

RWS-NUS Living Laboratory Projects

Track 1: Biodiversity Conservation and Education project

The marine biodiversity conservation project will bring together NUS' deep research capabilities in marine science and the upcoming Singapore Oceanarium's (SGO) public education as well as outreach expertise to enhance biodiversity conservation in and around our Southern Islands. This Living Laboratory will be developed into a powerful knowledge platform for marine science outreach and education. It aims to position Singapore and SGO as a thriving hub for the conservation and restoration of vulnerable marine organisms and habitats. This project contributes to Singapore's commitment to Goal 14 of the Sustainable Development Goals – to conserve and sustainably use the oceans, seas, and marine resources for sustainable development.

The RWS-NUS Living Laboratory will focus on the following key initiatives:

- 1. Development of a holistic biodiversity programme for the Coral Triangle**
As a close neighbour to the Coral Triangle - the richest centre of marine life with the highest coral diversity in the world – the Living Laboratory aims to play an active role in its conservation.
- 2. Implementation of rewilding programmes to restore marine biodiversity in Singapore**
The Living Laboratory will identify key marine species under threat in and around Singapore, and implement programmes to restore the health of these populations in our waters.
- 3. Explore the role of Dolphin Island in supporting research and education**
The programme will explore how the activities of Dolphin Island can support marine conservation research and education in Singapore.
- 4. Interdisciplinary research on the role of nature in health and wellness**
The Living Laboratory aims to leverage on SGO to explore cutting-edge research into the potential benefits of nature experiences on human health and wellbeing, which may be beneficial to mental and physiological wellness.

These efforts will boost the quality of the experience and education that SGO can offer the world. Through the research programmes, RWS will contribute first-hand in the conservation of vulnerable native marine organisms and the restoration of critical habitats, enhance SGO's representations of Singapore's coastal ecosystems, and deliver unique and engaging exhibits, backed by rich marine science and environmental education. SGO also intends to engage the community at large, delivering seminars and workshops from its explorers in residence and visiting scientists, including exclusive events that will attract high-value visitors. These will create powerful branding for SGO and establish its position as a first-class centre for marine biodiversity education, conservation, and research. This will, in turn, strengthen the long-term competitiveness of SGO as a purpose-of-visit in Singapore.

Track 2: Decarbonisation and Nature-based Solutions project

The Decarbonisation and Nature-based Solutions project will leverage NUS' rich engineering capabilities and RWS's expertise as the leading leisure and tourism destination in Asia, to develop integrated solutions to address environmental issues, climate change and complex urban challenges.

The Living Laboratory will develop critical decarbonisation and integrative nature-based solutions across multiple domains including energy, water and waste. These areas are of strategic relevance to RWS's business and are also important areas of research to position Singapore as a sustainable tourism destination.

1. Decarbonisation

The Living Laboratory will take a multi-disciplinary approach to augment and accelerate decarbonisation by harnessing next-generation technology that is designed and optimised for tropical, urban and Singapore settings which includes low energy systems and resource efficient solutions for rapid transition to low carbon economy.

2. Integrative nature-based energy efficient solutions

Research will be conducted to facilitate the understanding, design, and implementation of nature-based, energy efficient solutions for building and infrastructural projects. Internet of things (IOT)-based climatic sensors/devices, as well as data mining and systems modeling capabilities will also be incorporated to develop strategies to mitigate and adapt to potential urban heat risks, for example.

One potential project is to devise ways to cool urban spaces to fulfil a low carbon and healthy living environment. Innovations will be developed and test-bedded at RWS properties and adapted for scalability across a variety of environment and properties. It will serve as an exemplification of a sustainable living world with the latest decarbonisation and nature-based solutions and innovations.