

**Project Title: Promotion of indigenous pig and chicken breeds in
Fiji, Niue and the Cook Islands through marketing and
consumption**

Project Code: INT/14/K09 Perez-Guerrero Trust Fund (PGTF) project

Completion Date: (Extended to January 31 2017) *email attached in the annex section*

Final Financial Report by: 31 January 2018

Final Substantive Report by: 31 January 2018

Submitted by SPC

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1.0 Project Narrative

The Promotion of indigenous pig and chicken breeds in Fiji, Niue and Cook Islands through the marketing and consumption project was designed to promote marketing and consumption of indigenous livestock breeds which were endemic in most of the PICTs but the products were inaccessible to consumers. The project was funded by the Perez-Guerrero Trust Fund (PGTF).

The Secretariat of the Pacific Community was the implementing agency in collaboration with the Ministries and Departments of Agriculture and Livestock in the participating countries of Fiji, Niue and Cook Islands. SPC as a lead implementing body had started some implementation of the activities according to the work-plan that was developed. Although implementation of activities had started the whole programme was affected by the impacts of the Tropical Cyclone Winston which hit Fiji on the 7th of February 2016, this affected most parts of Fiji including some of our proposed farms and farmers. Since SPC was heavily involved in assisting rehabilitating farmers that were affected by the cyclone, a no-cost extension of the project duration was requested and approved by the UNDP Secretariat, extending the completion date for the project from July 2016 to the 31st January 2017.

2.0 Approval and project preparation:

- 2.1** After the project was approved, funds were transferred to SPC Fiji from UNDP Regional Office, in March 2015.
- 2.2** A revised work-plan for activities was developed and implemented in Fiji, Niue and the Cook Islands as the proposed work was delayed by the TC Pam activities.
- 2.3** Consultation was carried out with the country focal points prior to implementing the activities on ground in the countries.

3.0 Project introductory meetings;

One of the main activities that had to be implemented immediately was the conducting of introductory workshops in the participating countries. These workshops were conducted by SPC in the 3 countries to create awareness and introduce the objectives of the project activities to achieve the proposed outputs. Staff of SPC conducted the workshops with the staff of the Fiji Animal Health & Production Division, Ministry of Agriculture and also made international travels to Niue and the Cook Islands to introduce the project and its aims to the ministries and departments in those two other countries. The workshops assisted SPC better collaborate with the Ministries and department to identify sites, identify host farmers and to confirm activities for implementation in the countries.

In Fiji, the project was introduced to the Ministry of Agriculture, Animal Health and Production Division as well as potential farmers. In Niue, the project was introduced to the Department of Agriculture staff including the Permanent Secretary and to the senior staff of the Department as well as to potential farmers through a workshop. In the Cook Islands, an

introductory workshop was also held with the senior livestock staff and the Permanent Secretary for their awareness and action as well as to potential farmers.



Participants and farmers at the Cook Islands and Niue AnGR Promotion Introductory workshops funded by the PGTF in 2015

4.0 Assisting Pig and chicken Farms, Fiji, Niue and Cook Islands

The project in consultation with the Ministry of Agriculture, Animal Health and Production Division identified sites established under the FAO Animal Genetic Resources Conservation and Multiplication Project was used as the sites for the Promotion of indigenous pig and chicken breeds for marketing and consumption project. This decision was based on utilising the established sites which were currently operational thus further improve production, marketing and have sustainable sales of pigs chickens and edible eggs. The following sites were identified and assisted;

4.1 Fiji:

4.1.1 Koronivia Indigenous Pig Conservation Centre, Koronivia, Fiji

The Indigenous pig conservation, multiplication and distribution centre that was built at the Koronivia Pig Research Station (KRS) under the AnGR Conservation Project was used to promote indigenous pig breeds for marketing and consumption under the Perez-Guerrero Trust Fund (PGTF) Project. Breeding stock of pigs for the centre was collected from five sites from around the islands of Fiji and these were: Cicia, Taveuni, Savusavu, Matuku and Gau. The main purpose of the exercise was to collect a good range of indigenous pigs for breeding, conservation and multiplication of these pig breeds under the PGTF project. The villages on those sites where the pigs were sourced were recorded and their physical traits were used as a basis for their selection. The PGTF promotion project then focussed on a first cycle of breeding of the indigenous pigs to multiply their numbers, where offspring's were then selected based on the physical traits for further breeding purposes. In other words those offspring's that had more hybrid physical traits were culled and those that had more indigenous traits were retained for breeding. Awareness was also carried with potential farmers in Fiji on the potential to raise indigenous pigs as a source of livelihood. This was part of the project aim and that was to eventually distribute indigenous breeds of pigs for farmers to raise and supply the offspring's to the domestic markets around Fiji.

Some blood samples were also collected from the indigenous pigs at the centre in Koronivia and are awaiting funds for DNA analysis.



Indigenous pig breeds, at KRS multiplication, conservation & promotion centre Fiji

4.1.2 Happy Chicken’ Farm, Sigatoka, Fiji

The Promotion of indigenous livestock project (PGTF) also assisted an indigenous chicken breeding and distribution farm called the “Happy Chickens” which is located at the Sigatoka valley, on Viti Levu, Fiji. The PGTF project has assisted this farm through the procurement of incubators, i.e. setters and hatchers as well as with building materials to improve the poultry hatchery on the farm. In addition chicken breeding sheds have also been expanded with the PGTF project and to increase the numbers of local chicken breeders on the farm. The farm and the hatchery has the aim to increase the production of fertile eggs and local chickens for breeding and to distribute them to interested farmers who would raise them for meat and eggs improving food security and livelihoods in the Sigatoka valley. The farm has also been doing capacity building training with the local communities in Fiji and other Pacific Island countries to improve chicken husbandry and management and at the same time conserve local chickens through breeding. In Sigatoka (Fiji), the farm assisted women’s groups in 2 villages with the provision of capacity building training as well as through the provision of local chickens and small chicken incubators. The farm has also carried out chicken husbandry training with participants from Vanuatu that were associated with the Bahai Centre with the aim of empowering local communities to improve food security with the use of local chickens and local feed ingredients.



Fertile eggs set in the incubator, indigenous chickens at the farm and day chickens in the brooder

4.1.3 Nacocolevu Research Station chicken farm

The Nacocolevu Research Station is a facility that does research in livestock and crops and under livestock research they have a chicken component. The chicken research component has a breeder farm and a hatchery. The aim is to collect and multiply indigenous chickens that are climate impact tolerant as well create livelihoods and improve food security in the Sigatoka valley area. In Fiji there is a demand from farmers to raise and sell local indigenous chickens, so the research station farm has been working towards that by increasing the size of their breeder farm to increase the number of fertile eggs for hatching. In addition to the production of fertile eggs and dayold indigenous chickens, the farm is also interested in research on the performance of the indigenous chickens collected and bred on their farm. Performance such as egg production, hatchability of fertile eggs, growth rates in relation to local feed consumption and mortality are some of the areas that are currently being looked at. The PGTF project assisted the farm improve their sales and distribution , hatchery as well as their research component by assisting them with planning and with the provision of equipment to increase their production capacity as well as carry out research on performance. The findings from the research are preliminary at this stage.



Indigenous chicken breeders and cages constructed for performance research trials at the station in Sigatoka, Fiji

4.2 Niue

4.2.1 Breeding, multiplication and conservation chicken centres, Niue

Three chicken conservation, multiplication and distribution farms were assisted in Niue under the AnGR promotional project. The sites have been multiplying indigenous chickens with the use of local feed ingredients supported by some commercial feed and awareness has been created on the sales and consumption of edible eggs and meat from indigenous chickens. The three sites are located in the villages of Hikutavake, Mutalau and Hakupu.



Signage at Hakupu village for the conservation project funded by FAO and building the shed for indigenous chickens at Hikutavake funded by the PGTF project

4.3 Cook Islands:

4.3.1 Breeding, multiplication and a conservation centre, Cook Islands

Two farms were established under the AnGR promotion project on Rarotonga in the Cook Islands; these were the Takamoia Theological farm and the Tai Areai-Avatiu farm to breed local chickens for breeding, multiplication and conservation. The promotion project utilised the facility for the purpose of promoting local chickens for breeding, multiplication, marketing and consumption. In addition, some blood samples were collected from the Cook Islands for DNA analysis and the samples are currently stored at SPC awaiting funds for analysis.



Collecting blood samples for DNA analysis and an indigenous chicken in the Cook Islands

5.0 AnGR Video:

An animal genetic resources video was done to promote the work on indigenous chickens and pigs in Fiji and this video was played on the Pacific Way television program in Fiji and the Pacific South West region at the end of 2017. This was funded by the PGTF project.

The video is available on the SPC youtube channel and could be downloaded and viewed via the following link: <https://youtu.be/w3MqOQ4yPE0>

6.0 Financial Report:

The financial report is pending at this stage but will be submitted soon. The starting date for the financial transactions was in June 2015 and the finish date was on the 31st of January 2017.

The report indicates that all the project money has been spent by the 31st January 2017.

7.0 Conclusion:

SPC has implemented all the activities in the work-plan developed and endorsed within the duration of the project. The project implementation was delayed as work had to be carried out to rehabilitate farmers in Fiji and other countries that were impacted by tropical cyclone Winston, however the extension from July 2016 to January 2017 enabled the work in the developed work-plan to be implemented.

The delay in the submission of the final substantive report was due to the fact that both the contact focal points (Dr Ken Cokanasiga and Mr Nichol Nonga) for the AnGR project had finished their contracts and left SPC in 2017 and it was not clear who would take over overseeing the AnGR project.

Some good outputs and outcomes were achieved in the AnGR promotion project as it complimented the FAO funded project. In other words the promotion project added value and expanded activities after the FAO funding ceased, i.e. the FAO funded project identified through DNA analysis that the genetic pool of indigenous chickens and pigs in Fiji, Niue, Tonga, Vanuatu, Samoa and the Solomon Islands were unique and the promotion project provided technical expertise and funding to collect and multiply through breeding to conserve those breeds of chickens and pigs in Fiji, Niue and the Cook Islands. Breeding at this stage is still ongoing and more work is still needed in terms of research, i.e. which breeds will do well and which breeds need to be culled in terms of their productive performance and climate impact tolerance.

More awareness and conservation work is needed for indigenous chickens and pigs in the Pacific island community, in light of the impacts of climate change, to protect future pool of genetic resources for breeding as well as food security. The FAO report in 2007 on the global status of AnGR, stated that 20% of indigenous breeds of animals were at risk of becoming extinct and from the period 2001 to 2007, 60 breeds of animals became extinct globally which average 1 breed per month becoming extinct globally.

Thus there is still a need to have funding to record and conserve indigenous animal and livestock breeds in the Pacific Island community. SPC looks forward to future collaboration with the PGTF (UNDP) as well as FAO to further develop projects to support AnGRs in the Pacific Island communities, as the work achieved through the funding provided has indicated some important benchmarks however more work is still needed to improve these.

Finally the Land Resources Division at SPC takes this opportunity to show appreciation for the enormous support and funding provided by the PGTF under UNDP as well as to FAO for the initial AnGR project in the Pacific island communities.

8.0 Focal contact names and emails:

Dr. Ken Cokanasiga, Acting Deputy Director Land Resources Division, Trade and Agribusiness Programme, Secretariat of the Pacific Community (SPC), email: kenc@spc.int

Mr. Nichol Nonga, Animal Production Officer, Land Resources Division, Secretariat of the Pacific Community (SPC), email: nicholn@spc.int

Mr. Andrew Tukana, Animal Production and Extension Officer, Land Resources Division, the Pacific Community (SPC), email; andrewt@spc.int

(Dr Ken Cokanasiga and Mr Nichol Nonga have both left SPC in 2017)

9.0 Annexes:

9.1 Email communication for the promotion project extension

To: Nichol Nonga

Cc: Osnat Lubrani; Elena Wakolo; Ines Tofalo

Subject: RE: Seeking approval for a no cost extension to the " Promotion of indigenous pig and chicken breeds in Fiji, Niue and Cook Islands Project"

Dear Nick

On behalf of Ms. Osnat Lubrani, UN Resident Coordinator, this is to advise you that the non-cost extension of the " Promotion of indigenous pig and chickens breeds in Fiji, Niue and Cook Islands through marketing and consumption project", implemented by SPC, has been approved until 31 January 2017 as requested below. Please note that the extension has been granted exceptionally in due consideration of the devastating effects by the Cyclone Winston as you described below. We look forward to the accelerated implementation and thank you in advance for the continued partnership.

Best regards

Akiko Fujii

UNDP Country Director a.i.

9.2 Final financial report (Pending)

9.3 AnGR brochure developed for the FAO Project

Chicken conservation centres, Cook Islands – Similar to Niue, local chickens are endemic in Cook Islands, and a similar operation is being conducted there. The project is establishing two new chicken pens, which will become collection, breeding and conservation centres: one at the Takamoa Theological College and the other at Tai Aerei-Avatiu Farm, both on Rarotonga. Most local chickens are free-range, fending for themselves for feed, water, shelter and production. The addition of shelters, feed and water will increase production, and management will allow public access to local chicken products. A total population of 100–150 breeding chickens is expected to be kept on the farms on a confined free-range production system.



The way forward for countries in the region

An AnGR inventory is an essential item in a country's resources and every country in the region needs to make some effort to implement the global plan of action. Some activities are suggested below.

- Make an inventory and DNA characterisation of AnGR to determine the extent of AnGR in the region.
- Develop a national AnGR strategy and action plan.
- Formulate a vision statement, goal, prospectus, outline and communication plan.
- Get national strategies endorsed and available to governments.

- Formulate an institutional framework, e.g. a national advisory committee, national coordinators and a secretariat.
- Update national priorities.
- Establish monitoring and evaluation mechanisms.
- Take stock of drivers of change in the livestock production system, e.g. growth and changes in demand for animal products, development of trade and markets, technological developments, policy and strategies development.
- Allocate more government resources for the activities of AnGR.

Bibliography

FAO Global Strategy for the Management of Farm Animal Genetic Resources: <http://dad.fao.org/>.

SoW-AnGR country reports : [ftp://ftp.fao.org/docrep/fao/010/a1250e/annexes/CountryReports/CountryReports.pdf](http://ftp.fao.org/docrep/fao/010/a1250e/annexes/CountryReports/CountryReports.pdf).

FAO, 2007. The state of the World's Animal Genetic Resources for Food and Agriculture – in brief, edited by Daffydd Pilling & Barbara Rischkowsky, Rome.

FAO, 2008. Global Plan of Action for Animal Genetic Resources and the Interlaken Declaration, Rome.



For more information, contact:

The Secretariat of the Pacific Community, Land Resources Division
Produced by the Animal Health and Production Team
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Conserving Animal Genetic Resources In Fiji, Niue & Cook Islands



Why protect animal genetic resources?

Animal genetic resources (AnGR) play an essential role in contributing to food security and sustainable livelihoods. They provide meat, milk and dairy products, eggs, fibre, clothes, manure for fertiliser and fuel, and many other products. The present generation of the world community is responsible for identifying, characterising, conserving, sustainably using, and developing animal genetic resources to supply future generations. Because they have adapted to local conditions and survive better in times of drought and disaster than exotic breeds, indigenous breeds are important for providing a broad genetic pool to draw upon as we improve traits and characteristics under changing conditions. The demand for high quality niche products from indigenous breeds is also increasing.

Alarming loss of animal genetic resources worldwide

AnGR loss can be attributed to many causes, such as marginalisation of traditional production systems where the majority of local breeds are kept, diseases, natural disasters, negative effects of climate change (e.g. rise in temperature, extreme weather effects, etc.) and civil conflicts.

State of the world's animal genetic resources report

In 2001, FAO invited country reports as the basis of the first global report, and in 2007 FAO launched *The state of the world's animal genetic resources for food and agriculture*.

This report contains information and facts from nine international organisations and 169 countries, including 12 Pacific countries. The report has contributed much to our knowledge of the status of animal genetic resources, as well as their role and value, all of which make it clear that we must conserve and develop them. The report contains information on 7616 breeds, of which 20% are at risk of being lost. It is also of concern that population data are unavailable for 36% of these breeds. The United Nations Food and Agriculture Organisation (FAO 2007) reported that the world was losing animal breeds at an alarming rate, for example, in a six-year period a total of 62 breeds became extinct – an average of one breed per month. These are only the breeds that have been identified – many other breeds have yet to be identified and may disappear before anything is known about them. If this trend continues, the world will lose some of its invaluable animal breeds that are essential for future breeding and production. FAO was therefore mandated by the United Nations to coordinate the conservation and sustainable use of AnGR, and the fair and equitable sharing of the benefits of using them, by formulating a global plan of action.

A global plan of action

In view of the many threats that face the sustainability of animal genetic resources, preparedness is essential to ensure that these valuable resources are managed. The *Global Plan of Action for Animal Genetic Resources* (FAO 2007) was developed by the FAO's Commission on Genetic Resources for Food and Agriculture in order to address this alarming trend of AnGR loss. The plan has four strategic priorities areas and under these are a number of strategic priorities for action that address specific areas. The plan is the framework that most countries are adopting in terms of addressing conservation of their animal genetic resources.

Pacific regional AnGR activities

The south-west Pacific region is rich in biodiversity, although the landmass is comparatively small. The region is part of the global community and is therefore required to address this concern about the loss of AnGR. In response, the Secretariat of the Pacific Community has implemented two FAO-funded projects. The first one is the *South West Pacific Animal Genetic Resources Inventory and DNA characterisation* pilot project, which was conducted in Fiji, Niue, Samoa, Solomon Islands, Tonga and Vanuatu in 2008–2011. The second one is the *South West Pacific AnGR Project – Conservation of indigenous*

pig and chicken breeds in Fiji, Niue and Cook Islands, which is currently being implemented and is designed to conserve and multiply unique pig and chicken breeds that were identified in the first project. An emailing list, the Animal Genetic Resources for Food and Agriculture Mailing List swanagr@lrvs.spc.int has been created to provide a platform where information can be shared and discussed.

AnGR DNA results

The DNA analysis of the first project showed interesting results for both pig and chicken breeds. All the populations in the participating countries showed high genetic diversity and the region's chicken populations have not been contaminated by commercial breeds, making this a hot spot for a conservation breeding programme. All chicken populations from the six countries showed unique genetic diversity. The current project is designed to promote the conservation and utilisation of animal genetic resources that were identified in the first project through the establishment of in situ conservation sites in three countries.

The South West Pacific Animal Genetic Resources Project – Conservation of indigenous pig and chicken breeds in Fiji, Niue and Cook Islands.

Funding agency:	FAO
Project amount:	USD 100,000.00
Project duration:	20/09/2013 - 20/09/2015
Project countries:	Fiji, Niue and Cook Islands
Implementing agencies:	Secretariat of the Pacific Community (SPC) Ministry of Agriculture, Fiji Department of Agriculture, Forestry and Fisheries, Niue Ministry of Agriculture, Cook Islands

The main expected outputs include the establishment of six collection, breeding, multiplication and distribution centres: one for indigenous pigs in Fiji, three for indigenous chickens in Niue and two for indigenous chickens in Cook Islands; the maintenance of the valuable genetic resources and the common features, characteristics, traits and genotypes of these unique breeds. These centres will perform stock collection within the country, then breeding, multiplication and distribution of healthy breeding stock to interested stakeholders to restock the genetic resources diversity and for food security and livelihoods. These sites can also be platforms for livestock research, training and development on identifying resilient /

tolerant breeds and local feed ingredients. The centres are encouraged to use a semi-commercial production system so that the farms can generate their own income and be sustainable.

Pig conservation centre, Fiji – A fourteen-room pig breeding and conservation centre has been built by the Fiji Ministry of Agriculture, supported by the project. The centre is located at the Koronivia Pig Research Station, Indigenous pig breeds from around Fiji have been collected and brought into the centre for breeding, multiplication and distribution to interested farmers.

The centre will continue to maintain a nucleus indigenous herd for breeding. Offspring from the centre will be subjected to cross-breeding regimes to try and identify preferred traits and develop breeds that are resilient and tolerant to diseases, climate change effects and other threats.

Chicken conservation centres, Niue – Local chickens are endemic in Niue and are free-range. According to the DNA analysis, Niue has a unique breed of indigenous chickens that is too valuable to be lost, which is the reason for implementing this AnGR conservation project. In order to spread out the conservation process, three existing open-fence chicken farms were selected renovated and improved to be centres for breeding, conservation and distribution to interested farmers. The centres are located in Hikuta-vake, Mutulau and Hakupu villages. As a measure for sustainability, the chicken farms will be run on a semi-commercial production system, to generate income from the sale of eggs and meat. Chickens were sourced from far-away villages on the island and brought to the farms for breeding. They were treated for pests and diseases before being introduced to the population. A total population of 100–150 local breeder chickens are expected to be kept in a free-range system within the fence at any one time. Local feed of coconuts, leaves, insects, kitchen left-overs will be the main feed, supplemented by imported feed.



9.4 AnGR video (funded by the AnGR Promotion Project)

Video link: <https://youtu.be/w3MqQQ4yPE0>