



# COGENT IS GOING PLACES

## 19th COGENT SC Meeting Report

*back-to-back with 48th APCC (ICC) COCOTECH 25–26 August 2018*

*The Berkeley Hotel Pratunam, Bangkok, Thailand*



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## Attending institutions

see full delegates list in annex 1

*Table 1: Attending Institutions*

### COGENT-linked participants:

1	Asian & Pacific Coconut Community (APCC)- soon to be renamed the International Coconut Community (ICC)	Indonesia
2	Central Plantation Crops Research Institute ICAR	India
3	Centre de coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)	France
4	Centre for Plant Science Queensland Alliance for Agriculture and Food Innovation, The University of Queensland	Australia
5	Centre National de Recherche Agronomique (CNRA)	Côte d' Ivoire
6	Centro de Investigación Científica de Yucatán (CICY)	Mexico
7	Chumphon Horticultural Research Centre, Horticultural Research Institute (HRI)	Thailand
8	Coconut Research Institute (CRI)	Sri Lanka
9	Crop Systems, KALRO Secretariat	Kenya
10	Indonesian Centre for Estate Crops Research and Development (ICECRD)	Indonesia
11	Indonesian Palm Crops Research Institute ,Ministry of Agriculture ( IPCRI)	Indonesia
12	Kokonas Industries Koporesen (KIK)	Papua New Guinea
13	Ministry of Agriculture	Fiji
14	Ministry of Agriculture & Fisheries	Samoa
15	Ministry of Agriculture , Food, Forests and Fisheries	Tonga
16	Pacific Community (SPC)	Fiji
17	Research Institute for Oil and Oil Plants	Vietnam
18	School of Agriculture and Food Sciences, The University of Queensland	Australia
19	Uthaitani Research and Development Agricultural Centre	Thailand.

### Other participants and observers

20	Anh Dao Science Technology Agriculture Joint Stock Company	Vietnam
21	Kasetsart University	Thailand
22	Umaphathy Coconut Hybridisation Centre	India

## Acronyms

AARD	Agency for Agricultural Research and Development (Indonesia)
ACIAR	Australian Centre for International Agricultural Research
AICRP	All India Coordinated Research Project
APCC	Asian and Pacific Coconut Community (see ICC)
BCS	Bogia coconut syndrome
CePaCT	Centre for Pacific Crops and Trees
CGIAR	Consultative Group on International Agricultural Research
CGRD	Coconut Genetic Resources Database
CIRAD	Centre de coopération Internationale en Recherche Agronomique pour le Développement
CNRA	Centre National de Recherche Agronomique de Côte d'Ivoire
COGENT	International Coconut Genetic Resources Network
CHP	Controlled hand pollination
CRI	Coconut Research Institute, Sri Lanka
DFAT	Department of Foreign Affairs and Trade (Australia)
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária
FAO	Food and Agriculture Organization of the United Nations
GCDT	Global Crop Diversity Trust
ICAR-CPCRI	Indian Council of Agricultural Research- The Central Plantation Crops Research Institute
ICC	International Coconut Community (ex-APCC)
ICG-AIO	COGENT International Coconut Genebank- of the African & Indian Ocean (Côte d'Ivoire)
ICG-LAC	ICG of Latin America (Brazil)
ICG-SAME	ICG of South Asia and the Middle East (India)
ICG-SEA	ICG of South East Asia (Indonesia)
ICG-SP	ICG of the South Pacific (PNG)
IPGRI	International Plant Genetic Resources Institute
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
ITAG	COGENT International Thematic Action Groups
LY(D)	Lethal yellowing (disease)
MLS	Multilateral system
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
PNG	Papua New Guinea
SPC	Secretariat of the Pacific Community (now called the Pacific Community)
TC	Tissue culture
ToR	Terms of reference

## Acknowledgements

COGENT gratefully acknowledges the Asian and Pacific Coconut Community (APCC)- soon to be renamed the International Coconut Community (ICC), and the Thailand government's Department of Agriculture, including the staff from the Chumphon Horticultural Research Centre, who supported the workshop detailed in this report. We also acknowledge the individual contributions of team members from both organisations, as well as the staff at the Berkeley Hotel, Pratunam, Bangkok, whose excellent logistical support contributed to the success of the meeting, and whose high standards of hospitality were greatly appreciated.

COGENT further acknowledges the crucial participation, and commitment of the rest of the meeting delegates, who gave up their weekend time and whose institutions are listed in table 1, and in annex 1 including Ms Mridula Kottekate of ICC and Dr Biddle of Queensland University for providing note-taking support.

## Executive summary

The Asian and Pacific Coconut Community (APCC)- soon to be renamed the International Coconut Community (ICC), and the Government of Thailand's Department of Agriculture hosted a back-to-back COGENT meeting following on from the APCC 48<sup>th</sup> COCOTECH meeting, on 25 and 26 August 2018 . It was convened to take advantage of the presence of the many COGENT stakeholders attending the COCOTECH meeting. Forty-seven delegates attended from 16 countries, representing 22 organisations and all COGENT regions.

The meeting outlined plans for COGENT to address the global coconut community's needs for more effective genetic resources conservation and use. Delegates formally launched the new *Global Strategy for Conservation and Use of Coconut Genetic Resources 2018-2028* ([the Strategy](#)). In response to the 18<sup>th</sup> SC meeting recommendations delegates planned for: i) reviving COGENT's International Thematic Action Groups (ITAGs) that will guide strategy implementation, ii) auditing the International Coconut Genebanks' (ICGs), iii) implementing the above-referenced Strategy, and iv) progressing with the arrangements to transfer the COGENT Secretariat from Bioversity International to the ICC.

The meeting addressed COGENT's key funding and technical issues, considering strategies to ensure efficiencies and effectiveness. Delegates highlighted the need for accessing quality planting material, harnessing new genetics and tissue culture technologies and dynamizing the coconut value chain.

In launching COGENT's new *Global Strategy*, delegates highlighted the key challenges of better managing: i) biotic threats; ii) germplasm information; and iii) senile and tall accessions; iv) boosting genebank capacities especially for hand-controlled pollination, and v) strengthening COGENT's communication facilities.

**Strategy implementation** will be structured according to a workplan and budget, via seven reformed international thematic action groups (ITAGs). COGENT Secretariat, ITAG and ICC representatives will support a skilled Coordinator to develop a fundraising strategy and several prioritised, winning proposals which will aim to translate research results into industry and livelihoods outcomes, linking coconut genetic resources conservation to their use.

It seems that none of the **ICGs** is comprehensively operating to required minimum standards. Common ICG needs include: i) mitigating threats from key pests and/or diseases (mostly phytoplasmas), including more effective diagnoses; ii) enriching accessions and technology for germplasm exchange; iii) increasing the amount and frequency of germplasm sharing; iv) implementing a disaster early warning system; v) attracting funding for ICG improvements and vi) creating or upgrading capacities for: a) data management (CGRD), b) tissue culture, c) cryopreservation; d) controlled hand pollination; and e) accessions' duplication/ back-up. A set of **rapid audits** will be designed and implemented , initially for the ICGs. This will include finalising the ToR and template for the ICG audit. The audit team will be selected through COGENT, and using due process.

COGENT **ITAGs** have mostly not been functioning well, if at all, so COGENT will re-structure them and change their leadership. An important preliminary step would be to review any list of suggested projects, decide project priorities, and then define objectives of the ITAGs. The ITAGs need to convene and discuss their scope and requirements, and develop proposals. Proposed leaders and co-leaders will be approached very soon.

The **ToR for the Secretariat** need to be finalised and endorsed by the COGENT SC. The **Coordinator** urgently needs to be appointed, probably between January and June 2019, under the ICC. The Coordinator's post will be advertised straight after ICC's September budget announcement. The **coconut genetic resources database** (CGRD) needs to be migrated, and coconut genetic resources data management should be professionalized to ensure effectiveness and appropriate focus. Any new database(s) should only be open source, and database entries needs to be dated.

The meeting highlighted some additional recommendations for COGENT as articulated in the Conclusions and Recommendations. There are also specific action points listed for the Coordinator, that especially link to the role during the transition process.

## Introduction and background

### *Coconut context*

Grown in over 90 tropical countries, on more than 12-million ha and by countless homesteads, coconut is important to millions of smallholder households. The future of coconut production and livelihoods critically depends on its broad genetic diversity, some of which is under threat. Further investment is needed to build coconut stakeholders' capacity and resilience along the value-chain, particularly for genetic resources conservation.

### *COGENT is moving*

Created in 1992 under a CGIAR mandate, and until August 2018 hosted by Bioversity International, COGENT aims to strengthen international collaboration in coconut genetic resources conservation and use to promote improving coconut production on a sustainable basis, and to help boost livelihoods and incomes of coconut stakeholders in developing countries. COGENT comprises 39 country-members (representing ~98% global production, 80% of which is produced in the Asia-Pacific). Its steering committee (SC) comprises representatives from COGENT's five regions<sup>1</sup>, as well as the COGENT chair, vice-chair and coordinator, and observers from Bioversity International, the Asia-Pacific Coconut Community ([APCC](#)- hereafter referred to as the soon-to-be-renamed international coconut community ICC), the Pacific Community ([SPC](#)), the Global Crop Diversity Trust ([GCDT](#)) and the *Centre de coopération Internationale en Recherche Agronomique pour le Développement* ([CIRAD](#)).

COGENT's SC aims to hold biennial meetings to plan and coordinate global efforts to sustain effective conservation and use of coconut genetic resources. However, since recent CGIAR reforms, COGENT's existence has become seriously jeopardised by lack resources, including funding, so this has not been possible, and COGENT has scant resources to continue supporting its Secretariat. During its 18<sup>th</sup> SC meeting<sup>2</sup> in November 2017, after considering its hosting options, the SC voted that the hosting arrangement for the COGENT secretariat be transferred from Bioversity International to the ICC in 2018. The official transfer will be ratified in September 2018.

### *A new Global Strategy for Conservation and Use of Coconut Genetic Resources*

In preparation for ICC's COCOTECH 48, in Bangkok in August 2018, COGENT finalised and published its new *Global Strategy for Conservation and Use of Coconut Genetic Resources 2018-2028* ([the Strategy](#)), with final-stage support from DFAT/ACIAR. Implementation of this Strategy needs to be underway, as a matter of urgency. The status of the five International Coconut Genebanks (ICGs) is of particular concern, as fully functioning genebanks are required to underpin the necessary conservation, sharing and use of coconut germplasm, that are critical for implementing the Strategy. COGENT's six International Thematic Action Groups (ITAGs) will spearhead the implementation of the Strategy, but the leadership and membership of most groups needs revising, their sense of commitment needs renewing. COGENT will also need to attract the necessary resources to support implementing the Strategy, and maintaining its Secretariat.

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<sup>1</sup> Southeast Asia; South Asia and the Middle East; South Pacific; Latin America and the Caribbean; Africa and the Indian Ocean

<sup>2</sup> supported by Australia's department for foreign affairs and trade (DFAT) and the Australian centre for international agricultural research (ACIAR)

## The COGENT meeting

### Objectives

The ICC and the Government of Thailand's Department of Agriculture hosted a back-to-back COGENT meeting following on from ICC's COCOTECH 48 in Bangkok, Thailand. This meeting was convened to take advantage of the presence of many COGENT stakeholders attending the COCOTECH meeting.

The **overall goal** of the meeting was to outline COGENT's plans to address the global coconut community's needs for more effective genetic resources conservation and use. Its **specific objectives** were to formally launch COGENT's new Global Strategy and, in the light of the 18<sup>th</sup> SC meeting recommendations, to plan for: i) reviving COGENT's ITAGs; ii) Conducting the ICG audits; iii) Implementing the Strategy; iv) Progressing with the arrangements, and v) Progressing the transfer the COGENT Secretariat from Bioversity International to the ICC (see annex 2 for meeting agenda).

### Opening remarks

Forty-seven delegates attended from 16 countries, representing 22 organisations and reflecting a good gender balance. Whilst there was a heavy overall skew (83%) in favour of participants from Asia and the Pacific (including observers), all COGENT regions were represented by attending COGENT-linked delegates (see, fig 1 and annex 1). Unfortunately the lack of video-conferencing facilities at the time precluded remote participation, which may otherwise have included International Treaty and CropTrust representatives, the ICG, Brazil plus others.

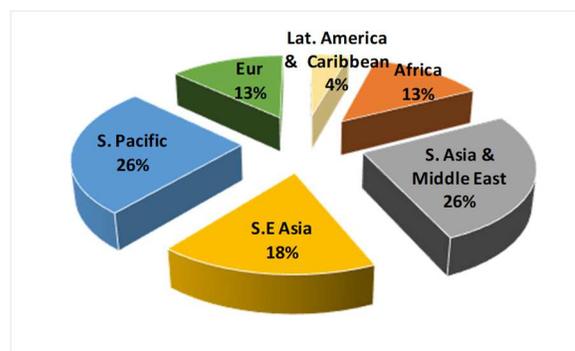


Figure 1: level of COGENT region representation within COGENT-linked delegates

The meeting was opened by Dr Alan Aku of KIK, Papua New Guinea (PNG), on behalf of Dr James Kaiulo, the current COGENT SC Chair and KIK Director. He highlighted the need to address COGENT's outstanding funding and technical issues. The two meeting sponsors, the ICC (the future host for COGENT) and the Thailand Government also delivered brief messages. ICC CEO Dr Uron Salum stressed that COGENT lacks legal status and thus requires strategies to ensure efficiencies and effectiveness, including tightening up the steering committee and integrating a standard meeting framework. Based out of Jakarta, Indonesia, the new Secretariat should be operational from January 2019. On behalf of both the host Thai government and the COGENT country representative, Dr Supattra Lertwatanakiat, from the Thailand Horticultural Research Institute delivered a vote of thanks. She endorsed the meeting objectives, at the same time stressing the need for better access to quality planting material, harnessing new genetics and tissue culture (TC) technologies and dynamizing the coconut value chain. Vincent Johnson, the interim COGENT coordinator then provided an outline of the meeting, and went on to review those 18<sup>th</sup> SC recommendations linking to the Strategy implementation, ITAGs revisions, ICG audits and COGENT Secretariat reorganisation, and also backed up by the results of a recent small COGENT survey.

## Launching the Strategy

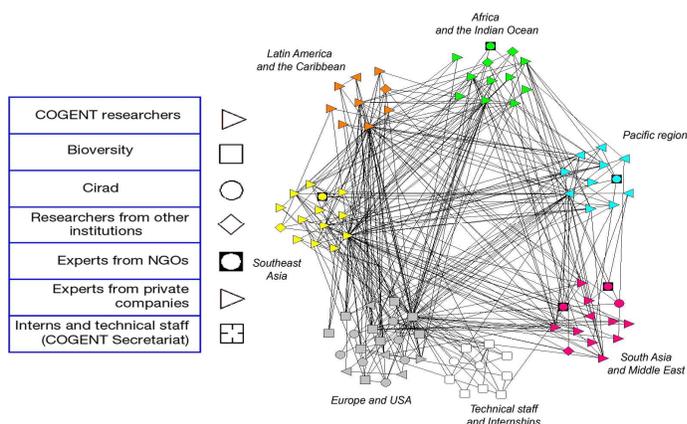


Figure 2: stakeholder interactions in producing the Global Strategy

Two former COGENT coordinators, Drs Roland Bourdeix and Alexia Prades, both of CIRAD and compilers of the document, formally launched the Strategy<sup>3</sup>, with a brief explanation of its context and drafting history. Dr Bourdeix reminded delegates of the wide, comprehensive consultation and writing process (see fig 2). Covering current status and future plans, the Strategy provides a basis for renewed investment in coconut genetic resources conservation for use. It also addresses the most critical challenges facing the global coconut community, including better managing phytoplasmas, germplasm information,

and senile and tall accessions, as well as boosting genebank capacity for hand-controlled pollination to facilitate regeneration. A draft fourth chapter was prepared Dr Bourdeix, based on contributions to Chapter 3, as an implementation workplan (see annex 5.2), but it was decided to publish this as a separate document. In 2013 he also prepared a list of possible projects in consultation with ITAG leader and other contributing stakeholders, and this list should be updated as part of the Strategy implementation planning. Separate meeting sessions addressed planning for implementation via the ITAGs.

Chapter 3 in the Strategy prioritizes the actions and research needed to secure coconut diversity and enhance its use, and proposes plans to develop mechanisms, skills and research to achieve the Strategy's objectives. The chapter is laid out according to following objectives: 1) strengthening international commitment and communication; 2) ensuring *ex-* and *in-situ* conservation; 3) addressing diversity gaps 4) developing mechanisms for effective international germplasm movements; 5) comprehensively characterizing and evaluating coconut germplasm, and 6) reinforcing COGENT.

The Strategy narrative was largely complete by end 2013, although Dr Prades said that the lack of funding and the quest for scientific rigour and consensus delayed finalising the Strategy. Other institutional factors caused yet further delays. Strengthening COGENT's communication facilities and commitment will help heighten visibility and create consensus for sharing germplasm, perhaps via a "virtual" collection. The ICGs need to improve, and are rather invisible.

## Coconut Genebank Audits

For effective conservation and use of coconut genetic resources, the network of national and international genebanks needs to be upgraded. In line with [recommendation 5](#) of the 18<sup>th</sup> COGENT SC meeting, Dr Pons Batugal led a discussion on preparing for COGENT's proposed coconut genebanks audits, including drafting the audit protocols. He distinguished between international and national genebanks, as well as *in situ* collections, as their respective legal contexts and sharing protocols vary. He proposed a set of rapid audits, initially for the **international genebanks**, led by individual scientists to examine problems and opportunities, with funds possibly provided by the Global Crop Diversity Trust, and other concerned donors. Audit terms of reference for each genebank should include: i) establishing the status of MoU between IPGRI/Bioversity, the host government and FAO; ii) land tenure status (aiming for ownership), iii)

<sup>3</sup> Vincent Johnson also presented the Strategy outline to around 400 delegates at the COCOTECH conference earlier in the week.

number of accessions conserved as originally planned, what was conserved, and how many palms per accession; iv) number of countries requesting material from the genebank<sup>4</sup>; v) disease threat(s); vi) funding status; vii) genebank staff skills/ capacity; viii) extent and quality of genebank documentation, and ix) research status- ICGs should conduct conservation and use research, including areas such as: collecting extra accessions/ planning duplications; evaluations; (a)biotic resistance trials; tissue culture (TC), and cryo-preservation. Any genebank research should advance the current body knowledge. It is suggested that the audits be kept tight- 3 months maximum. Donors will be more willing to fund a multilateral system that they feel will be successful and sustainable, and these rapid evaluations will identify what needs addressing and how to move forward.

It was argued that when **national genebanks** audits are conducted, the evaluations will be simpler, covering: number of accessions conserved, trees/accessions, disease threats, plans for additional collection, and plans for duplication.

Discussants agreed to participate in drafting the terms of reference for the ICG audits and finalising the audit process in the weeks following the current meeting (see annex 3 for a current draft ToR).

It was agreed that the audit team will be selected through COGENT, and using due process. This should include engaging an expert from the country of genebank origin.

A second discussion was held at the end of the meeting, in which a proposed plan for genebank audits was outlined by Dr Batugal. It was agreed that Mr Johnson will lead funding bids to support the audits. It was proposed that the audit be based on the questions provided by Dr Batugal: i) Status of the MOA; ii) Availability and status of ownership of ICG land; iii) Number of accessions to be conserved; iv) Number of accessions currently conserved; v) Number of palms per accession and representativeness; vi) Number of countries to date which actually requested germplasm; vii) Number of countries to date provided with requested germplasm; viii) Disease threats; ix) details of planned duplications, and x) ongoing and planned research. The last question will ascertain if the following research topics are addressed: a) Collecting for additional conservation; b) characterization of accessions; c) Yield evaluation; d) Disease resistance trials; e) Tissue culture; and f) Advancing knowledge

The group agreed that Dr Batugal will circulate the questions and the steering committee provide feedback. The Coordinator also agreed to circulate the SC recommendations from the 18<sup>th</sup> SC meeting by email and also elicit responses on i) accessing mapping populations for (gen)omics work, ii) safe germplasm exchange (zygotic embryos) and iii) GR database management (Secretariat service).

There was an informal discussion about timing and costs for the audit. PNG might be able to be done by Dr Baudouin if Dr Bourdeix cannot do it. KIK can cover local expenses if he can get there. The CropTrust representative might be Charlotte Lusty or let them identify a person. The CropTrust has developed standards for genebanks and these need to be considered. Another possibility is to develop a template so that reports can be compared. It would require someone to work one day to make a template. The questions seem simple, but the answers are not as simple, as “accessions” may have been rejuvenated from old accessions and numbers end up inflated. The database doesn’t always get updated when plants are lost (fire, storm, death) so the database entries needs to be dated. So, a template would be valuable to cover things like rejuvenation and when the data was collected. Sometimes regeneration happens from open pollinated seednuts, so new “accessions” are useless. Dr Bourdeix agreed to expand on the ToR. It could be piloted as he assesses the Côte D’ Ivoire genebank. Dr Bourdeix said he could aim for January to have the template done. Dr Prades said she can help with the process and getting funding for the work, Dr Bourdeix said he will be able to do it mid-September.

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<sup>4</sup> Lack of sharing may either mean germplasm not considered important, or the genebank has failed in some way

### *Current Status of the International Coconut Genebanks*

Representatives of the five ICGs provided an update on their status and needs. (presentations can be found at: [link](#)) Each ICG has its own unique combination of contextually-related needs, and it seems that none of the genebanks is operating to agreed minimum standards. Common needs articulated included: **mitigating threats from key pests and/or diseases** (mostly phytoplasmas), including more effective **diagnoses**; increasing the amount and frequency of **germplasm sharing**; and upgrading **capacities for tissue culture, cryopreservation** and **controlled hand pollination**.

#### *ICG for Latin America and the Caribbean (LAC), Brazil-Marcelo Ferreira and Semiramis Ramos*

Information for the ICG-LAC was presented by Vincent Johnson on behalf of its curator *in absentia*. The presentation highlighted a need to: improve irrigation facilities, (to manage increased frequency of dry years), manage high levels of senility (high risk), and generate funding for ICG improvements, (have funds for maintenance). A condition known locally as *coconut crown lethal atrophy* (similar to “porroca”<sup>5</sup>), with no known causal agent, has been spreading in Brazil since 2012, but not yet detected in the ICG. An ongoing EMBRAPA<sup>6</sup> project aims to identify the causal agent. The ICG also needs quarantine infrastructure so that more accessions can be added, climbing equipment, and training in controlled hand pollination (CHP). The ICG’s top priorities are to enrich accessions and technology for germplasm exchange. The curator expressed concern about how all COGENT regions, including Latin America, can play an equal role in the new context. Dr Bourdeix stressed that the need for CHP, the absence of which constrains sharing material. ICG-SEA would like to know about the fate of the accessions shared by ICG-AIO with Brazil 12 years ago.

#### *ICG for Africa and Indian Ocean (AIO), Côte d’Ivoire- Jean Louis Konan Konan*

The ICG-AIO has 125 accessions originating from 31 coconut-producing countries, including 11 unique accessions. The first MoU was signed in 1999 and renewed in 2006. The ICG employs 120 scientific and technical staff. Accessions are well characterised, but the CGRD software is not working. The ICG has shared material six times since 2015, and is especially active in the region, as well as pollen to Nicaragua. Current research includes: characterising accessions and conducting trials on resistance to lethal yellowing disease (LYD); genomic studies supported by COGENT, and producing elite hybrids for *in vitro* culture (need funds for this). The ICG needs to: transfer its accessions to another area to avoid urbanisation pressures and LYD (evaluation mission underway); duplicate and cryopreserve its accessions, improve TC capacity (lab, skills (including *in vitro* transfer) and human resources); expand to 200 accessions, and generate funds to support these improvements. Dr Konan Konan recommends the ICG-AIO renews its MoU with ICC.

Information arising from the discussion indicated that: 1) Controlled pollination provides true-to-type seed nuts for tall; 2) LYD is only 200km away from the ICG, which is taking precautions to exclude the disease and researching for LYD resistance, although the ICG has not declared a quarantine area. The ICG-SP advises moving quickly before it’s too late (parallels with Bogia coconut syndrome (BCS) whereby the ICG has to re-collect its material from original sites. ICG-AIO has a plan for duplication as part of LYD strategy, but needs funding. A team of experts, supported by CIRAD and the French government, will be travelling to the genebank and make recommendations whether or not to relocate the collection.

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<sup>5</sup> [https://www.researchgate.net/publication/249304402\\_Porroca\\_An\\_Emerging\\_Disease\\_of\\_Coconut\\_in\\_Central\\_America](https://www.researchgate.net/publication/249304402_Porroca_An_Emerging_Disease_of_Coconut_in_Central_America)

<sup>6</sup> Empresa Brasileira de Pesquisa Agropecuária

*ICG for South Asia and the Middle East (SAME), India- Dr P Chowdappa*

Situated in an isolated location, the Indian national genebank houses 455 accessions, of which 91 are exotic. The genebank is well-supported by a good budget, and quality scientific and technical staff. There has been little international germplasm exchange, except with Sri Lanka. Accessions duplication is ongoing, with 30 accessions already transferred. Also, the genebank has shared 25 accessions with the different national centres involved with the All India Coordinated Research Project (AICRP), (adaptive research). Ongoing research includes evaluating accessions for cold tolerance and other traits. Over the past 3 years the ICG has collected 23 accessions from other countries (for unique traits- e.g. endosperm and *spicata* types). The ICG is not subject to many threats, it is well managed, with scientific support, good funding, no serious pest or disease, and acceptable land tenure- (the lease is about to be extended 30+ years). The ICG has the capacity to conduct controlled pollination, and it is now aiming to create a cryobank (embryo, DNA and pollen). The genebank also has been trying to develop a tissue culture facility, but is in need of further support.

The discussion highlighted an issue with germplasm exchange bottlenecks, where Indian researchers have requested compact dwarfs and accessions from the ICG-SP, but are still awaiting replies from the Ministry of Agriculture. Dr Prades suggested the TREATY could help regarding ICG contractual obligations.

*ICG for South East Asia (SEA), Indonesia-Dr Hengky Novariantio*

The current coconut germplasm conservation programme started in 1996 in Kikijang Mati, Riau, but problems forced a move in 2000 to Paniki and Pandu Experimental Garden, North Sulawesi. Sixty ha of plantings were destroyed by land-use conversion, and 22 coconut and 33 oil palm accessions were lost (the results of more than 10 years' collecting). The ICG currently has 95 accessions on 120 ha. Seventeen accessions have been provided nationally and 10 received, but none internationally. There has been no collaboration with COGENT member-countries since 2012. The main threats for the ICG-SAME are from a limited budget, a constraining government focus, and certain pests and disease (*Brontispas*, *Oryctes*, *Phytophthora palmivora*, *Segestes* etc). A dwarf collection was planted 1984 and replanting is ongoing, using open pollination. On-going research includes: morphological characterisation; and evaluation of sap and sugar production, and disease and pest resistance, including using SSRs Markers. The ICG has been collecting tall aromatics, and dwarf *kopyor (macapuno)*, and 'pink coconut' notably N Sumatra. No Talls have been rejuvenated.

The ICG needs seed gardens for hybrid production, and higher priority support from local government. The genebank has the capacity to conduct controlled pollination, which is being used for their breeding programme, using Mapanga talls back-crossed with dwarf material. The ICG would like to use TC to multiply its material.

In the discussion, Dr Perera raised the issue of the MoA genebank signatories (host government, TREATY and COGENT) needing more effectively support to the ICGs when they faced serious threats, such as the issue with land use change in Indonesia (and in Côte d'Ivoire). Dr Prades commented that the accessions may be regarded as international public goods, and the idea of "global good" land was then discussed, which cannot be owned/re-claimed. Land tenure is a key issue for conservation. Dr Bourdeix suggested, rather than international land, the ICGs need an early warning system, which would facilitate immediate contact with COGENT when genebanks are threatened. Then FAO can be notified for a rapid response. In this case COGENT was not contacted. Dr Prades advised that when there is an emergency, genebanks need to contact the international focal point/representative for the treaty in their country. That's what has been done for PNG and Cote D' Ivoire with some success. The ICGs need to manage the tension between not attracting attention to avoid such issues, and needing to attract donors and technical support.

*ICG, South Pacific (ICG-SP) Papua new Guinea- Eremus Tade*

Dr Tade has resumed curatorship and will move to Madang soon. KIK has re-structured under a 10-year plan, and a recruitment drive is ongoing for extension and research staff. He provided a history of the Madang Research Station, stressing that facilities need upgrading. In the past the ICG had problems transferring embryos from other countries, as all were lost to contamination. They hope to improve techniques through collaboration with UQ. The genebank has 38 Tall, and 11 dwarf accessions, plus 3 more recently acquired..

The ICG is relocating to Milne Bay due to Bogia syndrome (BCS) contamination and genebank plans to add 5 new accessions and more effective conservation and management methodologies. They will prioritise collecting and characterising accessions with Dr Bourdeix's help using microsatellite data. Sanitation for Bogia Syndrome is ongoing. They have secured their own 126 ha site and have built a pre-entry quarantine nursery (aphid house). They continue to collaborate with quarantine stakeholders. Movement from Madang has been restricted since 2011, although husked coconuts are still being moved, so movement is a challenge. There is an ongoing awareness program. Although the genebank could have used the accessions on the original Madang site, and screened for BCS, it was considered too risky, so it has been decided that field collections will be repeated and moved to the quarantine nursery. They have already started collections in 2 locations. As BCS is threatening the genebank they will still continue to sanitise around the station. They are collaborating with the University of Queensland to develop a BCS diagnostic kit and train genebank staff. ACIAR vector studies, linked to BCS transmission continue (extended till June 2019), and MoUs have recently been signed. They will re-furbish the laboratory, embryo culture laboratory and laminar flow in 2019. On Misima Island, at the new site, they will establish staff housing, water supply and fencing in 2019. Mr Johnson congratulated PNG on their work so far. Dr Batugal commented that the Darwin Project will fund a PNG PhD student in plant genetics and breeding, and the germplasm prospecting guidelines, and data management system from the project will prove useful to the global community. Some work is ongoing with Nieu Leka dwarfs.

*Reviving COGENT's ITAGs*

Vincent Johnson led a session on revising the (6) International Thematic Action Groups (ITAGs) that will spearhead Global Strategy implementation. He outlined previous composition and the original terms of reference (see annex 4). The ITAGs objectives are to: i) gather the best specialists to strengthen communications between researchers working in different countries but in the same thematic field; ii) provide useful recommendations to the COGENT SC, (the decision-making body, and to the COGENT secretariat; iii) provide new pertinent research ideas, and iv) to help to protect the specific research interests of COGENT member countries. The ITAGs are created by following 3 successive phases: 1) designation of a leader; 2) extension to 5 members; 3) extension up to 12 official members plus up to 10 students as "junior" members. ITAGs will also play a key role in raising funds and writing research proposals, where initial research ideas research could be summarised in a 1-2-page research ideas note, to present to the COGENT technical committee.

Discussions agreed that (most of) the ITAGs have not been functioning well, if at all, so COGENT needs to re-structure them and change their leadership. Dr Bourdeix suggested linking with ICC networks/ working groups, but Dr Batugal suggested they should remain separate but support each other. There are 4 or 5 networks in ICC, including plantation management, phytopathology etc. Mr Somasundaram, of OVS farms, India, said that farmers should be a part of the ITAGs because they could provide the information on the ground, particularly in the face of climate change, so perhaps COGENT should add a farmer's focus group to the ITAGs. Dr Bourdeix suggested not restricting ITAG size, as communications have now improved. Dr Batugal suggested a compromise of 5 core members and others can also be members.

As there was insufficient expertise representing all thematic areas<sup>7</sup> to lead meaningful breakout group discussions per ITAG, the meeting stayed in plenary and presentations were delivered from those with thematic expertise, namely presentations on: i) Coconut genomics; ii) *Ex situ* conservation; iii) Ethnobiology and Socioeconomy, and iv) *In vitro* culture. An extra discussion was also included on *Farmer Participatory Research*. Dr Chowdappa had also prepared a presentation on the phytopathology ITAG but the ITAG session overran, so this was not delivered.

#### *Genomics ITAG*

*Roland Bourdeix*

Group objectives have mostly been achieved. Most members actively contributed, and an ITAG strategy was produced from the group. The group leader resigned in 2014 and was not replaced. So, Bourdeix suggested replacing the ITAG leader via ITAG member consultations, checking nominees' publication records, then communicate with the new nominee, then updating. Bourdeix outlined the value of coconut genomic studies and their history. Although the community awaits the publication of the full genome sequence a draft sequence is available, and other work has been done to establish a mapping population. Now that the price of genome sequencing is reduced the ITAG may help with sequencing initiatives for member-countries to understand traits. This work will provide the foundation for molecular-assisted breeding.

India has prepared a manuscript on the genome which will be completed this month. The Philippines is also doing this kind of work. Dr Batugal suggested that some of the groups' objectives need to be reviewed. Dr Perera suggested the ITAG convene and discuss needs, formulate proposals and bring them to the steering Committee for actioning. The nature and frequency of such meetings should be agreed, depending on resources and how members may engage.

#### *Ex situ conservation ITAG*

*Dr Jean Louis Konan Konan*

This is an example of a non-functioning ITAG, as Dr Konan Konan didn't know who was the ITAG leader. Dr Perera had circulated emails to all the ITAGs but received very few responses, so it was decided that the ITAGs would be dissolved and re-formed. Dr Batugal suggested that they might not have been working because the objectives have not been communicated carefully. India commented that the objectives were clear and that they need to be dissolved and 2 new names suggested to lead groups. Kenya suggested Dr Morris Oyoo for group leader and Dr Novarianto was also suggested for the ITAG leadership.

#### *Ethnobiology and Socioeconomy ITAG*

*Dr Roland Bourdeix*

This ITAG has no leader but does have clear objectives. Through Dr Bourdeix's efforts, the ITAG received funding for a project in Cote d'Ivoire on local knowledge of the reproductive biology of coconut and other species. There is another project about planting material for the Pacific region and how to produce own hybrids. Publications have come out of the group. Dr Batugal suggested that ITAGs need one-to-one commitment and a clear focus on the objectives.

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<sup>7</sup> i) [Coconut genomics](#); ii) [Ex situ Coconut conservation and related methodologies](#); iii) [Coconut breeding](#); iv) [Coconut In vitro culture](#); v) [Phytopathology and coconut germplasm movements](#); vi) [Ethnobiology and socioeconomics](#)

### *In vitro culture ITAG*

*Drs Carlos Oropeza, Quang Nguyen and Julianne Biddle*

ITAG-linked meetings were conducted at symposia, particularly for cryopreservation. Dr Oropeza (Mexico) has been interacting with the Brazil group and Steve Adkins. The group objectives were to refine protocols for micropropagation and germplasm exchange. They are already doing this in Brazil and the Caribbean.

Dr Nguyen (UQ) presented on Somatic Embryogenesis and the work at UQ. Dr Biddle commented on embryo culture. Dr Oropeza presented on his group's work (at the Centro de Investigación Científica de Yucatán (CICY) , with a focus on multiplying selected disease-resistant material. They have developed callus multiplication techniques and can produce thousands of plantlets from one plumule. They are now scaling up in "biofactories" to increase efficiency and are extending current facilities, with the aim of producing 500,000 plants/year. They are about to start the cryopreservation of embryogenic callus lines, but it will also be useful for a conservation genebank. They now have an MoU with ICC and are talking to interested parties as guided by ICC. Intellectual property (IP) issues have prevented collaboration in the past, but they now have a new director and so now there is more possibility to work together and move forward more rapidly. They are now able to collaborate and are becoming more cost effective in seedling production.

There was some discussion about including Farmer Participatory Research within the ITAGs. India commented that sometimes farmers have access to better varieties than breeders.

### *Next steps for the ITAGs*

*Dr Pons Batugal*

Dr Batugal argued for a clear ITAG development process involving: i) formulating clear objectives; ii) establishing one-to-one correspondence between an individual ITAG objective and a project; iii) finalising leader and member selection; iv) formulating next steps; and v) finalising ITAGs regeneration to build a solid foundation for Strategy implementation. He suggested organising ITAG proposed projects in the form of the table presented in annex 5.1 (point ii above). This idea was developed further in the next session on developing a roadmap for Strategy implementation. In the final discussion Dr Batugal suggested the first step would be to review any list of suggested projects, decide project priorities, and then define objectives of the ITAGs.

At the end of the meeting Dr Batugal suggested making suggestions for ITAG leaders before delegates dispersed, even if COGENT defers final leadership decision until we have CVs and check if they are interested. Nomination is subject to supervision. Also COGENT must agree on a timeline for leadership/membership selection, and to agree on titles, including 5 core members per ITAG to take the lead then other members can contribute. The remaining delegates discussed next steps for nominating leaders and members and revising the groups' composition.

In the light of delegates' comments regarding including farmer participatory research and also cryo-conservation, the group suggested some slight name ITAG changes as follows: *Ethnobiology and Socioeconomics*, to be changed to *Farmer participatory Research and Socioeconomics/ Ethnobiology*, and *In Vitro Culture* to *In Vitro culture and cryo-conservation*. Also in response to meeting discussions, the group suggested adding a new ITAG, *Coconut Value chain development*, to forge stronger links between coconut genetic resources conservation and their use. The group then suggested having a co-leader for each ITAG, so that more than one region or country could be well-represented. The group then suggested nominations for ITAG leader and co-leader as summarised in Table 2 below and also annex 6, and the Coordinator will contacting these individuals in the coming weeks. Any ITAG revisions (including teams

and leaders) and nature (adding ITAGs if a new thematic area is deemed appropriate), will be agreed by due process. Subject to the submission of CVs there will be an attempt to recommend leaders and resolve titles before mid-October 2018.

Table 2: Suggested changes to ITAGs and interim leadership

ITAG name		Leader			Co-Leader			Comments
Original title	Suggested new title	First name	Last name	Country	First name	Last name	Country	
1. <i>Ex Situ</i> Conservation	no change	Semiramis	Ramos	Brazil	Vitta	Niral	India	
2. Genomics	no change	Yaodang	Yang	China	Luc	Baudouin	France	CATAS - keen to host a COGENT meeting. other members will be invited from who responds from other countries doing genetic work
3. Coconut Breeding	no change	Lalith	Perera	Sri Lanka	Ramon	Rivera	Philippines	Roland suggested Dr Lalith Perera and possibly Dr Auguste Issali (too isolated?).
4. Phytopathology & Germplasm movement	no change	Pallem	Chowdappa	India	Andrew	Ngereza	Tanzania	Consider Frederic Koome, Kenya as member
5. Ethnobiology & Socioeconomics	5. Farmer participatory Research & Socioeconomics/ Ethnobiology	Ismail	Maskromo	Indonesia	Roland	Bourdeix	France	Consider farming group leaders / farmers as potential members, potential members don't work purely on coconut. Sergio Gongora and Gonzalez was suggested to increase diversity. An ITAG leader from PNG would be appropriate. Dr Prades suggested changing the scope of the group to cover value chain and capturing value from the germplasm.
6. <i>In Vitro</i> Culture	6. In Vitro culture and cryo conservation	Carlos	Oropeza	Mexico	Steve	Adkins	Australia	possibly Vijitha as co-lead
7. New group	7. Value chain development:	Lusike	Wasilwa	Kenya	Alan	Aku	PNG	Alexia Prades to b active advisor/ member

Delegates then discussed drafting ITAG ToRs, partly based on [recommendation no. 4](#) from the 18<sup>th</sup> SC meeting. These would include the following:

1. ITAG objectives will be directly linked to ITAG specific projects that aim at implementing elements of the Strategy.
2. ITAG teams will develop priority research ideas/ proposals to generate funding for ITAG projects and programmes related to their thematic area (based on the Strategy...see the table in annex 5.1). These will be reviewed by the Steering Committee
3. ITAG teams will develop appropriate sections of the strategy implementation timeline and budget for those activities relevant to their thematic area, and with reference to the work plan developed by Dr Bourdeix (see annex 5.2- linked to the planned chapter 4 of the strategy), and updating this in the process within the next 3-6 months after the ITAGs leaders have been appointed
4. ITAGs will be responsible for implementing the Strategy according to finalised timeline and budget (point 4 above) over the next 10 years and beyond
5. ITAG leaders will collaborate with COGENT steering committee to select/recruit ITAG members
6. ITAG leaders will co-ordinate work of the ITAG members that relate to their thematic areas of Strategy implementation. This will also involve links monitoring and evaluating of Strategy Implementation, and making periodic reports to the steering committee
7. The ITAG leader and team will be involved in planning for Strategy implementation beyond the 10-year time frame
8. In implementing the strategy, ITAGs and their leaders will be interlinked where appropriate
9. The ITAG leader will be a member of the Strategy Implementation Task force (see below for explanation)

### *Global strategy implementation roadmap*

Dr Batugal led this session linking with SC recommendation 4 (see annex 7), the elements of which are listed below (and some overlapping in the ITAGs ToR discussion above):

1. Revising the ITAGs' composition (teams and leaders) and nature (adding ITAGs if a new thematic area is deemed appropriate), and agreed by due process
2. A COGENT Strategy Implementation taskforce (SIT) is established, by remote voting, composed of the ITAG leaders, the COGENT Coordinator, Chair and Vice-chair, along with representatives of the ICGs and external observers
3. ITAG teams will develop appropriate sections of the strategy implementation timeline and budget for those activities relevant to their thematic area, and with reference to the work plan developed by Dr Bourdeix (see annex 5.2), and updating this in the process within the next 3-6 months after the ITAGs leaders have been appointed
4. A fundraising task force is established and proposals developed via the ITAG team task force (essentially ITAG team members and COGENT Secretariat)
5. Implementing the Strategy according to finalised timeline and budget (point 3 above) over the next 10 years and beyond
6. SIT managing the monitoring and evaluation of Strategy implementation, including mid-term review and 10- year evaluation with external evaluators
7. Planning for Strategy implementation beyond the 10-year time frame
8. In implementing the strategy, ITAG and their leaders will be interlinked where appropriate

Dr Batugal outlined a suggested structure (see annex 5.1) to use for the implementation of strategy. The first activity column on: collecting, conservation: *ex situ* and *in situ*, characterisation: morphology and genetics, database: development, maintenance and sharing, promoting exchange, promoting use (breeding), training, research, advancing knowledge (sequencing genome, marker assisted breeding and DNA analysis), participation in ITAGs (genomics, conservation etc) and fund generation, and columns 2-4 for project title, interested participant and funding source. In his experience there is always funding for well-designed research. COGENT and the ITAGs should develop winning proposals with clearly targeted beneficiaries. COGENT needs projects and interested participants, at the same time ensuring no unnecessary duplication. Projects should be prioritised, with some addressing poverty reduction, and ensuring impact. The ICC wants to translate research results into industry outcomes. Therefore, need good implementors. Communications could be added to the table, and some elements are already integrated into the Global Strategy plan (see annex 5.2), including prioritisation.

In discussing the timeline for finalising budget and workplan for strategy implementation, it was agreed that re-establishing the ITAGs was an important initial step. A first task of the ITAGs should be to refine and prioritise the list of topics, but these should not be based on ITAG leaders' self-interests. Dr Batugal suggested each ITAG could start with its top two priorities and write proposals for these, perhaps aiming to have submission-ready proposals within 6 months. Other projects can be added, as the Strategy is a working document. Dr Bourdeix commented that the current research table has been compiled from contributors' responses, but has not been formally agreed, and so is a working document. It is an annex of Chapter 4, which has not yet been completed (see Annex 5.2). The COGENT coordinator proposes that he will review the table and allocate which ITAG will be responsible, for endorsement by the SC and ITAG leaders when in place. Once these have been allocated to specific ITAGs and then it is the responsibility of the steering committee and ITAGs to prioritise. All COGENT member countries own the strategy and ideally should solicit support from the SC to implement projects even if they secure a local donor? Dr Kaiulo commented that for PNG phytoplasma research, they have no need to come to COGENT for that funding, as the PNG government will fund, although for coherence and cohesion it would be appropriate

to inform the SC and how the work aligns with COGENT priorities. Everyone can put forward proposals to COGENT, not just ITAGs, it is not exclusive.

Strategy implementation should focus predominantly on the first 10 years. India and Sri Lanka both commented that recommendations cannot be removed. The Coordinator will circulate the full details of the recommendations for clarification (see also annex 7).

### *Funding for implementing the Strategy and supporting the COGENT Secretariat*

Delegates have already considered SC recommendation 4 regarding Strategy Implementation. This includes a request that a fundraising task force of ITAG and COGENT Secretariat representatives is established and proposals developed via each ITAG.

In brainstorming delegates shared ideas suggesting that COGENT' and/ or its fundraising task force could be responsible for developing a fundraising strategy. COGENT will co-ordinate funding bids and lobby with Crop Trust for an endowment fund, although it is hard to gain access to these until genebanks are operating to a minimum standard. Ideas included:

- assisting co-ordinating countries/funding sources for groups to commercialise technology.
- ensuring submission of quality proposals.
- targeting specific funding sources, (e.g. IFAD for nutrition and livelihoods, as well as the TRUST, TREATY and ACIAR), and including public-private partnerships (e.g. with Vitacoco, Coca-Cola, Syngenta), including processors, linking to corporate social responsibility programmes
- linking coconut genetic resources conservation to use and poverty alleviation where appropriate.
- linking more closely with SPC's (and other similar institutes'?) roles in research and development.
- encourage the genebanks to generate revenues (e.g. seednut production, hybrid production linking to processing etc- there is a section in the strategy on this).

The Coordinator invited volunteers to participate in COGENT fundraising, although a concern was raised over availability as everyone is so busy. It was suggested that it would be more effective to have this as a designated role for the appointed coordinator. Strong criteria will help in recruiting a co-ordinator with the necessary fund-raising skills, so as not to rely on the task force, although a group can add value. The coordinator should assemble fund-raising documentation amongst other things. From January next year the ICC will have a co-ordinator in place, so better to defer rather than doing it now and momentum being lost. Dr Bourdeix, Mrs Mapusua, Dr Oropeza, Dr Prades and Mr Johnson volunteered to contribute to proposal development, and Dr Biddle to provide editorial support

In tandem, the ITAGs leaders and group members must be finalised. Also COGENT will produce a short (2 page) research idea template (see 1<sup>st</sup> draft in annex 8), which when finalised should be used to ensure alignment with the Strategy. The Co-ordinator will need to assert this key role and liaise actively with the ITAG leaders to ensure maximum participation. The ICC will have a scientific co-ordination role that will cover COGENT and the budget will cover COGENT. However the ICC will not fund COGENT projects, Project funding has to be sourced. Appointing the Coordinator will not be at an increased cost to ICC members of APCC. DFAT is funding interim co-ordination during Secretariat transition. The interim coordinator will liaise with Dr Batugal and Dr Salum co to determine what is needed during transition.

### *COGENT's new hosting arrangements*

The discussion was based partly around the first 3 recommendations made at the 18<sup>th</sup> SC meeting: i) Interim coordination of COGENT; ii) New Hosting arrangement for COGENT Secretariat; iii) New COGENT Secretariat and Coordinator recruitment (see annex 8). It has been agreed that under the new arrangement COGENT will operate a small Secretariat out of ICC's premises in Jakarta. According to the previously drafted ToR (see annex 9), COGENT activities could include: i) overseeing the ITAGs, ensuring they execute their workplans; ii) implementing recommendations; iii) auditing the 5 international genebanks; iv) supporting upgrading of existing -and creating new genebanks. COGENT will also support v) reviewing and maintaining the Coconut Genetic Resources Database (CGRD); vi) upgrading the internet workspace (email list, work server, website, quarterly new bulletin); vii) gathering information and providing progress reports; viii) organising activities and meetings; ix) managing its own finances (budget and work plan); x) raising public awareness of COGENT and activities; xi) connecting with the international community, including holding or attending events, xii) linking to the CGIAR, to access capacity building, collaborative links and funding. The ToR needs to be finalised and endorsed by the COGENT SC

### *Human Resources*

The Secretariat should consist of a Co-ordinator, Assistant, Database Manager (part time?) in Indonesia and a staff member in SPC, and perhaps also links to Latin America and Africa.

Key roles of the co-ordinator include improving COGENT visibility and communication. That basic work is of critical importance. The Coordinator urgently needs to be appointed ideally in January 2019 under the ICC.

Dr Salum of ICC confirmed that the salary range for the COGENT co-ordinator will be within the ICC salary structure of around \$2,000USD/ month plus housing allowance. Candidates are thus more likely to come from within Asia, as it will not be attractive to outside the countries. It will take at least 3 months for recruitment. So, after ICC's September budget announcement it will be advertised straight away. They will start at the latest June 2019. The interim coordinator reminded delegates that he is also available for around 20% of his time until September 2019. He has already drafted terms of reference for the co-ordinator and it needs to be confirmed by ICC. The will be a senior coconut researcher.

Delegates observations included the following:

### *Technical cooperation*

There are a number of organisation that will support COGENT with technical cooperation. SPC's role in COGENT will evolve. Much research funding for the Pacific goes through SPC, so if SPC will add value then Pacific countries are more likely to support. The rationale for this is cost effectiveness and the nature of the Pacific with many small countries in one region. It will provide a more concrete resource (MoU and dedicated work schedule). SPC operates as the main research organisation for the Pacific region.

Some COGENT activities proposed in the draft ToR could remain with CIRAD or other partner organisations or both, who have the necessary expertise for more effective implementation. If so perhaps keep functionality as it is. Collaborative relationships with Mexico are strengthening on a project-by-project basis, but not yet formalised. MoUs are useful basis for collaboration and some need to be re-negotiated, others drafted for the first time. Delegates (and ACIAR in the past) expressed the hope that Bioversity could retain a link to COGENT to maintain a continuing relationship for continuing projects. The Coordinator will solicit feedback from Bioversity. Bioversity could review the draft MoU provided by APCC in 2014. CGIAR is the largest research institution in the world (Bioversity fits within CGIAR). There is a large

research budget in coastal areas and climate change, as well as *ex situ* conservation, nutrition etc. COGENT interactions should therefore be with CGIAR as a whole. Bioversity is forming a research alliance with another research organisation CIAT. The Coordinator will find out if coconut has a place in the future in the Alliance.

Dr Tilafo Hunter informed delegates that an important FAO meeting will be hosted by Samoa in October 2019. The ICC will be attending and presenting, which may encourage non-member countries to join ICC, subject to SPC's and FAO's approval.

#### *CGRD*

The CGRD is currently voluntarily held within Bioversity International. The database needs to be moved to another environment and the roadmap is ready in the strategy. CIRAD is ready to help, providing there is funding. Bioversity has been responsible for transferring to a global database but there have been legal constraints. The new data has been managed on a voluntary basis. This should be professionalized to ensure effectiveness and appropriate focus. The systems used by Bioversity are not open source, but new databases should only be open source.

#### *Administration*

Some administration responsibilities will be mostly covered by ICC, where support staff are already in place. The funding team should support the co-ordinator, rather than the other way around.

#### *ICC's role*

ICC has been long wanting to facilitate more effective germplasm, and had hoped COGENT to make this available previously. Under the new arrangement they will marry and bring those two initiatives closer together to lead to a more efficient leadership of genetic resources. The merging of responsibility into ICC offers a significant advantage in terms of functionality. In contrast to Bioversity International, ICC is focused purely on coconuts, is situated within the largest region of production globally, and has global membership. In this space it will further develop the use of the genetic resources for the benefit of farmers. ICC has the capacity and is ready to provide full support to fulfil COGENT's mission. ICC is also communicating with 20 new potential member countries and there are still 15 more with whom to engage. Discussions are going on to have an ICC Technical Campus based in Bogor Indonesia within Indonesia's Agency for Agricultural Research and Development (AARD). ICC already has a wide network with institutions. ICC is forming MoUs with UQ (signed), SPC and CIRAD.

#### *Budget*

Budgets will be articulated after the September meeting

#### *Final comments*

Some of the COGENT representatives provided individual comments:

1. Samoa suggested ICC could model itself as a mini-FAO with different regions, and may evolve to have offices in different regions.
2. Indonesia re-affirmed the willingness of its Ministry of Agriculture to support a small office in Jakarta.
3. Malaysia commented that not just the research organisation MARDI, but the Ministry should be involved in discussions.
4. Kenya was happy to now support the title of ICC, thanked Indonesia for hosting the office. Would like to get as many countries in as possible to develop a strong value chain for coconut, a key

component of the COCTECH conference. Would like to see value chain integrated so they are part of the conversation.

5. Tonga supports Kenya. Looking forward to increased membership and germplasm exchange.
6. Mexico added that COGENT makes more sense associated with ICC than before, it increases the power of the organisation. This will be extremely useful for what we are doing in terms of networking and fundraising. Important also for capacity building but this could now be extended globally through COGENT under ICC.
7. SPC referred to an imminent agreement with ICC. Some things are working well and others need to be improved.
8. PNG expressed satisfaction with the discussions. The new arrangement will make COGENT more meaningful for KIK. They also agree with Kenya, in incorporation of whole value chain, and highlight the need a new database under COGENT.
9. Fiji expressed support for discussions so far. COGENT under ICC is especially important for networking. The Coordinator commented currently COGENT has 39 members, but under ICC we are likely to have additional strategic countries.
10. India suggested we have had enough discussion, now we need action.

The Coordinator commented that currently COGENT has 39 members, but under ICC, COGENT likely to attract additional strategic countries.

#### *Comments on COGENT SC Role*

Policy and oversight are the COGENT SC's two key functions. The Chair requested clarity on SC membership criteria. Delegates were reminded the SC provides policies for COGENT member-countries, and direction needs to come from those who are elected. The SC rules and leadership on the COGENT website. There are 2 official representatives for each region (from 2014). Those rules have not strictly been followed as there have been emergencies, due to low attendance, so they widened invitations to reach 10 representatives. Sometimes they were not representative of the rules. However, there are rules and COGENT aims to observe the rules and revise if not needed. Members should not be substituted and need to be elected, complying with the structure, of two representatives from each region, totalling 10. Perhaps sub-committees could meet in an emergency. COGENT needs to generate reliable funding to support its meetings. Even under the proposed new arrangements we need to consider meetings. Meetings every 2 years are not appropriate for disease and pest outbreaks. It was emphasised that COGENT already have a system for remote voting and rules for this on the COGENT website and in the strategy. The Coordinator will circulate this information. The Chair suggested introducing chair's induction process to make them aware of responsibilities, perhaps also for other SC members and country representatives. There needs to be a stronger link between the some (PNG) governments and COGENT.

The Coordinator suggested that COGENT needs to draft MoUs, and offered to draft these with support with from the current SC chair and another member, with a draft to be ready by end of October. Low responsiveness has been an issue, so respondents need to respond promptly if asked to contribute. ICC will take part in a genebank audit. There was concern that the audit may take too long and it may slow down the COGENT transfer process. ICG audits can be done in a short period of time if there is money to send experts. The Coordinator will approach the CropTrust and ACIAR to support this activity. One of the challenges will be to rapidly mobilise funds, so donors must understand the urgency, and a worst-case scenario could be one person per genebank. Dr Biddle suggested that people may have visited that genebanks and would be able to provide reports on experts that have visited recently which could be used in conjunction or in the place of the audit reports if finances are unavailable. Genebanks leaders, except Brazil whom the Coordinator will contact, agreed to send a list of recent genebank leaders to COGENT.

All donors (e.g. GCDT) are encouraged to participate in the SC as observers, but not as decision makers. As host, ICC should nominate a representative to attend the meeting, although not in a decision-making position. Perhaps ICC should advise the SC rather than just attending. ICC and COGENT have specific and discrete functions, which should not be mixed as focus would be lost. However clarity is needed about the function of both organisations. The COGENT co-ordinator must follow the SC. The role is a service role for COGENT. It is important to get country MoUs in place.

## Conclusions and Recommendations/ Next Steps

The meeting addressed COGENT's key funding and technical issues, considering strategies to ensure efficiencies and effectiveness. Delegates highlighted the need for accessing quality planting material, harnessing new genetics and tissue culture (TC) technologies and dynamizing the coconut value chain.

### Strategy Implementation

In launching its new *Global Strategy for the Conservation and Use of Coconut Genetic Resources*, delegates highlighted the key challenges of better managing: i) biotic threats, especially phytoplasmas; ii) germplasm information; iii) senile and tall accessions, iv) boosting genebank capacities especially for hand-controlled pollination to facilitate regeneration, and v) strengthening COGENT's communication facilities

Strategy implementation will be structured according to a separate published workplan and budget (see annex x), via reformed ITAGs, that will avoid duplications and omissions. For implementation, COGENT will develop prioritised, winning proposals with clearly targeted beneficiaries, some of which will address poverty reduction, and most of which will translate research results into industry outcomes, linking coconut genetic resources conservation to their use.

### Funding

COGENT recommends that ITAG, COGENT Secretariat and ICC representatives support a skilled Coordinator to develop:

- a **fundraising strategy** that will co-ordinate funding bids including lobbying the CropTrust to support an endowment fund for the ICGs. This will include targeting specific funding sources, (e.g. IFAD for nutrition and livelihoods, as well as the TRUST, TREATY and ACIAR), and including public-private partnerships (e.g. with Vitacoco, Coca-Cola, Syngenta), that link with processors and corporate social responsibility programmes. It will also include encourage the genebanks to generate revenues (e.g. seednut production, hybrid production linking to processing etc- there is a section in the strategy on this). ITAG leaders will be required to use a 2-page research idea template to ensure alignment with the Strategy.
- specific, ITAG-linked prioritised, **winning proposals** with clearly targeted beneficiaries, some of which will address poverty reduction, and most of which will translate research results into industry outcomes, including commercialising technologies.
- The ICC budget to support the Secretariat will be finalised after the September meeting

## International Coconut Genebanks

It seems that none of the ICGs is comprehensively operating to required minimum standards. ICG needs articulated in the meeting are summarised in table 3 below:

### Coconut Genebank Audits

A set of rapid audits will be designed and implemented, initially for the **ICGs**. This will uncover the specific areas of need. A small task force will draft and finalise the ToR and an audit template, which may be piloted in ICG-AIO, Côte d' Ivoire. The design will be informed by existing documents and representatives from the CropTrust, TREATY and others. The audit team will be selected through COGENT, and using due process, although the expert auditors have already been mostly identified. A worst-case scenario could be one auditor per genebank. People who have visited Genebanks could be encouraged to provide reports which could be used in conjunction or in the place of the audit reports if finances are unavailable. Genebanks leaders, except Brazil whom the Coordinator will contact, agreed to send a list of recent genebank leaders to COGENT.

Table 3: ICG needs articulated in meeting

Need	Brazil	Côte d' Ivoire	India	Indonesia	PNG
	LAC	AIO	SAME	SEA	SP
mitigating threats from key pests and/or diseases (mostly phytoplasmas), including more effective diagnoses					
enrich accessions and technology for germplasm exchange.					
increasing the amount and frequency of germplasm sharing;					
creating or upgrading capacities for					
data management (CGRD),					
tissue culture,					
cryopreservation					
controlled hand pollination,					
accessions duplication					
disaster early warning system					
funding for ICG improvements.					
improve irrigation facilities to manage increased frequency of dry years,					
manage high levels of senility					
address coconut crown lethal atrophy					
develop quarantine infrastructure					
transfer its accessions to another site to avoid urbanisation pressures and LYD (evaluation mission underway);					
land-use conversion,					
more government support, including policy to protect accessions					
seed gardens for hybrid production					
MoA genebank signatories' support when ICG under threat					

### Reviving COGENT's ITAGs

COGENT ITAGs have mostly not been functioning well, if at all, so COGENT needs to re-structure them and change their leadership. The ITAG development process should include: formulating clear objectives; ii) establishing one-to-one correspondence between an individual ITAG objective and a project; iii) finalising leader and member selection (after checking CVs); iv) formulating next steps; and v) finalising ITAGs ToRs

and regeneration to build a solid foundation for Strategy implementation. A first step would be to review any list of suggested projects, decide project priorities, and then define objectives of the ITAGs.

Farmers could play a role in some ITAGs, in farmer participatory research (especially in the In vitro ITAG). The ITAGs need to convene and discuss their scope and requirements, and develop proposals then submit them to the SC for review. The nature and frequency of ITAG meetings should be agreed, as well as how members may engage.

Any ITAG revisions (including teams and leaders) and nature (adding ITAGs if a new thematic area is deemed appropriate), will be agreed by due process. Suggested ad-interim revisions are summarised in Table 2 and annex 6.

### COGENT's Secretariat and new hosting arrangements

The ToR for the Secretariat need to be finalised and endorsed by the COGENT SC. The Secretariat should consist of a Co-ordinator, Assistant, Database Manager (part time?) in Indonesia and a staff member in SPC, and perhaps also links to Latin America and Africa. Key roles of the co-ordinator include improving COGENT visibility and communication. The Coordinator urgently needs to be appointed ideally in January 2019 under the ICC. The Coordinator's post will be advertised straight after ICC's September budget announcement, in a transparent recruitment process. MoUs remain useful basis for collaboration and some need to be re-negotiated, others drafted for the first time. Bioversity could retain a link to COGENT to maintain a continuing relationship for continuing projects. The Coordinator will solicit feedback from Bioversity, who should review the draft MoU provided by APCC in 2014. COGENT should widen its interactions across the whole CGIAR.

The CGRD needs to be migrated, and coconut genetic resources data management should be professionalized to ensure effectiveness and appropriate focus. Any new database(s) should only be open source, and database entries needs to be dated.

### Some extra comments on COGENT's responsibilities

Although COGENT's mission links to the Strategy Implementation and global genetic resources conservation and use, this meeting highlighted some additional recommendation for COGENT to :

1. generate reliable funding to support its meetings and other functions.
2. develop an induction process for incumbent Chairs and other SC members and country representatives.
3. forge stronger links with the some member-country governments, particularly those hosting (international) genebanks.
4. provide draft MoUs, and ensure country MoUs are in place
5. foster prompt responsiveness from its stakeholders.
6. clarify its functions distinct from ICC

### Actions for the Interim Coordinator

During the course of the meeting, the discussions highlighted a number of actions specific to the interim Coordinator:

1. review the draft Strategy implementation workplan and allocate which ITAG will be responsible, for endorsement by the SC and ITAG leaders when in place.
2. circulate the full details of the 18<sup>th</sup> SC meeting recommendations for clarification (see also annex 7).
3. assert his/her proposal development role and liaise actively with the ITAG leaders to ensure maximum proposal participation.

4. liaise with the ICC (Dr Batugal and Dr Salum) to determine what is needed during transition.
5. lead funding bids to support the ICG audits, including approaching the CropTrust and ACIAR
6. elicit COGENT stakeholder responses on i) accessing mapping populations for (gen)omics work, ii) safe germplasm exchange (zygotic embryos) and iii) GR database management (Secretariat service).
7. contact nominated interim ITAG (co-)leaders by Mid October.
8. determine if coconut has a place in the future in the Bioversity-CIAT Alliance, or elsewhere in the CGIAR.
9. circulate a reminder of COGENT's remote voting process.
10. Finalise a draft MoU with support with from the current SC chair and another member, by end of October.
11. Participate in ICG audits

# APPENDICES

19<sup>th</sup> COGENT SC meeting report: Bangkok, August 2018

Appendix 1.1: Delegates attending

Delegate Name	Post	Institute	Address	Country	Phone	Fax	Email	status		
1 Dr	Aku	Alan	Indusrty Affairs mNager	Kokonas Industries Koporesen (KIK)	P.O. Box 81, Boroko, National Capital District	Papua New Guinea		<a href="mailto:aakuan@gmail.com">aakuan@gmail.com</a> ; <a href="mailto:aaku@kik.com.pg">aaku@kik.com.pg</a>	COGENT	
2 Dr	Alouw	Jelfina	Head of the Collaboration and Utilization of Research Results	Indonesian Center for Estate Crops Research and Development (ICECRD)	Jalan Tentara Pelajar No. 1, Bogor,	Indonesia	(62-251)8313083; Mobile(62)82194247398	<a href="mailto:jelfine_alouw@yahoo.com">jelfine_alouw@yahoo.com</a> ; <a href="mailto:jelfinaalouw07@gmail.com">jelfinaalouw07@gmail.com</a>	Participant	
3 Mr	Biai	Christopher John	Principal Assistant Director	Industrial Crops Section, Paddy, Industrial Crops and Floriculture Division	Level 12, Block 4G2, Wisma Tani, No. 30, Persiaran Perdana, Precinct 4, 62624 Putrajaya	Malaysia	(603)88703214	(603)88889295	<a href="mailto:christopherjb@doa.gov.my">christopherjb@doa.gov.my</a>	COGENT
4 Dr	Biddle	Julianne	School of Agriculture and Food Sciences (SAFS)	Centre for Plant Science, Queensland Alliance for Agriculture and Food Innovation, The University of Queensland	St. Lucia 4072, Brisbane,	Australia	(61-7)33652072	(61-7)33651177	<a href="mailto:julianne.biddle@uq.edu.au">julianne.biddle@uq.edu.au</a>	Participant
5 Prof	Botella	Jimmy	Professor of Plant Biotechnology	School of Agriculture and Food Sciences, The University of Queensland	Faculty of Science, St. Lucia 4072, Brisbane,	Australia	+61 7 336 51128		<a href="mailto:j.botella@uq.edu.au">j.botella@uq.edu.au</a>	Participant
6 Dr	Bourdeix	Roland	Researcher, Umr AGAP	CIRAD	Montpellier.	France	(33-6)14859758	(33-4)67527539	<a href="mailto:roland.bourdeix@cirad.fr">roland.bourdeix@cirad.fr</a>	COGENT
7 Dr	Chowdappa	P	Director	ICAR-Central Plantation Crops Research Institute	Kasaragod-671124, Kerala	India	(91-4994)232333/(91)9916355932; Mobile(91)9446535932	(91-4994)232322	<a href="mailto:directorpcpri@gmail.com">directorpcpri@gmail.com</a> ; <a href="mailto:director.cpcpri@icar.gov.in">director.cpcpri@icar.gov.in</a> ; <a href="mailto:palleem22@gmail.com">palleem22@gmail.com</a>	COGENT
8 Ms	Darakorn	Powchoo	Agricultural Research officer (Practical level)	Chumphon Horticultural Research Center		Thailand				Observer
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11 Mr	Johnson	Vincent	Interim COGENT Coordinator	Bioversity Intenational	Parc Scientifique Agropolis II, 34397, Montpellier	France	(33-499619816); Mobile(33-6)15660756		<a href="mailto:v.johnson@cgiar.org">v.johnson@cgiar.org</a>	COGENT
12 Dr	Kaiulo	James	Managing Director	Kokonas Industries Koporesen (KIK)	P.O. Box 81, Boroko, National Capital District	Papua New Guinea	(675)3213311; 3211513	(675)3214527	<a href="mailto:jkaiulo@kik.com.pg">jkaiulo@kik.com.pg</a> ; <a href="mailto:jvkaiulo777@gmail.com">jvkaiulo777@gmail.com</a>	COGENT
13 Dr	Konan Konan	Jean Louis	Director Research & Scientific Coordinator	Centre National de Recherche Agronomique (CNRA)	08 BP 33, Abidjan 081	Côte D' Ivoire	(225)22489624		<a href="mailto:konankonanjeanlouis@gmail.com">konankonanjeanlouis@gmail.com</a> ; <a href="mailto:konankonanjeanlouis@yahoo.fr">konankonanjeanlouis@yahoo.fr</a>	COGENT
14 Ms	Kottekate	Mridula	Assistant Director	Asian & Pacific Coconut Community	9 <sup>th</sup> Fl. BAPEPEBTI Building, Jl. Kramat Raya No. 172, Kenari, Senen, Jakarta 10430,	Indonesia	(62-21)3100556;31005567	(62-21)3101007	<a href="http://apcc@indo.net.id">apcc@indo.net.id</a>	Observer
15 Mr	Krirkchai	Dhanarak	Director of Chumphon Horticultural Research Center	Chumphon Horticultural Research Center		Thailand				Participant
16 Ms	Lawan	Chanamporn	Agricultural Research officer (Professional level)	Horticultural Research Institute		Thailand				Observer
17 Dr	Le Cong	Nong	Director	Research Institute for Oil and Oil Plants	171-175 Ham Nghi Street, 1 District, HoChiMinh City	Vietnam	(84-28)38297336	(84-28)38243528	<a href="mailto:lecongong@ioop.org.vn">lecongong@ioop.org.vn</a>	COGENT
18 Dr	Lusike	Wasilwa	Director	Crop Sytems, KALRO Seceratriat	POBOX 57811-00200, Nairobi	Kenya	00 254 726-551-561561		<a href="mailto:lwasilwa@gmail.com">lwasilwa@gmail.com</a>	COGENT
19 Mrs	Mapusua	Karen	Operation Manager Land Resources Division and Team Leader, Coconut Industry Development for the Pacific (CIDP) Programme	Pacific Community (SPC)	SPC – Private Mail Bag, Suva,	Fiji	(679)3335516; Mobile(679)7642885	(679)3370021	<a href="mailto:karenm@spc.int">karenm@spc.int</a>	Participant
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21 Mr	Mohan. N.U.	Raam	CEO	Umapathy coconut Hybridiation Centre	4/22, Nasuvanpalyan, Venkitapuram, Palladam, Tirupur, Tamil Nadu, 641644	India	(91) 9715370707		<a href="mailto:Raammohan91@gmail.com">Raammohan91@gmail.com</a>	Observer
22 Dr	Moropeza Salin	Carlos	Researcher	Centre de Investigacion Cientifica de Yucatan	Calle 47 No. 264, Merida, Yucatan,	Mexico	(52-999)9428330		<a href="mailto:cos@cicy.mx">cos@cicy.mx</a> ; <a href="mailto:coscicy@gmail.com">coscicy@gmail.com</a>	COGENT

19<sup>th</sup> COGENT SC meeting report: Bangkok, August 2018

Delegate Name	Post	Institute	Address	Country	Phone	Fax	Email	status	
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29 Ms Parnhathai	Nopchinwong	Agricultural Research officer (Professional level)	Chumphon Horticultural Research Center		Thailand				Observer
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36 Mr Siwares	Arikij	Lecturer Technical assistant	Kasetsart University, Kampaengsaen campus		Thailand				Observer
37 Mr Somasundaram	OVR	Proprietor, farmer	OVR Farms	Odayiakulam, Polliachi-642129, Tamil Nadu	India	91 4523 281199, 91 98422 06515		<a href="mailto:ovrsomu@gmail.com">ovrsomu@gmail.com</a>	Observer
38 Ms Supapon	Chumphong	Agricultural Research officer (Professional level)	Chumphon Horticultural Research Center		Thailand				Observer
39 Mrs Supaporn	Sachati	Agricultural Research officer (Professional level)	Horticultural Research Institute		Thailand				Participant
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42 Mr Tilafono Hunter	David	Chief Executive Officer	Ministry of Agriculture & Fisheries	P.O.Box No 1874, Apia,	Samoa	(685)22561to564	(685)24576;21865	<a href="mailto:tilafono@maf.gov.ws">tilafono@maf.gov.ws</a>	COGENT
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46 Mrs Wilaiwan	Twishri	Agricultural Research officer (Senior Professional level)	Uthaitani Research and Development Agricultural Center		Thailand	00 66950377090		<a href="mailto:wtwishri@gmail.com">wtwishri@gmail.com</a>	COGENT
47 Ms Yokthip	Sudaree	Agricultural Research officer (Practical level)	Chumphon Horticultural Research Center		Thailand				Participant

## Annex 1.2: Delegates balance statistics

Delegates	No	%
Total	47	100
Female	20	42.6
Male	27	57.4
COGENT	24	51.1
Other Participants	11	23.4
Observers	12	25.5
Public	24	88.9
Private	3	11.1
Organisations	26	n/a
Countries	16	41.0

## Annex 2: Meeting agenda

### DAY 1 SAT 25 AUGUST

Time	Session	Chair/ facilitator	Presenter/ Discussion leader	approach
8h00-08h30	Registration	APCC person		
08h30–09h15	1-Welcome speech by COGENT SC Chairman	Lalith Perera (on behalf of J Kaiulo)	Mr. Alan Aku, On behalf of the current COGENT SC Chairman Mr. James Kaiulo	speech
	2-Welcome speech by Executive Director of APCC, The future host of COGENT		Mr. Uron N Salum	speech
	3-Speech by host country representative, On behalf of Thailand Government		Dr. Supattra Lertwatanakiat	speech
	4- Introduction 19th COGENT SC meeting & Outline of the 2 days SC meeting by the Interim COGENT Coordinator on behalf of COGENT and interim host, Bioversity International		Mr. Vincent Jonson	speech
	Introduction of COGENT delegates (if needed)/ observers		Self-introduction (1 min per person)	Verbal
09h15-09h30	Summary of the <b>18<sup>th</sup> SC meeting</b> and the COGENT activities since then		V Johnson	Presentati on
09h30 - 10h10	<b>Global Strategy</b> presentation	V. Johnson	R Bourdeix/ A Prades	Presentati on
10h010 – 10h30	<b>Genebank Audit</b> preparations/ protocol		Pons Patugal	presentati on
10h30-10h45: COFFEE/ GROUP PHOTO				
10h45-12h30	<b>Update on 5 ICGs</b> status and needs, preparing for ICG audits (linked to pilot survey) reviewing article 15 obligations	Alexia Prades	M. Fernandes, Semiramis Ramos LAC (Brazil), (remotely?) JL Konan Konan, AIO (Côte d'Ivoire) Dr Chowdappa (on behalf of Dr Niral) (India) Ismail Maskromo / Dr. Jelfina C. Alouw/ Hengky Novarianto, on behalf of Dr Bambang Prastowo SEA (Indonesia) Eremus Tade/ James Kaiulo, SP (PNG)	Presentati on each 10 min + open discussions 10 min each
12h30 – 13h30: LUNCH				

Time	Session	Chair/ facilitator	Presenter/ Discussion leader	approach
13h30 - 14h15	Re-visiting the (6) <b>International Thematic Action Groups (ITAGs)</b> to guide implementing the Global Strategy- (Previous and new composition + ToRs) and discussions for the group's composition	Pons Batugal	V. Johnson (TOR, existing lists)	Plenary discussion
14h15- 15h00	1 <a href="#">Coconut genomics</a>		Roland Bourdeix	Breakout groups (volunteers to lead)
	2 <a href="#">Ex situ Coconut conservation and related methodologies</a>		JL Konan Konan	
	3 <a href="#">Coconut breeding</a>		Lalith Perera	
	4 <a href="#">Coconut In vitro culture</a>		Julianne Biddle/ Quang Nguyen/ C Oropesa	
	5 <a href="#">Phytopathology and coconut germplasm movements</a>		Dr P. Chowdappa/ Prof Jimmy Botella/	
6 <a href="#">Ethnobiology and socioeconomics</a>	R Bourdeix			
15h- 17h30 (with coffee-break)	Further developing <b>roadmap</b> for implementing the Strategy for next decade, including monitoring its implementation	V Johnson	P Batugal	Short presentation/ discussion

**DAY 2 SUN 26 AUGUST**

Time	Session	Chair/ facilitator	Presenter/ Discussion leader	approach
09h00-09h30	Funding for implementing the Strategy and supporting the COGENT Secretariat	Uron Salum	Pons Batugal/ V Johnson/COGENT members	Brainstorming/ sharing needs and experience (include consideration for member-country donors)
09h30-10h30	Outline for moving forwards with hosting COGENT secretariat within APCC, to embrace all regions- structure of new arrangement; discussing ToRs of coordinator/ assistant coordinator/ technical officer; assistant; role of tech committee?	J Kaiulo	Uron Salum/ V. Johnson/Pons Batugal	presentation/discussion
10h30 - 10h45:	COFFEE			

Time	Session	Chair/ facilitator	Presenter/ Discussion leader	approach
10h45 - 11h30	Other operational issues	Pons Batugal	Uron Salum	Quick round the room
11h30-12h30	Summary recommendations/ action points for <ul style="list-style-type: none"> <li>• implementing 18<sup>th</sup> SC recommendations, ITAGs reforms,</li> <li>• Strategy Implementation</li> <li>• Genebank Audits, supporting genbanks</li> </ul>	V Johnson	Pons Batugal	General discussion
12h30 -13h00	AOB, wrap up	V Johnson	Uron Salum/ V. Johnson	Discussions
13h00-14h00:	LUNCH & depart (except for those who will stay to discuss burning issues )			
14h - 16h	Any remaining delegates			Discussions
16h00	Final departures			

## Annex 3: Draft Genebanks Audit ToR

### Revision proposal by R. Bourdeix/ V Johnson (1<sup>st</sup> draft Supplied by Pons Batugal and James Kaiulo)

#### Introduction

From 31<sup>st</sup> October to 4<sup>th</sup> November 2017, the International Coconut Genetic Resources Network (COGENT) organized its 18th Steering Committee Meeting and workshop hosted by the Pacific Community, in Nadi, Fiji. The Steering Committee and representatives from various stakeholders of the global coconut sector attending the meeting endorsed the recommendation concerning the international coconut genebanks (ICGs) audits (summarized below). COGENT members and observers subsequently met in a 2-day meeting in Bangkok, Thailand, after the APCC 48<sup>th</sup> COCOTECH meeting in August 2018, at which they also discussed the ICG recommendation.

Considering:

1. that a new Global Strategy for the effective conservation and better use of coconut genetic resources (the Strategy) has just been released,
2. the need to implement the Strategy at the global level over the next 10 years,
3. the need to share good or best practices for benchmarking the need to develop effective genebank management guidelines and standards, and
4. the need to ensure effective and meaningful levels of germplasm exchange.

COGENT recommended:

1. Elaborating the Terms of Reference for a genebanks audit,
2. Establishing an audit team composed of external conservation and breeding experts, and
3. The audit team implementing a comprehensive audit of international and targeted national genebanks, within the first two years from signing the COGENT Secretariat hosting agreement.

#### Definitions

It is important to define the term “AUDIT” within the context of the proposed audits of the five International Coconut Genebanks (ICGs).

Audit here means an independent assurance activity designed with an objective to add value and improve the working and operations of a particular ICG. It is introduced to improve the control and governance processes in an ICG and also to check the efficiency of risk management. These audits aim to assess the efficiency and effectiveness of the ICGs’ operation as a whole, the status of conservation for the supported collections, and the status of the ICGs within the context of the host institution as well as global system for the conservation and use of the coconut accessions concerned.

#### Objectives of ICG Audits

The specific objectives of the proposed audits of ICGs are to:

- Assess the effectiveness and efficiency of the management, operating procedures, and activities of each of the ICGs.
- Assess the roles, services and use of the ICGs, and the linkages with users and other partners.

- Assess the ICG capacities, in terms of human, financial, physical and technical knowledge/skills resources
- Review the status of the ICGs with respect to performance targets for conserving and sharing coconut germplasm and the feasibility of proposed work plans to reach targets.
- Consider the status of individual collections maintained by the ICGs in the context of a global system for long-term conservation and use of the selected coconut accessions in question.
- Provide actionable recommendations and pathways for the strengthening of the ICGs operations within their host Government framework and their linkages to COGENT member countries based on perceived country needs.
- Review the status of and update agreements within the multilateral system (MLS) of germplasm exchange, between the host government, the International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the COGENT Secretariat hosting body.

The audits will be facilitated by a Bioversity member of staff, who will provide background information, coordinate the development of the agenda, manage any user or partner survey, and coordinate the execution of the review on site. The Bioversity member of staff will facilitate will participate in all review sessions unless requested not to, assist in any aspects of the review, and the completion of the final report. However, the Bioversity member of staff will not take part directly in the formulation of the review report and recommendations.

The International Coconut Genebanks are as follows: (1) ICG-India, (2) ICG-Indonesia, (3) ICG-PNG, (4) ICG-Ivory Coast (Côte d'Ivoire), and (5) ICG-Brazil.

### **Audit Team**

Due to COGENT resource constraints, the Audit Team will consist of two persons. Bioversity International will appointment one of their staff to be a member of the Audit Team while COGENT scientists will be approached to participate in the audits. The possible composition of the Audit Teams for the ICGs are as outlined below:

1. Bioversity International
2. COGENT scientist for each of the ICGs
  - a. ICG-India - Dr Lalith Perera
  - b. ICG-Indonesia- Dr Lalith Perera
  - c. ICG-PNG - Dr Roland Bourdeix
  - d. ICG-Cote d' Ivoire - Dr Roland Bourdeix
  - e. ICG-Brazil - Dr Carlos Oropeza

### **Audit Budget**

Funds to support the audits will be provided as follows:

The Bioversity Staff member will have access to support from a dedicated contract for around 20% of his/her time. A small travel budget has also been provided

### **Conducting of ICG Audits**

The ICG Audits will be undertaken in 3 stages

### Stage 1: General background and literature review

The Audit Team will be provided with the following documents:

- Long-term grant agreement(s)
- Annual technical reports and workplans
- Self-assessment of past and current performance of ICGs
- Manuals, website and related materials of ICGs
- Any relevant strategic planning documents for ICGs
- Relevant past reviews of ICGs
- The past 5-year budget or expenditures of ICGs
- Any other materials needed by the audit team as background

All Audit Team member(s) and the ICG Curators will be involved in the development of the agenda for the site visit. This is an important process during which specific issues and questions are identified for review and relevant stakeholders and users within and outside of PNG are identified for consultation.

At least one interaction will take place in advance of the site visit, between the Audit Team member and Bioversity International staff, by email or conference call.

### **Stage 2: Site visit**

The Audit Team members will conduct site visits of the ICGs following the agreed agenda. The site visits will involve interactions between the Audit Team members and relevant senior officers, researchers and breeders, as well as the technical field staff. The Audit Team member(s) will determine the scale of these interactions in the development of the agenda.

Given that discussions during the audit will be usually intensive, Audit Team members may wish to review together the findings at the end of each day. There may also be a need to adjust the agenda in order to pursue certain issues in greater detail. The draft recommendations will be presented to government agencies responsible for the ICGs on the last day of the site visit.

### **Stage 3: Completing the report and presenting the recommendations**

The Audit Team will produce a report of no less than 5,000 words in which actionable recommendations are clearly stated and justified. The report should be submitted to the COGENT Coordinator for initial review to ensure that the recommendations are clear and actionable.

The Bioversity International will solicit a response from the five ICGs, and also provide its own response to the recommendations. In the event of a lack of endorsement by a particular ICG or the Bioversity International to a recommendation, further discussions may be undertaken between the Bioversity International, Audit Team members and the senior officers responsible for ICGs.

The Bioversity International will review the completed ICG Audit Reports. The reports will also be made available on the Crop Trust website, circulated to other Crop Trust long-term grant recipients, such as the CGIAR genebank managers, and presented at the next Annual Genebanks Meeting.

### Terms of Reference of the Audit Team Members

The following are proposed TOR for the Audit of the International and Selected Coconut Genebanks to assess the:

- (1) Legal status of the arrangements between COGENT and the hosting country Governments in hosting the International Coconut Genebanks (ICGs).
- (2) Legal status of the land occupied by the ICGs.
- (3) Land tenure and similar problems presently encountered by the ICGs, and contact and position of the key persons who could play a role in mitigating these problems at national level.
- (4) Other biotic and abiotic threats to the collection, including management issues and palm senility
- (5) Political and economic threats
- (6) Type of varieties, populations and accessions conserved in each International Coconut Genebanks (ICGs), with special emphasis on the accessions considered as active at the international level (see annex). The number of true-to-type living palms, date of planting and date of last inventory for all accessions will be updated in the Coconut Genetic Resources Database (CGRD) by curators with help of experts. Curators should indicate if all available active accessions are recorded in CGRD or if only part of them are. A map or a table indicating the location of accessions in the genebank should be provided, updated and improved with the experts (see annex for details).
- (7) Level of maintenance and wellbeing of each of accessions in each of the ICGs.
- (8) Evidence of plans for additional collections and prospecting to be conducted and the funding sources for the planned collection activities for expanding the ICGs.
- (9) Regeneration plans for the continuity of the accessions in each ICGs.
- (10) Current status of the research activities being conducted on the existing accessions and future R&D plans in relation to:
  - (a) characterisation of the accessions;
  - (b) evaluation of the yield of nuts per palm per annum, characters for high value coconut products (HVCPs) and of pests (diseases and insects) tolerance characters;
  - (c) establishment of database for the management of the information collected from the accessions in terms of:
    - (i) geotagging of palms for each accession;
    - (ii) data collection and recording protocols; and

- (iii) statistical analysis of the data collected.
- (11) Records of the number of accessions that have been requested for sharing by other COGENT member countries.
- (12) Number of accessions that have been shared with other COGENT member countries.
- (13) Involvement of the genebank site in research and conservation of other crops than the coconut palm (this increases the patrimonial value of the sites)
- (14) Evidence of long-term financial sustainability plans for each ICGs in terms of:
  - (a) Production and marketing of HVCPs; and
  - (b) Any other revenue generation activities or sources.

**Dr James V Kaiulo**  
Chairman,  
COGENT Steering Committee

## Genebank ToR Annexes

### Annex 3.1 – International nomenclature for Coconut genebanks

Each accession planted in a COGENT ex situ genebank has to be registered under at least a cultivar name and an abbreviation. National researchers were advised not to create a new cultivar name for each sample they collected in farmers' fields. For that purpose, the notion of population within a cultivar was introduced in the nomenclature as follows: "**Populations** could denote minor geographical and/or phenotypic differentiation within a cultivar". This helped limit the unwanted proliferation of cultivar names, which could lead to unnecessary and costly conservation of the same germplasm accessions under different cultivar names.

Following definitions are extracted from the glossary of the 2018 Global strategy and/or the COGENT website:

**Accession:** a collection of plant material from a particular location, received by a genebank to ensure sustainable conservation of a single specific cultivar, landrace or population.

**Variety:** a distinct, often intentionally bred subset of a species that will behave uniformly and predictably when grown in an environment to which it is adapted. Widest sense includes cultivar, ecotype, landrace, etc.

**Cultivar:** cultivated variety.

**Landrace:** traditional palms specifically adapted to the environmental conditions from their region.

**Genebank:** type of biorepository which preserves genetic material. In the case of coconut palm, all are presently field genebanks conserving accessions of living coconut palms.

**Ex situ:** when a species is conserved outside of its usual location, such as in field genebanks as living trees or in *in vitro* collections of tissues and embryos.

**In situ:** when a species is located/conserved in its usual situation, -in farmers' fields or in protected areas.

**Genotype:** the hereditary constitution of an individual.

**Inbreeding:** producing offspring by self-fertilization or by crossing of parents that are very close genetically. Opposite: outbreeding.

**In vitro:** when a species is located/conserved in a glass receptacle such as test-tubes, as a part of *ex situ* conservation.

**Phenotype:** appearance of an organism with respect to a particular character or group of characters (physical, biochemical or physiological), as a result of the interaction of its genotype and its environment.

**Progeny:** the subsequent generation following a mating or crossing of parents.

**Selfing:** Self-pollination and fertilization of an organism, is possible for coconut palms because inflorescences have both female and male flowers.

**Allogamous:** naturally fertilized by pollen from another individual. Most of Tall-type coconut cultivars are preferentially but not exclusively allogamous. Opposite: autogamous

**Autogamous:** reproducing naturally by self-fertilization. Many Dwarf-type coconut cultivars are preferentially but not exclusively autogamous. Opposite: allogamous.

**Cryoconservation:** frozen in liquid nitrogen for purpose of conservation (at -196°C).

### Annex 3.2 – Introducing the concept of “accession active at international level”

The accessions considered as active at the international level are the unique accessions that represent a variety or a population in an ICG. Excepting when rejuvenated accessions are young, only one accession per variety/population should be considered as active.

This includes the following criteria:

- a. A rejuvenated accession that has been reproduced by using an appropriate method and with a sufficient number of palms
- b. A parental accession taken only during the time when rejuvenated accessions are not yet producing. When rejuvenated accession start to bear, the parental accession should be removed from the list of active accessions.
- c. A few populations with a more limited number of palms (below the standard 45/90 palms) can be considered as active, if their genetic interest is well documented.

Some examples below illustrates the active accession concept, that must take into account the history of rejuvenation programmes.

- In Indonesia, 8 accessions of the same variety “Salak Green Dwarf” are planted in the ICG (see annex 4). The curator will have to designate the unique accession of Salak Green Dwarf to be considered as active at the international level.

- In India, it seems that only 2 palms of a variety called “Philippines Ordinary Tall» were introduced in 1939. From these two palms 81 were rejuvenated in 1956, and the second rejuvenation gave 88 palms planted in Kidu in 1998. Considering this accession as ‘active’ is questionable because: 1) all candidates come from only 2 palms, a very limited genepool 2) the controlled pollination technique used in India during the 1950s was flawed. A possibility for improving this accession could be to import pollen from the Philippines for the next rejuvenation.

IND	CPCRI Kasaragod Kerala	IND014	Philippines Ordinary Tall	PHOT	1939	2
IND	CPCRI Kasaragod Kerala	IND014 R1	Philippines Ordinary Tall	PHOT	1956	81
IND	CPCRI Kidu Res. Centre	IND014 R2	Philippines Ordinary Tall	PHOT	01061998	88

### Annex 3.3– Updating inventories and maps.

The date of inventory is a crucial data. If only a number of living and true to type palm is available without any date of inventory, experts and CGRD users will not know how many palms are really remaining in the fields. For instance, in the CGRD database, some accessions were counted 20 years ago, so we do not have any evidence that they still alive.

Providing a map is also crucial. We recently has the example of the Yandina Research Station in the Solomon Islands. Most of the palms of the genebank and breeding programme remains alive, but the map is lost and there is no way to locate and recover the varieties and advanced high yielding progenies. We estimate the cost of missing this map at more than one million dollars at the whole country level.

**Annex 3.4. List of accessions, date of acquisition and date of inventories from the 5 IGGs as available in CGRD, 2018.**

By alphabetic ranking of countries (Brazil, Côte d'Ivoire, India, Indonesia, Papua New Guinea) (This is an example-Full table in complete ToR Prepared by R. Bourdeix, September 2018. The last column still needs to be completed).

Country	Site	Accession No.	Cultivar name	Population name	Abbrev'n	Acquis. date	# living palms	Date last inventory	Active or not ?
BRA	Campo Exper. de Betume	BRA AVJ	Brazilian Green Dwarf		BGD	1982	0		

**Annex 3. 5 References**

Bourdeix, R., Baudouin, L. & Santos, G. A. (2018). 2.1.3 International Coconut nomenclature - Chapter 2. Where we are today. In R. Bourdeix & A. Prades (Eds.), A Global Strategy for the Conservation and Use of Coconut Genetic Resources 2018-2028. (pp. 39-40). Montpellier, France. Bioversity International.

Konan, J.L. (Ed.) (2018). 2.2 Methodologies for conserving coconut genetic resources - Chapter 2. Where we are today. In R. Bourdeix & A. Prades (Eds.), A Global Strategy for the Conservation and Use of Coconut Genetic Resources 2018-2028. (pp. 40-53). Montpellier, France. Bioversity International.

Konan, J.L., Rivera, R.I. & Bourdeix, R. (2018). 2.2.1 Ex situ conservation methods - Chapter 2. Where we are today. In R. Bourdeix & A. Prades (Eds.), A Global Strategy for the Conservation and Use of Coconut Genetic Resources 2018-2028. (pp. 41-44). Montpellier, France. Bioversity International.

Konan, J.L., Sileye T., & Niral, V. (2018a). 3.2.2 Diversification of coconut genebanks - Chapter 3. Where we need to be to secure diversity and promote use. In R. Bourdeix & A. Prades (Eds.), A Global Strategy for the Conservation and Use of Coconut Genetic Resources 2018-2028. (pp. 122-123). Montpellier, France. Bioversity International.

Perera, L., Konan, J.L. & Tulalo, M. (2018). 3.3.1 Business plans for genebanks - Chapter 3. Where we need to be to secure diversity and promote use. In R. Bourdeix & A. Prades (Eds.), A Global Strategy for the Conservation and Use of Coconut Genetic Resources 2018-2028. (pp. 130-132). Montpellier, France. Bioversity International.

## Annex 4: Original terms of reference for ITAGs



### Role of the International Thematic Action Groups (ITAG)

ITAGs are not decision-making bodies. Their objectives are to:

- gather the best specialists in order to strengthen communications between researchers working in different countries but in the same thematic field
- provide useful recommendations to the COGENT SC, (the decision-making body, and to the COGENT secretariat
- to provide new research ideas
- to help to protect the specific research interests of COGENT member countries.

The ITAGs are created by following 3 successive phases: 1) designation of a leader; 2) extension to 5 members; 3) extension up to 12 official members plus up to 10 students as “junior” members. The process will be the following:

- The ITAG leader will be designated by a consensus or a voting process (during SC meeting or at distance) according to the proposals of country members.
- The ITAG leader will designate 4 researchers all belonging to institutions and countries from the COGENT network.
- Then the team of 5 researchers will start to designate new ITAG members by consensus or voting process. The maximum size of the ITAGs will be 20 researchers, as acting members, and 10 junior non-voting members (students). As soon a researcher is involved as acting member, he can participate to the selection of next ITAG members.
- Researchers from countries which are not members of COGENT countries are welcome in ITAGs, as far their number does not overcome half of the number of researchers from COGENT member-countries.

The initial mandate of the ITAG leader will be for 2 years. Then the ITAG will have to choose his leader by a consensus or voting process. The ITAGs leaders and members should preferably not be members of the SC, but other researchers from the same countries. The ITAGs will be renewed each 2 years on proposals of the ITAGs Leaders or on proposal of the COGENT secretariat after consultation with the ITAG members. Within the ITAG, most of recommendations will be produced by consensus, or as in cases not achieved by voting, at the request of the ITAG leader or of the COGENT secretariat. If the official ITAG leaders are not carrying out their roles, the COGENT secretariat will have the right to request the ITAG to shift the leadership to another researcher from the ITAG by using a vote process. A small annual fee will be allocated to each thematic group leader for communication purposes from COGENT’s budget.

Annex 5.1: Draft framework for Strategy Implementation  
(after Pons Batugal)

<b>Activity</b>	<b>Project/ Program title</b>	<b>Interested participant</b>	<b>Funding Source</b>
<b>1. Collecting</b>			
<b>2. Conservation</b> a) Ex-situ b) In situ			
<b>3. Characterization</b> a) Morphological b) Molecular			
<b>4. Database</b> a) Development b) Maintenance c) Sharing			
<b>5. Promoting exchange</b>			
<b>6. Promoting use</b> a) Breeding b) Training			
<b>7. Conducting research</b> a) etc			
<b>8. Advancing knowledge</b> a) Sequencing genome b) Marker assisted breeding c) DNA analysis			
<b>9. Participation in ITAGs</b> d) Genomics e) Conservation f) -Ex-situ g) - In-situ h) In vitro i) Coconut breeding j) Phytopathology k) Ethnobiology and socioeconomics l) Farmer Participatory Research			
<b>10. Fund generation</b>			

## Annex 5.2: Draft framework for Strategy Implementation from Global Strategy

**Annex of Chapter 4 « our plans »**  
**Table of actions to be undertaken**  
**according to recommendations of the Global Strategy**  
COGENT Secretariat, R. Bourdeix, 7<sup>st</sup> December 2013

*(CONFIDENTIAL- very very draft version, just to start thinking  
with COGENT representatives and contributors of the strategy)*

**Note: it is proposed to the international system to devote a yearly endowment fund of \$US 500,000 to global coconut conservation. This fund is included in the column “recurrent Indicative budget”. Many projects, the budget of which also appears in “one time executive budget” could also be developed using this yearly endowment fund, depending on its amount.**

<b>Colours codes</b>	
Feasibility studies	Geographical Information Systems
Field studies and plantings in ex situ genebanks (with part of breeding trials in farmer’s fields)	Germplasm Information system
Laboratory studies	Genomics
Socio-economic and ethno-biology studies	
Communication actions	
Other	

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
3.1.3	1	Equipment and training for video making in COGENT genebanks	15 genebanks, a video camera and a microphone in each, and short training on video making for a curator or a communication officer.	2015-2016	52	0	1
3.1.3	2	Video making at COGENT Secretariat	See proposed list of videos in section 3.1.3 – Will try to make Media channels cover part of this budget.	2014-2018	30	0	2
3.1.3	1	Communication assistant for COGENT	Cost will depend on the location of the COGENT Secretariat, from 20 to 50 KUSD per year.	Recurrent	0	50	3
3.1.3	1	Develop a communication strategy for encouraging local stakeholders to be more involved in supplying quality germplasm.	Posters and videos, in link with section 3.7.2	2016-2018	10	0	4
3.1.3	2	Socioeconomic study how to integrate coconut conservation in landscaping of public places and tourism locations	10 countries, 10 internships	2015-2020	100	0	6
3.1.3.	2	Socioeconomic study on branding coconut products by varieties	3 countries, 3 products, 3 studies with internships	2017, 2019, 2021	15	0	5
3.2.3	1	Report on implementation of the Strategy	Once every year, always before COGENT SC meetings, on leadership of COGENT Secretariat.	Recurrent	0	3	7
3.2.3	1	Updating the Strategy	Once every 2 years, before COGENT SC meeting, on leadership of COGENT Chairman, 4 \$KUS each time.	2016, 2018, 2020,2022,2023	0	2	8

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
3.2.3	1	Face to face COGENT SC meeting	One every 2 years, piggy-backing with APCC meeting, 26 K\$US/meeting	2014, 2016, 2018, 2020, 2022,2023	0	15	9
3.2.3	1	Face to face meeting of one of the seven COGENT ITAGs per year	Choice of the ITAG will be done by COGENT during SC meetings.	2015-2023	0	25	10
3.2.3	1	Feasibility study on creating additional International genebanks in SAM and SEA regions	Visit 4 countries	2015	10	0	11
3.2.3	1	Feasibility study on creating another field International genebank in LAC and PAC region.	Visit 6 countries	2015	15	0	12
3.2.3	1	Feasibility study of creating an International field coconut genebank in AIO region	2 Visits in Madagascar	2015	10	0	13
3.2.3	2	Creating an additional International field genebanks in SAM and SEA regions	Convert two national genebanks into international genebanks	2015-2017	200	0	14
3.2.3	2	Creating an additional International field genebanks in LAC and PAC regions	Pacific Region: convert one or two national genebanks into international genebanks LAC Region: create a new International genebank	2016-2018	300	0	15
3.2.3	2	Creating an additional International field genebanks in AIO regions	Create a new international genebank, putatively in Madagascar	2016-2018	200	0	16
3.2.4	2	Study on sharing international resources	Once every year, could be done by COGENT secretariat and submitted to the	Recurrent from 2015	0	3	17

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
		between genebanks (accession level sharing)	approval of COGENT SC and all COGENT representatives				
3.3.1	2	ISO certification of a laboratory for controlled pollination	1 country (India, Côte d'Ivoire, Philippines or Sri Lanka?)	2015-2018	100	0	19
3.3.1 3.4.2	1	Socioeconomic study and internships to enhance diversification and self-funding of genebanks and estimate cost of conservation	20 countries, MSc internship, 6 months at 1000 USD per month) 5 countries , Phd Internships (3 years at 1000 USD per month)	2014-2023	192	0	18
3.3.2	1	Study on climbing techniques for securing workers and extending the lifespan of accessions in the field.	20 countries. Selection of 2 climbing techniques adapted to making hand-controlled pollination, Video guidelines, and equipment for 3 climbers in each country.	2016-2019	150	0	20
3.3.2	1	Improvement of the controlled pollination technique	2 countries. Improvement of pollination bags and pollen processing.	2015	30	0	21
3.3.2	1	Capacity building for controlled pollination	20 countries. "Pollination kits" delivered to 20 countries including all the equipment necessary for making reliable controlled pollination	2015	500	0	22
3.3.2		Research to reduce the vertical growth of Tall types.	Vietnam. 1 PhD internship	2015-2018	36	0	23
3.3.3		Upgrade country capacity and resources in order to successfully implement the embryo transfer protocol	10 countries Countries must be able to receive embryos or plantlets in the tubes and to grow them successively in the fields.	2015-2017	100	0	24

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
3.3.3		250 international transfers of coconut cultivars and accessions	20 countries. Those who accept to place the received germplasm on public domain and which have consistent facilities for hand-controlled pollination programmes will be favoured.	2017-2023	250	0	25
3.3.4	1	Feasibility study on small cryoconservation units in national and international genebanks	20 countries Create small Cryopreservation facilities in each genebank or use the cryopreservation facilities already existing in the hosting country	2015	10	0	27
3.3.4	1	Research on pollen conditioning, packaging, conservation and cryopreservation.	Lyophilisator vs Cryopreservation; drying process using saline solutions, possibility of pollen to be sorted out several times from Cryo for international transfer.	2014-2015	5	0	26
3.3.4	2	Research on embryo conditioning, packaging, conservation and cryopreservation.	Vitrification, etc... How to transfer the method to small units managed by genebanks? Procedure to receive frozen embryos from genebanks.	2014-2016	50	0	26
3.3.4	1	Feasibility study on creating an international cryo-genebank for pollen and embryos.	Very probably from already existing facilities		5	30	28
3.3.4	1	Creation of an International cryo genebank for pollen	Very probably from already existing facilities		20	30	29
3.3.4	2	Creation of an International cryo genebank for embryos	Very probably from already existing facilities		20	30	30
3.3.4	2	Cryoconservation facilities for conserving pollen and embryos in countries hosting genebank	10 countries, 6000 \$US per country, for keeping embryos and pollen before transferring them to the Cryogenebank.	2015-2023	60	0	31

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
			Will use already existing facilities when available.				
3.3.4	2	Research on Cryoconservation of embryogenic calluses	3 countries, 10000 \$US per country	2015-2017	30	0	32
3.3.4 3.3.1	2	Study on planting design for accessions and of possible reduction of accession size linked to pollen cryopreservation.	2 countries, \$US3000 per country Pollen cryopreservation could offer the possibility of reducing by a third or half the size of accessions in the fields. It could be also interesting to consider conserving palms of different ages in the same "accession". This will need to re-visit the concept of what is an accession.	2015-2017	6	0	33
3.4.4	3	Study of coconut reproduction patterns, pollination distance and designs for genebanks and Polymotu	1 country	2016-2018	15	0	34
3.5 1.1.2	3	PhD internship on archaeological data regarding coconut palm	Enhance understanding of genetic diversity for optimizing collecting activities. One country, 36 months, 2000 USD per month	2015-2017	72	0	35
3.5 1.1.2	3	PhD internship on germplasm transfers conducted during the colonial period	Enhanced understanding of genetic diversity for optimizing collecting activities. One country, 36 months, 2000 usd per month	2017-2019	72	0	36
3.5.1	1	Studies on identifying coconut palms, cultivation systems and coconut	Global level. Better appraisal of the real coconut cultivation zone, and optimization of collecting missions in farmer's fields	2014-2016	10	0	37

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
		varieties by using satellite images and GIS systems.					
3.5.1	2	Studies on coconut palms in small house-gardens and cities by using satellite images and GIS systems.	3 Countries. Global estimation of the number of palms planted in garden and cities. Optimization of collecting missions, and revision of the number of coconut palms existing at global level.	2014-2016	6	0	38
3.5.1	2	Studies of zones where phytoplasma diseases are spreading by using satellite images and GIS systems.	5 Countries. Global estimation of the spreading of phytoplasma diseases, Optimization of collecting missions, and estimation of economic losses due to phytoplasma diseases.	2014-2016	15	0	39
3.5.1	1	Feasibility study and methodology for collecting pollen in farmer's fields	How to process the pollen during collecting mission?	2014-2018	3	0	40
3.5.1	2	Feasibility study on collecting on most isolated and endangered islands.	Find partners to collect other germplasm than coconut in the same collecting mission and reduce the cost for coconut research; make proposal for the islands to be collected in accordance with local policies; assess the possibility to ship a boat with small cryopreservation and lab facilities	2014-2018	7	0	41
3.5.1	1	Collecting compact Dwarfs and other special varieties	100 accessions introduced in genebanks with final average size of 40 palms (4000 palms planted, 30 \$US/palms; about 30 ha, 3 ha in 10 genebanks). Pollen collecting for cryo and direct use (50 g per accession, total 5 kg).	2014-2018	120	0	42

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
3.5.2	1	Collecting for pest and disease	100 accessions to collect and introduce locally in genebank with average size of 60 palms (6000 palms planted, 30 \$US per palm, about 50 ha, 5 ha in 10 genebanks). Pollen collecting for Cryo and direct use (50 g per accession, total 5 kg)	2014-2023	180	0	43
3.5.2	2	Collecting for filling geographical gaps	100 accessions to collect and introduce in genebank with average final size of 60 palms (6000 palms planted, 30 \$US per palm, about 50 ha, 5 ha in 10 genebanks). Pollen collecting for cryo and direct use.(50 g per accession, total 5 kg)	2016-2020	150	0	44
3.5.2	3	Collecting on most isolated and endangered islands	100-200 accessions to collect, of which: - 40 accessions introduced in genebanks with average final size of 60 palms per accession (2400 palm planted, 30 \$US per palm, <b>about 50 ha</b> , 5 ha in 10 genebanks) ; - The remaining to be conserved only under cryo with final average size of 400 embryos and 50 g of pollen per accession (Maximum total of	2020-2023	200	0	45
3.5.4 2.5.8	3	Study on role of the coconut palm to mitigate coastal erosion	2 countries. Also during surveys of Islands endangered by climate change- Try to link with other partners such as CGIAR	2016-20238	12	0	46
3.6.3	1	Feasibility study on creating quarantine centres for pest and disease indexing	Objective: 2-3 quarantine centre worldwide	2015	6	0	47
3.6.3	1	First quarantine centre for coconut pest and disease indexing	Probably using already existing facilities with additional equipment.	2016	50	30	48

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
3.6.3	1	Second quarantine centre for coconut pest and disease indexing	Probably using already existing facilities with additional equipment	2018	50	30	49
3.7.2	1	Study and Internships in ethnology to assess farmer's knowledge on coconut reproduction mode and coconut germplasm	20 countries, MsC internships (6 months at 1300 USD per month) 5 countries , Phd Internships (3 years at 1300 USD per month)	2014-2019	192	0	50
3.7.2	1	Study and Internships in ethnology to evaluate impact on previous study and communication strategy on farmer's knowledge on coconut reproduction mode and coconut germplasm	5 countries, MsC internship (6 months at 1300 USD per month)	2022-2023	0	0	51
3.7.3	2	Research on additional descriptors (morphology of flowers, roots, pollen, quality traits of kernel and water)	See research Idea : <a href="http://www.cogentnetwork.org/research-ideas/new-coconut-descriptors">http://www.cogentnetwork.org/research-ideas/new-coconut-descriptors</a> Plus quality traits off kernel and water	2015-2017	40	0	53
3.7.3	2	Revision of the coconut descriptor list	2 countries	2018	5	0	52
3.7.3	1	Evaluation of the manpower, equipment and costing the observation of standard descriptors	In Sri Lanka and Côte d'Ivoire	2014-2015	3	0	54
3.7.4	1	Establishing fields experiments on Dwarfisms inheritances	5 countries, 800 palms per country, (4000 palms planted, 30 \$US per palm) .	2016-2023	120	0	55

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
3.7.4	2	Establishing fields experiments of Dwarf x Dwarf complex hybrids for tolerance to LYD and productivity	10 countries, 800 palms per country (8000 palms, 20 \$US per palm because part from open or assisted pollination).	2015-2023	160	0	56
3.7.4	3	Drought resistance tests conducted in vitro and in the field	1 country, 400 palms, \$US30 per palm including lab studies	2017-2004	12	0	57
3.8.1	1	Efficient data duplication system in genebanks	Expertises and visits of genebanks	2016-2018	10	0	58
3.8.1	2	Develop the "COCObank" software	For managing palm by palm data and controlled pollinations in genebanks	2015-2016	25	0	59
3.8.1	3	Feasibility study - Assessment of the interest of GRIN-GLOBAL software for COGENT	Expertise and exchange with s and visits of genebanks	2014	2	0	60
3.8.1	3	Research and equipment for numbering and identifying the palms in the field, and gathering the data in the field.	2 countries. GIS localisation of the palms, electronic devices to identify palms and collect data, carving numbers of the stems...	2015-2016	5	0	61
3.8.2	1	Develop the "COCOgis" software in replacement of CGRD	For international visibility of coconut conservation and use	2015-2017	20	0	62
3.8.2	1	Global management of data in CGRD and COCOgis.	For international visibility of coconut conservation and use. Preferably located in a COGENT country	Recurrent	0	5	63
3.8.2	2	Link COCObank to COCOGIS software	For easier information access	2015	5	0	64

Section	Priority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
3.8.2	2	Training 20 curators to COCObank and COCOgis systems	Meeting of 6-7 curators and trainers in a genebank	2016-2018	20	0	65
3.8.3	2	Database on and for farmers	Section “Planting material for farmers” and link to websites of 10 institutions of COGENT member-countries.	2014-2018	10	0	66
3.9.1	1	high-quality whole genome sequence	Two Dwarf-type varieties (complete draft genome 50 x coverage). Transcriptome	2014-2018	750	0	67
3.9.1	2	Internships in genomics applied to breeding	5 PhD internships, 36 months, 1000 USD/months	2015-2023	180	0	68
3.9.1	3	Core set of genotypes to be planted by the breeders interested by developing a genomic approach	4 countries, 8 cultivars and 200 palms per country (800 palm planted, 30 \$US per palm, about 5.3 ha, 1.5 ha per genebank)	2015-2016	24	0	69
3.9.2	1	Field experiments for measuring associated trait data	3 countries. Planting of 3 experiments of 1000 palms each (3000 palms planted, 30 \$US per palm, about 21 ha, 7 ha per genebank).	2014-2016	90	0	70
3.9.2	3	Sample existing old genetic trials for future molecular analysis	3000 palms sampled for leaflets	2014,2016	6	0	71
3.9.2	3	Metagenomics analysis conducted on soils samples	100 soils samples in 10 COGENT genebanks	2015-2016?	10	0	72
3.9.3	1	Evolution of the molecular marker Kit and updating existing database	Change in DNA analyze technique, Analysis to be re-done on part of the database	2016-2018	30	0	73
3.9.3	2	DNA study of Sri Lankan accessions	900 analysis of 15 SRR markers (34 USD per palm)	2015-2016	31	0	74
3.9.3	2	DNA study of accessions of another genebank	900 analysis of 15 SRR markers	2016-2017	31	0	75

Section	Pri- ority	Project title	Project description	Time scale	One time indicative executive Budget	Recurrent Indicative budget KUSD	
3.9.3	1	Checking the reliability of the controlled pollination process	600 analysis in 3 genebanks	2015-2022	20	0	76
3.9.4	1	Developing DNA analysis from pollen	DNA extraction from pollen for SSR analysis	2014	3	0	77
3.9.4	2	DNA analysis in farmer's fields	1200 palms from 200 populations	2015-2023	41	0	78
3.10	2	Cogent Coordination	Full time	2015-2023	0	72	79
3.10	2	Scientific assistant for COGENT	Full time – will depends on the location of COGENT Secretariat	2015-2023	0	0	80
4.0	1	Contribution of the CGIAR system to global conservation of the coconut palm	The funding will be shared on an accession basis on the proposition of COGENT based on well-defined quality criteria, at the maximum rate of 300 USD per accession per year. During the first years, only some accessions will meet the criteria to be eligible to this funding. The remaining of this funding will be used for capacity building and implementing the projects listed in this table. It is expected that within the decade, the number of accessions reaching the quality standards and eligible to this fund will be at least tripled.	2015-2023	0	500	81
4.1		Total			5319	825	

**Message to COGENT representatives and ITAGs leaders.**

Object: end of the Coconut Strategy, large international projects and budgeting.

Dear COGENT representatives and ITAG leaders,

We are now beginning to see the end of the process of compiling the Global Strategy for conservation and use of coconut genetic resources.

You will find enclosed a very important table. This is still a very very draft and confidential version: it certainly remains some mistakes in calculations; some of the projects are probably strongly underestimated and a few overestimated. But, at this stage, this is not so important.

The COGENT secretariat thinks that it is better for COGENT representatives to see this table now, and start to think about it, and prepare suggestions to improve it; so when you will receive an improved version (probably in 7 to 15 days), you will be fully prepared to react and help COGENT secretariat to concretise your views and wishes.

Kind regards

Dr Roland Bourdeix

COGENT coordinator

## Annex 6: Draft first round ITAG revisions

ITAG name		Leader				Co-Leader		
Original title	Suggested new title	First name	Last name	Country	email	First name	Last name	Country
1. <i>Ex Situ</i> Conservation	no change	Semiramis	Ramos	Brazil	<a href="mailto:semiramis.ramos@embrapa.br">semiramis.ramos@embrapa.br</a>	Vitta	Niral	India
2. Genomics	no change	Yaodang	Yang	China	<a href="mailto:yangyd@tocri.com">yangyd@tocri.com</a>	Luc	Baudouin	France
3. Coconut Breeding	no change	Lalith	Perera	Sri Lanka	<a href="mailto:lalithperera1234@yahoo.com">lalithperera1234@yahoo.com</a>	Ramon	Rivera	Philippines
4. Phytopathology & Germplasm movement	no change	Pallem	Chowdappa	India	<a href="mailto:directorcpcri@gmail.com">directorcpcri@gmail.com</a> ; <a href="mailto:director.cpcric@icar.gov.in">director.cpcric@icar.gov.in</a> ; <a href="mailto:pallem22@gmail.com">pallem22@gmail.com</a>	Andrew	Ngereza	Tanzania
5. Ethnobiology & Socioeconomics	5. Farmer participatory Research & Socioeconomics/ Ethnobiology	Ismail	Maskromo	Indonesia	<a href="mailto:balitka05@yahoo.com">balitka05@yahoo.com</a> ; <a href="mailto:ismailmaskromo2010@gmail.com">ismailmaskromo2010@gmail.com</a>	Roland	Bourdeix	France
6. <i>In Vitro</i> Culture	6. In Vitro culture and cryo conservation	Carlos	Oropeza	Mexico	<a href="mailto:cos@cicy.mx">cos@cicy.mx</a> ; <a href="mailto:coscicy@gmail.com">coscicy@gmail.com</a>	Steve	Adkins	Australia
7. New group	7. Value chain development:	Lusike	Wasilwa	Kenya	<a href="mailto:lwasilwa@gmail.com">lwasilwa@gmail.com</a>	Alan	Aku	PNG



Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letters 2017 1 to 10

### **The International Coconut Genetic Resources Network**

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From 31<sup>st</sup> October to 4<sup>th</sup> November 2017, the International Coconut Genetic Resources Network (COGENT) organized its 18th Steering Committee Meeting and workshop hosted by the Pacific Community, in Nadi, Fiji. The Steering Committee and representatives from various stakeholders of the global coconut sector attending the meeting have endorsed the following listed international recommendations, which are thereafter featured as individual formal recommendations:

1. Interim coordination of COGENT
2. New Hosting arrangement for COGENT Secretariat
3. New COGENT Secretariat and Coordinator recruitment
4. Global Coconut GR Conservation and Use Strategy Implementation (plus annex 4.1)
5. Coconut Genebanks Audit
6. Securing Coconut Genebanks' land tenure for the long term
7. Managing Key Biotic stresses threatening coconut
8. Accessing Coconut Genomics Mapping Populations (in Côte d'Ivoire)
9. Safe coconut germplasm exchange- via *in vitro* zygotic embryos
10. Towards an upgraded Coconut Genetic Resources Database



Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letter n°2017-1

### Interim coordination of COGENT

#### The International Coconut Genetic Resources Network

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Considering:

- The possibility of a new Secretariat hosting arrangement being established
- The importance of the existing MoAs between Bioversity International (Bioversity hereafter), FAO (the Treaty) and the host governments of the 5 ICGs
- The importance safeguarding and preserving the data stored within the CGRD
- The importance of implementing the Global Strategy for the conservation and use of coconut genetic resources

COGENT recommends that, until a new hosting arrangement has been established:

1. Bioversity will consider continuing fulfilling its role for up to 12 months as interim COGENT Secretariat Host, until the new hosting arrangement under APCC is established and a new coordinator is appointed, provided that funding can be made available
2. A dedicated staff member from Bioversity continues to fulfil the role of interim coordinator
3. Financial partners (donors) provide Bioversity with funding to support an ongoing interim COGENT Coordination, in the absence of Bioversity having sufficient resources to fund such an interim hosting
4. In addition to point 3, Bioversity considering providing a proportion of in-kind hosting support
5. CIRAD will continue, and SPC and other regional organisations begin to provide technical assistance in accordance with any MoAs that are bilaterally signed.
6. Even when a new hosting arrangement is established, Bioversity will separately consider how to transfer its ICG obligations under the CBD and Treaty.





Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letter n°2017-2

### New Hosting arrangement for COGENT Secretariat

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Considering:

- Bioversity no longer has sufficient resources to continue hosting the COGENT Secretariat
- Recent CGIAR and Bioversity strategic realignments
- Bioversity does not possess the required core competences in coconut research

COGENT recommends that:

1. APCC provides hosting for the COGENT Secretariat, according to agreed contractual conditions in the attached annex
2. The new hosting arrangement embraces the global reach required to equitably embrace all five of the COGENT subnetworks
3. The ICGs' mandate will become the responsibility of the COGENT hosting organisation as soon as the transfer from Bioversity is complete
4. CIRAD will continue, and SPC and other regional organisations begin to provide technical assistance in accordance with any MoAs that are bilaterally signed.
5. Even when a new hosting arrangement is established, Bioversity will separately consider how to transfer its ICG obligations under the CBD and Treaty.



Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letter n°2017-3 New COGENT Secretariat and Coordinator recruitment

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Considering:

- that a new Global Strategy for the effective conservation and better use of coconut genetic resources (the Strategy) has just been released,
- the need to implement the Strategy at the global level over the next 10 years,
- the need to reinforce the capacity of the COGENT Secretariat to support the Network in implementing the Strategy
- that a new COGENT hosting arrangement has been identified and agreed upon by the proposed host and the COGENT SC

COGENT recommends that:

1. The new hosting arrangement for COGENT secretariat follows the agreed 2014 recommendation 1, regarding strengthening COGENT
2. The new Coordinator's position be recruited by an open advertisement, jointly drafted by the new Host and the COGENT chair, and hired within the Hosting arrangement by the COGENT Chair and a senior host representative.
3. The new Secretariat host involves the COGENT Steering Committee in the choice of the COGENT coordinator. The COGENT coordinator should be a senior researcher preferably working in the field of genetic resources conservation and breeding. The Coordinator should be appointed as a full time position, ideally should be supported by a full time assistant and a full time research officer
4. A fundraising strategy and process be developed by the Secretariat and the country-members, via a fundraising taskforce to increase capacity for securing funds from the CGIAR research programs (CRPs) through the new Host and from other donors, funding agencies and governments
5. COGENT promotes more collaboration between research institutes from member-countries
6. The new host representative and the Global Crop Diversity Trust to systematically participate in the crucial biennial SC Meeting
7. Annual work plan and budget with financial reporting be prepared during SC meetings



Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letter n°2017-4 Strategy Implementation

### The International Coconut Genetic Resources Network

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Considering:

- that a new Global Strategy for the effective conservation and better use of coconut genetic resources (the Strategy) has just been released
- the need to implement the Strategy at the global level over the next 10 years
- the need for resources to implement the Strategy

COGENT recommends:

1. revising the ITAGs' composition (teams and leaders) and nature (adding ITAGs if a new thematic area is deemed appropriate), and agreed by due process
2. A COGENT Strategy Implementation taskforce (SIT) is established, by remote voting, composed of the ITAG leaders, the COGENT Coordinator, Chair and Vice-chair, along with representatives of the ICGs and external observers
3. ITAG teams will develop appropriate sections of the strategy implementation timeline and budget for those activities relevant to their thematic area, and with reference to the work plan developed by Dr Bourdeix (see annex 4.1), and updating this in the process within the next 3-6 months after the ITAGs leaders have been appointed
4. A fundraising task force is established and proposals developed via the ITAG team task force (essentially ITAG team members and COGENT Secretariat)
5. Implementing the Strategy according to finalised timeline and budget (point 3 above) over the next 10 years and beyond
6. SIT managing the monitoring and evaluation of Strategy implementation, including mid-term review and 10- year evaluation with external evaluators

7. Planning for Strategy implementation beyond the 10-year time frame
8. In implementing the strategy, ITAG and their leaders will be interlinked where appropriate



Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letter n°2017-5

### Genebanks Audit

#### The International Coconut Genetic Resources Network

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Considering:

8. that a new Global Strategy for the effective conservation and better use of coconut genetic resources (the Strategy) has just been released,
9. the need to implement the Strategy at the global level over the next 10 years
10. the need to share good or best practices for benchmarking
11. the need to develop effective genebank management guidelines and standards
12. The need to ensure effective and meaningful levels of germplasm exchange

COGENT recommends:

9. Elaborating the Terms of Reference for a genebanks audit
10. Establishing an audit team composed of external conservation and breeding experts
11. The audit team implementing a comprehensive audit of international and targeted national genebanks, within the first two years from signing the COGENT Secretariat hosting agreement



Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letter n°2017-6 Securing Genebanks' land tenure for the long term

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Considering:

13. The increasing threats from urbanisation, industrialisation, changes in land-use, and land-grabbing
14. The need for coconut genetic resources to be conserved in perpetuity

COGENT recommends:

12. Reviewing the land-tenure status of all the existing coconut genebanks, and giving priority to the ICGs
13. That land ownership should remain in the hands of the genebank's host government, and is protected in law

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## Official Recommendation Letter n°2017-7 Biotic stress management

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Considering:

- That coconut germplasm and diversity is increasingly threatened by a range of biotic stresses, especially key pest and diseases, such as Rhinoceros beetle and phytoplasmas
- The increasing demand for coconut and the senility and declining productivity of coconut stands worldwide

COGENT recommends that:

15. Gene banks monitor their collections for pest and diseases
16. The Phytopathology ITAG develops an action plan for addressing the threats from phytoplasmas, Lethal Yellowing Disease (LYD) and other regionally important pathogens, including Coconut Rhinoceros Beetle (CRB), linked to coconut germplasm exchange and use



Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letter n°2017-8 Accessing Mapping Populations

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From 31<sup>st</sup> October to 4<sup>th</sup> November 2017, the International Coconut Genetic Resources Network (COGENT) organized its 18th Steering Committee Meeting and workshop hosted by the Pacific Community, in Nadi, Fiji. The Steering Committee and representatives from various stakeholders of the global coconut sector attending the meeting have endorsed the following international recommendation.

Considering that:

14. Many research teams from member-countries have shown interest in coconut genomics, ranging from coconut genome *de novo* sequencing and marker-assisted selection through to transcriptomics.
15. The progress in conventional breeding is hindered by the relatively low nut production and the long generation time in coconut.
16. Genomics studies will help to more effectively address crucial aspects of coconut breeding, such as disease resistance, genetic inheritance of the two kinds of dwarfism existing within the species, and the genetic components for high yielding varieties.

COGENT recommends:

1. Encouraging efforts in genomics research for the benefit of the whole coconut community
2. Delivering genomics tools and scientific advances as a public good to maximize the benefits for the coconut community
3. Considering as a main actor the COGENT international thematic group on coconut genomics. This group will develop a work plan gathering new initiatives in genome sequencing and the design of new coconut genomics tools
4. More collaborative projects between Côte d'Ivoire and other COGENT member countries are needed to make the best use of the mapping population



**The International  
Coconut Genetic  
Resources Network**

***COGENT's goal  
is to strengthen  
international  
collaboration  
in conservation  
and use of coconut  
genetic resources,  
to improve  
coconut production  
on a sustainable  
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and to enhance  
livelihoods  
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of coconut  
stakeholders  
in developing  
countries.***

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**Secretariat :**

[cogent.secretariat@cgiar.org](mailto:cogent.secretariat@cgiar.org)

**Postal address :**

Nadi, Fiji 2<sup>nd</sup> November 2017

**Official Recommendation Letter n°2017-9**

**Safe germplasm exchange- *in vitro* zygotic embryos**

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Considering:

- The relevance of germplasm exchange as one of the priorities of ICGs and the importance of this activity for research, increasing diversity and genetic improvement in the receiving countries
- The low success rate of exchanging germplasm as zygotic embryos experienced so far
- The increasing phytosanitary restrictions due to the pests and diseases that affect different countries in the world including where the ICGs are located

COGENT recommends:

1. Evaluating the exchange of germplasm from ICGs as plantlets (derived from *in vitro* zygotic embryo germination) in containers subject *in vitro* conditions throughout shipment and the corresponding survival of the plantlets during and beyond acclimatization in the receiving country.
2. To evaluate the possibility of cryopreservation of embryogenic callus as a basis for the establishment of an alternative of *in vitro*-cryo-ICG



Nadi, Fiji 2<sup>nd</sup> November 2017

## Official Recommendation Letter n°2017-10 Towards an upgraded Coconut Genetic Resources Database

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Considering that:

1. The present Coconut Genetic Resources Database (CGRD) software was created in 1992 and is becoming obsolete
2. Sharing Passport and Characterisation data between COGENT countries is the only way to have a global appraisal of the Status of *Ex situ* coconut conservation and make visible COGENT conservation efforts
3. The database is an important communication tool, which may help to develop large international project and obtain funding

COGENT recommends:

1. CGRD Software be upgraded and linked with national genebanks' and web-based databases
2. The communications ITAG develop proposals for a) upgrading software in point 1, and b) developing a farmers' planting material and variety database that has the potential to link to the upgraded CGRD
3. The international coconut descriptors to be revised
4. The wider use of the most modern survey and mapping tools to assist in the above initiatives

The COGENT Interim Coordinator, COGENT Chairman (2014-2017)  
Vincent Johnson Dr Lalith Perera,  
Bioversity International, France CRI, Sri Lanka

## Annex 8 draft COGENT research idea concept note

### A. Research idea summary

1. Title (<15 words)
2. Lead Institutes and Scientists involved
3. Approval (supervisor/COGENT SC)
4. ITAG link
5. Global Strategy component link
6. Donor /funding source
7. Donor call details (or if invited)
  - a. Title
  - b. deadline;
  - c. Duration
  - d. Total grant value (US\$) (>50K/yr)
8. Country(ies)/Region Focus

### B. Strategic Fit

1. Research questions or hypotheses (approximately 1 line each):
2. Short description of project (max. 1 paragraph)
3. Indicative outputs (materials/products/deliverables produced):
4. Indicative outcomes (behavioural)
5. Briefly outline how the project contributes to the Component listed in question A5 and how it builds on ongoing research:
6. Other issues to take into consideration: *(optional)*

### C. Estimated Funding Needs and Sources (best estimate)

1. Scientists involved days and funding source
2. Total estimated operational funds (USD):
3. Donor restrictions and financial requirements *(from RMU)*:
4. Funding requirements for (allocated across grant + co-funding)
5. Total budget (US\$)
6. Collaborators (US\$)
7. Overhead \_\_\_%
8. Operational costs not covered by this grant (i.e. travel, S&S, etc.)

### D. proposal progress workflow tracking / *approval*

## Annex 9 Draft terms of reference for COGENT Coordinator and other Secretariat members

Hosted by the APCC, COGENT will operate a small Secretariat for the overall coordination of COGENT activities, with the following responsibilities:

1. Monitor and oversee:
  - a. finalising COGENT's International Thematic Action Groups (ITAGs) (currently:
    - i. Ex situ Coconut conservation and related methodologies
    - ii. Coconut genomics
    - iii. Coconut breeding
    - iv. Phytopathology and coconut germplasm movements
    - v. Ethnobiology and socioeconomics
    - vi. Coconut In vitro culture
  - b. implementing *the Global Strategy for Conservation and Utilisation of Coconut Genetic Resources* (the Strategy), according to an established workplan
  - c. Implementing recommendations arising from COGENT SC meetings
  - d. Auditing of selected national and all 5 international coconut genebanks
  - e. Upgrading existing coconut genebanks partly as a result of genebank audits, or creating new genebanks
2. Provide support to ITAGs and Steering Committee (SC) to ensure that agreed workplans are carried out.
3. Review and maintain the coconut genetic resources database (CGRD), and prepare for and assist in its migration when appropriate
4. Upgrade/redevelop COGENT's internet workspace and email list server, including for each ITAG and a web site with link to different databases, and at least a quarterly news bulletin
5. Gather and distribute information and provide progress reports on a regular basis.
6. Initiate *ad hoc* activities in accordance with SC's guidance.
7. Organizing ITAG and SC meetings.
8. Be responsible for the financial management of COGENT.
9. Raise public awareness about COGENT, its goal and activities
10. Liaise with the international coconut community, including attending and holding international events that link to its genetic resources conservation mandate
11. Lobby for re-entry into the CGIAR system (CRP FTA, A4NH, CCAFS), so as to access Windows 1, 2 (and 3?) funding if possible.
12. Develop a fundraising strategy that includes:
  - a. supporting a small fund-raising task force,
  - b. coordinating funding bids through direct donor liaison and through collaborative bids in response to funding calls
  - c. lobbying with the Crop-Trust for an endowment fund to be established

Based in APCC, Jakarta, Indonesia, the Secretariat staff will include:

1. COGENT Coordinator
2. Assistant to the coordinator, website maintenance, administration, based in APCC, Jakarta, Indonesia
3. CGRD database manager maintenance

based in SPC, Suva, Fiji

4. COGENT Assistant (technical officer) Coordinator
5. The Secretariat will also develop strong Links to COGENT representation in Africa and Latin America to ensure equitable engagement and support across the network