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Emergency Preparedness and Contingency Planning: Lessons from 2024 for ASEAN Disaster Management

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SYNOPSIS

2024 was a hallmark year for disasters caused by natural hazards. According to the international disaster database, EM-DAT, 146 million people were affected by disasters in 2024 — 11 per cent higher than the past five years and 15 million more than 2023, despite recording the least number of disasters since 2019. This IDSS Paper reviews Papua New Guinea's landslides in May, flooding in Spain in October, the Atlantic hurricane season, and the Pacific typhoon season, and finds the salient lessons to inform emergency preparedness and contingency planning for humanitarian assistance and disaster relief in the ASEAN region.

COMMENTARY

The disasters of 2024 offer several pathways such as incorporating multi-hazard risk assessments, establishing and ensuring well-coordinated early warning systems, contingency planning for response and relief operations, and enhancing existing technologies.

The disasters of 2024 highlight evolving trends in the risk landscape and underscore the need for adaptive strategies in disaster management. The landslides in Papua New Guinea in May illustrated the dangers of multi-hazard risk and cascading hazards that result in amplified cumulative impacts. The flash floods in Spain underscored the critical need for coordinated early warning systems, while also revealing the complex interplay between the social and technological dimensions, and governance challenges that can hinder effective response. Prolonged exposure to successive typhoons in Southeast Asia illustrated the increasing importance of robust contingency planning to mitigate the compounding effects of recurrent disasters. Meanwhile, hurricanes Helene and Milton in the United States highlighted the rising unpredictability of extreme weather events and concurrently, the need for continued

investment in advanced weather prediction technologies to enhance preparedness and response. These events reflect broader trends in disaster risk, emphasising the necessity of more integrated, forward-looking approaches to resilience.

For ASEAN, it is imperative to strengthen existing regional frameworks and mechanisms, fostering and nurturing partnerships, and leveraging shared resources to build resilience amid the emerging risk landscape.

Multi-hazards, Cascading Hazards, and Compounding Risks

Heavy rainfall in the month of May destabilised terrain in the Enga Province of Papua New Guinea resulting in a [landslide](#) that claimed the lives of 670 individuals and affected 10,000 others, a harrowing example of the dangers of cascading hazards and compounding risks. Further risk from [tribal conflict](#) and debris hampered aid operations. The conflict has grown more lethal with the use of illegal firearms necessitating military escorts for aid and the clearing of debris requiring heavy equipment. The then approaching monsoon rains also posed the possibility of liquefying debris that could reactivate the landslide, threatening the already affected communities and aid operations. The interconnectedness of these events overwhelmed local capacities leading to the declaration of a [State of Emergency](#).

The landslide in Papua New Guinea shows how one disaster can trigger another, making the overall impact worse. Managing such situations requires a better understanding of how different risks are connected and how one hazard can cascade into another.

The Papua New Guinea experience serves as a salient lesson for regional mechanisms for response and recovery to prepare for complex, compound disasters in areas with limited infrastructure and resources. This is particularly relevant to the [ASEAN Joint Disaster Response Plan \(AJDRP\)](#), as more disaster response scenarios are developed. These efforts align with the [ASEAN Agreement for Disaster Management and Emergency Response Work Programme](#) and the [ASEAN Disaster Recovery Reference Guide](#), which is becoming dated.

Well-coordinated Early Warning Systems

In October, [catastrophic flooding](#) exposed critical flaws in Spain's early warning system. Although the country's meteorological agency, *Agencia Estatal de Meteorología* (AEMET), issued warnings of "extreme meteorological risk" five days in advance, the responsible emergency coordination centre and Central government were [slow to disseminate the alerts](#) that communicated the warning from AEMET accompanied by recommendations and advice on how to act in response through the [ES-Alert system](#), a mobile phone alert service. This left citizens of Valencia region of Spain unprepared for the [record-breaking rainfall and floods](#). A year's worth of rain fell in just eight hours flooding more than 500 square kilometres, causing more than 200 deaths, and affecting an estimated 190,000 people.

The flooding in Spain serves as a salient reminder of the importance of functional, well-coordinated systems, particularly for early warning. However, having the systems alone is not enough. As emphasised in the [Early Warnings for All: Executive Action](#)

[Plan 2023-2027](#), these systems must adopt a people-centred approach, that ensures that warnings are not only issued but also effectively disseminated in a timely manner with clear, actionable guidance.



Four tropical cyclones converge toward the Philippines in November 2024, as captured in this image from NASA Earth Observatory. This highlights the urgent need for robust contingency planning — shifting from responding to and recovering from the impacts of one cyclone to preparing for the next.

Image from [NASA Visible Earth](#).

Enhancing Forecasting Technologies

According to the National Aeronautics Space Administration (NASA), Hurricane Milton holds the fastest recorded intensification of any [Atlantic storm](#) from a tropical depression to a Category 5 hurricane. [Hurricane Helene](#), that preceded Milton, demonstrated the same unexpected behaviour of rapid intensification of modern hurricanes. This phenomenon is unusual but reflects a broader trend of [more frequent rapid intensifications](#) attributed to climate change.

Milton's eastward path as well, was unusual — [not observed since 1848](#), highlighting the increasing unpredictability of recent hurricanes. This unpredictability stems from the [influence of climate change](#) that exacerbates the storm's intensity and alters established weather patterns. Unlike previous hurricanes, [new advanced observation methodologies and technologies](#) such as remote imaging, instruments launched into the eye of storms, and prediction models that conducts 1,000 simulations within an hour, reveal complexities in storm development that were previously undetected.

The economic and human toll of these extreme weather events were catastrophic with Hurricane Helene resulting in over 200 deaths, being the [second deadliest to Katrina](#) in the last 50 years that had resulted in 1,833 deaths in 2005. Both Helene and Milton, occurring in the same year, underscore a worrying trend: the clustering of high-impact storms. They are positioned to join the only [eight hurricanes between 1980 and 2023](#) that resulted in staggering economic losses valued greater than US\$50 billion, a statistic that reflects not only their destructive power but also their increasing frequency in today's risk landscape.

The 2024 US hurricane experience highlights the urgent need to adapt disaster management strategies to address these evolving risks. While significant investments in technological advancements, such as improved weather forecasting models and web-based hazard data collection, may be unrealistic due to limited resources, leveraging partnerships and networks offer a practical alternative. Initiatives like the [ASEAN Climate Outlook Forum \(ASEANCOF\)](#), which facilitates the sharing of forecasting computational resources as well as building capacities, exemplify how collaborative approaches can enhance regional disaster preparedness without requiring substantial investment. This serves as a valuable lesson for ASEAN to prepare for the same kind of weather extreme knowing that the unpredictable is not impossible — expecting the unexpected — and as this unpredictability becomes the "new norm".

Contingencies for Contingencies

Southeast Asia was ravaged by [multiple cyclones](#) in the latter half of 2024, severely affecting countries such as the [Philippines, Vietnam, Myanmar, Laos, and Thailand](#). In particular, the Philippines experienced [six cyclones](#) in the span of a month. Storms in such quick succession required response operations and recovery efforts to occur while enduring the impacts of the next storm.

The importance of contingency planning was emphasised by 2024's cyclone season — ensuring pre-positioned supplies in strategically located relief warehouses as in the [Disaster Emergency Logistics System for ASEAN \(DELSA\)](#). ASEAN has recognised the need for contingency planning to establish a [reliable supply chain](#), highlighting the value of partnerships with ASEAN dialogue partners, civil society, the private sector, academic institutions, and relevant stakeholders.

Civil-military coordination like the [ASEAN Militaries Ready Group \(AMRG\)](#) mechanism should be utilised more to enhance contingency planning. By sharing specialised capacities (e.g., search and rescue, emergency medical aid) and logistical resources (e.g., military assets such as C130), aid can be delivered efficiently to affected areas, particularly in regions where access and the operational context, due to a new storm (case in point), is challenging.

Looking Within for Pathways Forward

The disasters of 2024 offer ASEAN critical insights for strengthening its disaster management frameworks and mechanisms to navigate the increasingly complex risk landscape. The experiences from this year underscore the urgency of refining the AJDRP further by incorporating new risk scenarios; ensuring that DELSA adopts more comprehensive and proactive contingency planning; and leverage civil-military coordination through existing initiatives like the AMRG to optimise response capabilities.

Equally essential is the enhancement of early warning systems to adopt a people-centred approach, ensuring timely, actionable, and accessible dissemination of alerts to communities at risk. Investment in forecasting technologies and innovation and fostering regional collaboration through platforms like the ASEANCOF can bolster

preparedness and resilience. These efforts reflect the collective responsibility to adapt to the “new normal” of cascading, compounding, and unpredictable risks.

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