

Expression of Interest – E-Waste Management and Recycling Technology

BACKGROUND

The Secretariat of the Pacific Region Environment Programme (SPREP) is the regional organisation established by the Governments and Administrations of the Pacific charged with protecting and managing the environment and natural resources of the Pacific. The head office is based in Apia, Samoa with over 100 staff.

The establishment of SPREP sends a clear signal to the global community of the deep commitment of Pacific Island Governments and Administrations for better management of the environment within the context of sustainable development.

Mandate

SPREP's mandate is to promote cooperation in the Pacific region and aid Pacific Island countries and territories in order to protect and improve its environment and to ensure sustainable development for present and future generations.

Members

SPREP has 21 Pacific island member countries and territories:

- | | | |
|----------------------------------|---------------------|-------------------|
| ▪ American Samoa | ▪ Marshall Islands | ▪ Solomon Islands |
| ▪ Cook Islands | ▪ Nauru | ▪ Tokelau |
| ▪ Federated States of Micronesia | ▪ New Caledonia | ▪ Tonga |
| ▪ Fiji | ▪ Niue | ▪ Tuvalu |
| ▪ French Polynesia | ▪ Northern Marianas | ▪ Vanuatu |
| ▪ Guam | ▪ Palau | ▪ Wallis & Futuna |
| ▪ Kiribati | ▪ Papua New Guinea | |
| | ▪ Samoa | |

and 5 'metropolitan' member countries:

- | | | |
|-------------|----------------------|--------------------------------|
| ▪ Australia | ▪ New Zealand | ▪ the United States of America |
| ▪ France | ▪ United Kingdom and | |

with direct interests in the region.

PacWaste Plus

SPREP is working with the European Union's Delegation to the Pacific, 14 Pacific Island Countries and Timor-Leste to undertake the *PacWastePlus Programme* (PWP) which seeks to improve and enhance waste management activities and the capacity of governments, industry, and communities to manage waste to reduce the impact on human health and the environment.

PWP activities will focus on the following targeted priority waste streams:

- hazardous wastes (specifically **asbestos, E-waste** and **healthcare waste**);
- solid wastes (specifically **recyclables, organic waste, disaster waste and bulky waste**); and
- related elements of wastewater (water impacted by solid waste).

Countries participating in the PacWastePlus programme are:

Cook Islands, Democratic Republic of Timor-Leste, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.

THE ISSUE

A World Bank Funded Waste Audit in 2020 identified that on average, 40 tonnes of E-waste generated in Samoa on an annual basis. Household e-waste is collected four times a year in Samoa and is mixed with other bulky wastes from construction materials and car parts. There are currently limited appropriate storage facilities for collected e-waste and most of the materials are taken to landfill after the valuable metals are removed.

Samoa is a party to the Stockholm Convention and is obligated to reduce or eliminate the release of unintentionally produced Persistent Organic Pollutants. E-waste typically includes flame retardant chemicals such as Polybrominated diphenyl ethers (PBDEs) , and through this project, the Samoan Ministry of Natural Resources and Environment aims to eliminate the unintentional release of PBDEs from illegal dumping and burning of e-waste.

SAMOA'S STRATEGIC APPROACH

The Strategic Approach to Integrated Chemical Management (SAICM) Project, in partnership with SPREP conducted an assessment on E-Waste management in Samoa and recommended that existing IT community and recyclers start looking at dismantling process for e-waste, and a dismantling workshop or training is needed to build the in-country capacity and encourages.

The Ministry of Natural Resources and Environment is implementing PacWastePlus funded project to design and introduce a waste management system that provides for the safe collection, dismantling and recycling of e-waste. This project seeks to either will construct a dismantling facility that may undertake e-waste dismantling, shredding, storage, and its eventual export, or purchase 'ready-made' modular e-waste processing systems designed for e-waste processing in remote locations.

THE OPPORTUNITY

SPREP is seeking to establish an understanding of companies that have systems and technology available to assist Samoa with the *In-Country* Management or Recycling of e-waste.

Providing details of your company and technology in no way guarantees procurement will occur, nor does it require you to tender a price etc. We are simply seeking to include your technology(ies) on a register that can be used to identify and assess existing and proven technology options suitable for the long term management and recycling of e-waste in Samoa, and be able to notify you directly of tender opportunities, as they arise.

EXPRESSIONS OF INTEREST (EOI)

Expressions of Interest in written form are invited from companies who have an existing technology to manage and/or recycle one or more of the waste product categories which fall into the three PacWaste Plus waste streams outlined above.

Written Expressions of Interest should include where possible or relevant:

- An executive summary outlining the specific waste focus of the business / industry group
- A description of the system / service on offer. Please provide details of what equipment would be supplied, minimum and maximum throughput, any services required to operate the facility (e.g. 3-phase power, necessary transformer KVA, water), and other necessary issues MNRE should be aware of when determining their preferred approach to e-waste management
- Details of any ancillary needs to ensure the appropriate functionality of the system (e.g. number staff required, level of education and training required, additional tools or parts, recommended storage, etc.)
- A brief summary detailing the locations the technology is currently in operation and references to the company who currently owns/operates the technology. If the technology is not currently in operation, please provide details on what stage of Research and Development it is in;
- A statement outlining the technologies ability to operate in the pacific context, including it's ability to negotiate a range of local conditions and factors, such as:
 - climatic conditions (e.g. high humidity, exposure to salt air/water)
 - geographic factors such as remoteness, isolation, rugged terrains, low-lying terrains

- disaster events including cyclones, tsunamis, earthquakes and volcanic eruptions
 - irregular power or limited power (e.g. availability of 3-phase power, unreliable power)
 - potentially limited local technical knowledge and experience
 - limited availability of technical parts (typically long lead times to receive delivery)
 - irregular shipping/import and export schedule
 - variability in population in settlements and countries (from small remote villages to large metropolitan centres)
 - variability in cellular network range and access to internet.
- A statement outlining the company's accreditation / attainment of international standards for waste management, or commitments to attain such accreditation;
 - The completed registration questionnaire (Registration Annexure below) requesting operational details regarding your technology(ies);
 - Any other considerations SPREP may wish companies to highlight in their registration.

Written Expressions of Interest should be no more than 4 pages in length (*excluding* the Registration Annexure and any company brochures / promotional materials), and should be emailed to pw@sprep.org no later than **9 September 2022**

Thank you for taking the time to provide information on the potential suitability of your technology(s) to assist with waste management in the Pacific region.

ANNEXURE 1: EXPRESSION OF INTEREST REGISTRATION

Companies (or their authorised representatives) who would like their technology to be included on the SPREP register of technology options suitable for waste management and recycling in small and remote islands are asked to complete the following form and include it as an attachment to their Expression of Interest.

<i>E-Waste Management and Recycling Technologies</i>					
General Company Details					
Company Information	Organisation				
	Head Office Address				
	Head Office City		Post Code		
	Head Office Country				
Personal Information for key contact	Title (Mr/Mrs/Ms/Dr)		First Name		Family Name
	Job Title				
	Key contact Email			Website	
	Office Telephone (Inc. Country Code)			Mobile Telephone (Inc. Country Code)	
E-Waste Processing Information (if more than one to feature, please complete form multiple times)	Technology Name				
	Model				
	Link(s) <small>(product statement, website, youtube, facebook, photos, etc)</small>				
	Description of Processes How is e-waste treated/processed.				
<i>The information provided will be used to develop a register of companies that organisations in the Pacific Region can contact to discuss technology options for the In-Country management and recycling of waste items. Information provided will be published on the SPREP website and be accessible by all website users.</i>					
Information Protection	I acknowledge that the submission of this information will constitute agreement to have our company details included in the publicly accessible register, and approve the inclusion of this information. <input type="checkbox"/> Yes, I am happy for my details to be shared <input type="checkbox"/> No, I would prefer you didn't share my details				
Conditions of Inclusion	Provision of company details, and inclusion on the register does not imply that SPREP or any of its donors, agents, or employees are endorsing the services provided, or quality of processes undertaken. <input type="checkbox"/> I understand inclusion in the register does not imply or guarantee my company will enter into commercial arrangements with SPREP or any company for the purpose of waste management or recycling				

Restrictive Measures	<input type="checkbox"/> I acknowledge that my company, or any of its Agents or Employees are included on the European Union's "Restrictive Measures List" (www.sanctionsmap.eu).		
	<input type="checkbox"/> I acknowledge that SPREP has the right to remove our company details at any time if we are added to the EU Restrictive Measures List, or if our company is found guilty of offences related to Environmental Management or restrictions of Human Rights		
Approval for inclusion of details on the Register	<i>I approve the inclusion of my company / facility details on the Register</i>		
	Name (and Position)	Date	Signature

Technology Details – Please complete this form for each Technology you would like included on the Register

Technology Operation	Technology Name/Model			
	Where is technology currently in operation (location, country)	1	Owner / operator (name, company)	
			Key contact Email	
			Telephone	
		2	Owner / operator (name, company)	
			Key contact Email	
			Telephone	
		3	Owner / operator (name, company)	
			Key contact Email	
			Telephone	

Processing Details - Please provide answers to the following questions so we understand how e-waste is processed by your technology

Inputs	Waste input (kg/day):			
	- <u>Minimum</u>	Kg/day	Specify conditions if required	
	- <u>Maximum</u>	Kg/day		
	Input power requirements	2 phase power <input type="checkbox"/> 3 phase power <input type="checkbox"/>	Specify conditions if required	
	Input power consumption:		Specify conditions if required	
	- <u>Minimum</u> waste input	kW		

	- <u>Maximum</u> waste input		kW		
	Additional inputs? (list all) (e.g. water, heat, diesel, reagents/chemicals)	-	/ operating hour		
		-	/ operating hour		
		-	/ operating hour		
		-	/ operating hour		
	What are required consumable products or parts? (list all) (e.g. blades, belts thermocouples, software, licenses)	-	how often do they need replacing	-	/ operating hour
		-	# / operating hour	-	/ operating hour
		-		-	/ operating hour
		-		-	/ operating hour
	Who stocks spare parts?				
	Other comments on inputs?				
Outputs	What are recoverable products (What does the technology make or do)				
	What are unrecoverable waste products (waste material after processing)				
	Average ratio – input v recoverable (%)		%	If producing power, average quantity of power output (kW)	kW/Kg
	Environmental emissions (emissions to air or discharges to water or soil)				
	Other comments on outputs?				
Operating requirements	Size/Dimensions of technology/equipment	Length:	Meters		
		Width:	Meters		
		Height:	Meters		
		Weight:	Kg		
	Detail design or operating limitations				

	(e.g., range of humidity, temperature, minimum daily/weekly operation)			
	Other comments on operating requirements?			
Staff requirements and training	How many staff are required to operate the technology and what skill level required?	High (specialist/tertiary education – i.e., engineer): # staff Medium (apprenticeship etc – i.e., technician): # staff Low (on-job training – i.e., warden): # staff Other (details:): # staff		
	Is training or other support provided for:	commissioning <input type="checkbox"/> operations <input type="checkbox"/> decommissioning <input type="checkbox"/> maintenance <input type="checkbox"/>	by what means? (e.g. technical support, onsite training, an online package, or training manual)	
	What general maintenance is required and to what skill level?			
	Other comments on staff requirements and training?			
Standards and Permits	What kinds of operating permits/licenses have typically been required? (e.g. licenses specifying air emission limits, discharge limits, noise limits etc.)			
	Does the technology comply with any local and/or International Standards? (e.g. Australian, European, North American etc.)			
Costs and Warranty	Capital cost (USD ex-factory - excluding taxes and transport):			
	- <u>Minimum</u> size/input - <u>Maximum</u> size/input	\$ USD \$ USD	Specify conditions if required	

	Typical installation and commissioning cost	\$ USD	Specify conditions if required	
	Typical operation and maintenance cost (e.g. spare parts, software, licenses) US\$/Annum	\$ USD/Annum	Specify conditions if required	
	What is the warranty period for the technology?		Specify conditions if required (e.g. specific operating conditions)	
Potential processing of other Wastes by technology	Please indicate other waste types processed by your technology. If you have particular requirements (e.g., level of contamination) or restrictions (e.g., minimum amount processed, etc.) please include details.			
	Asbestos		Healthcare Waste	
	E-waste (computers, mobile phones, tvs & monitors)		E-waste (whitegoods & general electrical products)	
	End-of-Life vehicles		Scrap steel (ferrous metals)	
	Aluminium		Copper	
	Glass beverage containers		Plastic Containers (PET)	
	Plastic Containers (HDPE)		Plastic Containers (PVC)	
	Plastic Containers (PP)		Plastic Containers (other)	
	Other plastics (provide details)		Used motor oil	
	Used cooking oil		Pesticides	
	Persistent organic pollutants		Laboratory grade chemicals	
	Expired pharmaceutical wastes		Used Lead acid batteries	
	Mercury and compounds		Expired industrial chemicals	
	Solvents and paints		Used tyres	
	Paper & cardboard		Organic matter (food waste – households/ markets)	
Organic matter (garden waste)		Other		