



# 2024 Year In Review

Centre for Non-Traditional Security Studies

CENTRE FOR  
NON-TRADITIONAL  
SECURITY STUDIES  
*YEAR IN REVIEW 2024*

CENTRE FOR NON-TRADITIONAL SECURITY STUDIES,  
S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES,  
NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE

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# Message from the Executive Deputy Chairman, S Rajaratnam School of International Studies (RSIS)

Dear Readers,

Non-traditional security (NTS) challenges continue to be a concern for states and societies in Southeast Asia and beyond.

In particular, the need to build resilience through greater integration, inclusivity and connectivity among the ASEAN countries has taken on renewed significance in the face of various challenges such as climate change, environmental degradation, communicable diseases and food insecurity. This is further heightened by the COVID-19 pandemic, whose aftershocks are still affecting the region today, as well as the increasing geopolitical tensions around the world.

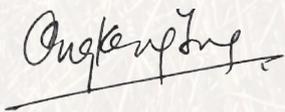
Protecting individuals, communities, societies and states therefore must remain a constant priority for policymakers in the region. Considering the need to stretch resources, the complexity of solutions necessitated and the increasing transboundary nature of threats facing ASEAN member states, international cooperation is essential. Community-building among the various ASEAN states will therefore continue to be of utmost importance to Southeast Asia, building the foundation for effective national and regional resilience in a volatile global geopolitical landscape.

The NTS Year In Review 2024 from the RSIS Centre for Non-Traditional Security Studies (NTS Centre), comprises articles which outline and discuss emerging regional NTS challenges in the context of global trends. We hope that the 2024 NTS Year In Review will be useful to all readers in understanding the risks arising from NTS threats in the region and around the world.

Moving forward, the NTS Centre will continue to conduct policy-oriented research focusing on biological, climate, energy and food security, humanitarian assistance and disaster relief, as well as nuclear safety and security, and their respective impacts on the socio-economic well-being of Southeast Asia.

We welcome your feedback on what RSIS and its NTS Centre are doing.

Thank you.



**Ong Keng Yong**  
Executive Deputy Chairman  
S. Rajaratnam School of International Studies (RSIS)  
Nanyang Technological University, Singapore

# Message from the Head of Centre for Non-Traditional Security Studies

Dear Readers,

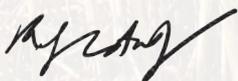
Non-traditional security (NTS) issues are increasingly taking centre-stage in the challenges facing our region today. Concerns about climate change, environmental degradation, food shortages, pandemic outbreaks, natural hazards, irregular migration, and others are all on the rise. Against a backdrop of an increasingly volatile geopolitical landscape, the capacity and capability of regional, national and local actors to come up with solutions are increasingly being tested.

In the face of these challenges and disruptions, concerns about the human security of the people in the region have become even more critical. In order to build a resilient and peaceful community through greater integration, inclusivity and connectivity, regional cooperation among the Southeast Asian states is essential. This is particularly pertinent for transboundary risks such as climate change and natural hazards. After all, minor changes in the climate can significantly exacerbate NTS threats, cascading over time, and potentially producing and amplifying risks we have yet to face – as evidenced by the COVID-19 pandemic, which caused shocks that still reverberate around the region today, or by recent natural hazards faced by the region such as Typhoon Yagi.

In Southeast Asia, ASEAN's commitment to building a foundation for effective regional resilience is reflected in its willingness to help member states build and strengthen capacity, mobilise during times of need, as well as share resources and expertise. It also provides a platform for states in the region to engage with state and non-state actors. By collaborating with the private sector, civil society organisations, and the international community to build public-private partnership, as well as engaging with different groups and communities, ASEAN not only fosters regional integration, but also strengthens its presence in international networks and partnerships.

The NTS Year in Review 2024 features articles which reflect on the impact of current and emerging NTS challenges on our communities, states and region. These articles highlight some of the present issues facing us today, while exploring some of the potential pathways to addressing them. We hope that you will find these articles useful in providing a holistic understanding of the kinds of threats that are in front of us in this current day and age.

At the Centre for Non-Traditional Security Studies, we remain committed to conducting policy-relevant research on emerging NTS issues and their regional implications. We value any feedback you may have and look forward to engaging with you on our research areas.



**Professor Mely Caballero-Anthony**

Head

Centre for Non-Traditional Security (NTS) Studies  
S. Rajaratnam School of International Studies (RSIS)  
Nanyang Technological University, Singapore

# Key NTS Events 2024

- January 2024 marked the eighth consecutive month of record temperatures and the warmest January globally, with an average temperature of 13.14°C. This highlights ongoing climate change concerns. Along with reports of significant anomalies in sea surface temperatures, these have implications for global weather patterns and disasters caused by weather extremes.

- On 10 January, the World Economic Forum released the Global Risks Report 2024. Misinformation and disinformation were identified as the biggest short-term risks, while extreme weather and critical change to Earth systems, the greatest long-term concerns.

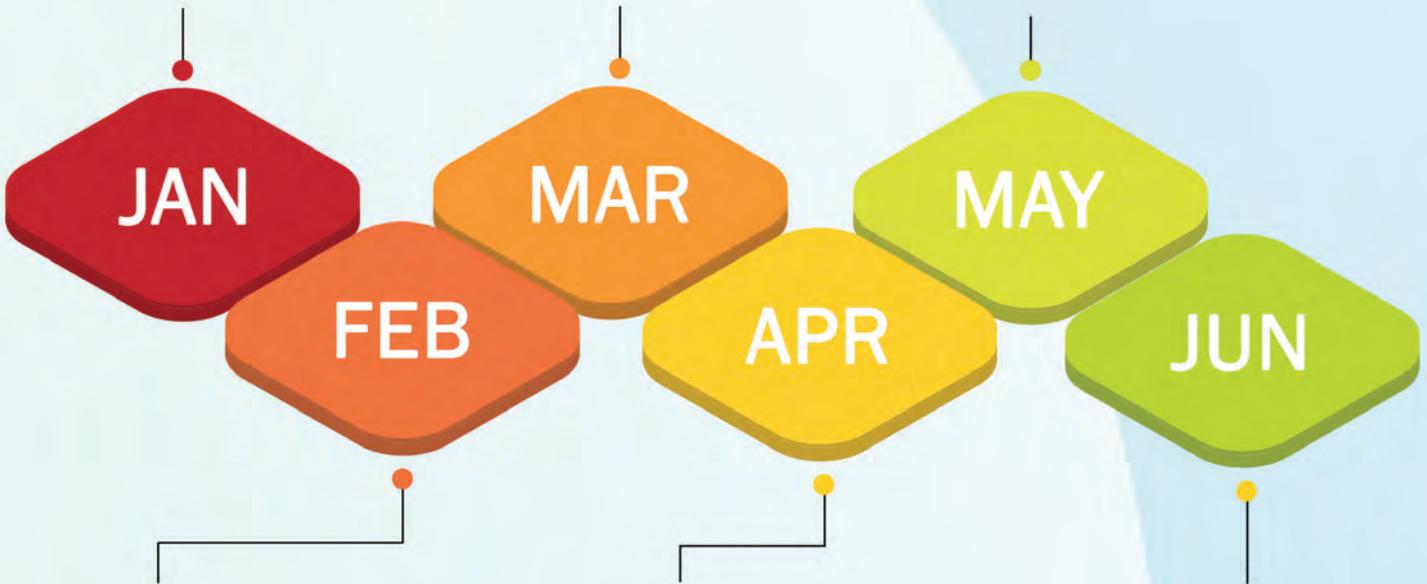
- On 18 January, Indonesia dispatched a hospital ship consisting of 200 tons of food, medicine, tents, and clean water for Palestinians in Gaza. The humanitarian supplies were handed over to the Egyptian Red Crescent to deliver to Gaza.

- On 1 March, the United Nations Environment Programme (UNEP) launched the Global Resources Outlook 2024. According to the report, the world is in the midst of a triple planetary crisis of climate change, biodiversity loss and pollution, and waste. The global economy is consuming ever more natural resources, while the world is not on track to meet the Sustainable Development Goals.

- On 8 March, the Great Barrier Reef Marine Park Authority, the agency tasked with monitoring the Great Barrier Reef's health, confirmed that "a widespread, often called mass, coral bleaching event is unfolding" across the reef.

- From 20-24 May, the International Atomic Energy Agency (IAEA) held the International Conference on Nuclear Security (ICONS) in Vienna, Austria. ICONS sought to inform the preparation of IAEA's next Nuclear Security Plan, which will cover the period 2026-2029.

- On 22 May, the United Nations High Commission for Refugees (UNHCR) reported that internal displacement in Myanmar has reached a record high. Over three million people have been forced to flee their homes in just six months due to frequent airstrikes, armed clashes, civilian property destruction and arrests.



- On 13 February, the Security Council convened for a high-level open debate on "The impact of climate change and food insecurity on the maintenance of international peace and security". The Secretary-General's remarks highlighted the increasing intersectionality of climate change, conflict, and food insecurity.

- A major and prolonged heatwave affected much of Southeast Asia, setting new maximum temperature records. The urgent need for better climate services was underlined by World Meteorological Organization's recent reports showing that climate change is intensifying at an alarming rate in Southeast Asia, with temperatures and sea-level rise exceeding global averages.

- The 2024 Ocean Decade Conference, held in Barcelona from 10-12 April and co-organised by UNESCO's Intergovernmental Oceanographic Commission (IOC/UNESCO), rallied over 1,500 participants from 124 countries and over 3,000 online viewers, with the main outcome being the Barcelona Statement which identifies priority areas for action for the Ocean Decade in the coming years.

- On World Environment Day (5<sup>th</sup> of June), the UN Secretary-General insisted that humanity needs "exit ramp off road to climate hell", urging bolder, faster action to save planet.

- From 18-21 June, the Global Health Security Conference in Australia brought together leaders, researchers, policymakers, and representatives from governments, international organisations, civil society, and private industry. It served as a platform to assess advancements in strengthening global health systems, while identifying gaps and opportunities to enhance the international community's capacity for more effective responses to future health crises.

- In late July 2024, Typhoon Gaemi brought heavy rains to the Philippines and Taiwan, causing severe flooding and landslides. Locally named “Typhoon Carina” in the Philippines, Gaemi intensified the southwest monsoon, resulting in the displacement of 1.08 million people, impacting 6.2 million individuals, causing 48 deaths, and leading to losses totaling 144 million U.S. dollars.

- On 19 July, the International Atomic Energy Agency (IAEA) released the Nuclear Security Report 2024. The report outlines the agency’s activities and significant accomplishments in nuclear security and identifies plans to address evolving global challenges and priorities for future security measures.

- On 24 July, ‘The State of Food Security and Nutrition in the World’ was published. The Food and Agriculture Organization of the United Nations along with the International Fund for Agricultural Development, UNICEF, the World Food Programme and the World Health Organization collectively made recommendations on how to source and make better use of financing to achieve ‘Zero Hunger’.

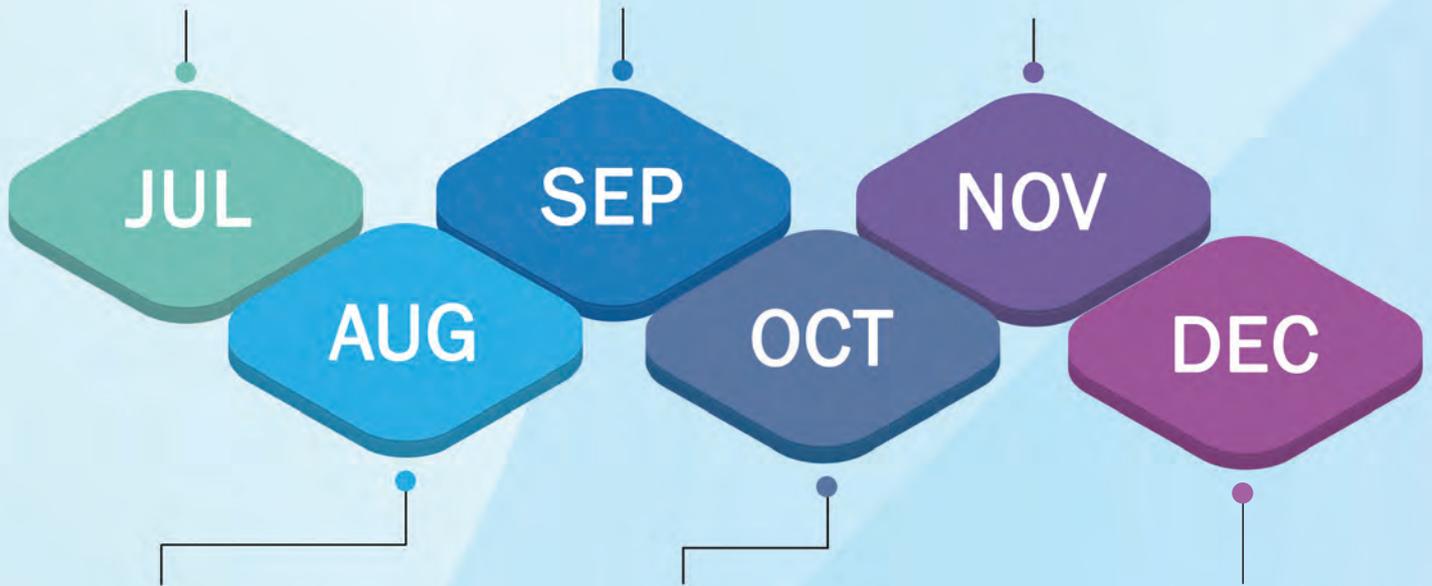
- September saw Super Typhoon YAGI, one of the strongest typhoons to hit Southeast Asia in decades, wreak havoc in the Philippines, Vietnam, Laos, and Myanmar with severe flooding, landslides, and widespread infrastructural damage triggering both immediate humanitarian responses and long-term recovery efforts.

- From 16 to 20 September, the 68th Regular Session of the International Atomic Energy Agency (IAEA) General Conference was held. IAEA emphasized its commitment to reinforcing non-proliferation efforts, addressing climate change, and supporting nations in safely expanding nuclear power programs, with projections indicating a potential 2.5-fold increase in global nuclear capacity by 2050.

- On 22-23 September, the United Nations (UN) held the Summit of the Future. World leaders agreed on a landmark Pact for the Future, a pact consisting of 56 actions to “turbocharge” the Sustainable Development Goals.

- On 11-22 November, the 29th Conference of the Parties to the UN Framework Convention on Climate Change (COP29) took place in Baku, Azerbaijan. COP29 brought together leaders from governments, business and civil society to advance solutions to tackle the climate crisis.

- The Philippines faced its fifth consecutive major storm—Typhoon Usagi. Having been impacted by Tropical Storm Kristine, Super Typhoon Leon, Typhoon Yinxing, and Typhoon Toraji in a short span (within four weeks), the UN has sought 32.9 million U.S. dollars in aid to respond to the devastating impacts in the country.



- On 13 August, a report by the Climate Central indicated that climate change-fuelled heat impacted the Mediterranean amid ongoing wildfires. The entire Mediterranean and surrounding regions are also experiencing dangerously high temperatures fuelled by climate change.

- On 14 August, the World Health Organization Director-General Dr Tedros Adhanom Ghebreyesus declared mpox a public health emergency of international concern under the International Health Regulations (2005).

- On 19 August, marking the World Humanitarian Day 2024, the United Nations launched the #ActForHumanity campaign to confront the normalisation of attacks on civilians, including humanitarians, and impunity under the International Humanitarian Law.

- 7 October marked the first anniversary of the devastating Hamas attack on Israel that triggered a war which has sparked protest worldwide. Over the past year, Israeli attacks have killed at least 41,615 Palestinians living in Gaza or 1 out of every 55 people living there with at least 16,576 being children and more than 17,000 children losing one or both parents.

- In late October, Tropical Storm Trami, known locally as Kristine, swept across the northeastern Philippines, inundating entire towns with severe flooding and claiming over 100 lives.

- Countries negotiating a legally binding instrument on plastic pollution concluded their fifth session on 2 December after failing to reach agreement.

- On 10-12 December, the Regional Humanitarian Partnership Week (RHPW) was held in Bangkok, Thailand. RHPW focused on “Grand Bargain in Action” and brought together hundreds of humanitarian professionals from the Asia-Pacific region to share best practices and foster partnerships.

# Planetary Health and the ASEAN Vision 2025

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*Margareth Sembiring*

Planetary health is a concept that emphasises the interconnectedness of human health and the health of our planet. Centred on the premise that human survivability is dependent on ecological health, the concept advocates for a holistic approach that aims to address and mitigate relevant health and environmental risks across different sectors.

## **Mainstreaming Planetary Health Approach**

For ASEAN, the positioning of human health at the heart of sustainability agenda directly supports the people-oriented, inclusive, sustainable, resilient, and dynamic pillars of the 2025 ASEAN Socio-Cultural Community Blueprint, and the approach has been adopted and implemented more explicitly by the ASEAN Health Sector. Although the environment-health nexus has been acknowledged by the said sector, more can be done to streamline planetary health approach in the regional body's overall efforts to realise the ASEAN Vision 2025 of "an integrated, peaceful and stable community with shared prosperity."

At present, the ASEAN Socio-Cultural Community Blueprint treats health and environment agendas separately. Environmental issues, including climate change, pollution, and biodiversity loss, fall under the sustainable component of the blueprint, whereas promoting a healthy and resilient community is part of the inclusive component. Despite addressing them separately in the blueprint, the ASEAN Health Sector has initiated efforts to bring the two elements together, as reflected in the ASEAN Post-2015 Health Development Agenda (2015-2025)'s vision for a healthy, caring and sustainable community. This demonstrates the ASEAN Health Sector's awareness of the importance of human health in view of environmental conditions, and is likely to be very much informed by the planetary health concept that originated from within the public health domain.

The proactive measure is evidenced in the ASEAN Post-2015 Health Development Agenda's acknowledgment of the need "to prepare and respond to environmental health threats and other hazards, including the health impacts of climate change in the region" and the need to "strengthen the capacity of health and relevant

sectors on health impact assessment and climate change adaptation in health." To achieve this objective, the ASEAN Health Sector develops the ASEAN Training Needs Assessment on Environmental Health for the ASEAN Member States, conducts ASEAN Water, Sanitation, and Hygiene (WASH), Climate Resilience and Social Inclusion Situation Analysis and Policy Review, and strengthens existing Environmental Health Network and Health Impact Assessment. At this juncture, it is evident that the scope of action is limited to the health sector, with an emphasis on the health sector's responses to the changing environment.

While these efforts are commendable, focusing solely on preparedness and response is insufficient to preventing the emergence of environmental health threats. Preventing the emergence of such threats is critical and necessitates proactive measures to tackle the root causes of environmental degradation that often stem from other sectors. After all, biodiversity loss, pollution and climate change are driven by various factors including economic activities, and production and consumption patterns. Addressing the underlying mechanisms responsible for environmental degradation is as crucial as enhancing the health sector's capacity to prepare and respond to potential health threats.

This is especially relevant in Southeast Asia given the region's economic development trajectory and the accompanying increase in material footprint and pollution. Intensifying industrial activities, growing deforestation, expanding agricultural areas, and increasing waste volume not only have repercussions on the ecosystems but also expose populations to new and intensified health risks such as respiratory illnesses linked to air pollution and the spread of zoonotic diseases resulting from habitat loss.

## **Integrating Planetary Health Across ASEAN Community Pillars**

Accordingly, to address these issues holistically, planetary health concept needs to be integrated across all sectors. Incorporating a human health perspective into the ASEAN environment sector, which similarly focuses mainly on responses to various environmental challenges, will strengthen the case for more robust sustainability measures. By viewing environmental sustainability through the lens of public health, regional environmental policies can have a better leverage at galvanising the necessary measures in other sectors to create healthier environment and healthier people.

Moreover, beyond health and environmental spheres, there is considerable potential to strengthen issue-linking across the ASEAN pillars—the ASEAN Political-Security Community, the ASEAN Economic Community, and the ASEAN Socio-Cultural Community—through a focus on human health. For instance, integrating the concept of planetary health into the ASEAN Political-



*Planetary Health concept seeks to address environmental concerns in view of human health goals.*

Photo Credit: freepik.com, under Creative Commons license

Security Community could spark critical discussions on how escalating environmental and health crises may drive social and economic instability, cross-border migration, and conflict. The COVID-19 pandemic underscored the profound threat that public health emergencies pose to national resilience and stability across the region.

Likewise, incorporating planetary health concept into the ASEAN Economic Community will bring to the fore more strongly the imperative to maintain the sustainability commitments of various economic actors in the region. Sustainability agenda has undoubtedly gained a stronger footing in the business and finance communities in recent years, but the extent to which it will endure and be fruitful remains elusive. Emphasising the impact of their activities on ecosystems and human health strengthens the case for a sustained commitment to sustainability goals—not only on moral and ethical grounds but also for economic reasons, as an unhealthy population directly affects workforce quality and business productivity.

### **Raising Public Awareness**

To this end, it is important to increase the awareness of planetary health concept among relevant stakeholders.

Public education initiatives and policy dialogues can facilitate the exchanges of ideas and the formulation of best practices to implement planetary health concept across multiple sectors. Furthermore, collaborative research efforts involving academia, government agencies, and the industry will provide an avenue for rigorous evidence-based policies and actions in the region through the examination of the health-environment linkages and their implications for ASEAN's development and security, and the formulation of the right interventions to address them.

Planetary health thus offers a powerful approach that will significantly facilitate ASEAN to achieve its vision of a peaceful, stable and resilient Community. By mainstreaming health considerations across its three pillars, ASEAN can increase its resilience against current and future health threats, conserve its ecosystems, and improve the quality of life of the region's seven hundred million population, while enabling ASEAN members to contribute to climate change mitigation efforts more meaningfully.

# Beyond Borders: Navigating Biosecurity in Southeast Asia

*Jeselyn*

Recognising the richness of its biodiversity and the escalating threats posed by globalisation, climate change, and human activities, Southeast Asia has early on acknowledged the importance of developing and maintaining robust biosecurity practices.

Biosecurity is defined by the 2024 Laboratory Biosecurity Guidance as “policies, principles, technologies and practices implemented for the protection and control of and accountability for biological material, technology and information or the equipment, methods, skills and data related to their handling.” It essentially aims to safeguard human, animal, and environment from the intentional or accidental unauthorised access to, and loss, theft, misuse, diversion or release or even weaponisation of dangerous biological agents.

## **The Impacts of Globalisation, Climate Change and Human Activities on Biosecurity**

One of the more pressing issues associated with biosecurity in Southeast Asia is the notable rise in the frequency and impact of transboundary disease outbreaks in recent years. In 2021, a significant 20 to 30% decrease in Vietnam’s swine population occurred as a result of African Swine Fever (ASF), causing severe economic losses primarily for medium to large farms lacking modernised equipment. Simultaneously, Central Luzon in the Philippines, a region known for its major contribution to the industry, witnessed an unexpected 50% swine production decline and incurred a loss of US\$ 1.6 billion due to the same disease. This decline has led to a massive issue with food supplies in a country where, on average, 17.6% of the population suffers from food insecurity.

Another major biosecurity concern which warrants the implementation of strong biosecurity frameworks in Southeast Asia is the introduction of invasive alien species (IAS) as a result of extreme climate change. Under the Convention on Biological Diversity (CBD), IAS are “alien species whose introduction and/or spread threaten biological diversity.” Indonesia has recorded 181 invasive species, while the Philippines has documented



*Decorative Birds Business in Pasar Burung Pramuka in Indonesia.*  
Photo Credit: Kelik Wahyu Nugroho via Kumparan , under Creative Commons license

148, and Malaysia has identified 145. These IAS had depleted water resources, threatened indigenous species, harmed pollinators, and contributed to land degradation and poverty in the region.

Human involvement also exacerbates numerous global biosecurity issues, with Illegal Wildlife Trade (IWT) ranking as the fourth-largest criminal activity globally. Southeast Asia is a major hub for this illicit trade, resulting in an annual loss of over 100 tigers, 1,000 rhinos, 20,000 elephants, and 200,000 pangolins, among other various species.

In Indonesia, experts have consistently highlighted the biosecurity risk associated to the illicit Bali Bird market, spanning two city blocks, which is much smaller than Jakarta's Pasar Burung Pramuka, the largest bird market in Southeast Asia. Notably, it also pales in comparison to the Huanan Seafood Market in Wuhan, China, where COVID-19 is believed to have originated, potentially jumping from bats to another species before affecting human.

Whenever wild animals and people are in close proximity, there is always a health risk. Hence, the region must acknowledge the urgent need for coordinated efforts to address and mitigate biosecurity risks associated with such trade, as these animals may carry diseases that can cause transboundary disease outbreaks.

Another significant factor contributing to the increasing biosecurity challenges in Southeast Asia, unrelated to diseases, animals, or plants, is the rapid development of biotechnology industries in the region. These advancements encompass various sectors, including genetic engineering, synthetic biology, and bioinformatics. While these industries offer immense potential for economic growth and public health improvements, they also introduce new biosecurity risks.

The expansion of biotechnology increases the likelihood of dual-use research of concern (DURC)—where technologies intended for beneficial purposes could be repurposed for harmful activities, including the creation of bioweapons. Moreover, the region's relatively fragmented regulatory frameworks may struggle to keep pace with the rapid technological advancements, leading to potential gaps in oversight. This scenario is further complicated by the transnational nature of biosecurity threats, since a breach in one country can have widespread implications across the region.

### **Existing Efforts to Strengthen Biosecurity Measures**

While there are still no dedicated regional instruments addressing biosecurity challenges, the nations in the region have actively initiated and supported various biosecurity programs to address the challenges posed by

malicious biological entities. The ASEAN Coordinating Centre for Animal Health and Zoonoses (ACCAHZ) was established in 2016 to furnish policy and technical assistance to ASEAN member states in formulating and implementing regional strategies aimed at preventing, controlling, and eradicating transboundary animal diseases.

Furthermore, task forces like the ASEAN Working Group on the Illicit Trafficking of Wildlife and Timber, founded in 2017, along with initiatives such as the 2023 ASEAN Action Plan for the Management of Invasive Alien Species (IAS), have been instituted to protect biodiversity and mitigate biosecurity risks in Southeast Asia.

To complement the centers and working groups, workshops on biosecurity have been organised to enhance the preparation of states, facilitating the exchange of successful strategies in promoting confidence-building measures (CBM) related to the internationally recognised Biological Weapons Conventions (BWC).

Although none of the mentioned biosecurity frameworks is flawless or legally binding, due to the sudden emergence of the COVID-19 pandemic, states have made notable efforts to implement and uphold them. Lao PDR, for example, has revitalised its CBM submission process, aided by the European Union's Chemical, Biological, Radiological, and Nuclear (CBRN) Risk Mitigation Centers of Excellence Initiative. In the same CBM context, the Philippines has facilitated training to design and provide technical support for other Southeast Asian countries.

### **Regulation vis-à-vis Innovation**

In the field of biotechnology, majority of the countries in this region face the challenge of balancing the need for regulation with the drive for innovation. Despite the rapid advancements in the industry, none of these countries have yet established regulations specifically tailored to oversee biotechnology. This lack of targeted regulatory frameworks creates a delicate situation where governments must navigate the risks of under-regulation. It could lead to biosecurity threats, and over-regulation, which could stifle innovation and economic growth. As a result, these nations are in the process of evaluating existing policies and considering how best to adapt them to address the unique risks and opportunities presented by the biotechnology sector, while also fostering an environment that encourages further technological advancement.

# Cyberbiosecurity: Adapting to Emerging Threats in the Biosecurity Landscape

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*Jeselyn and Julius Cesar Trajano*

In the 2024 Annual Biorisk Conference on Strengthening Global Partnerships on Biosafety and Biosecurity, biosecurity experts in the Asia-Pacific highlighted an existential biological risk that demands urgent attention: cyberbiosecurity.

Cyberbiosecurity is an emerging field that addresses the vulnerabilities and risks at the intersection of cybersecurity and biosecurity. It has become critical with the rapid advancement of biotechnology and the cyber challenges associated with it. For instance, synthetic biology is now driving toward digitisation and automation, generating both biosecurity and cybersecurity risks.

## Why Cyberbiosecurity Matters

The World Health Organisation (WHO) Laboratory Biosecurity Guidance issued in 2024, highlights potential cyber threats to bioscience laboratories and facilities.

These cyberbiosecurity threats include unauthorised access to or loss of information (e.g., research data, sensitive unpublished research, genetic DNA sequence data, information about sensitive biological agents); discontinuation of operations due to cyberattacks; unauthorised digital access to networked laboratory equipment; sabotage of laboratory security system; theft, misuse or sabotage of information on sensitive biological agents; and espionage pertaining to biosecurity-relevant information.

As biotechnology becomes increasingly digitised, with massive amounts of genetic data, research outcomes, and even synthetic biology information/data being stored and processed in digital formats, the need to secure these assets against cyberattacks is critical.

Moreover, life science and bioscience laboratories and facilities have been steadily adopting advanced information technologies and operational technologies to enhance their critical scientific functions that support prevention, detection, response and recovery to catastrophic biosecurity events, including pandemics and deliberate use of biological weapons.

Several high-containment laboratories, for instance, in Southeast Asia have been working with biological agents or living microorganisms which are used for purposes such as medical, therapeutic, diagnostic or research, contributing to the advancement of health security as well as biotechnological and biomedical innovations.

Working with large volumes of biological agents can significantly increase risks. Biological operations in laboratories and related facilities are increasingly computer-based and utilise cloud-based systems.

Cyberattacks on these laboratories can effectively compromise the security of biological agents. Compounding this challenge is the advancement of Artificial Intelligence (AI) and its widespread use in cloud computing. This has significantly amplified the risk to facilities handling biological materials, as AI-enabled cyber threats are expected driving a rapid increase in security vulnerabilities.

As advancements in biological science technologies continue, AI-enabled cyberattacks are poised to become a growing threat to biosecurity. For instance, cybersecurity vulnerabilities in laboratory machines like DNA synthesisers could be exploited to introduce malware, alter design specifications, record DNA sequences, disrupt laboratory biosecurity protocols, or grant unauthorised access to sensitive data.

## The Need for Cyberbiosecurity in Southeast Asia

The importance of enhancing cyberbiosecurity is paramount, especially in Southeast Asia, given the increasing use of digital applications in biotechnology. Countries like Singapore, Thailand, Malaysia, Indonesia, and the Philippines have adopted national cybersecurity strategies and national biosecurity policy frameworks, whether through a comprehensive law or various government regulations.

However, a significant challenge across the region is the lack of a cohesive policy framework that directly addresses cyberbiosecurity. Existing regulations are often fragmented, as cybersecurity and biosecurity are typically treated in isolation, leading to gaps in comprehensive protection.

Relatedly, the region's biosecurity experts have pointed out that cyberbiosecurity issues remain poorly addressed and underappreciated in the life science and biotechnology communities in Southeast Asia.

There is a lack of awareness and understanding of the potential cybersecurity risks and threats associated with digital lab data and digital information about biological samples inside laboratories. They suggest that



*Cyberbiosecurity as an emerging security field*

Photo Credit: Iftikar Hussain via Flickr, under Creative Commons license

organisations must adopt a new mindset and strategy on enhancing cybersecurity measures to protect identity-related attacks on data and remote control of facilities handling biological materials.

### **Way Forward for Cyberbiosecurity**

The unique intersection between cyberphysical systems and biological systems in bioscience laboratories and facilities accentuates the critical need for enhanced cyberbiosecurity measures.

It is therefore important for biosecurity risk management experts and cybersecurity professionals to collaborate and jointly create standards, technical guidance, and best practices related to the enhancement of cyberbiosecurity in tandem with existing biorisk management practices in life science-related facilities.

There should be national efforts to develop cyber training environments that simulate the processes of biosecurity-related facilities. Cyberbiosecurity assessments should include not only relevant Information Technology/Operational Technology infrastructure but also regulatory information systems.

Furthermore, raising awareness is critical given the lack of understanding of the potential cybersecurity risks and threats associated with digital lab data and digital information about biological samples inside laboratories.

Regional and national networks of biorisk practitioners have a critical role to play in strengthening cyberbiosecurity within the bioscience and biotechnology community. National biosecurity associations in several Southeast Asian countries have begun introducing cyberbiosecurity as part of their national training programmes for their members.

The Asia-Pacific Biosafety Association had included cyberbiosecurity workshops in its recent biorisk conference, helping biosecurity experts, practitioners and stakeholders across the Asia-Pacific understand new threats and cyberbiosecurity measures.

Capacity building is also essential for developing a skilled workforce capable of addressing the complex challenges of cyberbiosecurity. Governments, academic institutions, and industry stakeholders should collaborate to offer specialized training programs, workshops, and certifications in cyberbiosecurity.

This regional training programme may take the form of cyberbiosecurity-focused workshops. One notable example is the Toxin and Venom Research Laboratory Biosecurity and Cyberbiosecurity Workshop, held in May 2023, involving organizations such as Health Security Partners (HSP), the Malaysian Society of Toxicology (MySOT), and the Biosecurity Engagement Program (BEP) which brought together researchers from Malaysia, Thailand, and Singapore.

Finally, the role of the biotechnology sector is vital for advancing cyberbiosecurity initiatives. The biotechnology sector is predominantly driven by private industry, and governments must engage with these stakeholders to develop innovative solutions and share resources. Collaborative efforts between the public and private sectors can lead to the development of cutting-edge technologies, technical guidance and good practices that enhance cyberbiosecurity across the region.

### **Conclusion**

Cyberbiosecurity must become a key priority for life science and biotechnology, ensuring that both cybersecurity and biosecurity are addressed in an integrated and comprehensive manner.

To address the complex challenges posed by cyberbiosecurity threats, Southeast Asia must develop a comprehensive approach that incorporates cyber and biosecurity strategies, including raising awareness, capacity building and engaging the biotechnology sector. Currently, the fragmented approach leaves critical cyberbiosecurity vulnerabilities that could be exploited by malicious actors.

# ASEAN One Health Efforts: Tackling the Intersections of Climate Change and Health

*Danielle Goh*

Climate change has resulted in rising temperatures across the globe. The World Meteorological Organisation found that 2023 was the warmest year on record globally and that temperatures will continue to increase. For Southeast Asia, temperatures have risen to record levels in the last year: Thailand reached 45°C, Laos 42.7°C, Myanmar 44°C, and Singapore 37°C.

Rising global temperatures have impacted infectious diseases, giving rise to new diseases such as COVID-19 and SARS, increasing vector-borne, water-borne and food-borne diseases, and contributing to antimicrobial resistance.

## Climate Change and the Rise of Zoonotic Diseases

Of significant concern is the rise in zoonotic diseases, which are infections transmitted between people and vertebrates. Notable examples of such diseases include SARS, COVID-19, Ebola, Avian influenza, and several strains of dengue and malaria. Zoonotic disease

transmissions commonly occur with changes in patterns of contact between wild and domestic animals, and direct human and wild animal contact, exacerbated by high rates of ecosystem disruption and biodiversity loss.

In Malaysia, the rise of zoonotic malaria cases last year, fuelled by climate change and deforestation from agriculture, logging and other human activity, placed the spotlight on the linkages between ecological and human health. This strain of zoonotic malaria, *P. knowlesi*, carried by macaques and transmitted by mosquitoes, has increased across Southeast Asia and become the dominant strain of malaria in Malaysia. Zoonotic malaria has also surfaced in Indonesia and is a serious concern.

## The One Health Initiative

International organisations have acknowledged the link between the health of humans, animals, plants, and the environment. The World Health Organisation (WHO) developed the One Health initiative in 2008, which not only recognises that these issues are interconnected, but also prescribes a holistic way to deal with them.

WHO, together with the Food and Agriculture Organisation of the United Nations (FAO), the United Nations Environment Programme (UNEP) and the World Organisation for Animal Health (WOAH) formed the One Health High-Level Expert Panel (OHHLEP) in May 2021, providing scientific assessments and guidance to reduce the risk of zoonotic diseases and other health crises emerging from the interactions between humans, animals and ecosystems.

One Health has gained international support, with several states committing to One Health efforts. These



*One Health concept acknowledges the link between the health of humans, animals, plants, and the environment.*

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include: (a) the Political Declaration of the United Nations General Assembly High-level Meeting on Pandemic Prevention, Preparedness and Response on 1 September 2023; (b) the G20 Lombok One Health Brief that outlined recommendations to strengthen the One Health approach in 2022, and (c) the 2023 G7 Nagasaki Health Ministers' Communiqué. In Southeast Asia, the ASEAN Leaders' Declaration on the One Health Initiative was adopted in May 2023.

## One Health and ASEAN

ASEAN has made significant progress in terms of managing infectious diseases. Experts have observed that ASEAN adopts a securitisation approach to preventing and containing infectious diseases. For instance, following the SARS epidemic in 2003, numerous outbreaks of Avian influenza, and the recent COVID-19 pandemic, ASEAN has steadily built up its regional policies and mechanisms to respond to infectious diseases.

In 2022, ASEAN health ministers agreed to establish the ASEAN Centre for Public Health Emergencies and Emerging Diseases (ACPHEED) to prepare for the next pandemic and prevent the spread of communicable diseases. ACPHEED's three pillars are surveillance or detection, response, and risk management, and its working principles would be similar to those of the Centers for Disease Control and Prevention (CDC) in the US.

In terms of dealing with zoonotic diseases, ASEAN established the ASEAN Coordinating Centre for Animal Health and Zoonosis (ACCAHZ) in 2016 and developed the 2021 ASEAN Strategy for Exotic, Emerging, Re-Emerging Diseases and Animal Health Emergencies. The bloc also recognises the importance of a One Health approach in tackling the issue as evident in the 2021 ASEAN Strategy and the 2022 ASEAN Strategy for Preventing Transmission of Zoonotic Diseases from Wildlife Trade.

Ongoing and future developments include the ASEAN One Health Joint Plan of Action which would map out regional and national targets and encourage closer collaboration across sectors on human, animal, plant and environmental health, and food safety.

At the national level, ASEAN member states have also adopted One Health approaches. For example, Singapore has a One Health framework since 2012 that brings together five agencies: the Ministry of Health (MOH), the National Environment Agency (NEA), the National Parks Board (NParks), the Singapore Food Agency (SFA), and the Public Utilities Board (PUB).

Likewise, Indonesia has adopted the One Health strategy and has developed a One Health information-sharing platform called SIZE Nasional to improve disease

surveillance, contact tracing, and response. Thailand too has organised One Health training workshops to equip the One Health epidemiological teams at the province and district levels.

At the ASEAN One Health Network and Joint Plan of Action launch on 19 June 2024, there were discussions to integrate the environment into the One Health approach. This is a good initiative as protecting the environment will also contribute to the well-being and health of communities.

## Recommendations

ASEAN's experience with SARS and the COVID-19 pandemic has enabled it to make significant advances in the cooperation needed to tackle infectious diseases, including zoonotic ones. This cooperation should also be extended to public health systems, specifically to systems to tackle heat-related and waterborne diseases in line with the United Nations' Sustainable Development Goals (SDGs).

Climate change has far-reaching impacts on health and the environment. Southeast Asia is one of the regions most vulnerable to climate change and climate-related disasters.

It is therefore vital that ASEAN prioritises the issue of climate change and makes progress to achieve the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement goals to reduce greenhouse gas emissions. The wide-ranging impacts of climate change across multiple sectors and the need for cross-sectoral collaboration involving numerous stakeholders, ASEAN bodies, and experts from various fields are expected to be challenging. Nevertheless, ASEAN has taken steps to facilitate this process through its One Health efforts, including the One Health Network, One Health High-Level Expert Panel and One Health Joint Plan of Action (2022-2026).

In February this year, biodiversity and health experts from ASEAN met to exchange views and align efforts for One Health implementation. Such collaboration is essential. For example, the ASEAN health sector needs to continue synergising efforts with the ASEAN Centre for Biodiversity and the ASEAN working groups on environmental cooperation.

## Conclusion

As the ASEAN One Health declaration was signed only last year, it would require more time for the organisation to develop, coordinate and execute its plans. A strategic focus on climate change and its impacts on health and the environment is paramount for the region's security. Policymakers need to prioritise regional cooperation to address these issues.

# Is Southeast Asia's Nuclear Power Ambition Within Reach?

*Julius Cesar Trajano and Mely Caballero-Anthony*

The recent announcement that Singapore and the United States signed a 123 Agreement – also known as the peaceful nuclear cooperation agreement – reignited questions about whether Southeast Asian countries are ready to use nuclear power plants to address the twin problems of climate change and energy security.

Before Singapore, other countries in Southeast Asia, namely Indonesia, the Philippines and Vietnam, had signed and ratified their respective 123 Agreements with the US. The 123 Agreement allows for transferring information, nuclear material, equipment, and components directly between the partner country and the US. Significantly, the agreement requires partners to adhere to US non-proliferation requirements.

While Singapore has yet to decide whether to harness nuclear energy, its policy has been to study all options to decarbonise its power sector and meet its net-zero emission target by 2050. Besides the 123 Agreement, Singapore will join the US State Department's Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology (FIRST) programme.

The Philippines and Indonesia were the first two countries in Southeast Asia to join the US FIRST programme. A key feature of this programme is the capacity-building support the US will provide to partner countries to help them better understand how small modular reactors (SMRs) or other advanced nuclear reactors can be built safely to meet their clean energy goals while protecting the global climate.

## **Clean Energy and Energy Security from SMRs**

Several Southeast Asian countries are actively exploring SMRs as a clean energy source. The International Atomic Energy Agency (IAEA) classifies SMRs as advanced reactors that produce electricity of up to 300MW. An SMR is a fraction of the size of a conventional nuclear power reactor and will produce carbon-free electricity. Prefabricated units of SMRs can be built, shipped, and installed on-site, making them more affordable to build than large power reactors.

These advanced reactors are expected to play an increasingly important role in ensuring energy security and the global energy transition to net zero carbon. They may also play a pivotal role in meeting countries' climate goals and even facilitate hybrid synergies between nuclear technology and renewables.

SMRs offer an alternative source of clean energy for Southeast Asian countries where the demand continues to grow rapidly. The region is expected to have a GDP of US\$20 trillion by 2040. As a net importer of fossil fuels, it is projected that the coal contribution to installed power capacity will almost double to 163GW by 2040. Not only will the rise in the use of imported coal heighten energy security risks, but it will also exacerbate greenhouse gas emissions in the region.

Since fossil fuels currently generate 80 per cent of Southeast Asia's electricity, drastic action is needed to increase the share of zero-carbon sources. Supplementing renewables with nuclear energy is a viable solution.

The Philippines currently has the region's most advanced nuclear power development plan. Its government is keen on importing SMRs, and among the potential suppliers being considered are American nuclear SMR companies NuScale and Ultra Safe Nuclear Corporation. It aims to get a 1,200MW installed power capacity from nuclear resources using SMR technologies by 2032.

Indonesia's government has included nuclear energy in its plans to attain net zero emissions by 2060 and to strengthen its energy security. Its National Research and Innovation Agency (BRIN) has said that the country plans to construct nuclear power plants, mainly SMRs, with a 1,000 to 2,000 MW capacity in the 2030s. The state-owned power utility, Perusahaan Listrik Negara (PLN), has also proposed building an SMR to be supplied by America's NuScale in West Kalimantan.

Thailand is open to exploring SMR technology to diversify its energy mix amid dwindling gas reserves and make its vibrant domestic manufacturing sector less carbon-intensive.

## **Addressing Nuclear Safety, Security and Safeguards**

While proliferation associated with nuclear technology will always be a risk, it should not be much of a concern in Southeast Asia, given that the region has adopted or signed on to measures providing for safeguards.

All countries in the region have resilient norms against nuclear weapons, as institutionalised in the Southeast Asian Nuclear-Weapon-Free Zone Treaty (SEANWFZ). Most Southeast Asian countries have also signed or ratified the Treaty on the Prohibition of Nuclear Weapons.



*The Philippines' Bataan Nuclear Power Plant*

Photo Credit: Julius Trajano

All countries in the region are State Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and have good track records in adhering to its provisions.

They have also concluded the Comprehensive Safeguards Agreement with the IAEA, which facilitates verification that nuclear activities are not diverted to non-peaceful uses.

There is also the ASEAN Network of Regulatory Bodies on Atomic Energy (ASEANTOM), which has been a productive regional cooperation platform for nuclear regulatory agencies in the region for more than a decade. It has allowed nuclear regulators to share good practices in enhancing nuclear safety and security. Among its useful contributions is developing the ASEAN Protocol for Preparedness and Response to a Nuclear or Radiological Emergency, which would strengthen the region's response to any nuclear accident.

### **Actions to Take in Moving Forward on Nuclear Energy**

Southeast Asian countries' decisions about using nuclear power and SMRs will always be independent national positions, not regional ones, as they all depend on their respective energy security needs, assessments of safety and security, carbon emission reduction calculations, and their degree of commitment to undertake the Milestone Approach to the 19 nuclear infrastructure requirements set by the IAEA.

The Milestone Approach has three progressive phases: i) being ready to make a knowledgeable commitment to a nuclear power programme; ii) being ready to invite bids/negotiate a contract for the first nuclear plant; and iii) being ready to commission and operate the first nuclear plant. It would be crucial how countries in the region will meet each milestone as they develop their respective nuclear infrastructure.

It is, therefore, crucial for the interested countries to examine whether existing domestic and global nuclear governance regimes encompassing nuclear safety, security and safeguards, particularly, would need revision to take in unique specifications of SMRs. For instance, given that certain SMRs might produce new types of radioactive waste, the IAEA has recommended that interested countries prepare for the management of these new waste forms. New safeguards approaches may also need to be explored to address specific innovative design features of SMRs, ensuring that strong nuclear material accountancy and control measures remain effective.

States considering acquiring advanced reactor technologies would be well-advised to continue with comprehensive preparations, which involve revising national nuclear frameworks and assessing technical and human resources capacity. Countries with 123 Agreements with the US and who have joined the FIRST programme can forge collaborations among their civil nuclear entities on the safe and secure use of nuclear energy technologies of US origin, with assistance from US nuclear bodies.

Southeast Asian countries should also seriously consider joining the SMR Regulators' Forum. This forum is a key international platform for nuclear regulatory bodies to jointly identify and resolve nuclear safety and security issues that may undermine regulatory oversight of advanced reactor technologies such as SMRs.

### **Conclusion**

The appeal of SMRs has undoubtedly altered the discussion about the feasibility of introducing nuclear power for civilian use in Southeast Asia. However, the unique features of SMRs may entail new requirements and revisions of nuclear governance frameworks to ensure their safe and secure management. Southeast Asian countries interested in SMRs should take a proactive role in reviewing and reshaping nuclear governance.

# Decarbonising Agriculture to Mitigate Global Warming: The Role of Rice in Southeast Asia

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*Paul Teng*

Climate change has been attributed as the cause of many severe weather events in Southeast Asia, with a plethora of reports on incidents such as floods, typhoons, and droughts this past year, all of which have noted the impact on food security and farmer livelihoods. There have also been clarion calls to do more on climate mitigation and adaptation efforts so that the carbon footprint of agriculture is reduced (i.e. decarbonisation), and as a consequence, climate change-induced global

warning may be ameliorated. In 2024, decarbonising agriculture has become the focus of many national and international initiatives.

Greenhouse Gas (GHG) emissions are known to be a major cause of warming temperatures in climate change, with flow-on effects on weather phenomenon. Globally, GHG emissions from agriculture are significant and account for up to 20% of total emissions; of these, livestock is the most, followed by croplands. However, in Southeast Asia, rice GHG emissions far exceed those of livestock. In ASEAN countries, the total mitigation potential for rice (48MT CO<sub>2</sub> e annually) is much higher than that of livestock (9.4 Mt CO<sub>2</sub> e) and croplands (0.8 Mt CO<sub>2</sub> e). But in terms of what can be done to reduce GHGs, the International Rice Research Institute has suggested that the relative mitigation potential for rice (at 36%) is much higher than that of livestock (at 9%), and croplands (at 3%), the latter of which includes other food crops like vegetables and oil crops like palm oil.

The agriculture and food sector are particularly important to the ASEAN region because it is a crucial socio-



*A rice field in Southeast Asia*

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economic contributor and critical for ensuring local food security, employment, rural development, and export earnings. It therefore has a key role in the decarbonisation effort of ASEAN.

When the issue of decarbonising agriculture is considered in ASEAN, rice comes to the forefront. But rice is the most important food security crop in the region with the need to increase its total production as well as productivity (yield per hectare). There are already warnings that overall rice production in Southeast Asia has stagnated and productivity may even decline due to the increasing difference between potential yield and actual farmer yield. But to increase rice yields per hectare also leads to producing more methane emission and thereby exacerbating the already bad situation.

In Southeast Asia rice growing, methane is the GHG of concern, followed by carbon dioxide. Together these two gases account for most of the efforts at decarbonising agriculture in the region. Compared to carbon dioxide, methane has a much higher global warming potential that is 25 times higher than that of carbon dioxide.

Most of the millions of rice farmers in Southeast Asia are smallholders, each farming small plots commonly of less than 2 hectares. This means that much action is needed to get rice farmers to adopt practices that directly reduce methane. However, this also presents immense opportunities for channelling climate funding to rural communities and smallholder rice farmers.

Indeed, in Southeast Asia, it is not possible to reduce the overall methane levels without addressing rice field emissions since rice is the single largest contributor to methane emission. Rice is unarguably among the most important food crops globally and Asia grows 90% of the world's rice. Globally, rice supports the calorie needs of over 3.5 billion people. Within Asia are the world's two largest rice producers and consumers (China and India) and the three largest rice exporters (India, Vietnam, Thailand).

Climate change could result in substantial modifications in land and water resources for rice production as well as the productivity of rice crops grown; rice yields could drop about 40% by 2100 under future climate conditions. The decline could potentially have devastating consequences for the world since about half of its 7 billion people depend on rice as their staple food.

But more rice production inevitably leads to greater carbon emissions. A complex mix of issues surrounding the future of rice production is therefore at play, making it a "wicked problem". Decarbonisation of rice growing is possible through a milieu of practices, including selection of the rice cultivars with lower

methane emitting potential, shorter-duration rice, residue incorporation into rice soil, straw management, and water management practices.

One promising solution is Alternative Wetting and Drying (AWD), in which the water level is controlled through irrigation and drainage practices, to minimise the amount of flooding and duration of flooding. This is unlike the traditional practice where rice fields are kept flooded throughout the crop growing season. The AWD practice has been shown to reduce methane emissions by as much as 30-50% without any effect on final yield.

Another solution is "straw incorporation" which is an important aspect of rice farming as more organic carbon may be recycled and even sequestered. However, straw incorporation, if not done properly, may also mean more substrate for methane-forming microbes. Beyond this, farmers in some rice areas burn straw to get rid of it but this serves to release carbon dioxide into the atmosphere as well as cause air pollution.

Another carbon sequestration technique is through the use of "Biochar", an inert carbon material produced through high temperature conversion of rice material such as rice husks, and incorporated into rice soils.

One additional approach to reduce methane emission from rice fields is the practice of Direct Seeding Rice (DSR). This involves planting the rice seeds and controlling the amount of water used to grow the crop, instead of transplanting the rice plants grown in a nursery. DSR systems have a shorter period under water and commonly early in the growing season are not submerged, so reducing the methane-forming favourable period. Direct Seeded Rice (DSR) can lead to a 46% reduction in methane-related carbon emissions. Additionally, both methods, of AWD and DS, contribute to reducing the amount of water required for rice production, thus further reducing the costs of production and increasing the amount of water available for alternative uses, whether for urban consumption or industrial uses.

Implementing rice climate mitigation measure is not without challenges. While the societal good from reducing GHG emissions is obvious, the benefit to individual smallholder rice farmers is less so. Smallholder farmers commonly require to be incentivised to adopt new practices which require additional effort on the part of the farmers themselves. Governments will need to initiate special policies and programmes to incentivise smallholders to adopt the recommended practices such as AWD or DSR. Policies and regulations will also be needed to allow the private sector to function as technology transfer agents and perform de facto extension.

# Food Security Beyond Borders: Securing ASEAN's Food Supply Chains

*Jose Ma. Luis Montesclaros and Paul Teng*

Food security within ASEAN is usually seen on a country basis, wherein each ASEAN member state ensures for itself stable access to nutritious food at affordable prices. States often benchmark themselves against an announced level of food self-sufficiency based on domestic production and import when faced with shortfalls in production.

From the country-focused viewpoint, trade policy is relegated to a supporting role: improving international and regional trade integration to achieve greater access to affordable food supplies. The preferred situation in reality is to plan, at the outset, on using trade as an integral part of assuring food sufficiency by recognising the limits of domestic production. In this regard, securitising food supply chains is important, as important as domestic production.

## **Beyond Country-Level Food Security: Securing Regional Supply Chains**

While the region would be more food secure if each ASEAN country were also food secure, it begs asking whether regional food security may entail more than just the sum total of country-level food security among ASEAN member states.

There are limits to the types of commodities a country can produce and, in turn, the extent to which self-sufficiency can be attained. These and the global supply chain disruptions from the COVID-19 pandemic and Russia's war on Ukraine necessitate an assessment of how much more can be done in the trade components of food security and the consideration of a truly regional rather than country-based approach across the regional supply chains.

One element of a holistic regional supply chain approach to food security requires securing the regional base for food production inputs, such as fertilisers, seeds, and pesticides for crops, or feeds for livestock. Amid the Ukraine war, global prices for fertilisers peaked in April 2022, with an increase in the costs of different fertilisers ranging from 205 per cent to 399 per cent above the annual average for 2020.

Vietnam's experience shows how even rice-self-sufficient countries remain vulnerable to the impacts of global supply chain disruptions. On the ground, fertiliser prices in Vietnam reportedly increased by 300 per cent on average. The impact on farmers was discernible from their summer-autumn crop, traditionally planted from April to June, which was reduced significantly by 20,000 hectares. This led to a drop of 13,000 tonnes in rice production in the southern region alone.

## **Trade Vulnerabilities for Financially Squeezed Farmers**

Such disruptions in global food supply chains have further impacted farmers caught in cycles of debt. Farmers are reportedly squeezed financially because they cannot simply pass on fertiliser price increases to consumers through higher food prices. Hence, they are unable to pay off loans taken to obtain seeds, fertilisers, and pesticides.

In the worst case, farmers who become bankrupt or insolvent owing to higher input costs may eventually have no choice but to sell off or mortgage their land, thus causing a further blow to domestic food security. An article in the Mekong Eye tells another tale where 40 per cent of farmers in Thailand lie below the poverty line, and where over 62 per cent of farmlands were either mortgaged, sold or leased in 2020 alone, and more than 300,000 civil cases involved the seizure, eviction or auctioning of land.

Apart from the impact of disruptions on farming input prices, trade disruptions can also impact farmer productivity, as was seen during the COVID-19 pandemic. The lack of timely access to productivity-enhancing inputs means that when the time for harvesting comes, the crop yields per hectare will likely suffer. This, in turn, contributes to reduced food supplies. Food supply chain security, therefore, is critical from the viewpoint of ensuring stable flows not only of food products but of inputs as well.

## **Dilemmas of Intra- and Extra-Regional Food Trade**

Food distribution is another aspect of food supply chain security that requires attention. At the country level, there is a dilemma between keeping food for domestic consumption and exporting food. The latter increases trade-derived revenues, given that food exports are important contributors to the economies of many ASEAN countries. At times, food exporters may export too much food, which causes domestic food shortages, leading to inflation in domestic prices.

This dilemma also applies at the regional level between increasing trade within the region (intra-regional) and beyond the region (extra-regional). Intra-regional trade



*Vibrant food trade and supply chains in Southeast Asia*

Photo credit: Microsoft Copilot, an AI model, through image search by Jose Ma. Luis Montesclaros.

makes up only 20-30 per cent of total ASEAN trade in food and agricultural products while the remaining 70-80 per cent is exported beyond the region.

While extra-regional exports provide a larger source of income for ASEAN countries, especially if these are to higher-income countries – such as ASEAN’s vegetable oils for the European Union – they potentially leave fewer supplies to meet the needs within the region, leading to higher intra-regional food prices, and, in turn, lower food affordability among ASEAN countries. Today, the decisions between these two options are mostly left to the market; in most cases, they favour increasing incomes through extra-regional exports over domestic food affordability.

### **The Increasing Role of Regional Trade in Food Security**

Regional food supply chain security – whether due to the region’s vulnerability to input supply and price shocks or the high share of extra-regional ASEAN trade – therefore requires renewed attention. Instead of leaving such decisions to the markets alone, it behoves the ASEAN Ministers on Agriculture and Forestry (AMAF) and the trade ministers to look into such questions in future meetings on the post-2025 ASEAN Economic Community agenda.

Striking a delicate balance is key to achieving an integrated market and a single production area as part of the ASEAN Economic Community, which also caters to the needs of the region’s poorest populations.

# Engaging the Women, Peace and Security Agenda in Climate Security

*Tamara Nair*

Recognising and addressing the specific challenges faced by women, empowering them through gender-responsive policies and programs, and promoting their leadership and participation are vital steps in achieving climate justice and human security.

Climate change is the most pressing challenge of our time, with far-reaching consequences on human security. While its impacts are felt by all, social, economic, and cultural vulnerabilities experienced by women make them disproportionately affected by them. Women, particularly those in developing countries, bear the brunt of climate change impacts. According to UN Women Watch, they are more likely to be affected by extreme weather events, food and water scarcity, displacement, and health risks for varied reasons stemming from social inequality, lack of education, and lack of economic opportunities that might be available to men, to name a few and such inequalities exacerbate vulnerabilities,

as women often have limited access to resources, education, healthcare, and decision-making power. Recognising these disparities is crucial for understanding the urgency of addressing women's needs in climate change adaptation and mitigation strategies.

## **Gendered effects of climate change**

Climate change-induced disasters, such as floods as a result of high intensity tropical storms very often result in forced displacement. Although all affected populations are moved from their homes and suffer from such displacement, women, particularly those in rural areas, are more likely to be affected due to their limited access to resources, education, and economic opportunities, particularly if this displacement is for an extended period. Sometimes such migratory concerns because of environmental factors even lead to increased deaths rates for women in certain parts of the world as a 'direct link to their socio-economic status, behavioural restrictions and poor access to information', as reported in the 2009 UN Women Watch.

Their lack of education and/or prevailing social norms sometimes prevent them from actively participating in meetings or discussions with local leaders or officials, around resource distribution or rebuilding efforts for their communities. This in turn prevents their needs being represented. These can include anything from the rebuilding of communities to reinstating some forms of economic security, post-disaster. Instead of these disasters being opportunities to build back better, such exclusion retains women in their vulnerable states.



*Climate change impacts in the agriculture sector pose significant challenges to women's livelihoods and food security*

Photo Credit: UNDP Climate/ Flickr.com under Creative Commons License

Women play a crucial role in agricultural production and food security the world over. However, climate change impacts, such as changing rainfall patterns and increased pests and diseases, which affect crops, pose significant challenges to their livelihoods and food security. For one, limited consultations with female food producers removes them from important decision-making ‘spaces’, which disempowers them in face of critical food insecurity.

Women are primarily responsible for water collection and sanitation in many Southeast Asian communities. Climate change exacerbates water scarcity, leading to increased workloads and health risks for women. And women, particularly pregnant women and those with limited access to healthcare, are more vulnerable to these health risks. This is especially so in the light of climate change contributing to the spread of vector-borne diseases such as dengue and malaria.

These are just some of the impacts of climate change on women’s lives. Each of these, on its own, can be further dissected. For example, the intersectional impacts of climate change on urban women, or women of ethnic minority groups or indigenous women will be different. These differences must be taken into consideration when planning for a just climate future.

### **The Women, Peace and Security (WPS) agenda and Climate Security**

Climate security refers to the idea that climate change poses significant threat to national and global security, and to how the impacts of climate change, such as rising sea-levels, extreme weather events, food and water scarcity etc., can lead to social, political and economic instability. The specific link between climate security and the WPS agenda lies in the acknowledgement that both concepts are interconnected and have significant implications for national and human securities.

The author suggests using the agenda of UN Security Council Resolution 1325 (UNSCR1325) on Women, Peace and Security (WPS) as a framework for addressing issues of gender inequality and systemic violence against women when we discuss climate security. The gendered impacts of climate change and their connection with peace and security is something that needs further exploring. As a matter of fact, a 2022 report published by DCAF-Geneva Centre for Security Sector Governance stated that earlier mapping studies done in Columbia, Male and Yemen revealed that women’s rights organisations have already made the connection between climate change and security, and the extent to which climate policy and advocacy should recognise the importance of gender equality, gender mainstreaming and women’s participation.

While there has been an effective connection built in UN policy literature concerning the link between

climate change and conflict, this must be broadened to include women, and they should not be put in as an afterthought with scant mention of their role in natural resource management. Their role (or in some cases, lack thereof) in, for example, energy transition, water management, climate technology and the green economy to name a few areas, must be accommodated and in some cases, emphasised. What we tend to see in reports on women and climate change has a likely focus on their involvement in food, water, and energy matters, for primary household use, often in rural areas. Indeed, there has been much critique among feminist scholars of this type of approach. Also, to not see the connection between the WPS agenda and climate change, unfortunately, has a lot to do with the overly militarized framing of the agenda, placing it squarely in ‘armed conflict’ narratives and preventing the expansion of its usefulness into other existing /emerging threats.

The WPS agenda outlines four pillars – women’s **participation** in all stages of decision-making in securing peace and stability, the **protection** of women from all forms of atrocities, violation of their rights, and inequalities and discrimination, the **prevention** of said atrocities, inequalities and discrimination, and lastly the involvement of women in any and all **relief and recovery** efforts, post crises – that will provide a right framing when we think of the intersecting issues of climate change, gender equality and climate justice. According to an UNEP report in 2020, considering the impacts climate change will have on the lives of women, UN Women has identified four UN policy frameworks that include opportunities for integrated action on gender, climate, and security where the WPS agenda is specifically mentioned.

### **What needs to be done?**

Some have reiterated the need to have greater connections between gender, climate change and security issues by mainstream scholars and policymakers as well. The issue of women and gender in emerging threats and challenges can no longer be seen as a ‘special’ interest’ area. Scholars have also noted that despite decades of research establishing the connection between gender, climate, and security arenas, there is still no intersecting discussion with even less uptake from the policy makers.

Security and climate policy committees, largely male dominated, have often ignored much of this work and lack gender expertise. However, when considered, the WPS agenda allows for a specific framework to link the three areas of gender, climate, and security concerns, which becomes a valuable tool that can assist policymakers to move beyond siloed thinking and towards an integrated approach that not only feeds knowledge gaps and explores blind spots, but also links climate justice, gender inequality, and peace and stability.

# COP29: Reason for Hope Despite Shortfall in Climate Financing

*Margareth Sembiring*

The 29th Conference of Parties (COP29) of the United Nations Framework Convention on Climate Change (UNFCCC) in Baku, Azerbaijan, concluded with a new financing deal amounting to US\$300 billion per year by 2035, up from the previous US\$100 billion per year that developed countries pledged fifteen years ago at COP15 in Copenhagen. The plan to increase their contribution in climate financing starting from 2025 is instituted in the Paris Agreement and goes in parallel with the ratcheting mechanism of increased greenhouse gas emission reduction targets over the years.

Close to three years of preparatory work preceded the much-anticipated new collective quantified goal (NCQG) – the financial target to support developing countries in their climate actions post-2025 – to be agreed at this year’s summit, which gave it the “climate finance COP” label. Despite the tripled figure, it fell far short of developing countries’ US\$500 billion demand, which was backed by a UN report that suggested around US\$1 trillion for the NCQG to be sufficient. In addition, in contrast to developing countries’ preferences for public funds, the deal made it clear that private funds are going to have an increasingly important role in climate financing.

Although the overall outcome was a major disappointment for developing countries, the lower-than-expected US\$300 billion should not come as a major surprise given developed countries’ track record of consistently missing the previous annual US\$100 billion target, except for 2022. The failure to meet their commitment reflects protracted conflicting domestic priorities, which can explain why the private sector’s greater involvement is seen as an inevitable solution to climate financing.

## **Southeast Asia Climate Financing Needs**

Like other developing countries, developing Southeast Asian countries are dependent on financial assistance for climate action and would have benefited from a higher NCQG. To illustrate, having suffered an estimated US\$97.3 billion loss from climate-related events in the

last decade, the region will need around US\$422 billion to adapt to climate adversities in the next five years.

In addition, in terms of climate mitigation, the region requires more funds to realise its renewable energy ambition, which has seen remarkable growth in recent years. Solar power development is particularly promising. At 23 Gigawatt (GW), it constituted around seven per cent of ASEAN’s installed capacity in 2022, the second largest renewable energy in use after hydropower. More solar power projects are in the pipeline, including Malaysia’s fifth 2 GW large-scale solar programme and Thailand’s plan for sixteen floating solar farm projects totaling 2,725 Megawatt (MW) in capacity.

The potential rise of renewable energy use in the region is evident in Southeast Asian countries’ energy plans. For example, Vietnam envisions renewable energy to make up 15-20 per cent of its installed capacity by 2030 and the Philippines plans to increase the shares of solar and wind in installed capacity to respectively 5.6 per cent and 11.7 per cent by 2030. Funding support is critical to realise these visions.

Additionally, renewable energy development is often a key component in each country’s Nationally Determined Contributions (NDCs), which contain both unconditional and conditional emission reduction targets. Contingent upon international assistance, countries aim for higher reduction targets. As such, the more money being pledged by developed countries, the more aggressive renewable energy development in developing countries can be. In the Asia-Pacific, around US\$2 trillion per year is necessary to realise NDC targets.

## **Developments Outside the UNFCCC**

Despite falling short of expectations, the NCQG should not dampen the region’s enthusiasm for climate action. Outside of the formal UNFCCC climate financing mechanism, other types of financing have emerged and organised themselves. For example, in line with the spirit of providing more funding for developing countries, Singapore – considered a developing country in the UNFCCC and is therefore not obligated to contribute to the UNFCCC’s climate financing – launched the Financing Asia’s Transition Partnership (FAST-P) last year and recently committed up to US\$500 million to support the initiative.

As a blended finance where Singapore will match dollar-for-dollar the contributions by its partners, FAST-P demonstrates Singapore’s leadership in fostering public-private partnership and encouraging other actors including governments, multilateral development finance institutions and philanthropies, to contribute more to plugging the climate financing gaps in the region.



*Climate financing is a key catalyst of climate action in developing countries*

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Moving forward, the potential for private sector contribution in climate financing is indeed likely to be more significant following the maturing of markets for low-carbon technologies such as solar and wind power. More, such as electric vehicles, are to come. In the Asia-Pacific, the private sector contributed about US\$168 billion, or 32 per cent, of climate financing between 2018 and 2019, and the share is anticipated to climb up to 90 per cent by 2030. While more private capital is expected to be onboard, governments must ensure that the right regulations are in place to enable the private sector to meet both their environmental goals and for-profit interests.

In this regard, Southeast Asian governments' ongoing efforts to develop taxonomies is a move in the right direction to further encourage private capital in sustainability financing. Following the ASEAN Finance Ministers and Central Bank Governors' Meeting in March 2021 that resulted in the establishment of the ASEAN Taxonomy Board (ATB), the ASEAN Taxonomy for Sustainable Finance has been developed, with its Version 3 being released earlier this year.

While the ASEAN Taxonomy serves as the overarching guide, individual ASEAN countries have likewise come up with their own, including the Thailand Taxonomy Phase 1 in June 2023, the Singapore-Asia Taxonomy in December 2023, the Indonesia Taxonomy for Sustainable Finance (ITSF) in February 2024, and the Philippine Sustainable Finance Taxonomy Guidelines (SFTG) in February 2024.

Taxonomy will help to inform investors of activities' alignment with environmental objectives, including climate change mitigation, by assessing and classifying them into green, amber, or red categories. The green category signifies conformance with 1.5C degree Celsius and/or near zero emissions trajectory whereas the amber category reflects a potential towards such objectives. Conversely, the red category denotes incompatibility with the said pathway. Such taxonomy thus gives investors greater clarity of the risks and potential return of investments of activities of interest accordingly, and in turn is expected to direct more investments to green and amber categories away from the red one.

## **Conclusion**

At this juncture, it is evident that there is positive momentum that has been built over the years for sustained climate action in Southeast Asia despite the lower-than-expected new climate financing deal in Baku. This, however, does not negate the necessity for committed financing from developed countries. After all, the world is still attempting to curb global temperature rise to below 1.5 degree Celsius by the end of the century. Despite the goal becoming increasingly hard to attain with a current estimation for the planet to warm up to 3.1 degree Celsius, it is important for all relevant stakeholders to spare no effort at realising their climate action goals.

# China Will Step Up If US Falls Behind on Climate Action

*Peili Pey and Danielle Lynn Goh*

Donald Trump's victory at the 2024 US election has been met with trepidation by environmentalists around the world, given his track record of dismantling environmental regulations and driving increased oil and gas extraction.

Trump's comeback to the White House will likely throw a spanner in climate action both domestically and internationally. In 2017, he withdrew the United States from the Paris Agreement to limit global warming to 1.5 degrees Celsius. There are concerns that he would do the same when he takes office.

Some measures in the US that are expected to see rollbacks include incentives and subsidies for clean

energy such as wind and solar, and the Environmental Protection Agency's rules against coal-powered electric plants, methane emissions and tailpipe emissions. Oil drilling in Alaska's wildlife refuge will likely recommence under Trump's administration.

As the largest carbon polluter historically, the United States has a responsibility to reduce its emissions – but this will not be met when Trump embraces aggressive fossil fuel drilling and burning.

## US Climate Leadership is Debatable

Even without the Trump administration acknowledging human-driven climate change, extreme weather events have cost the United States a whopping US\$24 billion in 2024. Hurricane Helene and Hurricane Milton struck the south of the country in a span of two weeks, killing dozens and destroying homes. Such disasters will become more intense, frequent and costly as temperatures rise.

US President Joe Biden has also been criticised for not doing enough to combat climate change. The Biden administration issued 20 per cent more oil and gas licenses than Trump in his first term, revealing the hypocrisy of heavy fossil fuel investments despite its supposed climate commitments.



*Donald Trump was re-elected in the November 2024 U.S. elections*

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Biden did not attend the COP29 talks at Baku, Azerbaijan, passing up the chance to assert the US' climate leadership in the last year of his presidency.

Already, the US\$300 billion COP29 deal to help developing countries mitigate and adapt to global warming has been criticised as insufficient, compared to the several trillions needed by 2030. And it is certainly unremarkable when compared to record-high US\$7 trillion worth of subsidies the fossil fuel industry received in 2022.

But these developments may not be all doom and gloom when it comes to climate action.

### **China is Likely to Step Up**

While the US falls behind on climate action, other countries are stepping up. Even if the US exits from the Paris Agreement, as it did in 2016, climate targets and negotiations will continue, with China stepping up to lead the global energy transition.

Progress in climate financing, the key agenda at this year's COP, has admittedly faced setbacks in terms of contributions from wealthy developed countries. But widening the donor pool to emerging economies such as China and oil-rich states could help if America pulls out from the agreement.

China is increasingly positioning itself as a climate leader, evident through its climate partnerships with countries such as Australia, France and Germany. As part of its cooperation with the African Union, China is involved in more than 120 climate projects throughout the continent.

Closer to home, China has partnered with Southeast Asian countries on technology exchanges and environmental monitoring applications.

Having ratified the Paris Agreement and the UN 2030 Agenda for Sustainable Development, China has the potential to advance emerging energy technologies. If the US falls back on global climate cooperation and investment, China and other states will fill the gap.

### **Implications on Southeast Asia's Energy Transition**

In a tense political climate rife with US-China rivalry, climate action can be a key issue that fosters or reduces grounds for cooperation.

On one hand, Southeast Asia presents an opportunity for the US to grow its investments in the region's green energy transition. The Association of Southeast Asian Nations (ASEAN) has set a renewable energy target of 23 per cent by 2025 in total primary energy supply.

Under the Biden Administration, there was some progress between the US and ASEAN on climate cooperation, through the US-ASEAN Comprehensive Strategic Partnership and the first ASEAN-US Ministerial Dialogue on Environment and Climate Change in 2023.

However, it remains to be seen if Trump will advance climate cooperation initiatives with ASEAN. During his last term as president, the Trump administration arguably saw Southeast Asia as a low-priority region within the wider Asia-Pacific.

Trump's America First approach and campaign pledges to enact protectionist measures such as steep tariffs are likely to trigger tit-for-tat reactions from China. Additionally, the US would ramp up its competition with China in renewable energy.

These developments would largely have a mixed effect on Southeast Asia. We would likely see increased opportunities and investments in the region with other countries seeking to diversify their supply chains.

At the same time, the region would also suffer disruptions or increased costs of critical minerals and green technologies following any repercussions from protectionist measures by both US and China.

### **Countries Must Stick to Climate Commitments**

Southeast Asian countries, including Singapore, will benefit from increased cooperation with the US on climate. While there may be a loss of climate financing to the regions' projects under a Trump administration, US clean energy companies may look to Southeast Asia to secure their supply chains and expand into new markets. At least on climate cooperation on a bilateral level, there will likely be a level of continuity during the Trump administration. As a small state that values multilateralism and global governance institutions, Singapore will continue to be a steadfast advocate of global cooperation on climate change.

Most importantly, regional decarbonisation efforts should be stepped up, for instance in establishing the ASEAN power grid that will allow member states to trade green energy.

The world is already off track in meeting its climate goals. It is all the more vital for countries to stick to their commitments and work together to tackle climate change.

The momentum towards clean energy is unstoppable, and if the Trump administration chooses not to prioritise it, the US will continue to lag on climate action and leadership.

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# From Vision to Action: Envisioning Quad-ASEAN Partnership for Regional Resilience

*Keith Paolo C. Landicho*

The ASEAN Vision 2025 on Disaster Management envisions a disaster-resilient region with a collective and coordinated emergency response capacity. However, achieving this vision is becoming increasingly complex with the growing diversity and number of Humanitarian Assistance and Disaster Relief (HADR) actors. The push towards enhancing local resilience is reignited and new aid funding models such as the “pooled funds” are becoming increasingly relevant.

The Quadrilateral Security Dialogue (the Quad), comprising Australia, India, Japan, and the United States, has increasingly focused on HADR as a key area for cooperation. The establishment of the Quad Partnership on HADR in May 2022, the guidelines for this partnership in September 2022, and the 2024 leaders’ summit signal serious intent to deepen HADR coordination with various actors, such as the United Nations and ASEAN, for long-term resiliency efforts in the Indo-Pacific Region.

ASEAN and the Quad already have a strong foundation for collaboration in addressing humanitarian challenges. The Declaration on One ASEAN, One Response, signed in 2016, laid the groundwork for a cohesive regional disaster response both within and beyond the region. The Quad Guidelines for Partnership on HADR in the Indo-Pacific, which came into effect on 23 September 2022, align with ASEAN’s longstanding vision, particularly the Vision 2025, which emphasises enhancing disaster management capabilities through institutionalisation and communications, finance and resource mobilisation, and partnerships and innovations.

Furthermore, the 2024 Quad Leaders’ Summit recognised the urgency of establishing proactive HADR and the existential threat of climate change. These frameworks reflect a shared understanding of and commitment to addressing the evolving humanitarian landscape, prioritising efforts related to climate change, disaster management, and collaborative strategies.

Although a coordinated extra-regional response by ASEAN is yet to be witnessed, the Quad can potentially support and complement it with its efforts to coordinate HADR across the broader Indo-Pacific. Aligning the Quad’s HADR-related goals with that of ASEAN’s disaster management objectives will create mutually beneficial outcomes.

Such collaboration will enable the Quad and ASEAN to make meaningful contributions to the Sendai Framework for Disaster Risk Reduction (SFDRR) and the Sustainable Development Goals (SDGs) as outlined in the ASEAN Disaster Resilience Outlook. Given the Indo-Pacific’s shared risks and the changing humanitarian landscape — where climate change, pandemics, and evolving risks demand new strategies — HADR will be a critical component of the partnership between the Quad and ASEAN.

## The Quad and HADR

The Quad has shown its commitment to HADR cooperation with the establishment of the Quad Partnership on HADR in May 2022. This commitment was solidified with the signing of the guidelines for the partnership in September 2022, outlining strategic frameworks for collaborative action. The 2024 Quad Leaders’ Summit also highlighted the alliance’s proactive stance, including its coordinated assistance for Papua New Guinea following a landslide in May 2024 and for Vietnam which was severely affected by Typhoon Yagi in September 2024. Upcoming plans to conduct a tabletop exercise and ensure the readiness to respond continue to reinforce the Quad’s commitment to regional resilience.

While these do not explicitly mention ASEAN, they align with ASEAN’s own disaster management goals, particularly under the ASEAN Vision 2025, suggesting potential for deeper collaboration between the Quad and ASEAN in HADR efforts.

## Aligning Prospects

A partnership between the Quad and ASEAN has the potential to enhance existing mechanisms and initiatives — adopting new aid funding models, accommodating the diversification of humanitarian actors, and addressing emerging threats, all while aligning with ASEAN’s goals and even global objectives (SFDRR and SDGs).

The ASEAN vision emphasises exploring sustainable and innovative ways to fund and mobilise resources for disaster management. Adopting a pooled funds mechanism typically allows for more flexible and rapid disbursement of aid during emergencies. For instance, the ASEAN Disaster Management and Emergency Relief Fund allows contributions from other sources (subject to the decision of or approval by the Parties), ensuring that additional resources can be quickly accessed in times of need. This model highlights ASEAN’s commitment to efficient resource mobilisation and aligns with the Pooled funds approach.

Building on this, the Quad can enhance disaster relief efforts by establishing an HADR-focused investor and philanthropy network akin to the Quad Investors Network which fosters co-investment in critical technologies. Such a network can actively engage the private sector and philanthropic organisations in funding disaster-related initiatives that enhance the speed and sustainability of support for HADR.

The Exercise Coordinated Response (Ex COORES), which involves militaries and civilians, and the recent ASEAN Regional Disaster Emergency Response Exercise (ARDEX), which tested multi-sectoral mechanisms of ASEAN and Indonesia’s line ministries, demonstrate the importance of large-scale disaster simulations. However, these exercises should integrate non-traditional actors (civil society organisations, private sector, faith-based organisations, philanthropic organisations, academic and research institutions etc.), in meaningful ways and veer away from participation tokenism.

The Quad countries’ long-standing involvement in Ex COORES highlights the potential for expanding participation in such exercises. Expanding participation in the ARDEX outside the ASEAN system can similarly foster stronger partnerships and align with ASEAN’s goal of becoming a global leader in disaster management.

The Quad can also assist in developing early warning systems and coordinate data sharing across the ASEAN region and the wider Indo-Pacific. A good example is the alliance’s Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) launched at the 2022 Quad Leaders’ Summit in Tokyo, which aims to improve awareness and response to climate change and disasters using satellite data. Leveraging Japan’s earthquake, India’s tsunami, and the U.S.’s DisasterAWARE systems would boost preparedness, as only 59% of the Asia-Pacific nations have multi-hazard monitoring. This aligns with the ASEAN Vision, the SFDRR target to expand access to early warning systems by 2030 and the UN’s “Early Warnings for All” initiative.

### Potential Challenges

Within ASEAN, perceptions of the Quad differ from country to country. The improved perception of the partnership’s benefits for the region in 2024, from 31%

to 40.9%, was attributed to an active showing in 2023 — Joint Statement of March and September 2023 and the Quad Leaders’ Summit and Vision Statement of May 2023. Nevertheless, as the Quad is still perceived to be competing with ASEAN-led mechanisms instead of complementing ASEAN efforts, it can potentially hamper cooperation.

The Quad also faces the need to carefully navigate its role to avoid being perceived as a divisive force in the region amid rising geopolitical tensions. While the Quad has a significant military dimension through joint exercises and defence cooperation, prioritising HADR cooperation can better address concerns about the Quad’s strategic intentions.

By complementing ASEAN-led HADR mechanisms such as Vision 2025, providing transparent, multilateral aid as the recommended HADR investor network, and promoting inclusive partnerships through the inclusion of non-traditional actors and integration of early warning systems, the Quad can build trust, shift the narrative from competition to collaboration, and demonstrate its commitment to regional resilience and consequently, regional stability.

### Conclusion

In conclusion, a partnership between the Quad and ASEAN can be mutually beneficial in addressing and preparing for the evolving humanitarian landscape. As ASEAN strives to meet its Vision 2025 and Sendai Framework targets, and as the Quad works towards the next steps charted at the recent summit, closer collaboration on disaster response, early warning systems, and resilience-building efforts can significantly strengthen regional resilience. This partnership will promise a more effective and comprehensive HADR strategy for ASEAN and the Quad in the Indo-Pacific.



*The leaders of the Quad countries: Australia, India, the United States and Japan*

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# Saving Lives at Sea in Southeast Asia – Is a Course Correction Possible?

*Alistair D. B. Cook*

Over the past decade, refugees and migrants have sought to move beyond their borders in search of refuge abroad, with many taking dangerous journeys across the Mediterranean Sea or out of the Bay of Bengal to reach sanctuary. Two prominent groups include those fleeing war and persecution in parts of the Middle East and Africa by sailing across the Mediterranean Sea to Europe, and predominantly Rohingya refugees fleeing persecution in Myanmar through the Bay of Bengal into neighbouring countries.

In 2023, more than 102,000 refugees and migrants attempted to cross the central Mediterranean Sea from Tunisia to Europe, up 260% from 2022, according to the UN Refugee Agency. More than 45,000 people made the same journey from Libya. Some 31,000 people were rescued at sea or intercepted and debarked in Tunisia and 10,600 in Libya. In total, 186,000 people arrived by sea from January to September 2023 in Cyprus, Greece, Italy, Malta, and Spain, an increase of 83% compared to the previous year. During the same period, 2,093 deaths were recorded on the central Mediterranean route.

Likewise, the United Nations has reported a significant surge in people embarking on desperate and perilous journeys in Southeast Asia, mainly from Bangladesh and Myanmar. Many people have died or gone missing at sea, according to the UN Rohingya Refugee Maritime Movements operational data portal. From February 2023 to February 2024, an estimated 4,479 people embarked on sea journeys, with 3,910 in total disembarking in Southeast Asia. Some 59% arrived in Indonesia, 30.5% in Myanmar, 2.9% in Thailand, and 2.1% in Malaysia. During the same period, 569 people were reported missing or dead on this sea route.

Refugees and migrants face perilous journeys crossing seas from the Mediterranean Sea or the Bay of Bengal. Poorly designed and constructed boats, stormy weather and rough seas, and gaps in international efforts to address root causes and provide humanitarian assistance have made these routes particularly fatal. To address this confluence of factors, international humanitarian agencies have been operating in the international waters of the central Mediterranean Sea to provide live-saving emergency help when boats become distressed. But such an effort has not taken place in or around Southeast Asia so far. This is despite the Bay of Bengal being “three times more deadly” than the Mediterranean Sea crossing, due largely to mistreatment by people smugglers and disease on the boats.

## Humanitarian Action at Sea

Since 2015, international humanitarian organisations like Médecins sans Frontières (Doctors without Borders) and SOS Méditerranée have operated humanitarian vessels in the Mediterranean Sea. They usually search for boats in distress between 24–40 nautical miles from the Libyan coast. These humanitarian search and rescue (SAR) vessels respond to people in distress at sea and provide emergency medical care. These vessels vary considerably



*Rohingya refugees in Bangladesh*

Photo Credit: Kalu Institute via Flickr.com, under Creative Commons License

in type and size, from 7.4m lifeboats to 14m yachts and 77m former seismic and research vessels.

One of the largest humanitarian vessels in action in the Mediterranean Sea is the *Geo Barents*, a rescue and salvage ship chartered by *Médicins sans Frontières* since 2021. *Médicins sans Frontières* has run SAR operations in the central Mediterranean Sea since 2015, working on eight different SAR vessels.

In contrast to the deployment of humanitarian vessels in the Mediterranean Sea in the past decade, there has not been a deployment on a similar scale in or around Southeast Asia. A variety of private and commercial vessels ply the waters off Southeast Asia. Even though their primary purpose lies elsewhere, these vessels nevertheless have humanitarian obligations under international law.

Since 2015, the Acehnese fishing community have been reported to have played the important role of rescuing boats in distress that were carrying refugees and migrants and provided them with essentials such as shelter, food, water and a place to wash – all this in breach of the position held by the Indonesian government in Jakarta, which initially had refused to allow entry to irregular migrants. Subsequently, in 2016, then Indonesian President Joko Widodo issued Presidential Regulation 125 concerning the handling of refugees that importantly recognised the duty to rescue refugees stranded in Indonesian waters and the several national bodies responsible for maritime rescues.

However, humanitarian organisations have not yet substantially ventured into the direct provision of assistance at sea. Rather, humanitarian organisations mobilise on land to support those who have been allowed to disembark in regional countries. Many of those who disembarked reported encounters at sea with naval authorities. However, even when boats were in distress, these encounters resulted in pushbacks to prevent disembarkation, adding to their precarity at sea.

At a recent international forum, an Asian humanitarian organisation revealed that it had purchased a vessel for humanitarian purposes in Southeast Asia. In this light, state-based maritime actors in the region need to consider how they can interact with such emerging non-state maritime actors in Southeast Asia.

### **Search and Rescue in ASEAN**

In Southeast Asia, the humanitarian community, for the most part, is recognised for their work in filling the gaps where burden-sharing is limited, particularly with respect to people who have been forced to flee their homes. The Red Cross and Red Crescent Movement is particularly notable in this regard, with an established presence in every ASEAN member state. There are also a significant number of other international humanitarian organisations with some presence in the region, as well as several home-grown humanitarian organisations with presence inside and outside their country of origin.

Their initiatives have overwhelmingly been focused on land-based activities such as providing food, water, shelter and medical attention to those who arrive in a country. Less

attention is paid to humanitarian affairs at sea. The absence of such attention is also notable in official engagements between the humanitarian community and ASEAN member states.

The remit of ASEAN member states in SAR has had a narrow focus on accidents at sea and extreme weather events. In 2012, the ASEAN Transport Search and Rescue Forum was established as a technical and policy forum between ASEAN member states to facilitate regional cooperation. Each ASEAN state has designated a focal point who is responsible for coordinating with relevant national institutions identified in the ASEAN Search and Rescue Directory. No humanitarian organisation like the Red Cross and Red Crescent Movement is listed in the directory. With a reported 569 people reported dead or missing at sea over the past year, there is clearly a gap in international SAR efforts in the waters in or around Southeast Asia.

In recent years, SAR efforts have been included as part of ASEAN's engagement with its dialogue partners. In the ASEAN Maritime Outlook 2023, SAR activities are mentioned as part of the ASEAN-Australia Comprehensive Strategic Partnership 2020–2024 and the ASEAN-EU Strategic Partnership 2023–2027. These efforts include exchanging best practices on the implementation of the ASEAN Declaration on Cooperation in Search and Rescue of Persons and Vessels in Distress at Sea. While these efforts are a work in progress, there is no recognition of the need for interim measures and arrangements to plug governance gaps in SAR efforts, which is where humanitarian actors fit in the maritime landscape.

In January 2023, the ASEAN Agreement on Aeronautical and Maritime Search and Rescue Cooperation was signed to formalise the regional SAR cooperation system between member states. One major challenge for the ASEAN SAR system is the limited entry points for humanitarian actors to support SAR efforts and plug the immediate gaps that have contributed to so many lives being lost at sea through inadequate responses to distressed boats. Without a more concerted effort to engage the humanitarian community in the maritime domain, particularly SAR, there is a very real potential for miscommunication and misunderstanding between humanitarian vessels and national authorities in the region.

### **Prospects and Challenges**

The increasing number of refugees and migrants taking perilous journeys by sea over the past two years highlights the gaps in international efforts to address the root causes behind such outflows and provide humanitarian assistance to those in need. While some local communities in Southeast Asia like the Acehnese fishing community have provided SAR support, the wider humanitarian community in the region has not yet matched the larger efforts seen in the Mediterranean Sea.

However, recent discussions regarding the prospect of humanitarian vessels operating in the waters off Southeast Asia suggest that engaging the humanitarian community on a more substantive basis is an important next step for regional SAR efforts. Finding ways to cooperate with the non-state maritime sector is important for ASEAN's SAR processes, particularly within the framework of the ASEAN Defence Ministers Meeting.

# The ASEAN Defence Ministers' Meeting: A Platform for Climate Security Cooperation

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*S. Nanthini*

The State of Global Climate report published by the World Meteorological Organisation has sounded a climate “red alert” to the world. Confirming 2023 as the hottest year on record by a significant margin, the report further emphasised the current global state, highlighting records broken for extreme temperatures, ocean heat, and sea-level rise, along with the continuing intensification of extreme weather and disaster events around the world.

These developments were of particular interest to Asia, and indeed to Southeast Asia, which in 2023 alone faced over a thousand disaster events, including several major disasters such as Tropical Cyclone Mocha and Typhoon Doksuri (Egay). While there were fewer disasters in 2023 than in 2022, these numbers reflect the disaster-prone nature of the region, a propensity which is only likely to intensify in the face of climate change.

For the militaries in the region – which are heavily involved as first responders in times of humanitarian emergencies – climate security has therefore become an area of focus. Considering the clear transboundary nature of climate change and the established preference for regional cooperation in disaster response, the ASEAN Defence Ministers' Meeting (ADMM) and its related platforms are therefore an ideal forum for convening and promoting collaborative climate action between militaries.

## **The Current Climate Security Context in ASEAN**

Broadly, climate security can be understood as the risks caused by climate change. Specifically, it refers to the effects of climate change on the wider geopolitical environment, including extreme weather events and rising sea levels. As critical actors in national security and contributors to greenhouse gas emissions, militaries around the world are becoming increasingly engaged in this space. The view that climate change affects global security was reflected in recent remarks made by NATO's secretary-general, Jens Stoltenberg, in which

he emphasised the need to fight global warming and, more pressingly, highlighted climate change as a “crisis multiplier” with implications for global security.

The recognition of climate change as a security issue requiring the development and adoption of strategies, operations, and tactics to tackle the issue as part of a wider national security strategy is also reflected in the defence white papers and/or national policy papers adopted by various ASEAN members such as Malaysia's 2020 Defence White Paper and the Philippines National Defence Strategy. Elsewhere in Asia, Japan has showed increasing attention to climate security, as seen in its 2021 Defence White Paper, where climate change was for the first time explicitly recognised as a national security issue.

On the other hand, considering Southeast Asia's exposure to disasters and the prevalence of militaries as first responders during disaster events, climate security needs to be given increased consideration, specifically in terms of regional defence cooperation through regional forums such as the ADMM.

## **ADMM as a Platform for Defence Cooperation**

In fact, climate security had indeed been highlighted in the ADMM in November 2023. The Jakarta Joint Declaration of the ASEAN Defence Ministers' Meeting for Peace, Prosperity and Security that was issued as an outcome of the meeting recognised climate change as a complex security challenge for ASEAN.

Climate security had been highlighted in the 10th ASEAN Defense Ministers' Meeting (ADMM)-Plus in Jakarta, Indonesia, 16 November 2023, and was recognised as a complex security challenge for ASEAN.

That this declaration was made at the ADMM was not incidental. As ASEAN's “highest defence consultative and cooperative mechanism”, the ADMM is a key regional platform for multilateral defence cooperation. Through this platform and the ADMM-Plus, which includes ASEAN's dialogue partners as well, ASEAN member states are able to cooperate in meeting defence and security challenges in the region and thereby promote peace and stability. Already in place as mechanisms for international cooperation, the ADMM and ADMM-Plus can therefore be used to address responses by the member countries' defence establishments to climate crises.

By broadening the mandate of the ADMM to include climate security, states can use this platform to coordinate responses by their militaries and expand their base of mutual knowledge on climate change and its security impacts on the region. This can be done through the creation of a new Experts' Working Group (EWG) focusing on climate security, or even by simply expanding



*ASEAN Defence Ministers' Meeting pays increasing attention to climate change*  
 Photo Credit: Wikimedia Commons.

the remit of the already existing EWG for Humanitarian Assistance and Disaster Relief (HADR), which can serve as a vehicle for practical cooperation. The second option might be particularly apt for this region, considering the regional propensity to link HADR and climate change, due in part to the heavy involvement of militaries during disaster response operations, as reflected in the various ASEAN member states' defence white policy papers and/or national policy papers.

The EWG can then be used by militaries in the region as a platform through which they can collaborate and jointly develop a regional framework for climate security. Such a framework could be based on the recently released Concept Paper on the Implementation of the ASEAN Outlook on the Indo-Pacific (AOIP) from a Defence Perspective, which is set to be adopted and implemented.

Defence forces need to have a deep understanding of how climate change is likely to affect not just the security environment in which they operate, but also how their strategies, personnel, bases, installations, and equipment could be affected. The ADMM could fulfil this need for deeper understanding by developing a climate security perspective of the ASEAN State of Climate Change Report. By examining and analysing the current climate security landscape in Southeast Asia and the broader Indo-Pacific, such a report could be used to assess regional military capabilities in light of future challenges and plan ahead, informing the overall climate security framework for ASEAN.

Beyond simply providing guidelines for responding to climate disasters, this framework should also include methods for militaries to mitigate their own contributions to climate change. Militaries of ASEAN should therefore also prioritise reducing greenhouse gas emissions arising from their military activities and installations, as well as incorporate climate change considerations into defence planning, capability development and civil preparedness and exercises.

These activities could take the form of potential collaboration between militaries through information-sharing as well as joint research and development. Such a climate framework can then be used to better organise bilateral and multilateral engagement between ASEAN militaries and their dialogue partners, which would in turn help strengthen the regional capacity of the ASEAN militaries in dealing with climate change.

Overall, climate change is the defining challenge for humanity in this era, and Southeast Asia is no exception. In fact, considering that Southeast Asia is one of the most climate vulnerable regions in the world, it is especially important for ASEAN to step up to this challenge. Doing so is especially important for militaries in the region, which are heavily involved as first responders in times of humanitarian emergencies. Only by engaging with other regional militaries through cooperative mechanisms such as the ADMM can ASEAN member states build the institutional capacities of their defence establishments and militaries.

# Publications and Activities

## COMMENTARIES

*It takes a global village: advancing equitable access to mpox vaccines*  
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## EVENTS

Humanitarian Futures Forum, 29-30 October 2024, Conrad Centennial, Singapore

RSIS – ISEAS Closed-Door Roundtable on “ Women’s Voices for Peace: A Singapore Story”, 16 October 2024, The Park Royal Collection Marina Bay, Singapore

SWP-RSIS-KAS Workshop, “The Emergence of Greater Asia in Energy and Climate”, 9-10 October 2024, KAS Office, Singapore

Information Session with NTU Food Community on “Consortium for Agricultural Development, Research, and Extension (CADRE) in Southeast Asia,” 9 October 2024, RSIS, Singapore

RSIS Seminar by Mr Ronaldo Reario, “Humanitarian Civil-Military Coordination (CMCOORD): An Essential Coordination Service in the Climate Crisis”, 29 August 2024, NTU@One-North, Singapore

ASEAN Strategic Policy Dialogue on Disaster Management (SPDDM), “It Takes a Village: Inclusive Approaches to Enhance Disaster Resilience”, 23 August 2024, Marriott Tang Plaza Hotel, Singapore

RSIS Seminar by Mr Keith Paolo C. Landicho on “Humanitarian Assistance and Disaster Relief Database”, 19 August 2024, RSIS, Singapore

ANU-RSIS Joint Workshop on “Synthetic Biology Ethics in the Asia-Pacific”, 15 August 2024, RSIS, Singapore

RSIS Roundtable on “The Emerging Biosecurity Landscape in Southeast Asia,” 23-24 July 2024, One Farrer Hotel, Singapore

RSIS Webinar on “Policy Options for Asia and Global Community in the Face of Export Bans”, 29 May 2024, Online

RSIS and the Sunway Centre for Planetary Health Roundtable discussion on “Climate Peace and Security in ASEAN, Follow-Up to the ASEAN-UN Regional Dialogue on Climate, Peace and Security (AURED VI) in November 2023,” 19 April 2024, Kuala Lumpur, Malaysia

Planetary Health Proposal Development Meeting and Workshop, 2 February 2024, RSIS, Singapore

# 2024 Events

## Humanitarian Futures Forum 2024, 29 October 2024

The Humanitarian Future Forum (HFF) 2024, co-organised by RSIS and the Changi Regional Humanitarian Assistance and Disaster Relief Coordination Centre (Changi RHCC), focused on enhancing support systems for policy planners and decision-makers to better anticipate and address future humanitarian challenges. The event brought together over 150 participants from diverse sectors, including military, government, NGOs, academia, and the private sectors.



## RSIS-ISEAS Roundtable on “Women’s Voices for Peace: The Singapore Context”, 16 October 2024

The NTS Centre at RSIS and the ISEAS-Yusof Ishak Institute, co-organized a research roundtable to explore perceptions of Women, Peace, and Security (WPS) in Singapore. Dr Tamara Nair, Research Fellow at the centre and Singapore's representative to the ASEAN Women for Peace Registry, convened this event with the aim to contribute Singapore's perspective to a broader regional report on WPS across ASEAN member states. Given Singapore's unique security context, which emphasises human security over traditional conflict-related issues, the roundtable contextualized how the WPS agenda aligns with Singapore's experience.



## SWP-RSIS-KAS Workshop on the Emergence of Greater Asia in Energy and Climate, 9 to 10 October 2024

The NTS Centre at RSIS, with the German Institute for International and Security Affairs (SWP) and Konrad-Adenauer-Stiftung, co-organised a workshop on “The Emergence of Greater Asia in Energy and Climate” in Singapore from 9 to 10 October 2024. Prof Mely Caballero-Anthony, Head of NTS Centre, discussed major trends in energy transition, climate security and geopolitics in Southeast Asia.



## RSIS Seminar on Humanitarian Civil-Military Coordination (CMCoord), 29 August 2024

This seminar was delivered by Mr Ronaldo Reario, Visiting Senior Fellow, RSIS and Lead for Natural, Environment and Technological (NEaT) Emergencies, Civil-Military Coordination Service of the UNOCHA. Mr Reario discussed the added value of civil-military coordination in optimising the use of available capacity and resilience-building drawing from practical applications in the context of disaster preparedness and response.





## The ASEAN Strategic Policy Dialogue on Disaster Management (SPDDM), 23 August 2024

The ASEAN Strategic Policy Dialogue on Disaster Management (SPDDM) was held on 23 August at the Marriot Tang Plaza Hotel. Under the theme “It Takes a Village: Inclusive Approaches to Enhance Disaster Resilience,” this year’s event allowed stakeholders with a plurality of perspectives on disaster management to discuss and emphasise the importance of engaging the community to enhance disaster resilience in the region.

## ANU-RSIS Synthetic Biology Ethics Workshop, 15 August 2024

The NTS Centre co-organised with the Australian National University (ANU) the ANU-RSIS Synthetic Biology Ethics Workshop in Singapore on 15 August 2024. Around 25 biosecurity and synthetic biology experts from various Asia-Pacific countries, including Australia, Singapore and India, discussed key issues and challenges related to potential ethical frameworks for deployment of synthetic biology in the Asia-Pacific.



## RSIS Roundtable on “The Emerging Biosecurity Landscape in Southeast Asia”, 23-24 July 2024

This roundtable brought together 25 participants from various fields, representing five Southeast Asian countries: Indonesia, Malaysia, Thailand, Philippines, and Singapore to have a candid exchange of views on the biosecurity risks and challenges facing Southeast Asia, to examine the current state of biosecurity governance in the region, and to recommend policies for improving biosecurity governance moving forwards.

## Launch of the RSIS Report on Climate Change and its Impact on Peace and Security in Southeast Asia at the 2024 Planetary Health Summit and 6th Annual meeting, 19 April 2024

In addition to the launch, NTS RSIS, in partnership with the Sunway Centre for Planetary Health convened a roundtable discussion on Climate, Peace and Security in ASEAN, as a follow-up to the ASEAN-UN Regional Dialogue on Climate, Peace and Security (AURED VI) in November 2023.



## RSIS Workshop on “Planetary Health Proposal Development, 2 February 2024

In this workshop, researchers from various fields at Nanyang Technological University (NTU) gathered to discuss and provide input on finalising the planetary health proposal, which was to be submitted for the Social Science Research Thematic Grant (SSRTG). The meeting highlighted the research objectives and questions of the proposal, how the research is relevant to Singapore, and the outcomes which aim to include journal articles and a potential Planetary Health Scorecard.

# Research Grant

## Biosecurity and International Security Project

The NTS Centre received a grant to conduct a multiyear research study on Biosecurity and International Security, in partnership with the Asia Centre for Health Security (ACHS). The Biosecurity and International Security project examines biosecurity threats in the Asia-Pacific and potential risks associated with emerging and re-emerging infectious diseases, advances in life sciences and biotechnology, including the proliferation of laboratories, dual-use research of concern, and deliberate misuse of biological materials.

It explores implications of both the conventional biological threats and the fast-evolving biotechnological landscape in the region on regional and international security. It also identifies, through baseline studies, common challenges, capacity gaps, as well as good practices in the context of crafting policies, institutionalising norms and developing technical expertise in mitigating and responding to emerging biological threats and biological incidents whether natural, accidental, or deliberate in origin. The members of the NTS Centre's biosecurity research team are Prof Mely Caballero-Anthony (project lead), Mr Julius Cesar Trajano (Research Fellow), Dr Jose Ma. Luis Montesclaros (Research Fellow) and Ms Jeselyn (Research Analyst).



# About The S. Rajaratnam School of International Studies

The S. Rajaratnam School of International Studies (RSIS) is a think tank and professional graduate school of international affairs at the Nanyang Technological University, Singapore. An autonomous school, RSIS' mission is to be a leading research and graduate teaching institution in strategic and international affairs in the Asia Pacific. With the core functions of research, graduate education, and networking, it produces

research on Asia Pacific Security, Multilateralism and Regionalism, Conflict Studies, Non-traditional Security, Cybersecurity, Maritime Security and Terrorism Studies.

For more details, please visit [www.rsis.edu.sg](http://www.rsis.edu.sg). Follow us at [www.facebook.com/RSIS.NTU](https://www.facebook.com/RSIS.NTU) or connect with us at [www.linkedin.com/school/rsis-ntu](https://www.linkedin.com/school/rsis-ntu).



# About the Centre for Non-Traditional Security Studies (NTS Centre)

NTS Centre conducts research and produces policy-relevant analyses aimed at furthering awareness and building the capacity to address non-traditional security (NTS) issues and challenges in the Asia Pacific region and beyond. The Centre addresses knowledge gaps, facilitates discussions and analyses, engages policymakers, and contributes to building institutional capacity in Sustainable Security and Crises. The NTS Centre brings together myriad NTS stakeholders in regular workshops and roundtable discussions, as well as provides a networking platform for NTS research institutions in the Asia Pacific through the NTS-Asia Consortium.

## Our Research Areas

- Sustainable Security
  - Climate Security
  - Food Security
  - Economic Security
- Crises
  - Humanitarian Assistance and Disaster Relief
  - Energy Security
  - Biosecurity
  - Nuclear Hazards

## Our Output

### Policy Relevant Publications

The NTS Centre produces a range of output such as research reports, books, monographs, policy briefs and conference proceedings.

### Training

Based in RSIS, which has an excellent record of postgraduate teaching, an international faculty and an extensive network of policy institutes worldwide, the NTS Centre is well-placed to develop robust research

capabilities, conduct training courses and facilitate advanced education on NTS. These are aimed at, but not limited to, academics, analysts, policymakers and non-governmental organisations (NGOs).

### Networking and Outreach

The NTS Centre serves as a networking hub for researchers, policy analysts, policymakers, NGOs and media from across Asia and further afield interested in NTS issues and challenges.

The NTS Centre is the founding member of the Asia Pacific Partnership for Atrocity Prevention, inaugurated 7-8 November 2016. RSIS co-hosted with the Asia Pacific Centre for the Responsibility to Protect (APR2P), School of Political Science and International Studies, University of Queensland St. Lucia, the 'High Level Advisory Panel's (HLAP) Report on Mainstreaming the Responsibility to Protect in Southeast Asia: Pathway Towards a Caring ASEAN Community.' This was to generate comments and inputs from the participants on how the HLAP Report on mainstreaming the Responsibility to Protect and mass atrocities prevention can be promoted in ASEAN, as well as in operationalizing the Report's recommendations in the domestic and regional contexts. Previously, it served as the Coordinator of the ASEAN-Canada Research Partnership (2012-2015) supported by the International Development Research Centre (IDRC), Canada. It also serves as the Secretariat of the initiative. In 2009, the NTS Centre was chosen by the MacArthur Foundation as a lead institution for its three-year Asia Security Initiative (2009-2012), to develop policy research capacity and recommend policies on the critical security challenges facing the Asia-Pacific. It is also a founding member and the Secretariat for the Consortium of Non-Traditional Security Studies in Asia (NTS-Asia Consortium). More information on the NTS Centre is available at: <http://www.rsis.edu.sg/research/nts/>.



# About The NTS-Asia Consortium

The NTS-Asia Consortium was launched in January 2007 as a network of NTS research institutes and think tanks. The aims of the consortium are as follows:

- To develop a platform for networking and intellectual exchange between regional NTS scholars and analysts.
- To build long-term and sustainable regional capacity for research on NTS issues.
- To mainstream and advance the field of NTS studies in Asia.
- To collate and manage a regional database of NTS publications and other resources.

NTS issues include the challenges to the survival and well-being of peoples and states that arise from nonmilitary sources, such as climate change, resource scarcity, infectious diseases, natural disasters, irregular migration, food shortages, people smuggling, drug trafficking and transnational crime. These dangers are transnational in scope, defying unilateral remedies and requiring comprehensive – political, economic and social – responses, as well as the humanitarian use of military force. NTS studies also look at the multidimensional civilian angle to security in conjunction with state, military and governmental actors.

## Inaugural Meeting of The Consortium of Non-Traditional Security Studies

The Inaugural Meeting of the Consortium of Non-traditional Security Studies in Asia (NTS-Asia) from the 8th to 9th January 2007 was a milestone in the progress of NTS studies. The meeting not only officially launched the Consortium but also brought together its pioneering network members - comprising 14 research institutes and think tanks from across Asia - to discuss current NTS challenges facing the region, and possible policy responses to address these problems.

The pioneering members of NTS-Asia are as follows:

### South Asia

- Bangladesh Institute of International and Strategic Studies, Bangladesh (BISS)
- Women in Security, Conflict Management and Peace, India (WISCOMP)
- Centre for the Study of Developing Societies, India (CSDS)

- Refugee and Migratory Movements Research Unit, Bangladesh (RMMRU)
- Regional Centre for Strategic Studies, Sri Lanka (RCSS)

### Northeast Asia

- Institute of Asia-Pacific Studies, Chinese Academy of Social Sciences (CASS)
- Ilmin International Relations Institute, Korea University
- Center for International Security and Strategic Studies, Institute of World Economics and Politics (IWEP), Vietnam
- Beijing Foreign Studies University (representing IWEP China)
- Centre of Asian Studies, University of Hong Kong

### Southeast Asia

- Centre for Strategic and International Studies, Indonesia (CSIS)
- Institute for Strategic and Development Studies, Philippines (ISDS)
- The World Fish Center, Malaysia
- S. Rajaratnam School of International Studies, Singapore (RSIS)

## NTS-Asia Relaunch in 2016

The RSIS reactivated the NTS-Asia Consortium in early 2016 with the aim to re-establish the Consortium's significance and value to NTS research in the region, and to reemphasize the increasingly relevant and urgent need to focus on transnational and multilateral non-traditional security issues. The primary platform for the Consortium communication and outlet of publication is the NTS-Asia Website. The Website is envisioned to be the one-stop platform for NTS issues. See website link below: <http://rsis-ntsasia.org/>

## NTS-Asia Secretariat

The RSIS NTS Centre functions as the Secretariat of the NTS-Asia Consortium. Led by Professor Mely Caballero-Anthony, Head of the Centre for Non-Traditional Security (NTS) Studies at the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University, Singapore and supported by Ms Margareth Sembiring, Associate Research Fellow, and Ms Joey Liang, IT Executive and Webmaster.





