

Annex B: Applied Research Grant Call

The request-for-proposal solicits proposals in five focus areas, each addressing critical gaps in current coastal protection strategies:

(1) Sustainable Construction Materials for Coastal Protection Infrastructure

- The proposal should aim to translate sustainable material(s) that had been tested suitable for use in land-based built environment under the relevant standards and translate it for coastal protection application. The proposal should include research on at least one of the following sub-areas: Enhanced durability, lightweight properties, and/or sustainable sourcing.

(2) Smart Structural Health Monitoring (SHM) Systems for Coastal Infrastructure

- The proposal should include research on at least one of the following sub-areas: Development of technologies for continuous monitoring, automated remote monitoring approach for periodic inspection and defect detection of coastal infrastructure, and/or advanced non-destructive testing (NDT) techniques for structural integrity assessment.

(3) Comprehensive Decision Matrix for Adaptive Coastal Protection Planning

- Research is to develop methodologies for resilience planning and modelling intangible impacts of coastal protection solutions. The proposal should include research on at least one of the following sub-areas: Integration of resilience planning into the decision matrix, quantification of costs and benefits of coastal protection measures, and/or risk quantification and understanding of public tolerance to flood events.

(4) Innovative Solutions for Coastal Protection and Flood Management

- Proposals are to develop adaptive coastal protection and flood protection solutions suitable for Singapore's urban context and to address uncertainties in climate change impact. The innovative solutions should address at least one of the following sub-areas: Retrofitting techniques for existing structures, adaptive solutions with sufficient flexibility, multi-functional structures/systems, and/or demountable flood barriers that can protect developments from floods.

(5) Innovative Monitoring Techniques for Sediment Transport

- Proposals should develop Proof-of-Concept (POC) for remote sensors or monitoring techniques to monitor sediment dynamics along Singapore's shoreline.