



# Pacific Ecosystem-based Adaptation to Climate Change (PEBACC)

## WELCOME !

Greetings from the PEBACC team in Fiji, Solomon Islands and Vanuatu!

We commenced 2020 with great hope and plans, which have been somewhat tempered by coronavirus and cyclones. Towards the end of 2019, we were also faced with managing the risk of a measles outbreak in our region and in Samoa, where the SPREP headquarters is based. It has certainly not been an easy 5 months! In April, severe Tropical Cyclone Harold swept through Solomon Islands, Fiji, Vanuatu and Tonga, wreaking havoc across its path. Our hearts go out to all those who were affected by this cyclone.

More recently, as our region deals with keeping COVID-19 at bay, we have also seen many families and communities being impacted by the restrictions and closures necessary to keep us safe.

Despite these challenges, life does go on and we have seen resilience in action. Our PEBACC communities carry on their quest for more sustainable livelihoods even as they implement and observe precautionary measures of social distancing and handwashing. We are heartened to see many of our communities remain vibrant, producing their own food, with enough to sell, planting trees to safeguard their water catchments and maintaining their harvest rules and protocols during these times of crisis.

As the world talks about turning to nature, PEBACC communities can most certainly showcase nature-based solutions in building their own resilience.

We hope you will enjoy this newsletter and continue to be inspired to build natural solutions and ecosystem-based approaches into your development work.



DAVIGORI LOOKOUT, BARANA NATURE AND HERITAGE PARK © NINIU OLIGAO

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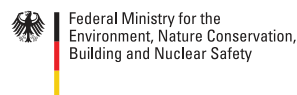
The Pacific Ecosystem-based Adaptation to Climate Change Project is a five year initiative implemented by the Secretariat of the Pacific Regional Environment Programme (SPREP) in partnership with the governments of Fiji, Solomon Islands and Vanuatu.

The project is part of the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

The Project focusses on strengthening and protecting the role of natural ecosystem services to enhance resilience to climate change.



Supported by:



based on a decision of the German Bundestag

## Developments at the Barana Nature and Heritage Park



THE BARANA ENVIRONMENT AND RESILIENCE RESOURCE CENTRE (A-FRAME) AT THE ENTRANCE TO THE PARK.

The Barana Nature and Heritage Park in Guadalcanal in the Solomon Islands has been growing from strength to strength since its establishment in 2017 through the PEBACC project.

The park, owned by the Barana Community, spans 5000 hectares of forest area in the upper catchment of Mataniko River. The river is one of the largest river catchments draining Honiara city.

Barana was established as a village in the 1960's by the tribal leaders of Tandai. According to locals and tribal leaders of Tandai, Guadalcanal people from Mataniko-Tuvaruhu decided to move inland to use and cultivate their tribal lands and to protect their forest and land areas from encroaching developments from Honiara City, and increasing informal settlements.

Barana is characterised by steep narrow ridges, rugged hills and deep valleys, which are covered with secondary forests and dominated by a grassland area in the lowlands. The area serves as habitat for native plants and animals and protects rivers that are important sources of drinking, cooking, bathing and washing for local residents, including downstream peri-urban settlements.

The Barana Nature and Heritage Park was selected under the PEBACC project to demonstrate the use of ecosystem based adaptation (EbA) in building community resilience to climate change following a comprehensive and participatory ecosystem and socio-economic resilience analysis and mapping (ESRAM) study carried out in Honiara.



A VIEW FROM SAONA LOOKOUT TOWARDS HILL 27, BARANA NATURE AND HERITAGE PARK ©N. OLIGAO

The Nature and Heritage Park now boasts an Environment and Resilience Resource Centre which serves as a platform for Toktok or Talanoa – a place to share ideas and make decisions for the collective good of the community. The Centre also hosts the Park office and serves as the visitor reception and information centre. It is also used for meetings and workshops, research by students and stores information and data for the park.

With support from the Solomon Islands Government Climate Change Division, the resource centre has been fully equipped with solar power.

Solomon Islands PEBACC Country Project Manager, Fred Patison, explains that the aim of the project was to support the community with watershed management.

"The park, managed well, will play a key role in this and could serve as a model for how communities can benefit in perpetuity from

their natural environment without destroying it," he says.

"By keeping the forest intact, the people of Barana are looking after their natural wealth and providing a gift to all the people of the Solomon Islands".

The park is managed by a committee within the community. Development of the park started in 2017 through a partnership between the Ministry of Environment, Climate Change, Disaster Management (MECCDM); Ministry of Forestry; Guadalcanal Provincial Government; the Barana community; and SPREP.

The community-owned conservation site has also formed a new partnership with the United Nations Development Programme (UNDP). Through its Small Grants Programme, UNDP is supporting further development of the park in line with the Park's Management Plan.

In this issue we present some of the exciting developments happening at the Park.

## Return of marsupial hailed a new beginning for Barana Community

After almost two decades, the Barana community is excited to see the return of the Northern common cuscus, *Phalanger orientalis*, also known as the grey cuscus.

This particular marsupial is not uncommon in the Solomon Islands and can be found in many substantially forested areas from coastal monsoon rainforest and gallery forest to remnant montane rainforest. But for the Barana Community, the return of this marsupial signifies a new beginning.

"Before 2000 there used to be so many surrounding the community that at night you would literally hear them eating and moving around on tree tops while we sleep. We lost that for a while we think due to the logging and damage to the forest," said Ms Melinda Kii, who is a member of the executive committee that helps manage Barana Park.

"Now with the initiative of the Barana Nature and Heritage Park our hearts are overwhelmed just to see a very healthy one yesterday that was let go again to be in the wilderness."

Solomon Islands has the second highest terrestrial biodiversity in the Pacific.

This biodiversity is under threat from unsustainable logging, inappropriate land use practices and over-exploitation of natural resources causing loss of habitats, extinction of species and degraded ecosystems.

"Forest clearing and deforestation activities such as logging and un-managed milling are happening on the upper Lunga and Mataniko rivers and are directly affecting our water sources.

For our community, the springs and wells closer to home have dried up and we now have to walk long distances to collect water for cooking, drinking and other domestic use. It is getting very difficult for the people," Chief Puchavu of Barana community, Mt Austen once told SPREP in a workshop held in Honiara.

Despite the challenges and threats, the villagers are set on carrying out eco-tourism activities to find ways to earn an income.



CUSCUS FOUND IN BARANA PARK - NOW SAFELY RELEASED BACK INTO THE WILD



FROM BARANA HILL ©N. OLIGAO

Unlike logging, conservation is not always seen as having great monetary value in terms of income generation. But Barana leaders and others in the community are seeing value in a conservation approach to income generation.

"Our environment is about our resources, traditions, livelihood, history and the future. There are endless possibilities if

we coordinate and plan our way of life," Chief Chualu of the Barana community says.

A fee system for visitors will soon be implemented with the idea of providing a sustainable means of income for the community. The PEBACC and UNDP support is helping with park rehabilitation and upgrades.

## Improved rest facilities for Barana Park aims to encourage more visitors

The construction of sanitation blocks and resting areas are poised to bring a new look and feel to the Barana Nature and Heritage Park in Guadalcanal in the Solomon Islands.

Led by the community, sanitation blocks are being built at strategic points in the park to cater for visitors' needs. Leaf huts for leisure are also being built as part of the community's plans for Barana.

The activity is funded jointly by the Global Environment Facility Small Grant Project (GEF-SGP) and PEBACC.

"Hill 27, Davioqori view point, Saona (nursery) and Naruanu are the sites at which we will build these facilities," Park Manager, Melinda Kii said.

Ms. Kii explained that the work is being carried out directly by the community.

"The men and boys are doing construction work while the women and girls will do the landscaping," she said.

"At Saona where the nursery is, we are just waiting for the tank and door before this sanitation block is complete. The leaf huts are also progressing well here," Ms. Kii said.

The advent of the sanitation facilities and leisure huts is expected to increase the park's appeal to visitors.

"With the sanitation areas in place, families and visitors will have access to more areas for picnics or other family gatherings," said Ms Kii.

"When visitors come to visit the park, whichever site they visit, they will have access to proper water and sanitation."

Visitor fees will help provide the community with much needed revenue to maintain the park says Ms Kii.



PEBACC SI COUNTRY MANAGER FRED PATISON (STANDING RIGHT) WITH COMMUNITY MEMBERS AT A LOOKOUT SITE AT BARANA HILLTOP ©N. OLIGAO



A REST SITE AT THE BARANA NATURE AND HERITAGE PARK ©N. OLIGAO

## Barana Community Women's food fairs proving a success



LADY VUNAGI, WIFE OF THE GOVERNOR GENERAL OF SOLOMON ISLANDS AT THE BARANA FAIR MARKET

The recently launched Barana Community women's food fairs are fast becoming a regular and popular event for Honiara residents.

Barana is located uphill on the fringe of Honiara's border, and boasts the biggest forest conservation site on Guadalcanal. It is rich in heritage especially with WW2 relics. It is also known as the Queen Elizabeth Park.

In the past, owners of the land used to allow logging to take place further up in the hills but the Barana community has turned its focus to generating sustainable income through conservation and market gardening.

The establishment of a monthly 'mere fair market' came out of discussions held at the resource centre, built with SPREP assistance in the early stages of the project.

The park manager acknowledged Mr. Fred Patison, PEBACC's coordinator in Solomon Islands for his continuous support in their activities.

"Produce sold at the market is from the women's gardens. The women used to go down to the Borderline Market on the lower outskirts of Honiara town to sell their produce, but there are also many other vendors there. Most times the women come back with their (unsold) produce. But with this initiative, Honiara residents have the option to come up to our community to get fresh produce which is of good quality," Ms. Kii said.

Promotion of their monthly market event is normally shared via social media.

With the creation of Barana's new Facebook page, this has boosted the community's presence among residents in Honiara as well as overseas.

"At first we thought we would not have a good turnout but we thought wrong - by 3pm, all the produce was sold!" Ms. Kii said.

The park manager acknowledged Mr. Fred Patison, PEBACC's coordinator in Solomon Islands for his continuous support in their activities.



A VARIETY OF PRODUCE AT THE WOMENS MARKET - @ NEIL POLOSO

Ms Kii said the community is indebted to SPREP for its intervention. She thanked the government through the Ministries of Environment and Forestry for their support as well as the Guadalcanal provincial government.

She also acknowledges the support provided by UNDP through its small grants programme.

The Barana 'mere fair market' has proven so much of a success that is now being held on a weekly basis every Saturday.

## Improvements at Honiara Botanical Garden

Significant improvements are under way at the Honiara Botanical Garden (HBG). The developments are being made under the Annual Work plan and Medium Term Corporate plan (2020-2022) of the Ministry of Forestry and Research and are also reflected in the commitments under a new HBG Management and Business Plan (2020-2030).

The HBG Management and Business Plan is being finalised with technical and financial support from PEBACC and the SPREP Pacific Adaptation to Climate Change and Resilience (PacRES) project.

The plan outlines proposed upgrade of infrastructure, rehabilitation and measures to protect the park from vandalism and encroachment. Over the years, the gardens, which were established in 1965, have suffered significant setbacks and lost their allure due to intrusion from illegal settlers and lack of resources to maintain the 19 hectares of green space.

The Botanic Garden Management Committee was revived with support from the PEBACC project in 2018, chaired by the Permanent Secretary of Forestry and Research. Members of the committee are from Honiara City Council and other stakeholders.

The work of the committee has enabled the Ministry of Forestry to slowly regain control over Honiara's 'forest in the city'.

Myknee Sirikolo, Director of the Herbarium at the HBG, explains that the idea of the botanical gardens as a "Forest in a City" was the vision of the former Honiara City Clerk, Mr Charles Kelly who saw the need for public space showcasing the forests and natural environment of Solomon Islands.

Permanent fencing has been constructed along the HBG's perimeter to keep out vandals and regular maintenance is carried out on the lawn areas, roads, footpaths and water lily ponds, keeping the HBG area neat and tidy.

Under the development plans, a new timber boardwalk was built and concrete footpaths established, together with public resting facilities, which are giving a new look to the gardens.

PEBACC has also supported improvements to the nursery. The completion of a two-story herbarium and laboratory building complex has seen the relocation



THE HONIARA BOTANICAL GARDEN WITH ITS NEW WOODEN WALKWAY AND FOOTPATH

of botanical specimens from the old herbarium to the new herbarium building, which now houses over 25,000 plant specimens, representing about 2,500 species.

Another 25,809 specimens are still in Fiji at the South Pacific Regional Herbarium (USP Lower Campus) where they have been housed since 2003 for safe storage. These specimens will be returned to the Honiara Botanical Garden in 2021.

The old herbarium, in collaboration with JICA-LEAF project, HBG will be converted into a Nature and Environment Learning Centre. This will assist students and schools in Honiara.

SPREP support towards the HBG has focused on key milestone areas and aspects of the Botanic Garden such as the contracting of consultants for the new BG Management and Business Plan 2020-2030, new BG Landscaping Plan and Design and a new BG Nursery Plan.

"The Botanical Garden is an important natural ecosystem within Honiara City," says Mr Sirikolo. "It hosts remnant natural forests, unique species of plants and animals, the Rove River, which flows right in the middle of the gardens and the upper areas being the water catchment for the Rove watershed. The HBG is a forest carbon sink and provides wholesale storage and supply of fresh air (oxygen) for Honiara city".



THE NEW NURSERY IN THE HBG

Sirikolo said upgrading of the HBG infrastructure facilities and management will encourage its protection and ensure its resilience to the negative effects of climate change and undesired human activities.

"The re-development and improvement of the HBG will certainly bring back the four founding pillars for establishing it, that is, Biodiversity Conservation, Research, Education and Public Recreation, said Mr Sirikolo.

"With a new Management Plan, Vision and Mission, the HBG will be guided and redirected to become an internationally recognised Botanic Garden under a 'new normal' context in the Solomon Islands and the Pacific region."

The HBG area is open to the public from 6am to 6pm daily and currently on weekends by appointment only.

Fees will be charged once upgrading works and improvements are completed and donations from visitors are encourage to help with ongoing maintenance.

## Tagabe Bridge Riparian Restoration continues through the school holidays

The people of Tagabe Bridge Community on Efate are taking their commitment to rehabilitate their fast-dwindling water resources seriously. Years of land clearing and dumping of waste coupled with low rainfall have led to low water levels and poor quality water in the Tagabe River. The water seldom runs clear as the river bank soil continues to erode.

Although much of Port Vila has access to piped water supply, the communities living downstream along the Tagabe river are reliant on the river water for their bathing, laundry and cooking needs.

As water levels decrease and more water is needed to supply growing urban needs, the community is realising the need for urgent action. Rehabilitating the river banks through replanting and waste clearing is seen as an essential first step.

At the end of January, children and parents from the community planted 180 seedlings along the Tagabe River within their community area.

A variety of seedlings were planted, including, for example, pigeon pea. These were planted near the laundry/washing area. The plants will help with erosion control, provide nitrogen for the soil to support the other plants and provide good snacks for the children, who love the small peas they produce as a healthy snack.

Other plants include citrus, pandanus, custard apple, vetiver and Natapoa.

The community members were assisted by Department of Forestry officers, representatives from the SPC Ridge to Reef project, the Ifira Marine Management Committee, the Wan Smolbag group and the PEBACC team. A plastic-free lunch of local food, prepared by the women topped off the community event, with the children bringing their own plates from home and the visitors given leaves to use as plates.

Involving children in such activities is seen as a way of encouraging early learning and building understanding on the need to protect and value the natural environment.



THE LAUNDRY AND WASHING AREA ON THE RIVERBANK



PLANTING NATAPOA ON RIVERBANK



THE CHILDREN HELPED PLANT A VARIETY OF FRUIT TREES

## Communities committing to Urban/Backyard Gardens



HEGGAR MOLISA OF DARD EXPLAINS THE VERTICAL GARDEN CONCEPT

In February, representatives from Pango, Erakor, Seaside and FresWota communities participated in an awareness session and signing ceremony at the Department of Agriculture and Rural Development (DARD) Tagabe office. The four communities will participate in the PEBACC Port Vila Urban Gardens Project, which aims to demonstrate the value of local food gardens as a way of enhancing and rebuilding natural ecosystems and species habitats.

The overall idea is to protect higher elevation watershed ecosystems by promoting cultivation of natural

resources and food crops at home to help discourage the practice of 'bush gardening' and harvesting of resources from the wild.

Presentations were made by SPREP, DARD, Van-KIRAP (the Climate Information Services for Resilient Development Project in Vanuatu, funded by Green Climate Fund) and Department of Health. The session was also attended by representatives of SHEFA provincial Government.

Bani Arudovo, PEBACC Vanuatu Manager, explained that as more people learn how to use the land near their homes for growing food, the greater

the chance of reducing disturbance to natural ecosystems and loss of biodiversity.

"Home gardens should not be regarded as a Port Vila practice but rather whenever people return to their respective islands they should continue the practice in order to reduce disturbance to the different ecosystems that exist within their home communities," added Mr Arudovo.

Establishing home gardens is also of obvious relevance to improving human health. Nerida Hinge of the Department of Health highlighted the many health issues associated with



SECOND DEMONSTRATION PLOT FOR VERTICAL GARDENING

poor nutrition, including a high level of children with stunting and a high level of non-communicable disease (NCD) in Vanuatu.

"Backyard gardens will lead to improved diet thus reducing these problems," she said.

Currently nearly two thirds of people eat less than three serves of fruit and vegetables each day, according to the Department of Health. The World Health Organization (WHO) recommends five servings each day. The aim is to increase fruit and vegetables in the diet to improve health and wellbeing.

Director of DARD, Antoine Ravo, advocated growing several different plants in gardens, noting that we not only need to colour our plates but also colour our gardens.

Pakoa Lee, the Agriculture Project Officer



DARD DEMONSTRATION PLOT ALMOST READY FOR HARVESTING

for Van-KIRAP provided information on climate data of relevance to successful garden management. Community members noted that it is now more difficult to grow vegetables as the climate has changed and they were seeking advice on this. The Van-KIRAP

project will provide training to these communities on effective backyard gardening in today's climate.

A signing ceremony was conducted for each community with an agreement signed between the Chief, the land holder and the DARD Director.

## Survey of Tagabe River



Margaret Morris of the Vanuatu PEBACC team participated in a survey of the Tagabe River on 18 February as part of an effort to assess current state of threats to the river and communities reliant on it. The survey was initiated by the Department of Environmental Protection and Conservation (DEPC) and focused on assessing invasive species, bank erosion and pollution with a view to identifying significant areas for revegetation.

Other participants in the survey were officers and representatives from the Department of Forestry, the Ifira Marine Management Committee and the SPREP PacWaste Plus project.

The survey commenced upstream at Tagabe and followed the river down to the sea.

The team found similar threats at each community site, which include extensive growth of water lettuce, small water hyacinth and other weeds; pollution through dumping of communal rubbish and pig farming; clearing of land by commercial interests and dumping of rubble into the river; construction of makeshift walkways on the river (by rock-piling) and accumulation of debris from fallen trees and branches. These are blocking water flow, adding to growth of more invasive flora and further degrading the water quality. Soil erosion is also occurring in several areas.

The survey highlighted the severe plight of the river and the enormous challenges to its rehabilitation and restoration. The many communities living along the river

are highly diverse, representing different ethnicities with different backgrounds and mindsets. Despite efforts by the PEBACC project to mobilise the river communities and relevant stakeholders to work together in restoring the riverbanks with livelihood plants and rid the river of material waste and invasive weeds, change is slow.

Vanuatu country manager for PEBACC, Bani Arudovo, remains positive.

“Yes, there are huge challenges,” he says. “But hope is not lost as we believe that persistent collaborative work with the relevant government stakeholders, the authorities and the communities will finally pay off and we will one day see a cleaner, flowing Tagabe River that provides for everyone.”

## Poultry and piggery training at Port Resolution, Tanna island



THE TRAINER, DARRYL MASSENG AND SOME TRAINEES IN FRONT OF THE NEWLY COMPLETED AND FENCED OFF CHICKEN HOUSE

The communities of Port Resolution on Tanna island have opted for marine conservation in their quest to adapt to impacts of climate change. This initiative would mean a reduction in availability of the marine resources on which they rely for their daily protein supply. For alternative protein sources, the communities have chosen to learn proper poultry and piggery farming techniques at the household scale.

The PEBACC project sought assistance from the government livestock department and trainer, Darryl Masseng, visited Port Resolution in March and April to spend four weeks with the community to provide hands-on training. The training involved two weeks on poultry farming and two weeks on piggery farming.

Though interrupted by the COVID-19 lockdown as well as the passing of TC Harold, the communities were trained in areas that covered site selection, poultry and piggery house positioning, fencing, animal welfare, feed preparation and formulation, animal and bird breed selection, animal and bird health, production and marketing.

The participating community representatives enjoyed the training and now have a model poultry and piggery farm from which they can learn farming techniques.



PIG PEN



CHICKENS IN THE FENCED-IN RUN OUTSIDE THE CHICKEN HOUSE.

## Macuata Reviews Natural Resource Management Strategy



PARTICIPANTS AT THE MULTI-STAKEHOLDER WORKSHOP TO REVIEW THE MACUATA NRM © WWF-PACIFIC

In February, a multi-stakeholder workshop was held in Labasa to review and make recommendations for the update of the Macuata Province Natural Resource Management Strategy (NRMS) 2014–2018.

Development of this strategy began in 2012, and when launched in 2015, it was the first provincial level natural resource management strategy in Fiji.

The review workshop was organised by the Macuata Provincial Office with the support of WWF-Pacific through funding from PEBACC, and brought together provincial and districts chiefs, district representatives, women and youth representatives, government agencies, and local partners and stakeholders.



CHIEFS FROM THE PROVINCE OF MACUATA WERE ALSO PART OF THE DISCUSSIONS © WWF-PACIFIC

The three-day workshop was a chance to receive feedback from key partners and community representatives, and provide an opportunity to evaluate the effectiveness of the NRMS implementation within the province of Macuata from 2014–2018. Participants were also able to give directions to the updated version of the document, including strategies to effectively coordinate and implement it for the next 5 years.

In his opening remarks at the first day of the workshop, Macuata Provincial Council member and former assistant Roko Tui Macuata, Mr Mosese Nakoroi, challenged participants and especially community representatives on their commitments to the management of Macuata's natural resources.

"There are many commitments from the government for the management of our resources but the bottom line is the resource owners and users, how are we going to manage our resources for the betterment of our future generation.

"We need to look at what is happening in other provinces and look at how we can implement a new plan that will benefit the people of Macuata. Government has plans in place but Macuata also needs a roadmap that will align to and guide these plans," Mr Nakoroi said.

WWF-Pacific Great Sea Reef Programme Manager, Mr Alfred Ralifo, said the development and implementation of the strategy has not only been a big achievement for the province but a learning process as well.

"The Macuata NRMS was developed with a view to coordinate conservation efforts and initiatives within the province and strengthen coordination between stakeholders and find ways to access funding, assist vulnerable communities in adaptation



ROKO TUI TAILEVU, MOSESE NAKOROI © WWF-PACIFIC

measures and enhance sustainable development, while safeguarding biodiversity, food security, community livelihoods and building community resilience.

"A lot of the activities under the NRMS were to be implemented by some of the various government agencies like Agriculture, Forestry, Fisheries and are already part of the core functions of these line ministries, with funding for these activities to be included as part of their budget submissions to Government as part of their annual budget.

"This three-day workshop is now a chance for us to sit back and relook at the implementation period and evaluate what's worked and what hasn't and plan on next steps," he added.

The Macuata Province Natural Resource Management Strategy (2014–2018) was developed following a series of stakeholder consultations,

workshops and working in close collaboration with various Government Ministries, partners and civil society groups.

The four-year Strategy was put in place following several years of work by WWF in the Macuata Province and through funding and support by different funders and donors. This Strategy was the first such Management Strategy that used EbA approach and was coordinated by the Provincial Office.

The review workshop is part of an ongoing initiative to support the broadening of the Qoliqoli Cokovata management plan to include management of land-based activities that impact the Dreketi River Catchment (which drains into the Qoliqoli Cokovata marine area). The initiative is being implemented by WWF-Pacific with funding from PEBACC.

*Adapted from WWF article posted on WWF-Pacific website 16 February 2020*

## Taveuni communities continue with planting and restoration

A total of 8,621 trees that include native and fruit trees have been planted in the districts of Wainikeli, Cakaudrove and Vuna on Taveuni. The planting activities are all part of efforts to raise community understanding of the need for reforestation to support catchment rehabilitation and sustainable agriculture.

PEBACC partners with several organisations, including Conservation International and Department of Forestry for these activities.

While schools remain closed for COVID-19 precautions, District Watershed Coordinator (DWC), Sipiriano Qeteqete engaged the assistance of children in Lavena village to collect seeds for potting.

“The children are learning to pot native trees as well as vegetable seedlings and often get excited to see these plants germinate in the next few days after potting,” says Mr Qeteqete.

Due to the COVID-19 restrictions on travel, the coordinators also established their own temporary greenhouse nurseries, continuing to collect and pot seedlings in their backyard. Once the travel restrictions were relaxed, the seedlings were taken to the Mua nursery, which is housed at the Agriculture Coconut research station on the island.

One of the challenges communities face is ensuring survival of the plants. There has been low survival rate of seedlings in some of the areas largely due to lack of nurturing (weeding, adding soil/manure, etc) of the young plants, which require care and maintenance in order to thrive.

Villagers are addressing this through a regular monthly programme that involves cleaning up of planted areas potentially ensuring better survival chances of newly sown seedlings.

The DWCs are active in replanting the plants that have died with support from the Department of Forestry, which has provided an additional 3,000 seedlings for the three districts.



CHILDREN AT LAVENA LEARNING TO PLANT SEEDLINGS ©S.QETEQETE



CHILDREN GETTING THEIR POTS READY FOR SOWING SEEDS ©S.QETEQETE

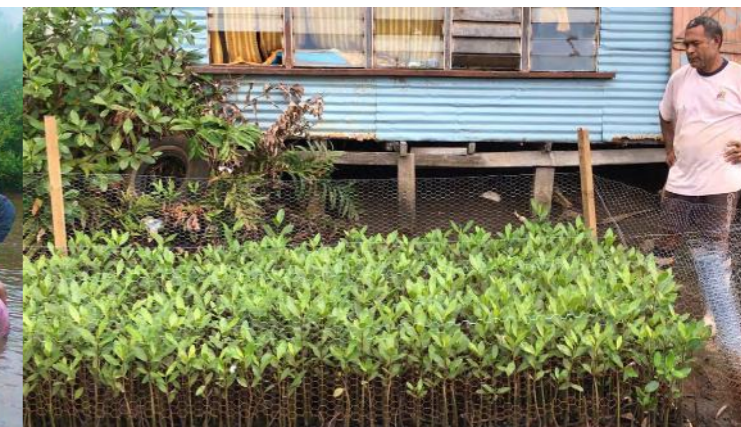
## Coral reef and mangrove restoration



CORAL GROWING FRAMES © CONSERVATION INTERNATIONAL



MANGROVE SEEDS BEING POTTED ©CONSERVATION INTERNATIONAL



MANGROVE SEEDLINGS READY FOR TRANSPLANTING ©CONSERVATION INTERNATIONAL

A partnership between PEBACC, the New Zealand government-funded Pacific Partnership on Ocean Acidification project also being implemented by SPREP, and Conservation International has seen the successful establishment of coral nurseries at Waitabu village (Tikina Wainikeli) and Nakorovou village (Tikina Vuna).

The nurseries have recently been completed and two sets of nursery trays have been farmed in waters near Waitabu village. At Nakorovou, the coral planting

was managed by the community.

Also at Navakaoa, the community has established a mangrove nursery with 2000 seedlings of Rhizopora, (tiri).

The potting was conducted in February over a two-day period by Conservation International staff Apisai Bogiva and Livai Tubuitamana; Mata ni Tikina Wainikeli; Wainikeli District Watershed Coordinator Sipiriano Qeteqete; Kelera Macedru from SPREP-PEBACC; and three other volunteers.

The collection of the seeds was conducted by the women of the community.

In June/July, these potted seedlings will be transported to villages within Tikina Wainikeli, facilitated by Conservation International. The potted mangroves will also serve as an alternative income to the community at Navakaoa.

The supply and distribution of these seedlings has been made possible through a partnership with Conservation International.





# ECOSYSTEM-BASED ADAPTATION

PROMOTING NATURAL SOLUTIONS TO CLIMATE CHANGE

MANGROVE FOREST, VANUATU  
PHOTO: DAN LAFFOLEY

## WHAT IS ECOSYSTEM-BASED ADAPTATION (EbA)?

“Ecosystem-based Adaptation is the use of biodiversity and ecosystem services, as part of an overall adaptation strategy, to help people to adapt to the adverse effects of climate change... it aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of adverse effects of climate change.” CBD 2009

### What are the benefits of EbA?

Having a healthy environment around us secures our supply of freshwater and other natural resources.

These are called ‘ecosystem services’ and are the added benefits that do not come when ‘hard’ engineered adaptation solutions, such as when seawalls are built.

### But what is adaptation?

Adaptation is making changes in order to reduce the vulnerability of a community, society or system to the negative effects of climate change.

### When is EbA the best adaptation option?

There are many different approaches to adaptation. The best option will reduce the vulnerability of a group of people in the most cost effective way over the long term.

This could be through conventional adaptation, EbA or a combination of both.

The ability to compare EbA with conventional solutions will need to be built through effective monitoring of and evaluation of current EbA projects and by building the capacity of local decision-makers to select the best adaptation options available.

### In the Pacific, how can EbA help us adapt?

By protecting intact ecosystems, managing natural resources and restoring degraded ecosystems.

For example, steep slopes in our region are often stabilised by deep rooted vegetation. As rainfall is expected to be more intense in the future, this natural buffer protects communities from flooding and landslides and also ensures that reefs are healthy by reducing the impact of sediment flows from erosion.

Keeping forests intact, or replanting them, also provides a source of building materials, crops and firewood.

Water catchments are also protected and in the sea, healthy reefs can then support greater fish populations.

### Where can I get more information?

For further information about EbA and the PEBACC Project, visit [www.sprep.org/pebacc](http://www.sprep.org/pebacc).

### About SPREP

SPREP is the primary intergovernmental environmental organisation working in the Pacific. Visit [www.sprep.org](http://www.sprep.org) for more information about the work of SPREP in the region.