

Country Report on the implementation of the
International Treaty on Plant Genetic
Resources for Food and Agriculture
(ITPGRFA)

PAPUA NEW GUINEA

08/02/2019

First Report on Compliance of ITPGRFA

Online Reporting System on Compliance of the International Treaty on Plant Genetic Resources for Food and Agriculture

Pursuant to Article 21 of the Treaty, the Governing Body approved, at its Fourth Session, the Compliance Procedures that include, among others, provisions on monitoring and reporting: Resolution 2/2011.

According to the Compliance Procedures, each Contracting Party is to submit to the Compliance Committee, through the Secretary, a report on the measures it has taken to implement its obligations under the Treaty. This Online Reporting Systems facilitates the submission of such information in electronic format.

Should you need any additional information regarding the reporting on compliance or the use of the online system, please visit the Treaty's Website or contact the Secretariat at PGRFA-Treaty@fao.org.

Additional Reporting Information

Name and contact of the reporting officer

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Institution(s) of affiliation

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Article 4: General Obligations

1. Are there any laws, regulations procedures or policies in place in your country that implement the Treaty?

Please select only one option

- Yes
 No

1A. If your answer is 'yes', please provide details of such laws, regulations, procedures or policies:
> n/a

2. Are there any other laws, regulations, procedures or policies in place in your country that apply to plant genetic resources?

Please select only one option

- Yes
 No

2A. If your answer is 'yes', please provide details of such laws, regulations, procedures or policies:
> There are no laws, regulations, procedures or policies specific to PGR in the country but included in broader laws and policies:

The policies are based on the country fourth goal the national constitution and its directive principles, which states "Papua New Guinea natural resources and environment should be conserved and used for collective benefit for all and should be replenished for future generations".

The PNG Protected area policy support the development of a National Protected Area System (NPAS) and guide the stakeholders involved in biodiversity conservation to harmonize their efforts in an effective manner to develop and manage the protected areas. This policy is supported by legislations such as the Fauna Protection and Control Act 1966 and the Conservation Areas Act 1980. Other relevant legislations are the Crocodile Trade Act 1982 and the International Trade Act 1982.

Conservation and sustainable use of biodiversity is also well captured in the PNG Vision 2050 as its fifth Pillar -Environment Sustainability and Climate Change. This pillar aim to enhance conservation of biodiversity from its current level to 7% of the world biodiversity; establish a total of 20 national reserves, wilderness areas and national parks; and establish at least one million hectares of marine protected areas.

The National Agricultural Research Institute as the mandated organisation in the country to manage most of the PGRFA in Annex 1 of the Treaty has developed a PGR Strategy for PNG (Kambuou RN (2005) Plant Genetic Resources Strategy for Papua New Guinea. PNG National Agricultural Research Institute, Lae, Papua New Guinea)

Also see the most recent report (only available as draft report to me) on State of Biodiversity for Food and Agriculture Report for PNG from July 2016 to FAO and the 2nd Report on Global State of PGRFA to the Commission on PGRFA of the FAO (2010) (should be on file with FAO). There have not been any changes in policy since.

Kokonas Industri Koporesen (KIK) has the mandate to manage coconut industry in the country as well as any Research, Development and Industry affairs of coconut. The strategic vision of the PNG Vision 2050 is the 'PNG will develop and grow the manufacturing services, agriculture, forestry, fisheries and eco-tourism from 2010 to 2050. Agriculture is featured in one of the seven pillars in the PNG Vision 2050 under 'Wealth Creation'. KIK has included in its strategic plan 'conservation and use of coconut genebank' as one of its major projects under the thematic program 'Productivity Improvement Program' so that it provides the source of quality planting materials with diverse genetic material to utilize as well as quality downstream products. In the long term this contributes to achieve PNG Vision 2050 for Papua New Guineans under 'Wealth Creation'.

You have attached the following documents to this answer.

[Draft Report PNG State of Biodiversity for FA.pdf](#) - Report by PNG to FAO Commission on Biodiversity for FA

3. Is there any law, regulation, procedure or policy in place in your country that needs to be adjusted / harmonized to ensure conformity with the obligations as provided in the Treaty?

Please select only one option

- Yes
 No

3A. If your answer is 'yes', please provide details of such adjustments and any plans to make those adjustments:

> PNG does not have at present a seed policy that would strengthen both formal as well as informal seed systems. There is also no policy in place that deals with Farmers rights in regards to the conservation and use of PGR.

Article 5: Conservation, Exploration, Collection, Characterisation, Evaluation and Documentation of Plant Genetic Resources for Food and Agriculture

4. Has an integrated approach to the exploration, conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA) been promoted in your country?

Please select only one option

Yes

No

5. Have PGRFA been surveyed and inventoried in your country?

Please select only one option

Yes

No

5A. If your answer is 'yes', please provide details of your findings, specifying species, sub-species and /or varieties, including those that are of potential use.

> There have been a number of explorations and surveys concerning the most important staple crops over the past 25-30 years:

Yam (*Dioscerea alata*, nummularia,

Taro (*Colocasia esculenta* var *esculenta*)

Sweetpotato (*Ipomea batatas*)

Cassava (*Manihot esculenta*)

Banana (*Musa* spp.)

Coconut (*Cocos nucifera*)

Details of the collecting mission can be found in the attached document

You have attached the following documents to this answer.

[Summary of collecting missions in PNG.docx](#) - Details on various PGRFA collecting missions

5B. If your answer is 'no', please indicate:

Any difficulties encountered in surveying or inventorying PGRFA;

Any action plans to survey and inventory PGRFA;

The most important PGRFA that should be surveyed and inventoried

> In general, in all surveys done for major staple crops remoter areas in the country that are difficult to access were not covered by those collecting missions. However, those areas would still harbour valuable PGR that has not been captured so far.

- High cost of travel and lack of funding prevents organisations involved with conservation and use of PGR to do follow up missions or to monitor trends in conservation of PGR.

- further missions depend on mobilization of resources

- Important PGRFA (as included in Annex 1 of the Treaty) that still needs to be surveyed and inventoried at all is Breadfruit (*Artocarpus* sp.)

6. Has any threat to PGRFA in your country been identified?

Please select only one option

yes

No

6A. If your answer is 'yes', please indicate:

The species, subspecies and/or varieties subject to such threats;

The sources (causes) of these threats;

Any steps taken to minimise or eliminate these threats;

Any difficulties encountered in implementing such steps;

> PGRFA in PNG is exposed to various threats that apply generally to the Biodiversity in the country. The last report of PNG to the CBD (5th report, 2017 attached) outlines that they are mostly related to anthropogenic activities of PNG's rapidly growing population. In relation to PGRFA, the main threats include:

- changes in land use in particular deforestation and forest from large-scale industrial logging, large-scale clearance for agricultural commodities, and small-scale clearance for gardens and subsistence agriculture (accounts for 45% of forest change): threats to diversity of Breadfruit (*Artocarpus* spp.), wild banana species, crop wild relatives (e.g. wild yam species) and others that are part of the natural forest flora;

- promotion of commercial agriculture: commercial pressures have impact on the diversity kept by rural

communities with trends of only maintaining 1-3 varieties that have commercial value; applies to all relevant PGRFA;

- mining and associated waste disposal: similar to the issues with deforestation, impact of mining activities PGRFA is affected with destruction and changed soil and water conditions. While not an Annex 1 crop, the large Ok Tedi mine had major impacts on natural Sago (*Metaxylon* spp.) stands along the Fly River including the genetic diversity
 - Climate change: agroecological conditions become unsuitable for many crop varieties and they disappear; planting materials from the mostly vegetatively propagated crops are lost during prolonged drought or from wild fires during more frequently occurring El Nino events.
 - Pest and Disease: incursions and emergence of new and previously minor pest and diseases. At present the Coconut collection is threatened by the emergence of a new phytoplasma disease. The same or a very similar phytoplasma is also affecting banana species and poses a potential threat to Banana diversity;
 - Bogia Coconut Syndrome (BCS), a phytoplasma disease, killing coconuts of different varieties including tall and some dwarfs. A real threat to the PGR for Coconut in the PNG and the Pacific (ICG-SP). Sanitation and creation of buffer zones as short term steps to minimize threats but relocation to new site/province is long term.
 - Coconut Rhinoceros Beetle (CRB), a coconut pest, that kills coconuts and is a threat to the coconut PGR in Madang. Sanitation as well as introduction of virus.
 - The difficulties in implementing to minimise threat is lack of financial capacities and inconsistencies as well.
- Mitigation of Threats:

In absence of an integrated National policy and strategy on PGRFA with assured long-term funding, measures taken to mitigate threats to PGRFA are only localised and sporadic depending on short term initiatives and project funding.

Earlier regional initiatives for banana, yam and taro established core collections and/or backed up important PGRFA in regional and international genebanks while NARI and the Kokonas Industry Korporesen maintain ex-situ collections. In response to the threat from the emerging phytoplasma the relocation of the coconut collection has been initiated into a disease free area in PNG as well as the duplication of the collection in two other countries in the Pacific (Samoa and Fiji).

A number of project that NARI is implementing are targeted towards encouraging communities and showing them the value of maintaining a range of crop varieties in their gardens.

7. Has the collection of PGRFA and relevant associated information on those plant genetic resources that are under threat or are of potential use been promoted in your country?

Please select only one option

- Yes
 No

7A. If your answer is 'yes', please provide details of the measures taken:

> n/a

8. Have farmers and local communities' efforts to manage and conserve PGRFA on-farm been promoted or supported in your country?

Please select only one option

- Yes
 No

8A. If your answer is 'yes', please provide details of the measures taken:

> Only very few studies have tried to promote the concept of in-situ conservation of PGR FA. NARI has implemented some projects that encourage and promote the diversification of the farming system with wider range of food crops as well as a wider range of crop varieties per crop so households have suitable crops and crop varieties for changing weather and climate conditions.

9. Has in situ conservation of wild crop relatives and wild plants for food production been promoted in your country?

Please select only one option

- Yes
 No

9A. If your answer is 'yes', please indicate whether any measures have been taken to:

- Promote in situ conservation in protected areas
 Support the efforts of indigenous and local communities

9B. If such measures have been taken, please provide details of the measures taken:

> Some minor efforts have been made especially in regards to the conservation of wild banana species but efforts were very localized and few.

10. Are there any ex situ collections of PGRFA in your country?

Please select only one option

- Yes
 No

10 A. If your answer is 'yes', please provide information on the holder and content of such collections:

> PNG National Agricultural Research Institute

Taro (*Colocasia esculenta*): 330 accessions (National collection located at the Momase Regional Centre (MRC) at Bubia, Morobe Province)

Yam (*Dioscorea* spp.): 72 accessions (National collection located at the Southern Regional Centre (SRC) Laloki, Central Province)

Cassava (*Manihot esculenta*): 113 accessions (National Lowlands collection located at the SRC Laloki); 34 accession (Highland Drought collection located at the Highlands Regional Centre (HRC) at Aiyura, Eastern Highlands Province)

Banana (*Musa* spp.): 241 accessions – National Collection located at the SRC Laloki

Sweetpotato (*Ipomea batatas*): 716 accessions (National Highlands Collection located at the HRC at Aiyura, Eastern Highlands Province); 33 accessions (National Lowlands collection located at the Islands Regional Centre at Keravat, East New Britain Province); 108 accessions (Working collection located at the MRC at Bubia, Morobe Province)

Kokonas Industri Koporesen (KIK):

Coconut (*Cocos nucifera*): 55 accessions (41 tall, 14 dwarf) located at present at the Kokonas Industri Korporesen Research Station at Murunas, Madang Province

KIK of Papua New Guinea, formerly PNG Cocoa Coconut Institute has an ex situ Coconut collections based in Madang Province of Papua New Guinea. This ex situ collections forms the International Coconut Germplasm for the South Pacific Region (ICG-SP). In 1992 CGIAR (Consortium of International Research Centre) was created. CGIAR included coconut in its research portfolio and tasked International Plant Genetic Resources Institute (IPGRI) now Bioversity International to establish the Coconut Genetic Resources Network or COGENT. IPGRI or Bioversity International is the executing institution for COGENT and provides administration and technical support and advice. COGENT is comprised of 39 country members (coconut producing countries), 24 ex-situ genebanks, 5 International Coconut Genebanks (ICG), and 1527 accessions in CGRD database. The 5 International Coconut Genebanks are for the 5 different regions of the world including, South Asia in India, South East Asia in Indonesia, Latin America in Brazil, Africa in Cote d'Ivoire, and South Pacific regions in Papua New Guinea.

The International Coconut Genebank-South Pacific (ICG-SP) is comprised of 53 Talls and Dwarf accessions. 41 are tall accessions and 12 are dwarf accessions. The collections were mostly from 14 coastal provinces in Papua New Guinea as well as in other Pacific Island and South East Asian countries like Indonesia.

11. Has the development of an efficient and sustainable system of ex situ conservation of PGRFA been promoted in your country?

Please select only one option

- Yes
 No

11A. If your answer is 'yes', please indicate the measures taken to promote ex situ conservation, in particular any measures to promote the development and transfer of technologies for this purpose:

> The National Agricultural Research Institute as the mandated organisation to manage most of the PGRFA listed in the Annex 1 with relevance to PNG developed a PGR strategy for PNG in 2005 (Kambuou RN (2005) Plant Genetic Resources Strategy for Papua New Guinea. Technical Bulletin No. 5. PNG National Agricultural Research Institute, Lae, Papua New Guinea)

The Strategy covers most important area for the efficient and sustainable management of PGR (ex situ and in situ) including collection, conservation, utilization, documentation, policy and legislation, on-going capacity building etc. Implementation of the strategy was affected by inconsistency and lack of funding.

NARI was able to secure funding support from a grant of the EU-ACP Science & Technology Program (Capacity Development in conservation and utilization of invaluable PGR in Western Pacific Countries, FED/2009/218780) to conduct a series of learning activities on pre-breeding techniques and procedures, screening techniques for important traits and selection and utilization of PGR. Participants included also staff from the Ministry of Agriculture and Livestock Solomon Islands and the Vanuatu Agricultural and Technical Centre. The project was implemented from 2011- 2013.

PNG through NARI representation is a member of regional networks viz. Banana and Plantain Network for Asia and Pacific (BAPNET with the secretariat managed by Bioversity International) and Pacific Plant Genetic Resources Network (PAPGREN with the secretariat managed by the Land Resources Division of the Pacific Community in Fiji). Those networks promote the conservation, utilization and exchange of PGR in the region. PNG is a member of the International Coconut Genetic Resources Network (COGENT) and is represented by the Managing Director of KIK on its Steering Committee. PNG is the host of the International Coconut Genebank for South Pacific (ICG-SP), which is located at the KIK's Stewart Research Station, in the Madang Province. The major role of the the coconut genebank includes collection, conservation, characterization and

utilization of selected and desirable coconut germplasm for breeding purposes. It is a regional genebank and will eventually become a service centre to facilitate germplasm exchange and utilization amongst the COGENT network countries with priority given to the Pacific Island Countries.

Since its establishment in mid 1990s, successful germplasm exchanges have been carried out within the South Pacific Region (SPR) and between a member country (Sri Lanka) of South East Asia Region (SAR) while the exchange with other member countries within SAR and other genebanks is still to be done.

Since 1994, COGENT has been providing financial and technical support to build capacity at SRS. This is to fulfil its obligation as a host on behalf of the Government of PNG and also to support the National Coconut Breeding Program through exchange and utilization of selected accessions from other genebanks.

The Coconut Embryo Culture Unit (Laboratory) at Stewart Research Station in Madang is responsible for importation of the designated varieties and selected germplasm for conservation at the ICG-SP. However, more funds are required to upgrade the Coconut Embryo Culture Unit and collect accessions from member countries as well as other Pacific Island countries for conservation in the Genebank (ICG-SP).

12. Has the maintenance of the viability, degree of variation, and the genetic integrity of ex situ collections of PGRFA been monitoring in your country?

Please select only one option

yes

No

12A. If your answer is 'yes', please provide details of the main conclusions of these monitoring activities
> n/a

13. Has your country cooperated with other Contracting Parties, through bilateral or regional channels, in the conservation, exploration, collection, characterization, evaluation or documentation of PGRFA?

Please select only one option

Yes

No

13A. If your answer is 'yes', please indicate the other Contracting Parties with whom the cooperation was undertaken (where additional to cooperation through the Governing Body or Treaty mechanisms) and, where possible, details of any relevant projects:

> PNG through NARI and KIK are mostly working with regional and international organisations in PGR conservation and utilization. Since accessions to the ITPGRFA the following activities were implemented:

Banana:

2015 Bioversity International/ITC and NARI – supply of seed of 3 wild banana species from the Autonomous Region of Bougainville (ARB) to the Banana International Transit Centre (ITC); SMTA signed

2016 Bioversity International/ITC and NARI – collection of wild and cultivated banana species from ARB and transfer of 63 accessions to ITC from the collecting mission and unique accessions from the PNG National Collection for purpose of conservation, exploration of options to conserve on-site and take samples for population genetic studies; SMTA signed

2017 Chiba University and NARI – Empirical Study of Diversity of Banana Varieties and Indigenous Farming Practices in Papua New Guinea; plant samples of 7 banana varieties collected for nutritional analysis; SMTA signed

2017 Bioversity International/ITC and NARI – collection of wild banana species from Morobe and Mandang and transfer of seeds of 21 accessions to ITC for conservation and population genetic studies of banana and to design more effective conservation strategies for wild banana species; SMTA signed

2018 Bioversity International/ITC and NARI – rapid assessment survey to establish diversity of Banana in two diversity hotspots (Madang and East New Britain Provinces)

2019 Bioversity/Meise Botanical Garden/KU Leuven and NARI – evaluation for drought tolerance in wild banana species (Crow Wild Relatives);

Other crops:

2011 – 2015 NARI participated in the project 'Adapting clonally propagated crops to climatic and economic changes'; receipt of 50 exotic taro accessions for participatory variety evaluation and increasing the genetic diversity of taro genetic resources in selected sites; 25 partner organisations in Central America, Europe, Africa, South-East Asia, Pacific; coordinated by SPC/CIRAD; (funded by EU);

2015 – 2017 NARI participated in the project 'Sunda or Sahu? The origin of the greater yam'; diversity studies of local yam (*Dioscera nummelaria*); coordinated by CIRAD (funding EU Agropolis Foundation)

2015 SPC/CePaCT and NARI – supply of 5 drought tolerant sweetpotato varieties from CePaCT climate ready collection; SMTA signed;

2015 Africa Rice and NARI – supply of 78 NERICA rice varieties from Africa Rice in support of climate change adaptation strategies; SMTA signed;

2015 CIMMYT and NARI – supply of 98 wheat varieties for diversification of Highland sweetpotato systems; SMTA signed;

2017 SPC/CePaCT and NARI – supply of 5 Banana, 2 Pineapple, 5 sweetpotato varieties through EUPAPP/FA

Treaty assistance; SMTA signed;

2019 World Vegetable Centre and NARI – supply of 500 seed kits in different combinations of 6 vegetable species (*Amaranthus tricolor*, *Vigna radiata*, *Abelmoschus esculentus*, *Basella alba*, *Corchorus olitorium*, *Ipomoea aquatica*)

Coconut:

2014 to 2019 (and beyond) – Bogia Coconut Syndrome (BCS) response to the threat posed by the BCS phytoplasma to the collection:

2014/2015 Government of PNG approves 2.5 million Kina (\$0.75 Million) to support the relocation of the International Coconut Genebank (ICG) to a new site in PNG (Puni-Puni, Milne Bay Province);

Crop Trust, Bioversity and Australian Centre for International Agricultural Research (ACIAR) fund a meeting to discuss the genebank

COGENT/CIRAD assisted with funds to do fingerprinting and selection of priority accessions among the ICG; 2014 – 2019 ACIAR funded project ‘Bogia coconut syndrome and related phytoplasma syndromes in Papua New Guinea: developing biological knowledge and a risk management strategy’;

2016 – 2019: Bioversity/COGENT/SPC and PNG/KIK (and Fiji and Samoa) implementation of the project ‘Upgrading and broadening the new South-Pacific International Coconut Genebank’ funded by the Darwin Initiative; includes support for the genebank relocation, duplication of the collection in Fiji and Samoa, collection and conservation of other unique coconut resources;

Article 6: Sustainable Use of Plant Genetic Resources for Food and Agriculture

14. Are there any policy and legal measures in place in your country that promote the sustainable use of PGRFA

Please select only one option

- Yes
 No

14A. If your answer is 'yes', please indicate whether such policy and legal measures include:

- Pursuing fair agricultural policies that promote the development and maintenance of diverse farming systems that enhance the sustainable use of agricultural biological diversity and other natural resources;
 Strengthening research that enhances and conserves biological diversity by maximizing intra- and inter-specific variation for the benefit of farmers;
 Promoting plant breeding efforts, with the participation of farmers, that strengthen the capacity to develop varieties particularly adapted to social, economic and ecological conditions, including in marginal areas;
 Broadening the genetic base of crops and increasing the range of genetic diversity available to farmers
 Promoting the expanded use of local and locally adapted crops, varieties and underutilised species
 Supporting the wider use of diversity of varieties and species in on-farm management, conservation and sustainable use of crops and creating strong links to plant breeding and agricultural development
 Reviewing and adjusting breeding strategies and regulations concerning variety release and seed distribution

14B. If such policy and legal measures are in place, please provide details of the measures taken and any difficulties encountered in implementing them:

> National level policies do not address any of the above measures specifically and are more directed towards biodiversity in general:

PNG Vision 2050 the countries long-term strategy aims for Conservation and use of the countries natural resources and environment for collective benefit and for future generation with "Professional competence and world standard research programs on environment and climate change" as a Key performance indicator.

StaRS - The National Strategy for Responsible and Sustainable Development emphasizes on the need for investment in shifting to a green economy. Conservation of forest and biodiversity, prevention of loss of biodiversity are important consideration.

The Medium-Term-Development-Plan III 2018-2022 has strategies identified to:

Promote PNG's environmental sustainability through improving biodiversity conservation for tourism purposes and protection of PNG's diverse flora and fauna and promote of sustainable uses of non-renewable natural assets in forestry, marine, minerals and bio-diversity.

The Strategy Results Framework 2011-2020 of the PNG National Agricultural Research Institute includes specific strategies for conservation and management of PGR. The use of PGRFA is promoted in strategies aimed at the improvement of important food crops, diversification of cropping systems with greater diversity of crops and crop varieties, broadening the genetic base of food crops.

In that context many projects have been and continue to be implemented to address those strategies. Some have been mentioned in the previous section of this report.

Article 7: National Commitments and international Cooperation

15. Has the conservation, exploration, collection, characterization, evaluation, documentation and sustainable use of PGRFA been integrated into your country's agriculture and rural development programmes and policies?

Please select only one option

- Yes
 No

15A. If your answer is 'yes', please provide details of the integration of such activities into the agriculture and rural development programmes and policies:

> n/a

16. Has your country cooperated with other Contracting Parties, through bilateral or regional channels, in the conservation and sustainable use of PGRFA?

Please select only one option

- yes
 No

16A. If your answer is 'yes', please indicate whether the aim of such cooperation is to:

- Strengthen the capability of developing countries and countries with economies in transition with respect to conservation and sustainable use of PGRFA
 Enhance international activities to promote conservation, evaluation, documentation, genetic enhancement, plant breeding, seed multiplication, and sharing, providing access to and exchanging PGRFA and appropriate information and technology, in conformity with the Multilateral System of Access and Benefit-Sharing under the Treaty

16B. If, in addition to cooperation through the Governing Body or other Treaty mechanisms, your country has cooperated with other Contracting Parties directly or through FAO and other relevant international organizations, please indicate such other Contracting Parties and, where possible, details of any relevant projects:

> In regards to the International Coconut Genebank for the South Pacific region in Papua New Guinea there were some Contracting Parties as partners during the germplasm establishment and development as well as Benefit Sharing. Hence, International collaboration on coconut research and development in Papua New Guinea is worth mentioning. Notable contributors are ACIAR, CIRAD, IPGRI (Bioversity International) and COGENT for financial and technical support. Other financial support is provided by EU, ADB, and AusAID. Cogent since its establishment in 1992, has been very active in the necessary technical and financial support. COGENT has been instrumental in centralizing coconut genebanks nationwide to facilitate respective breeding programs through exchange and utilization of already selected populations in each country including Papua New Guinea, who was nominated to be the centre for South Pacific Region.

The plan for PNG ex-situ collections by COGENT is to introduce a total of 200 different coconut varieties to make them available for the breeding program and also for exchange with the member countries in the region. For such exchange to eventuate, Coconut Embryo Culture facility was built to enable KIK (formerly PNGCCI) to introduce coconut via embryos in test tubes. Coconut Embryo Culture was an ACIAR funded Project that includes several Parties or Partners;

- University of Queensland - Australia
 Research Institute for Coconut and Other Palmae - Indonesia
 Phillippine Coconut Authority - Phillippines
 Oil Palm Institute - Vietnam
 PNG Cocoa Coconut Institute - Papua New Guinea

Duration of project: Three (3) Years

Starting Date: 01 July 2002

Completion Date: 30 July 2005

However, since 1980s, Bogia Coconut Syndrome (BCS) was killing coconut palms, and over a period of time, the disease has spread and has now become a threat to the International Coconut Genebank for South Pacific in Madang province. The government of Papua New Guinea is so concerned that BCS is no longer a national issue but an international one due to the need to better conserve the coconuts for the current and future wellbeing. Hence, in 2007, the Government of Papua New Guinea (PNG) signed a Memorandum of Agreement with FAO and Bioversity International as COGENT's host, placing the coconut genebank located in Madang Province under the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

Because of that MOA, in 2013 and 2015, the international Coconut Genetic Resources Network (COGENT), with funds from the CGIAR research program, Forests trees and Agroforests (CRP FTA), consider replacing with assigned expert from CIRAD, Dr. Michel Dollet to assess the sanitary status of the collection. The assessment identified that BCS is a real threat to the ICG-SP because it is only 15 km away from the ex-situ collections site. A workshop was then organised by the Global Crop Diversity Trust (GCDT) with the help of COGENT and SPC and supported by ACIAR where a certain number of experts from APCC, CIRAD, PCA, KIK and other

relevant institutions were invited. This workshop led to the writing of a work plan and proposal that was submitted to the PNG Government in 2015 and a first phase of the genebank relocation project was funded in 2016. The Genebank Relocation Project from Madang to Milne Bay Province is an important step forward to conserve the threatened International Coconut Genebank for South Pacific in Papua New Guinea. The current status of this project is still ongoing

Article 8: Technical Assistance

17. Has your country promoted the provision of technical assistance to developing countries and countries with economies in transition, with the objective of facilitating the implementation of the Treaty?

Please select only one option

- Yes
 No

17A. If your answer is 'yes', please provide details of the measures taken

> n/a

18. Has your country received technical assistance with the objective of facilitating the implementation of the Treaty?

Please select only one option

- Yes
 No

18 A. If your answer is 'yes', please provide details of such technical assistance:

> Technical assistance was received from the ITPGRFA secretariat and was not only for PNG but a learning event organised through SPC for the Pacific Member countries and other members of the PAPGREN. Representatives of the ITPGRFA secretariat made presentations on various aspects of the Treaty to participants and spent time on discussions, answering queries and provided information on the Treaty.

KIK:

Yes, after the Coconut Embryo culture facility was established as well as the International Coconut Genebank for South Pacific (ICG-SP), technical assistance was given in areas of staff short term training.

The main purpose of Coconut Germplasm Collection and Conservation ex-situ is to;

- Provide genetic diversity for breeding program
- Safe conservation of genetic resources from loss through natural and man-made causes and
- Carry out genetic diversity studies to facilitate better selection of parental materials for hybridization program.

Based on those objectives/purposes technical assistance was sought. Few of those technical assistance are as mentioned below;

Technical expertise from different ICG regions and PNG develop a manual on ' Technical guidelines for the safe movement and duplication of Coconut (Cocos nucifera L.) germplasm using embryo culture transfer protocols'. Bioversity International facilitated this and the technical expertise is contributed by many organisations, institutions and individuals. In PNG, the Coconut Embryo Tissue Culture Scientist who contributed was Mr. Alfred Kembu.

Technical assistance on data entry with Excel.

Technical assistance on characterisation database with CGRD (Coconut Genetic Resource Database program) by CIRAD (some trained staff had left the organisation only few left).

Article 9: Farmers' Rights

19. Subject to national law, as appropriate, have any measures been taken to protect and promote farmers' rights in your country?

Please select only one option

- Yes
- No

19 A. If your answer is 'yes', please indicate whether such measures were related to:

- Recognition of the enormous contribution that local and indigenous communities and farmers of all regions of the world have made and will continue to make for the conservation and development of plant genetic resources;
- The protection of traditional knowledge relevant to PGRFA
- The right to equitably participate in sharing benefit arising from the utilisation of PGRFA
- The right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of PGRFA
- Any rights that farmers have to save, use, exchange, and sell farm-saved seed/propagating material

19B. If such measures were taken, please provide details of the measures taken and any difficulties encountered in implementing them:

> n/a

Article 11: Coverage of the Multilateral System

20. Has your country included in the Multilateral System of Access and Benefit-Sharing (MLS) all PGRFA listed in Annex 1 to the Treaty that are under the management and control of your Government and in the public domain?

Please select only one option

- All
 Partially
 None

20A. If your answer is 'all', please provide details of any difficulties encountered in including Annex 1 PGRFA in the MLS:

> There are no particular difficulties encountered with the transfer of the PGRFA (Taro, yam, banana, sweetpotato, cassava, coconut). It would however be useful to have an effective and easily accessible system in place that allows better tracking of accessions transferred into the MLS. The development of the DOI system may help with this matter.

20B. If your answer is 'partially', please provide details of:

The extent to which Annex 1 PGRFA have been included in the MLS

The crops that have been included in the MLS; and

The difficulties encountered in including Annex 1 PGRFA in the MLS:

> n/a

20C. If your answer is 'none', please provide details of the difficulties encountered in including Annex 1 PGRFA in the MLS:

> n/a

21. Has your country taken measures to encourage natural and legal persons within your jurisdiction who hold Annex 1 PGRFA to include those resources in the MLS?

Please select only one option

- Yes
 No

21A. If your answer is 'yes', please provide details of:

The natural or legal persons within your jurisdiction that included Annex 1 PGRFA in the MLS;

The crops that have been included in the MLS by these persons; and

Any difficulties these persons encountered in including Annex 1 PGRFA in the MLS:

> n/a

21B. If your answer is 'no', please provide details, in particular details of any difficulties encountered in encouraging these persons to include Annex 1 PGRFA in the MLS:

> PGRFA in PNG belongs to families/clans/tribes and not to single individuals. So far NARI and KIK as the custodians the Annex 1 PGRFA have facilitated the access to the PGRFA and the transfer of the PGRFA into the MLS on behalf of the traditional owners of the resources. There is a need however, to strengthen the Farmer/traditional owner rights in the country through relevant laws or policies and strategies.

Article 12: Facilitated access to plant genetic resources for food and agriculture within the Multilateral System

22. Has your country taken measures to provide facilitated access to Annex 1 PGRFA, in accordance with the conditions set out in Article 12.4 of the Treaty?

Please select only one option

- Yes
 No

22A. If your answer is 'yes', please provide details of such measures:

> Access to Annex 1 PGRFA has been facilitated using Standard Material Transfer Agreements as required by the ITPGRFA

22B. If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex 1 PGRFA:

> n/a

23. Has facilitated access been provided in your country to Annex 1 PGRFA pursuant to the standard material transfer agreement (SMTA)?

Please select only one option

- Yes
 No

23A. If your answer is 'yes', please provide the number of SMTAs entered into:

> Since 2015 (year of accession to the Treaty) NARI issued 4 SMTAs for Banana Genetic Resources.

23B. If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex 1 PGRFA pursuant to the SMTA:

> n/a

24. Has the SMTA been used voluntarily in your country to provide access to non-Annex 1 PGRFA?

Please select only one option

- Yes
 No

24A. If your answer is 'yes', please indicate the number of such SMTAs entered into:

> PNG/NARI used SMTAs previously for granting access to *Abelmoschus manihot* (Aibika) (2 SMTAs) and *Amaranthus* spp. and Nightshade (*Solanum nigra*)

25. Does the legal system of your country provide an opportunity for parties to material transfer agreements (MTAs) to seek recourse in case of contractual disputes arising under such agreements?

Please select only one option

- Yes
 No

25A. If your answer is 'yes', please provide details of the relevant laws, regulations or procedures:

> n/a

26. Does the legal system of your country provide for the enforcement of arbitral decisions related to disputes arising under the SMTA?

Please select only one option

- Yes
 No

26A. If your answer is 'yes', please provide details of the relevant laws, regulations or procedures:

> n/a

27. Have there been any emergency disaster situations in respect of which your country has provided facilitated access to Annex 1 PGRFA for the purpose of contributing to the re-establishment of agricultural systems?

Please select only one option

- Yes

No

27A. If your answer is 'yes', please provide details of such emergency disaster situations and the Annex 1 PGRFA to which access was provided:

> n/a

Article 13: Benefit-sharing in the Multilateral System

28. Has your country made any information available regarding Annex I PGRFA?

- Yes
 No

28A. If your answer is 'yes', please provide details of any information made available regarding Annex 1 PGRFA (e.g. catalogues and inventories, information on technologies, results of scientific and socio-economic research, including characterisation, evaluation and utilisation):

> The following is a selection of scientific papers and technical reports and other information that provide information on PNG Annex I PGRFA (banana, taro, sweetpotato, yam, cassava):

- Arnaud, E., Horry, J.-P., 1997. Musalogue: a catalogue of Musa germplasm, Papua New Guinea : collecting missions, 1988-1989. INIBAP, Montpellier (Parc scientifique Agropolis II, 34397 Cedex 5)
- Atung, C.K., Guaf, E., Komolong, B., 2015. Screening sweetpotato (*Ipomoea Batatas*) genotypes under soil moisture deficit condition using stress tolerance indices. *Arch. Appl. Sci. Res.* 7, 23-29
- Atung, C.K., Komolong, B., 2015. Diversification in Farmers Field for Climate Change Adaptation - Taro Evaluation Trials in Madang Province, in: Temple, V., Mowbray, D., Rai, P.P., Gideon, O., Kaluwin, C., Watmelik, J. (Eds.), PROCEEDINGS OF THE 6th RESEARCH SCIENCE AND TECHNOLOGY & UPNG SCIENCE CONFERENCE (17-21 November, 2015). Presented at the PROMOTING RESPONSIBLE SUSTAINABLE DEVELOPMENT THROUGH SCIENCE & TECHNOLOGY, THE PNG WAY, University of Papua New Guinea, Port Moresby, pp. 1-10
- Chair, H., Sardos, J., Supply, A., Mournet, P., Malapa, R., Lebot, V., 2016a. Plastid phylogenetics of oecania yams (*Dioscorea* spp., *Dioscoreaceae*) reveals natural interspecific hybridization of the greater yam (*D. alata*). *Bot. J.*
- Chair, H., Traore, R.E., Duval, M.F., Rivallan, R., Mukherjee, A., Aboagye, L.M., van Rensburg, W.J., Andrianavalona, V., Pinheiro de Carvalho, M.A.A., Saborio, F., Sri Prana, M., Komolong, B., Lawac, F., Lebot, V., 2016b. Genetic Diversification and Dispersal of Taro (*Colocasia esculenta* (L.) Schott). *PLOS One*. <https://doi.org/DOI:10.1371/journal.pone.0157712>
- Fungo, R., Kikafunda, J.K., Pillay, M., 2010. β -carotene, iron and zinc content in Papua New Guinea and East African Highlands bananas. *Afr. J. Food Agric. Nutr. Dev.* 10, 2629-2644
- Gendua, P.A., Risimeri, J., Gunua, T.G., 2004. Yam germplasm collection in Papua New Guinea. Technical Bulletin No. 9, National Agricultural Research Institute, Lae.
- Guaf, E., Demerua, J., van Wijmeersch, P., Kalamen, M., Tep, C., 2001. Description of selected sweetpotato varieties for lowland conditions: Selection as of December 1998, Technical Bulletin No. 1. National Agricultural Research Institute, Lae, Papua New Guinea.
- Guaf, J., 2003. NARI recommended Taro hybrid NT 04. Lae, Papua New Guinea
- Kagy, V., Wong, M., Vandenbroucke, H., Jenny, C., Dubois, C., Ollivier, A., Cardi, C., Mournet, P., Tuia, V., Roux, N., Doležel, J., Perrier, X., 2016. Traditional Banana Diversity in Oceania: An Endangered Heritage. *PLOS ONE* 11, e0151208.
- Kambuou, R. and Paofa, J. 2013. Description of Cassava Cultivars of Papua new Guinea: Cassava Facts Sheet. Technical Bulletin No. 23. National Agricultural Research Institute, Lae, PNG
- Lebot, V., Prana, M.S., Kreike, N., van Heck, H., Parldales, J., Okpul, T., Gendua, T., Thongjiem, M., Hue, H., Viet, N., Yap, T.C., 2004. Characterisation of taro (*Colocasia esculenta* (L.) Schott) genetic resources in Southeast Asia and Oceania. *Genet. Resour. Crop Evol.* 51, 381-392
- Lebot, V., Tuia, V., Ivancic, A., Jackson, G.V.H., Saborio, F., Reyes, G., Rodriguez, S., Robin, G., Traoré, R., Aboagye, L., Onyeka, J., van Rensburg, W., Andrianavalona, V., Mukherjee, A., Prana, M.S., Ferraren, D., Komolong, B., Lawac, F., Winter, S., Pinheiro de Carvalho, M.A.A., Iosefa, T., 2018. Adapting clonally propagated crops to climatic changes: a global approach for taro (*Colocasia esculenta* (L.) Schott). *Genet. Resour. Crop Evol.* 65, 591-606.
- Matthews, P.J., Nguyen, V.D., Tandang, D., Ago, E.M., Madulid, D.A., 2015. Taxonomy and ethnobotany of *Colocasia esculenta* and *C. formosana* (Araceae): implications for the evolution, natural range, and domestication of taro. *Aroidiana* 33E, 153-176.
- Mergedus, A., Atung, C., Nass-Komolong, B., Janja, K., Ivancic, A., Lebot, V., 2015. Starch, Proteins and Minerals Content of Papua New Guinea Taro (*Colocasia esculenta*) Corms, in: *Emerging Innovations in Agriculture: From Theory to Practice*. pp. 211-218.
- Nordhagen, S., 2013. *Cultivating Change: Crop Choices and Climate in Papua New Guinea* / Stella Nordhagen. [Cambridge : Department of Land Economy, 2015].
- Nordhagen, S., Pascual, U., Drucker, A.G., 2017. Feeding the Household, Growing the Business, or Just Showing Off? Farmers' Motivations for Crop Diversity Choices in Papua New Guinea. *Ecol. Econ.* 137, 99-109. <https://doi.org/10.1016/j.ecolecon.2017.02.025>
- Okpul, T., Mace, E.S., Godwin, I.D., Singh, D., Wagih, M.E., 2006. Evaluation of variability among breeding lines and cultivars of taro (*Colocasia esculenta*) in Papua New Guinea using ISSR fingerprinting and agro-morphological characterization. *IPGRI Newsl.* 143, 8-16.
- Roullier, C., Kambuou, R.N., Paofa, J., McKey, D., Lebot, V., 2013. On the origin of sweet potato (*Ipomoea*

batatas (L.) Lam) genetic diversity in New Guinea, a secondary centre of diversity. *Heredity* on-line

Sardos, J., Christelová, P., Čížková, J., Paofa, J., Sachter-Smith, G.L., Janssens, S.B., Rauka, G., Ruas, M., Daniells, J.W., Doležel, J., Roux, N., 2018. Collection of new diversity of wild and cultivated bananas (*Musa* spp.) in the Autonomous Region of Bougainville, Papua New Guinea. *Genet. Resour. Crop Evol.* <https://doi.org/10.1007/s10722-018-0690-x>

Sardos, J., Perrier, X., Doležel, J., Hřibová, E., Christelová, P., Van den houwe, I., Kilian, A., Roux, N., 2016. DArT whole genome profiling provides insights on the evolution and taxonomy of edible Banana (*Musa* spp.). *Ann. Bot.* 118, 1269–1278. <https://doi.org/10.1093/aob/mcw170>

Singh, D., Guaf, J., Okpul, T., Wiles, G., Hunter, D., 2006. Taro (*Colocasia esculenta*) variety release recommendations for Papua New Guinea based on multi-location trials. *N. Z. J. Crop Hortic. Sci.* 34, 163–171.

Singh, D., Mace, E., Godwin, I.D., Mathur, P.N., Okpul, T., Taylor, M., Hunter, D., Kambuou, R.N., Rao, V.R., Jackson, G.V.H., 2007. Assessment and rationalization of genetic diversity of Papua New Guinea taro (*Colocasia esculenta*) using SSR DNA fingerprinting. *Genet. Resour. Crop Evol.* online.

Singh, D., Okpul, T., 2000. Evaluation of 12 taro (*Colocasia esculenta* (L.) Schott) leaf blight-resistant clones for yield and eating quality in Papua New Guinea. *SABRAO J. Breed. Genet.* 32, 39–45.

Singh, D., Okpul, T., Wagih, M.E., Wiles, G., Hunter, D., 2009. First release of Taro leaf blight resistant varieties in Papua New Guinea. *J. Genet. Evol.* 2, 13–22.

SPYN, 2003. Yam: Cultivar selection for disease resistance & commercial potential in Pacific Islands. Final Project Report (Final Project Report). CIRAD, Montpellier.

van Wijmeersch, P., Guaf, E., 2004. Sweet Potato Variety Evaluation in Papua New Guinea: Achievements and Methods. National Agricultural Research Institute, Lae.

Wera, B., Deros, M., Kawale, G., Ramakrishna, A., Anton, J., Sitango, K., Guaf, E., 2018. Study of Genotype x Environment Interaction for Sweetpotato Tuber Yield and Related Traits in Papua New Guinea. *Int. J. Plant Breed. Crop Sci.* 5, 308–323

Wera, B., Yalu, A., Ramakrishna, A., Deros, M., 2014. GENOTYPIC VARIABILITY ESTIMATES OF AGRONOMIC TRAITS FOR SELECTION IN A SWEETPOTATO (*IPOMOEA BATATAS*) POLY-CROSS POPULATION IN PAPUA NEW GUINEA. *J. Plant Breed. Genet.* 2, 131–136

The publication: TAROGEN - A list of publications from Tarogen and partners will be uploaded.

Kokonut Industri Korporesen:

There is characterisation done on coconuts accessions in the ICG-SP but this information is with CIRAD, France on CDM (Coconut Data Management) program. However, trained officers on the use of CDM have left the organisation more over, procurement of newer versions of CDM and training on the use of it hasn't been done. Regardless of this, this can be redone when the relocation of the ICG-SP work is complete but may be with a different Data Management System to store data. For the evaluation of the parental materials of coconuts in the ICG-SP, the research is ongoing to evaluate the parents at the current genebank with the results from the progeny trials.

Some of the publications/articles previously and currently done in the ICG-SP work are;

1. Ovasuru T. 1994. Preliminary analysis of coconut (*Cocos nucifera* L.) germplasm in Papua New Guinea. In: Foale MA, Lynch PW, editors. Proceedings of a Workshop on Coconut Improvement in the South Pacific, Taveuni, Fiji. ACIAR Proceedings 53:33-40.
2. Ovasuru T. 1994. The Current Status of the Coconut Industry in Papua New Guinea. In: Foale MA, Lynch PW, editors. Proceedings of a Workshop on Coconut Improvement in the South Pacific, Taveuni, Fiji. ACIAR Proceedings 53:9-13.
3. Ashburner GR, Faure MG, Foale MA. 1994. Methods for Coconut Germplasm Prospection. In: Foale MA, Lynch PW, editors. Proceedings of a Workshop on Coconut Improvement in the South Pacific, Taveuni, Fiji. ACIAR Proceedings 53:41-43.
4. Ashburner GR, Faure MG, Franz PR, Tomlinson DR, Pulo P, Burch JM, Thompson WK. 1994. Coconut Embryo Culture for Remote Locations. In: Foale MA, Lynch PW, editors. Proceedings of a Workshop on Coconut Improvement in the South Pacific, Taveuni, Fiji. ACIAR Proceedings 53:25-28.
5. Cueto CA, Johnson VB, Engelmann F, Kembu A, Konan JL, Kouassi Kan M, Rivera RL, Vidhanaarachchi V, Bourdeix R, Weise SF. 2012. Technical guidelines for the safe movement and duplication of Coconut (*Cocos nucifera* L.) germplasm using embryo culture transfer protocols. COGENT, Bioversity International, Montpellier, France.
6. Baudouin L, Maot J, Ruas M, Prades M, Bourdeix R, Johnson V. 2018. Guidelines for data collection during coconut genetic resources prospection. Darwin Initiative Project Workshop (6th -10th November, 2017), Samoa, Apia.
7. Lu H, Wilson BA, Ash GJ, Woruba SB, Fletcher MJ, You M, Gurr GM. 2016. Determining putative vectors of the Borgia Coconut Syndrome phytoplasma using loop-mediated isothermal amplification of single-insect feeding media. *Scientific Reports*, 6, 35801. doi:10.1038/srep35801

29. Has your country provided or facilitated access to technologies for the conservation, characterisation, evaluation and use of Annex I PGRFA?

If access to technologies was provided, please provide details of the access provided.

Please select only one option

Yes

>

No

29A. If your answer is 'yes', please indicate whether your country:

Has established or participated in crop-based thematic groups on utilisation of PGRFA

Is aware of any partnerships in your country in research and development and in commercial joint ventures relating to the material received through the MLS, human resource development and effective access to research facilities.

29B. If access to technologies was provided, please provide details of the access provided:

> n/a

30. Has your country provided for and/or benefitted from capacity building measures in respect of Annex 1 PGRFA?

Please select only one option

Yes

No

30A. If your answer is 'yes', please indicate whether such measures were related to:

Establishing and/or strengthening programmes for scientific and technical education and training in conservation and sustainable use of PGRFA;

Developing and strengthening facilities for conservation and sustainable use of PGRFA;

Carrying out scientific research and developing capacity for such research.

30B. If your country provided for and/or benefitted from such measures, please provide details:

> NARI was able to secure funding support from a grant of the EU-ACP Science & Technology Program (Capacity Development in conservation and utilization of invaluable PGR in Western Pacific Countries, FED/2009/218780) to conduct a series of learning activities on pre-breeding techniques and procedures, screening techniques for important traits and selection and utilization of PGR. Participants included also staff from the Ministry of Agriculture and Livestock Solomon Islands and the Vanuatu Agricultural and Technical Centre. The project was implemented from 2011- 2013.

NARI is participating in a regional capacity building program on mutation breeding for nutrient rich crops drawing on PGRFA funded through the FAO/IAEA regional corporation program and implemented by IAEA and SPC.

Since 1994, COGENT has been providing financial and technical support to build capacity at SPS. This is to fulfil its obligation as a host on behalf of the Government of PNG and also to support the National Coconut Breeding Program through exchange and utilization of selected accessions from other genebanks.

The Coconut Embryo Culture Unit (Laboratory) at Stewart Research Station in Madang is responsible for importation of the designated varieties and selected germplasm for conservation at the ICG-SP. However, more funds are required to upgrade the Coconut Embryo Culture Unit and collect accessions from member countries as well as other Pacific Island countries for conservation in the Genebank (ICG-SP).

Article 14: Global Plan of Action

31. Has your country promoted the implementation of the Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture?

Please note that this question differs from question 15 as it only concerns Annex I PGRFA and is more specific.

Please select only one option

- Yes
- No

31A. If your answer is 'yes', please indicate whether the implementation of the plan was promoted through:

- National actions
- International cooperation

31B. If the implementation of the plan was promoted, please provide details:

> n/a

Article 15: Ex Situ Collections of Plant Genetic Resources for Food and Agriculture held by the International Agricultural Research Centres of the Consultative Group on International Agricultural Research and other International Institutions

32. Has facilitated access to Annex I PGRFA been provided in your country to the International Agricultural Research Centres of the Consultative Group on International Agricultural Research (IARCs) or other international institutions that have signed agreements with the Governing Body of the Treaty?

Please select only one option

- Yes
 No

32A. If your answer is 'yes', please indicate:

To which IARCs or other international institutions facilitated access was provided;

The number of SMTAs entered into with each IARC or other international institution:

> Bioversity International – 2 SMTAs (since accessions to the Treaty in 2015); transfer of banana accessions to ITC.

PNG through its ICG-SP as a member of COGENT provided 12 of its accessions to Sri Lanka in 2004 (also see attached file)

You have attached the following documents to this answer.

Article 15 32A coconunt accessions exchange.docx - Graph showing exchange of coconut accessions

32B. If your answer is 'no', please provide details of any difficulties encountered in providing facilitated access to Annex I PGRFA to IARCs and other international institutions that have signed agreements with the Governing Body of the Treaty

> n/a

33. Has access to non-Annex I PGRFA been provided in your country to IARCs or other international institutions that have signed agreements with the Governing Body of the Treaty?

Please select only one option

- Yes
 No

33A. If your answer is 'yes', please indicate:

To which IARCs or other international institutions access was provided;

The number of MTAs entered into with each IARC or other international institution:

> World Vegetable Centre – 1 SMTA (transfer of Amaranthus and Solanum nigrum accessions to World Veg) since accession to the Treaty

33B. If your answer is 'no', please provide details of any difficulties encountered in providing access to non-Annex I PGRFA to IARCs and other international institutions that have signed agreements with the Governing Body of the Treaty:

> n/a

Article 16: International Plant Genetic Resources Networks

34. Has your country undertaken any activities to encourage government, private, non- governmental, research, breeding and other institutions to participate in the international plant genetic resources networks?

Please select only one option

Yes

No

34A. If your answer is 'yes', please provide details of such activities:

> Relocation of the Coconut Genebank from Madang to Milne Bay Province activities due to BCS threat has got the attention of the government and international institutions to participate in the international PGR networks.

The following institutions that worked with Kokonas Industri Koporesen are;

-COGENT

- Darwin Initiative Project (Training on Coconut Prospection with additional descriptors and procurement of desktop computers and laptops for Coconut Data Entry and Storage).

- University of Queensland for development of diagnostic kit to test for BCS (Professor Jimmy Botella)

- University of Queensland on Coconut Embryo Culture Training in July, 2017 (Professor Steve Adkins)

-CIRAD through Bioversity International

-Government of Papua New Guinea involvement to get the treaty on ITPGRFA for its initial relocation funding in 2016 of around US\$300,000.

Article 18: Financial Resources

35. Has your country provided and/or received financial resources for the implementation of the Treaty through bilateral, regional or multilateral channels?

Please select only one option

Yes

No

35A. If your answer is 'yes', where possible, please provide details of such channels and the amount of the financial resources involved:

> COGENT:

Since 1994 COGENT have been providing financial and technical support to build capacity at SRS

Darwin Initiative Project:

-Training on Coconut Prospection with additional descriptors in Samoa in 2017 (Met all the training costs)

-Funds for procurement of desktop computers and laptops and accessories for Coconut Breeding Data Entry and Storage (estimated to be US\$10,000).

Banana PGR:

US\$25800 for collecting missions and conservation of banana species/varieties from Autonomous Region of Bougainville, Madang, Morobe, East New Britain Provinces in 2016/2017

36. Has your country provided financial resources for national activities for the conservation and sustainable use of PGRFA?

Please select only one option

Yes

No

36A. If your answer is 'yes', please provide details of such national activities and the amount of the financial resources involved:

> There are no direct grants provided from the Government for PGR conservation and utilization; NARI through it's recurrent funding from the Government is using some portion of the funds to maintain existing ex-situ collections. That includes cost for staff and some operational funds.

Total estimated funding per year is around US\$62,000.

The Government of PNG also continues to support the National Coconut Breeding Program through its recurrent funding.

The cost of ongoing yealy genebank (ICG-SP) mainenance and the sanitation work is taken care of by the recurrent budget from PNG Government. Genebank labour ceiling per annum is about US\$39,000 for 30 labourers.

For the relocation of Coconut PGR for ICG-SP the financial assistance by PNG Government per year since 2016 is US\$300,000.

Moreover, the ongoing National breeding program in PNG, which utilizes the coconut germplasm (ICG-SP) receives funding support from GoPNG. Estimated funding of US\$ 120-150,000 for the national coconut breeding program since 1987.

About this reporting format

37. Have you encountered any difficulties in completing this reporting format?

Please select only one option

Yes

>

No

37A. If your answer is 'yes', please provide details on such difficulties:

> n/a

37B. If you have suggestions for improvement of this reporting format, please share them:

> As someone new to this reporting it was not really clear what the reporting period is. Therefore in most instances the reporting period since accession to the Treaty was used. In some instances information before accession to the Treaty was included as well.

General remarks on the implementation of the ITPGRFA

38. You may use this box to share any advice you may have arising from your country's experience with implementation of the Treaty:

> no comments

39. You may use this box to share any additional information that may be useful to provide a broader perspective of difficulties in implementation of the Treaty:

> n/a

40. You may use this box to share any additional information that may be useful to provide a broader perspective of measures that could help to promote compliance:

> no comments