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RESILIENCE IN THE FACE OF DISRUPTIONS

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Overview

1. Human activities, technology and climate change drive changes to our environmental landscape and societal order. Marine microplastics arising from woeful human use of plastics threaten marine ecology. Excessive consumption of fossil fuels disrupts weather systems and consequently undermines food security. Unequal access between the "haves and have nots" aggravates food insecurity. Without meaningful intervention, annual deaths from food-borne diseases (FBDs) caused by anti-microbial resistant (AMR) bacteria will reach 10 million in 2050. Human displacement continues unabated across state lines as humanitarian crises require fresh responses. Ubiquitous use of information and communications technologies (ICTs) has created a new landscape where cyber-threats target both hardware and software and where truth has become its latest victim. Moreover, social media has been weaponized to breed intolerance.

2. The Annual Conference of the Consortium of Non-Traditional Security (NTS) in Asia held in Singapore[1] recently examined responses to these uncertainties, if not threats to humanity, arising from key disruptions[2]. This report captures the responses and hopes touted by experts at the Conference with the view of providing policy makers and invested scholars interested in such developments with some recommendations towards building resilience within and across states.

Environment and Climate

3. Among the various environmental concerns raised, marine environmental pollution poses an increasing challenge to the food safety, health security and livelihood of people in Asia. Plastic pollution like microplastics significantly

[1] The NTS-Asia Consortium is a network of 31 Non-Traditional Security research institutes and think tanks in Asia, led by RSIS. The Annual Conference this year on "Resilience in the Face of Disruptions" was held at Novotel Singapore on Stevens on 27-28 March 2018.

[2] Disruption refers to an event that challenges an existing order and may catalyse gradual or radical changes in norms and practices in economic activity, security and political stability within state and society.

contributes to the degradation of marine environments in Asia. Five Asian countries have been identified to be among the top marine polluters in the world in terms of plastic waste, namely China, Indonesia, the Philippines, Thailand and Vietnam.

4. At the global scale, there could be as much plastic as fish by weight by 2050 if effective measures are not taken[3]. Given that fish and fish products are an important source of protein for many people in Asia, further research is needed to uncover the severity of the impact on the safety of food supply and public health in regional countries. Early awareness is critical to any government's preparedness in managing the fallout from excessive consumption of food contaminated by microplastics. Evidence accumulated from dedicated studies could potentially be used to urge regional countries to take joint action in protecting our coasts and reduce microplastic pollution in our seas.

5. Effects of climate change like extreme weather events lead to significant human casualties and economic losses with Asian countries being particularly vulnerable, like the Philippines and Bangladesh. Typhoon Haiyan in 2013 killed more than 7,000 people, displaced four million and caused ten billion US dollars' worth of economic losses equivalent to 3.7 percent of the Philippines' GDP. Apart from measures that slow down global warming like promoting the use of renewable energy, countries have to adapt to, if not mitigate the effects of climate change. One significant development is the controversial use of geoengineering - a future alternative option to address the impact of climate change. By controlling weather systems along geographical lines, it entails large-scale artificial interventions on the climate system with the aim of saving the Earth from the worst effects of climate change. Yet, the unbridled use of geoengineering may lead to unintended consequences, like altering the ecosystem, inadvertently producing toxic elements and utilising geoengineering tools for malicious purposes other than addressing climate change.

[3] See, World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company, *The New Plastics Economy – Rethinking the future of plastics* (2016, http://www.ellenmacarthurfoundation.org/publications).

6. According to some observers, geoengineering may have military and political purposes such as controlling the weather systems of rival countries, and unleashing “weather war” in the future. Some sort of governance structure was suggested. Indeed, the US and the EU have extensively conducted governance research that includes norms for unilateral and multilateral use of geoengineering, sovereignty designation, and other important issues. This calls for a supervisory framework to shape the meaningful use of geoengineering. Greater research in this area provides the necessary foundation to help shape the framework for its deployment at regional and international levels. Asian countries may consider calling for transparency of ongoing geoengineering research, wider information dissemination, and debate on its every dimension at the international level. Policy makers would benefit from guidelines arising from such studies to establish national responses.

Agriculture and Food

7. As growth in agricultural yields slows down in certain areas impacted by climate change, it is important to explore alternate crops, better crop varieties, and promote innovation in this sector. This is also partly because access to food remains unequal among communities and among states. Productivity gains have been recorded, as direct outcomes of research investments. Improved crop varieties such as the IR8 Miracle Rice which boasts higher yields and greater resistance to flooding is an example of this. However, financial support from western states for agricultural research is declining, and this constitutes a disruptive factor to the agricultural sector of many developing countries.

8. As the region’s per capita income increases, and as it benefits from investments, more Asian countries should assess how they can invest more in agricultural research. One way to promote this is through a multi-stakeholder approach, like people-public-private (PPP) partnership which can increase awareness across the region of the potential rewards, highlighting successful cases such as

patented technologies that can be reaped from private sector participation and government co-investment with local companies.

9. Apart from crop varieties, another important technological innovation is the application of Knowledge Intensive Agriculture (KIA). This involves the use of sensors to monitor crop growth given changing environment conditions, and crop analytics to provide farmers with advice on the optimum combinations of inputs to apply to maximize growth. Promoting knowledge sharing among networks of farmers using KIA can allow society to benefit more from this initiative, as this would provide computers a larger base for more robust analytics.

10. An emerging challenge to food security is the increase of antimicrobial resistant (AMR) bacteria in food, making it harder to manage FBDs such as salmonella typhi and hepatitis A. AMR bacteria are projected to cause 10 million deaths a year by 2050 without effective interventions[4]. Particularly susceptible are food-importing countries as FBDs can occur undetected at different points of the supply chain. An important innovation in this regard is Whole Genome Sequencing (WGS) which can be used to identify and track AMR bacteria. Besides cultivating WGS research, governments should consider establishing platforms to exchange information on sequenced genomes and developing expertise to be able to extract useful insights from such information for FBD prevention. Consortium members can play a constructive role in facilitating such research work and cross border exchanges.

Humanitarian Crisis and Forced Displacement

11. The humanitarian sector has witnessed new trends with old problems, like the unprecedented scale of forced displacement induced by conflicts and disasters. The existing frameworks are not sufficient to deal with the pressing challenges,

[4] The New York Times carried an article (16 Apr 2018) "Typhoid that defies drugs" highlighting a typhoid strain that was resistant to five types of antibiotics. The article quoted a pathology professor, Dr Rumina Hasan, from the Aga Khan University of Pakistan: "This isn't just about typhoid,…Antibiotic resistance is a threat to all of modern medicine – and the scary part is, we are out of options."

as in the cases of China and Malaysia, both of which now face growing pressure over refugee issues. Political considerations at domestic and international levels partly explain their positions on refugee issues. For instance, a number of factors were proposed for the evolving Chinese responses to the different refugee waves since the 1970s, including geopolitical interests and ethnic affinity.

12. Meanwhile, disaster management has seen positive examples of how technological advancement disrupts traditional mindsets and practices while at the same time enhances effectiveness of preventive and responsive measures. Moreover, non-state actors like NGOs, professional relief organizations and medical teams play a growing role in disaster relief and humanitarian assistance operations. In the case of China, this trend was evident since the Sichuan Earthquake in 2008, where the central government usually plays a dominant role in disaster management. However, coordination among non-state actors, governments and the militaries still needs to be strengthened.

13. Some regional countries have made policy and institutional adjustments in response to the refugee problems across the globe. For instance, Indonesia signed a presidential decree in 2017 that sets the legal basis for the treatment of foreign refugees in Indonesia which is not a signatory to the 1951 Refuge Convention. China has significantly increased its support for UNHCR and set up an immigration bureau to handle the growing number of foreigners and migrants in China. The shift in the dispositions and approaches of these countries holds hope for others who remain intransigent in their positions to consider adjusting their policy.

14. ICTs are increasingly applied to assess and map damages and needs, mobilise resources, and coordinate response activities in time of disasters. Such information would be useful for response teams as well as affected communities since this would significantly aid the coordination of response efforts.

Cyber Space and Technology

15. Technological advancement has triggered revolutionary changes in many aspects of societal life, like the nature of inter-personal communication, information processing, business transaction and political campaigning. However, both people and states are not yet prepared for the disruptions brought about by technological breakthroughs such as privacy breach, cybercrime and even cyberterrorism. Regulation and legislation are not in pace with the fast-changing reality, leaving gaps in cyber governance. Seven people out of ten across the globe worry about false information or fake news being used as a weapon.

16. In addition, social media content can be used to breed intolerance, dividing communities and polarising societies, as reflected in the case of the former governor of Jakarta in 2017 who was accused of blasphemy. Public awareness of the associated risks however remains low, particularly among the vulnerable groups. Only 2.8 percent female internet users in Brunei are aware that online data including self-disclosed information could be used by third parties.

17. Well-researched data and information contribute towards reasoned national conversations. Greater public awareness can contribute towards setting up digital community norms as well as enhancing critical ability among individuals in dealing with various cyber risks. One of the fallout from intensive digital use at the global level is that truth has become a victim. In response, one of the regional countries show that re-establishing the “trust quotient” may be best initiated from the grass-root level.

Steps towards Building Resilience against Disruptions

18. Amidst the disruptions and their impacts, greater *awareness* based on well researched data and information sets the stage for us to understand the issues better and clearer. Engaging the diverse effects would mark the stage of finding the right responses to the right issues at the right time. In other words, *“buying-in”*

to the reality that disruptions lead to consequences that we have to deal with. Eventually, mobilizing the community of decision makers, policy formulators, researchers, Track Two organisations, as well as private sector and industry would signify joint *ownership* over securing our future against possible dangers while harvesting the dividends of our efforts. The three steps towards building resilience to disruptions are:

- ***"Awareness" - Research Builds Understanding***

Investing in greater research would help to harmonise the level of understanding of the hopes and uncertainties disruptions bring. Ignoring the impacts of human activities, technology and climate change would undermine the effectiveness of policy makers to engage and negotiate the dividends or threats that they bring.

- ***"Buy-in" - Platforms to Build Collective Wisdom***

Think tanks and research institutions can help to create a better understanding to keep pace with such developments. They can also take on the role as a platform for sharing information among stakeholders on emerging and current issues such as humanitarian crises and forced migration triggered by armed conflicts, climate change, environmental hazards and economic crises in Asia.

- ***"Ownership" - Working in Concert***

Relevant experts, policymakers, militaries, NGOs, scientists and other humanitarian actors can deliberate on lessons learnt, key issues and best practices among Asian countries as to how they manage large-scale disruptions. Through People-Public-Private Partnership, communities can be engaged to enhance resilience within and without the communities.