



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

## NISABULA!

As 2019 draws to a close, we are pleased to share some of our highlights for the year.

Much has been undertaken and much achieved across our country projects with new partnerships being formed and existing ones strengthened.

Learning and knowledge sharing has been paramount in our endeavours with exchange programmes in country and regionally. We are learning from each other on nursery management, reducing plant mortality and management of revegetated areas.

In the Solomons, the Barana Nature and Heritage Park grows from strength to strength and community-based water resource management is making headway in Wagina. In Fiji and Vanuatu work is progressing on the conservation and restoration of coastal areas, watersheds and forests.

We wish you a joyous festive season and hope the articles in this edition will inspire and encourage you to invest in ecosystem-based adaptation as a means to build climate-resilient communities and economies.

The PEBACC Team



DELEGATES FROM FRENCH POLYNESIA, NEW CALEDONIA AND WALLIS AND FUTUNA WITH PEBACC TEAM IN VANUATU AT THE START OF A LEARNING EXCHANGE PROGRAMME ON EBA.

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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:



Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

based on a decision of the German Bundestag

## Replanting and Land Rehabilitation Training for Farmers in Dreketi

In September, 27 farmers from within the Dreketi River Catchment in the districts of Dreketi, Seaqaqa, Macuata and Sasa in the province of Macuata participated in an intensive three-day training activity as part of efforts to improve the health of the Dreketi River and Fiji's Great Sea Reef.

A section of the Great Sea Reef, known as Qoliqoli Cokovata, has been designated a Ramsar site (under the Ramsar International Convention on Wetlands) and is Fiji's first marine area designated as a 'wetland of international significance requiring protection and management'.

The Dreketi Catchment Sustainable Land and Forest Management Training was held in Naravuka Village and focused on raising farmers' understanding of the significance of Qoliqoli Cokovata and the role they can play in its protection through improving their farming and land management practices and reducing run off into the Dreketi River.

The training activity was organised by the Fiji Office of the World Wide Fund for Nature (WWF-Pacific) with funding support from the Secretariat of the Pacific Regional Environment Programme through the Pacific Ecosystem-based Adaptation to Climate Change (PEBACC) project. PEBACC is working with WWF-Pacific 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 Qoliqoli Cokovata).

For many farmers, the practice has been to clear the land almost completely and use large amounts of fertiliser in the hope of helping crops grow. This is costly for farmers and has longer term impacts such as water quality problems and river pollution through erosion and run off.

A key concern for management of the Qoliqoli Cokovata is the amount of sediment that is discharged from the Dreketi river. High levels of sediment increase the turbidity of the water and reduces its quality. This has a negative impact on marine life such as corals, seagrass, fish, shellfish and marine mammals.

The training programme focussed on managing land clearing and encouraging rehabilitation of deforested areas to prevent runoff from the land. Presentations were made by the Ministries of Forestry, Agriculture and iTaukei Land Trust Board, SPREP and WWF and site visits were undertaken to give participants a first-hand look at farms and plantations that are practicing sustainable farming and reaping



DREKETI FARMERS WITH THE TRAINERS AT THE WORKSHOP.

the benefits.

For some farmers, the idea of sustainable land and water management is inseparable from farming. Yaqona farmer, Mr Ku Ping, has been successfully planting yaqona on land considered untenable for the crop. He attributes his success to his careful use of the water on his land and he advocates replanting as part of this approach. He has set up an irrigation system on his 17 hectare farm so that he can monitor its activity and watering is only done every 2 days for an hour.

Mr Ping understands the link between trees and water and advocates bush regeneration to help keep the water resources on the land intact. The practice of course, also prevents runoff.

Says Mr Ping, "I challenge all farmers, when you clear the bush or trees, make sure you replant – it is your responsibility!"

Discussions raised the reverse issue of sedimentation and its impact on farmers themselves. The rice farmers in Dreketi raised concern on the amount of silt deposited from the nearby Dreketi bauxite mine. The silt blocks the culverts and water canals that irrigates water into the rice fields.

The amount of silt in the irrigation system affects farmers the most during the dry season when the water level in the main stream drops. This in turn affects their rice production.

The workshop also discussed a process for identifying Community Land Care

Champions and establishing a Dreketi Community Land-Care Group. WWF is in the process of profiling the farmers and their farms to identify those best placed to be part of the land-care champions.

"These Champions will be used as role models to promote the use of SLM and SFM Practices in Dreketi to reduce impacts and incidences of unsuitable farming practices that have detrimental effects on rivers and streams and subsequently the Great Sea Reef," says GSR Programme Manager, Mr Alfred Ralifo.

In closing the three-day workshop, Director of Forestry Northern, Mr Moape Lotawa stressed the role everybody has in ensuring the protection of the Dreketi Catchment.

"The catchment is everybody's responsibility - all the ministries and stakeholders and farmers and communities need to hold hands and address this issue [and] we need to communicate with each other and identify responsibilities to take on."

The training programme is the first step in paving the way for a coordinated and targeted approach to protection of the Great Sea Reef. A separate training for selected sugar cane farmers within the Dreketi river catchment will be done after the cane crushing season.

Additional activities include water sampling, community-based river monitoring training and the development of an Integrated Catchment Management Plan and Forum.

## Wakatu champions leading change in Taveuni

PEBACC's partnership with the cChange Wakatu programme continues to train and support community champions to drive work in reviving and restoring the watersheds.

In November PEBACC supported the training of 23 people on natural resource management in Taveuni. Participants for the two-day workshop were teachers, farmers, women's representatives, a community health worker, youth and district representatives from the three tikina of Wainikeli, Cakaudrove and Vuna in Taveuni.

To date cChange, with the support of PEBACC, has trained close to 100 people on Taveuni to champion change.

The Wakatu leadership workshop trains participants to conduct outreach in their communities. Participants are trained in a range of skills, including public speaking, community facilitation and use of the Wakatu A3 flip chart and illustrated booklets, posters and stickers to help engage communities around sustainable natural resource management.

"These champions are in turn raising awareness and assisting communities to take action, such as building of nurseries or replanting of trees".

The November workshop included teachers for the first time, with the aim of creating a bridge to target children.

"We have always been targeting adults while the children are usually left out," said Sipiriano Qeteqete, Watershed coordinator for the tikina Wainikeli, who helped organise the training. "They will be future leaders of Taveuni and need to be moulded from a young age. It's hard to change the mindset of an adult if not trained from an early age."

Taveuni is known as the garden island of Fiji and has long supported commercial farming. But over the years, unsustainable farming practices have depleted the soil and sent farmers further into the forest, often onto steeper slopes. Deforestation, soil erosion and loss of soil nutrients and moisture means today Taveuni is facing problems like shortages of clean drinking water, prolonged dry periods and less and smaller crop yields.

The Taveuni campaign focuses on sustainable land management and reforestation of degraded land.

The Wakatu campaign, created by cChange for the Government of Fiji, is a call to action for all Fijians to revive the land that supplies our food and the forest that provides us with water to drink, medicine when we are sick, food to forage and materials to build our homes and support our culture and tradition. The SPREP PEBACC project is partnering with cChange to bring the Wakatu campaign to Taveuni.



THE LATEST GROUP OF WAKATU CHAMPIONS ON TAVEUNI

## Mua nursery provides seedlings for Taveuni reforestation and rehabilitation programme



MUA NURSERY

A major challenge for native reforestation and agroforestry activities with communities in Taveuni has been the lack of seedlings of native trees and plants.

The Secretariat of the Pacific Regional Environment Programme's (SPREP) Pacific Ecosystem-based Adaptation to Climate Change (PEBACC) project moved to address this by building a 900 square metre central nursery at the Mua Agricultural Research Station with the aim of providing seedlings of native plants. The nursery, together with community managed nurseries in Lavena and Korovou, has been providing communities with seedlings since May 2019. The undertaking by the Ministry of Forestry to manage the nursery with a full-time nursery manager, bodes well for the long-term sustainability of the initiative.

As awareness grows, communities are showing greater interest not just in replanting, but in supporting seed collection and stocking in collaboration with the nurseries.

"Seedling production and building a platform for strong community support are two key considerations when it comes to tree planting," said Mr Elike Senivasa, Terrestrial Protection Manager for Conservation International (CI) Fiji.

PEBACC has partnered with non-

government organisations to support rehabilitation and restoration of degraded forest land in Taveuni. CI is responsible for work in the district of Wainikeli, SPC Land Resources Division is working in the district of Cakaudrove, and Scientific Forestry Services is operational in Vuna district.

To date, eight hectares of land has been planted with native and fruit tree species in Wainikeli under the CI-led project. Species planted include vesi, dakua, makadre and kaudamu, and fruit tree species of soursop, avocado and ivi.

In the Cakaudrove district, almost 2000 trees have been planted across roughly 1.4 hectares in the water catchments of Welagi, Tavuki, Lamini, Lovonivonu and Somosomo.

"In these catchments we have planted vesi, damanu, kaunicina, ivi, dakua, yasi, kaudamu, sea, dawa, davula and avocado," said Nicholas Naceba, the headman of Welagi Village and the PEBACC District Watershed Coordinator for Cakaudrove district.

In the Vuna district 200 vesi have been planted in Navakawau village and another 100 trees in Korovou village.

The majority of the seedlings for these activities have been sourced from the Mua nursery and the two community nurseries in Lavena and Korovou and also from the Nicholas nursery at Welagi.

## Taveuni farmers opting for nature-based solutions



TAVEUNI FARMERS OPTING FOR NATURE BASED SOLUTIONS.

The 1990's saw the island of Taveuni experience a huge growth in the taro industry followed by rapid expansion of kava cultivation, which continues today. Large areas of forest were cleared to allow for the cultivation of these two crops to meet local and overseas demand.

"Taveuni was the dalo (taro) headquarters in the country at one time. We supplied the best and most for the markets," says Taveuni farmer Ratu Jone Nakota. Ratu Jone is also the village headman of Naselesele Village in the district of Wainikeli.

"Sadly, today we are facing the

consequences of the farming methods we employed then and that some of us still practice today."

Similar sentiments are expressed in the district of Cakaudrove.

"We have now come to realise that these problems are the direct result of the deforestation on this island some 30 years ago, and which still continues today," said Nicholas Naceba, the headman of Welagi Village.

They are referring to the poor soil quality, deteriorating watersheds and the incursion of the invasive *Merremia peltata* ("wa-me" or "viliyawa" in the local dialect).

The Secretariat of the Pacific Regional Environment Programme (SPREP) Pacific Ecosystem-based Adaptation to Climate Change (PEBACC) project is supporting farming communities in Taveuni to restore their degraded landscape through a series of interventions.

Across both districts, villages in Taveuni are replanting native trees in their water catchments to restore soil moisture and soil fertility.

Agroforestry model farms have been established with five farmers from the Lamini, Tavuki, Naselesele and Lavena villages. The model farms

aim to demonstrate agroforestry and act as proof-of-concept for restoration of degraded land and water catchments through improved farming practices and reforestation.

Nicholas explains, "These farmers are cultivating kava, taro, yams, banana and pawpaw. We have planted in between these crops vesi, damanu, kaunicina, ivi, dakua, yasi and avocado."

The goal is to move towards an integrated multi-crop farming system, away from taro and kava monocropping. This objective is to provide food and income security and restore soil and watershed health while conserving native trees.

The native trees being planted have economic value either for timber (yasi, vesi) or fruit (Ivi, avocado) and will also provide a range of ecosystem services such as shade, pest control, cloud rainwater capture, retention of soil moisture and prevention of soil erosion.

One of the model farms has a fish pond for raising tilapia and prawns. However, the farmer had previously removed trees around the pond and later found the water growing murkier.

As part of the model farm approach, vesi and ivi trees have been planted around the pond to help stabilise the edges of the pond help keep the water clean.

"We hope that by replacing the native trees we have lost and by practicing agroforestry, this will bring back fertile soils and that our water catchments never run dry," said Naceba.

In the Wainikeli district, CI is setting up yaubula management support teams (YMSTs) within villages to help monitor and maintain the reforested areas to ensure their survival. Participating communities are Lavena, Korovou, Wai, Vidawa, Qeleni and Naselesele.

CI Fiji Field Officer Nemani Vuniwaqa, who is working with six communities in Wainikeli district explains,

"The aim of agroforestry is to bring the farmers back to their old farming sites, instead of going up into the forest to cut down trees to clear land for new farms".



A YOUTH PLANTS A VESI TREE AT THE LOVINIVONU CATCHMENT

In the demo farms they have adopted the practice of replanting trees with multiple interests to restore soil quality, diversify food sources by adding fruit trees and even using high value long term commodity tree species like sandalwood, besides the more common coconut and banana crop mixture.

Community consultation and awareness raising is also having significant impact.

"After we held these community consultations villagers showed more interest to be part of the work and requested plants and seedlings for their land. It went to the extent that even

after receiving as many as 100 seedlings, some villagers asked for more.

This is because they are witnesses to the effects of climate change in their communities and feel that they have to start doing something," Mr Vuniwaqa said.

The work is being done with the guidance of the Pacific Community's (SPC) Land Resources Division and with support from the Secretariat of the Pacific Regional Environment Programme (SPREP) Pacific Ecosystem-based Adaptation to Climate Change (PEBACC) project.

## Barana nature and heritage park thriving



BARANA COMMUNITY MEMBERS AND OFFICIALS FROM THE SOLOMON ISLANDS MINISTRY OF ENVIRONMENT WITH THE SPREP PEBACC TEAM AND BMT CONSULTANTS

Deemed a milestone for community-based conservation in Solomon Islands, the Barana Nature and Heritage Park on Guadalcanal was launched in June this year and continues to gain momentum.

The park is a collaboration between the Barana Community, SPREP, Guadalcanal Province and the Environment and Conservation Division of the Environment and Climate Change Ministry. In October, the park received a boost in its development activities through funding of USD 100,000 over two years from the Global Environment Facility Small Grants Programme (SGP) under the United Nations Development Program (UNDP).

The park is owned by the Barana Community and spans approximately 5,000 hectares of forest area in the upper catchment of the Mataniko river, one of the largest river catchments draining Honiara city. Management objectives include the conservation and rehabilitation of vulnerable ecosystems to safeguard their role in building social and economic resilience to

climate change. The area includes a number of World War II viewpoints and battle sites which makes it an important part of the heritage of greater Honiara. The Barana Community are also the original landowners of Honiara and the park supports a number of local cultural values.

Development of the park will include activities such as reforestation to reduce flood risks, replanting of stream or watershed areas to reduce soil erosion, sustainable land-use management activities, land-use mapping, development of eco-tourism activities and nature-based income generation activities.

The development of the park formed part of SPREP's assistance to Solomon Islands under PEBACC. The project was selected following a comprehensive and participatory 'ecosystem and socio-economic resilience analysis and mapping' (ESRAM) study carried out for Honiara.

Speaking during the opening of the Environment and Resilience Resource Centre, Hon Dr Culwick Togamana, the Minister for Environment, Climate Change,

Disaster Management and Meteorology (MECDM) stated that "while the Barana Nature and Heritage Park demonstrates the use of ecosystem-based adaptation (EbA), the project has gone several steps further by integrating revenue generation aspects critical to the long term sustainability of the park and livelihood of the community. This is not an easy undertaking and I congratulate you all for that innovation."

An Environment and Resilience Resource Centre built using traditional designs will play a central role in supporting the development of the Barana Nature and Heritage Park. Located at the park entrance and adjacent to Barana village, the resource centre is a platform for "Toktok" or "Talanoa" – a place to share ideas and make wise decisions for the collective good. It will also serve an education function, helping to create awareness about the importance of good environment practices and the role ecosystems and biodiversity play in building community resilience.

With support from the Solomon Islands

government Climate Change Division the resource centre has been fully equipped with solar power. This exemplifies government's commitment to forming partnerships and promoting climate change mitigation.

"SPREP is grateful and proud to be part of the development of the Barana Nature and Heritage Park and also the building of this Environment and Resilience Resource Centre," said Mr Kosi Latu, Director General of SPREP who was present at the launch.

"Initial baseline studies that included scientific assessments and robust stakeholder consultations informed the SPREP PEBACC project that the watersheds of Honiara city are important ecosystems in terms of climate resilience for Honiara city and that it was important therefore to work with local land-owning communities in protecting them."

The park is managed by a park management committee comprising the Barana community. Development of the park started in 2017 in partnership with the Solomon Islands Government through MECDM, Ministry of Forests and the Guadalcanal provincial government. With the funding boost from the GEF-SGP, the park management committee is making plans for capacity building and training and expansion of the nursery.

Signing a Memorandum of Understanding between GEF-SGP and Barana Nature and Heritage Park Committee, Chairperson of the Barana Committee, Ms. Melinda Kii reflected that this assistance will benefit youth, women, men, community and park executives through training and capacity building.

For SPREP through the Pacific Ecosystem-based Adaptation to Climate Change (PEBACC), the partnership with GEF-SGP marks yet another milestone for its activity in Solomon Islands.

"There is always concern about how to maintain support when funded projects come towards their end," says Solomon Islands PEBACC Project Manager, Fred Patison.

When the project first started the focus was on supporting the community to build their resilience through watershed management."

"We are now able to help build community capacity to manage the park and engage in sustainable livelihood activities such as eco-tourism and sustainable agricultural activities while continuing to protect and manage their watershed."

He said that PEBACC, as with all funded projects, has a specific time frame and ends in July 2020. The support from GEF-SGP is thus timely.

## Solomon Islands ESRAM study receives top award

The Ecosystem and Socio-economic Resilience Analysis and Mapping (ESRAM) assessment undertaken by PEBACC in the Solomon Islands was presented with the 2018 Sustainable Management Award in the Internationally Funded Category by the Australia and New Zealand Institute for Sustainable Management (ANZISM).

Led by Australia-based consultancy group BMT, the assessment refined and applied ESRAM methodology developed by SPREP for the PEBACC project.

BMT engaged local stakeholders over a period of two years to map ecosystem types; define key ecosystem functions

and services; identify threats to these functions and services; and identify and prioritise ecosystem-based adaptation (EbA) interventions to improve ecosystem health and increase community resilience to climate change.

"This award gives due recognition to the time and effort put in by a cross-section of stakeholders in Solomon Islands and it should be celebrated by everyone involved. We commend the team at BMT for the high quality of work they produced," said Mr Herman Timmermans, PEBACC Project Manager at SPREP.

ANZISM President, Mr Alan Tupicoff, said,

The GEF-SGP funds will support the Barana community in their plans for forest and biodiversity conservation.

The initiative has been commended by Guadalcanal Premier, Mr. Francis Sade.

"I encourage communities that have logging activities in their area to also think about replanting their forests. The new direction is through conservation of our resources and our environment," Mr. Sade says. He commended the Barana community on their hard work and achievement, noting that the Barana Nature and Heritage Park is the biggest community initiated conservation project on Guadalcanal.

He added that his government looked forward to supporting bird watching activities in the park.

These efforts are also supported by the Ministry of Environment, Climate Change, Disaster Management and Meteorology, which has provided assurance that it will continue to work with the Barana community to assist in enhancing the community's development activities.

"Because we must ensure the resources that we have are not only available for the current generation but also for the future generation," said Under Secretary for the Ministry, Mr Chanel Iroi.

## Home away from home - a story of resilience

In 1964, young Joseph Teia said goodbye to his home in the Gilbertese islands, boarded a vessel and came to Solomon Islands and never returned. He was seven years old when he left. As a young child, he did not understand why he had to leave his home and his father behind to come to another place.

His dad died when he was just a small boy and he does not remember him at all but holds him close to his heart.

The only memory Joseph has of the life he left behind is the long trip he took to the Solomon Islands, known back then as the British Solomon Islands Protectorate (BSIP).

"There were four huge houses on this island when we came. Those that came from Kiribati stayed in those houses. The island was full of trees and there was actually no home for us. We had to clear an area for ourselves and then we started building our homes," Teia recalls.

Wagina was then an uninhabited densely forested island with swamps and rocky stones along its coast and much work was required to make space for the homes.

Plunged into a world so different from the one they had left behind, the Kiribati people were faced with the challenge of adapting to their new environment.

"People from Guadalcanal, Malaita and I think Isabel too, came to help us build our houses. We did not know how to build houses from coconut or sago palm leaves as we were only used to pandanas leaves. So they came and helped us," Teia says.

The only connection the Gilbertese people have to the home they left behind is the ocean. In their new home, there is an abundant supply of marine resources and the Gilbertese people continue to fish and dive as they used to.

Joseph Teia has lived on the island of Wagina for 55 years (with a small portion of time spent on Gizo in the Western province).

He has four children, three of whom are still in school. All of his children now live in Honiara and he supports their education with money he earns from selling sea weed, sea cucumber and other marine resources.

"My wife died and so I am living by myself. But I have my nephews and nieces here who also assist me in fetching water and washing clothes for me to wear."



Over time the population on Wagina has grown. The increasing number of people has meant increasing threats to their livelihood. Access to safe water is one of those threats. The river on which they have relied for fresh water is no longer clean and is contaminated with plastic and other debris. Streams that were once crystal clear and cool have now turned murky and dirty with the increase in population and clearing of land. Water wells recorded a high number of e-coli bacteria, making the water unsafe for people to drink.

"The only source of clean water we have is from the [rainwater] tanks. But in the past we used to collect drinking water also from the other sources," Teia says.

In 2018, the SPREP-PEBACC project carried out an extensive ecosystem and socio-economic resilience analysis and mapping (ESRAM) study for Wagina. This formed the basis of an ecosystem-based adaptation options assessment, which highlighted the need for a Water Resource management guideline, action plan and awareness campaign to help the community focus on managing and maintaining the quality of water.

This came to fruition with the launch of the guideline on the weekend of 19th October 2019. The guideline serves to help the people of Wagina protect the limited water sources they have.

"For the past 50 plus years, part of my daily chores included fetching water from the water wells. Till now, I am still fetching water from wells. I hope I will get

to see water supply stand pipes installed in the village in my lifetime. Otherwise I wish for my future generations to enjoy the benefits that I have not enjoyed in my lifetime," Teia laughingly says.

Asked if bauxite mining on the island is welcoming news, Teia strongly objected to the notion.

"I strongly do not want any mining operation to happen on this island. This island is very small. If they mine 60 per cent of the island and people only are allocated 40 per cent of the island, how will they survive? The seas will be contaminated, the streams! My worry is for the future generation of the people on this island."

On the whole, another threat looms for the people of low lying atolls like Wagina.

"In the past, there were islands that we used to go out to when we went on a fishing trip. Now some of the islands are starting to submerge under rising seas. Some of the islands have half of it under sea," Teia says.

The daunting thought of relocation is something the people of Wagina would not want to go through again. The faraway islands of Kiribati are only but a dream for the old people of Wagina.

For the younger ones, the islands of their forefathers are no longer one they envisage ever calling home again.

"This is our home now. Should anything happen to us, we do not know what we will do nor where we will go".

## Water queens pageant highlights importance of water sources PEBACC SPREP, Solomon Islands



SOLOMON ISLANDS PEBACC PROJECT MANAGER, FRED PATISON, WITH THE CONTESTANT FROM ARARIKI VILLAGE.

As part of its strategy to raise awareness on water resources, the Wagina community has staged a successful 'Queen show' for its people on the island.

Supported by the Secretariat of the Pacific Regional Environment Programme (SPREP) Pacific Ecosystem-based Adaptation to Climate Change (PEBACC) project, a pageant-style approach was used to bring the communities of Wagina together. Four young women, hailing from each of the communities, and representing a different aspect of water resources on the island, were the "queens".

Representing Tengeagea village is Miss Water Tank, while Miss Well/Ground water is from Tekaranga village on Wagina. From Arariki village is Miss Stream Springs/Rivers while Miss Watershed/Water catchment comes from Nukumaroro village.

Highlights of the night were speeches and dances that captured the audience. The youngest of the contestants, Miss Tengeagea, is an 11-year-old student of Wagina Primary school. She and the other queens highlighted the need for water conservation and safe water storage and made reference to statements in the recently launched water resource management guideline.



THE YOUNGEST CONTESTANT, 11-YEAR OLD MISS TENGEAGEA, SPEAKS TO THE AUDIENCE ABOUT WATER CONSERVATION.

"I think this is a very good initiative and idea to have these sort of issues translated to the people through this form of activity," village woman Doreen Teuaia says.

Ms. Teuaia says people on the island took these things for granted and were not aware of the dire situation they were in. She said the awareness raising has made them realise how much they have contributed to weakening their ecosystem.

"Now we can be able to look after our environment properly so that our future generation can also enjoy what are enjoying," she said.

The Wagina Water Resource Management Guidelines and Action Plans were developed and completed by the Wagina women and elders with support from PEBACC, the Lauru Land Conference of Tribal Community (LLCTC) and RWASH of the Solomon Islands Ministry of Health.

The women's group will lead and oversee the implementation of the Guidelines and Action Plans. Various awareness campaign approaches on the Water Resource Management Guidelines and Action Plans will follow.

## Marine toolkit champions



MARINE TOOLKIT CHAMPIONS WITH THEIR CERTIFICATES.

SPREP PEBACC was pleased to support a training workshop for Marine Toolkit Champions, held on Ifira Island from 18–20 June 2019.

Those attending the training included nominated local champions from Ifira and Port Resolution communities, who are in the process of developing and registering a local community conservation area (CCA) supported by the PEBACC project.

The training these champions have received will further support the sustainability of their CCA's by providing necessary capacity for the community to meet their reporting obligations.

The training provided participants with skills and knowledge for monitoring their local marine environment and using the data collected to assist in management decisions for the conservation of their marine areas.

The workshop covered both the theory and practice of monitoring the marine environment: fish catch surveys; intertidal invertebrate surveys; reef health surveys; sea grass surveys and Mangrove surveys.



THE MARINE TOOLKIT CHAMPIONS IN THE MANGROVES

The data collected throughout the workshop was then presented to the Ifira community in a public meeting held on the afternoon of the last day.

The representative of the Ifira Council of

Chiefs expressed his gratitude to SPREP PEBACC for choosing Ifira as the location of the workshop and said the information collected will be valuable in assisting the community to improve their marine management.

## Chiefs launch the Tagabe Riparian restoration awareness campaign

An awareness campaign for the Tagabe Riparian Restoration Project to the Ifira Paramount Chief and Ifira Council of Chiefs was launched with support of the Secretariat of the Pacific Regional Environment Programme (SPREP) Pacific Ecosystem-based Adaptation to Climate Change Project (PEBACC) project in July 2019.

The campaign commenced with presentations at the Paramount Chiefs' Nakamal on 10 July. Presentations were made by the key members of the Tagabe Riparian Restoration Project steering group: Department of Forestry; Department of Water; Department of Environmental Conservation and Protection; Shefa Provincial Government; Ifira Marine Management and SPREP PEBACC project.

Paramount Chief Manto Kalsakau III provided his blessing and full support for the project, thanking the steering group for their hard work in protecting the environment. Following the presentation, the steering group presented the Paramount Chief with 10 sandalwood seedlings to commemorate the meeting.

On Friday 12 July 2019, the Tagabe Riparian Restoration Project steering group presented to the Tanvasoko Area Council, Blacksands Chiefs, representing the 20 communities in the Blacksands area and the Chief of Tagabe Bridge community at the Sumulapa Fare at Malapo.

The Chiefs endorsed the work of the group and invited the Steering Group to visit each of their communities to discuss how they can work together to restore the Tagabe River. To commemorate this agreement to work together, the chiefs were each presented with a sandalwood seedling.

The first community-based awareness presentations took place on Sunday 14 July. The Chiefs of Sulphur Bay Smol and Sulphur Bay Big together with their communities welcomed the Tagabe Riparian Restoration Project steering group.

During the presentation, members of the community shared stories of when the river was clean and deep. They committed to work together to restore the riparian zone of the Tagabe River.

The agreement was commemorated with the presenting of seedlings to plant in the community and all agreed these new trees belong to the Tagabe River and would be protected by the communities. The seedlings included fruit and nut trees that would provide food and livelihood for the community.



JUDY KALOTAP OF THE DEPARTMENT OF FORESTS PRESENTING TAGABE PARAMOUNT CHIEF WITH THE SANDALWOOD SEEDLINGS.



IFIRA PARAMOUNT CHIEF, IFIRA COUNCIL OF CHIEFS WITH TAGABE RIPARIAN RESTORATION PROJECT STEERING GROUP



STEERING COMMITTEE PRESENTING SEEDLINGS TO CHIEFS AND COMMUNITY REPRESENTATIVE FROM SULPHUR BAY BIG AND SULPHUR BAY SMOL.

## Blacksands coastal communities work to rehabilitate their river and coastline

Following the launch of the awareness programme, Blacksands coastal communities have been taking the initiative in cleaning up and rehabilitating their coastline and river. The SPREP PEBACC Tagabe Riparian Corridor Restoration Programme has held awareness raising events with 17 communities during the second half of 2019.

During these sessions the PEBACC team has worked with the Ifira Marine Management (IMM) champions and communities to plant over 1800 plants with a view to restoring the river and to minimise river-bank erosions during flood events consequently reducing flood risks to homes within the vicinity.

We provide snapshots from two of the events.

### BAHAI'I COMMUNITY CLEAN UP AND PLANTING

The Baha'i community conducted a cleanup and planting upriver of the Blacksands bridge on 28 and 29 September 2019. The activities were also supported by the Vanuatu Department of Forests.

About 40 community members collected rubbish along a 150 metre stretch of the Tagabe river and its banks, filling 100 garbage bags with litter and separating large metal items for recycling.

The clean up was followed by the planting of approximately 200 clumps of vetiver grass on the banks of the river and over 200 seedlings in the riparian zone. The seedlings included local chestnuts, avocado, mango, lemon, Natapoa, tamarind, sandalwood and Natangura (sago palm).

The activities received coverage in the local radio and television news and social media, providing an opportunity for awareness raising and education on river management.

### Victory Hope Blacksands School and Community engagement

On 16 October 2019, the Blacksands community members together with the teachers and 200 students of the Victory Hope Blacksands School attended an awareness raising event held near the



THE BLACKSAND BAHAI'I COMMUNITY WITH SOME OF THE BAGS OF RUBBISH REMOVED FROM THE RIVER AREA. THE CLEAN UP WAS FOLLOWED BY PLANTING OF VETIVER AND NATIVE PLANTS.



JUDY KALOTAP (DEPARTMENT OF FORESTS) PRESENTING TO SCHOOL STUDENTS AND COMMUNITY MEMBERS

Blacksands Presbyterian church. The event was blessed by the community Pastor and this was followed by an information session on the value of trees in rehabilitating the river and coastline.

The school and community members then engaged in a day of clean up and planting of 200 vetiver clumps, and a total of 436 seedlings of Tamanu, Barringtonia, She oak and Natapoa along the coastline.

The school principal, Mrs. Anika Ngari expressed her delight at the opportunity to take the students out of the classroom to assist with practical experience of climate change adaptation and disaster risk reduction work and has requested further talks from the PEBACC team.



VICTORY HOPE BLACKSANDS SCHOOL PRINCIPAL, MRS ANIKA NGARI SPEAKS TO THE MEDIA

## Pacific French communities conduct exchange visit to Vanuatu

Government officials from French Polynesia, New Caledonia and Wallis and Futuna participated in an exchange programme with Vanuatu from 25 to 28 November.

The aim of the programme is to help build the regional knowledge base, particularly amongst decision makers and managers in the French Pacific communities of the value of ecosystem-based adaptation approaches as cost-effective and long-term solutions to building community resilience.

The exchange programme itinerary included in-depth discussions and presentations combined with visits to coral planting sites on Pele island and fish feeding grounds. An alternative revenue generation programme using a solar fruit dryer was also observed, and the visitors helped plant vetiver grass at a demonstration site.

A visit was also made to a giant clam conservation/breeding site and enclosed hatchery, developed by the Vanuatu Government Department of Fisheries.

One of the many benefits of an exchange experience is the opportunity it provides to reflect on accepted practices and assessing whether best practice is being employed. The fish feeding visit highlighted that tourists are feeding the fish bread, which is not their natural diet.

The French Polynesia visitors have undertaken to provide information on how similar programmes are being managed in their country.

The visitors also shared their own experiences in mangrove restoration and introduced the IUCN French mobile application for mangrove observation and management. The app, currently in development mode, has been designed specifically for French territories but has potential to be used elsewhere in the Pacific.

Everyone indicated positively that they enjoyed the community experience and were inspired by how so much can be done with limited funds.

The exchange visit was co-funded by SPREP's Pacific Ecosystem-based Adaptation to Climate Change (PEBACC), IUCN France and Fonds Pacifique (French government funding).



MARGARET MORRIS PRESENTS DETAILS OF PORT VILA PEBACC PROJECTS. ©JEAN KAPE



WILLIE FROM NGUNA/PELE MARINE AND LAND PROTECTED AREA NETWORK DISCUSSES CORAL GARDENING TECHNIQUES. ©JEAN KAPE



IN THE EMUA RESCUE RESOURCE CENTRE.

## Fiji-Vanuatu learning exchange on plant propagation and nursery design and management



VANUATU FORESTRY OFFICER, JUDY KALOTAP STUDIES SOME OF THE SEEDLINGS AT THE COLO-I-SUVA NURSERY IN SUVA. VANUATU PEBACC PROJECT COORDINATOR BANI ARUDOVO LOOKS ON.

A technical learning exchange between Vanuatu and Fiji aimed at enhancing understanding on native tree propagation, nursery management and mangrove planting techniques was conducted in Fiji in November.

The exchange, supported by the Secretariat of the Pacific Regional Environment Programme (SPREP) Pacific Ecosystem-based Adaptation to Climate Change project (PEBACC), proved mutually beneficial to Vanuatu's Department of Forests and the (Fiji) Ministry of Forestry.

"Our staff found the discussions stimulating and it was good to reflect on our own work where we have to think about why we do certain things the way we do," said Mere Vukialau, Senior Scientific Officer at the Ministry of Forestry.

"There's also an element of pride in being able to show off your work to others in your profession and I think it was a very valuable experience for our nursery staff," she added.

The first activity on the programme involved a visit to the Colo-i-Suva nursery in Suva. Forestry staff were on hand to showcase their seed collection, drying and propagation techniques, including potting mix ratios and good practice.

The thriving nursery was greeted with much enthusiasm by the visitors from Vanuatu.

"We really need to upscale our native tree propagation work in Port Vila so that we have enough plants to effectively rehabilitate the Tagabe River," said Bani Arudovo, Project Coordinator of the Vanuatu PEBACC project.

"At the moment we do not have enough seedlings."

"One of the challenges for rehabilitation and adaptation activities in both Vanuatu and Fiji is having access to sufficient viable plant seedlings," the Conservator of Forests (Fiji) Ms Sanjana Lal said.

"Seedlings need to be kept strong and healthy before they can be transplanted to the new sites, which are often exposed

to the wind and sun. Some areas may also be prone to fires and drought, especially when trying to rehabilitate degraded areas."

Discussions during the Vanuatu team's visit to Fiji highlighted the importance of understanding the science in selecting and planting native trees to reduce mortality rates following replanting.

There were also discussions for the need for community involvement and engagement for replanting to be effective. Similarly, for mangroves, some locations chosen for planting may not be suitable for mangroves while only particular species will grow in particular areas.

During the Suva visit, participants were joined by Mr Marika Tuiwawa, the Curator of the Biodiversity Centre at the University of the South Pacific, who shared his knowledge on various native tree species and conducted a brief tour of Suva's replanted mangrove sites.

Lessons from mangrove rehabilitation projects in Fiji were presented to



VANUATU FORESTRY OFFICER PRESLEY DOVO DISCUSSES POTTING DETAILS WITH FIJI NURSERY STAFF ULAMILA AND SETA AT THE COLO-I-SUVA NURSERY.

the visitors from Vanuatu by staff of Conservation International and the Ministry of Forestry. These were well-received by the team from Vanuatu.

"We learnt some interesting ideas such as putting temporary fencing around the planted mangrove seedlings to keep them safe," says Presley Dovo, Senior Forest Officer from Vanuatu's Department of Forests.

"In Vanuatu, the seedlings get a lot of rubbish like plastic bags smothering them. This simple system could be helpful for us."

Another aspect of interest for the visitors was the practice in some locations, of planting mangrove seeds directly into the rehabilitation area.

"This approach may be quite useful and eliminate the need to build a nursery in some areas," says Mr Dovo.

After Suva, the team visited the Korotari nursery in Labasa and the Mua and Tutu nurseries on Taveuni.

They also participated in tree planting in Nawailevu and Nasarawaqa villages in Bua as part of the Ministry of Forestry's FAO (Food and Agriculture Organization) Action Against Desertification (AAD) project and the Fiji Government's 4 Million Trees in 4 Years initiative which has recently been increased to target 30 Million Trees in 15 Years.



MARIKA TUIWAWA, CURATOR OF THE BIODIVERSITY CENTRE, UNIVERSITY OF THE SOUTH PACIFIC, WITH ALLAN DAN OF THE VANUATU PEBACC PROJECT.



BANI ARUDOVO, VANUATU PEBACC PROJECT COORDINATOR, PLANTS A SEEDLING DURING A FIELD VISIT

# 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.