

The Climate Connection Higher Education Roundtable

Climate Adaptation and Resilience in ASEAN: From Policy to Practical Application

Date: 11 October 2021





About the Climate Connection

The British Council's Climate Connection programme brings people around the world together to meet the challenges of climate change.

Drawing on our global network, the Climate Connection programme connects 200 million people from different countries, generations and backgrounds – young people and policy makers, artists and scientists, business and community leaders, and many others.

In particular, it focuses on the next generation of climate leaders and gives practical support to young people and communities most impacted by climate change, helping them share their perspectives globally and achieve real change.

About the author

Nadia El-Awady

Nadia El-Awady is a freelance science writer and editor. She is the chief editor of Nature Middle East and a senior writer at Asia Research News. She also freelances for several Springer-Nature publications and clients. Nadia was a co-founder and the first president of the Arab Science Journalists Association, a president of the World Federation of Science Journalists, and a co-director of the 2011 World Conference of Science Journalists. She has taught university undergraduate-level online and science journalism, worked as a communications director of a large science institution in Egypt and managed journalism training programs. When she's not working, Nadia is out in the hills, on the mountains, diving in seas, or running, swimming and cycling.

Nadia has a MB BCh in medicine and surgery from Cairo University and a master's degree in journalism and mass communication from the American University in Cairo.

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Foreword

In October 2021, in the lead up to the COP26 climate summit and as part of The Climate Connection, the British Council hosted a series of online roundtables in Australia; Egypt; Japan; Indonesia, and South Africa.

The roundtables brought together stakeholders from higher education (HE); industry; governments and civil society to explore the role and purpose of the HE sector in responding to the climate crisis. The roundtable series explored a range of core issues including:

- The role of universities in supporting governments to develop evidence-based climate policies.
- Whether the HE sector is equipping the next generation with the skills they need to live with the reality of climate change.
- How universities can be more adept at knowledge production and exchange and at working across traditional academic boundaries.
- Showcasing some of the latest collaborative climate research projects between the UK HE sector and counterparts around the world.
- The role universities play in the public discourse around climate change to help build wider trust in and understanding of the science.
- Exploring how Higher Education Institutions can reduce their own carbon footprint, whilst realising their internationalisation ambitions.

The Roundtables, which were open to all, attracted audiences of students and Early Career researchers, academics, climate activists and policy makers. Importantly, attendees were given the opportunity to submit questions to the panel in advance of each roundtable. These helped inform and guide of the discussion and ensured that there was genuine and valuable interaction between panellists and the audiences.

Although each roundtable was hosted by a specific country, and the themes they addressed were relevant to that country and region, the issues addressed by the panels of experts and the resulting calls to action have significance for Higher Education sector leaders, researchers and policymakers globally. The roundtable series has already created new perspectives and have triggered conversations which we hope will result in new collaborations and ways of working.

ASEAN report

The first roundtable in the series: **Adaptation and Resilience in ASEAN: from Policy to Practical Application** took an in-depth look at how university research can inform policy, using as its starting point a policy paper on climate adaptation and resilience in ASEAN which was commissioned by the British High Commission in Singapore and developed in collaboration with the UK COP26 Universities Network, the Earth Observatory of Singapore, Nanyang Technological University and the University of Glasgow, Scotland.

From this wide-ranging and stimulating discussion, several broad themes emerged, which are repeated throughout the roundtable series: the importance of the communication and translation of science, collaboration, and community engagement. To find out more about The Climate Connection – Higher Education Roundtable series as well as watch the recordings of the events please see here: https://www.britishcouncil.org/ climate-connection/get-involved/tcc-HEroundtable-series

List of panellists

Professor Benjamin Horton (Chair) The Earth Observatory of Singapore, Nanyang Technological University

Dr Lauriane Chardot (Provocateur) The Earth Observatory of Singapore, Nanyang Technological University

Professor Fabrice Renaud Nanyang Technological University & University of Glasgow Dr Harkunti Rahayu Institut Teknologi Bandung

Professor Fredolin Tangang National University Malaysia

Mai Trong Nhuan Vietnam National University

Asst. Prof. Dr. Romyen Kosaikanont SEAMEO RIHED **Quintin Jose Pastrana** WEnergy Power Pilipinas

Dr. Kannika Thampanishvong Thailand Development Research Institute / TDRI

Carolyn Hong Science journalist (local rapporteur)

The road towards resilience

The ASEAN region is especially vulnerable to the impacts of climate change. Higher education institutions can play vital roles to make their communities more resilient.

Climate change is expected to have devastating effects on the ASEAN (Association of Southeast Asian Nations) region, impacting life and livelihoods. But there is hope. The region boasts strong momentum among its higher education communities. Governments have mechanisms in place to develop the strategies needed to address the challenges ahead. Still, connections need to be made, and language needs to be simplified to create the comprehensive ecosystem required for a unified and effective response.

The roundtable discussion with experts with diverse knowledge and expertise explored the roles of ASEAN higher education institutions in the prevention and relief of climate-induced disasters.



Setting the scene



Landslide

3% of ASEAN population exposed 21 million people \$459 billion (USD) economic exposure



Flood

13% of ASEAN population exposed 84 million people \$926 billion (USD) economic exposure



Cyclone

49% of ASEAN population exposed **308 million** people **\$3.5 trillion** (USD) economic exposure



Earthquake

57% of ASEAN population exposed **357 million** people **\$3.2 trillion** (USD) economic exposure



Tsunami

1% of ASEAN population exposed 4.3 million people \$85 billion (USD) economic exposure



Wildfire

22% of ASEAN population exposed 137 million people \$1.9 trillion (USD) economic exposure



Volcano

38% of ASEAN population exposed 238 million people \$2.1 trillion (USD) economic exposure



Drought

15–25% of Southeast Asia population lives in drought hotspots **\$52 billion** (USD) economic exposure

Population and economic exposure to natural hazards in the ASEAN region

*Source: data from AHA Centre, 2020 and UNESCAP, 2021

First, the scene was set. 'ASEAN is one of the most hazardous regions on Earth,' began Fabrice Renaud, professor of environmental risk and community resilience at the University of Glasgow, UK. This was the key diagnostic of a <u>report</u> published at the end of October 2021 titled 'Adaptation and Resilience in ASEAN: Managing Disaster Risks from Natural Hazards'.' Crucially, the already-existing hazards affecting the region – including earthquakes, tsunamis, volcanic eruptions and cyclones – are expected to be compounded by the impacts of climate change.

For example, many coastal areas in the ASEAN region are already sinking due to tectonic processes and over-extraction of groundwater and other natural resources. This will be further amplified by sea-level rises resulting from warmer temperatures expanding the oceans and melting land ice. 'But sea-level rise is not uniform; it varies from place to place,' explains earth scientist Lauriane Chardot, the manager of community engagement at Nanyang Technological University's Earth Observatory of Singapore. 'The relative influence of regional factors, such as tectonic motion, and ocean and atmospheric circulation patterns, determines whether rates of local sea-level change will be higher or lower than the global mean.' According to the report, ASEAN sea-level rises are projected to be larger and faster than the global average. This, together with intensifying cyclones, increases in heat and humidity, extreme precipitation in some areas and extreme drought in others, will make ASEAN societies and economies increasingly vulnerable.

'Climate change is complex, and even though it is a global phenomenon, its effects will vary within the ASEAN region,' explains Chardot. 'Assessing these effects requires an interdisciplinary approach at the global and local scale.'

This needs data – something that National University of Malaysia climatologist Fredolin Tangang has dedicated his career to. Adaptation is local in nature and requires local solutions, he explains. However, to get there, scientists first need high-resolution local and regional climate data. **'We are making progress here**,' he says.

Tangang is the co-ordinator of the Southeast Asia component of <u>CORDEX</u>, a World Climate Research Programme framework in which scientists are combining outputs from global climate models with detailed local information to provide more accurate regional climate projections.

'Unfortunately, the data alone is not enough without it being translated into risk assessments for important sectors,' he says.

Tangang is currently involved in an initiative to feed CORDEX's downscaled regional data into the climate change impact assessments of China-based <u>MAIRS-FE</u>: Monsoon Asia Integrated Research for Sustainability – Future Earth. The collaboration aims to ensure more coordinated efforts in Asia to integrate CORDEX data into regional risk assessments.



© Unsplash License Typhoon aftermath.

Translating research into policy and action

Climate data and research must be translated into policy to begin to have an impact. Efforts are ongoing in this direction. In the Philippines, for example, more subject matter experts, economists and scientists are to testify before congress congress to provide decision makers with the information they need to tailor sustainable development goal-oriented policies. But this input needs to expand to the regional infrastructure planning and project development levels, says entrepreneur Quintin Jose V. Pastrana, president of WEnergy Power Pilipinas.

Researchers and local communities in Vietnam are working together to ensure sustainable interaction with the surrounding ecosystem. Can Gio Biosphere Reserve, Ho Chi Minh City. Credit: Dr Nguyen Tai Tue and Prof. Mai Trong Nhuan.



"Data alone is not enough without it being translated into risk assessments for important sectors."

Fredolin Tangang, National University of Malaysia



According to the report <u>'Adaptation and</u> <u>Resilience in ASEAN: Managing Disaster Risks</u> <u>from Natural Hazards</u>', climate change in Southeast Asia is expected to lead to a mean temperature rise of more than 1°C, increased cyclone intensity and sea-level rises of 0.25 metres, leading to a projected 35 per cent drop in ASEAN's GDP by 2050.

The ASEAN Risk Monitor and Disaster Management Review ranks the Philippines, Indonesia, Myanmar, Thailand and Vietnam as the most exposed in the region to multiple hazards, while Myanmar, Cambodia and Lao PDR have the least capacities to cope with them.

The report's authors recommend that the root causes of disaster risks in the region must be assessed in order to formulate disaster risk reduction policies that prioritise the needs of the poor and marginalised.

'One of the [current] limitations is data availability at the right spatial resolution. Strategies should be considered to collect such data,' says the report's co-lead author, Fabrice Renaud of the University of Glasgow, Scotland. Assessments, especially those conducted at the sub-national scale, will improve the ability to implement early warning systems in high-risk regions, allowing rapid response before disasters hit.

The authors also recommend that reviews of disaster risk reduction measures should systematically consider engineered solutions, such as enhancing building designs, on an equal footing with nature-based ones, such as mangrove restoration. Renaud emphasises the need to recognise that **'no single solution is a panacea to solving the disaster risk reduction problem.'** Fit-for-purpose infrastructure is needed to support ecosystems, reduce vulnerability to climate impacts and protect food security, he explains. Businesses deploying renewable energy technologies also need everything from wind and solar irradiance mapping to tidal surge studies. **'We need independent experts to make sure we reduce project risk so we can bring in investments and provide solutions,'** he says. Thailand Development Research Institute economist Kannika Thampanishvong agrees, saying researchers are still not communicating enough with the relevant stakeholders.

Progress on climate goals is evaluated by monitoring the people on the ground who implement adaptation and mitigation measures, she says. 'We need to digest all this information so people can better connect to our key message. Once they are aware how climate change will impact their sectors, businesses or everyday lives, they can come up with more appropriate plans to build resilience.'

Harkunti Rahayu, Chair of the Indonesian Disaster Expert Association and urban planning researcher at the Bandung Institute of Technology, adds that to achieve more resilient Asian communities and cities, there needs to be a strong commitment from the penta-helix – a collaborative model that brings together businesses, public administration, local residents, the knowledge sector and capital. Rahayu and her colleagues engaged with government, the private sector, local universities, non-governmental organisations and religious groups to develop an early-warning tsunami system that integrates upstream hazard monitoring, forecasting and prediction with downstream disaster risk assessment, communication and preparedness activities to enable coastal communities in Indonesia to take timely action. Further north in Vietnam, earth scientist Mai Trong Nhuan of Vietnam National University has also integrated community engagement into his research activities. Climate change affects various parts of Vietnam in different ways, he explains. This has given communities cumulative experience in living with floods and droughts. 'It is important to enhance this social power and innovation in climate change response and disaster reduction.' he says. Nhuan and his colleagues have conducted on-site roundtable discussions and house-to-house visits with local communities in various parts of the country to develop climate and flash-flood monitoring systems that are maintained by those communities.



The need for introspection

But higher education institutions in Asia or elsewhere should not look beyond their walls without also peering inwards.'It is the responsibility of senior academics to make sure people's careers within their institutions are acknowledged and promoted based on their impacts on the community and not just the number of citations in high-impact journals,' says Ben Horton, Director of Nanyang Technological University's Earth Observatory of Singapore. 'This is how we change from within.'

Romyen Kosaikanont also downplays the real-world importance of the typical measures of academic performance. 'In our universities. we need to ask ourselves: What is education for? It's not for the high h-index, publications, research or policy. It's actually about our well-being and what life we hand over to the next generation. We are actually grooming the global citizen,' says Kosaikanont, who is the director of the Southeast Asian Ministers of Education Organization (SEAMEO) Regional Institute for Higher Education Development. Grooming the future leaders of climate change, however, is no small feat. Renaud believes climate change language needs to be instilled into university curricula across disciplines, 'whether it's the natural or social sciences, or the humanities,' he says.

Students also need to be trained to think in an interdisciplinary way and be given the opportunity to interact with each other across disciplines.

Indonesia's Bandung Institute of Technology offers several ways for that to happen, through end-of-year collaborative climate-related projects, summer studios, and disaster resilience and climate change adaptation programmes that bring together students from different disciplines and universities across the region to go out into the field and learn first-hand the impacts of climate change.

Higher education institutions should also practise what they preach, adds Kosaikanont. **'If you are telling other institutions or organisations they should act on climate change mitigation or adaptation, you yourself should be able to show it.'**

Some progress has been made in this regard. Thampanishvong says she is seeing more universities in the region aim to become green or eco-universities, with some finding ways to calculate their and surrounding communities' carbon footprints.

"In our universities, we need to ask ourselves: What is education for? It's not for the high h-index, publications, research or policy. It's actually about our well-being and what life we hand over to the next generation. We are actually grooming the global citizen."

Romyen Kosaikanont, Seameo Rihed

Roundtable reflections

'What strikes me,' says Chardot, 'is that despite the different backgrounds and interests of our participating panellists, broad themes emerged, emphasising the importance of the communication and translation of science, collaboration and community engagement.'

Malaysia-based journalist Carolyn Hong is encouraged by the roundtable's focus on the importance of researchers engaging with their local communities. **'Southeast Asia's** catalogue of climate disasters often makes the news, but there is much less public discussion on building resilience at the local level, including exploring the adaptation measures that have already been adopted by communities,' she says. Hong expects this type

of engagement will be well received on the ground and believes more case study examples of research-community engagement will improve understanding of the challenges and solutions of climate change adaptation and mitigation. Several key takeaways can be derived from the discussion:

- More focus is needed on translating data and research findings into solutions and policies. Communication and engagement are crucial.
- Higher education institutions need to be climate change role models.
- Teaching, research and community engagement can lead to more resilient communities.
- Collaboration is needed: among students, across disciplines, between researchers, within government and beyond administrative and national boundaries.

Researchers and local communities in Vietnam are working together to ensure sustainable interaction with the surrounding ecosystem. Púng Bửa, Village Na Ư commune, Điện Biên Province. Credit: Mr. Ha Tien and Dr. Nguyen Tai Tue.



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Final thoughts

The majority of the world's countries <u>agreed</u> in 2015ⁱⁱⁱ to make it a central goal to limit the rise of global temperatures to 1.5°C above pre-industrial averages. But **'we know that even at these levels there** <u>will be extraordinary</u> **changes to our way of life**,^{7iv} says Tom Moody, the regional director for Southeast Asia Climate & Energy, UK Foreign, Commonwealth and Development Office. **'If we don't do anything about climate change, temperatures will rise 3–5°C,'** says Horton. How many more climate emergencies will we get? This is important. We all need to act upon it."

For full details and a video of the roundtable discussion, titled 'Climate Crisis Adaptation and Resilience in ASEAN: From Policy to Practical Solutions', please visit: https://www. britishcouncil.id/en/programmes/climateconnection/climate-adaptation-and-resilience

The Sabang Renewable Energy Corporation Clean and Hybrid Microgrid powers and distributes electricity to more than 650 households and institutional consumers in the community that hosts the Puerto-Princesa Subterranean River National Park, Philippines. Credit: WEnergy Global and Sabang Renewable Energy Corp. Source: Quintin Pastrana.



¹Renaud, F.G., Chardot, L., Hamel, P., Cremin, E., Ng, D.K.S., Balke, T., Lallemant, D., Friend, R., Shi, X., Lee, J.S.H., Ng, L.Y., Andiappan, V., Le, H., Djalante, R., Tortajada, C., Ebeler, L., Horton, B.P. (2021) Adaptation and Resilience in ASEAN: Managing Disaster Risks from Natural Hazards (p. 30). UK Government, UK-Singapore COP26 ASEAN Climate Policy Report Series.

ⁱⁱ https://www.newton-gcrf.org/newton-fund/newton-prize/2019-newton-prize/uk-indonesia-building-resilient-coastal-communities/

^{III} https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

^{IV} IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In press.

