Towards a Zero Waste Resort

Challenge Owners	**Resorts World Sentosa (RWS)** **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

At RWS, general waste is disposed at various bin centres by users (Business Units or BUs, tenants, etc.) without any system to record or track the type of waste disposed. As such, RWS is unable to find out (1) the types of waste that are being disposed; (2) who the generators of these waste are (BUs/tenants/public etc.). Thus, RWS found it challenging to encourage tenants to participate in waste reduction efforts.

In order to further reduce overall waste generation, RWS is seeking solutions that can **maximise waste segregation** to identify* and recover more waste that can be avoided, reduced, reused, repurposed and recycled.
(Note: *The identification process will include tracking of data, such as type of waste, volume, contributors, etc.)

The highest contributors to RWS' overall waste tonnage come from the bin centres near the Resort Common Area. Hence, the primary locations for the potential trial could be at bin centres and waste collection points around the Common Area.

Applicants should note that there are space constraints for waste segregation technologies/equipment and that noise and smell levels should be kept at a minimum, so that the experience of patrons in RWS would not be affected.

DESIRED OUTCOMES

RWS and NEA are seeking solutions that can enable the resort to better avoid, reduce, repurpose, re-use and recycle waste along the waste production/value chain to:

- Identify and maximise segregation and recovery of items to be avoided, reduced, repurposed, reused and/or recycled
- Increase operational efficiency in waste segregation processes
- Track data for users of bin centers (e.g. identify departments, tenants, waste contributed etc.)
- Encourage patrons and RWS to use less disposables

The desired outcome is to reduce overall waste tonnage.

TECHNICAL SPECIFICATIONS AND REQUIREMENTS

Solution should be:

- Fully autonomous and require minimal manual intervention required from disposal to identification, sorting, to transfer into general waste pile
- Energy-efficient, quiet and minimal smell nuisance

Space availability/possible location to house the pilot trial solution:

- Possibility for one bin centre to house the pilot trial
- Approximate size/dimensions = 130 sqm
- Throughput of one bin centre = ~75 waste tonnage per month

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

RWS can be the first client and there is possibility of scaling up to other premises of RWS 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 RWS, 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/startups 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/startups 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 RWS will provide mentorship and test-bedding site (at RWS) for the solution development.

RWS premises involved in this call will be the **Resort Common Area** (which are RWS public areas apart from attractions such as Universal Studios Singapore, S.E.A. Aquarium, Adventure Cove Waterpark and all hotels' premises), namely:

- Forum (both B1 and Level 1)
- Bull Ring area
- Waterfront area
- Malaysian Food Street area

The waste from these premises are channelled mainly into two bin centres one of which is amongst the highest contributors to RWS' overall waste tonnage. The type of waste is general waste, basically all types of waste from the public bins, and lots of food waste from F&B tenants in the common area. As for Malaysian Food Street, it is a RWS-owned establishment and RWS is able to engage the hawker stalls if there are waste management solutions pertaining to them.

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 *(Tuesday)*
Time:	12pm to 12.30pm
Location:	Singapore Expo Hall 5 SG Innovation Ecosystem Booth @ SFF X SWITCH (Public access via free 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 –for matters pertaining to the challenge statement

- Sustainability_Challenge@enterprisesg.gov.sg –for assistance on:
  - *Using the Sustainability Open Innovation portal for registration, submission of proposal, etc.*
  - *Funding enquiry*