

List of MNDRF awarded projects for the MNDRF RFP 08/01

Name of PI / Co-PI	Collaborating organisation	Project objective
1. Kinetic External Screen		
Assoc Prof Joseph Lim Ee Man, NUS (PI)	<ul style="list-style-type: none"> • NUS • Arup Singapore • Arup UK • GM2000 Pte Ltd 	To develop a kinetic external screen which can dynamically respond to glare control, ventilation and to mitigate rain impact on the window plane.
2. Post Occupancy evaluation of Green Mark rated buildings in Singapore		
Dr Nirmal T. Kishnani, NUS (PI)	<ul style="list-style-type: none"> • NUS • BCA • City Developments Ltd • University of New South Wales 	Research on Green accredited buildings and their impact relative to non-rated buildings. Review of energy & water consumption figures & comparisons with baseline in industry.
3. Energy efficiency and indoor air-quality control in air-conditioned buildings		
<ul style="list-style-type: none"> • Asst Prof Victor Chang Wei-Chung, NTU (PI) • Prof Tan Ooi Kiang, NTU (Co-PI) • Assoc Prof Tse Man Siu, NTU (Co-PI) 	<ul style="list-style-type: none"> • NTU • HDB 	To perform extensive study on the effectiveness of Demand-Controlled Ventilation by monitoring and controlling the mini-climatic parameters with indoor CO ² concentration and other important indoor air pollutants and to link these data with occupancy levels to develop an optimized HVAC operation algorithm.
4. Centralised chute system for collection of recyclable		
Dr Johnny Wong Liang Heng, HDB (PI)	<ul style="list-style-type: none"> • HDB • Zenith Engineering Pte Ltd 	Develop a prototype 'Centralized Chute for Recyclable' which requires minimal maintenance and to study, test, build up and trial-implement this system at a selected HDB existing project.
5. Material Properties of recycled aggregate concrete for structural applications		
<ul style="list-style-type: none"> • Dr Didier Talamona, University of Newcastle (PI) • Assoc Prof Tan Kang Hai, NTU (Co-PI) 	<ul style="list-style-type: none"> • University of Newcastle, Australia (Singapore campus) • NTU 	Investigate the material properties of Recycled Aggregate Concrete (RAC) at room temperature and to confirm that RAC can safely be used in building constructions and that it

		satisfies the building design requirements.
6. Ecological land-based aquaculture - Farming of food fish in urban environment		
Mr Matthew Tan, SIF Agrotechnology (PI)	<ul style="list-style-type: none"> SIF Agrotechnology Asia Pte Ltd Yi Yuan Wah Kia Hiang Restaurant Pte Ltd 	To fully develop of a high intensity & high yield aquaculture farming system using minimum space and labour through the integration of people, technology and business system.
7. Use of solar energy for automated greenhouse ventilation and supplementary lighting in cultivation of leafy vegetables		
Mr Chan Chee Hin, Ngee Ann Polytechnic (PI)	<ul style="list-style-type: none"> AVA Ngee Ann Polytechnic Kok Fah Technology Pte Ltd 	To study the feasibility of using photovoltaic (PV) system to offset electrical costs for automating greenhouse ventilation and supplementary lighting in vegetable cultivation.
8. Quantifying vegetation biomass of Singapore by remote sensing techniques		
Dr Liew Soo Chin, NUS (PI)	<ul style="list-style-type: none"> NParks NUS 	To develop sophisticated tools & techniques, using satellite remote sensing & geographic information system, to help plan and manage green infrastructure in Singapore.
9. Enhancing the urban native biodiversity of Singapore		
Assoc Prof Hugh Tan Tiang Wah, NUS (PI)	<ul style="list-style-type: none"> NParks NUS 	Develop appropriate know-how for propagation of native plants and diffuse the knowledge to NParks and local nurseries Develop the know-how to screen and grow native plants in the urban environment.
10. Benchmarks, Best Practices and Framework for Sustainable Urban Development and Cities		
<ul style="list-style-type: none"> Prof Heng Chye Kiang, NUS (PI) Assoc Prof Wong Yunn Chii, NUS (Co-PI) Assoc Prof Tham Kwok Wai, NUS (Co-PI) Assoc Prof Yu Shi Ming, NUS (Co-PI) 	<ul style="list-style-type: none"> URA NParks NUS 	To advance the knowledge on sustainable urban development and cities through an integrated programme of multi-disciplinary research.

11. Planning & development for sustainable high density living - High density threshold studies		
<ul style="list-style-type: none"> • Prof Heng Chye Kiang, NUS (PI) • Dr Malone-Lee Lai Choo, NUS (PI) 	<ul style="list-style-type: none"> • URA • NUS • Chinese University of Hong Kong 	To develop a knowledge base of methods and standards relating to sustainable high density urban development through a literature review and case studies.
12. Planning & development for sustainable high density living - Urban climatic mapping studies for Singapore		
Assoc Prof Wong Nyuk Hien, NUS (PI)	<ul style="list-style-type: none"> • URA • NUS • University of Kassel, Germany • Chinese University of Hong Kong • Institute of High Performance Computing (IHPC) • Centre for Remote Imaging, Sensing & Processing (CRISP) 	To provide inputs to planning and urban design to optimise land use, general building massing and orientation, preferred roadway alignments, building densities, location of open spaces etc.
13. Planning & development for sustainable high density living - Urban greenery studies		
Assoc Prof Hugh T.W. Tan, NUS (PI)	<ul style="list-style-type: none"> • NParks • URA • NUS 	To understand how the built-up environment affects as well as presents opportunities for existence of flora and fauna elements in urban conditions in including the presence of threatened species and important habitats for sensitive plants and animals and to demonstrate how the provision if greenery could mitigate the adverse environmental impacts of high density living.
14. Planning & development for sustainable high density living - Urban transport modeling in high density environment		
Assoc Prof Lee Der-Hong, NUS (PI)	<ul style="list-style-type: none"> • URA • LTA • NUS • University of Cambridge 	To adopt an integrative approach to address the interaction between land use and transportation.

15. Planning & development for sustainable high density living - Urban metabolism (industrial ecology) studies		
Dr Kua Harn Wei, NUS (PI)	<ul style="list-style-type: none"> • URA • NUS • Yale University 	To demonstrate scenarios of resource use and management in a high density context using industrial ecology concepts, with the view to re-look land use planning from the perspective of resource conservation and climate concerns.
16. Planning & development for sustainable high density living - Urban space planning for sustainable high density environments		
Asst Prof Hee Limin, NUS (PI)	<ul style="list-style-type: none"> • URA • NParks • NUS 	To derive possible new configurations of urban public spaces that are integrative with high-density typologies, are environmentally considered, and have the potential to be socially adapted to become vibrant public spaces.
17. Study of township climatic conditions to enhance sustainability and energy efficient		
Assoc Prof Wong Nyuk Hien, NUS (PI)	<ul style="list-style-type: none"> • HDB • NUS 	To conduct studies on macro scale effects of wind, solar irradiance, shadow effects, etc on town planning and development and vice versa.

AVA : Agri-Food & Veterinary Authority
 BCA: Building & Construction Authority
 HDB: Housing & Development Board
 LTA: Land Transport Authority
 NParks: National Parks Board
 NTU: Nanyang Technological University
 NUS: National University of Singapore
 URA: Urban Redevelopment Authority