Safe and efficient tree-pruning system

Challenge Owner	**EM Services Pte Ltd**
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

Trees help to combat climate change by removing carbon dioxide from the air, storing the carbon in the trees, and releasing oxygen into the atmosphere. However, compared to trees in their natural environment, urban trees are subjected to more stress and pollutants. Falling branches and trees also damage property and cause injury. As such, urban trees in Singapore are regularly inspected, maintained, and replaced when necessary to ensure the continual health and safety of our garden city.

There are about 400,000 trees in all the Town Councils in Singapore which require pruning at least once a year. The pruning of the trees is done manually with one worker riding on a bucket attached to the arm of a crane or spider lift and using a chainsaw to prune the trees. The pruning process requires at least 3 workers – the worker performing the pruning, the crane operator & a safety supervisor. The cut branches are then transported away for disposal or mulched on the spot.

As more trees are planted in our garden city, more resources are required to maintain them. Thus, a solution is sought to safely and efficiently prune trees within our urban environment.

DESIRED OUTCOMES

To reduce the number of workers needed to carry out tree pruning and the need to work at height. Reduce set-up time and overall time for tree pruning.

TECHNICAL SPECIFICATIONS AND REQUIREMENTS

- Solution should comply with NParks guidelines on tree pruning and Workplace Safety and Health Council (WSHC) guidelines on working-at-height & operation of lifting equipment.
- Solution should draw any power required from the motorised crane or boom lift, or a battery pack installed, and not require external power.
- Fewer than three workers required to operate the tree pruning solution at any one time.
- Accurate pruning of branches within 1 metre radius of lifting bucket.
- Proposals should include information on any proof-of-concept (POC)/minimum viable product (MVP) that is non-sensitive.

- Applicant should indicate estimated commercial price of solution, cost of operation/maintenance and cost-benefit analysis of the solution in the proposal.

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

- Solution should not be readily or commercially available in the market.
- Solution should, wherever applicable, aim to:
  - Enhance safety of operations;
  - Improve quality, consistency and service delivery;
  - Achieve cost-effectiveness

BUSINESS OPPORTUNITY

Excluding the 400,000 trees in Town Councils, the trees in parks, roads, commercial and private condominiums also require pruning. If proven to be successful, there is an opportunity to sell the developed product or provide it as a service not only to the Town Councils but also to landscaping companies.

DEVELOPMENT TIMELINE

Solution development and test-bedding should take 6-9 months, and pilot deployment within 15 months.

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

FUNDING SUPPORT

Local SMEs/startups that are shortlisted may be supported with funding of up to 70% of the qualifying project cost, capped at $250,000.

Foreign solution providers are encouraged to work with local SMEs/startups for solution development.

ADDITIONAL RESOURCES

EM Services will provide mentorship and test-bedding site for the solution.

EVALUATION CRITERIA

Proposals will be evaluated against the following criteria:

- Technical feasibility of solution [30%]:
  - Effectiveness in addressing the challenge statement
  - Operational feasibility for deployment
  - Minimal alterations to existing crane/boom lift
  - Ease of operation and maintenance of the tree pruning solution
- Economic feasibility of solution [30%]:
  - Cost effectiveness of solution
  - Commercialisation strategy
  - Estimated operating and life cycle costs
  - Scalable
- 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 [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 :	18 Nov 2019 *(Monday)*
Time:	9am to 12 pm
Location:	230 Victoria Street, Bugis Junction Office Tower, Level 10, Singapore 188024 - Room: Little Red Dot

Please register your interest here by 14 Nov 2019, 12pm.

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:

- andychew@emservices.com.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*