Fiji (draft) Action Plan Marine Debris Tracking System

Background

•21,000 – 22,000 tonnes of plastic waste annually with small fraction recycled

•Coastal and Marine Impact - Suva Harbour and other coastal areas often experience high levels of floating debris, particularly plastics, bottles, fishing gear, and single-use packaging. These accumulate along mangroves, beaches, and reef systems.

•Environmental Risks - Plastics break down into microplastics, harming fish, turtles, and seabirds.Mangroves and seagrass beds, which act as nurseries for marine life, are being smothered by litter.Coral reefs face added stress from pollution on top of climate change impacts.

Socio-Economic Costs:

- Tourism, Fiji's largest foreign exchange earner, suffers from degraded beaches and polluted waters.
- Fisheries, crucial for food security, face reduced stock quality due to ingestion of plastics by fish.
- Government and local councils spend increasing resources on manual clean-ups.

Purpose and Objectives

- To establish a real-time marine debris tracking and monitoring system in Suva Harbour to reduce pollution, protect marine ecosystems, and support sustainable port and tourism activities.

- Deploy real time & tracking technology
- Strengthen Data Collection and Analysis
- Support policy, targeted cleanup & prevention efforts
- Enhance Marine Ecosystems protection
- Promote Sustainable Port and tourism activities
- Contribute to National & Global Commitments

Gaps and Challenges

- **Data Fragmentation:** Information from various cleanups, academic studies, and pilot projects is not consistently collected, analyzed, or shared on a single platform.
- **Limited Monitoring Capacity:** There is a need to enhance the capacity for consistent and statistically reliable monitoring of marine litter, including microplastics.
- **Resource Constraints:** As a Small Island Developing State (SIDS), Fiji has resource limitations for implementing large-scale, technology-heavy tracking systems.
- **Transboundary Nature:** Marine debris doesn't respect borders. Fiji's shores are affected by litter from other countries, making a local tracking system insufficient on its own without regional and global partnerships.

SWOT Analysis

Strengths

- **Strong Policy and Political Will:** Fiji has robust national policies, like the **National Oceans Policy 2020-2030**, National Green Growth Framework, NDRRP, NAP, etc which provides a clear framework for marine management. The country's strong advocacy for a global plastics treaty demonstrates its commitment on the world stage.
- **Existing Government and Local Community Initiatives:** Existing Government Programmes and NGO-led cleanup campaigns, like the work done by Sustainable Coastlines Fiji and the Pacific Recycling Foundation, already exist. These efforts can serve as a foundation and provide a network of trained volunteers for a formal tracking system.
- **Tourism and Economic Incentive:** As a tourism-dependent economy, Fiji has a powerful economic incentive to maintain clean and pristine beaches. This creates public and private sector buy-in for marine debris tracking and management.
- **Traditional Knowledge:** Fiji's deep-rooted connection to the ocean and traditional knowledge systems can be integrated into the tracking system, providing valuable insights into local currents and debris hotspots that scientific models alone might miss.

SWOT Analysis

Weaknesses

- **Lack of Centralized Data:** Data from existing cleanups and pilot projects are often fragmented and not stored in a single, accessible database, making it difficult to analyze trends, sources, and impacts on a national scale.
- **Limited Monitoring Capacity:** There's a lack of consistent, statistically reliable monitoring and assessment of marine debris, particularly for microplastics. This makes it challenging to accurately gauge the scale of the problem and the effectiveness of management strategies.
- **Geographical Dispersal:** As an archipelago of over 300 islands, formulating a uniform tracking system and waste management infrastructure might be a challenge and costly exercise to implement across all inhabited islands.
- **Inadequate Infrastructure:** Fiji has limited waste management infrastructure, with only one sanitary landfill. This leads to common, but harmful, practices like open burning, which contributes to land and marine pollution.

SWOT Analysis

Opportunities

- **Regional and International Collaboration:** Fiji can leverage its role in the Pacific Islands to collaborate with organizations like the Secretariat of the Pacific Regional Environment Programme (SPREP), UNEP, KOICA, and other UN Agencies. These partnerships can provide access to funding, expertise, and shared data platforms.
- **Technological Adoption:** The use of **open-source technology**, such as GPS-enabled drifter buoys, and citizen science apps can provide cost-effective solutions for tracking debris movement and engaging the public.
- **Extended Producer Responsibility (EPR):** Data from a tracking system can provide the evidence needed to push for and implement robust EPR schemes. This would shift the responsibility and cost of managing plastic waste to the companies that produce it, creating a more sustainable funding model.
- **Circular Economy Initiatives:** Tracking data can identify the most common types of plastic found, which can then inform and support the development of local recycling and upcycling industries. This would create economic value from waste, generate jobs, and reduce the amount of plastic entering the ocean.

SWOT Analysis

Threats

- **Transboundary Pollution:** A significant portion of the marine debris found on Fiji's shores originates from other countries, carried by global ocean currents. This is a problem that no national system can fully solve and requires a binding international treaty to address.
- **Limited Funding:** Securing long-term, sustainable funding for the development and maintenance of a comprehensive tracking system and supporting infrastructure remains a major challenge.
- **Climate Change:** Extreme weather events, such as tropical cyclones, are becoming more frequent and intense due to climate change. These events can exacerbate the problem by sweeping vast amounts of land-based litter into the ocean.
- **Rapid Population and Tourism Growth:** As both the resident population and tourist numbers grow, the volume of plastic waste generated will increase, putting immense pressure on Fiji's already strained waste management and tracking capabilities.

Improvement Strategies

1. Strengthen the Data and Technology Foundation

- **Establish a National Marine Litter Database:** This is the most critical first step. The database should be a single, accessible platform for all marine debris data, integrating information from various sources (community cleanups, scientific surveys, aerial imagery). The database should be designed to use standardized data collection protocols, aligning with international frameworks like the Global Partnership on Marine Litter.

- **Leverage Citizen Science Apps:** Develop or adopt a user-friendly mobile app that allows the public and tourists to easily report marine debris sightings. The app should use a simple, image-based interface that automatically tags the location via GPS. This crowd-sourced data can provide real-time information on hotspots and the types of debris.

Improvement Strategies

Strengthen the Data and Technology Foundation

- **Utilize Low-Cost Drifter Buoys:** Deploy GPS-enabled drifter buoys, particularly at the mouths of major rivers and in urban coastal areas. This is a highly effective way to track the movement of plastic from land-based sources into the ocean and to identify new accumulation zones. This data is invaluable for understanding how debris travels and for targeting cleanup efforts.

- **Explore Remote Sensing Technology:** Investigate the use of drone and satellite imagery to survey remote coastlines and detect large concentrations of plastic debris. While the technology is still developing, recent advances in spectral analysis can help differentiate plastic from natural materials on beaches, making it an efficient tool for monitoring remote or inaccessible areas.

Improvement Strategies

2. Integrate and Formalize Existing Efforts

- **Formalize Partnerships with NGOs and Community Groups:** The government should formalize its collaboration with existing and active NGOs like Sustainable Coastlines Fiji and the Pacific Recycling Foundation. These groups already have trained personnel and community trust. The strategy should be to provide them with the standardized tools and resources for data collection and to integrate their findings directly into the national database.

- **Mandate Reporting for Coastal Industries:** Implement regulations that require key coastal industries, such as tourism operators, fishing fleets, and shipping companies, to report on marine debris they collect or encounter. This could be a condition for their operating permits and would provide a valuable, large-scale source of data from areas not typically covered by citizen science.

- **Embed Debris Tracking into Educational Programs:** Integrate marine debris tracking and data analysis into school curricula. This would not only educate the next generation on the issue but also create a long-term network of citizen scientists who can contribute to the national monitoring effort.

Improvement Strategies

3. Enhance Policy and Legislative Frameworks

- **Implement a Container Deposit Scheme (CDS):** Use the data from the tracking system to build a compelling business case for a national CDS. By identifying the prevalence of single-use plastic bottles, the system can demonstrate the financial and environmental benefits of a deposit-return system, which would directly reduce the amount of plastic entering the waste stream and the ocean.

- **Strengthen Extended Producer Responsibility (EPR):** Use the data on the types of debris found (e.g., specific brands of bottles, food packaging) to hold producers accountable. The tracking system provides the hard evidence needed to enforce or create new EPR policies, where manufacturers are responsible for the entire lifecycle of their products.

- **Enforce and Update Existing Legislation:** Use the data to identify specific locations of non-compliance with the Litter Act and other environmental regulations. This information can be used to target enforcement efforts and to argue for updates to existing laws to address emerging threats like microplastics.

Improvement Strategies

4. Foster International and Regional Cooperation

- **Align with Regional Frameworks:** Actively participate in and align Fiji's tracking system with regional initiatives, particularly those led by the Secretariat of the Pacific Regional Environment Programme (SPREP). This ensures data is shared and analyzed on a regional scale, which is crucial for addressing the transboundary nature of marine debris.

- **Contribute to Global Databases:** Regularly submit Fiji's marine debris data to global platforms like the UNEP's Global Partnership on Marine Litter. This not only reinforces Fiji's leadership but also contributes to a more comprehensive global understanding of ocean currents and debris hotspots.

- **Advocate for a Strong Global Plastics Treaty:** Continue to use Fiji's marine debris tracking data as a powerful tool in international negotiations for a legally binding global plastics treaty. By showcasing the scale of the problem and the transboundary sources of pollution, Fiji can effectively advocate for stronger global action to reduce plastic production and pollution at its source.

Activities and Action Plan

- **Phase 1: Foundation and Pilot Program (Years 1-2)**
- **Phase 2: Scaling Up and Integration (Years 3-5)**
- **Phase 3: Sustainability and Innovation (Years 6+)**

Activities and Action Plan

Phase 1: Foundation and Pilot Program (Years 1-2)

Objective: Establish the institutional framework, secure initial funding, and launch a pilot tracking program in a key area.

Actions:

1. **Establish a Steering Committee:** Form a multi-stakeholder committee led by the Department of Environment, with representatives from the Ministry of Fisheries, MRMDDM, tourism sector, private sector (e.g., bottling companies), NGOs (e.g., Sustainable Coastlines Fiji), academic institutions (e.g., University of the South Pacific), and community leaders.

2. **Develop a National Marine Litter Database:** Create a centralized, publicly accessible database to store all marine debris data. This database should be designed to be compatible with regional and international platforms (e.g., SPREP's databases, UNEP's Global Partnership on Marine Litter).

Activities and Action Plan

3. **Standardize Data Collection Protocols:** Adopt a consistent methodology for marine debris surveys. The OSPAR Convention's methodology is a good model, which is already used in some pilot projects. This includes:

- Defining survey sites (e.g., beaches, river mouths, fishing ports).
- Standardizing data fields (e.g., type of debris, material, source, weight, number of items).
- Providing training for data collectors.

4. **Launch a Pilot Debris Tracking Project:** Select a high-impact area, such as the Suva-Lami corridor or a key tourist island. The pilot should integrate several data sources:

- **Community Cleanups:** Partner with local communities and NGOs to conduct regular, standardized cleanups and log the data in the new database.
- **Drone and Satellite Imagery:** Investigate the feasibility of using drones or satellite imagery to map larger debris accumulations in coastal areas or at sea.
- **Drifter Buoy Technology:** Explore the use of GPS-enabled drifter buoys to track the movement of plastic waste from river mouths or urban centers into the ocean.
- **Citizen Science App:** Develop or adapt a user-friendly mobile application for the public and tourists to report sightings of marine debris.

Activities and Action Plan

Phase 2: Scaling Up and Integration (Years 3-5)

Objective: Expand the tracking system's coverage and integrate data into national policy and decision-making.

Actions:

1. **Expand Geographic Coverage:** Based on the success of the pilot, roll out the tracking system to other critical areas, including major islands and other maritime islands, fishing grounds, and marine protected areas.

2. **Integrate with Fisheries Management System:** Integrate with the Fisheries Management monitoring system.

Activities and Action Plan

3. **Strengthen Enforcement:** Use data from the tracking system to identify pollution hotspots and sources. This information can then be used to inform and strengthen the enforcement of the Litter Act and other relevant regulations.

4. **Promote Private Sector Responsibility:**

    - **Extended Producer Responsibility (EPR):** Use data on the types of debris found to inform discussions on EPR schemes, holding producers and importers of plastic products responsible for their end-of-life management.

    - **Container Deposit Scheme (CDS):** Use tracking data to build a strong business case for a national CDS, which has been shown to be effective in reducing plastic bottle leakage.

Activities and Action Plan

Phase 3: Sustainability and Innovation (Years 6+)

Objective: Ensure the long-term sustainability of the tracking system and explore new technologies.

Actions:

1. **Secure Long-Term Funding:** Establish a sustainable funding model for the tracking system, potentially through a dedicated national environmental fund, a portion of import levies on plastics, or ongoing international development assistance.

2. **Research and Development:** Partner with international organizations and universities to conduct research on:

    - **Microplastic Pollution:** Develop a national monitoring program for microplastics in water and sediment.

    - **Debris Source Fingerprinting:** Investigate techniques to "fingerprint" debris to determine its source (e.g., from a specific country or a particular industry).

Activities and Action Plan

3. **Public Education and Behavioral Change:** Use the data from the tracking system to create compelling public awareness campaigns. Show the public where debris is coming from and where it is going to inspire behavioral change and a sense of shared responsibility.

4. **Contribute to Global Efforts:** Actively share Fiji's data with regional (SPREP) and global (UNEP) databases, contributing to a better understanding of marine debris movement and sources at a global scale. This will also reinforce Fiji's leadership in this area.

Expected Outputs

- Real-time debris movement mapping
- Targeted cleanup of 80% of floating debris hotspots.
- Reduced plastic leakage into mangroves, coral reefs, and port waters.
- Stronger community awareness and accountability for waste management.
- Position Suva as a regional model for smart marine debris management.

Expected Results

Environmental Results

- **Baseline Data for Targeted Interventions:** The system will establish a quantifiable baseline of marine debris pollution in Fiji. This is crucial for understanding the scale of the problem and for measuring the effectiveness of future reduction strategies.
- **Improved Understanding of Pollution Sources:** By systematically tracking the types of debris, the system will provide data to pinpoint major sources, distinguishing between land-based and sea-based sources, as well as between locally generated and transboundary pollution.
- **Identification of Debris Hotspots:** The system will identify and map high-concentration areas (both coastal and marine), allowing for targeted cleanup efforts, resource allocation, and the placement of infrastructure like trash booms or Seabins.
- **Evidence-Based Conservation:** The data will inform the effective management of Marine Protected Areas (MPAs) and other sensitive ecosystems by highlighting threats and allowing for tailored conservation measures.
- **Reduced Harm to Marine Life:** By identifying and removing "ghost gear" (abandoned, lost, or otherwise discarded fishing gear), the system will directly reduce the threat of entanglement to marine species like turtles, dolphins, and whales.

Expected Results

Economic Results

- **Protection of the Tourism Industry:** A cleaner marine environment directly enhances Fiji's "Pacific Paradise" brand, attracting more tourists and strengthening the nation's key economic sector. The system will provide quantifiable evidence of a cleaner environment, which can be used in marketing.
- **Cost Savings in Cleanup Efforts:** By identifying the most polluted areas, resources for beach and waterway cleanups can be used more efficiently, saving money and manpower.
- **Creation of a Local Recycling Economy:** Tracking data will reveal the most common types of plastic waste (e.g., PET bottles, plastic bags). This information can be used to attract investment in local recycling and upcycling facilities, creating jobs and reducing reliance on landfill.
- **Justification for New Economic Instruments:** The system's data can provide the hard evidence needed to justify new policies like a **Container Deposit Scheme (CDS)**, which can generate revenue for environmental projects and incentivize responsible waste disposal.

Expected Results

Social and Behavioral Results

- **Empowered and Engaged Communities:** By involving local communities and NGOs through citizen science, the system will foster a sense of shared ownership and responsibility for a cleaner environment. This participatory approach strengthens community resilience and promotes sustainable behavior change.
- **Increased Public Awareness:** A centralized and public-facing database, coupled with effective communication campaigns, will make the problem of marine debris more visible and understandable to the public. Seeing the scale of the issue in real numbers will motivate people to reduce their plastic consumption.
- **Improved Public Health:** A reduction in marine debris, especially microplastics, will contribute to a healthier marine ecosystem, which is vital for the health of communities that depend on it for food. This will also mitigate potential health risks from the consumption of seafood contaminated with microplastics.

Expected Results

Policy and Governance Results

- **Evidence-Based Policymaking:** The system will provide policymakers with the data needed to create and enforce targeted and effective regulations. This moves environmental policy from being reactive to being proactive and data-driven.
- **Reinforced Global Leadership:** By successfully implementing a robust tracking system and sharing its data, Fiji will reinforce its position as a global leader in ocean conservation and a strong advocate for a binding global plastics treaty. The data will provide powerful evidence of the need for international cooperation to address transboundary pollution.
- **Success Metrics for National Strategies:** The tracking system will be a core component for monitoring and evaluating the success of Fiji's national waste management and oceans policies. It will provide key performance indicators (KPIs) to measure progress against national and regional goals.

Next Steps

1. Conduct meeting with key line Ministries and other stakeholders
2. Validation of proposed action plans vs. existing development on the ground
3. Finalisation of the action plan
4. Formulation of workplan
5. Formulation of the estimated budget
6. Submission of project proposal for donor consideration

Thank You