ANNEX A

Sustainability Open Innovation Challenge 2023

	Strategic Partner	Demand Drivers	Challenge Statements
Climate Change			
Temasek Foundation and **Centre for Impact Investing and Practices**		SOIC 2023 x TLC Open Category: • Carbon Capture, Storage and Utilisation • Emerging Renewable Energy e.g., Green Hydrogen, Wind/Tidal Energy **Hexagon Group** is a Corporate Sponsor for the Open Category.	
1	**JTC Corporation (JTC)**	**Chang Chun Group**	Recovery of Low-Grade Heat Waste (80C) • How might we optimise the recovery of low-grade heat waste (60-80 degrees celsius) and redirect the heat to a productive use within the manufacturing facility?
2	**-**	**Shing Leck Engineering Services**	
3	**-**	**(Tata Steel) T S Global Procurement Pte Ltd**	Recovery of Low-Grade Heat Waste (150C) • How might we optimise the recovery of low-grade heat waste (150-200 degree celsius) and redirect the heat to a productive use within the steel manufacturing plant?
4	**Singapore Chemical Industry Council (SCIC) and JTC**	**Advario**	Floating Photovoltaic Platforms • How might we optimise the design, operation and maintenance of Floating Photovoltaic (PV) platforms to provide energy at scale despite the variable and challenging seafront conditions?
5	**SCIC**	**The Polyolefin Company**	Optimisation of Chiller System Efficiency • How might we optimise the efficiency of the chiller system to minimise overall energy and water consumption?
Green Buildings			
6	**SEMI**	**Micron Technology**	Monitoring system for abatement and DRE efficiency optimisation • How might we create a real-time monitoring system to optimise abatement settings and improve destruction and removal (DRE) efficiency?)
7	**-**	**Keppel Corporation**	Reduction of Plug-Load Energy Consumption • How might we minimise the energy consumption of plugged-in devices in tenanted office spaces, in order to reduce total building energy use by at least 5%?

8	**SG Eco Fund**	**Housing & Development Board**	<u>Renewable Energy and Operational Carbon Emission Reduction</u> • How might we design new renewable energy solutions that generate and/or store energy for HDB buildings and estates? <u>Green Construction Materials</u> • How might we develop and test low-carbon building and infrastructure materials for HDB's new construction projects or existing estates? <u>Rainwater Recycling</u> • How might we improve water detention and retention capacity in urban environments, construction projects or existing estates?
9	**-**	**Island Concrete**	<u>Innovative Materials for Green Concrete</u> • How might we increase green cement production with innovative materials and methods?
Sustainable Agriculture & Trade			
10	**Singapore Agri-Food Innovation Lab (SAIL) operated by NTU Singapore**	**Japfa**	<u>Water Recycling on Livestock Farms</u> • How might we implement a sustainable and cost-effective wastewater treatment solution for livestock and aquaculture facilities?
11		**CNH Industrial**	<u>Tracking of Crop Residues Sent to Biomass Energy Plants</u> • How might we record a set of parameters of individual paddy straw bales (crop residues) and thus the quality of each bale, so as to optimise deliveries of bales as feed to biomass energy plants?)
12	**-**	**(Michelin Group) Societe Des Matieres Premieres Tropicales**	<u>Enablement of Smallholders to Participate in Carbon Economy</u> • How can we enable participation in the carbon economy, and therefore create new value for climate-smart smallholder-centred development projects?
13	**-**	**PT. Sukses Mantap Sejahtera**	<u>Alternative Uses of Sugarcane By-Products</u> • How might we create value-added products from sugarcane by-products, thereby enhancing the sustainability and profitability of sugarcane processing?
14	**-**	**Cargill**	<u>Optimisation of Fertiliser Use</u> • How might we collect accurate and actionable insights on fertiliser effects, so that fertiliser use can be optimised on oil palm plantations and smallholder plots?
15	**-**	**(TTC AgriS) Thành Thành Công - Biên Hòa Joint Stock Company**	<u>Transformation of Bagasse into Sustainable Plastic Products</u> • How might we enhance the value of bagasse by transforming them into sustainable plastic products?

Sustainable Materials			
16	**Singapore Fashion Council**	**Ghim Li**	Synthetic Organic Dyes and Fixing Agents • How might we employ organic or greener synthetic dyes and fixing agents to directly lead to lower electricity usage in the wastewater treatment process and chemical consumption?
17	**-**	**FKS Food and Agri**	Alternative Packaging for Flour How might we develop a new packaging solution for 25kg bags of agricultural products like wheat flour, that is more sustainable and yet cost-effective?
18	**-**	**Diageo**	Sustainable packaging • How might we decrease the carbon footprint or increase the circularity of alcohol packaging?
19	**-**	**Maha Chemicals**	Biotechnology-based Sustainable Surfactant Solution • How might we develop a sustainable surfactant solution using biotechnology to reduce the strain on palm and coconut oil resources?