forum until the end of the year. The DPI is going ahead with work to establish its own regulatory authority using the draw down powers of the Peace Agreement. It is not clear if Bougainville has considered all the implications of having their own authority.
- A market opportunity arose which was expressed in the need to airfreight beans to the United Kingdom. This occurred during the period of limited flights in and out of Bougainville due to the vandalism of the landing lights at Buka Airport. Despite considerable effort, especially by the exporter in Arawa, the difficulty and double handling costs associated with using a smaller aircraft resulted in higher costs than what the buyer was willing to pay.
- Grant Vinning worked with buyers in Australia and the UK. All the logistics are in place for the sales to occur. Price negotiations, which the project does not get involved with, are continuing.
- Time was spent in Canberra photographing the steps by which cocoa moves from beans to chocolate. The photos have been given to the ABG's Department of Media and Communications to turn into a slide show for the Festival as well as Buka's central media outlet.
- Steps have been taken for the project to provide the ABG DPI with some basic chocolate making equipment – roaster, huller, grinding, tempering, and moulding. The equipment will allow the DPI to produce its own chocolate. The equipment will allow the DPI to increase its ability to provide quality assessment of local cocoa beans as well as act as a major training tool.
- Inter-agency cooperation was continued. Grant Vinning assisted PHAMA in the acquisition of equipment, and he and James Butubu worked with the Family Farm Teams on providing training on cocoa marketing.
- Two Cocoa Marketing Newsletters were produced.
- Grant Vinning's study of the origins of cocoa on Bougainville is providing information on plantation ownership that is helping to identify land ownership for some of the project's large scale trial work.
- James Butubu and Grant Vinning participated in the May meeting of the Bougainville Chocolate Festival Steering Committee.
- Health and livelihood survey report was prepared and submitted by Merrilyn while we await the other components (partners) to compile a 2017/2018 Annual Report and TADEP presentations.
- We provided a list of possible training topics to be conducted with the Family Farm Team project after meeting with their Coordinator, Bougainville Women's Federation (BWF) Coordinator and DPIMR Fresh Produce Development Coordinator, Wendy Sawa.

East Sepik

- Kanika Singh and Chris Fidelis, from the ACIAR Soil Fertility Project, arrived in Wewak on 24 May and accompanied Chris Toli and Phil to all CMFT sites visited and conducted interviews with 12 CMFTs about their understanding of soil fertility and what could be done to maintain it on cocoa farms. Trevor and Kanika Singh met with David Tanakenai, Head of Technical Services at NAQIA about the importation of pidgeon pea seed from India. David indicated that there should be no problem with importation of seed from a government agency that can certify the purity of the seed. Trevor will obtain a permit for the import of 5kg of hybrid seed and he and the agronomy section of REDS will conduct field studies, and hopefully be able to select some variants that do well under PNG conditions as open-pollinated seed.
- John Worowan, the livestock specialist with the ES Provincial Govt DAL, is preparing to travel to Erap in Morobe Province to take delivery of the 10 goats we have purchased for the demonstration site at Niumindogum. The goat enclosure and sheds have been completed at Niumindogum.
- On Friday 25 May, the team travelled to Bararat Village (Scott and Maureen) to see the budwood garden that has some mature trees but also requires some in-filling. Farmers in this village have been carrying out chupon budding with some success, giving some impressive trees. A farmers' meeting was attended by over a hundred farmers from villages around Bararat who are interested in project extensions into their areas.

- On Saturday 26 May, Chris Toli, Kanika and Phil travelled with Richard Manjo, the Special Projects Officer in the Governor's Office, to his village, Kambaraka, in the Urimo area (one of the extension areas linked to Bararat). This is planned to be one of the 40 project extension sites supported by the provincial government to be operated through our project. At the village awareness meeting we met a lively 90-year-old man, Gabriel Malinguta, who was one of the first to introduce cocoa to East Sepik. He welcomed the development of the project in his village. Kanika interviewed one of the young farmers and a group of women about their understanding of soil fertility.
- On Sunday 27 May, Chris, Kanika and Phil visited Angoram and the Saramandi Research Station and saw the fully grown budwood garden with several rows of all 18 latest released CCI clones. Two retired didimen volunteers (Markus and Abraham Simn from DAL) are looking after the garden and the infrastructure (intact office block, nursery, houses, sheds, equipment) at the station that have been abandoned by authorities. The station is similar in some respects (ownership, state of neglect) to the Hawain Station when John Meth took it over and revived it. The Station is a valuable resource that should be revived as a source of budwood, clones and hybrid seed for the river and plains areas of East Sepik.
- On 28 May, Sperian Kapia called in at the Cocoa Board office and gave an account of activities at the Separu Kausimbi site on the Yuat River. He has now commercialised the nursery and has extended the project activities to another 5 villages, covering 500 farmers. Later, Chris Toli, Jimmy Risimeri, Chris Fidelis, Kanika and Phil visited Brandi Secondary School, met agriculture and geography teachers and the Principal, Anthony Boiefin, and spoke to a very large gathering of students. The school will conduct a cocoa training project using the strategy of the project, leading to the establishment of a commercial cocoa planting that will support the school and function as a training facility for students, many of whom will return to cocoa farming after school.
- On 29 May, the team travelled to Yekimbole to see the new, enlarged solar dryer alongside the original dryer constructed under Trevor's direction. The group is buying wet beans from surrounding farmers, fermenting for 5 days and then drying for 3-5 days depending on the weather. The nursery has been shifted to the same area as the dryers and an area has been cleared for a new budwood garden. The budding program has had mixed success and the budders need more practice. Outspan has been buying the dry beans from Yekimbole, and has also been setting up even simpler solar dryers, consisting of drying racks covered by tent-like tarpaulins, in nearby villages. The team had previously visited the manager of Outspan in East Sepik, Raju Ramelingam, to discuss their interest in solar drying. Then the team travelled on to Wingei 2 to observe the fertiliser trial being well cared for by Eric Narapal. The Gliricidia shade and about 20 cocoa trees have grown well, but most cocoa plants are still small. The grass has been sprayed with glyphosate and has collapsed to give a thick mulch. Conditions now look more suitable for the growth of cocoa than when the trial was first laid out. Kanika interviewed Toby Gaundu, the CMFT from Wingei 2, and we visited the compost bin where the group has produced enough compost for the large field trial and for some smaller experiments on addition of compost to cocoa planting holes to give the cocoa a boost in the heavy grassland soils. The team then visited the Burui site being led by Moses and Antonia Maka under the guidance of DAL officer Angela Gossiba. Kanika interviewed Moses and Antonia. Their budwood garden is growing slowly as the Gliricidia shade becomes better established. The group was advised to plant tapioca in the garden to help break up the soil. Moses reiterated that the group will need some heavy equipment to rip the heavy soil to establish their farms. Provision for this has been included in the submission Chris Toli has presented to the provincial government.
- On 30 May, the team paid a courtesy call on the new Provincial Administrator, Dr Clement Malau, who strongly supports the project and encouraged Chris Toli and Jimmy Risimeri to take leadership in organising a conference on land use in East Sepik in preparation for expanded cocoa and rice planting. Jimmy will continue his interest in planting of cocoa and foodcrops under coconuts while employed by KIK.
- On 31 May the groups led by John Meth, Richard Manjo and Chris Toli visited Brother Herman Boye farmers' group on the north side of Kairiru Island, observing the fermentary and combination solar/hot air dryer being used to dry wet beans collected from many growers on the island. Richard and John announced that another CMFT site on the island will be in the new group of 40 sites being supported by the governor's office. John plans to take budsticks and his experienced budders from Hawain to the island to do chupon budding on existing trees to establish budwood gardens.

New Ireland

- Kula Daslogo has been invited by the Governor, Sir Julius Chan, to renew his involvement in the New Island Provincial Government's extension of the ACIAR project to an extra 90 wards (from the 20 initiated by Kula) and so has continued his contact with our CMFTs, taking budders around to continue budding and training

farmers. Kula will buy clones from our initial 20 CMFTs to supply the extra 90 wards, and so will continue close contact with these farmer groups and contribute to them becoming self-sustaining businesses, even though he is now employed by KIK and we will work through the new Cocoa Board structure.

Simbu and Highlands

- John Konam continued with final preparation and extensive consultation for his submission to the Minister for National Planning and Development for expanded cocoa activities in Karimui based on the ACIAR/CCI strategy, with some trialling and selection of cocoa clones elsewhere in the highlands. The project concept and the full operating design and budget were presented (by a team including the Member for Karimui, Geoffrey Kama, the Administrator of the Karimui District, Caine Tommy, and the head of DPI Simbu, Damien Tokei) to the Minister in Port Moresby on Tuesday 29 May and the team visited the Australian High Commission and the ACIAR country office to thank them for including the highlands in the original ACIAR project. The Minister has made a public commitment of PGK10 million to the project as designed by John and later personally congratulated him on returning to lead agricultural development in his home province. Money has also been allocated for construction of a road out of Karimui.

Madang

- Aitul Weoh and Bofeng Mebali, our coordinators in Madang Province, expressed an interest in extending project activities over the border into their home Local Level Governments (LLGs) in Finchafen, Morobe Province. Bofeng prepared an excellent submission to district Members of Parliament, District Development Authorities (DDAs) and LLG Presidents to support such project extensions using their political allocations. Government funds are now coming direct to the LLG level, which makes such submissions opportune. Trevor discussed the submission format with Bryan Kramer, the new member for Madang District, and later sent him a copy. The submission explains to politicians, who may not have a background in cocoa, the importance of the CCI research and development that is the basis of our project, and explains the importance of the new clones and their production, and the new management methods. Bofeng explained his idea of the 'Five Pillars of the Project', a refinement of the original strategy:
 - Farmer self-selection (persistence of farmers from the original group and addition of new enthusiastic ones)
 - Nursery construction
 - Training in budding, block rehabilitation and management
 - Budwood garden establishment
 - Development of small and medium self-sustaining enterprises supported by banks
- With their take-over of the Stewart Research Station, Murnass, KIK is charging PGK0.80 for budwood sticks and PGK3 per budded clone from Murnass, which opens up opportunities for our CMFT groups to become commercial suppliers of clones once they have provided for their own farmers. Wesley Kilang, Head of the Cocoa Board office in Madang, indicated that the board is keen to certify and register all our CMFT budwood gardens and nurseries, and handle sale of clones, especially to PPAP. This will allow all sites to become self-sustaining businesses, which is the aim of the project. This is likely to happen also in East Sepik where there is a high demand for clones by PPAP, a demand likely to increase greatly with the advent of mooted FAO and EU cocoa projects.
- On 15-16 May, Godfried Savi (Head of Provincial DPI), Aitul and Phil, accompanied locally by Sinclair Magu (a Provincial DAL didiman who has a motor cycle provided by the project and is overseeing sites) made a two-day trip to Usino Bundi Gama District, visiting the CMFT site at Korona Village led by Steven Topoti (where the completed goat enclosure, and excellent rehabilitated blocks were seen). Steven suggested that burying CPB and black pods under the windrows of prunings where crazy ants, black ants and fire ants abound should prevent the spread of CPB and Phytophthora. He said that digging trenches to bury pods is unlikely to be popular with farmers. The site at Iguruwe was visited to encourage more activity by the group, and a courtesy call was paid to Steven Biko, the Administrator of Usino-Bundi District. Quarantine restrictions to prevent the spread of Bogia Coconut Syndrome out of the Murnass area necessitated that only bare-rooted clones, treated with fungicide and insecticide after removal from polybags, could be taken to Usino to establish a budwood garden at the Danaru site led by John and Dine Kasi. The farmers were shown how to plant the clones, including watering by hand if necessary and providing temporary shade with palm fronds. Later at the Nuku site (Amos and Addah Ligai) failure of many clones planted bare-rooted in the budwood garden was observed – they had been planted too deep, with little shade, and little watering, but despite this a few had survived and could be recovered. With some experimentation (treatment of leaves with 'No Wilt', removal of a proportion of leaves prior to bare-rooting, packing moist sawdust around roots, transport

of bundles in large plastic bags) it should be possible to transport bare-rooted plants which will facilitate establishment of budwood gardens and field plantings in isolated areas. A site where original SG1 seedlings were first established is being rehabilitated by Gigino Koragi, former retired Cocoa Extension Officer from DAL based at Walium, to preserve the best of the original trees. He will be supported as a project extension.

- Following interest expressed by village leaders when they attended the training session at Korona, a project extension has been initiated on grassland at Dumpu, near the Morobe border, and the team visited the village and saw the nursery constructed of local materials and provision being made for a budwood garden. It was evident that these 'project extensions' can be set up at a much lower cost than the original sites, relying on the initiative of groups to build nurseries out of bush materials (and, later, solar dryers made from local timber and materials and requiring only a roll of plastic and a roll of shade cloth). The main cost will be for awareness and training visits from project staff.
- On 17 May, the team including staff from the Cocoa Board in Madang, and DAL staff, Tomoili Wowomi and Rex, met with an enthusiastic project extension group at Bom, led by Willi Wayeng and linked to our group at Erima. They have built a bush-material nursery, and cleared an area for a budwood garden, and have a pruning team that is heavily cutting back cocoa blocks. They have established rice, *Gliricidia* and cocoa on grassland. Tomoili is overseeing three similar sites on the Rai Coast. The team also visited the established budwood garden and nursery at Balama, led by Joe Eresiga. Trevor arrived from Kokopo and the team then visited the women's group at Rempi, led by Agetha Igag, supported by her husband Joe, and saw their fermentary, budwood garden, nursery and field plantings of clones. They are selling about 100 bags dry beans per year at about K490 per bag. Later the team led by Godfried Savi travelled by speedboat to Kumisanger, one of Tomoli's isolated sites on the Rai Coast and saw a fully established budwood garden and nursery. Tomoli is planning to establish more project extension sites further east along the Rai Coast and on Long Island.
- On 18 and 20 May, the team visited Tamane Village (Kokurai and Judith Omurup), near Madang, and saw successful budding with budwood from Murnass, and early establishment of a budwood garden. The first batch of clones has been planted in the field. Aitul has been employing two ex-Murnass budders to do budding and train farmers. There is some urgency to get clones out of the nurseries into the field before the dry season because of the problem of lack of water supplies in some nurseries.
- Phil, Aitul and Bofeng visited Ron Neville, the CEO of the new cocoa buying company Elliven. Ron was formerly with Monpi in PNG and initiated their much admired farmer training program. He is interested in being kept informed of project activities.

Problems encountered

- Collapsed of Banap bridge along the North Coast road in Madang has prevented visits to Sumkar (including KarKar Island) and Bogia Districts. In fact, the deterioration of most roads is a drain on the project in travel time and wear-and-tear on vehicles and passengers. Cost of fuel has increased from PGK2 to PGK3.30 per litre since the start of the project, greatly increasing transport costs.
- The take-over of Murnass station in Madang Province by the Koconas Industri Korporesen (KIK) following the splitting of the coconut and cocoa activities of the PNG Cocoa Coconut Institute has disrupted cocoa activities and housing of staff in the province.
- Most former senior staff of CCI Tavilo and many critically important staff in the provinces are not being paid under new management during the prolonged process of subsuming cocoa activities. These staff are just waiting for decisions and some are likely to be lost to other jobs. Several key people in our project have taken up positions with KIK to the detriment of our project and the long-term development of cocoa in PNG. We have lost to KIK our Project National Manager (Alfred Nongkas), two Provincial Coordinators (Jimmy Risimeri in East Sepik, and Kula Daslogo in New Ireland), and a key scientist leading the study of the adaptation of cocoa in the highlands (Dr Eremas Tade).

- Mike Hughes completed a trip to project sites in the highlands to review progress on the *Klin Seed* scheme. A new greenhouse at Aiyura is operational and three kaukau varieties are being multiplied for distribution to commercial greenhouse operators. Three new varieties (Kerot, Korowest and Rachael) are being cleaned, ready for inclusion in the scheme. FPDA greenhouses at Tambul have been prepared for planting material as

a backup source of kiln vines. 14 commercial screenhouse operators are multiplying kiln vines and 10 have commenced distribution of kiln vines. Operational protocols for the scheme are being developed.

- Aphid infestations in commercial multiplication screenhouses has been identified as an issue and training for growers has been organised, to be delivered by NARI and FPDA project team members.
- Trials examining use of tip vs back cuttings, and vertical vs horizontal cutting placement in commercial screenhouses has shown back cuttings are delayed in growth and vine production
- Dual virus infection trial (SPFMV and SPVG) is underway and growing well.
- Community Development Training workshop activities have been completed at Wimbika village (Hagen Central), Gusam village (Minj), Kasena village (Upper Asaro) and Matiyufa village (Asaro). Technical training requirements have been identified by the groups and this information has fed into the project planning for the second half of 2018.
- A supermarket trial of high quality kaukau produced by *klin seed* commercial farmers has been organised. Kaukau will be graded, packed into boxes and transported to Port Moresby for evaluation by two supermarket chains in the first week of July.