

Reducing reliance on traditional concrete constituents for new buildings

Challenge Owner	Housing & Development Board (HDB)
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

Concrete is the main material that Singapore depends on for construction, such as the building of HDB flats. The raw materials for concrete (such as cement, sand, aggregate) are mainly imported. Hence, the availability/supply and prices of these materials are often subjected to external factors such as demand-supply and geopolitical climate.

As Singapore is constantly rejuvenating itself, with older buildings making space for new buildings, we generate significant construction waste and also carbon footprint in the construction process.

HDB is seeking alternative sustainable materials that can replace the traditional building materials, as well as solutions that allow more recycled construction materials to be incorporated into new buildings, while maintaining the structural strength and integrity of the building.

DESIRED OUTCOMES

The desired outcome is to use lesser concrete raw materials for new buildings, by 5-10%, either through the use of alternative sustainable materials or more incorporated recycled building materials, without compromising the structural strength and integrity of the building.

TECHNICAL SPECIFICATIONS AND REQUIREMENTS

- Reduce use of raw concrete by at least 5% on building level, using replacements such as sustainable alternatives or recycled materials.
- Comply with existing building and construction standards and regulations.
- Alternative materials or concrete with recycled materials should come with testing certification proving their safety and/or performance.
- 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:

- Not be readily or commercially available in the market.
- Result in the creation of new IP.
- Wherever applicable, aim to:
 - Enhance safety of operations; and/or
 - Reduce reliance of manpower; and/or
 - Achieve cost-effectiveness; and/or
 - Improve efficiency/productivity.

BUSINESS OPPORTUNITY

HDB can be the first customer for pilot deployment if the solution is successfully developed.

DEVELOPMENT TIMELINE

The solution should ideally be deployable immediately as a pilot or with minimal additional development within a timeframe of no more than 2 years.

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

FUNDING SUPPORT

Enterprise Singapore may support shortlisted local SMEs/startups 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

HDB will provide mentorship and test-bedding opportunities at the HDB Centre of Building Research.

EVALUATION CRITERIA

Proposals will be evaluated against the following criteria:

- Technical feasibility of solution [30%]:
 - Effectiveness in addressing the challenge statement
 - Deployment feasibility
 - Minimal/no disruption to the current construction process
- Economic feasibility of solution [30%]:
 - Commercialisation strategy
 - Estimated commercial price or pricing strategy
- 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 (<i>Monday</i>)
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:

- TEO_Hong@hdb.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*