

Annex A

TERMS OF REFERENCE

Waste-to-Energy Research

1. BACKGROUND

The Secretariat of the Pacific Regional Environment Programme (SPREP) is working with the European Union's Delegation to the Pacific, and 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.

PacWastePlus seeks to generate improved economic, social, health and environmental benefits for Pacific Island Countries arising from stronger regional economic integration and the sustainable management of natural resources and the environment. The programme activities will be designed to assist Countries to ensure the safe and sustainable management of waste with due regard for the conservation of biodiversity, reduction of marine litter, health and well-being of Pacific island communities, and climate change mitigation and adaptation requirements.

Activities for PacWaste Plus will focus on targeted priority waste streams which are: hazardous wastes (specifically **asbestos, E-waste and healthcare waste**); solid wastes (specifically **recyclables, organic waste, disaster waste and bulky waste**); and related aspects of **wastewater** (water impacted by solid waste).

Pacific Islands Countries (PICs) 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.

2. ACTIVITY BACKGROUND

PacWastePlus seeks to gain an understanding of the current Advanced Waste Technologies with proven scalable business models in the PIC context. In recent times, several technology providers have made representations to Pacific countries about specific waste-to-energy technology options, and there is currently a lack of resources available for government staff to appropriately assess technology options to ensure they are suitable for use (environmental considerations), appropriate for economies of scale present in PICs, or understand the recurrent operational burden these technologies may place on developing nations.

The intent of this research is to provide a technical paper that describes the various waste-to-energy technologies available, the benefits and constraints to each of these, and undertake a simplified PESTLE (Political, Environmental, Social, Technological, Legal, and Economic) analysis of the various options, considering the Pacific context. Additionally, an output of a summary booklet on the various waste-to-energy or Advanced Waste Technologies available and suitable for PICs should be developed as an entry document to the detailed research paper.

3. SCOPE OF WORK

The activity is expected to be developed under several stages, as described in the following table.

Phase	Description	Documentation SPREP will provide	Consultant Output
Inception	<p>Lead an inception meeting with the PacWastePlus team to discuss the delivery of the project, addressing all issues likely to cause delays (risk management), and ensure a common understanding of the action, and required outputs.</p> <p>Develop a research plan for approval prior to implementation. The research plan should explain the overall strategy, methodology, and analyses to be used to successfully accomplish the project objective.</p> <p>The plan should be structured to, at a minimum, answer the following questions (noting the research plan should identify all issues to be addressed through the work):</p> <ol style="list-style-type: none"> i. What are the currently available types of Advanced Waste Technology options. ii. What waste types are able to be managed by the technology (and specifically, what waste types cannot be used as feedstock)? iii. What is the minimum and/or maximum volume of ideal feedstock to be managed by the technology? iv. Is there a need for waste to be imported into the country/territory to feed the technology? v. What possible transboundary movement requirements are there to be satisfied to facilitate this movement? vi. What products are 'outputs' of the technology? Are they reusable, or do they need to be landfilled or sent to specific treatment / destruction? Is energy an output of the system (provide details)? 	Nil	<p>Inception meeting</p> <p>Minutes of the inception meeting with confirmation of activities, and scope of work to be developed and agreed by meeting participants prior to commencement of any activities.</p> <p>Research Plan</p> <p>Detailed research plan (Comprehensive plan on how research will be undertaken, information sources, and time frame to implement).</p> <p>The report should provide a detailed workplan of activities (including a timeline) and clearly identify any tasks or responsibilities of SPREP necessary to ensure project success.</p> <p>Draft Report Structure</p> <p>Draft report structure is to be presented along with the research plan to enable SPREP the ability to understand the likely output information, and ensure it will provide the quality information required by member countries (noting the</p>

Phase	Description	Documentation SPREP will provide	Consultant Output
	<ul style="list-style-type: none"> <li data-bbox="465 300 1227 432">vii. What are key operational considerations for each technology type (e.g. capital costs, ancillary services and infrastructure, recurrent costs, labour, education requirements, foot print, etc.)? <li data-bbox="465 443 1227 507">viii. What are key PESTLE considerations (both positive and negative) related to the use of the technology? <li data-bbox="465 518 1227 582">ix. Where are working examples of the technologies (case studies)? <li data-bbox="465 593 1227 689">x. How does the technology address reduction, reuse, and recycling of the waste, i.e., waste management hierarchy? <li data-bbox="465 700 1227 796">xi. What are the environmental and social issues this technology addresses or impacts (benefits and/or negative)? <li data-bbox="465 807 1227 935">xii. Issues of compliance to emission requirements under the national legislations on such operations or in their absence, compliance with Stockholm Convention, Minamata Convention, etc. <li data-bbox="465 946 1227 1042">xiii. What is the general assessment of the suitability of the technology and the minimum requirements for it to be considered? Scalability / limitations / sustainability <li data-bbox="465 1053 1227 1117">xiv. Environmental Risk assessment / ESS including mitigating measures (Operation Stage and End of Life Stage) <p data-bbox="465 1144 1227 1281">Additionally, the research will need to provide a summary PESTLE analysis for each technology type (noting the “Political considerations” will vary for each State, but possible to identify likely issues or areas of interest.</p>		<p data-bbox="1556 300 2018 363">geographical size and populations vary greatly throughout the region).</p>

Phase	Description	Documentation SPREP will provide	Consultant Output
	It is further expected the output report will provide the consultants views on the suitability of the various options for their practical deployment into the Pacific.		
Research	Undertake the research and report development as per the approved research plan.	<p>Small Scale technology review (Published on PacWastePlus website)</p> <p>PESTLE Decision Support Tool (Published on PacWastePlus website)</p> <p>Access to waste audit data from the region (through PEP website)</p>	<p>Draft report</p> <p>Develop a research report that details the findings from the research phase of work. The report should provide a clear premise of the technology types, PESTLE considerations, and suitability for use in the Pacific context.</p> <p>Draft Publication Booklet</p> <p>The research report's findings should then be transferred into a draft structure (including writing style) suitable for use as an information booklet (entry point) to the more detailed research report. Structure and draft graphics suggested should be presented for comment.</p>
Final Report & Booklet	Following feedback from the SPREP review team, the report and booklet should be finalised	Nil	<p>Final report</p> <p>Final report addressing any comments provided from the review activity.</p> <p>Final Publication Booklet</p> <p>Final booklet addressing any comments provided from the review activity.</p>

Institutional Arrangement

It is expected this activity will be undertaken remotely, and there will be no travel involved. If needed, introductions to representatives of Pacific Island countries can be made, but it is expected that the bulk of the work will focus on the research and contact with technology providers.

Consultant Responsibilities

The consultant will be responsible for scheduling meetings with service/technology providers, country representatives, and SPREP, taking minutes, and distributing these for comment prior to finalising.

Schedule of Work

The activities are to be completed no later than **7 weeks from Agreement signing date** with a preference for the activities to be completed much earlier.

Expected project activity is detailed in Table 2, it is expected that tenderers will detail how and when each of these steps will be delivered.

Table 2: Project Schedule

Phase	Activity	Timeline
	<i>Contract Signing and Execution</i>	
Inception	1. Inception Meeting 2. Research Plan 3. Draft report structure	Two weeks from date of Contract Execution
Research	4. Draft report 5. Draft booklet	No later than 4 weeks from date of Contract Execution
Completion	6. Final report 7. Final booklet	No later than 7 weeks from date of Contract Execution

3.3 Budget

Submissions are required to itemise all financial elements of their proposal in **USD**, including, but not limited to, the following:

- Salary costs (hourly rate)
- All applicable taxes

Submissions must include an annotated budget listing for each task.

Proposals above USD\$20,000 may not be considered

SPREP reserves the right to withdraw this tender at any time. SPREP reserve the right to accept or reject any or all bids and to waive any formal defects or irregularities in the bids, when deemed to be in the interest of SPREP.

4. Other Information

The successful consultant will be provided with any relevant project documentation as stated in Section 3.

The successful consultant must supply the services to the extent applicable, in compliance with SPREP's Values and Code of Conduct

https://www.sprep.org/attachments/Publications/Corporate_Documents/sprep-organisational-values-code-of-conduct.pdf