Centre for Non-Traditional Security Studies

Year In Review 2022

RSiS S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES
Nanyang Technological University, Singapore

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

CENTRE FOR NON-TRADITIONAL SECURITY STUDIES
YEAR IN REVIEW 2022

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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 threaten the well-being of states and societies worldwide.

Even as we have learnt to live and cope with the COVID-19 pandemic, state and non-state actors need to intensify their respective efforts in addressing and managing the ever-complex and transboundary implications of other NTS threats. These range from climate change and natural hazards to mass movement of people in search of refuge and safety.

The need to prioritise the welfare of the people – the individuals living in every part of our planet – remains a constant. Given the increasing scarcity of resources and the complication of solutions needed, innovation in policy and international cooperation is essential.

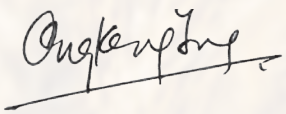
New ways must be found to do more with less, and quickly. Technology is seen as expediting the search and ameliorating the extremities of NTS threats – for example, rapid roll-out of vaccines against COVID-19 and higher yield of food crops in less ideal farming conditions. Yet, new technologies are not readily available in many states.

In this NTS Year In Review 2022 from the RSIS Centre for Non-Traditional Security Studies (NTS Centre), our scholars and researchers have written a series of insightful articles outlining new trends and challenges, as well as highlighting possible mitigation measures and future actions.

We hope that this NTS Year In Review will be useful to all readers in understanding the risks arising from NTS threats. Planet Earth is increasingly vulnerable as it faces climate change, communicable diseases, food insecurity and the breakdown of credible functioning in key multilateral institutions. The task of working together to deal with such threats is urgent.

Looking ahead, the NTS Centre will continue to conduct policy-oriented research focusing on climate and food security, humanitarian assistance and disaster relief, pandemics, nuclear hazards, and their respective impacts on the economic well-being of states in the ASEAN region.

As usual, 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,

Over the past year, several non-traditional security (NTS) issues have significantly threatened the welfare and well-being of communities and populations in the region, including but not limited to food shortages, natural hazards, impacts of climate change, and of course, the ongoing COVID-19 pandemic. These threats are increasingly multifaceted and interlocking in nature and continue to test the capability of states and governments to effectively deal with them.

Against these perennial challenges and the emergence of new types of disruptions, concerns about resilience and human security have become even more critical. For instance, the ongoing war in Ukraine has raised serious concerns about global food security. It has also resulted in soaring energy prices, which could derail long-term decarbonisation efforts. It is thus important to find new and innovative ways to manage such disruptions and find more avenues for multilateral and multi-stakeholder collaboration.

In Southeast Asia, ASEAN's commitment to address shared challenges as one community goes a long way to help its member states build capacity, mobilise and share resources and expertise, and provide the platform for non-state actors like the private sector, civil society organisations, the international community, and most especially, the local communities, to be engaged in helping the region cope with the complexities of NTS challenges.

We hope that you will find the articles in this Year in Review useful as we reflect on the impact of recurrent and emerging NTS challenges on our nations and communities. The NTS Year in Review 2022 comprises articles which discuss NTS challenges currently confronting the region. These articles draw out some of the potential pathways to addressing such issues. We hope that you will find these articles useful in providing a holistic understanding of the kinds of threats we face today.

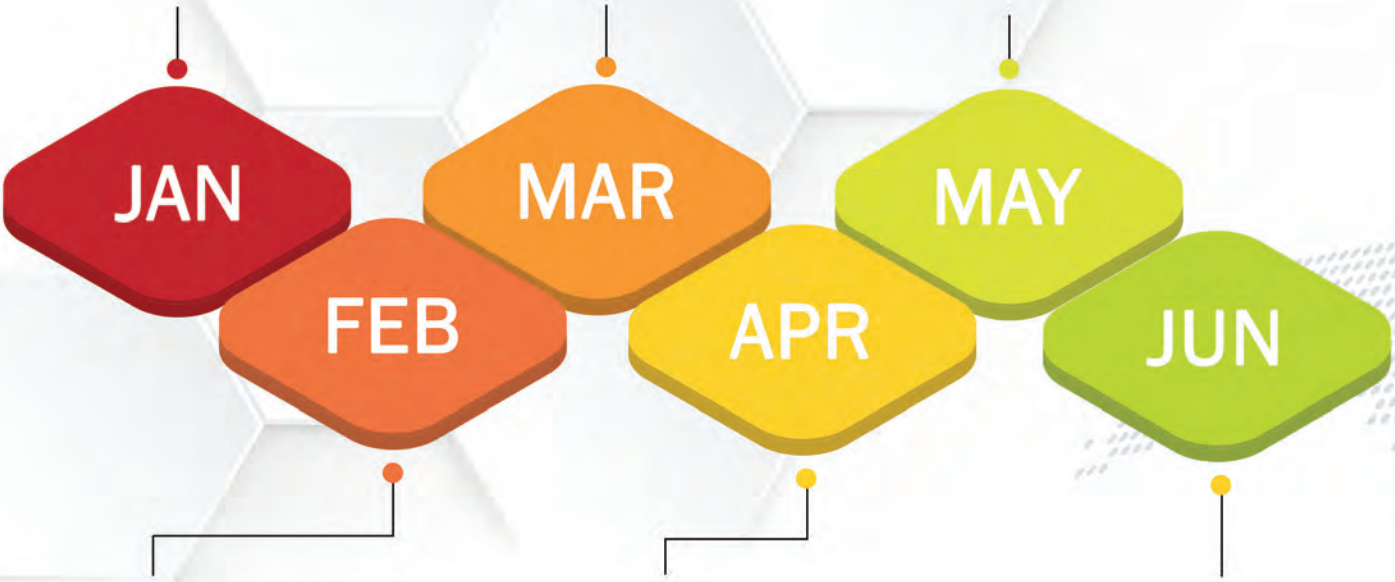
Finally, the NTS Centre will continue to conduct policy-relevant research on emerging NTS issues and their regional implications. We value any feedback and look forward to any potential engagements on our research areas.

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 2022

On 15th January, Tonga's Hunga-Tonga-Hunga-Ha'apai volcano erupted in the largest recorded eruption since Krakatoa in 1883. The eruption triggered a tsunami with waves of up to 15m and ashfall over an area of at least five square kilometres.

On 16th January, the World Health Organization announced that it has reached a milestone of one billion coronavirus vaccine doses delivered through the UN-backed programme, COVAX.



In February, the UN Refugee Agency announced that the number of internally displaced people in Myanmar has doubled since the coup a year ago to more than 800,000 people, with this trend only likely to accelerate.

On 24th February, Russia invaded Ukraine. A major escalation of the Russo-Ukrainian War, which began in 2014, the invasion has since resulted in Europe's largest refugee crisis in decades and caused food shortages around the world.

The International Energy Association released its 10-point plan to reduce the European Union's reliance on Russian natural gas. This plan will reduce reliance on Russian supplies by over a third while supporting the European Green Deal and contain emergency options to go further.

On 29th Match, the 2022 Joint Response Plan for the Rohingya Humanitarian Crisis was launched. Co-hosted by the Government of Bangladesh, the International Organization for Migration and the UNHCR, this plan brings together the activities of 136 partners including 74 Bangladeshi organisations.

On 1st April, Indonesia and Malaysia signed a Memorandum of Understanding to improve protection for domestic migrant workers. This agreement aims to create a system to match Indonesian domestic workers with suitable employers. Other initiatives include applications designed to strengthen wage protection and complaint mechanisms.

On 4th April, the Intergovernmental Panel on Climate Change released "Climate Change 2022: Mitigation of Climate Change", their third and final instalment of a multi-year global assessment of climate change mitigation progress and pledges. This report focuses on cutting emissions, costs, methods and the impact on sectors and technologies.

Since early May 2022, cases of monkeypox have been reported from countries where the disease is not endemic, starting from Europe. Cases also continued to be reported in several endemic countries.

The annual US – ASEAN Special Summit was held for the first time in Washington D.C on 12th – 13th May. Topics of discussion included new US initiatives for ASEAN, trade relations, pandemic recovery and climate change.

On 13th June, the European Union, Ecuador, Kenya and New Zealand launched a new Coalition of Trade Ministers on Climate during the World Trade Organisation ministerial conference in Geneva. This new forum is aimed at tackling the climate crisis in a fair manner through trade policy.

Since 14th June, devastating floods in Pakistan have claimed more than 1,700 lives. The floods were generated by heavier than usual monsoon rains and melting glaciers that followed an extreme heat wave, all of which were induced by climate change.

In the face of Japan's energy needs and concerns about rising energy prices, Japanese Prime Minister Fumio Kishida announced plans to increase the number of nuclear reactors in operation to nine from five by winter 2022.

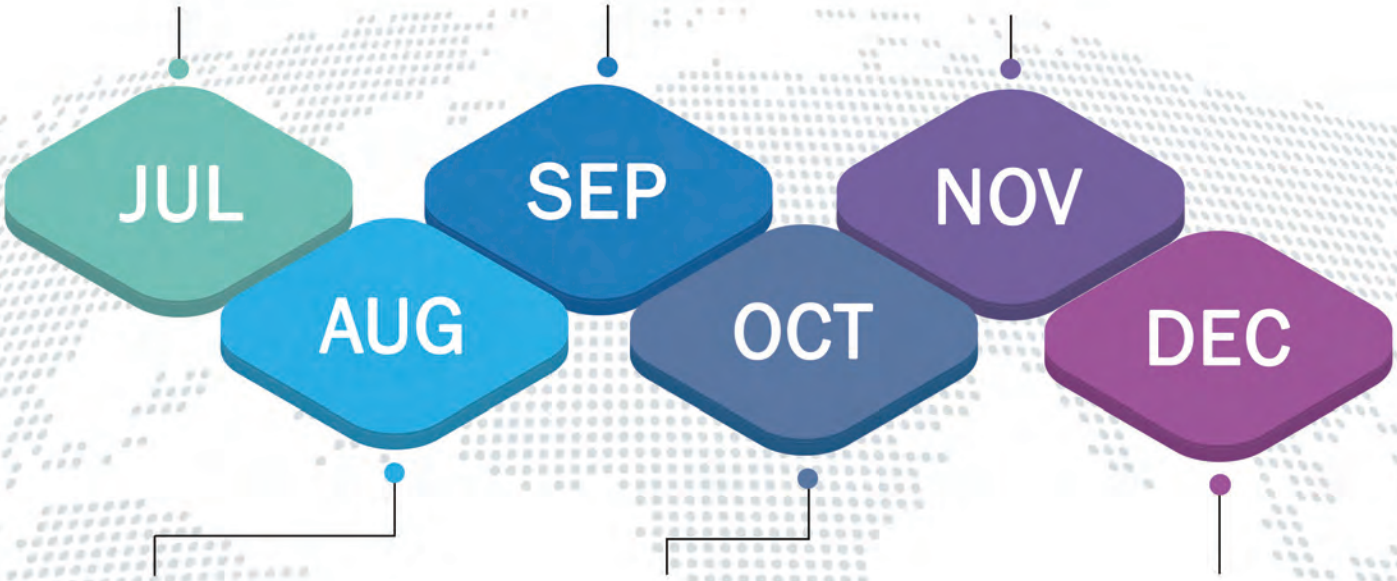
On 28th July, the UN General Assembly declares access to a clean, healthy and sustainable environment as a universal human right. Originally presented by Costa Rica, the Maldives, Morocco, Slovenia and Switzerland in June 2021, 161 countries voted in favour of this historic declaration.

The 77th session of the UN General Assembly was held from 13th to 27th September. During this UNGA, topics of discussion included the war in Ukraine, the dangers of climate change as well as improving human rights and meeting the needs of those most vulnerable to exploitation.

On 25th September, Super Typhoon Noru/Karding made landfall in the Philippines with over a total of 1,072,282 people affected. A total of 264,321 were evacuated, both before and during the typhoon's onslaught. It caused significant agricultural damages in northern Philippines before it made landfall in mainland Southeast Asia.

The 2022 United Nations Climate Change Conference, or COP27, was held from 6 November until 18 November 2022 in Sharm El Sheikh, Egypt. UN Secretary-General Antonio Guterres warned that the planet is on a "highway to climate hell with our foot still on the accelerator", as the world leaders' summit commenced at COP27.

During the 40th and 41st ASEAN Summits on 11 November 2022 in Phnom Penh, the Leaders reviewed the implementation of the Five-Point Consensus on Myanmar and urged all parties concerned to take action to implement the consensus.



On 1st August, the first grain ship left Ukraine since Russia's invasion of Ukraine. This was under the Black Sea deal struck in Istanbul in July and will last for 120 days. It can be renewed in mid-November should both parties agree.

In August, Britain approved the bivalent vaccine made by US drug company Moderna – the first country to do so. This vaccine consists variant-adapted shot that targets both the original and Omicron version of COVID-19.

On 7th October, the International Civil Aviation Organization (ICAO) adopted a historic long-term goal of net-zero carbon emissions by 2050 during its 41st Assembly. To achieve this goal, measures such as the accelerated adoption of new and innovative aircraft technologies, streamlined flight operations, and the increased production and deployment of sustainable aviation fuels will be put in place.

On 19th October, the World Health Organisation announced that the International Coordinating Group, which manages emergency supplies of vaccines, will temporarily suspend the standard two-dose cholera vaccination regimen and will instead use only one dose. This is in the face of the strained global supply of cholera vaccines amidst an unprecedented rise in cholera outbreaks worldwide.

China started to loosen COVID-19 restrictions in early December. Major changes included easing mass testing, shortening the duration of quarantine and allowing home recovery.

On 1 December, UN launched record $51.5 billion humanitarian appeal for 2023, 25 percent higher than that of 2022. UN estimated that 339 million people in 69 countries would need assistance in 2023, an increase of 65 million people compared to last year.

Planetary Health: Managing Competing Tensions

Margareth Sembiring

Since COVID-19 erupted across the globe, the world's attention on environmental issues has been fluctuating. In view of the massive resources allocated for pandemic response, there are concerns that the governments' commitments to climate change and related issues may weaken.

Different elements of the society are pushing for a green recovery to ensure that the economic recovery budget is not spent on fossil fuels. This happens in parallel with mounting plastic pollution that results from continuing use of disposable masks and other medical waste as part of the pandemic response. To signal that climate change was not forgotten amidst the frantic period, countries came up with net-zero pledges halfway through the pandemic.

Defence Sector's High Carbon Footprint

Various climate meetings, including the climate summit for 40 world leaders convened by President Biden in April 2021, further suggest that climate change remains relevant. All this built-up momentum culminated in the headlines-grabbing release of the 'code red for humanity' IPCC report and the subsequent COP26 meeting in November 2021. The high note at which it all ended seems to suggest that climate agenda continues to be on track despite the pandemic.

Like the COVID-19 pandemic, however, the war in Ukraine once again shows the frailty of our commitments to the environment in the face of crises. In addition to unspeakable human sufferings, the sheer scale of environmental damage that wars cause through the use of weapons, the destruction of vehicles and infrastructure, among others, is too evident.

As a result, the 1992 UN General Assembly called on the world governments to be mindful of environmental protection during armed conflicts. But as air, water, and land become increasingly polluted in the ongoing war, it is clear that the environment has once again become an inevitable victim of human choices.

Then there is the question of carbon emissions as well. The production and use of military equipment is carbon intensive. For example, the US military is the world's largest oil consumer, and consequently, the world's single largest institutional carbon emitter. Between 2001 and 2018, the US military emitted about 1,267 million metric tonnes of greenhouse gases; 35 percent of which was related to wars in Afghanistan, Pakistan, Iraq, and Syria.

It is this realisation of the defence sector's high carbon footprint that has led to growing calls and initiatives to green it in recent years. Against this backdrop, it will be of no surprise that the current war in Ukraine is contributing to increasing carbon emissions that have begun to rebound to pre-COVID-19 levels since last year. This definitely puts a challenge to yet another ominous warning found in the latest April 2022 IPCC report of the urgent need to slash emissions which otherwise set the world on track to reach 3.2°C by the end of the century.

Managing Ongoing Dilemma and Tension

Although climate change, biodiversity loss and extreme weather are consistently showing up among the top five global worries in the last five years, the health and geopolitics crises in the last two years alone show how challenging it is to stay committed to environmental causes. This is despite a general consensus that a healthy environment is critical for human own survival.

The planetary health concept, for example, establishes that the health of the planet is a pre-requisite to sustaining human civilisation. Just like pollution is bad for human health, so are climate change and biodiversity loss. Continuing environmental degradation, therefore, endangers the future of humanity.

While the harmony between human and the environment presents the most ideal scenario, the relationship between the two is characterised mostly by constant dilemma and tension. More often than not, the eventual outcome tilts towards the detriment of the environment as shown by Covid-19 mounting waste and the war in Ukraine.

Does that amount to a doomsday scenario? Human activities inevitably cause some damage to the environment. Being realistic of what can be expected is a good first step. While being totally environment-friendly may likely be out of reach, minimising trade-off among policy objectives can be strengthened to maximise the effects on environmental protection.

Systems thinking as proposed by the planetary health concept can potentially facilitate better synergy across different policy goals. If adopted, it will prompt various sectors to bring environmental considerations front and centre in their planning. This is akin to ongoing

greening and low-carbon development practices which increasingly compel different sectors, such as the maritime, defence, aviation sectors, among others, to find ways to reduce their carbon footprints.

Merits of the Planetary Health Concept

Given choices, the awareness and adoption of the planetary health concept is likely to result in the change of mindset and behaviours, which then leads to the prioritisation of more environmentally friendly options. These options include the ones that pollute the least, damage the forests, the oceans, and the rivers ecosystems the least, and disturb the animal habitats the least.

Policymakers and government officials need to be among the first to see the merit of planetary health concept although communities and individuals must be onboard too. By so doing, the overall impact on the health of the planet, which is currently measured by planetary boundaries, carbon budget, ecological footprint, among others, can be reduced, minimised, or even reversed.

In view of worsening environmental degradation, its protection can no longer be treated as a peacetime issue, developmental problem, or an afterthought. Little is known about what will happen in the future, but the ongoing pandemic and wars have shown how easy it is to overlook environmental concerns especially in times of crises. More needs to be done to ensure that strong commitments for the environment remain in place regardless of future challenges.

The complexity, dilemma and tension surrounding environmental protection aside, it is important to acknowledge that countries, communities, and individuals differ in their preferences and capacities to live more environmentally friendly options. Some are better able to go without red meat compared to others. Some are better able to afford cleaner technologies compared to others. Some are better able to live simpler than others.

While efforts are in the works to incentivise the uptake of more environmentally friendly lifestyles and reduce overall resource consumption, understanding this sensitivity is critical to encourage all parties to participate fully in the process according to their capacities.

The application of the planetary health concept will therefore have nuances across societies. Examining and comprehending the characteristics of different societies will help in formulating realistic policy objectives for behavioural changes that are more compatible with planetary health ideal. Such approach is likely to result in more resilient commitments towards the health of the planet even in the face of crises.

Bucha, Ukraine, destroyed in the Russo-Ukrainian crisis
Photo Credit: manhhai via Flickr, under Creative Commons licence

Ukraine War Threatens Global Food Security

Jose Ma. Luis Montesclaros and Margareth Sembiring

World Bank data shows that inflation has been high at above 5 percent across almost all low-income and middle-income countries globally since Russia's invasion of Ukraine in February 2022, with food inflation as high as 31.2 percent in East and Southern Africa in June.

To protect domestic food security, over 34 countries have implemented food export bans and export-limiting measures, and over 86 countries have placed trade measures impacting food and fertilizers. These are triggering what the United Nations has dubbed as the "the largest cost-of-living crisis of the 21st century to date".

Conflict has long been identified as a significant driver of food insecurity and hunger. Within conflict situations, farmers are driven away from fields/farms, agricultural assets and food stock are damaged, and logistics and supply chains are disrupted. Combatants have also targeted agriculture infrastructure and production. Islamic State fighters in Iraq reportedly sabotaged irrigation wells using rubble, oil and foreign objects, thereby killing plants and livestock.

These cause instability in food security in conflict-torn areas. Food production in sub-Saharan African shrank by 12.3 percent during conflict times between 1970 and 1994, and the Central African Republic's cereal production dropped amid its civil war. According to the Food and Agriculture Organization, global undernourishment increased to 815 million in 2016 due to violent conflicts and climate-related shocks, with about 400 million living in conflict zones.

In the first month and a half of Russia's invasion of Ukraine, one in three Ukrainian households were already food insecure. Ukraine is no stranger to the impacts of conflict on hunger, holding a painful collective memory of Holodomor ("death famine") which killed millions in the first decade of Stalin's rule of the Soviet Union by 1933.

Impact on Global Food Security

While the impacts of conflict on food security within countries are rather established, what makes today's

War-afflicted civilians in Ukraine

Photo Credit: Oleksandr Ratushniak / UNDP Ukraine via Flickr, under Creative Commons licence

crisis different, is that the conflict within Ukraine is also worsening food insecurity beyond its Ukraine's borders.

Ukraine and Russia are key producers of agricultural commodities, contributing 29 percent of global wheat exports, 62 percent of sunflower oil, and more than 12 percent of maize. The blockade of Ukrainian grain exports thus sparked global fears over heightened food prices.

Ninety-four countries are projected to be impacted by either food, energy, or finance concerns due to the war in Ukraine. Three-quarters of the 1.6 billion inhabitants in these countries are likely to vulnerable to these three challenges simultaneously, creating a "perfect-storm" making a cost-of-living crisis likely.

The COVID-19 pandemic has made the impacts of the war in Ukraine on international food security more acute. For countries not directly involved in the conflict, income support is a normal recourse in protecting consumers from war-induced international food price inflation. However, owing to pandemic-driven economic, countries' budgets are weaker now. Government debts across advanced, emerging, and low-income developing countries have grown significantly from end-2019 to end-2020, with fiscal balances declining over this same period.

Even before the war, the world was already battling rising energy and food prices. Reduced economic activity in early 2020 translated to a reduced demand for oil, falling oil prices, and oil producers cutting production growth targets. By 2021, though, when economies reopened, oil demand for electricity generation in coal plants increased by 9 percent, causing energy prices to rise. Energy price inflation led subsequently led to higher prices of energy-intensive fertilizers, thus feeding into higher food prices.

Furthermore, countries were already seeing farming disruptions in early 2020, with the fall army worm destroying crops in Asia and Africa; the African swine fever infecting hogs in China and other Asian countries; and droughts and floods impacting grain-exporting countries like Pakistan and Thailand. Pandemic lockdowns further induced crop productivity losses by disrupting planting and harvesting schedules, further driving up food prices.

By mid-May 2022, global prices were already 30 percent higher than in the previous year. Significant importers of grains, fertilisers and oils from Ukraine and Russia. Countries in North Africa and Western/Central Asia, which source more than 30 percent of wheat from the two countries, immediately felt the impacts.

Impact of Climate Change

Ongoing climate-related challenges further exacerbates the war-induced food insecurity. Conflict zones hit by climate shocks have experienced more severe and acute food insecurity, seen in 14 out of 34 food crisis countries in 2017.

Within Ukraine, temperatures in the past 60 years have risen at a rate faster than Europe, and sometimes even faster than the world's. While wheat and soybean are relatively resilient against changing climates, crops like barley, maize and sunflower are estimated to see significant declines in yields in the next 10-30 years. Khersonska, one of the oblasts attacked by Russia in eastern Ukraine, is among the top five oblasts projected to be most impacted.

Hunger can fuel further tensions, either intercommunal and cross-border.

Responses from the International Community

Less than a week into Russia's invasion, 141 countries voted for a UN resolution demanding Russia to end the war as soon as possible. Ukrainian President Volodymyr Zelensky has requested the West' to help "close the sky". Multiple military, diplomatic, and economic measures have been rolled out to force Russia's hand to halt its invasion. However, ongoing measures have only resulted in gradual shipments of military equipment that fall far short of providing Ukraine full protection.

Countries fear that a harder stance may harm their own security and economic interests. This has led countries like India and China to take calibrated, business-as-usual approaches with Russia. While Indonesia has condemned Russia's aggression, it has not acceded to Ukraine's request for military assistance. Instead, it has taken the role of mediator as Group of 20 president, with President Joko "Jokowi" Widodo visiting presidents Putin and Zelensky and urging Russia to stop the war immediately based on food security concerns.

Western leaders have similarly expressed their wishes of not wanting to see Russia win the war. Yet even the United States, which has disbursed approximately US$4.6 billion security packages as of June 2022, has started to recognize that this may not be enough to help Ukraine defend its territorial integrity. There is growing concern of a military stalemate as neither Russia nor Ukraine is likely to make major territorial gains.

The UN-brokered negotiations have led to a recent removal of blockades of Ukrainian grains. While this was accompanied by signs of stabilizing global food markets threats to global food security go beyond simply resuming grain exports from Ukraine. The risk of a potential global food crisis leading to a significant destabilising impact on economies and societies around the world is a spectre that confronts us today.

At bottom, world leaders will need to earnestly consider putting an end to the war, against the ramifications of a potential global food crisis globally. The latter can be an equally, if not more, significant destabilizer to their countries from economic, political, and societal perspectives.

ASEAN's Role in Regional Food Security amid Ukraine War

Jose Ma. Luis Montesclaros and Mely Caballero-Anthony

The ongoing war in Ukraine has raised serious concerns about global food security. The United Nations Food and Agriculture Organization's (UN FAO) Food Price Index (FPI) reached an all-time high in March 2022, surpassing price levels in 2007-08 during the global food price crisis. The war's impact on food security is best captured by the UN FAO's Director General who said that "the most significant threats (to food security) stem from conflict, and the associated humanitarian impact, together with multiple overlapping crises."

Escalating events and food prices hikes have led some countries to resort to protectionist policies, further aggravating food security concerns. India, for example, has imposed an export ban on wheat — one of the staples most affected by the ongoing war. In Southeast Asia, Indonesia's ban on palm oil exports and Malaysia's recent ban on chicken exports portend further protectionist actions by other countries in responding to the fluidity in the global food supply chains. Such trends require urgent collective efforts by countries in the region to address a looming disaster that can lead to cascading threats to human security. What can ASEAN do to respond to the shared threat of food insecurity?

Rice Bowls, Breadbaskets and the Global Food Supply Chain

Cereal prices peaked in end-March to more than 70 percent higher than end-2019, based on the FAO's Cereal Price Index. While ASEAN is the world's "Rice Bowl", having two of the three top global rice exporters (Vietnam and Thailand), Russia and Ukraine are the world's "Breadbasket", contributing approximately 24 percent of global wheat exports.

Rice is ASEAN's most widely consumed commodity, constituting half of total caloric intake. The region nonetheless relies on international markets for its wheat and maize consumption. Over the past decade, wheat imports by Indonesia, ASEAN's most populous country, have more than doubled from 4.8 million tonnes (2010) to close to 11 million tonnes (2019). Indonesia's largest use of wheat is for producing noodles (70 percent), followed by bread (20 percent) and cakes/biscuits (10 percent). Wheat and maize also serve as feeds for livestock. Regional meat consumption has grown rapidly, given growing populations and rising income-per-capita levels, especially in Indonesia, Malaysia, the Philippines and Vietnam.

Neither Russia nor Ukraine is expected to normalise exports in the coming months owing to the war. Al Jazeera's analysis shows that agricultural production in Ukraine's contested territories constitute a significant 23 percent of its agricultural output, which will likely remain unharvested in the near-term. Logistical challenges abound, since close to 50 percent of Ukraine's wheat is currently stored in areas where active fighting is taking place.

Rising Prices and Protectionism

Compounding the disruptions in supply chains is rising protectionism, particularly in palm oil exports. Vegetable oils (e.g., sunflower oil and palm oil) make up 10percent of consumers' diets globally, mainly as cooking oil within households.

In end-April 2022, international vegetable oil prices increased to more than triple their pre-COVID-19 levels in end-2019. This is partly from reductions in Russian and Ukrainian exports of more than 50 percent of sales in global sunflower seeds, used for producing sunflower oil. Since sunflower oil is a substitute for palm oil, conflict-induced disruptions to sunflower oil exports feed into higher vegetable oil prices globally, and in turn to rising domestic prices in Indonesia. Indonesia's palm oil prices in fact rose to as high as IR 18,000 (US$ 1.23) in March 2022.

Higher domestic prices translate to a larger fiscal burden for countries within and outside the region. Indonesia's decision to ban exports of palm oil in late April 2022 is driven by the need to ensure affordable food domestically; it is set on only lifting its export ban once domestic palm oil prices have returned to its normal level of IR 14,000 (US$ 0.96). Extending the ban worsens international food prices. Thus, domestic worries on demand and supply of food items trump regional cooperation.

Wolf at ASEAN's Door?

The wolf of trade protectionism is potentially at ASEAN's door. Palm oil makes up 58 percent of the global

vegetable oil trade, with Indonesia being the largest exporter of palm oil. Indonesia's protectionist policies may trigger similar actions by other ASEAN countries by aggravating the food price inflation brought about by the war.

A new wave of protectionism may extend beyond palm oil. There is growing risk of competition with Middle Eastern and North African countries, which are highly dependent on Russia and Ukraine for wheat and maize. Should these turn towards ASEAN's sources for these commodities, food prices will no doubt further increase.

To top it off, today's challenge extends further up the supply chain, to include inputs such as fertilisers, of which Russia is the world's top exporter. Yet, Russia's trade and industry ministry recommended its traders to postpone fertiliser exports temporarily. In general, export bans on commodities are not only knee-jerk reactions with short-term gains, but could also potentially trigger retaliatory trade measures by affected countries, further disrupting food supply chains.

Strengthening Regional Cooperation

In mid-April, the head of the World Trade Organisation and the United Nations World Food Program (among others) issued a joint statement calling on countries to "keep trade open and avoid restrictive measures such as export bans on food or fertilizer". While the disruptive effects of the war in Ukraine on food supply will continue until there is some resolution to the conflict, collective efforts must be strengthened to prevent its impact on global food security to worsen.

ASEAN needs to seriously consider how it can build on its existing mechanisms in riding the wave of rising prices across its commodities. One among these is the ASEAN Plus Three Emergency Rice Reserve (APTERR) mechanism, established in 2011 to avert rapid rice price inflation and discourage price speculation and trade protectionism among member states. While ASEAN has no parallel mechanisms for wheat, maize, vegetable oils or fertilizers, there is compelling need to explore how to mobilise its regional frameworks to provide additional ammunitions to nip the budding food price crisis.

A food vendor in Hanoi, Vietnam
Photo Credit: hams Nocete via Flickr, under Creative Commons licence

2022 – A Year of Reckoning on Food Security

Paul Teng

Much has been written about the triple, co-joined effects of the "3Cs" (COVID-19, Conflict, Climate Change) on food production, on ecosystems, on people and on institutions – all coming together to make food security a "hot button" issue in 2021/22. Indeed, it is difficult not to read about one or more food security stories daily in diverse print and virtual media.

The intersection of impacts from the 3Cs created havoc in all four dimensions of food security, notably in

- food availability, where supplies were reduced particularly in wheat, corn and vegetable oil;
- food physical access, where the logistics and infrastructure of supply chains were disrupted;
- food affordability, where price hikes and general food inflation put food out of the purchase range of many lower-income people; and
- food utilisation, where nutrition insecurity increased and food safety was threatened.

The Visible Impact

All countries without exception have felt the impacts from the 3Cs in 2022, some more than others. In particular, small island and net food import-dependent countries have had their vulnerabilities exposed. A roundup of how 2022 has been impacted is as follows:

Supply chain disruptions – The COVID-19 pandemic and the Ukraine-Russia conflict had insidious effects on reduced availability and transport of food and agricultural inputs across world regions. Particularly affected were wheat, corn and sunflower oil supplies from Ukraine and fertiliser from Russia. Citizens in importing countries like Indonesia and swathes of the Middle East experienced shortages in their daily staples. Higher income, small countries like Singapore and Brunei were able to buffer the effects by paying more for imports from alternate suppliers because of their relatively small quantums needed.

Price Hikes – Supply disruptions, delays and shortages fuelled price inflation and hikes in specific commodity prices. The FAO Food Price Index rose during this period to the highest experienced in a long while. At the household level, families had to make decisions between eating and other existential needs.

Export limitations – As in other crises that spanned many countries across the globe, food exporting countries

Boundless fields of wheat in eastern Ukraine, one of the world's major grain producers
Photo Credit: Polina Rytova via Unsplash

reacted to protect their own citizens by limiting (and in some cases even banning) food exports. By August 2022, the International Food Policy Research Institute (IFPRI) and the World Bank had reported over 80 countries practising some form of reduced food export. These exacerbated the supply situation globally due to the inter-connectedness of supply chains and because food security among countries has increasingly become inter-linked. In ASEAN, the famous case of Malaysia banning export of live chicken and Indonesia limiting palm oil exports were examples which not only affected their importing countries but also the producers/growers in their respective countries.

Production lapses – Because of the 3Cs, production lapses were experienced in 2022 in the major food items like wheat, rice and corn. Fertiliser shortages and their accompanying price increases led farmers in many countries to grow less area and in some instances to use less fertilizer in each field. In Thailand, this phenomenon reported will lead to reduced rice harvests, and consequently, smaller export volumes of rice. Likewise, reduced fertiliser application to plantation crops like oil palm will mean that vegetable (palm) oil output from Indonesia and Malaysia, the world's two largest palm oil exporters, will be reduced and result in tighter markets for vegetable oils.

Increased hunger and malnutrition – Apart from the Ukraine-Russia conflict, other conflict zones like Yemen and South Sudan have contributed to a global rise in malnourished and hungry people. Indeed, 2022 has seen the continuing trend in increased malnourishment which started in 2019, reversing achievements in the previous decade. The United Nations warned in 2022 that the world was on the brink of a severe food crisis in which millions may lose their lives due to hunger or from diseases resulting from their weakened health. What is noteworthy in 2022 is that apart from the poor and disadvantaged, the (urban) middle class in developed countries has also been impacted by rising food prices and lost employment.

Climate catastrophes – The apparent failure of the COP26 summit in November 2021 to generate concrete cross-country action manifested itself greatly during 2022 – the floods in Pakistan and China, the heat wave and droughts in India, excessive rainfall in many parts of Southeast Asia – all looked like precursors of a climate armageddon. The amount of human misery directly resulting from these crises received much attention but much less obvious is the near-term impact on food security due to reduced crop plantings and production for the global supply chain.

What 2022 Has Taught Us

This past year has shown how inter-connected the world is with respect to food. Indeed, the world seems to be entering an era of "Volatile Deficits", in which the stability of food security is not assured, and countries will have to be better prepared to deal with uncertainty. The year 2022 has seen many countries aiming to transform or reform their food systems to deal with periods of deficits, whether in imports or in their self-production. What 2022 has shown is that countries need to have some level of resilience in their food supplies, conferred through self-production or assured supply chains. The latter through contractual agreements which are binding and prevent exporting countries from reneging on their contracts.

However, 2022 has also shown that limiting exports by countries to protect their domestic constituencies may have unintended effects on the exporter's food production sector-- a phenomenon tantamount to "shooting oneself in the foot". Exporters in exporting countries which limited their exports found themselves deprived of their former markets when the limitations were lifted as importing countries secured new sources of food. A key lesson from the crisis caused by the 3Cs is also that countries which export the majority of their production are more unlikely to ban or reduce their exports. So this translates into a key learning for investment and cooperation, which is to choose those exporting countries whose domestic consumption are a small fraction of their total production, such as Australia and New Zealand in the Asia-Pacific region.

The past year has also shown the weakness in regional cooperation because countries have relied for decades on global supply chains. A reaction to this weakness is the increase in national food protectionism, as witnessed by disengagement from global supply chains and increasing self-production of staples. However, as shown by the Sri Lanka disaster, disengagement without proper planning and supportive policy and science also has disastrous outcomes of people's lives. So while food system transformation towards more sustainability and reliability at the national level is a laudable aspiration, 2022 has shown that this has to be handled delicately.

A bright spark in 2002 though has been the rise in local support groups to provide food security to the disadvantaged groups within a country. Food banks, safety nets of different types, volunteerism by individuals and organisations increased in many countries – all signs of social cohesion in the face of calamity. Perhaps in Asia, the cultural history has positioned the continent to be more caring despite limited capabilities.

Climate Complacency is No Option for Defence and National Security

Alistair D. B. Cook

Over the past three years, the Indo-Pacific was impacted by the convergence of different generators of insecurity – the COVID-19 pandemic, natural hazards and impacts of climate change. This experience particularly underlined the need to build trust and cooperation between countries across the Indo-Pacific to avert the exacerbation of disaster impacts in the world's most disaster-prone region; and the need to rethink the sustainability and readiness of the defence and national security sectors.

Profiling Climate Security

At the Shangri-La Dialogue 2022, Delfin Lorenzana, then-Secretary of the Department of National Defense of the Philippines, acknowledged that Manila's major capital acquisitions such as ships, air assets, and engineering equipment are also extensively used for humanitarian assistance and disaster response (HADR) in the typhoon-prone country. These assets allow faster reaction, which could save lives and property. For his part, General Phan Van Giang, Vietnam's Minister of National Defense, identified the role that the Vietnam People's Army plays as the "vanguard" in disaster prevention and response to COVID-19. What became clear through statements such as these is the increasing priority placed upon converging risks in national security discussions in Southeast Asia.

Inia Batikoto Seruiratu, Fiji's Minister of Defence, National Security and Policing, profiled the devastation of human-induced climate change as the primary existential security threat facing Pacific Island states. He argued for a broader understanding of security to better grasp the implications of climate change for security. He argued that for Pacific islanders, the pandemic has simultaneously illustrated that health security is another critical intersecting element of national and regional security. Seruiratu noted that the pandemic and the disinformation and misinformation spread about it highlighted the need for inter-agency and whole-of-society approaches to tackling such transnational security threats. From a review of these security threats, the minister called for greater collaboration and cooperation to meet the demands of a changing security landscape, and to improve defence and security mechanisms at the national and regional levels.

In sum, it was clear that the impact of climate change on national security is recognised by defence and security establishments across the Indo-Pacific region. However, climate adaptation and mitigation measures have yet to be sufficiently developed by militaries, either at national or regional level through forums like the Association of Southeast Asian Nations.

Defining Defence Priorities

A special session on climate security and green defence at the Shangri-La Dialogue brought together representatives from Germany, the Maldives, New Zealand, and the United Kingdom. Notably absent from the panel were representatives from Southeast Asia. Mariya Ahmed Didi, Minister of Defence for the Maldives, reiterated the existential threat faced by small island developing states and highlighted the need for defence diplomacy to be coupled with humanitarian assistance to support climate mitigation and adaptation. The discussion outlined three defence and national security priorities to contribute to climate security: investment, defence procurement, and adaptation.

Investment

With the long lead time required for defence procurement, there is a need today for militaries to consider the climate implications of purchases, to contribute to a reduction in carbon emissions and be ready for future scenarios. Admiral Sir Ben Key, First Sea Lord and Chief of Naval Staff in the Royal Navy, UK, highlighted the need for kit adaptability that embraces new technologies. He recognised that newly purchased assets must have open architecture systems, so that when technological advances are made these developments might be integrated to reduce the carbon footprint. Such investments in technology would require moving beyond the established defence industry to engage the wider private sector and scientific community.

Procurement

In the special session, it was cautioned that the commitment to defence procurement would have to be tempered with a dose of realism since many armed forces in the Indo-Pacific are relatively small, with insufficient budgets, and may be dependent on ageing equipment donated by third countries. In other words, there is a potential risk transfer for many militaries in the region in that they could be saddled with donations of environmentally unfriendly assets. One way to offset this risk is by investing heavily in defence diplomacy and encouraging openness on the part of the more developed countries, to share technological advancements with the region's smaller and less developed militaries.

Adaptation

The third component focused on an important criterion in guiding acquisition decisions: the capacity of assets to provide HADR in a changing climate. Evaluation and adaptation of military training will also be needed to meet new scenarios of exposure to extreme heat, storm surges, and other extreme weather conditions. In addition, integrating climate change considerations into militaries will require the development of emergency response platforms to be shared with civilian agencies; preparation for changes in mission profiles, military tasking, standard operating procedures; and an investment in supply chain resilience through anticipatory logistics. These adaptation measures are explicitly recognised in the latest 2022 report *Climate Change & Security Impact Assessment* by Jens Stoltenberg, Secretary General of the North Atlantic Treaty Organization, and are more broadly applicable to the global defence and security sector.

Next-Generation Impact

As welcome as they are, those proposals do not go far enough as they remain focused on the direct impact of climate change, and pay inadequate attention to converging risks, such as how climate change can affect health security by exacerbating emerging diseases. In the Indo-Pacific, it is now overdue for militaries and national security establishments to profile and integrate these scenarios into decision-making.

Ultimately, the integration of the climate component must consider its convergence with health and other emerging security issues if it is to make the necessary impact on the design and implementation of policies in the defence and national security sector. It is a matter of self-interest for militaries because if they do not have clear and tangible climate commitments, they may find it harder to attract and retain a more climate-conscious younger generation to join or remain in their ranks.

If climate security is not adequately integrated into military and national security planning and preparedness and climate complacency sets in, it will work against the sustainability of the defence sector, divert resources away from primary defence functions, and continue to expose countries across the Indo-Pacific to emerging destabilising threats.

Floods in Pakistan devastated communities in Sindh and Balochistan provinces in June 2022

Photo Credit: Ali Hyder Junejo via Flickr, under Creative Commons license

Climate Security in the Asia-Pacific and its Relevance for Singapore

Lina Gong

A climate security discourse first emerged in the mid-2000s, featuring the climate conflict narrative. Its argument is that climate change increases the risk of conflict in fragile countries and subsequently threatens regional and international peace and security. A few industrialised countries have led this discourse at the international level. The United Kingdom initiated the first debate linking climate change and international peace and security at the UN Security Council in 2007, and Germany proposed the second one in 2011.

A Conflict Multiplier or Existential Threat?

This alarmist narrative has been contested by many in both industrialised and developing countries. First, some people argue that the drivers of conflict are often complex and that scientific evidence to support the link between climate and conflict is lacking, a position exemplified by India's statement at the Security Council debate in January 2019.

Second, the narrative that conceptualises climate change as a conflict multiplier under-appreciates the experiences and interests of the countries that bear the brunt of climate change, which for them can be a matter of life and death. It is no surprise therefore that small island developing countries support bringing climate change to the security domain. However, their perspective differs from that of the industrialised countries in Europe and North America. For the small island states, climate change is not so much a threat multiplier but an existential threat. In his address at the 2011 Security Council debate, the then-president of Nauru declared that climate change "is a threat as great as nuclear proliferation or terrorism." More recently during his visit to the United States in mid-July, the defence minister of Australia, the immediate neighbour of the Pacific islands, specifically recognised climate change as a national security threat.

Broadly speaking, the Asia-Pacific countries vary in their thinking on climate security, and their positions are evolving. Many countries in the Asia-Pacific have reservations about climate security. In 2007 and 2011, China, India, and Indonesia did not support including climate change in Security Council deliberations. This position was probably influenced by the concern that the

The Security Council voted on a resolution on climate and security under maintenance of international peace and security on 13th December 2021
Photo Credit: United Nations

focus on climate security could lead to the militarisation of climate issues and legitimise political and military interventions.

Yet, some shifts in position have been emerging in the region in recent years, indicating gradual buy-in to the climate-security nexus. Indonesia acknowledged during the 2019 Security Council debate that the security impact of climate change was within the ambit of the Security Council. China, while still expressing reservations about the concept of climate security, suggested at the Security Council meeting in September 2021 that climate change be discussed in country-specific agenda items on a case-by-case basis. Vietnam voted in favour of a draft resolution on integrating climate-related security risk into conflict-prevention strategies in December 2021. Growing recognition of climate security risk and the alternate narrative of climate change as an existential threat constitute the basis for a regional discourse in the Asia-Pacific, although the resistance to bringing climate change to the security domain remains.

Green Defence

Another major theme of climate security discourse encompasses the relevance of climate change for the defence establishment as well as the concomitant sustainability and capability of its armed forces. In the 2010s, militaries in industrialised countries began to pay greater attention to their vulnerability to climate change in areas such as infrastructure, equipment, skill, and other resources. Since 2015, the United States, European Union, and United Kingdom have each issued official documents which investigate the national security implications of climate change and outline the approaches of their respective defence establishments to climate security.

Among the priorities identified in the official defence documents of the industrialised countries and organisations, green defence issues such as the cutting of carbon emission and the strengthening of the adaptability and resilience of their forces and facilities rank highly, given their governments' ambitions to champion global climate action. In addition, those documents highlight the need to meet the increasing demand to support disaster response at home and overseas.

Green defence, however, is less of an issue for countries that face the immediate threat of climate change, such as the small island developing countries. Instead, these tend to prioritise dealing with the effects of climate change, and related international cooperation. The difference in priorities was obvious during the Shangri-La Dialogue 2022 in Singapore. While defence ministers from the Western countries emphasised greening their militaries, the Fijian defence minister noted that the defence establishments in the Pacific were building their capability to deal with the challenges posed by "cyclones, floods, viruses, and disinformation and misinformation."

Singapore: Potential to Lead Regional Climate Security Discourse

Countries in the Asia-Pacific have yet to release official documents dedicated to climate security and defence, although some like Australia, Japan, and Singapore have incorporated climate risk in their national security policies in certain ways. This failure to consider climate security could be due to the above-noted sensitivity about militarising the issue of climate change. Nonetheless, countries in the region should consider articulating their climate security strategies, and the role that their militaries play in those strategies, in order to facilitate international cooperation and partnerships in dealing with climate-induced security challenges, such as extreme weather events and sea-level rise. Given the importance of humanitarian assistance and disaster relief (HADR) in regional security cooperation and the urgency of climate security for some regional countries, HADR and climate change can be paired as an entry point for constructing a regional climate security discourse.

Singapore has yet to adopt the notion of climate security in official documents and is still developing its approach to the nexus between climate and defence. Minister for Defence Dr Ng Eng Hen noted in 2020 that the military was not primarily responsible for climate action. Nevertheless, taking an interest in green defence, the country's defence establishment aligns its planning and operations with the national climate strategy and aims to reduce carbon emission growth by two-thirds by 2030.

Given the growing interest in climate security in the region, Singapore should consider developing its official position on the relationship between climate change and security, and its approaches to addressing the relevant security risks, such as climate-induced disasters and territorial changes caused by sea-level rise. Apart from green defence, disaster relief should be another component of Singapore's strategy for climate security, in line with Deputy Prime Minister Heng Swee Keat's recognition at a conference in October 2021 that climate-induced disasters have increased the demand for HADR. As host of the Changi Regional HADR Coordination Centre (RHCC), Singapore already has established channels and networks to promote regional HADR cooperation amid climate change.

In view of the growing interest in climate security in the region, Singapore should use various regional forums to initiate a discourse on climate security which sufficiently appreciates the specific challenges facing Asia-Pacific countries. Such discussions can identify common ground in concerns, approaches, and HADR resources, which could facilitate regional cooperation on climate security.

Anticipatory Action in Disaster Management: Global and Regional Developments

Christopher Chen

Developments in science and technology allow us to better predict natural hazards and their likely impact. In theory, this means that governments and humanitarian organisations can plan their responses accordingly. This has provided tailwinds for the scale-up of anticipatory action in the humanitarian and development spaces, both in ASEAN and globally. Nevertheless, there are still important questions surrounding the extent to which anticipatory action has been operationalised in Southeast Asia.

The Asia-Pacific has often been labelled the most disaster-prone region in the world. Against this background, new technological developments allow for ever more accurate risk-informed early action prior to natural hazards, health crises, and conflicts. However, risk analysis, forecasts, and early warning systems (EWS) are only as effective as the socio-economic and political systems they exist in.

For example, on 23 May 2022, tidal flooding, while predicted, was not followed by appropriate action, thus affecting over 8,000 people in Semarang, Indonesia. Despite the severity of the flood, residents were not evacuated to shelters. The EWS had been functional; yet, there was a lack of sensitive and coordinated response by authorities and the public. Hence, early warnings were not reliably translated into effective anticipatory action to forestall the negative impact of the flood. This highlights the need to strengthen disaster governance processes and systems at all levels of society. Technology alone is insufficient to reduce the impact of natural hazards.

Recent Developments

Anticipatory action is a set of interventions by an individual or organisation before an anticipated disaster, based on a forecast, early warning, or pre-disaster risk analysis, in order to mitigate its impact on the people, assets, and infrastructure likely to be affected. This can take the form of the distribution of cash or in-kind items, or targeted action such as the strengthening of shelters, or the evacuation of people and assets before the disaster occurs.

Recent developments at the global level indicate a push towards the scale-up of early warning services. Anticipatory action pilots across the globe and in the Southeast Asian region have demonstrated that they can help populations avoid and mitigate disaster loss, and protect vital assets by providing support before crises take place. This approach can be more effective, cost-efficient, and provide a dignified way of managing disaster risk.

The United Nations and the World Meteorological Organization (WMO) will launch a US$1.5 billion package to scale up early warning programmes and initiatives globally. This follows the request made by UN Secretary-General Antonio Guterres in March 2022, for WMO to spearhead new initiatives to ensure that "every person on Earth is protected by early warning systems within five years". At present, only 40 percent of WMO members have multi-hazard early warning systems in place.

In Southeast Asia, ASEAN has recently released the Framework on Anticipatory Action in Disaster Management, which represents a significant shift in how ASEAN plans to tackle the impact of natural hazards. The document lays out an action plan for ASEAN member states set through to 2025. It proposes practical steps by which policymakers and practitioners from the concerned sectors — social welfare, disaster risk management, agriculture and livelihoods, water and sanitation — may work together in building the necessary foundations for leveraging anticipatory action. It endeavours to ensure that early warnings are reliably translated into effective anticipatory action, to reduce the negative impact of natural hazards across the region.

Challenges and Limitations

While the anticipatory action discourse is very much in vogue, it is by no means a perfect solution. There are still gaps in implementation and operationalisation.

For instance, in recognising the benefits of targeted anticipatory action, the UN Central Emergency Response Fund (CERF) has taken on an increasing role in supporting the set-up and financing of anticipatory action pilots. One of its initiatives involved the release of funds for typhoon response, conditional upon the meeting of certain thresholds, to support the work of UN agencies and participating non-governmental organisations. However, the initiation of this anticipatory action faced significant challenges, most notably in the Philippines prior to Typhoon Odette making landfall in December 2021. Ironically, the emergency funds were not disbursed through the trigger mechanism in time as the thresholds were not sufficiently met, therefore hindering the humanitarian response to come. This example demonstrates the current early stage of technical development for effective anticipatory humanitarian action, and highlights the need to fine-tune such processes.

As damage of this type resulting from Typhoon Odette becomes more frequent, anticipatory action will be increasingly necessary to optimise humanitarian response

Photo Credit: Carl Kho via Unsplash

Moreover, anticipatory action is still woefully underfunded. According to a 2019 report by the Start Network, at least half of all humanitarian crises are foreseeable and predictable. Nonetheless, less than 1 percent of humanitarian funding is currently allocated to anticipatory action, and the approach has yet to be integrated into many of the programming plans of humanitarian agencies. While the rhetoric has garnered a lot of attention, practical buy-in for anticipatory action seems to be progressing at glacial speed. The reality is that there are still significant gaps in the humanitarian financing system. Much of humanitarian funding is reactive and not pre-planned, and over 90 percent is still channelled towards post-disaster response.

What Next for Anticipatory Action?

For anticipatory action to be a success, it needs more flexible and predictable funding, and to be further scaled up to cover more countries, populations, and a wider range of hazards.

Although there is increasing recognition of the importance of integrating protective, gender-responsive, and inclusive approaches in anticipatory action, these are not yet consistently applied across contexts and initiatives, thereby missing opportunities to ensure the participation of different members of communities. While the ASEAN framework does outline targeted action to build capacity in regional and national anticipatory action implementers with regard to the matters of protection, gender, and inclusion, ASEAN member states and the humanitarian sector need to ensure that these goals are met as quickly as possible, through constant monitoring, evaluation, and more importantly, sustainable funding mechanisms.

Furthermore, the pandemic is a wake-up call for the humanitarian community. The resulting global economic recession has contributed to widespread funding shortfalls for humanitarian aid. As such, to prepare for future crises, the risk of pandemic should be integrated into operational and strategic planning for more robust and anticipatory humanitarian response. These should involve deeper collaboration with local, academic, and scientific communities, and the private sector, to fine-tune anticipatory action. Knowledge sharing among all actors involved is essential if we are to share best practices and promote evidence-based learning across sectors.

Finally, anticipatory action must be part of a system-wide reform process that is people-centred, inclusive, accessible, effective, and financially sustainable. While leveraging technological developments, such efforts should also be complemented by nimble sense-making on the ground, to translate early warnings into practical humanitarian action.

Expanding the Peaceful Uses of Nuclear Technology and Climate Change Adaptation: Opportunities and Challenges

Julius Cesar Trajano

In recent years, climate change adaptation has received increased attention vis-à-vis mitigation. Through their national plans of action on climate change, many countries have launched various national-level adaptation measures, particularly in the agriculture sector and water resource management, Even developing countries, which have long been suffering from the worsening effects of climate change, have actionable adaptation policies in place with implementation guidelines. Globally, there is a rising number of adaptation projects in developing countries, being funded by multilateral and bilateral technical assistance.

An irradiation facility at the Philippine Nuclear Research Institute
Photo Credit: Julius Trajano/NTS Centre

Adaptation involves modifications in ecological, social, or economic systems in response to actual or expected climatic changes and their effects or impacts. It entails changes in processes, practices, and structures to cushion destructive effects or seek opportunities associated with climate change. Basically, countries and communities should seek and deploy adaptation solutions to respond to the concurrent and emerging impacts of climate change.

Technological solutions are intended to strengthen resilience and minimise vulnerabilities in multiple areas, many of which are relevant to the non-power applications of nuclear technology. These include land use and management, climate smart agriculture, food production systems, analysis of greenhouse gas (GHG) emissions, management of water resources. and ocean and coastal protection.

The Nexus Between Climate Adaptation and Nuclear Technology

Nuclear technologies are deployed to advance climate science and/ or support many countries in adapting to climate change. For instance, nuclear and related techniques can boost agricultural resilience to climate change, in reducing greenhouse gas emissions, and in increasing agricultural productivity – altogether known as climate-smart agriculture. Nuclear techniques, such as mutation breeding, can boost food production systems as this technology can produce climate-resilient varieties of crop species, which can thrive under stressful climatic conditions.

Climate-Smart Agriculture

Using mutation-induced breeding, nuclear scientists in the Philippines were able to develop new, improved varieties of rice and other food crops which are more resilient to pests and to the destructive effects of typhoons. They found that an extract of seaweed (called carrageenan), when processed with radiation, can make agricultural crops more resistant to typhoons and raise rice production by 20 to 30 percent. Agricultural

researchers at the National Crop Protection Center of the University of the Philippines tested the benefits of carrageenan as a plant growth promoter on more than 5,000 hectares in Bulacan, an agriculture-dependent province. The IAEA provided the irradiators (a nuclear technique equipment) and the training of local experts on their use. Researchers measured that sprayed areas generated stronger crops with harvests 65 percent above that of the normally treated crops. But more significantly, when a strong typhoon hit the province in 2015, only the rice plants treated with the new growth promoter remained standing.

In Laos, rice yields have increased from 3.16 to 5.1 tonnes per hectare, or a 60 percent increase, with the use of nuclear science. The IAEA, through its technical cooperation programme, has trained researchers in using the stable isotope nitrogen-15 to quantify the amount of nitrogen plants take up from fertilizers, and then determine the precise amount of fertilizer that farmers should use at various stages of the crop's life.

In Indonesia, 22 rice varieties have been developed by the National Nuclear Energy Agency's (BATAN) scientists through a process known as mutation breeding. The mutation process generates random genetic variations, resulting in plants with new and useful traits. BATAN scientists use gamma irradiation to induce mutations in seeds and considerably speed up the natural mutation process. Indonesian scientists tested the new mutant plants for various characteristics and selected those displaying useful traits for further breeding and subsequent distribution to farmers.

Cleaner rivers and higher yielding crops are just some of the myriad benefits nuclear technology has brought to Vietnam in recent years. The Mekong River is an important river for Vietnam's agricultural development. But it is severely affected by drought and increasing salinity. Climate change is exacerbating these problems and threatening food security. Through seed irradiation, Vietnamese scientists have developed new varieties of rice that are drought tolerant and higher yielding, which has benefited over 300,000 Vietnamese farmers.

Combatting Plastic Pollution

Indonesia vows to play a key role in the IAEA's Nuclear Technology for Controlling Plastic Pollution (NUTEC Plastics) initiative. NUTEC Plastics provides a platform for cooperation to combat plastic pollution and leverage the resources, knowledge and networks of participating countries. Indonesia is aiming to reduce its marine litter by 70 percent in the next four years. With support from NUTEC Plastics, it plans to build a pilot facility that uses irradiation to recycle plastics, and will share its gained expertise with specialists from other countries.

In the Philippines, an improved way of recycling plastic waste has just been introduced by the PNRI. It has begun using irradiation nuclear technique to increase the thermomechanical properties of recycled mixed plastic, enabling a wider and higher-value reuse. With this nuclear technique, the resulting recycled plastic is further strengthened and made sturdier. At industrial scale, bigger irradiators will be needed which can significantly help the country reduce its plastic waste and its contribution to greenhouse gas emissions.

Challenges to Expanding the Peaceful Uses of Nuclear Technology

One key challenge to the expansion of the use of nuclear techniques is the limited state funding for research and development projects. In Southeast Asia, most of the nuclear research and scientific initiatives are done by state-run nuclear research institutes. With the limited funding, such projects can only be done on a small scale; there are delays in completing the scientific outcomes; and the number of potential beneficiaries, such as farmers, is still low. There is a need for more fiscal support from national governments to transform existing initiatives into large scale, high impact projects so that there can be more vulnerable sectors that can benefit from climate adaptation-oriented nuclear technology projects.

The peaceful uses of nuclear technology are often excluded from public and political discourse, creating significant challenges for the nuclear sector. Even in countries that include nuclear power in their existing and future energy plans, climate change adaptation policies often remain silent on the role of nuclear science and mechanisms to expand government support for research and development in nuclear science. In this regard, there is a need to proactively engage policy makers on the latest nuclear and radiation-related innovations as well as the growing role of nuclear science in attaining sustainable development goals, including taking urgent action to combat climate change and its impacts.

Women in AI – A Case for Intervention in Development and Governance

Tamara Nair

The 4th Industrial Revolution introduced Machine Learning and Artificial Intelligence (AI) to the forefront and very soon, if not already, AI will be embedded in almost all spheres of our lives. In fact, it is already active in crucial areas like healthcare, education, commerce, finance, policing, and the law. While AI technologies like Alexa, Cortana and Siri have female names and voices, setting consumers at ease in non-threatening timbre, in reality, there are very few women involved in developing AI products and services. This risks severe bias in the system and as a result, inaccurate and inefficient AI service provision.

Globally, efforts are ongoing in encouraging more girls and women to take up educational and career opportunities in the Science, Technology, Engineering, and Mathematics (STEM)/technology sector. There are obvious benefits to society and the economy from a greater and more equitable representation of women in the technology sector. Schemes and initiatives exist to encourage and support this, but currently entrenched messaging about the place and role of women in technology appears to be counteractive. More attention must be paid to uncovering the root causes – social, cultural, and economic - preventing more uptake and retention of females in the STEM and IT sectors.

According to the World Economic Forum, in 2018 only 22 percent of AI professionals globally were female, and it increased marginally to 26 percent in 2020. While we applaud this increase, it is no match against the rapid growth in the field. For example, in the United States, the hiring increase for Artificial Intelligence Specialists increased 74 percent annually over the past four years but few women managed to be part of this growing sector.

We are increasingly living in a digital ecosystem and AI research is a big part of exploring the possibilities in the interface between digitalisation and human lives. Unfortunately, women's involvement is a minority interest in this arena and that leaves a lot to be desired. If AI is going to serve the many aspects of our day-to-day existence and make sensitive decisions about the lives of people, it is important to ensure that those who are part of its development and governance is representative of the society they aim to transform and the people they plan to serve.

Dangers of Gender Discrimination

There have been reports on the implications of this gender bias including in hiring processes. In addition, speech-to-text technology does not work very well for women given it was built based on the characteristic of male voices. This raises questions on the effectiveness of AI systems for all end users. The World Economic Forum study mentioned earlier, predicted that in 2022, 85 percent of AI projects will deliver erroneous outcomes owing to such bias in data, algorithms, or in the teams responsible for managing them. And those erroneous outcomes will impact more women than men. There is also the issue of bias in facial recognition technology that not only impacts gender but also race. This presents an additional bias for women in minority groups.

A 2021 Deloitte report highlights that 71 percent of respondents strongly agreed that adding women in this field would bring unique perspectives that are needed in the industry and 63 percent endorsed that AI and Machine Learning models would always produce biased results as long as it continues to be a male-dominated field. A diverse workforce with lived experiences is better equipped to identify and remove AI biases. The report highlights that the inclusion of women and taking a gendered lens is crucial in defining the problem, designing the solution, selecting data inputs, constructing and training the algorithm, testing the prototype and making final decisions.

There is also an economic case to be made. Specialists in AI development is an emerging profession and diversifying talent sources would diminish the dearth of labour in the field. A diverse workforce is better equipped to identify and remove AI biases and inaccuracies that can cost companies heavily. Inclusion of women is crucial in defining problems, designing solutions, selecting data inputs, constructing algorithms, testing prototypes and making final decisions, all necessary for improving the overall design and functionality of AI systems.

But the gender gap can never be narrowed unless a favourable environment is created for girls to study STEM subjects to begin with. Social and cultural norms have for long discouraged women from pursuing this field of education and now the impact is seen in the professional fields. But immediate intervention with appropriate policies can help to reduce the gender gap. AI is still in the early stage of professional expansion, and it is critical to start taking initiatives. Not intervening now will be a missed opportunity.

The STEM field has historically been a male-dominated one, so the limited presence of women in AI might not be surprising. According to the AI Now Institute women comprise only 15 and 10 percent of AI research staff at Facebook and Google respectively. These are Big Tech companies that run the world and their internal policies can influence and frame similar operations globally. It is no secret that gender inequality cases have come to the forefront in both Google and Facebook. Their new-age tech business models should not replicate age-old discrimination we see in the world vis-à-vis women and employment opportunities. What this does is narrow opportunities for not only female tech graduates but also female users because the type of output created in a male-dominated industry may not necessarily resonate with their interests or needs. It needs to be guaranteed that technology treats everyone receiving the service equally and is not biased, unintentionally or systemically.

In response to this, there should be a gendered intervention in future development of AI and of course, to follow up with that, the governance of the field should also take a more gendered approach. This will translate to a more equitable and beneficial technology for *all* users.

Women as developers and end-users of digital technology
Photo credit: Flickr, under Creative Commons licence

Human Development and Mental Health: New Approaches and Metrics Needed

Julius Cesar Trajano

The Human Development Report 2021/2022 of the United Nations Development Programme (UNDP) entitled "Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World" was released on 8 September this year. The key takeaway is that the world faces a troubled future arising from man-made (anthropogenic) existential threats which resulted in unprecedented uncertainties for peoples around the globe.

The report warns that "mental health is under assault" and significantly examines the impact of uncertainties on people's mental health and how such uncertainties obstruct human development. In attributing this unprecedented development to an anthropogenic cause, the report has taken a significant step forward to unequivocally acknowledge mental health as a key related component of human development. This is important and consistent with the first UNDP Human Development Report 32 years ago where it maintained that "people are the real wealth of nations."

Mental Health and Human Development

The 2021/2022 UNDP report states that in the face of unsettled lives amidst multifaceted uncertainties, mental well-being and psychological resilience are essential for human development. It added that mental stress is being caused by threats, both traditional and anthropogenic, such as the increasing frequency of climate change-induced extreme weather events, the ongoing COVID-19 pandemic, new zoonotic diseases, threat of the use of nuclear weapons, war in Ukraine and other armed conflicts, polarized societies, biodiversity loss, and other human security threats such as economic and food insecurity, discrimination, and violence.

Even before the COVID-19 pandemic, people everywhere have felt increasing distress due to complex and stressful situations in daily life. New forms of work and modern technologies have caused disruption and displacement

A UNDP report argues that mental health is a key related component of human development
Photo Credit: Matthew Ball via Unsplash

in societies across the world. Uncertainties emerging from traumatizing events, physical illness, and general anxiety over climate change and food insecurity tend to weaken people's mental health.

It is stunning to find out from the UNDP report that an estimated one billion people, or one in eight persons, have mental health issues. Mental distress can impede human development. Globally, it can result in mental disorders among those lacking in psychological resilience and is now the leading cause of disability. The most common mental disorders are anxiety and depression affecting 300 million and 280 million people, respectively, worldwide.

Relevant research has shown that widespread mental health problems among people exact a heavy toll on societies. Individuals affected are unable to reach their full potential. Their educational and occupational opportunities may be lost. This reduces their potential to contribute to human development and security. People with impaired mental (and physical) health have fewer job and income opportunities. In fact, people with depression earn about 34 percent less than the average person.

Furthermore, the effects of climate change on mental health will be distributed unequally both within and between nations; more specifically, between rich and poor nations, and hence, exacerbating inequalities. Vulnerable populations, such as socially isolated groups, indigenous and minority communities, and women and children, will be most at risk to climate-change threats.

Inequalities are also widened given that different people are exposed to distinct levels of mental distress. The increase in prevalence of depression and anxiety during the pandemic was greater among women than men, most likely because women were more vulnerable to the socio-economic consequences of COVID-19 lockdowns as well as the additional domestic and care work they had to undertake. In a multi-country survey, conducted by another international organisation (CARE), 27 percent of women struggled with mental distress, compared with 10 percent among men.

What Must be Done

Due to a lack of resources, inaccurate assessments and the shortage of trained medical staff and healthcare providers, it is estimated that not more than 10 percent of the world's population can access mental health interventions/treatments. This inaccessibility to mental wellness services must be addressed through a comprehensive approach.

Universal access to mental health services should be included in social insurance schemes. These schemes empower people to manage their mental distress in the face of their sense of uncertainty. These services could be included in social protection regimes. The 2021/2022 UNDP report advocates expanding and innovating social protection schemes to deal with today's challenges and unanticipated distress.

Human development and mental health experts strongly recommend community-based actions because that would shift the onus from the individual to the group. Community-based mental health services have greater acceptability among the population, and better accessibility and affordability than most other healthcare options. They facilitate family involvement, are less prone to stigmatization and discrimination, and promote mental health awareness.

Community-based approaches can also help overcome the prevalent stigmatization of mental health issues. For example, the Mental Health Innovation Network's "Basic Needs Mental Health and Development Model," has reached more than 650,000 people and their family members in low and middle-income countries.

There should also be greater investments in universal public health initiatives that rectify the social determinants of mental disorders, i.e., the underlying causes of uncertainties. For instance, there should be a comprehensive approach that seeks to improve global mental health while simultaneously tackling climate change, preventing conflicts, and protecting the environment. This requires expanded investments in a whole host of areas, including education, healthcare, peacebuilding, nuclear disarmament, employment, social support, housing, social justice, poverty alleviation, community development, climate mitigation and adaptation, and environmental protection.

Human Development beyond Conventional Metrics

HDR 2021/2022 tells us that mental health is no longer about the personal circumstances of everyone, but an essential component of human development and people's mental health is affected by global crises and uncertainties.

While there is always uncertainty, there should be a radical change in the metrics with which we invest and think about human development. Merely relying on GDP growth, per-capita income, and other macro-economic fundamentals is not adequate as these in fact distort the reality about human development. Metrics of the future should include the state of our mental wellbeing. The latest UNDP report confirms that high or increasing worry or depression patterns have an impact on measures to improve people's prosperity.

Urban Resilience: A 21st Century Challenge

S. Nanthini

As highlighted in the 2021 Assessment Report of the Intergovernmental Panel on Climate Change, Southeast Asia is particularly vulnerable to the effects of climate change. With the majority of the region's significant cities along the coastline, sea-level rise poses a particular threat to the region. This is seen by the increase in disasters such as coastal flooding, coastal erosion and prolonged inundation of coasts – all of which affect urban centres.

Defined as the "capacity of a city's systems, businesses, institutions, communities, and individuals to survive, adapt, and grow, no matter what chronic stresses and acute shocks they experience", urban resilience is much needed in the 21st century. After all, a major source of the stress and shocks experienced by cities is undoubtedly the growing threat of climate change. Building urban resilience is therefore a key priority for cities to mitigate and adapt to the increasingly exposed climate landscape.

Urban Centres in a Climate-sensitive Landscape

By 2050, more than two-thirds of the global population will be living in urban centres. Asia's urban population has increased from 20 percent in the 1950s to 50 percent in 2016, with this set to increase further to 64 percent by 2050. The increasing exposure of such areas to climate-related shocks and stress on a regular basis is cause for concern and demands greater policy attention. Cities in developing countries where the vast majority of urban growth will take place lack resilience due to limited funding, resources and technical expertise. An increasing urban population will only mean that more people will be exposed to both quick and slow onset disasters.

Bangkok is ranked the most vulnerable city to sea level rise in the 2050 Climate Change Index, closely followed by Ho Chi Minh City and Manila at 3rd and 6th places respectively – all these cities have already experienced heavy flooding and sinking in recent years. As the effects of climate change intensify, there is also an increasingly higher risk of destruction of livelihoods, shelters, infrastructure and lives. This increases the vulnerability of the affected cities and their populations, and ultimately decreasing their overall security.

Cities: Exposure and Contributor to Climate Change

On the other hand, while cities are indeed significantly affected by climate change, it is important to note that they are also a significant cause of climate change. The process of urbanisation connects populations, leading to the rapid development of infrastructure and growth of communities, in turn enabling these spaces to become hubs of progress and innovation. However, such progress can also be at the expense of the environment. After all, cities not only use a significant amount of the global energy supply, but are also responsible for approximately 70 percent of the world's energy-related greenhouse gas emissions.

While cities themselves contribute to their own vulnerability to climate change, they must also be regarded as key actors in climate change mitigation. Thailand's electric vehicle policy aims to ensure that 30 percent of all vehicles made in the country are electric by 2030. Further, the Bangkok Metropolitan Transport Authority plans to replace more than 2,000 of its buses with electric vehicles by 2027. While these policies are working to mitigate Bangkok's carbon contributions, the question of negative spillover effects remain. Increased electrification might lead to increased demand for biofuels, which in turn would lead to the increased use of land or water use – whether inside or outside the region. As such, countries need to design a strategy to increase resilience rather than generate other forms of risk through spillover effects.

Urban Resilience and Climate Change

Urban resilience is therefore necessary for cities and states to protect themselves from various climate-related urban disasters. Building such resilience in the 21st century should include the utilisation of technology as a tool for problem-solving. As global temperatures continue to rise, it has become obvious that temperature increases are taking place much faster in urban areas compared to their rural surroundings – as is the case in much of Southeast Asia. In response, some cities are using data gathered by satellites to identify heat islands in specific areas, which may be an early indicator of wider heatwaves. Using data gathered from monitoring

Singapore is investing in climate change defences to increase its urban resilience
Photo Credit: Uwe Schwarzbach via Flickr, under Creative Commons license

temperatures and past heat waves, stakeholders such as local government and civic organisations have tailored outreach efforts, health warnings and activities in specific areas according to heat risk forecasts. As not all states in the region operate satellites, partnerships for information-sharing are needed between neighbouring countries.

However, funding these resilience efforts is also an issue of key concern. While Singapore has enjoyed protection from major natural hazards due to its geography, it is still vulnerable to other natural hazards such as urban heatwaves and sea level rise. As an island state, sea level rise is a particular area of concern. In an effort to increase its resilience, Singapore has earmarked S$100 billion over the next 100 years for its "climate change defences" – the upgrading of public infrastructure, land reclamation and other such efforts. By framing it as a whole-of-government approach, this ensures the financial burden will be spread over different ministry budgets, the country's reserves as well as borrowing where necessary. However, even using such strategies, not all states in the region have Singapore's resources when developing their own strategies for urban resilience – particularly some of the most affected by climate change. As such, strong multisector and global partnerships are necessary to fill these financial, technical and resource gaps from developed countries to international financial institutions like the World Bank's City Resilience Program.

With Southeast Asia being one of the regions hardest-hit by climate change, it is important to recognise that there is no one-size-fits-all approach to resilience in the face of climate change. As more people continue to migrate to cities – areas which may be partially submerged or face extreme temperatures by the end of this century – the need for sustainable and equitable strategies to develop urban resilience only grows.

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RSIS-RHCC Humanitarian Futures Forum, 14 October 2022, Orchard Hotel Singapore

RSIS Workshop on "The Future of Planetary Health: Lessons from a Global Pandemic", 22 August 2022, The Hive

"ASEAN Strategic Policy Dialogue on Disaster Management (SPDDM) 2022", 19 August 2022, Mandarin Oriental Hotel

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RSIS Book Launch Seminar of "Nuclear Governance in the Asia-Pacific", 3 August 2022, Orchard Hotel Singapore

RSIS-SIPRI Report Launch Seminar of "Environment of Peace: Security in a New Era of Risk" by Dr Dan Smith, Director of Stockholm International Peace Research Institute (SIPRI), 16 June 2022, Swedish Ambassador's Residence

RSIS Seminar on "A 3S (Safety, Security, Safeguards) Assessment for Small Modular Reactors in East Asia" by Dr Jorshan Choi, Lawrence Livermore National Laboratory, 31 May 2022, RSIS Lecture Theatre

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Research Grants

NTS Centre received a seed grant as the principal investigator under the Social Science & Humanities Research 2025 Strategic Plan, with "Planetary Health" as the overarching research topic. This project features inter-disciplinary collaboration among NTU schools, with the College of Humanities, Arts and Social Sciences and Nanyang Business School as co-investigators and Earth Observatory of Singapore as a collaborator.

The RSIS team led by NTS Centre was commissioned in August 2022 to examine the potential for digitalization of climate-smart agricultural supply chains, focusing on ASEAN and India, with funding from the Gesellschaft für Internationale Zusammenarbeit (GIZ) (EUR 97,600 grant) and support from the ASEAN Secretariat. This expands from the "ASEAN Guidelines on Promoting the Utilisation of Digital Technologies for ASEAN Food and Agricultural Sector" (endorsed by the 43rd Meeting of ASEAN Ministers on Agriculture and Forestry or AMAF in October 2021) which RSIS contributed to through its earlier study on digital technology utilisation in ASEAN agriculture. The earlier study was commissioned by the Economic Research Institute for ASEAN and East Asia (ERIA) and also supported by the ASEAN Secretariat.

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RSIS-RHCC Workshop on "Humanitarian Futures in Southeast Asia", 27 January 2022, NTU@One-North

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. Follow us at www.facebook.com/RSIS.NTU or connect with us at 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
  - Pandemics
  - 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 (BIISS)
- 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

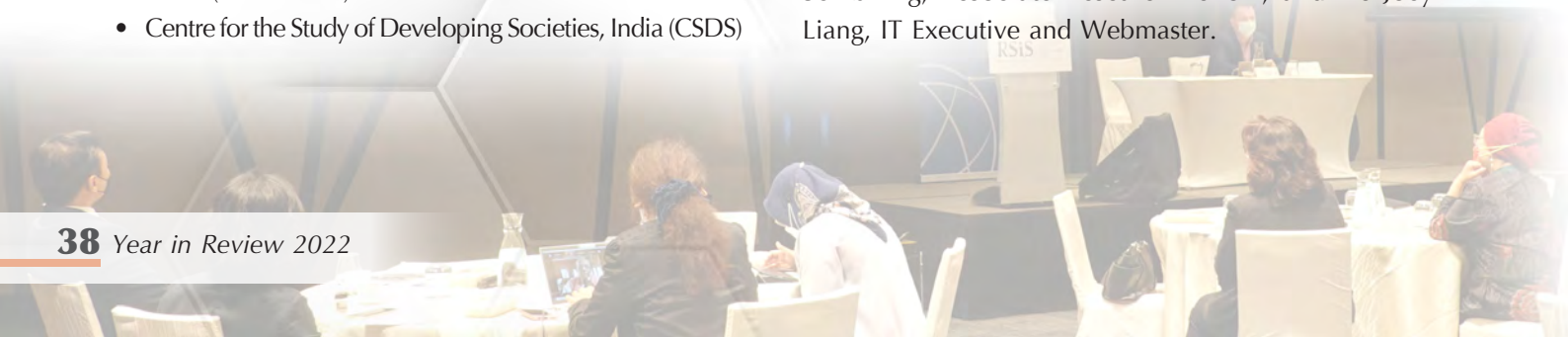
- Centre for Strategic and International Studies, Indonesia (CSIS)
- Institute for Strategic and Development Studies, Philippines (ISDS)
- The World Fish Center, Malaysia
- S. Rajaratnam School of International Studies, Singapore (RSIS)

NTS-Asia Relaunch 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.



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