



Ministry of Natural Resources and Environment

Matagaluega o Punaao Faalenatura ma Siosiomaga

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EDITORIAL

Sustainable Developments is the future for Samoa!

Sustainable developments refers to developments that allows us to meet our needs without compromising the ability of future generation to meet their own needs. It can be attained by having a integrated balance between its 3 major components of '**Economy, Social and Environment**'. For instance, when considering a development on a given area, the **Economic** benefit would be the first aspect that will be considered by many developers. However, to provide maximum long term benefits efficient benefits of such development, the state of **Environment** needed and used for this process has to be considered for long term continuation of the development. This would also depend of the **Social** factors that affect the decision made in establishing a development in a given area. This is the Ministry's vision of improving the quality of life for all Samoans by effectively and efficiently manage the resources available in Samoa; therefore, our mission is to assist communities and stakeholder partners in practicing sustainable developments in our environment.

The Ministry continues to raise awareness and build capacity within Samoa through consultations, workshops, meetings, seminars, school awareness programs and conducting of projects relevant to sustainable developments. This is the work plan that was built from our international cooperation to achieving Sustainable Development Goals (SDG) created by UN to assist membered countries to develop sustainably. These goals are translated by Samoa through the Ministry by developing an action plan that will help Samoa fulfil and benefit from the goals and targets established.

It is important to practice sustainable developments because this is an approach that will counteract against poverty, poor health, Climate Change and recovery of ecosystems in both marine and terrestrial environments.



Leading by example

'ensuring a clean and safe environment for future generations'

In celebrating 55 years of Independence together with the public, the Ministry took part by engaging in a rubbish pick up activity around the Government Building vicinity. Each divisions were assigned with a responsibility of cleaning up particular areas within and around the vicinity throughout the entire day. This was a busy day for the Ministry collecting rubbish after rubbish; either floating along the road side or stacked up in piles wherever the public have had their picnics. As seen every year after any public celebrations, there would be a jumbled scene around the event areas. This was a great opportunity for the Ministry to promote public awareness on the importance of proper Waste management not only during national occasions in public places and also for a healthier lifestyle. Although it saddens to see people disposing rubbish regardless of where, it provided great feedback for the Ministry; not all are aware of proper waste disposal.

The Ministry continues to remind the public on proper sustainable waste management by putting into action the popular 4R's of **Reduce**, **Reuse**, **Recycle** or **Recover**.

- **Reduce** pollution by limiting the wastes produced when consuming products. Eg. Refusing of plastic bags at grocery stores
- **Reuse** of waste products. E.g Using a juice bottle as a refill water bottle
- **Recycle** wastes by using the product to recreate a new product. E.g Recycling of scrap metals to produce new metallic products.
- **Recover** of waste products by converting it into resource use. E.g Composting and Energy source.

The Ministry also reminds the public to make use of proper disposal bins provided by its Waste Management Contractors and to safeguard the quality of these assets as these are installed to help the public minimize pollution in public areas.



Staff member assisted by public during Clean Up activity



Staff members struggles to collect from an overloaded rubbish bin



Finishing the day off with a good smile



Be a responsible citizen

"Ensuring sustainable developments and management of Samoa's water resources through conservation and protection of watershed areas"

Water Resources Division (WRD) took the initiative to carry out an awareness program in Colleges and secondary schools in Mid North Upolu. The team selected 3 schools at random which included: Wesley College, Vaimauga College and Avele College. The purposes of these awareness programs were to educate students on the importance of watersheds & water; sustainable management of water resources by identifying implementation plans necessary for these actions; and emphasize on the importance of individual actions in the protection and conservation of watersheds through understanding activities that help conserve and prevent harm posed onto our water resources. In the main presentation, the 3 sections of WRD (Policy & Regulation, Hydrology & Watershed) presented on the importance of each sections into conservation and management of water resources.

Why are watersheds important? Watersheds are precious water catchments created by surrounding ridges which directs the gravitational flow of water into rivers or streams. These catchment systems managed and protected by the Ministry provides daily needed water supply to all households in Samoa through the services provided by Samoa Water Authority (SWA).

How do we prevent water resources from limiting? A large percentage of Samoa's population aren't aware on the importance of protecting our watershed areas. Continuous human activities through unsustainable practices continue to threaten, pollute and contaminate our watersheds within the ranges of mountainous areas and downstream alongside river banks. These activities include animal agriculture, plantation agriculture (especially monocropping), land developments/landscaping/deforestation, pollution (rubbish dumping & point source pollutions) and resource extraction/mining. These activities have caused major concerning issues in the quantity, quality and conservation of our water resource.

The MNRE continues to educate the communities to be responsible citizens and learn about the deep negative impacts of unsustainable activities on our lands and watershed areas. To raise awareness and build knowledge capacity in ways to improve our livelihoods and protecting our watershed areas.



Mr. Jun (JICA Volunteer) presents award to Wesley college student



Vaimauga students show enthusiasm during 'Questions & Answers'



Mr. Tamasoalii (Vaimauga Principal) received gift from WRD representative, Taito. Green.



Nationally Appropriate Mitigation Adaptation (NAMA)

'reducing GHG emissions to counteract Climate Change (CC)'

Climate Change is real, it is affecting the world with its devastating impacts. Samoa, as an island vulnerable to these impacts are experiencing dramatic natural hazards and catastrophes that has already altered lifestyles of the population. A major contributor to CC is the high levels of GHGs in the atmosphere that results from increasing human activity and unsustainable developments within limited resources provided by our environment.

As a movement towards combating CC in the islands, NAMA was introduced during COP13 in Bali 2007, and it was adopted as our mitigating action towards the high levels of GHGs within our atmosphere. NAMA refers to all voluntary non-binding policy instruments that provide a framework for a country to pursue a socio-economic development while contributing towards Global Greenhouse Gas (GHG) mitigation efforts.

Data from Transport Sectors GHG inventory of 2007 had shown the highest source of CO2 emissions is caused from road transport. Therefore the transport sector has developed NAMA interventions through extensive consultations; which are to reduce the GHG emissions from road transport vehicles in Samoa. These 3 interventions are:

(1) Scaling up bio diesel use in diesel vehicles-Short term

Under pilot phase, the Scientific Research Organization of Samoa (SROS) had developed biodiesel from using coconut. Fortunately, this biodiesel was efficient for both old and new diesel engines. However, the IUCN funded project was at short term as there weren't sufficient raw resources to produce large quantities of biodiesel to cater for Samoa.

(2) Introduction of electric cars-Short term

E cars has never been introduced to Samoa; however, a trial of e-car programme would operate 100 e-cars as taxis during the pilot stage. It has its advantage where it will be able to rely on clean energy, and reduce our reliance on fossil fuel. However, its funding agent is to be figured out.

(3) Introduction of electric buses for public transport-Long term

Electric buses will be introduced to Samoa where 10 buses will be imported for public transportation operations. This phase is at pending state as it waits for a successful progress after the introduction of 100 electric taxis. This movement towards electric buses is to reflect on Samoa's commitment in supporting our INDC targets of using sustainable resources for public, and also to raise awareness on the efficiency of switching to electricity based energy vehicles.



L-R: Mr. Bob Lloyd and Mr. Srikanth Subbarao



Consultation to discuss Nationally Adaptive Mitigation Actions



Reducing our GHG emissions through controlled reliance on fossil fuels by relying on other means of sustainable energy



Ornamental plant is a killer!

'Eliminating and control wide spread of invasive species-Water Lettuce (Lakisi)

Did you know that Water Lettuce is an invasive specie? This weed plant originated from South Africa had spread across the globe and it has dominated marine life ponds, lakes, and rivers. The characteristics of this invasive species are fast growing, free floating and it commonly recognized as an ornamental plant. It grows on water surfaces as clusters forming a mat that blocks sunlight from entering the waters. It consumes oxygen from inside the water causing a low oxygenated marine environment.

Over the past years, the Ministry had monitored and received reports of Water Lettuce gardens been sighted at areas of Vaivase, Vaigaga, Vailoa, Tamaligi and Vaisigano villages. The Environment & Conservation Division team responded quickly by locating the sites reported in by the public. The Ministry through Division of Environment & Conservation (DEC), continues to monitor the island for Water Lettuce existence; they are also investigating on the distribution of the invasive specie as an ornamental garden plant.

The Ministry has worked together with SPREP over the years in eradicating this species, and prohibiting communities from nurturing the invasive specie in Samoa to avoid it from spreading uncontrollably.

What can you do to help? The public can contribute to the control, prevention of wide spread of the invasive species by eradicating the species from the aquatic environment or report the matter to the Ministry for further actions. The Ministry has the authority to put a stop to the nurturing of this species by putting the 'Quarantine (Biosecurity) ACT 2005.' This ACT protects the natural environment and biodiversity of Samoa from invasive species that harm the harmonic existence of our biodiversity. It is our responsibility to protect our heritage and environment.

For further assistance please contact: 67200



Water Lettuce nurtured and grown in ponds by florist at Vaivase Uta



Water lettuce are being sold and distributed by florists and landscapers



This invasive species grows uncontrollably fast in still water areas.



Very First Electric Scooters in Samoa!

'Energy, Ecosystems, and Sustainable Livelihoods Initiative (EESLI)' Project-under IUCN, has assisted the Pacific Countries by providing support for the development and implementation of energy policies as well as supporting various energy pilot projects that focuses to improve sustainable livelihoods as well as conservation of our ecological systems. As part of its phase 1, the EESLI Project has gifted Samoa with 6 pilot electronic non-motorized scooters. These scooters are now with Land & Transport Authority (LTA) for its traffic patrol purposes. Many may ask why only 6 scooters? These non-motorized scooters are under a pilot program where if successful, the Renewable Energy will move towards adapting electronic vehicles for commercial purposes by importing 100 electronic taxi cars to Samoa.

Deputy Prime Minister and Minister, *Afioga Fiame Naomi Mataafa* delivered a keynote speech during the opening ceremony where she highlighted on the importance of our movement towards using non-motorized vehicles in order to combat Climate Change and reducing our carbon foot print on our vulnerable planet. *"It is crucial we understand the importance of our environment, and why we push to conserve our environment by using renewable energy attained from our environment and atmosphere"* she highlighted.

Ms Vanda (ACEO-Renewable Energy Division) commented to press, *"These are the very first electronic vehicle in Samoa. Using non-motorized vehicles such as e-scooters are much better and very efficient. We would rely on the limited fossil fuels but to use energy systems surrounding us through wind, sun, water as well as our biomass energy. There is less GHG emissions emitted by these e-scooters; they're easily maintained, produces less pollution and also it is noise free!"*

The scooters are now patrolling Apia and it is under the maintenance of LTA and the supplier, Collin Carr Ltd.



L-R: Paul Arnold (Collin Carr Ltd), Honorable Minister (MWTI), Afioga Papalii Niko Lee Hang, Honorable Deputy Prime Minister, Afioga Fiame Naomi Mataafa, Ulu Bismarck Crawley (CEO)



Honorable Deputy Prime Minister. Afioga Fiame Naomi Mataafa, discusses with LTA traffic patrol officers.



L-R: Fefiloi K, Tuiolo S (ACEO), Moafanua P (ACEO), Ulu Bismarck (CEO), Satufa (ACEO), Ausetalia T (ACEO), Fetoloai Y (ACEO), Vanda CT (ACEO)

Rio Convention Project Community Consultations around Samoa

Rio Conventions derived directly from the 1992 Earth Summit. These Conventions contributes with its own way towards achieving the goals of sustainable developments. These conventions are interlinked as they address on similar issues that threatens our harmonic survival. These Conventions was brought to Samoa in September 2014 as an initiative to connect Samoa to a more exposed global platform to building capacity towards effective sustainable developments and conservation of environment. This project is at its final stages as it ends in September 2017. During these final stages, the Rio Conventions Project consultations was carried out for the islands of Upolu and Savaii from 24th – 28th July. This process of consultations was funded by UNDP and The Government of Samoa.

The outlines of messages delivered to community were to: Raise awareness on 23 international treaties in which Samoa had signed. Raise awareness on the status level in which Samoa had accomplished under these 3 treaties. To inform communities on the importance of their cooperation in to achieving the targeted goals set up from these treaties in terms of sustainable developments and conservation actions towards our natural heritage. To receive feedback from communities regarding their understanding of the Rio Conventions and the treaties that comprises of it.

During the consultations, three (3) of the treaties were discussed during the consultations with communities. These included the Conventions on Biological Diversity (CBD), United Nation Convention to Combat Desertification-UNCCD, and Convention to Combat Climate Change-UNFCCC. These three (3) conventions were thoroughly delivered during the public consultations for a more detailed feedback from the public. This was done by discussing the aims/goals of each convention.

The Ministry had urged the communities to cooperate in implementing the conventions by cooperating with the ministry to identify and assist in developing a sustainable environment in Samoa.



UNCCD Consultation session in Gautaivai Metotisi Church Hall.



CBD Consultation session in



UNFCCC Consultation session in Metotisi Church Hall Gautaivai



Destroying our environment a smart move for economy development?

Land Management Division conducted a field inspection in Savaii. The team visited areas that were reported to be degraded through unsustainable developments. These areas covered shores of Taga, craters in Tafua, **land reclamation**, Amoa beach Resort, etc... It is such a disappointment to witness first hand ongoing unsustainable practices that continues within the communities.

Land is a very limited resource to Samoa where the total land area of the island is 2842 km². This land area is the only area that provides ecological goods and services to the people of Samoa. With the growing population demanding more from our native lands, the population has unsustainably develop our lands for the need of economy development. With a population of 195,125 and counting, the growing population is increasing the level of environmental stress around the island.

Land degradation is the root to many environmental issues such as soil erosion, soil infertility, eutrophication, soil salinity, invasive species bloom, ecological deformation, floodings, droughts & water resource unavailability. Major developments such as Agriculture, Residential housings, commercial business has used up approximately 50% of Samoa's land area. These ongoing land developments has caused a great loss of biodiversity in our natural environment.

The Ministry continues to inform and raise awareness for all communities and business companies on the importance of sustainable developments on our lands as these areas provides a platform for all resource availabilities; our environment is the provider of all goods and services needed for our human survival.

However, any developments within our environment requires an assessment and an approval Land Management Division (LMD), and Planning Urban Management Agency (PUMA). This is according to the PUMA Act 2004 which requires the consent of the Ministry with regards to the impact of the development on the environment. Failure to do so would allow the Ministry to put a stop to the development made. Further actions taken by the Ministry would result to payment of fine or imprisonment depending on the severity of the development and cooperative actions by the developer(s).



Figure1: Excavation of free hold land at Tafua, Savaii



Figure2: Sand mining at Taga, Savaii



Figure3: Results of sand mining at Taga Beach, Savaii



\$14 Million tala towards Renewable Energy

The 'Improving Performances & Reliability of Renewable Energy Power System in Samoa' project housed under Renewable Division, is a newly developed project approved by GEF council. This project allowed Samoa to secure a 14 million tala funding that would go towards the development of renewable energy and improving power & non-power systems in Samoa.

Its official launching took place at Central Bank where Honorable Deputy Prime Minister, Afioga Fiaame Naomi Mataafa and Honorable Minister of Finance Afioga Sili Epa Tuioti represented Samoa, and Mr Notonegoro represented UNDP during the signing of documents to officiate the release of funds for Samoa government energy reform.

"This project will improve the livelihood of all Samoans as the efforts to use Renewable Energy (RE) Division as the main source of energy in the country would be very cost efficient for all Samoans. It will also guide Samoa to meeting the SDG goal 7 as well as our commitment to Paris Agreement through the INDC report submitted in 2015 that targets for Samoa to switch from fossil fuel reliance to 100% renewable energy by the year 2025" says Honorable Deputy Prime Minister.

Ms Vanda (ACEO-RE Division) commented, *"this project is for 5 years duration period with all energy sector stakeholders involve and taking part in performing the 5 components of the project. More than 60% of the project funds will be used in component 2 for the construction and establishment of a Gasification Plant at STEC designated land at Mulifanua. While, the other remaining percentage of funds are allocated to other 4 components which looks at the improvement of power and non power systems in Samoa."*

An inception workshop for the project is expected to take place shortly after the Launching ceremony where the pro-doc and project activities will be discussed and review by the stakeholders who take part in the IMPRESS Project.



L-R: Mr Notonegoro (UNDP), Honorable Deputy Prime Minister, Afioga Fiaame Naomi Mataafa, Honorable Minister (MoF), Afioga Sili Epa Tuioti.



Wind Turbine farm in Aleipata



Solar farm in STEC lands (Faleolo)

10th Annual Pacific Water and Wastewater Conference, Expo & Ministers Forum

'Water Supply in a Changing Environment'

The Pacific Water & Wastewater Association (PWWA) is a regional association comprised of organizations within the Water & Waste water sectors that work together in the development of communities by providing quality water services to the Pacific Islands. PWWA works closely with the Ministry as ally partners to assist the Government of Samoa and the local communities in sustainably managing waste waters from sewages, drainages, salted water and so forth...

This year Samoa hosted the 10th Pacific Water and Wastewater Conference & Expo 2017 at Sheraton Samoa. The Conference was organized by Samoa Water Authority (SWA) in collaboration with MNRE and other Water & Sanitation Sector partners. During the opening ceremony, the Government of Samoa signed an agreement to be the host for the newly established PWWA headquarters on island. The establishment of the new headquarters will bring great opportunities for Samoa and for many participating member countries to collaborate and share resources that will be beneficiary for each country's local community. The conference lasted for 5 days, where more than 200 participants including government officials, developing partners representatives, engineers, professors and scientists from across the Pacific region had attended this conference.

This conference was a platform for various sessions and events such as the "3rd Ministerial Forum" which was a high level forum mainly discussed on water and wastewater issues. It also provided the opportunity for Young Water Professionals of member countries to develop capacity to be future leaders for PWWA. The public was given the opportunity to witness first hand an Exhibition that showcased technological innovations, products and services offered by various developing partners around the region.

The conference concluded with an awards night which took place at RLSS Museum where a Samoa representative SWA had won 3 awards for **Most Improved Utility, Environmental Friendly Utility and Best Utility 2017** in the Region. Another outstanding achievement by Samoa representative was former MNRE CEO—*Mr. Sulamanaia Amataga Penaia*, who had won an award for achieving the **PWWA Water Professional of the Year 2017**.



Honorable Deputy Prime Minister, Afioga Fiame Naomi Mataafa (Left), signs host agreement with Chairman PWWA, Opetai Ravai. (Right)



Opetai Ravai (PWWA Chairman) presents tanoa to Honorable Deputy Prime Minister, Afioga Fiame Naomi Mataafa.



Waste Water Exhibition 2017 Photo Gallery





Building resilience against Climate Change 'environmentally sustainable, Climate and Disaster Resiliency'

Samoa has been heavily affected by natural disasters over the years. As witnessed by the people during cyclone Evan a devastating impact caused by flash floodings around Vaisigano river. This catastrophe caused a great economic loss for Samoa. The cost of damages to properties and assets belonging to communities living around the area are still to be covered at this current stage. The communities are still vulnerable to future heavy floodings along the Vaisigano river; however, the Government of Samoa is now able to assist the communities with the recovery stage, community preparedness & protection from floodings through the implementation of a newly launched project **'Integrated Flood Management to Enhance Climate Resilience of the Vaisigano River Catchment in Samoa.'**

The project is funded by Green Climate Fund (US \$57.7 million) and it is implemented by the Ministry of Finance (MoF). However, organizations including MWTI, MNRE, LTA, MoH, SWA and EPC are to support MoF with the delivery of allocated components. The project has 3 major outputs which contributes to the development of Samoa.

Major outputs:

1. Assessments and Mechanisms in place for an integrated approach to reduce vulnerability towards flood-related risks
2. Infrastructure in the Vaisigano River are flood-proofed to increase resilience to negative effects of excessive water
3. Drainage in downstream areas upgraded for increased regulation of water flows.

The project is to be carried out for 6 years, however the development challenges are unforeseen. With the extreme weather events increasing every year, the development is a timely process along the Vaisigano river. However, the government is working closely with its partners in strategizing the implementation of the development to ensure security of communities and the environment surrounding Vaisigano river.



Mr. Notonegoro (UNDP) delivered a keynote address during inception workshop



L-R: Filomena Nelson (former ACEO DMO), Ulu Bismarck Crawley (CEO),



Honorable Minister (MoF), Afioga Sili Epa Tuioi delivers speech to participants during opening ceremony.

Biolog Filters

'improving water quality, reducing soil erosion & sedimentation'

Water Resources Division has collaborated with the Government of Japan, JICA and European Union in developing a biolog filter system in Samoa. This BioLog filter is manufactured in the Philippines. It is made of coconut fibre where it is willowed and weaved into a log using machinery. This BioLog material is used for erosion prevention, greening and protection of slopes, greening and protection of river banks, turbid water processing in rivers, and prevention of drift woods in river systems. The BioLog filter is estimated to last at approximately 100 years life span.

The team had visited each communities of Samoa who have been badly affected by land degradation and has poor Water resources management within their communities. The team had selected Fagalii communities as a pilot community for this project as it is continuously developed along the river banks and impacting the water systems of Fagalii. The communities of Fagalii had consulted with the BioLog manufacturers on the status of their community health and livelihood in connection to the river as well discussing the current situation in which the communities are facing during heavy rainfall. The data collected from this consultation will contribute in the formulation in structure and texture of BioLog material. To discuss on their joint shoulder support to help the Government of Samoa protect their lands but managing and sustainable develop areas along the river water systems of Fagalii.

Shortly after the consultation meeting, another inspection took place which involved the community members, MNRE representatives and JICA members to physically examine and consolidate on the establishment design for BioLog filters along the river systems of Fagalii. However, once the design is at final according to the landscapes of Fagalii, then construction will commence under MNRE as the Implementation agency where Forestry Division will assist the communities in habilitating the lands of Fagalii.



Figure1: Community members of Fagalii was presented with a sample of a BioLog.



Figure3: Household under threat as it stands next to an ongoing degrading river bank along Fagalii river.



Figure3: Household under threat as it stands next to an ongoing degrading river bank along Fagalii river.