

REGIONAL INITIATIVE TEMPLATE

Please complete each section below.

1. Contact Details

Please provide the following contact details:

Name of individual or group submitting initiative	Ocean Ambassadors
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2. Name of Initiative

Waste Plastic remediation for Island Nations

3. Background and Rationale

You may consider: What is the issue being addressed by this initiative? What are the causes of this issue? Are there relevant studies that have been carried out to support the issue? Are there links to national, regional or international goals/policies?

Please limit your response to no more than 750 words.

Our issue is to take a systematic approach on minimizing marine debris in island nations and implementing achievable waste management practice.

The reason we feel this is deserving of priority in the pacific islands is due to the related issues with impacts to (a) Tourism (b) Fisheries (ingestion, entanglement, damage to fishing grounds and ecosystems/habitats, hazards to navigation) and (c) limited capacity for and development of waste management in Small Island Developing States (SIDS).

International Goals

(1) United Nations Environment Assembly (UNEA)'s Resolution 1/6 on Marine plastic debris and micro plastics:

In June 2014 at the inaugural United Nations Environment Assembly (UNEA) over 150 countries came together to adopt

the Marine plastic and micro plastics resolution. This resolution recognized the severity of the marine litter issue and called upon the global community including governments and inter-governmental organizations to take actions to minimize sources and mitigate impacts of marine litter (among many others).

(2) Upcoming (2016) Seventeenth Meeting of the Informal Consultative Process for the United Nations Division of Ocean Affairs and Law of the Sea (DOALOS):

“Marine debris plastics and microplastic” is the topic of focus for this meeting (for reference to 16th meeting and topic for the 17th”:

http://www.un.org/depts/los/consultative_process/documents/format_annotated_prov_agenda_advance_unedit_ed_website.pdf) and

<http://www.iisd.ca/vol25/enb2595e.html> (for background)

(3) Honolulu Strategy: <http://unep.org/gpa/documents/publications/honolulustrategy.pdf>

(4) UNEP’s Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

(GPA)’s Global Partnership on Marine Litter (GPML): <http://unep.org/gpa/gpml/gpml.asp>

Regional Goals: While marine litter/marine debris is identified as a global environmental priority and area of concern, relatively little work has occurred on this issue in the Pacific region, and thus the need to highlight a Regional Initiative for this issue (recognizing the work of SPREP in waste management and marine debris to not duplicate efforts, listed below).

(1) SPREP’s Waste Management and Pollution Control Division, UNEP GPML’s Regional Hub: SPREP is to develop the regional hub for marine litter/marine debris work. This work is relatively new and developing, but certainly the most appropriate regional example/goal/reference and biggest of its kind happening in the Pacific region. SPREP is incorporating a Marine Litter section into our Waste Management Division’s upcoming ten year regional strategy (2016-2026 SPREP has included a focus area of marine litter in the upcoming regional strategy for the next ten years is an important link.

They have a variety of projects and work toward this, some of which includes: (a) identification of sources, accumulation areas and distribution routes of marine debris in the region; (b) pilot projects in countries of concern, with large amounts of land-based sources of plastic waste available to end up in the ocean; (c) a regional marine litter risk assessment based on waste management; (d) research into sources and impacts of Abandoned, Lost, or Discarded Fishing Gear (ALDFG); (e) cleanup and recovery (e.g. the ICC work); and (f) identification of past and ongoing marine debris work across the region in order to avoid duplication of efforts, link partners, and, where available and applicable, support existing work.

(2) Noumea Convention: particularly articles 6 and 7: “- pollution from vessels (art. 6)

- Pollution from land based resources (art.7)” <http://www.sprep.org/legal/the-convention>

National Initiatives/Goals:

Recently numerous organizations and government bodies have tackled this issue on awareness and attempting to build capacity for solutions. Municipal waste practice, beach clean-ups, pilot programs, plastic bag ban and the implementation of re-usable bags are a sign this country is slowly moving towards best practice.

4. Description

Please provide a brief overview of this initiative. Try to address the following: Does this initiative contribute to a positive change to the region? What makes this initiative of importance to the Pacific region as a whole? Who would implement this initiative? Who are the main beneficiaries? Are regulatory or legislative changes required at the national level to implement this initiative? How would the initiative be funded? Has this initiative been carried out previously? What are the key risks in implementing this initiative? Are there any complementary projects and programmes currently active? What is the proposed timeframe for this initiative? How would the initiative be sustained over the proposed timeframe?

Please limit your response to no more than 750 words.

Marine debris affects all of us, whether its plastic bags clogging drains creating floods, entering our food stream through photo degraded plastics being eaten by fish or releasing toxic chemicals into our waterways. This issue affects us all and there is no reason why we cannot rectify the current situation and make change for the greater good.

As this issue is quite large this will require an effective collaboration of local government policy, volunteer and development assistance from varying organizations and private sector changing their practice.

After 10 months building the roadmap of this initiative we have found local national government legislation must take part with either implementing a local "green tax" (similar to Palau) or an entry fee to visiting tourists to build the necessary environmental trust for the required infrastructure to take root. The financial backing for this program can be achieved through distributing the task load between the varying organizations

We feel that the initial stage is best suited to implementing a nationwide school-recycling program where all children are taught about the issue and bring the message home. Then once a week are tasked with bringing their rubbish from home to the schools for dropping off the consolidated mixed plastics into a centralized point. Secondary goals of data collection and incentivizing classes are recommended.

Once information can be provided on the available amounts of consolidated plastics we can then look at the appropriate technologies for local processing of the waste. IE Plastics to Oil, Closed loop apparel manufacturing, PET reduction etc

We have built an in-depth educational resource pack available to be implemented into curriculum and are as well in the process of finishing up Corporate and Hospitality engagement packs for best practice. Our goal is to provide the resources in a step-by-step format for everyone to play their role effectively.

Private sector engagements are in process to streamline this initiative and facilitate logistics with services in kind. Other engagements are available upon request.

5. Alignment to Regional Vision, Values and Objectives

Briefly describe how your initiative supports the vision, values and objectives set out in the Framework for Pacific Regionalism. These can be found in the Framework for Pacific Regionalism document or in the submissions guideline document.

Please limit your response to no more than 500 words

This program has the capability to benefit various departments and visions.

By effectively cleaning island nations and offering low cost buy-ins of next generation utilities for localized processing we can offer a promising future to all island nations as they merge with the western world's convenience culture.

With the implementation of Plastic to Oil processing we can minimize the cost of waste export and minimize the need for fuel imports.

Closed loop Re-PET apparel manufacturing offers us to build a financially sustainable recycling operation to internally cover all operational costs and develop an independent revenue stream for growth.

The program in its entirety engages the public, government management, private sector practice and development aid, showcasing a working model to benefit all and promote positive joint ventures throughout the sectors .

Fiji is well on its way to being the leader on this topic and can be the scalable model for all other member states to follow.

Clean oceans, healthy fish-stocks and pristine locations to host the growing tourism sector offer a well-rounded benefit to the entire community.

6. Additional Information

Please provide or attach additional information in support of this initiative.

Please limit your response to no more than 5 pages.

We are currently approaching the Australian Government Innovation Exchange for substantial funding to instigate crucial processes to enable this initiative to move forward.

Beyond our interest of expansion with Coca Cola Amatil and Fiji Water's "Mission Pacific" program, we have outlined budgets and costing's for varying departments attached here.

Ocean Ambassadors expressions of Interest and management roles for the Fiji based waste plastic remediation program:

After an extensive tour in Australia and the South Pacific, *The Ocean Ambassadors*, reached Fiji and were offered the chance to develop waste plastic related programs through education, hospitality and private sector. Thanks to the *Australian High Commissions* direct aid program.

Since Sept 2014, this team has been busy in Fiji developing:

- Educational Resource package, <http://oceanambassadors.org/fast-track-fiji/education-resource-pack/>
- Data Collection Programs
http://oceanambassadors.org/pdf/OA_Cleanup_WEB.pdf
- Info-graphic posters for schools
- http://oceanambassadors.org/wp-content/uploads/2015/01/OA_ERP_POSTERS_A3.pdf

and upcoming:

- Hotel Engagement Package
- Corporate Engagement Package
- Info-graphic posters for public and private sector to understand how and why we recycle

This program, entitled *Fast Track Fiji* was designed to provide real-time data and feasibility for the viability for investment in next generation utilities for local waste plastic processing.

With over 10 years experience in the South Pacific Island Nations, this team understands the realistic hurdles we are faced with and through this program has gained understanding of a possible best practice approach on how to rectify our marine pollution crisis. Than develop Fiji as the replicable model for other nations to adapt.

Bellow are a variety of options and cost breakdowns for moving forward. This list includes proven and emerging technologies as well as pilot phase programs for waste collection.

Through the *Fast Track Fiji* program we have been successful in instigating a direct call to action in the country creating an expanding network of the interested parties on this topic. The areas listed bellow are where we feel our involvement would be beneficial to see this potential program succeed.

Apart from project managing these different areas we offer:

- Complete carbon footprint mapping and best practice operations
- The opportunity to design these next generation utilities in line with our Green Island Project model, powering from renewable energy sources

- Available land for piloting out the emerging technologies and showcasing them for stakeholders
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Moving Forward:

1. Plastic to Oil processing:

This technology has been the subject of much conservation and development plans for the past four years.

With working applications in 80 locations and a working pilot program in Palau, we feel Fiji is a best suited for this technology to take a presence in this region.

Frequently Asked Questions:

Q. Does this promote complacency?

A. Not at all, plastic exists and will continue to exist. We need options available to minimize its extended impact. Minimizing use and refusing single use are both great steps forward, however that will not end the plastic industry.

Q. Does this promote fossil fuel dependency?

A. Fossil fuel dependency is simply a reality of our time, though we would prefer a world entirely powered off renewable sources, this will take time. For now we advocate this technology as an opportunity to clean waste plastics, process them locally to a useable end product and ensure these plastics do not enter our marine environment.

Q. Does the fuel required to collect outweigh the outcome?

A. All recycling requires commercial vehicles to pick-up the supply, by processing the feedstock locally we minimize the extended carbon footprint and the need for importing fuel.

Q. Doesn't the process require more power than the output?

A. No, the demonstration device may have this problem, however on a commercial scale operation the conversion ratio is approximately 1 kg of plastic, 1 liter of fuel taking 1 kWh of electricity.

With 1 liter of fuel you can normally create approximately 11kWh, meaning you gain 10 units of power on the output.

<http://oceanambassadors.org/faq/>

Capital investment: \$362,000 AUD

Includes:

- Purchase of utility
- All electrical requirements for installation
- GS Off Gas Filter
- CE Mark Certification
- Complete factory integrated conveyor system
- Inline refinery
- Off gas filtration
- Installation set up and training

Land and Power Requirements:

Utility and Conveyor alone

Annual operating budget: 18,000 AUD

(Based on 1,500 per month for land and power costs)

- 100 sq foot
- 20 kwh continuous supply, 240v 3 phase

Staff

Annual Budget: 42,200 AUD

- 2 full-time plant operators (Based on \$60 a day FJD)
- 1 plant manager 24,000

2. Ambercycle pilot plant

This technology would be classified as emerging, though has the power to re-invent plastic recycling.

Ambercycle is converting PET into its raw material compound to sell to the plastic producing industry. You can learn about his project here:

1. <http://vimeo.com/76075098>

<http://www.launch.org/innovators/akshay-sethi>

Capital Investment: 511,000 AUD

Facility incl power: 20,000

Pilot Plant 7,000 sq ft

Equipment Installation 11,000

Equipment:

- Reaction Vessel X 3 = 60,000
- Blower = 6,780
- Flash Vessel = 7,263
- Growth Media Collector = 5,535
- Purification Column = 5,000
- Centrifugal Pump = 6,823
- Reboiler = 9,600
- Centrifuge = 6,160
- Conveyor belt = 2,760
- Turbo Dryer = 8,435
- Mechanical Separator = 25,000

Materials

- Bacterial Reagents = 4,000
- Protein Reagents = 6,000
- Plastic Treatment Reagents = 5,000

Research Facility: 3,000 sq ft

- Facility including utilities = 35,000

Equipment:

- Disposables = 10,000
- Protein Analytics = 15,000

Materials:

- Molecular Biology Reagents = 15,000
- Gene Synthesis Costs = 5,000
- Bacterial Reagents = 4,000

Miscellaneous:

- Travel = 10,000
- Salaries = 120,000
- Research = 214,000

PET to Textile

This Program was developed by Ocean Ambassadors to be revenue generating for expansion of recycling practice.

Total = 131,517 AUD

1 X 40 foot container full of waste PET (available through Mission Pacific recycling program)

1 X freight cost to Vietnam = 3119.13

Conversion costs of PET to textile = 24,953.08

Shipping and Import of Textile to garment = 1871.48

Manufacturing of garments = 70,000

Project Management = 20,476.54

Marketing content, posters for print and PDF's = 3119.13

30 second professional commercial for TV = 15,595.67

Sales and marketing = 15,595.67

This pricing is based on producing approximately 10,000 units of mixed product.

With this calculation, we would have finished product and marketing resources available costing just under \$20.00 a unit.

Through our joint networks and story we can aim to have a complete 100% return on investment and available product to retail for a minimum of \$50,00 a unit. By these calculations we can generate approximately \$300,000 of profit to further waste collection practice in Fiji and create a continuing economy in Green collar jobs.

Mamanuca Island Chain Recycling:

This program can provide full numbers on real-time costs for servicing one island group with the most foot traffic in Fiji regarding the hospitality sector.

The initial start-up for purchase of a waste collection vessel and re-direction truck on land are the largest hurdles.

We approached this areas environmental group and on numerous occasions approached the tourism board for services in kind. We may be able to subsidize some of this for services in kind, however this is what it will take to operate without the hurdles or expecting others to fill the gaps.

Capital Investment: 228,322.78

Equipment:

- 30 ft commercial vessel 87,335.76 (Essential for servicing all collections including renewable energy powered engines to minimize need for fuel expenses)
- Pick-up Truck 46,787.02
- Recycling Infrastructure to service 50 sites = 15,000
- Signage = 2,000

Operations:

- Transportation and collection 10,000
- Community consultation and education = 3,000
- 2 X full time staff (Based on 60 FJD a day) = 18,200
- 1 X overall manager for logistics and collections = 24,000
- 2 X 20 ft container for storage (1 in Port Denarua, 1 on Malolo Island) = 10,000
- Fuel costs = 12,000

National School/Church recycling Program:

This would be the essential direct call to action for waste collection. This part offers a complete Viti Levu service to initiate the process and enable everyday practice.

Capital Investment: 389,400

Start up and annual costs

- 4 times full time service staff = 36,400
- 1 overall manager for logistics and admin = 36,000
- 2 X pick-up trucks for servicing collection = 93,000
- Collection bins = 150,000 (based on 500 sites)
- Signage and print resources 20,000
- Community consultation and education = 30,000
- Fuel Costs = 24,000

Overall Project management:

For a full-time advisory and consultation role including all accounting, transportation, legal and expenses for travel and communications will come to 8,000 monthly, additional members required at this level are 5,000 monthly and outside consultation will be billed at 120 an hour.

Annual costs. Varied

- 1 Fulltime director 96,000
- Additional management team member 60,000

