

# New scenario-modelling facility to support nature-based carbon projects

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DUBAI – The NUS Decision Theatre, a new scenario-modelling facility to accelerate cooperation on nature-based carbon projects across South-east Asia, was launched on Nov 30.

As there are a number of uncertainties surrounding government policies and the future market conditions for nature-based carbon credits, the \$1 million facility aims to help policymakers, investors and carbon project developers to source these credits in an optimal way, or to establish new projects.

The NUS Decision Theatre, which was developed by the NUS Centre for Nature-based Climate Solutions (CNCS) and ST Engineering's satellite data and geospatial analytics business, ST Engineering Geo-Insights, was launched at the Singapore pavilion at the United Nations COP28 climate conference in Dubai that kicked off on Nov 30.

Professor Koh Lian Pin, the associate vice-president and chief sustainability scientist at the National University of Singapore (NUS), and the director of CNCS, said: "Having a platform to model the different scenarios will help to... enhance the effectiveness and efficiency of cross-border carbon credit trading, while also creating new eco-

nomic opportunities."

He was speaking at a panel discussion titled "Beyond Borders: Harnessing Greater Mitigation Opportunities Through International Cooperation", which showcased two prototypes that will help governments envision how countries can increase their mitigation potential – or their ability to reduce global greenhouse gas emissions – through international collaboration. The other prototype is the Global Mitigation Potential Atlas.

Users can tap into the NUS Decision Theatre at the university's Kent Ridge campus, or remotely, where they will have access to satellite images of carbon-rich forested areas across South-east Asia, and the amount of carbon dioxide (CO<sub>2</sub>) stored in each area. Those who would like to view the facility can reach out to NUS to book a demo session.

They can then adjust various parameters – such as the type of carbon credit, participating countries, their expected carbon price, and the project duration – to perform on-the-fly calculations of economic potential and co-benefits of establishing a carbon project at a specific site.

Nature-based carbon projects typically involve the generation of carbon credits through forest conservation or restoration activities, which either prevent CO<sub>2</sub> from entering the atmosphere or help to

whittle away the planet-warming gas.

However, one uncertainty in the establishment of nature-based carbon projects lies in national policies that would affect the quantity of carbon credits in each country that is available for international

## MANY BENEFITS

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**PROFESSOR KOH LIAN PIN**, the associate vice-president and chief sustainability scientist at the National University of Singapore, and the director of NUS Centre for Nature-based Climate Solutions, on the NUS Decision Theatre.

trading, as countries may want to count their forest protection or restoration efforts towards their own climate targets.

It has also been undecided if carbon credits from the protection of threatened forests can be traded between countries for them to count towards national climate targets under the Paris Agreement, due to concerns over environmental integrity.

For instance, the Singapore Government has listed several eligibility criteria for companies to use international carbon credits to offset up to 5 per cent of their carbon tax, when it increases from \$5 per tonne currently to \$25 per tonne from 2024.

Under its criteria, very specific types of forest conservation projects will be permitted for use, to ensure that they are of high environmental integrity.

There are also discussions on whether high-forest, low-deforestation (HFLD) credits, which "reward" countries that have preserved forests and kept deforestation rates low, can be permitted for use in meeting national targets.

While these credits are not yet tradeable in the market, users can use the NUS Decision Theatre to model future scenarios in which they are, to determine viable carbon credit projects.

In a bid to tackle these uncertainties, the NUS Decision Theatre maps out the different carbon credit types – conservation, restoration and HFLD – and the share of each type of credit from the 10 South-east Asian countries.

Users can then input the proportion of nature-based carbon credits that each of the countries allocates for international trade.

The NUS Decision Theatre builds on the Carbon Prospecting Dashboard, which was launched by both partners at COP27, held in Sharm el-Sheikh, Egypt, in 2022.

The dashboard used data and analyses published in peer-reviewed scientific papers and highlighted areas where carbon emissions could be potentially avoided if certain tropical forests or mangroves were protected, and the potential revenue that could be raised from the sale of carbon credits from such sites.

However, the dashboard provided only an overview of the economic potential of carbon credits that could be sold from bypassed deforestation projects, which in reality might not be available for international trade.

NUS CNCS said in its statement that the facility would allow countries to make rapid calculations on the size of the region's pool of carbon credits available for trading.

"It also allows users to narrow down locations to source for compliant carbon credits, identify possible sites for establishing carbon projects, and calculate their potential return on investment," it added.

In subsequent phases of the Decision Theatre, NUS CNCS is hoping to extend its scope beyond South-east Asia, to the Asia-Pacific region and other tropical regions as well, said Prof Koh.

The facility will also incorporate various layers of evaluation, particularly around the risks of climate change impacts, and whether implemented carbon projects will bring additional risks to the surrounding communities.

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