

Towards a Zero Waste Hotel

Challenge Owner	Pan Pacific Hotels Group (PPHG) National Environment Agency (NEA)
Opening date for proposal submission	12 November 2019
Closing date for proposal submission	14 February 2020, 12 pm (UTC+8) Proposals and all accompanying attachments must be submitted through the Sustainability Open Innovation Challenge portal.

BACKGROUND

In June 2017, PPHG conducted a pilot study in which an estimated 4,500-5,000 kg of food waste (both food preparation waste and unconsumed food waste) was being disposed of every day from their various premises. This was about 40% of their 3,000 tonnes of waste disposed of annually. Both PPHG staff & guests are not conscious of the volume of waste that they generate, nor are they aware of the cumulative impact that it has on the overall waste stream. The group currently relies on the waste collection service provider, to furnish information on waste disposal and does not have an effective means to monitor waste, track and analyse waste generated at source for further actions.

PPHG is interested to further the group's waste management practices and has identified food waste management as a priority waste stream, which is also in line with NEA's zero waste masterplan.

DESIRED OUTCOMES

With ongoing measures in place for the recycling of mixed cooked food waste, PPHG aims to focus on food waste avoidance, upcycling, reusing or repurposing before they are cooked. In order to help reduce food waste at the upstream stage, PPHG aims to implement solutions that are targeted at achieving the following:

- Cost-effective management of food preparation leading to less waste, such as via avoidance, reduction, re-purposing and reuse in the preparation process before reaching the final means of recycling
- Behavioural change of staff on the importance of avoidance and/or re-use/repurposing of food waste
- Effective food inventory tracking and management, leading to greater efficiency in space usage for the storage of dry, chilled and frozen food, as well as to reduce the amount of food wasted due to spoilage.

TECHNICAL SPECIFICATIONS AND REQUIREMENTS

Solutions can include components of:

- Monitoring and tracking of food preparation waste
- Segregation of food preparation waste
- Triggering behavioural or process changes to reduce food wastage

- Food inventory tracking and management across different compounds

In all cases, solutions should:

- Occupy very small footprint due to space constraint of the kitchen; or
- Be able to be retrofitted onto existing equipment (e.g. bins)
- Draw small amount of electricity compatible with normal wall plugs
- Require minimal manual inputs from PPHG staff

Applicant should include information on any proof-of-concept (POC)/minimum viable product (MVP) that is non-sensitive and indicate estimated commercial price of solution and cost-benefit analysis of the solution in the proposal.

Besides addressing the above requirements, the proposed solution should also fulfil the following criteria:

- Not be readily or commercially available in the market.
- Wherever applicable, aim to:
 - Enhance safety of operations; and/or
 - Improve quality, consistency and service delivery; and/or
 - Achieve cost-effectiveness; and/or
 - Improve efficiency/productivity.

BUSINESS OPPORTUNITY

PPHG can be the first client and there is possibility of scaling up to other premises of PPHG upon successful trial. The solution may also be applicable to other malls or facilities that generate large amount of waste. When fully commercialised, it may also qualify for NEA's productivity grant for adoption depending on its performance (e.g. 30% reduction in manpower).

DEVELOPMENT TIMELINE

Solution development and test-bedding should take 6-12 months, and pilot deployment within 24 months.

The development and test-bedding of the solutions can be carried out in the following phases:

- a) **Proof-of-concept Phase:** Development of the solution and prototyping for proof-of-concept.
- b) **Test-bedding Phase:** Test-bedding of the proposed solutions at relevant premises/sites in PPHG, taking into account the operational challenges which should be subjected to stress test.
- c) **Pilot Deployment Phase:** Deployment of proposed solutions at relevant premises/sites in Singapore, for full-scale deployment.

THE RULES AND REGULATIONS ON THE CHALLENGE WEBSITE APPLIES, WITH ADDITIONAL INFORMATION BELOW.

FUNDING SUPPORT

Shortlisted local SMEs/start-ups may be supported with funding of up to 70% of the qualifying project cost, capped at \$250,000*.

Foreign and large local enterprises solution providers are encouraged to work with local SMEs/start-ups for solution development.

*Once approved, there should be no request for additional funds unless there are strong and valid justifications. Any additional funding will be subject to NEA and ESG's approval. Companies are advised to provide thorough and accurate breakdown costs of their proposal during the submission.

ADDITIONAL INFORMATION/RESOURCES

NEA and PPHG will provide mentorship and test-bedding site for the solution development.

EVALUATION CRITERIA

Proposals will be evaluated against the following criteria:

- Technical feasibility of solution [30%]:
 - Effectiveness in addressing the challenge statement
 - Operational feasibility
 - Minimal/no nuisance and disruption to existing operation
 - Minimal alterations to existing infrastructure
- Economic feasibility of solution [30%]:
 - Commercialisation strategy
 - Estimated commercial price
 - Estimated operating, life cycle costs and return on investment upon deployment
- Capacity and expertise to execute project [25%]:
 - Requisite capabilities and committed resources to undertake solution development
- Clarity of proposal and accompanying information on POC/MVP, on-site testing and pilot deployment plans [15%]

TECHNICAL BRIEFING

A technical briefing will be held to provide interested applicants with more information. The details for the briefing are as follows:

Date :	12 Nov 2019 (<i>Tuesday</i>)
Time:	12pm to 12.30pm
Location:	Singapore Expo Hall 5 SG Innovation Ecosystem Booth @ SFF X SWITCH (Public access via <u>free</u> SFF X SWITCH Trade Visitor Pass)

Please register your interest [here](#) by 11 November (Mon).

PROPOSAL SUBMISSION

Submit your proposal using the Application Form, together with all supporting documents, in the Sustainability Innovation Call portal.

CONTACT

For further enquiries, please email:

- [Zero Waste Call@nea.gov.sg](mailto:Zero_Waste_Call@nea.gov.sg) –for matters pertaining to the challenge statement
- [Sustainability Challenge@enterprisesg.gov.sg](mailto:Sustainability_Challenge@enterprisesg.gov.sg) –for assistance on:
 - *Using the Sustainability Open Innovation portal for registration, submission of proposal, etc.*
 - *Funding enquiry*