

<b>Phase 3 Statement Theme</b>	Sustainability and Resilience
<b>Statement number</b>	2
<b>Launch Date</b>	15 September 2020
<b>Closing Date for submission</b>	26 October 2020

<b>Title:</b>	New Materials for Non-Structural and Structural Applications
<b>Background</b>	Worldwide, construction booms in a thriving economy. The Global Status Report 2019 revealed that the building and construction together account for 39% of all carbon emissions in the world with 11% coming from embodied carbon. To decarbonise the sector, bold and innovative actions have to be taken.
<b>Challenges</b>	<p>Addressing embodied carbon is key to fighting the climate crisis as new construction is expected to double the world’s building stock by 2060. The sector needs to dramatically change the way buildings are designed, built, used and deconstructed. Innovative low carbon solutions with outstanding properties like high strength but light weight, could also boost construction productivity and reduce the life cycle costing for buildings.</p> <p>Construction materials such as cement, aggregates and steel are either produced or mined, causing depletion of natural resources and inflicting high carbon footprint. In recent years, sustainable and high performance construction materials have been developed for non-structural and structural applications in the laboratory. Due to various reasons (justifiable or not), such potential innovative solutions have not been able to scale up.</p>
<b>Desired Outcomes</b>	<p>We are seeking new materials for non-structural and structural applications that meet most, if not all, the following desired outcomes:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Lower embodied carbon;</li> <li><input type="checkbox"/> Improve construction productivity;</li> <li><input type="checkbox"/> Reduce life cycle costing;</li> <li><input type="checkbox"/> High possibility for wide-scale implementation.</li> </ul>
<b>Requirements</b>	<ol style="list-style-type: none"> <li>1. Proposes new material with corresponding application(s) articulated.</li> <li>2. States the local environmental standards and building codes to conform to.</li> <li>3. Proposes test data to be gathered for evaluation by JTC and relevant authorities.</li> <li>4. Develops a roadmap for regulatory submission.</li> </ol>
<b>Possible Solutions</b>	<ol style="list-style-type: none"> <li>1. Sustainable construction materials making use of locally generated waste streams (non-recyclable or recyclable, contaminated or clean) that have sufficient volume and consistency, as cement or aggregate replacement.</li> <li>2. High performance construction materials for structural applications that increase productivity and reduce life cycle costing.</li> </ol>

<b>Development Timeframe</b>	<p>Applicants are encouraged to propose phases of development and delivery.</p> <p>The total project delivery period shall not exceed 12 months.</p> <p>A proposed timeline is as follows:</p> <ol style="list-style-type: none"> <li>1. 9 months: To conduct tests for data to validate the technical viability of the new material and its application.</li> <li>2. 3 months: To demonstrate the economic feasibility through market research and cost- and- benefit analysis.</li> </ol>
<b>Additional Info</b>	NIL