

The ASEAN



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20 YEARS AFTER THE INDIAN OCEAN TSUNAMI

Part 2

THE PATH TO SUSTAINABLE RESILIENCE

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THE INSIDE VIEW

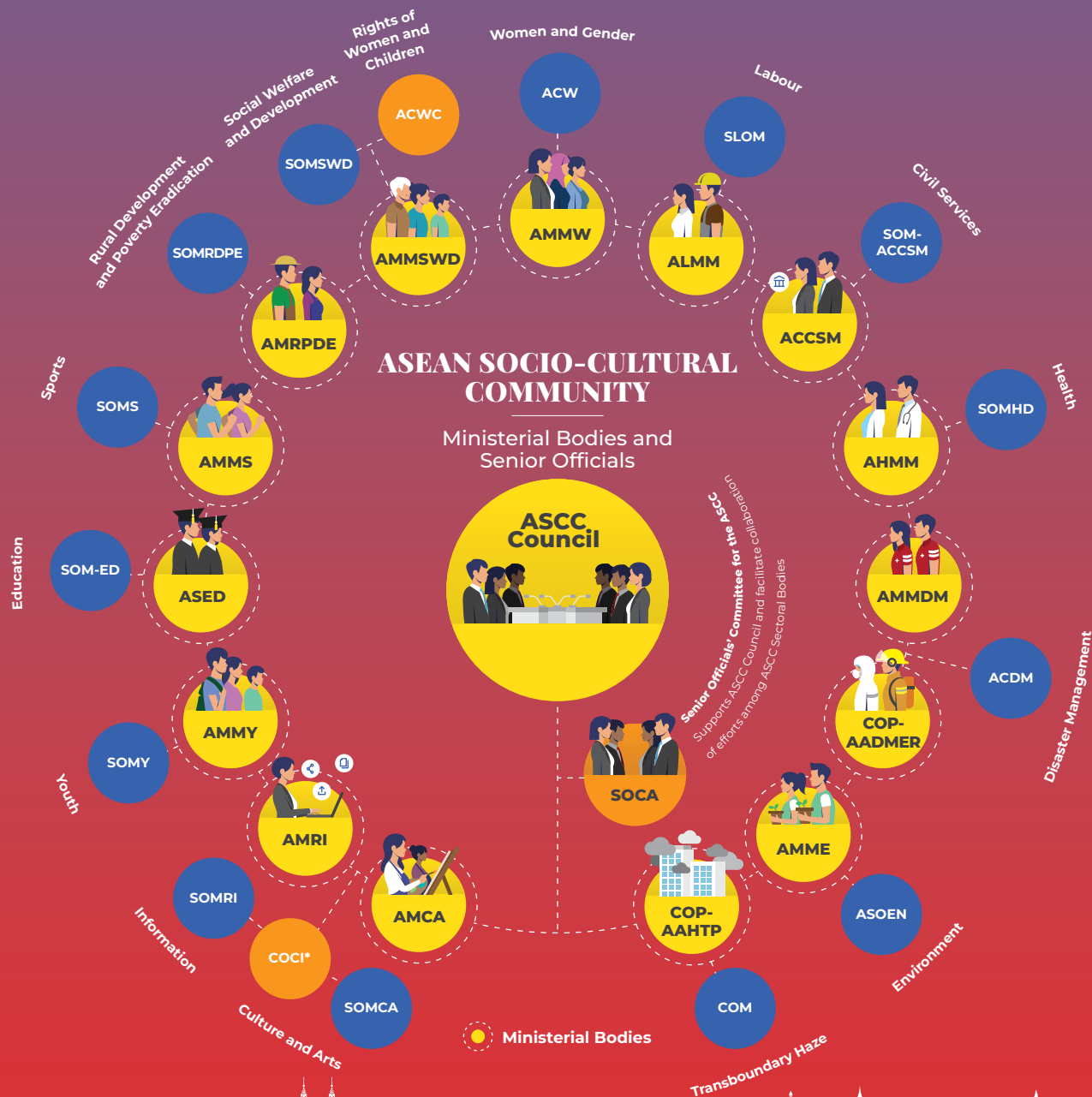
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Disaster Resilience

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for the ASEAN Socio Cultural
Community, Ekkaphab Phanthavong

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A Journey to
Recovery



AMRI: ASEAN Ministers Responsible for Information

AMCA: ASEAN Ministers Responsible for Culture and Arts

AMMY: ASEAN Ministerial Meeting on Youth

ASED: ASEAN Education Ministers Meeting

AMMS: ASEAN Ministerial Meeting on Sports

AMRDPE: ASEAN Ministers on Rural Development and Poverty Eradication

AMMSWD: ASEAN Ministerial Meeting on Social Welfare and Development

AMMW: ASEAN Ministerial Meeting on Women

ALMM: ASEAN Labour Ministers Meeting

ACCSM: ASEAN Cooperation on Civil Service Matters

AHMM: ASEAN Health Ministers Meeting

AMMDM: ASEAN Ministerial Meeting on Disaster Management

COP to AADMER: Conference of the Parties to the ASEAN Agreement on Disaster Management and Emergency Response

AMME: ASEAN Ministerial Meeting on Environment COP to AATHP-Conference of the Parties to the ASEAN Agreement on Transboundary Haze Pollution

SOMCA: Senior Officials Meeting on Culture and Arts

COCI: The ASEAN Committee for Culture and Information

SOMRI: Senior Officials Meeting Responsible for Information

SOMY: Senior Officials Meeting on Youth

SOMED: Senior Officials Meeting on Education

SOMS: Senior Officials Meeting on Sports

SOMRDPE: Senior Officials Meeting on Rural Development and Poverty Eradication

SOMSWD: Senior Officials Meeting on Social Welfare and Development

ACWC: ASEAN Commission on the Promotion and Protection of the Rights of Women and Children

ACW: ASEAN Committee on Women

SLOM: Senior Labour Officials Meeting

SOM-ACCSM: Senior Officials Meeting on ASEAN Cooperation on Civil Service Matters

SOMHD: Senior Officials Meeting on Health Development

ASOEN: ASEAN Senior Officials on the Environment

COM to AATHP: Committee under the Conference of Parties to the ASEAN Agreement on Transboundary Haze Pollution

* takes guidance from and reports to both AMCA and AMRI

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Dr. Kao Kim Hourn

Deputy Secretary-General of ASEAN
for ASEAN Socio-Cultural Community
(ASCC)
Ekkaphab Phanthavong

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Mangroves serve as a coastal defense against big waves, high winds, storm surges, and even tsunamis. Members of Indonesia's National Scout Movement join a camp and plant mangrove seedlings for post-tsunami rehabilitation in Krueng Raya, Aceh Besar on 18 August 2005.
[TEMPO/Arie Basuki; AB05081907]



BUILDING RESILIENCE IN ASEAN AND REFLECTING ON CHALLENGING TIMES

Ekkaphab Phanthavong

Deputy Secretary-General of ASEAN for the ASEAN Socio-Cultural Community

12 October 2021–11 October 2024

On 11 October 2024, Ekkaphab Phanthavong officially completes his tenure as the Deputy Secretary-General of ASEAN for the ASEAN Socio-Cultural Community. Before assuming his role at the ASEAN Secretariat, he was the Ambassador/Permanent Representative of the Lao PDR to ASEAN from 2018 to 2021. Prior to that, he served numerous appointments at the Lao PDR Ministry of Foreign Affairs, including as Deputy Director-General of the ASEAN Department. In this issue of *The ASEAN*, Deputy Secretary-General Ekkaphab Phanthavong provides his insights on building resilience in ASEAN—one of the core priorities of Lao PDR's 2024 ASEAN Chairmanship—and gives his final perspectives from his tenure on the future of the ASEAN Socio-Cultural Community.



The world has become more challenging, and we are facing complex developments across the world and in our region. Geopolitics in our region continues to be shaped by complex relations between major powers. The global economy is also facing higher inflation pressures and interest rates. Disruptions to the global supply chain triggered by the COVID-19 pandemic and other developments have increased energy and food prices.

ASEAN is facing socio-economic challenges such as rapidly ageing societies, urban-rural disparities, the impact of artificial intelligence on education and jobs, workforce relevance, and climate change. Meanwhile, as one of the most disaster-prone regions in the world, extreme climate events are projected to increase in frequency and intensity, putting a strain on national health systems and infrastructure. The COVID-19 pandemic also brought into sharp focus the region's vulnerability to a spectrum of health risks, the deepening of existing inequalities, hunger and poverty, and the undermining of development gains.

All these external developments and regional challenges will likely reverberate long into the future and test our resolve to build a stronger and more united ASEAN Community. As ASEAN embarks on its ASEAN Community Vision 2045, building resilience will be crucial to achieving its goals.

Climate challenges in the ASEAN region

Over the years, the ASEAN region has experienced an increase in both the severity and frequency of disasters. Since 2012, the AHA Centre has recorded a total of 6,459 disaster events, which killed over 9,000 people, affected 177 million more, ravaged 8 million homes, and cost Member States 7.8 billion US dollars in damage.

More recently, Typhoon Yagi made landfall in five ASEAN Member States, causing significant damage to the Philippines, Viet Nam, the Lao PDR, Myanmar, and Thailand. The disaster has affected 5.5 million people, claimed at least 700 lives, left 146 people missing, and caused an estimated combined damage of 2.53 billion US dollars.

ASEAN's response to this latest disaster has been quick and efficient—a testament to the well-functioning mechanisms and procedures that ASEAN has built and strengthened over the years following the catastrophic Indian Ocean Tsunami in 2004. The AHA Centre is working closely with the National Disaster Management Organisations (NDMOs) of the affected countries to coordinate relief efforts. Personnel have been deployed to

assist in Myanmar and the Lao PDR, and relief supplies have been distributed from warehouses located in the Philippines, Malaysia, and Thailand.

ASEAN's continuing effort to improve its systems and further enhance the capability of its disaster management and humanitarian sector is showing positive outcomes. While disaster occurrences are increasing, ASEAN's resilience is likewise increasing.

Enhancing connectivity and resilience

The ASEAN region will continue to face myriad challenges, such as climate change, natural disasters, and traditional and non-traditional security issues. This year, Lao PDR's ASEAN Chairmanship theme is "ASEAN: Enhancing Connectivity and Resilience." It reinforces ASEAN's collective efforts to strengthen the ASEAN community, seize opportunities, and effectively address present and emerging challenges.

In particular, the chairmanship theme's second component, "Enhancing Resilience," has five priority areas, namely: (i) Development of the Strategic Plans to Implement the ASEAN Community Vision 2045; (ii) Enhancing ASEAN Centrality; (iii) Promoting Environmental Cooperation: Climate Change Resilience; (iv) Women and Children: Promoting the Role of Women and Children Towards the Transformation of Behaviourism in ASEAN; and (v) Health: Transforming ASEAN Health Development Resilience in a New Context.

Key outcome documents with a focus on building ASEAN resilience for adoption and notation at the 44th and 45th ASEAN Summits include the adoption of the *ASEAN Leaders' Declaration on Enhancing Supply Chain Connectivity*, which will enhance efforts to strengthen supply chain efficiency and resilience in the region, bringing together relevant frameworks and initiatives on trade, transport, logistics and supply chain to create an area with seamless, competitive and resilient supply chains.

The *ASEAN Declaration on Strengthening the Care Economy and Fostering Resilience Towards Post-2025 ASEAN Community* emphasises the building of resilience by continuing efforts to recognise, reduce, and redistribute unpaid care and domestic work through policies and programmes on care-related social protection, care services, care infrastructure, and employment related care policies, among others. As a follow-up action, the Guidance Note

on Strengthening the Care Economy and Fostering Resilience towards the post-2025 ASEAN Community is currently being developed by the ASEAN Committee on Women (ACW) through the leadership of the Lao PDR.

From the health sector, the *ASEAN Leaders' Declaration on Strengthening Regional Biosafety and Biosecurity* will reaffirm ASEAN's commitment to enhancing health security and resilience in the region by recognising the growing vulnerability to emerging and re-emerging infectious disease threats. Through the Mitigation of Biological Threats Programme, ASEAN will intensify biosafety and biosecurity initiatives in response to evolving global health challenges and the potential accidental or deliberate release of high-risk pathogens.

Our ASEAN Leaders will note documents that will commemorate the 20th Anniversary of the Indian Ocean Tsunami and build resilience through disaster recovery, risk reduction, risk communication, and capacity building. The *Report on Strengthening ASEAN Multi-Hazard End-to-End Early Warning System for Natural Disasters*, the *Regional Guidance for ASEAN Member States on Strengthening the Role of Social Workers and the Wider Social Service Workforce in the Education Sector*, and the *Regional Guidance for ASEAN Member States on Strengthening the Role of Social Workers and the Wider Social Service Workforce in Disaster Risk Reduction and Climate Resilience* to implement the *Roadmap for the Implementation of the Ha Noi Declaration on Strengthening Social Work for Cohesive and Responsive ASEAN Community* are also deliverables that have emerged in support of ASEAN Resilience.

Other pertinent outcome documents for notation will contribute to ending AIDS by 2030, develop a shared space in Southeast Asian higher education, advance climate resilience in early childhood settings, develop National Standard Operating Procedures for a coordinated response to Violence against Women and Girls, and strengthen government strategies on mental health and well-being to achieve work-life balance in the public sector. These are all notable outcome documents which further support and complement ASEAN's efforts towards Community-Building and enhancing resilience.



Deputy Secretary-General of ASEAN for the ASEAN Socio-Cultural Community, Ekkaphab Phanthavong (far right), at the 32nd ASCC Council Meeting in Vientiane, Lao PDR (26/9/2024)

Photo Credit: ©ASEAN Secretariat

Role of youth and the future of work

The youth are the most important asset for ASEAN and, in fact, the world. They will be our forerunners in building society's resilience, and efforts must be made to equip them to develop resilience. ASEAN is constantly expanding opportunities for our youth to participate and contribute to policy-making and community development. Our long-standing support is reflected in various platforms, such as the ASEAN Leaders' Interface with the Youth Representatives of ASEAN, which is held during the ASEAN Leaders' Summits. We also have the ASEAN Youth Camp and an annual ASEAN Youth in Climate Action and Disaster Resilience Day, which is an indication that youth play an essential role in climate and disaster issues. Indeed, ASEAN has been at the forefront of promoting youth involvement in the region and local climate action.

Sustainable development is an area where their views and contributions can gain traction with policy, and push policymakers to address future-oriented concerns and issues. The future will be very much in good hands. With all the tools and platforms that we have within ASEAN and with our partners, future generations will be able to live in a peaceful and prosperous ASEAN Community.

Training and retraining our labour will also be crucial to strengthening our workforce resilience. This is an important issue. We need to train them with the latest technology and upgrade their skills so that they can remain relevant. We need to invest in skills development and focus on developing business engagement models for upskilling and reskilling workers.

There will also be a need to improve the quality of labour market information and capacity for skills forecasting. In this regard, ASEAN Member States should regularly review their existing educational curriculums and skills upgrading pathways. We will want to strengthen the quality of technical and vocational education and training to meet the current and future skills needs of ASEAN countries.

Strengthening the ASEAN Socio-Cultural Community

Another issue is the potential for philanthropy to support the agenda of the ASCC. Philanthropy is increasingly important in our efforts to achieve the objectives of our ASEAN Community Vision 2045, which include targeted goals such as poverty eradication and providing quality access to education and healthcare. To date, ASEAN has partnered with a number of philanthropic organisations. Our partnership with the Maybank Foundation has given opportunities for young, talented, and deserving ASEAN nationals to pursue their undergraduate programme at a prestigious university within ASEAN. The Temasek Foundation of Singapore and Yayasan Hasanah of Malaysia are currently supporting the ASEAN Prize for outstanding individuals or organisations who empower lives and connect communities across the region. In the past, we have also worked with the Air Asia Foundation and a number of other global and regional organisations. We can better harness the philanthropic sector to contribute to the ASCC agenda, including achieving a safer, stronger, and more resilient community.

Looking back as Deputy Secretary-General of ASEAN for the ASCC

As the Deputy Secretary-General for the ASEAN Socio-Cultural Community since 12 October 2021, I have been overseeing the implementation of the ASCC Blueprint and important ASCC projects that focus on forging a common identity and building a caring and sharing society. I drew on my commitment to the ASEAN Charter to assist the Secretary-General in implementing and supporting programmes and activities to respond to COVID-19 and prepare for our post-pandemic recovery, prepare ASEAN people for the future of work, champion youth development and empowerment, advance gender equality, strengthen education and health cooperation, address climate challenges,

respond to disasters and humanitarian assistance, and enhance the capacity and effectiveness of the ASCC to achieve a resilient, dynamic, sustainable, beneficial and inclusive ASEAN socio-cultural future.

Among the initiatives that I had personally overseen and established during my tenure was the update and refresh of the Coordinating Conference on the ASCC, or SOC-COM, to be more discussion-based and dialogue-oriented for cross-pillar coordination. The ASCC Database for Monitoring and Evaluation System or ADME was also set up to track the progress of our Blueprint implementation effectively. I advocated for the establishment of a High-Level Committee for the ASCC, which later became our Ad Hoc Working Group to Develop the Post-2025 ASCC Strategic Plan. I also promoted outreach to the ASCC and oversaw the establishment of the KnowASCC knowledge hub platform.

I am grateful for the support of the ASCC Council, Senior Officials, and Secondment Officers of the ASCC, the Committee of Permanent Representatives, as well as our diplomatic community partners, and stakeholders who have worked relentlessly to promote ASEAN and the ASCC. I also would not have been able to concentrate on my work as the Deputy Secretary-General for the ASCC without the support of my colleagues at the Secretariat. I have to thank all the talented and dedicated staff from all Divisions for their dedicated work. They are calm, stable, and efficient. Without them, our work cannot be done.

ASCC is an important pillar in driving and sustaining our people's future. It has to be strengthened, emphasised and given more resources, especially as we look towards our ASEAN Community Vision 2045. Some of the challenges I faced three years ago differ from those we are facing now. We have emerged stronger from the COVID-19 pandemic, and we must double down on our efforts to address rising inequalities, climate change, the digital divide and rapid advancement of AI, and disruptions with acute humanitarian assistance implications, to name just a few. We have serious challenges ahead that require strong leadership. New leaders and generations should explore new and innovative ways to navigate frontiers and challenges. I wish my successor all the best when he takes on the position.

When I look back at my time with the ASEAN Secretariat, I will take great satisfaction from how ASEAN and our partners and stakeholders have worked together through some of the most difficult and challenging times. I wish to thank all of you for your unflinching support.

2004 INDIAN OCEAN TSUNAMI A Turning Point in Disaster Resilience



Joanne B. Agbisit

Associate Editor, *The ASEAN*
Analysis Division, ASEAN Socio-Cultural
Community Department

*Students learning in front of
Masjid Raya Baiturrahman in
Banda Aceh, Aceh (2009)*

It has been two decades since the Indian Ocean earthquake and tsunami, but the progress made in disaster resilience and the profound lessons learned have endured.

The unprecedented disaster led to marked improvements in disaster risk reduction and management systems, policies, and institutions in the most affected countries. It served as a wake-up call to the international community, facilitating global agreements, bringing changes in humanitarian operations, and ushering in resilience as a public concept. These were underscored at the 2nd Global Forum for Sustainable Resilience in Jakarta on 11-12 September.

Indonesia, the hardest-hit by the disaster, hosted the forum to commemorate the 20th anniversary of the tsunami. The first panel discussion focused on “Lessons Learned from the Indian Ocean Tsunami 2004: Reflections and Achievements,” where the panellists unpacked the changes that have proven effective and those that can further advance countries’ disaster resilience.

An effective early warning system

The strengthening of the early warning system for tsunamis is one of the most significant developments in the aftermath of the Indian Ocean Tsunami tragedy, said Marco Toscano-Rivalta, head of UN Disaster Risk Reduction (UNDRR) Regional Office Asia and the Pacific in Bangkok.

Before 2004, a tsunami warning system did not exist for countries around the Indian Ocean as the area was considered low risk. After the cataclysmic event, the Indian Ocean Tsunami Warning and Mitigation System was set up in 2005 under the auspices of UNESCO’s Intergovernmental Oceanographic Commission.

The system is designed as an end-to-end warning system that starts with the quick detection of sea-level disturbance, such as an earthquake or a volcanic eruption, and ends with the mobilisation of a disaster-ready community. The system covers 27 member countries with access to the Indian Ocean basin.

Under this system, the three designated Tsunami Service Providers (TSPs)—Australia, India, and Indonesia—provide round-the-clock assessment of tsunami risk and send real-time information with the help of seismic monitoring stations, tsunami detection buoys, and other indicators. The information is relayed to member countries through their national tsunami warning centres, which then issues the local alert.

“What we have today did not exist 20 years ago and the reason is because despite all challenges, despite the complexity, when (people’s) goodwill and the hardware come together, change is actually possible,” said Toscano-Rivalta.



Responsive and results-oriented governance at the national level

The disarray that followed the 2004 tsunami demonstrated the necessity of having a single government agency with a mandate to coordinate and execute disaster response. This was pointed out by Said Faisal, former Deputy Head for Aceh-Nias, Rehabilitation and Reconstruction Agency (BRR).

“In a crisis, the most important question is who is in charge? It has to be one organisation. You cannot have a crisis and when people ask who is in charge, your answer is, ‘it depends.’ If it is administration, that will be in charge. If it is water, this will be in charge. If it is electricity, this will be in charge. That means no one is in charge,” said Said Faisal.

In addition to having clarity on which agency is in charge, it is also important for the leaders to be on the ground. “You need to be where the action is if you want to get things done. On the ground, you see the road is not fixed, the bridge is not fixed. You cannot sleep at home at night because you know that people under the tent will get wet.”

Said Faisal said that it is important for the agency in charge to deliver results. “Our core business, our only business during reconstruction, is delivering results. We can have 100 meetings, we can have 100 policy discussions, we can have massive planning, but unless something happens on the ground, it doesn’t mean anything for the people,” he noted. “So, you question everyday how to deliver a better result. If there is a regulation preventing us, then negotiate to change that regulation. Don’t negotiate the result.”

Toscano-Rivalta said that disaster governance must also be inclusive, with the participation of local communities, the private sector, and civil society organisations, and those belonging to vulnerable sectors such as women and persons with disabilities. “The challenges are becoming so complex that until and unless we have all hands on deck, it’s really hard to manage the complexity of the risks,” he said. “It is not just on the shoulders of disaster management agencies, it’s really a whole of government approach.”

Strong regional collaboration

The transboundary nature of most disasters like the 2004 tsunami underlined the need for strong collaboration in preparedness, response, and recovery measures. The signing of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER)—which laid the groundwork for establishing the AHA Centre and various disaster management mechanisms and protocols—indicates that ASEAN recognised this need.

Colonel (Retd) Muhd Harrih Rashidi Bin Hj Muhd Jamin, Director of the National Disaster Management Centre, Brunei Darussalam and Chair of the ASEAN Committee on Disaster Management (ACDM), said that ACDM is particularly proud of what it has achieved in terms of implementing the AADMER.

“All the Member States work as one to respond to any calamity. And the best part, we have the ASEAN Standby Arrangements for Disaster Relief and Emergency Response or SASOP, which gives us the process to work together.



Because we are 10 nations and we have different national SOPs, the SASOP makes working together so much easier,” said the ACDM Chair.

He added, “ASEAN Emergency Response and Assessment Team (ERAT) is for me, personally, one of the best achievements of ACDM. These are composed of people who are trained to do a quick assessment so that we know what is needed in the disaster area. The beauty of ASEAN-ERAT is that they are ready any time should they be required by any country in our region.”

The ACDM Chair recalled that things were less organised when he was still a military pilot delivering aid from Brunei Darussalam to Indonesia 20 years ago. “There was no assessment, and we didn’t have the right information about what the people needed, what the victims needed. We just sent whatever (goods) and they ended up in a huge warehouse in Sabang that piled up every day.”

He said that these feats show that ASEAN is a global leader in disaster management. “We have political support, we have people on the ground, we have the military, and we have volunteers, we have NGOs. So, in that sense, I would like to conclude that after 20 years, I think we are already there.”

Investment in disaster-resilient infrastructure

The 2004 tsunami did not only claim lives, but also wrecked critical infrastructure, such as roads, communication systems, power, and water supply. This highlights the need to invest in infrastructure that can withstand disasters to reduce the cost

of damage and avoid service disruption, said Amit Prothi, Director General of the Coalition for Disaster Resilient Infrastructure.

“Our finances allocated for development schemes and programmes are often getting diverted for recovery and reconstruction of the damage done by disasters,” she added.

Prothi cited measures that countries can take towards creating disaster resilient infrastructure. She said mapping infrastructure assets is an essential first step. “Conduct a comprehensive infrastructure risk assessment covering past hazards and future risk scenarios and develop risk metrics for informing infrastructure planning, design, monitoring, and maintenance. We need to look at the historical data risk data, but we also need to do probabilistic modelling to understand what the future holds for us.”

She mentioned the tool developed by the coalition, the Global Infrastructure Risk Model and Resilience Index or GIRI, which creates probabilistic risk models, looking at eight different infrastructure sectors and six different hazards, to help countries understand the kind of risk that is embedded in their infrastructure system. “Basically, it provides average annual loss figures which actually help countries understand the kind of loss a country will experience if hit by different disasters,” she said.

Revising and improving codes, regulations, and standards is also important, Prothi said. “We need to focus on building the capacities of the people who are responsible for implementing these codes and standards on ground at the infrastructure level, at the policy level, and at the planning level.”

Prothi also proposed using technology, such as AI and satellite technology, to manage the risks faced by infrastructure operators and improve their ability to minimise service disruption and ensure faster recovery.

Availability of disaster risk or contingency funding

The economic cost of the 2004 tsunami reached 10 billion US dollars. With the number of disasters projected to increase by 40 per cent by 2030, Toscano-Rivalta said countries must focus their attention to disaster risk financing. He said it is important for the public sector to set aside funds for disaster prevention and risk reduction measures, and for the private sector to also “invest beyond business continuity and invest in the sustained resilience of the supply chain.”

Prothi agreed that mobilising private sector and philanthropic funding is necessary. Countries can attract private investment by developing projects in which the risk is shared and reduced to make them more appealing. “We also need to build this narrative very strongly around the return of investment,” she said.

Prothi added, “We need to work closely on the financial instruments so that countries that have financial restrictions due to debt are provided with other innovative solutions for funding their infrastructure-resilient projects.”

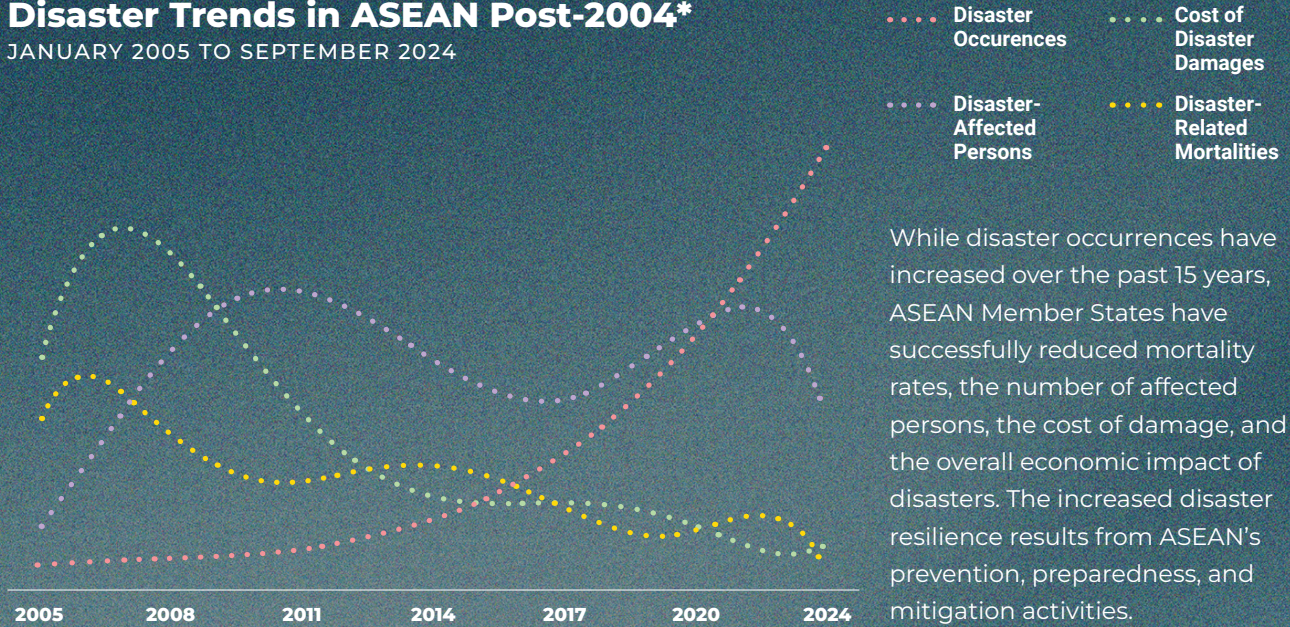
As the ASEAN region faces increased threats of multiple disasters and climate change risk, Member States can build on the gains made and address existing gaps in mitigating and responding to such threats. Learning from past experiences will ultimately lead to safer and more resilient communities and people.

Editor-in-chief Mary Kathleen Quiano-Castro and Staff Writer Ixora Tri Devi contributed to this article.

DISASTER RESILIENCE

Disaster Trends in ASEAN Post-2004*

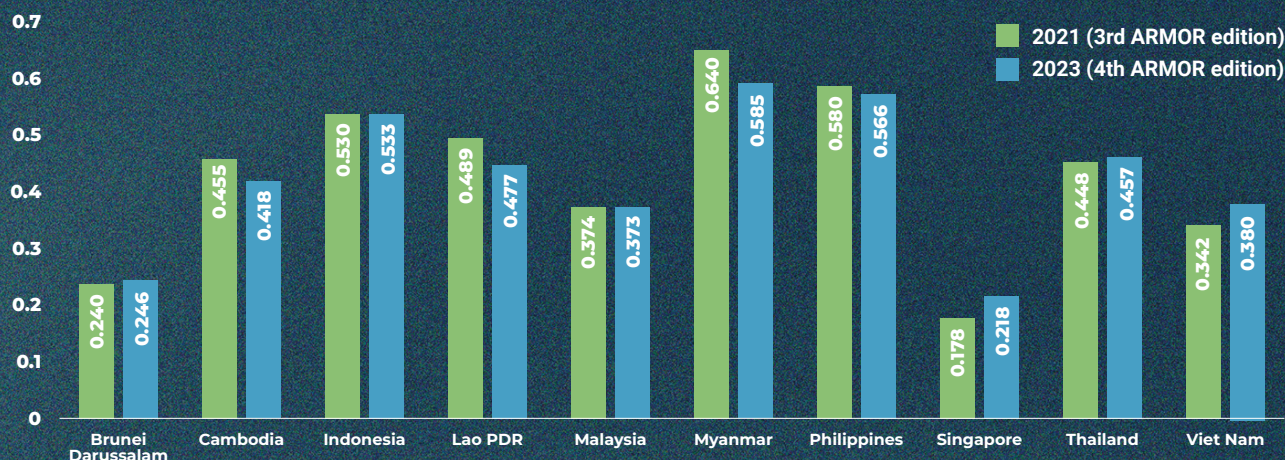
JANUARY 2005 TO SEPTEMBER 2024



ASEAN Riskscape (2024)

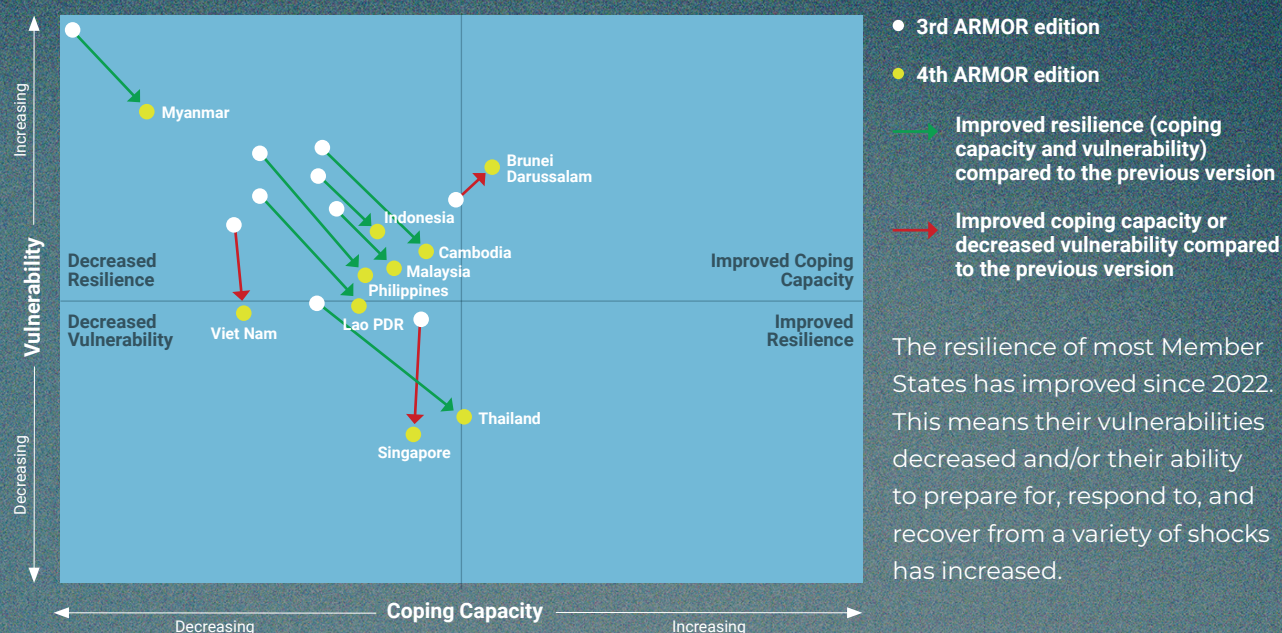
Member State	Risk	Risk Rank	Resilience	Resilience Rank	Coping Capacity	Coping Capacity Rank	Vulnerability	Vulnerability Rank	Exposure	Exposure Rank
Brunei Darussalam (BN)	0.246	9	0.754	2	0.660	2	0.160	9	0.236	10
Cambodia (CA)	0.418	6	0.484	9	0.390	9	0.399	3	0.339	9
Indonesia (ID)	0.533	3	0.590	6	0.520	6	0.330	5	0.694	2
Lao PDR (LA)	0.447	5	0.512	8	0.410	8	0.361	4	0.409	6
Malaysia (MY)	0.373	8	0.861	3	0.640	3	0.276	6	0.434	5
Myanmar (MM)	0.585	1	0.405	10	0.320	10	0.487	1	0.575	3
Philippines (PH)	0.566	2	0.555	7	0.530	5	0.419	2	0.720	1
Singapore (SG)	0.218	10	0.869	1	0.820	1	0.079	10	0.365	8
Thailand (TH)	0.457	4	0.637	4	0.560	4	0.275	7	0.575	4
Viet Nam (VN)	0.380	7	0.627	5	0.520	6	0.243	8	0.387	7

Comparison of Risk Scores (2021 vs 2023)



ASEAN RISK Scores—the composite of each countries' exposure to various hazards, vulnerability, and coping capacity—show that Myanmar, the Philippines, and Indonesia face the highest risk in 2024, while Singapore and Brunei Darussalam face the lowest risk. But compared to the 2022 levels, there is notable decrease in the risk scores of four countries, i.e. Myanmar, the Philippines, the Lao PDR, and Cambodia.

Trends in Member States' Resilience (2022-2024)



The resilience of most Member States has improved since 2022. This means their vulnerabilities decreased and/or their ability to prepare for, respond to, and recover from a variety of shocks has increased.

*Based on EM-DAT data from January 2005 to June 2012 and ADInet data from July 2012 to September 2024

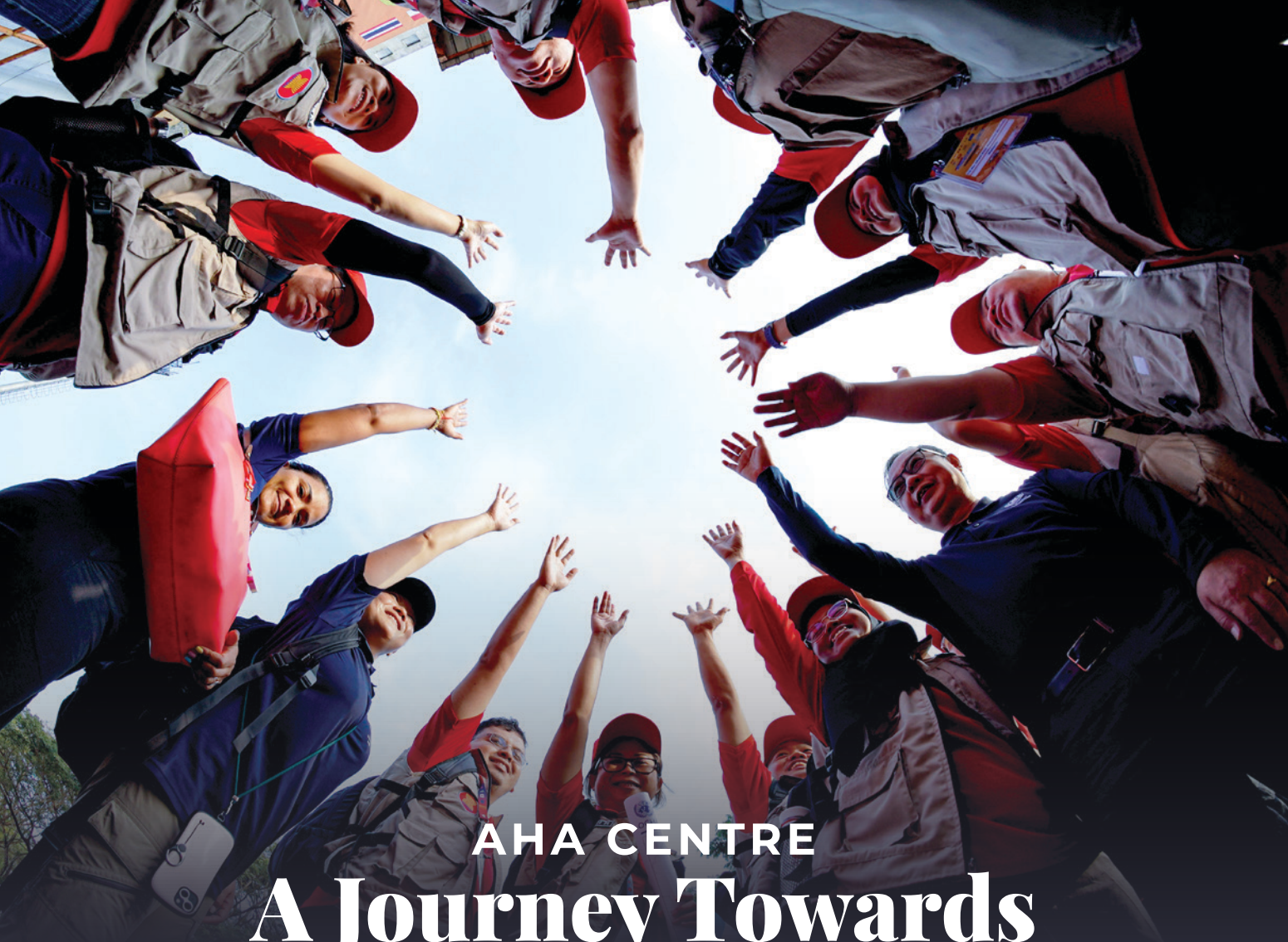
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AHA CENTRE A Journey Towards Enhanced Disaster Resilience



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The 2004 tsunami devastated coastal communities across Southeast and South Asia—including ASEAN Member States Indonesia, Malaysia, Myanmar, and Thailand—with unprecedented force. The disaster sent shockwaves across the region and left a profound mark on ASEAN, highlighting the urgent need for improved disaster monitoring, preparedness, and response.

Unknown to many, this tragedy had a rippling effect that set in motion a series of milestones that transformed the ASEAN's disaster management sector. The AHA Centre has been riding on this momentum of change to enhance the speed, expand the scale, and strengthen the solidarity of ASEAN to respond to disasters and build a more disaster-resilient ASEAN Community.

In an immediate response to this calamity, the ASEAN Leaders convened a Special Meeting on Aftermath of Earthquake and Tsunami on 6 January 2005. They quickly recognised the need for a coordinated regional approach to disaster management. This tragedy deeply moved the Member States and served as a catalyst for the signing of the **ASEAN Agreement on Disaster Management and Emergency Response (AADMER)** in July 2005. The AADMER marked a significant milestone, the adoption of the only regional legally-binding agreement on disaster management in the world, signalling the regional leaders' political will for a collective strategy to address future crises.

AADMER served as the impetus for the establishment of the **ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre)** on 17 November 2011. As the "operational engine" of the AADMER, the AHA Centre was mandated to facilitate cooperation and coordination across the ASEAN region for disaster management and emergency response.

Through the years since the AADMER's entry into force and the establishment of the AHA Centre, ASEAN has experienced a number of large-scale and catastrophic disasters, including the 2008 Cyclone Nargis in Myanmar, the 2013 Typhoon Haiyan in the Philippines, and the 2018 Central Sulawesi Earthquake and Tsunami. These flashpoints in ASEAN's history have served as valuable lessons learned to manage disasters more effectively and brought about incremental changes to transform the AHA Centre into what it is today.

A key factor of the AHA Centre's success in disaster response is its robust coordination with and the preparedness of the ASEAN Member States' national disaster management organisations in the region. This achievement may

be attributed to two key operational frameworks that are regularly reviewed and updated to ensure relevance and effectiveness, namely the Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP) and the ASEAN Joint Disaster Response Plan (AJDRP).

First, the SASOP was developed to ensure preparedness for effective and coordinated regional response in ASEAN by outlining clear procedures in place for all stakeholders, including cross-sectoral actors from the ASEAN Militaries and the ASEAN Health Sector. The SASOP also presents the ASEAN Standby Arrangements for Disaster Relief and Emergency Response, comprising nine modules of voluntarily earmarked assets and capacities in the region—including the Disaster Emergency Logistics System for ASEAN (DELSA) and the ASEAN Emergency Response and Assessment Team (ASEAN-ERAT), among others—which may be made available and mobilised for disaster relief and emergency response.

Secondly, the AJDRP provides a common framework, based on scientific evidence of potential catastrophic-level disaster scenarios in the region, to deliver a timely, at-scale, and joint response through mobilisation of required assets and capacities. Through the AJDRP, the aim is to strengthen regional collective response and operationalise standby arrangements with the participation of ASEAN sectoral bodies and partners.

The adoption of ex-ante or anticipatory actions pre-disasters in ASEAN, with the support of the AHA Centre, has contributed to a substantial reduction in disaster losses and damages due to natural disasters in the region. In the case of 2023 Cyclone Mocha in Myanmar, the AHA Centre had worked with the Department of Disaster Management of Myanmar to monitor a Category 5 hurricane weeks in advance of making landfall, which led to the decision to evacuate vulnerable communities from affected areas. This decision ultimately saved lives that would have been lost without early action.

As technology continues to evolve and disasters are more frequent due

to the impact of climate change, the integration of advanced technology in disaster management is crucial. Technologies such as satellite imagery, remote sensing, data analytics, and the utilisation of Artificial Intelligence (AI) enable the prediction and monitoring of disasters like typhoons, volcanic eruptions, droughts, and floods. These systems provide timely warnings, allowing for early evacuations and reducing the potential loss of life and property. Disaster Monitoring and Response System (DMRS) is an example where technology plays a significant role in providing real-time hazard monitoring that helps the AHA Centre to analyse and ensure that the decision is made swiftly and effectively. During disaster response, the use of Web-EOC also allows ASEAN Member States for information exchange and better coordination. This will ensure that ASEAN Member States have access to the same information during the response.

The movement for the localisation agenda is increasingly apparent in ASEAN, and some ASEAN Member States are leading the charge in empowering local communities to build their resilience to disasters. Communities that are well-informed and prepared are more likely to take proactive steps to protect themselves and their assets. The Indonesian National Disaster Management Authority (BNPB), for example, had initiated the *Desa Tangguh Bencana* (or "Disaster Resilient Villages") initiative. Through this government-led effort, local communities are engaged in planning and training activities, promoting proactive disaster preparedness, ensuring that villages are better equipped to handle emergencies and mitigate the impacts of natural hazards. At the regional level, the AHA Centre is also increasingly engaged with local stakeholders, including local government units, local civil society organisations, Red Cross and Red Crescent (RCRC), sectoral partners, and local communities, through a number of initiatives to contextualise response efforts and plans to local capacities, risks, and hazards. This whole ASEAN community and multi-stakeholder approach ensures a more holistic and effective disaster management strategy, as it leverages diverse expertise, resources, and networks.



By leveraging its wide network of partners, the AHA Centre continues to innovate and enhance regional disaster preparedness and response

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A key factor of the AHA Centre's success in disaster response is its robust coordination with and the preparedness of the ASEAN Member States' national disaster management organisations in the region.

In the same vein, the AHA Centre has benefited from its wide network of partners, that is still growing in numbers since its establishment, to develop and strengthen programmes that innovate and explore opportunities to increase efficiency and effectiveness of its operations. Much of the AHA Centre's projects that build capacities of ASEAN stakeholders are supported by longstanding partners with a common vision to realise a disaster-resilient ASEAN Community. The AHA Centre's collaboration with the GIZ, with the support of the German Federal Foreign Office, is a notable initiative that contributed towards the strengthening of the AHA Centre's institutional capacities—in human resources strategy, improvement to knowledge



management systems, and staff trainings—thereby empowering the AHA Centre to fulfil its growing mandate.

Looking ahead, following the ASEAN Declaration on One ASEAN, One Response: ASEAN Responding to Disasters as One in the Region and Outside the Region in 2016, the AHA Centre is enhancing the regional capacities and enhancing its mechanisms to realise the vision set by the ASEAN Leaders for ASEAN to respond collectively beyond regional borders. Recognising that climate change impacts are projected to increase the frequency and intensity of global natural hazards, ASEAN's disaster management sector is expected to mature enough to share its experience

and expertise to support global humanitarian efforts in future.

As we reflect on the 20th anniversary of the Indian Ocean Tsunami and the milestones achieved since, it is evident that resilience is a collective endeavour. As the saying goes, “Rome was not built in a day,” likewise, the transformation of the AHA Centre is only the beginning. We are expecting this budding Centre to grow strength-to-strength and reach new heights as it evolves to stay relevant with the times. The progress made in disaster management and the continuous efforts to enhance regional and global responses highlight the importance of an inclusive and collaborative whole-of-ASEAN approach to building sustainable resilience.



FROM RESPONSE TO RESILIENCE

ASEAN-JAPAN COOPERATION IN DISASTER MANAGEMENT

ASEAN-ERAT provides aid
after Cyclone Yagi hit the
Lao PDR (09/2024)



Naoki Minamiguchi
Director, JAIF Management Team



Zin Aung Swe
Programme Coordinator, JAIF
Management Team

Many disasters may be inevitable as the forces of nature are increasingly becoming unpredictable and destructive. However, their adverse impacts can be reduced through effective collaboration, preparedness, and response. The value of such cooperation cannot be overstated. ASEAN, a region vulnerable to various natural and human-induced disasters, has been working with various partners to enhance its capacity and cooperation. One of the key partners in this endeavour is Japan, which established the Japan-ASEAN Integration Fund (JAIF) in 2006, following a pledge of then-Japanese Prime Minister Koizumi Junichiro at the 9th ASEAN-Japan Summit held in Kuala Lumpur, Malaysia in December 2005. Since then, JAIF has stood out as a pioneering development cooperation instrument that has contributed significantly to ASEAN's journey towards effective disaster management and the creation of resilient communities.

Japan's support for ASEAN in disaster management spans more than 50 years. It is deeply rooted in its strategic partnership with ASEAN and associated entities, particularly the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre). Supported by JAIF, the AHA Centre was set up and became operational in 2011. The ASEAN Agreement on Disaster Management and Emergency Response (AADMER) Work Programme 2021-2025 was also developed with the help of JAIF as a token of Japan's unwavering commitment to disaster risk reduction and resilience building in ASEAN, and to realise "One ASEAN, One Response" across the region.

JAIF: A catalyst for positive change and progress

A primary purpose of JAIF is to support the efforts of the ASEAN Member States to pursue the comprehensive integration of ASEAN towards the realisation of an open, dynamic, and resilient ASEAN Community as envisaged in the Declaration of ASEAN Concord II (Bali Concord II). While promoting greater cooperation between ASEAN and Japan and addressing emerging regional challenges, JAIF has also played a vital role in the implementation of the ASEAN 2025 Blueprints of the ASEAN Political-Security Community, ASEAN Economic Community, and ASEAN Socio-Cultural Community with a particular emphasis on narrowing development gaps among the ASEAN Member States.

Since its establishment, JAIF has financed nearly 600 projects across various domains, including responses to the COVID-19 pandemic, mobilising more than 887 million US dollars in total funding. One of the key pillars of JAIF's support is enhancing ASEAN's capacity and readiness to respond to disaster emergencies and reduce disaster risks in the region, which is anchored in the Vision Statement on ASEAN-Japan Friendship and Cooperation adopted in December 2013, its Revised Implementation Plan in August 2017, and the ASEAN Outlook on the Indo-Pacific (AOIP) adopted in June 2019. Japan's interventions are also guided by the ASEAN-Japan Work Plan on Disaster Management 2021-2025. The progress

of the Work Plan is regularly assessed and followed up on by the ASEAN-Japan Ministerial Meeting on Disaster Management (AMMDM Plus Japan) and reviewed by the ASEAN Committee on Disaster Management (ACDM) Plus Japan.

Empowering ASEAN communities through capacity building

The first concrete action taken by JAIF in this endeavour dates back to January 2008 when the project "Utilization of Satellite Image on Disaster Management" commenced with the Asian Disaster Reduction Center acting as both the proponent and the implementing agency. The project facilitated collaboration between disaster management and satellite imagery experts. It promoted the practical use of satellite imagery for disaster mitigation and response, a relatively new technology to the stakeholders of disaster management communities in the region at that time.

To date, ASEAN and Japan have collaborated and delivered more than 40 projects in disaster management in the amount of nearly 80 million US dollars. Notable achievements include the establishment and operationalisation of the AHA Centre. Built on the first-ever project of this kind in the region, the project "Setting Up and Operationalisation of the AHA Centre" significantly enhanced ASEAN's capacity to monitor, assess, and respond to disasters in a timely and effective manner. JAIF has since partnered with the AHA Centre and assisted in enhancing its core emergency preparedness and response functions through such initiatives as the development of an integrated information and communication technology (ICT) infrastructure and system, the Disaster Emergency Logistics System for ASEAN (DELSA), the transformation of ASEAN-Emergency Response and Assessment Team (ASEAN-ERAT), and the AHA Centre Executive (ACE) Programme.

Between 2012 and 2024 alone, 37 disaster emergency operations were undertaken in eight ASEAN countries: Indonesia, the Lao PDR, Malaysia, Myanmar, the Philippines, Viet Nam, Thailand, and Cambodia. Funded by



JAIF, a series of DELSA projects rapidly deployed the relief items, stockpiled in the regional warehouse in Malaysia and the satellite warehouses in Thailand and the Philippines, to affected countries during major disasters, including a devastating flood that hit Kelantan, Malaysia, in 2015, and Typhoon Gaemi which caused significant damage in the Philippines in 2024.

In fostering a cadre of disaster management professionals and leaders, JAIF has supported engaging qualified national experts from the ASEAN Member States and Timor-Leste in the intensive ACE and ERAT programmes conducted by the AHA Centre. The programmes cover various topics, such as disaster risk management, humanitarian coordination, leadership, and communication skills, complemented by field visits and simulation exercises. Since 2014, 1,034 experts have been trained to become national and regional disaster management professionals with strong confidence and responsibility through 54 JAIF-funded ACE, ERAT, and DELSA training courses.

Hjh Nora binti Hj Md Yusof, Head of Emergency Medical Ambulance Services, Brunei Darussalam, recalls her experience in an ERAT training, "the



13th ASEAN-ERAT Induction Course

most important thing is to maintain regional standardisation. To have standardisation, we must unite and that's what JAIF is doing through ERAT programmes. JAIF unites all ASEAN Member States and creates first responders who are certified and able to work in other countries."

A shared vision for resilient communities: building a robust policy framework

The ASEAN-Japan collaboration over the years has ushered in significant advancements in disaster management coordination and cooperation. At the heart of the partnership lies AADMER: a comprehensive framework designed to respond collectively to emergencies, mobilise and invest effectively, and ultimately enhance disaster resilience in the region. JAIF's support was instrumental in translating AADMER into concrete actions by formulating the AADMER Work Programme 2021-2025, which was endorsed at the 8th AMMDM in November 2020. This five-year strategic roadmap aims to further enhance ASEAN's resilience and adaptive capacity to disasters by

addressing five strategic components: risk assessment and monitoring, prevention and mitigation, preparedness and response, resilient recovery, and global leadership. A mid-term review of the implementation of the AADMER Work Programme 2021-2025 was concluded in December 2023. Based on the lessons learned, the development of the AADMER Work Programme 2026-2030 is currently underway and is expected to guide ASEAN through further strengthening disaster resilience in the region and enhancing its role to be a global leader in disaster management.

Sustaining momentum for a resilient future and Japan's unwavering commitment

In his policy speech delivered at the Indian Council of World Affairs (ICWA) in March 2023, where a Japan's New Plan for a "Free and Open Indo-Pacific" was rolled out, Former Japanese Prime Minister KISHIDA Fumio reaffirmed announcing a new contribution of 100 million US dollars to JAIF. He also expressed his intention to support the disaster management efforts in the region, "To help countries build resilient



DELSEA Satellite Warehouse in Chainat, Thailand

societies, both in terms of disaster prevention and recovery, Japan will harness its expertise and technology to provide support including for improving disaster prevention and response capacity."

As we look ahead, the partnership between ASEAN and Japan continues to hold immense potential. The successes achieved thus far serve as a strong foundation for future endeavours in disaster management. Japan's unwavering commitment will not just finish with the goal of building stronger communities. It will also consolidate bonds, strengthen solidarity, and ensure that the ASEAN region is better equipped to respond to whatever new threats lie ahead. Guided by the AADMER Work Programme 2021-2025 and other related initiatives, JAIF is poised to safeguard the lives and livelihoods of millions across the region. Together, ASEAN and Japan will navigate the challenging path towards a safer, more resilient, and sustainable future.

The information contained in this article represents the views and opinions of the authors and does not necessarily reflect the views or opinions of the Government of Japan.

ASEAN AND ROK

Longstanding Partners Facing Future Challenges Together

"The Waves of Tomorrow," an animated film produced by the ROK in commemoration of the Indian Ocean Tsunami's 20th Year



Jinmo Kang

*First Secretary,
Mission of the
Republic of Korea
to ASEAN*

The year 2024 marks the 20th anniversary of the Indian Ocean Tsunami, one of the most catastrophic events we have ever experienced, and the 35th anniversary of establishing the ASEAN-ROK dialogue. This occasion provides a valuable opportunity to reflect on our collaborative efforts to overcome severe crises and to reaffirm our commitment to shared prosperity.

On 26 December 2004, the Indian Ocean Tsunami resulted in the loss of approximately 200,000 lives, displacing more than 1 million individuals and inflicting massive damage that can only be described as catastrophic. In the immediate aftermath of the disaster, South Korea actively supported the affected areas in the ASEAN region. The South Korean government dispatched relief and medical personnel, including NGOs and volunteers, to help mend human and material damage, and become actively involved in relief efforts. Military transport aircraft and supply ships were also sent to deliver equipment and relief supplies. Furthermore, South Korea pledged 50 million US dollars in aid to eight affected countries, including ASEAN members, over three years (2005-2007) at the special ASEAN Summit on 6 January 2005. It was the largest amount of emergency aid ever provided by the South Korean government for overseas disasters.

With the active support of the international community, including South Korea, the affected countries gradually began to recover to their original

states. Notwithstanding the persisting scars and pain left by the disaster, the Indian Ocean Tsunami provided new opportunities for us to move forward together. The international community experienced solidarity during the crisis, which led us to develop channels of international coordination further to prepare for transboundary disasters that affect us regardless of national borders.

As a part of these efforts, the international community established early warning systems to prevent similar disasters. The absence of a warning system was identified as a major cause of the spread of damage during the Indian Ocean Tsunami. In 2005, the need for early warning systems was officially raised, leading international organisations such as the World Meteorological Organization and the United Nations Environment Programme (UNEP), along with the countries neighbouring the Indian Ocean, to collaborate on establishing the IOTWMS (Indian Ocean Tsunami Warning and Mitigation System). Since the beginning of its operation in 2007, the level of preparedness for tsunamis has improved substantially.

Meanwhile, ASEAN, the region most heavily affected by the Indian Ocean tsunami, recognised the need to address future large-scale disasters jointly. At the 2005 ASEAN Summit, ASEAN Member States signed the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), which aims to facilitate cooperation in responding to disasters and emergencies within ASEAN. In addition, ASEAN developed the AADMER Work Programme, which sets out specific five-year goals and activities to implement the AADMER. In 2016, ASEAN also announced the Declaration on One ASEAN One Response: ASEAN Responding to Disasters as One in the Region and Outside the Region, which clarified the policy framework, standard operating procedures, and response plans that form the basis of ASEAN's disaster management system. Based on this, ASEAN has responded to major disasters as a unified community.

The Indian Ocean Tsunami significantly changed the South Korean government's overseas disaster relief system. South Korea recognised the need for a systematic approach to large-scale



relief efforts during the Indian Ocean Tsunami response, leading to the enactment of the Overseas Emergency Relief Act in 2007. It provides a legal basis for organising the Korea Disaster Relief Team (KDRT), involving various agencies such as the Ministry of Foreign Affairs, the Ministry of Health and Welfare, the Ministry of National Defense, the National Fire Agency, and the Korea International Cooperation Agency and for implementing rapid and systematic relief at the government level. The KDRT has been dispatched to disaster sites for relief and humanitarian support in response to events such as the Myanmar cyclone in June 2008, the Indonesian earthquake in October 2009, the Philippines typhoon in November 2013, and the Lao PDR dam collapse in July 2018.

As previously discussed, ASEAN has been improving its large-scale disaster preparedness system since the Indian Ocean Tsunami. However, disasters still pose threats to ASEAN. Due to its unique geographical features, ASEAN is frequently exposed to natural disasters such as earthquakes, tropical cyclones, and heavy rainfalls. There have been almost 3,500 natural disasters in the last 10 years, with an estimated 91 billion US dollars in economic losses. The fact that a large portion of ASEAN's 680 million population is impacted by natural disasters is especially worrisome. Approximately 20 per cent of people are thought to live in flood-prone areas, and over 60 per cent of people live in drought-prone areas. Furthermore, it is anticipated that climate change will greatly increase the frequency and severity of natural disasters in the ASEAN region. According to recent studies, nations like the Philippines, Viet Nam, and Cambodia are expected to be badly affected by strong wind damage from tropical storms in the Western Pacific, and widespread droughts would occur in the ASEAN region due to El Niño.

The disaster landscape within ASEAN is becoming progressively more complex, yet the region seems ill-equipped to address these challenges. As reported by the ASEAN Secretariat in 2024, early warning systems for disasters are hindered by outdated technology, insufficient data management practices, and limitations on cross-border data sharing. Furthermore, the recent

COVID-19 pandemic underscored the necessity for integrated management of both health crises and natural disasters. Nevertheless, despite certain initiatives, the majority of ASEAN Member States continue to treat health emergencies and natural disasters as distinct issues, which undermines overall efficiency. This disjointed approach heightens ASEAN's vulnerability and weakens its capacity for effective response.

Therefore, ASEAN must continue to prepare for future threats and disasters through ongoing improvements and investments. South Korea, a longstanding ally of ASEAN, is actively engaged in seeking solutions. In 2021, South Korea initiated a high-level dialogue channel aimed at fostering systematic cooperation in disaster management with ASEAN. With mutual support and welcome, the 1st ASEAN Ministerial Meeting on Disaster Management plus ROK (AMMDM plus ROK) was held in Bangkok, Thailand, in October 2022. During this meeting, the ASEAN-ROK Work Plan on Disaster Management for the years 2021-2025 and the Joint Statement for the 1st AMMDM plus ROK were endorsed, leading to the active pursuit of Korea-ASEAN cooperation in disaster management policies based on these documents.

South Korea is prioritising the enhancement of human capacity within ASEAN. Through initiatives such as Disaster Risk Management Capacity Building (D-CAB), South Korea is introducing its Integrated Disaster Management (IDM) policies and providing disaster-specific training utilising virtual simulators. Additionally, South Korea is collaborating with the AHA Centre on the ASEAN Standards and Certification for Experts in Disaster Management (ASCEND) project, which aims to assess and certify disaster management professionals in the ASEAN region, thereby establishing a foundation for these experts to take on leadership roles in disaster response efforts. Furthermore, South Korea is committed to transferring advanced scientific disaster management techniques, incorporating IOT sensors and AI, to ASEAN, capitalising on its technological expertise. ASEAN Member States are also invited to participate in the annual K-Safety EXPO in South Korea, which highlights cutting-edge

disaster management technologies and products. To further bolster ASEAN's disaster response capabilities, South Korea is providing support for risk assessments related to specific disaster scenarios and the formulation of disaster response strategies. Moreover, South Korea intends to engage in the ASEAN Regional Disaster Emergency Response Simulation Exercise (ARDEX), which occurs biennially in ASEAN, with the goal of fostering collaboration to ensure efficient and organised relief efforts during emergencies.

This year, South Korea also produced the animation, *The Waves of Tomorrow*, to commemorate the 20th anniversary of the Indian Ocean Tsunami and highlight the tsunami recovery efforts of ASEAN residents. The film highlights ASEAN's resilience to disasters by showing villagers surviving the tsunami that hit a coastal village in Indonesia, relying on each other to overcome the damage and prepare together for future crises. At the same time, the video has been designed to be educational, explaining the tsunami early warning systems along ASEAN's coastlines and providing guidelines on how to prepare for a tsunami. The video will be officially released at the 3rd AMMDM plus ROK and the 20th Commemoration of the Indian Ocean Tsunami in Brunei Darussalam in October.

Since the initiation of dialogue in 1989, South Korea and ASEAN have consistently enhanced their partnership, broadening collaboration across various sectors, including diplomacy, security, economy, health, disaster management, and culture. This enduring cooperation has proven essential during crises, such as significant natural disasters and the COVID-19 pandemic, with both parties depending on one another to navigate challenges and progress towards a shared future. Today, South Korea and ASEAN are preparing to evolve their relationship into a Comprehensive Strategic Partnership based on 35 years of cooperation. With a stronger bond, both sides will contribute to building a free, peaceful, and prosperous Indo-Pacific. We look forward to the further development of a strong relationship between South Korea and ASEAN that will enable them to overcome whatever waves of challenges they may face in the future.

A Journey to Recovery

Members of the Indonesian Marines worked together to transport relief supplies, including instant noodles, milk, and drinking water, for distribution to earthquake and tsunami victims at Ujong Karang Port, Meulaboh, Aceh (4/1/2005).



Mahmudi Yusbi

*Head, Strategic Planning and Business Development
ASEAN Foundation*

On the morning of 26 December 2004, a 9.1 magnitude earthquake struck, triggering one of the most devastating tsunamis in Asia. My hometown, Aceh, Indonesia was among the hardest hit, and the destruction was beyond anything I could have ever imagined. The tsunami destroyed not only physical structures but also left deep emotional and psychological scars on the survivors, including myself and my community.

The earthquake on Sunday, 26 December, was the strongest earthquake I had ever experienced. In those moments of sheer terror, instinct took over—I ran outside with my friends while others scattered in different directions, seeking safety.

About ten minutes after the earthquake stopped, a new fear began. We heard people screaming, running towards us, shouting, "Run for your life! The water is rising!" Panic set in as we realised that a tsunami was on its way. With whatever energy I had left, my friend and I ran toward what we hoped was higher ground. The streets were filled with people, all desperately trying to escape the oncoming waves. In the chaos, people were bumping into each other, and the fear was palpable.

As we crossed a bridge, I witnessed something that still haunts me to this day—people being swept away by the powerful surge of water. Their screams for help filled the air, but there was nothing we could do. My friend and I tried to assist one person, but as another massive wave approached, we were forced to abandon our efforts and run. The guilt of leaving them behind has never left me.

The impact on my life and community

That day changed my life forever. I lost many friends, and my niece and her baby

were among the lives lost. The tsunami not only took lives but also shattered the sense of security and normality in our community. Homes, schools, businesses, and places of worship were destroyed. The infrastructure that once connected us was gone, and the emotional toll on the survivors was profound.

In the immediate aftermath, I was separated from my family for several days. To survive, I joined the Indonesian Red Cross as a volunteer. The organisation provided me with food and shelter; it was my first experience working with a humanitarian organisation. This work was not just about survival; it was also a way to cope with the immense loss and trauma I was experiencing. After several harrowing days, I was finally reunited with my family.

Recovery and rebuilding

The months following the earthquake and tsunami were incredibly challenging. Having survived such a harrowing ordeal, I felt a deep compulsion to help others who had also been affected by the disaster. Just weeks after the tsunami, in early 2005, I volunteered as part of an evacuation team. My responsibilities included assisting with the retrieval of dead bodies, distributing food to survivors, and providing support wherever it was needed. This collective effort was crucial in aiding our community's recovery.

Later that year, I joined Médecins Sans Frontières (Doctors Without Borders), where I worked as an officer, assisting doctors in providing medical care to tsunami-affected communities. I also became part of a mental health team, receiving training to become a counsellor. This role was particularly significant for me, as it not only helped me confront and heal from my own trauma but also enabled me to offer therapy to others in need.

As time passed, our community began to rebuild—physically, emotionally, and spiritually. International aid and local resilience combined to reconstruct homes, schools, and infrastructure. People came together to support each other, sharing stories of survival and loss, and finding strength in unity. The tragedy of the tsunami forged a stronger, more resilient community.

A lifelong commitment to service

After completing the emergency humanitarian work in Aceh, I continued my efforts in other disaster-stricken areas of Indonesia, such as Padang in West Sumatra and Yogyakarta. There, I provided counselling to victims, shared my personal journey of healing from trauma, and distributed emergency aid. My experience during the tsunami set me on a path of lifelong service. For over 18 years, I have worked as a development worker with international organisations, UN agencies, and now with the ASEAN Foundation. My journey, which began in the wake of a tragedy, has been one of resilience, healing, and dedication to helping others rebuild their lives.

The tsunami may have taken much from us, but it also instilled a deep sense of purpose in those who survived. My life and the lives of many others in my community have been irrevocably changed by that day, but through our collective efforts, we have found ways to heal, rebuild, and support one another in the face of adversity.

The views and opinions expressed in this article are solely those of the author and do not reflect the official policy or position of ASEAN.

Initiatives such as the 'Earthquake and Tsunami School' and 'BMKG Goes to School' have reached thousands, with residents expressing gratitude and calling for more frequent sessions to ensure the message reaches the entire community

Andi Azhar Rusdin

Understanding Earthquakes Together



Ixora Tri Devi

Staff Writer, *The ASEAN Analysis Division*, ASEAN Socio-Cultural Community Department

On 26 December 2004, Andi Azhar Rusdin was a high school student who loved math and physics. Like many others, he was shocked by the tragic news of the Aceh tsunami unfolding that day.

Andi Azhar was born and raised in Makassar, around 3,000 kilometres from Aceh. Little did he know that two decades later, he would end up in Aceh leading efforts to monitor and respond to such disasters as the head of the Aceh Besar Geophysics Station at the Indonesia Agency for Meteorology, Climatology, and Geophysics (BMKG). Reflecting on the station's evolution over the past twenty years, he shared his insights with *The ASEAN*.

"Geophysically, Aceh is highly prone to earthquakes and tsunamis," Andi Azhar explained. "There are two major earthquake sources in the region: the subduction zone between the Indo-Australian and Eurasian plates to the west of Aceh, and several active fault zones, such as the Aceh Fault, Seulimeum Fault, Batee Fault, Tripa Fault, and Lhokseumawe Fault. Some of the most destructive earthquakes have occurred here, including the massive 9.1-magnitude quake on 26 December

2004, which triggered the devastating tsunami."

That disaster marked a turning point for BMKG's operations in Aceh. "It opened our eyes to the urgent need for robust earthquake monitoring and tsunami early warning systems in disaster-prone areas," Andi Azhar said. "Before the tsunami, our resources were extremely limited—there was only one earthquake sensor in Banda Aceh, and it took hours to analyse seismic events using the outdated Shell Processing Support (SPS) 3 system."

Afterwards, there was a significant upgrade in monitoring capabilities. "Today, Aceh has at least 28 operational seismographs, and our analysis tools have greatly improved with the installation of Seiscomp4, a widely used software for real-time earthquake and seismic event monitoring, which allows us to analyse earthquakes in under five minutes."

Andi Azhar also explained how access to early warning information has been streamlined. BMKG now disseminates earthquake and tsunami alerts through various channels, including websites, social media, and the Warning Receiver System New Gen (WRS NG), installed

in 27 locations across Aceh, primarily in BPBD (Local Disaster Management Agency) offices. "The station also uses an Automatic Warning Broadcast (AWB) system and has eight tsunami sirens throughout Banda Aceh, Aceh Besar, and Aceh Barat to assist with evacuation efforts."

On top of the monitoring effort, public education has been another key focus. "At BMKG Aceh Besar Geophysics Station, we regularly engage with the community through initiatives like the Earthquake and Tsunami School, as well as BMKG Goes to School. These initiatives have reached thousands of people," Andi Azhar noted.

Feedback from Aceh's residents has been overwhelmingly positive. "Many have expressed gratitude for our awareness-raising efforts and have called for these activities to be conducted more frequently to ensure the message reaches all parts of the community," Andi Azhar added.

The views and opinions expressed in this article are solely those of the interviewee and do not reflect the official policy or position of ASEAN.

Agus Nur Amal PM Toh Healing through Storytelling



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TV Eng Ong, an interactive make-believe news show created by Agus Nur Amal PM Toh, provided comfort and trauma healing for children and adults in emergency camps

Fifty-five-year-old Agus Nur Amal PM Toh is an Acehese traditional storytelling artist. His love for the arts began in his hometown of Sabang on Weh Island, Aceh, the westernmost island in Indonesia. It is in a theatre's spectator seats where he discovered and became mesmerised by the magical worlds created by actors and crews of travelling performers. As a child, the beautiful set made from old drums and planks stole his attention.

"They built the stage in the town square, complete with colourful backdrops that they changed manually with rail. On stage, I can see the big cities or even the underwater sea come to life. Little me can't get these pictures out of my head."

Agus has used this passion to help his home province in times of conflict and tragedy. After pursuing a higher degree at Institut Kesenian Jakarta [Jakarta Institute of Arts], he returned to Aceh. He sought an apprenticeship with his personal hero and legendary storyteller, Tengku Adnan PM Toh.

Agus explained that Tengku Adnan was more than just a storyteller; he was also an *Imam*, and a community leader in his neighbourhood. "He was responsible for distributing *zakat* [alms] to the community."

"What I learned from Tengku Adnan was more than just storytelling. It was an important lesson about life."

In the 1990s, Agus established the Tikar Pandan community to preserve local traditions and support his community in every way he could. His performances, particularly the show he called *TV Eng Ong*, became a fixture in temporary shelters for people displaced then by the conflict in Aceh.

TV Eng Ong is a make-believe interactive news show with live reports from Agus and the audience. The performances include a cardboard TV frame and household items like a water dipper and sandals.

TV Eng Ong offered comfort and a brief escape from the harsh realities, some even regarding them as a form of trauma healing. In the same spirit, Agus continued his work to support those affected by the 2004 Indian Ocean Tsunami.

Agus was in Jakarta on that fateful day, 26 December 2004. He had made it a habit of staying in country's capital city for one year and returning to Aceh for another year. He returned to Aceh a week after the tsunami hit.

"It was incredible. You could see the sea from the Banda Aceh airport. Before, you

could not do that. At that time, I did not have the courage to go to Banda Aceh (Aceh province's capital). So, I stayed at a fishermen's village near Pidie named Kembang Tanjung."

Agus recalled that most of the villagers survived because they heeded the warnings of the Imam, who was concerned about the continuous earthquakes leading to December 26th.

"When I was there, they returned to see the village. They were devastated due to their houses being demolished. The people and I started to build emergency camps. Every afternoon, I would give the kids activities, including *TV Eng Ong*. My only goal was to make the kids happy. We played football together, and eventually, we played on the beach together."

"The parents were so happy when they saw how the kids had overcome their trauma of the sea really quickly. I think the adults' trauma was actually bigger and deeper than the kids," Agus assessed.

Agus stayed in Kembang Tanjung for a few weeks. Upon hearing that Banda Aceh was becoming more accessible, he travelled there to meet with the Tikar Pandan community. Together, they went from one camp to another, bringing *TV*

“

At that time, all you could see were people with empty looks in their eyes. Some kept walking aimlessly, not knowing where to go. So, when we brought *TV Eng Ong* and saw that people could focus on our show, it was a sign that they were starting to recover.

Eng Ong to help people learn to smile again.

“At that time, all you could see were people with empty looks in their eyes. Some kept walking aimlessly, not knowing where to go. So, when we brought *TV Eng Ong* and saw that people could focus on our show, it was a sign that they were starting to recover,” he said.

Looking back on his role as a storyteller, Agus expressed his hope that we could pay more attention to the old stories passed down from our ancestors. “It is indeed very important to remember these old tales. We often call them fairy tales, but they actually carry many important messages.”

Agus mentioned the Smong from Simeulue Island, west Aceh. The people of Simeulue are believed to have survived the 2004 tragedy because they preserved the Smong tradition, which includes knowledge about signs of earthquakes, volcanic activity, and tsunamis.

“People of Simeulue have known these signs for over a hundred years. It was not even written; the people memorised the stories passed on for generations,” he explained.

Agus also dreams of seeing an institution in his homeland that offers a storytelling program. Currently, there are none.

“I’ve collaborated with Mahasarakham University in Bangkok, as well as with institutions in Singapore, the Philippines, and several European countries. Next on my agenda is South Korea, followed by an installation art project at the Munich Museum in Germany for six months next year. I wish there were more attention to this kind of work in Indonesia as well.

“My goal is to modernise the art of storytelling in the archipelago. Every

region has its storytelling tradition, but it remains very localised. It’s difficult for people to study because they first have to learn the language. The language of these stories is classical, which is challenging even for the locals. I’ve been developing a simpler, more accessible method that can be understood by the general public. My dream is to open a university or department focused on this,” he concluded.

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Sabang, Wei Island
Banda Aceh
Kembang Tanjung
123 km
ACEH
Simeulue



Aiming to modernise local storytelling, Agus Nur Amal PM Toh develops accessible methods to preserve local traditions and dreams of founding a dedicated university

PERSPECTIVES

The ASEAN region faces significant vulnerability to disasters and climate change. Each disaster offers critical lessons, with knowledge, data, and experience shaping policies on disaster management and risk reduction to build stronger community resilience.

Contributors and experts offer insights on how financing, effective risk communication, inclusive policies, innovation, and knowledge-sharing are essential to safeguarding communities from future disasters.

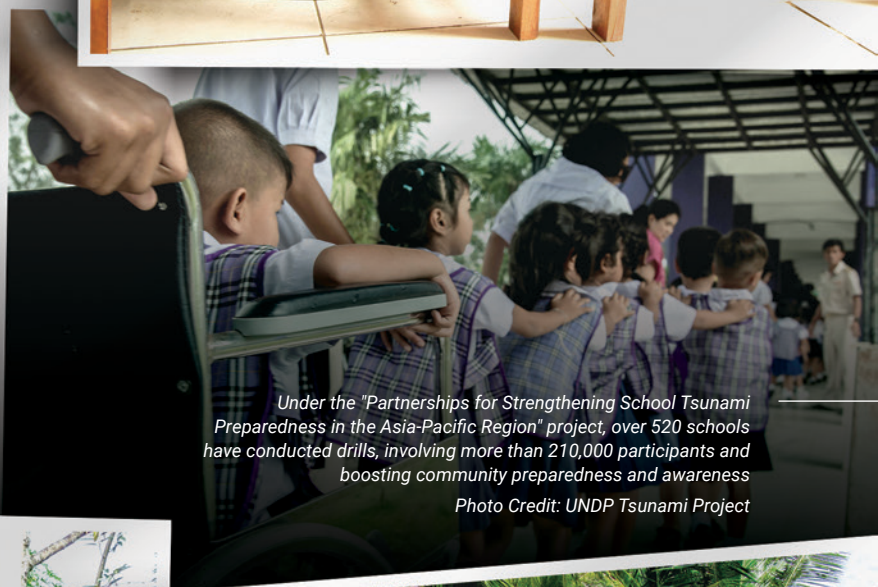
In partnership with Japan, UNDP has strengthened school tsunami preparedness across 24 Asia-Pacific countries, building community resilience through evacuation drills and updated emergency plans

Photo Credit: UNDP Tsunami Project



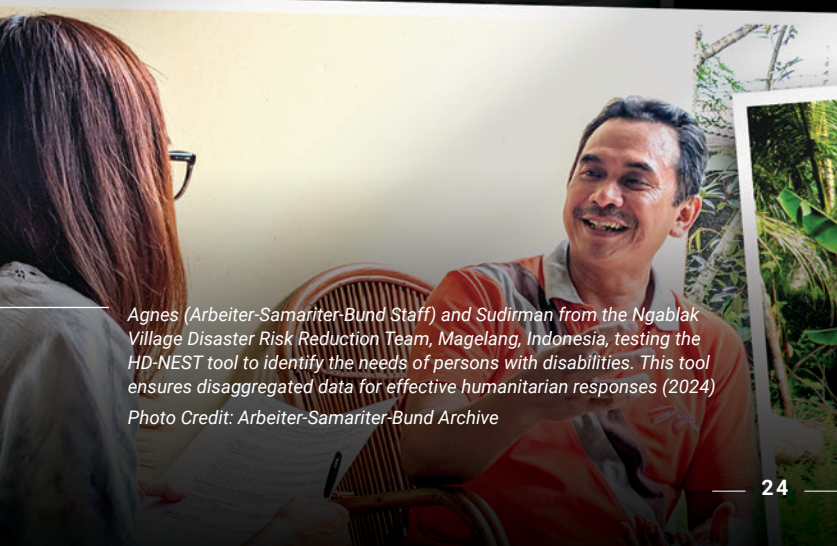
Lhok Nga beach in 2009

Photo Credit: Media Indonesia/Rommy Pujianto



Under the "Partnerships for Strengthening School Tsunami Preparedness in the Asia-Pacific Region" project, over 520 schools have conducted drills, involving more than 210,000 participants and boosting community preparedness and awareness

Photo Credit: UNDP Tsunami Project



Agnes (Arbeiter-Samariter-Bund Staff) and Sudirman from the Ngablak Village Disaster Risk Reduction Team, Magelang, Indonesia, testing the HD-NEST tool to identify the needs of persons with disabilities. This tool ensures disaggregated data for effective humanitarian responses (2024)

Photo Credit: Arbeiter-Samariter-Bund Archive



Disaster evacuation drill with children and the community on an ASB-built route in Mentawai, Indonesia, featuring stairs, ramps, and handrails accessible to people with disabilities (2018)

Photo Credit: Arbeiter-Samariter-Bund Archive

POLICIES AND TRENDS

The ASEAN Socio-Cultural Community (ASCC) Policy Brief is a publication of the ASCC Department at the ASEAN Secretariat. It identifies trends and challenges that will impact ASEAN and ASCC sectors and propose policy-relevant solutions and recommendations to uplift the quality of lives of ASEAN people.

FACILITATING PRIVATE SECTOR CLIMATE INVESTMENT DECISION MAKING: LEVERAGING ON DATA AND REGULATION IN ASEAN

by *S.Sarpaneswaran (C&G Analytica, Malaysia) and VGR Chandran Govindaraju (Universiti Malaya, Malaysia)*

HIGHLIGHTS OF THE POLICY BRIEF



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The ASEAN region is highly vulnerable to the impacts of climate change. According to the *ASEAN State of Climate Change Report* (2021), the ASEAN region faces escalating consequences of climate change, including rising temperatures, more frequent extreme weather events, and rising sea levels.

These environmental challenges threaten the region's economic development, food security, and well-being. A collaborative approach involving both governments and the private sector is essential to address these issues effectively.

Private sector collaborations are becoming increasingly important. These can be crucial in providing technologies, climate solutions, and climate adaptation initiatives. In addition, addressing climate change challenges presents new business opportunities for the private sector and can enable companies to transition towards sustainability, potentially saving operating costs. With the right policies in place, the private sector can benefit significantly

from engaging in both climate change mitigation and adaptation efforts.

The *Policy Brief on Facilitating Private Sector Climate Investment Decision Making: Leveraging on Data and Regulation* in ASEAN explores the potential of private capital in driving climate action within the region and identifies the critical data and regulatory challenges that must be addressed.

A data dilemma

The policy brief highlights that various challenges persist despite the growing importance of private sector engagement in climate change. Identifying and addressing these obstacles from a policy perspective is crucial for ASEAN Member States to foster private sector participation.

One of the most significant challenges is the timely provision of climate change and investment data. Additionally, outdated data management systems within institutions hinder informed decision-making, discouraging private sector investment. More often than not, comprehensive data is unavailable at national and regional levels, and when they are, they are often without detailed aggregation.

Providing accurate climate-related data is crucial for the private sector. Not only does it help secure financial support, but it also enables the private sector to understand climate issues, assess the feasibility of their solutions, and make informed investment decisions. For example, detailed data on flooding due to climate change can facilitate the development of applications and other service platforms. Similarly, sharing energy consumption data can help energy service providers develop effective energy management solutions for industry and households. Data sharing can create new business opportunities and drive growth potential in the ASEAN region.

Despite these challenges, several Member States have made progress in attracting private sector climate investment. For example, the Philippines has fostered initiatives for sustainable egg production, while Malaysia has implemented certification schemes for sustainable palm oil. These cases demonstrate the potential for private sector engagement in various sectors, including agriculture, water management, and renewable energy.

Policy recommendations

The *Policy Brief* assesses various policy options to strengthen and facilitate private sector engagement, including:

- i. **Localising climate risk and strengthening data and information-sharing services**
Establishing a central hub for sharing regional climate data is crucial for effective climate change planning, encompassing adaptation and mitigation efforts. A unified climate risk tracking system with a common methodology and database can facilitate this process. Expanding and utilising the efforts of the ASEAN Specialised Meteorological Centre (ASMC) can further support private sector investment decisions. Identifying and implementing best practices in climate change communication, data use and management, and scientific advancement will enhance public data sharing.
- ii. **Strengthen institutional coordination, policy, and effective planning for climate change data and management**
Establishing a regional platform for open data exchange is essential for supporting stakeholders in climate projects and enhancing regional digitalisation policies. Digital platforms can broaden access to climate and investment data. A partnership framework is necessary for effective data management. Climate risk data can incentivise the private sector to invest in climate solutions while identifying investment gaps can attract foreign and domestic investments. For instance, the ASEAN Investment Framework for Haze-Free Sustainable Land Management aims to build partnerships to highlight priorities and opportunities, providing essential data for informed investment decisions.
- iii. **Focus and promote research efforts on the climate data collection, analytics, and use**
More vital collaboration between academia and the private sector is necessary to boost investment in climate change adaptation. The government should provide targeted funding for climate adaptation research to ensure that scientifically validated research guides private sector investments.

An ASEAN-level research network, supported by funding, fellowships, and mobility schemes, can foster these collaborations. Aligning with international research institutions and initiatives like the ASEAN Climate Resilience Network (ASEAN-CRN) and ASEAN Centre for Climate Change (ACCC) will further enhance cooperation.

- iv. **Build partnerships to promote climate change best practices**
Recognising the private sector's role in climate change, developing standard policies and best practices, and fostering partnerships with various stakeholders is essential. Strengthening global partnerships through multi-stakeholder collaborations can mobilise knowledge, expertise, technology, and resources to achieve climate goals. In the long term, the private sector can drive sustainable development and explore new business models, leveraging emerging technologies like machine learning, AI, and big data.

In conclusion, the availability and accessibility of investment and climate data, often incomplete, lacking in quality, and invalid, can significantly deter private sector investment in risky and uncertain climate change projects. Furthermore, limited and fragmented climate change data and information can prevent investment in vulnerable sectors. Policymakers must address these challenges to attract private capital and scale up climate finance.

This soon-to-be-published Policy Brief is part of the ASCC R&D Platforms on Climate Change with the title Facilitating Private Sector Climate Investment Decision-Making: Leveraging on Data and Regulation in ASEAN by S.Sarpaneswaran (C&G Analytica, Malaysia) and VGR Chandran Govindaraju (Universiti Malaya, Malaysia). It was made possible with the support of the Government of Japan through the Japan-ASEAN Integration Fund (JAIF).

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IMPROVING DISASTER RISK COMMUNICATION TO SAVE LIVES



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In the first week of September 2024, the ASEAN region was hit by 20 significant disasters caused by natural hazards, including floods, storms, and landslides. These events caused massive devastation, affecting 2.83 million people and claiming 46 lives. Unfortunately, this week was not an outlier. Each week, thousands—sometimes millions—across Southeast Asia face the impacts of natural disasters.

With this grim reality, one question becomes crucial: is disaster risk information reaching those who need it in time to make life-saving decisions? While there are world-leading examples of effective disaster risk communication (DRC) in ASEAN, there is still much room for improvement in ensuring that critical information gets to decision-makers at the right time.

The ASEAN Disaster Risk Communication Framework, set to be launched in [October] 2024, aims to tackle this problem by helping governments and other stakeholders understand better how to communicate disaster risk effectively. By sharing best practices and establishing clear principles, the framework hopes to accelerate progress in how the region communicates about disasters. But what is disaster risk communication, and why does it matter so much?

What is disaster risk communication?

Disaster risk communication is more than just sending out warnings or posting data on a website. True communication is an exchange of information—both given and received. It empowers people to make informed decisions when faced with uncertainty. It is not just about making people aware that a flood or storm is coming but also about helping them understand how to manage the risk—whether by evacuating, protecting their homes, or making long-term decisions to reduce vulnerability.

Many in the disaster risk management community already appreciate that risk communication is a dialogue rather than a one-way flow. However, there is still a long way to go to ensure that all stakeholders integrate this into their work.

One challenge is that among the many professionals and organisations involved in the different aspects of DRC, from scientists to journalists to local government officials, “risk communicator” is not usually part of their job descriptions. However, their roles in interpreting and sharing information are crucial to making good decisions in the face of uncertainty. Understanding this wide network of

communicators and improving the flow of disaster information are essential steps toward saving lives and reducing damage.

Why disaster risk communication matters

Disaster risk communication matters because it can save lives and boost resilience. DRC arms people to make informed decisions. In the longer-term, this means taking informed decisions about where to live taking into account exposure to landslides or floods. Or how to make cost-effective investments in homes to strengthen them against extreme weather. At the imminent crisis stage, people need to make informed decisions about when and how to evacuate an area and protect the assets that will allow them to recover and rebuild when the storm is over.

The components of disaster risk communication

When we think of DRC, extreme weather warnings might be the first thing that comes to mind. While these warnings are critical, they are just one part of a much larger system of information flows that make up disaster risk communication.

Upstream communication

Upstream communication happens behind the scenes, among data providers and analysts who gather and interpret information about potential hazards. Data about weather patterns, earthquakes, or volcanic activity must be shared between national, regional, and local organisations to assess risks accurately.

Collecting data on the ground is also vital. Community organisations and non-governmental groups provide local knowledge about who and what might be most vulnerable to disasters, such as homes near unstable slopes prone to landslides or neighbourhoods with inadequate drainage that regularly flood. To improve upstream communication, systems for sharing data and protocols for assessing risks need to be in place.

Enabling decisions

At the heart of the DRC process is communication between experts and decision-makers. These decision-makers are not just national governments but also local authorities and even individual households.

National disaster management agencies are critical players here, deciding when and how to communicate disaster risks. However, local governments also have essential responsibilities, such as land-use planning and building code enforcement, that can mitigate the impacts of disasters in the long term.

Most importantly, individuals are decision-makers, too. They must decide how to protect their families and homes from future storms or other hazards. The challenge is making sure that all decision-makers—from governments to households—have access to timely, clear, and actionable information.

From decision to action

When it comes to implementation, intermediaries such as telecom companies, broadcast media, and even social media platforms play a crucial role in spreading information quickly. These platforms help government agencies and other organisations reach a broader audience than they could on their own.

How to do disaster risk communication well

To know if these processes are working, DRC must include systems for monitoring and evaluation, but this is an aspect of DRC that has largely been neglected. As the playwright George Bernard Shaw said, “The biggest problem with communication is the illusion that it has taken place.” Often, the focus is on whether messages are sent out, rather than on whether they are understood and acted upon.

There is an urgent need to find ways to measure whether risk communications are increasing “risk know-how”—the capacity to take informed decisions in the face of uncertainty.

To incentivise improvement in DRC in ASEAN, stakeholders came together to establish a regional Framework and defined principles which should guide the DRC process:

Timely and accurate communication

If disaster communication is going to save lives, it must happen at the right time and be accurate. Yet, when disaster strikes, there is often a trade-off between speed and precision. As more information becomes available closer to the event, forecasts tend to become more accurate, but the window for people to take action becomes smaller.

Despite this trade-off, experience shows that it is possible to issue warnings early while conveying the uncertainty around the forecast. Early warnings allow people to start preparing, even if they need to adjust their plans as the situation evolves.

Understandable and actionable information

To protect themselves effectively, people must understand the risk and know what to do about it. This requires communicators to know their audience, whether they are addressing government officials or vulnerable groups in a rural community.

Communicators must consider language barriers, levels of literacy, and the familiarity of their audience with technical terms. They must also understand the audience's ability to take the recommended actions. If people lack the resources or capacity to act on the information, the communication could backfire, leading to panic or ineffective responses.

Trust and credibility

Trust is essential for effective DRC. People need to believe in the information they receive if they are going to act on it. However, trust is hard to earn and easy to lose, so communicators must constantly ask themselves how they can build and maintain trustworthiness and credibility.

It is important to recognise that in many cases, government agencies may not be the most trusted source of information. People might place more trust in local leaders, community organisations, or even their own social networks. Therefore, working with these trusted sources to deliver risk information can be more

effective than trying to communicate directly through official channels alone.

While standardising principles for DRC across ASEAN is important, the diversity of cultures, languages, and infrastructure across countries and communities means that flexibility is also crucial. The ASEAN Framework is therefore not prescriptive about which formats or channels, recognising that effective DRC always needs to be adapted to who is using the information, and the context in which they must take decisions.

Toward a holistic and strategic approach

The forthcoming ASEAN Disaster Risk Communication Framework aims to promote more holistic, strategic and adaptive communication. In this context, the Framework aims to:

- Establish a set of common principles and objectives for disaster risk communication, to encourage all communicators to rise to the standard.
- Provide a common regional understanding of the DRC process and the stakeholders involved.
- Share experience and good practice within the region and internationally.
- Support the region in its journey to effective disaster risk communication with a plan of action.

Improving DRC in ASEAN is not just a technical challenge but a humanitarian imperative. With millions of lives affected by natural disasters each year, there is an urgent need to ensure that disaster information reaches people in a timely, understandable, and actionable way. At the same time, ASEAN has valuable expertise in DRC which can benefit governments in other parts of the world as they brace for a more uncertain future. The launch of the ASEAN Disaster Risk Communication Framework marks a step forward in the journey toward more effective, life-saving communication.

Dr. Olivia Jensen, a social scientist specialising in water and environmental policy, joined the Institute for the Public Understanding of Risk in 2018 as Lead Scientist and was appointed Deputy Director in 2023. Her research focuses on urban environmental risks and policy interventions to strengthen urban communities' resilience. Her projects include collaborative assessment of urban water risks, public perceptions of climate risks, flood and sea level rise risk in Asian cities, and citizen science in environmental risk management.

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NO ONE LEFT BEHIND

Advancing Disability-Inclusive Disaster Risk Reduction

Nursiyah, wearing a red shirt, with the Suak Village DRR Forum, facilitates an inclusive DRR simulation at TK Bahari school, demonstrating earthquake response actions (5/03/2024)



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Chrysant Lily Kusumawardoyo

Director, Arbeiter-Samariter-Bund (ASB) South and South-East Asia

The 2004 Indian Ocean earthquake and tsunami was one of the deadliest natural disasters in recorded history. As we mark the commemoration of its 20th anniversary this year, it is essential to reflect on the progress made in Disaster Risk Reduction (DRR) and the lessons learned—particularly DRR efforts with and for the most at-risk populations, such as people with disabilities. The devastating events of 2004 exposed the critical need to address the unique challenges faced by people with disabilities in disaster situations, challenges that continue to persist today.



Dwi (on wheelchair) facilitates a session on disaster safety procedure in Ngablak Village, Magelang, Central Java, Indonesia (2018)



In 2018, a tsunami struck South Lampung, Indonesia. Nursiyah, a 25-year-old woman with physical and speech disabilities, and Sariyah, a woman with physical disabilities from a neighbouring village, survived the disaster, but both faced significant barriers in doing so.

Nursiyah recalls, “I crawled out during the tsunami. My mother had to help my grandmother, who also has disabilities.” Similarly, Sariyah shares, “There was no warning at all. We didn’t know it was a tsunami or how to respond. When the water reached the door, we had to escape through the back door to higher ground.”

Their accounts reflect common obstacles that people with disabilities face during disasters, such as the lack of timely warnings, inaccessible evacuation routes, and an overall absence of disaster preparedness in their communities.

These challenges are not isolated experiences but are systemic across Southeast Asia. As this region is one of the most disaster-prone in the world—with nearly 2,000 disasters recorded between 1900 and 2022—the close to 90 million people with disabilities in the region are faced with constant peril. The intersection of poverty, social exclusion, and inadequate access to

essential services, such as healthcare and education, amplifies the risks faced by people with disabilities, leaving them physically and socially isolated and often unprepared for disasters.

Learning from the past: Measures to enhance disaster preparedness for people with disabilities

The 2004 Indian Ocean Tsunami and subsequent disaster events like the 2018 tsunami have underscored an undeniable truth: disaster preparedness must be inclusive of people with disabilities. The aftermath of these disasters revealed the glaring gaps in accessibility and communication that left many vulnerable individuals stranded and unprotected. To build a more resilient future, we must prioritise several crucial steps.

First, creating accessible infrastructure is paramount. This includes ensuring that evacuation routes, shelters, and transportation are designed to accommodate people with physical, sensory, or intellectual disabilities. The removal of physical barriers can mean the difference between life and death in emergency situations.

Equally important is the development of inclusive communication systems. Early warning systems should cater to diverse needs—providing visual signals for those with hearing impairments, audible warnings for the blind, and clear, simple messaging for individuals with cognitive disabilities. In disaster scenarios, timely, understandable information can save lives.

Capacity strengthening for disaster preparedness and response is another critical area. Empowering people with disabilities to actively engage in preparedness efforts and training local authorities and responders to support them is essential. A well-prepared community ensures that no one is left behind when disaster strikes.

Moreover, the collection and use of disaggregated data is crucial. Understanding the specific needs of people with disabilities enables tailored responses, ensuring that essential services such as mobility aids or appropriate food supplies are available when needed.

Finally, robust legal frameworks like the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) and ASEAN Regional Framework on Protection, Gender, and Inclusion in Disaster Management 2021-2025 (ARF-PGI) offer a foundation for



Disaster evacuation drill with children and the community on an ASB-built route in Mentawai, West Sumatra, featuring stairs, ramps, and handrails accessible to people with disabilities (2018)



Rani (left), ASB Staff and Suwarni (right), a woman with physical disabilities from the local Organisation of Persons with Disabilities, Indonesian Association of Women with Disabilities in Sleman) testing the Humanitarian Disability Needs Estimation and Screening Tool (HD-NEST) to identify the needs of persons with disabilities. This tool helps ensure disaggregated data for effective humanitarian responses (15/05/2024)

Photo Credit: ©Adi Prima, from the ASB Archive

inclusive disaster management. Fully implementing and reinforcing these policies will help safeguard the rights and well-being of people with disabilities in times of crisis.

Promoting disability-inclusive disaster risk reduction: Building on the legacy of the 2004 tsunami

Over the years, Arbeiter-Samariter-Bund (ASB) has been actively implementing these measures to enhance disability inclusion in disaster risk reduction strategies. ASB has integrated accessibility into its programming by focusing on inclusive infrastructure, communication, capacity strengthening, and data-driven decision-making to ensure that people with disabilities are not left behind during disasters. Our ongoing efforts contribute to a more inclusive and resilient society, particularly in Southeast Asia, where the risks of natural disasters are high.

Through partnerships with local organisations including organisations of persons with disabilities (OPDs) and joint advocacy through networks like the Disability-inclusive Disaster Risk Reduction Network (DiDRRN), ASB has contributed to the development

of practice-informed regional policies that ensure the inclusion of people with disabilities in disaster preparedness efforts. The 2012 Yogyakarta Declaration and the ASEAN Enabling Masterplan 2021-2025 have further strengthened the integration of disability inclusion into regional disaster management frameworks.

Despite this progress, a major challenge continues to be the lack of disaggregated data on people with disabilities, especially during emergencies. In response, ASB, in collaboration with partners Nossal Institute of Melbourne University and Life Haven, a Philippine-based OPD, has recently developed tools such as the Humanitarian Disability Needs Estimation and Screening Tool (HD-NEST) to quickly assess the specific needs of people with disabilities in acute humanitarian response situations. This ensures that humanitarian responses are tailored and effective, addressing gaps in current efforts.

A way forward, 20 years after

The 20th anniversary of the Indian Ocean Earthquake and Tsunami is a solemn reminder of the immense human toll of natural disasters and

the ongoing need for improvement in disaster preparedness, particularly for people with disabilities. The experiences of survivors like Nursiyah and Sariyah reflect broader systemic issues that leave millions vulnerable in times of crisis.

Addressing the barriers that people with disabilities face in disaster situations requires a concerted and inclusive effort. By building accessible infrastructure, improving communication systems, enhancing capacity building, and ensuring data-driven decision-making, we can create a more resilient future for all.

As we honour the memory of those lost in the 2004 tsunami, we must also commit to a future where people with disabilities are not only included in disaster preparedness but are empowered to take leadership roles in shaping DRR strategies. The path forward lies in collaboration, innovation, and a steadfast commitment to inclusion, ensuring that no one is left behind in times of crisis.

The views and opinions expressed in this article are solely those of the authors and do not reflect the official policy or position of ASEAN.

Photo Credit: ©Alex Robinson, from the ASB Archive

REFLECTIONS ON TWO DISASTERS

The Need for an All-Hazards Approach to Disaster Risk Reduction



Takako Izumi, PhD

International Research Institute of Disaster Science (IRIDeS), Tohoku University, Japan

I first visited Aceh in early 2005 while working at the United Nations (UN) Office for the Coordination of Humanitarian Affairs in Kobe. I was shocked by the sight of the entire landscape, buildings, and houses swept away by the tsunami. It was even more heartbreaking to witness the traces of people's lives, knowing that they were gone and that their lives had been lost. A few months later, I was posted to Aceh to work with the UN Office for the Recovery Coordinator for Aceh and Nias (UNORC). After another earthquake struck Yogyakarta, Indonesia, in June 2006, I was transferred there to assist with response and recovery coordination.

During my two years of service in Indonesia, particularly in Aceh, I became acutely aware of the critical importance of leadership, education, and effective

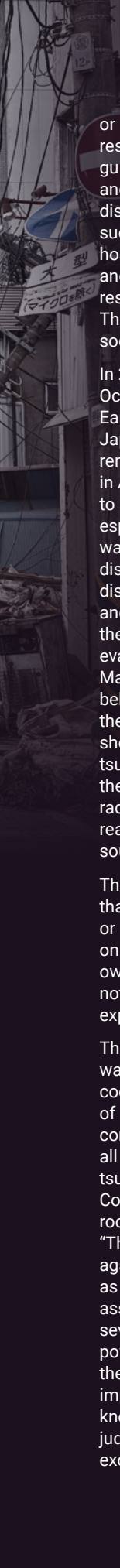
international assistance. In principle, disaster response and recovery cannot proceed without government leadership. In a major disaster, the national government assumes leadership, while local authorities are responsible for managing regular hazards. Though crucial, international assistance does not replace government leadership but serves as a support system that enhances government response and recovery efforts.

At the time of the Indian Ocean Tsunami, the Aceh-Nias Reconstruction and Rehabilitation Agency (BRR), an Indonesian government agency, played a major role in coordinating and implementing the recovery program. Later, the National Agency for Disaster Countermeasure (BNPb) and the Local Disaster Management Agency were established, both contributing

to increased capacity and interest in disaster management. The growth in budget allocation and increased focus on disaster management as a result of these initiatives has been a significant achievement.

Many international organisations and NGOs had never experienced such massive relief and recovery efforts before the tsunami, and they encountered numerous challenges, including a lack of communication, coordination, and information sharing between stakeholders. There was certainly much to learn. The shortage of materials and personnel also posed significant challenges, leading to delays in relief and recovery programs.

Disaster education extends beyond students and children. Everyone should have a basic understanding of what a tsunami is, what disaster preparedness



or risk reduction means, and how to respond to emergencies. This knowledge guides us in taking appropriate action and preparing for potential future disasters. Moreover, various institutions such as governments, schools, hospitals, academia, the private sector, and communities must understand their respective roles in risk management. This will lead to building a resilient society.

In 2011, seven years after the Indian Ocean tsunami, the Great East Japan Earthquake and Tsunami struck Japan. My visit to the affected areas reminded me of what I had witnessed in Aceh in 2005. I had never expected to see such similar devastation again, especially in Japan. The experience was tremendously shocking. This disaster is often referred to as a “triple disaster”—an earthquake, a tsunami, and a nuclear accident. One reason for the extensive damage was the delay in evacuating residents from the tsunami. Many people hesitated because they believed the tsunami would not reach them, as previous hazard maps had shown that their area was not within the tsunami inundation zone. In addition, the earthquake caused the disaster radio system to fail, and residents felt reassured when the warning did not sound.

The key lesson from this experience is that systems are not infallible. Whether or not warnings are issued, we must rely on what we have learned to make our own decisions. Furthermore, we should not become overly dependent on past experiences or assumptions.

The Fukushima Daiichi nuclear accident was mainly caused by the loss of cooling function, resulting from the loss of external power due to the earthquake, compounded by the failure of almost all emergency power supplies due to tsunami flooding. Tokyo Electric Power Company Holdings (TEPCO) explains the root cause of the accident as follows: “The reinforcement of countermeasures against severe accidents stagnated, as decisions were shaped by past assumptions that the likelihood of a severe accident due to the loss of all power sources was minimal, reducing the perceived need for further safety improvements. Despite insufficient knowledge about tsunamis, it was judged that the possibility of one exceeding expectations was low, and

countermeasures were not thoroughly considered. Additionally, on-site accident response training and the provision of materials and equipment were inadequate. As a result, critical plant condition information could not be shared, and rapid, accurate depressurisation operations were not executed.” This resulted from a lack of understanding and an underestimation of the risks, which prevented sufficient preparedness measures from being implemented. This scenario is not unique to Fukushima; many disasters share similar dynamics. The reality is that when a disaster strikes, “one can never do more than they are prepared to do” (Prof. Fumihiko Imamura, IRiDeS, Tohoku University). Different countries and regions face varying risks; thus, it is crucial to use the all-hazards approach to conduct risk assessments. This approach involves not ruling out any possibilities, but considering them all, including natural hazards, environmental and technological threats, and cascading and compound disasters. It is important to remember that science and technology will play a significant role in identifying and communicating risks.

In many cases, even if robust preparedness measures, such as hazard maps and early warning systems, are in place, they may be ineffective if people do not utilise them properly. For instance, if an early warning is issued but no evacuation actions are taken, the issue lies not with the preparedness measures themselves but rather with human behaviour, potentially due to a lack of disaster education or awareness. Infrastructure such as seawalls can be effective in reducing the impact of tsunamis, but cannot always be a perfect solution. Depending on the magnitude of a tsunami, evacuation action is still necessary. In the event of an earthquake, it is essential to equip buildings and houses with earthquake-resistant or seismic isolation structures to protect lives and assets.

Furthermore, no matter how well-prepared we are, the damage caused by disasters cannot be completely eliminated. Severe catastrophes will inevitably result in a certain extent of damage. Therefore, we must also be prepared to provide practical assistance in emergencies. For example, managing evacuation centres becomes highly complex when a large number of

evacuees is involved, especially during multiple or compound disasters such as a typhoon during the COVID-19 pandemic or an earthquake amid a heatwave. Moreover, the needs of evacuees, including older adults, infants, children, women, and people with disabilities, vary, making it a significant challenge to provide safe and accommodating spaces for all. This challenge is not solely the responsibility of local governments; everyone must contribute, cooperate, and participate in managing these spaces.

We are witnessing increased frequency and intensity of natural hazards, which may worsen. Addressing future scenarios using current strategies and risk reduction measures will not suffice; scaling up these measures is imperative. Both top-down approaches and local-level initiatives are essential for enhancing risk reduction capacities and reducing vulnerabilities. In Japan, the concepts of “public help,” “mutual help,” and “self-help” are well-known. It is important to increase mutual help and self-help gradually. Japan has been actively promoting the development of district or community disaster preparedness plans to understand residents’ needs and prepare for necessary support during emergencies at the local level.

The ASEAN region is particularly disaster-prone. It is essential to share experiences, challenges, and information across countries and tailor support to each nation’s needs and circumstances. Additionally, disasters do not respect national borders, making regional and international collaboration essential when preparing for major disasters, with ASEAN leadership playing a critical role.

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The views and opinions expressed in this article are solely those of the author and do not reflect the official policy or position of ASEAN.

NASA Earth Observatory
satellite image of
Supertyphoon Haiyan as
it crosses the Philippines
(08/11/2013)

HEEDING THE LESSONS OF SUPER TYPHOON HAIYAN

WHY SCIENCE MATTERS



Alfredo Mahar Francisco A. Lagmay, PhD
Executive Director, University of the
Philippines Resilience Institute
Director, NOAA Center

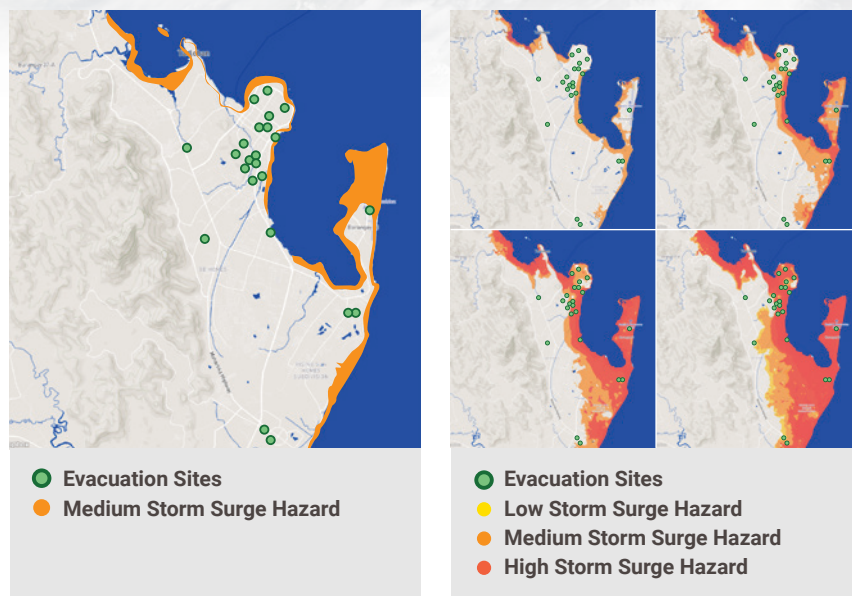


The Haiyan disaster

Ten years ago, on 8 November 2013, Supertyphoon Haiyan (local name Yolanda) barreled through the central region of the Philippines. The cyclone was one of the most powerful to make landfall in recorded history, killing thousands and leaving communities in ruins. Storm surges were primarily responsible for the 6,300 dead, 1,062 missing, and 28,688 injured in Haiyan's wake.

As in all disasters, a cycle of blame followed in its wake. Many were quick to assign culpability as the anger and pain from calamity loss demanded explanations. Among the many perspectives on what caused the disaster, one stands out: the national government hazard maps which were necessary for planning an appropriate response, underestimated the extent of the storm surges (Figure 1A). This miscalculation severely hampered all preparatory measures. Pre-positioned goods were washed away, and search and rescue personnel became victims themselves.

Figure 1



A. Deterministic (single scenario storm surge susceptibility map) based on anecdotal/historical accounts and expert opinion provided by the government (UNDP, n.d.)

B. Probabilistic (multi-scenario) storm surge hazard maps for Tacloban City. The green dots are designated evacuation centres.

An examination of the location of evacuation centres in Tacloban revealed that nearly all were placed outside government-designated storm surge danger zones. Tragically, many who followed the forced evacuation protocol perished. They were assured safe refuge from the predicted 5- to 6-metre high storm surges, but seawater reached as far as 2 kilometres inland, flooding designated evacuation centres.

Why probabilistic risk assessment is a smarter approach

The storm surge hazard maps prepared by the government before Haiyan represented the worst-case scenario based on historical accounts (Figure 1A). This approach, known as “deterministic risk assessment,” relied on anecdotal accounts and expert opinion, without considering the possibility of events larger than those in recorded history. As a result, the maps failed to anticipate future events that were even more catastrophic than previously documented.

What was needed before Haiyan struck were hazard maps that simulated hazards larger than those remembered. Future disaster simulations, especially taking climate change into account, are essential for more accurate hazard profiling. A probabilistic approach, which models multiple scenarios—including both historical and unprecedented events—would have been a lifesaving tool.

In the case of Haiyan, “probabilistic risk assessments” using multi-scenario hazard maps were not yet available at that time. Such tools could have saved thousands of lives. Figure 1B, for example, shows a probabilistic storm surge map for Tacloban City, where the largest scenario with a 90-year return period is shown. This map, which is comparable to the inundation of the storm surges of Haiyan, indicates that almost all the evacuation centres were in storm surge-exposed areas. This type of information is critical in anticipating future disasters and planning effective response actions.

Mapping of Haiyan-affected and other hazard-prone areas

A year after the Haiyan disaster, in 2014, probabilistic flood hazard maps, along with landslide and storm surge maps, were produced for 171 cities and municipalities affected by the super typhoon. These maps were created through the Nationwide Operational Assessment of Hazards (NOAH) Project of the Department of Science and Technology (DOST) or DOST-Project NOAH, which at the time was the flagship programme for disaster risk reduction in the Philippines. This initiative was formally backed by the Joint Memorandum Circular No. 2014-01, titled “Adoption of Hazard Zone Classification in Areas Affected by Typhoon Haiyan and Providing Guidelines for Activities Therein,” issued by five agencies, the Philippines’ Department of Environment and Natural Resources, Department of the Interior and Local Government, Department of National Defense, Department of Public Works and Highways, and DOST. This memorandum provided the necessary framework for the use of high-resolution probabilistic maps.

The maps, which may be accessed by the general public through the <http://noah.up.edu.ph> website, were distributed to local government units (LGUs) across the Haiyan Corridor. However, the systematic integration of these multi-scenario hazard maps into comprehensive development plans, disaster risk reduction management plans, and local climate change action

plans was inconsistent across local government units nationwide.

The probabilistic storm surge maps created for Tacloban City and other areas affected by Haiyan depicted scenarios with varying levels of inland inundation (Figure 1B). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) regarded the largest scenario as the most reliable. According to a GIZ report, this scenario demonstrated that many of the designated evacuation centres were exposed to storm surges.

A people-centred early warning system

An effective “end-to-end” and “people-centred” early warning system involves an integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication, and preparedness activities systems and processes. It allows individuals, communities, governments, businesses, and others to prepare and take timely action against imminent hazards.

The people-centred early warning system includes four interrelated key elements: i) disaster risk knowledge based on the systematic collection of data and disaster risk assessments; ii) detection, monitoring, analysis, and forecasting of the hazards and possible consequences; iii) dissemination and communication, by an official source, of authoritative, timely, accurate and actionable warnings and associated information on likelihood and impact; and iv) preparedness at all levels to respond to the warnings received (Figure 2).

Figure 2. A people-centred early warning system shows four key elements of an effective system for disaster risk reduction (Basher, 2006; deLeón, 2012; UNISDR, 2017).





A Category 5-equivalent system, Typhoon Haiyan left a trail of destruction across the Philippines

Photo Credit: ©ymphotos/Shutterstock

The interrelated components of a people-centred early warning system need to be coordinated within and across sectors and multiple levels for the system to work effectively and to include a feedback mechanism for continuous improvement. Failure in one component or a lack of coordination across them could lead to the failure of the whole system.

Institutionalising pre-disaster risk assessment

The Philippines' disaster efforts have incorporated all four key components of an effective people-centred early warning system. Learning from Haiyan and responding to the need to strengthen disaster risk reduction efforts, the National Disaster Risk Reduction Management Council (NDRRMC) institutionalised the Pre-disaster Risk Assessment (PDRA) on 11 June 2014. PDRA evaluates the risk level of hazards based on exposure and vulnerability in specific areas incorporating both historical and probabilistic scenarios to address all potential risks. It presents the possible impacts and forms a basis

for appropriate responses from both national and local government agencies.

PDRA provides risk analysis and constant monitoring of hydrometeorological hazards, supported by scientific information. It generates hazard-specific, time-bound, and area-focused assessments of probable impacts. These calibrated assessments trigger the implementation of action plans and protocols by organisations and units at all levels.

PDRA involves multi-agency discussions to identify areas likely to be affected based on weather forecasts. Because weather forecasts are never perfect, real-time measurements and weather satellite data are used to complement forecast information. This process requires round-the-clock monitoring while a cyclone is within the Philippine Area of Responsibility.

The output of this monitoring is then used by the NDRRMC to provide "hazard-specific, area-focused, and time-bound" warnings. For instance, when more than 100 mm of rainfall is observed in a particular area, the NDRRMC notifies the local mayor or DRRM officer to explain the situation scientifically. Feedback

from local officials ensures that appropriate action is taken.

Since PDRA was established, it has helped avert approximately 15 disasters based on counterfactual evidence. Unfortunately, in 2017, DOST-Project NOAH ceased to be part of the NDRRMC. As a result, the detailed warnings that DOST-Project NOAH used to provide during PDRA were lost. Additionally, the promotion of probabilistic risk assessment as outlined in the 2014 Joint Memorandum Circular was not further developed.

Learning from the tragedy of Haiyan

On a national scale, the government reverted to single-scenario deterministic risk assessments to craft comprehensive land use and development plans for communities. These single-scenario deterministic hazard maps, available on the government's GeoriskPH website, are still the maps officially recommended for use by local government units. This is despite provisions contained in the National Climate Risk Management Framework and the Philippine Development Plans of 2017-2022 and 2023-2028, which require the probabilistic risk assessment approach.

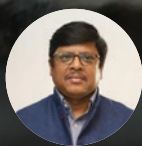
It is tragic that the most crucial lesson from the Haiyan disaster has not been learned. If we could only hear the voices of the victims, they would implore us not to repeat the same costly mistake—a miscalculation they paid for with their lives.

Dr. Alfredo Mahar Francisco A. Lagmay is a renowned geologist and disaster science expert who headed DOST's Project NOAH. After the project concluded in 2017, it was adopted by the University of the Philippines' Resilience Institute and serves as its core component, tasked with conducting research and public service related to climate and disaster resilience efforts. Dr. Lagmay is now at the helm of both the Institute and the UP NOAH.

This article contains excerpts from Lagmay and Racoma (2018) and Lagmay et al. (2024). References therein were used in writing this article.

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Remembering the First Tsunami of the Current Century



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The 9.1 magnitude earthquake triggered a mega-tsunami on 26 December 2004 that devastated almost the entire coastal area of Aceh province of Indonesia and killed over 200,000 people across various places in and around the Indian Ocean. The depth of this devastation is beyond our imagination, and the majority of deaths recorded were in Indonesia, Sri Lanka, Thailand, India, and Maldives. Indonesia, Sri Lanka, India, Thailand, and nine other nations faced significant losses of lives and coastal assets including crops and marine resources. In particular, India's southeastern coast and Andaman and Nicobar Islands suffered extensive damage.



A general view of the scene at the Marina beach in Madras, after tidal waves hit the region. Tidal waves devastated the southern Indian coastline killing 1000 people (26/12/2004)

Photo Credit: ©STR / Getty Images

Initial losses were manifold. Post-tsunami losses were even more. India responded to the tsunami promptly and played the role of saviour to the countries in the Indian Ocean rim. The Indian Navy was the first responder. India took swift action on 26 December 2004 itself. Search and rescue operations were completed in 2-3 days, and later, efforts shifted to relief, recovery, and reconstruction. Indian Naval ships, aircraft, helicopters, and personnel responded to the tsunami in a coordinated manner. For example, the Indian Navy deployed 32 naval ships, seven aircraft, and 20 helicopters in support of five rescue, relief and reconstruction missions as part of “Operation Sea Waves” (Andaman and Nicobar Islands), “Operation Castor” (Maldives), “Operation Rainbow” (Sri Lanka), and “Operation Gambhir” (Indonesia).

On the day of the tsunami, the Indian Navy deployed 19 ships, four aircraft, and 11 helicopters that rushed to the Maldives, Sri Lanka, Tamil Nadu, and the Andaman and Nicobar Islands. An Integrated Relief Command was also set up under the LG Andaman and Nicobar Islands. Indian Air Force airlifted the resources with high frequency and care, as did the Indian Navy. Both played key roles in mitigating the risks and bringing back the economy to normalcy. India's humanitarian assistance and disaster relief has been well-recognised by the world.

India's trade with Southeast Asia from December 2004 to February 2005 suffered mainly due to the tsunami. The movement of people between the Andaman and Nicobar Islands and Aceh province of Indonesia was temporarily suspended. However, trade and people-to-people contacts resumed as the countries returned to normal life.

The Tsunami of 2004 gave birth to other new ideas and resilient and sustainable development. Countries realised the urgent need for an early warning system. India introduced the Indian Tsunami Early Warning System (ITEWS) in 2007. The ITEWS includes a real-time seismic station network, tide gauges, and a 24/7 tsunami warning centre. This Tsunami Early Warning Centre is a part of the Indian National Centre for Ocean Information Services (INCOIS). INCOIS has a data warehouse of ocean-related information gathered from various institutions in India which are involved in marine data collection, ocean observation, and ocean/atmospheric sciences.

An early warning system is imperative for the Indian Ocean to mitigate the loss of life and property due to tsunamis and storm surges. The ITEWS incorporates storm surge forecasts as well. This facility offers services to the entire Indian Ocean region, including Southeast Asia.

The disaster led to a number of consequences, including increased awareness of affected communities, such as the Aceh provincial government. For example, Universitas Syiah Kuala (USK) in Aceh has introduced tsunami awareness programmes, such as its annual mega-tsunami warning activity, which aims to inform and educate the community on disaster risks. It has also sought to develop community attitudes and skills in managing the different phases of disaster.

India has set up the Coalition for Disaster Resilient Infrastructure (CDRI) to design a comprehensive plan and assist countries in managing disasters. The CDRI is a partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions. The coalition aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development.

Soon after the tsunami, India introduced the Disaster Management Act in 2005 and established the National Disaster Management Authority (NDMA), headed by the Prime Minister of India. The NDMA is the apex body for disaster management in India.

Countries must coordinate on prevention, mitigation, preparedness, and response. India and other Indian Ocean countries may design a standard operating procedure to deal with the tsunami and other forms of disasters. ASEAN's AHA Centre is another example of a regional organisation which has been working on disaster management in a coordinated manner. The AHA Centre was established in 2011 with the aim of facilitating cooperation and coordination on disaster management among ASEAN Member States.

Twenty years have passed since the 2004 Indian Ocean tsunami that devastated its surrounding coasts. This tsunami has given rise to new plans that keep us safe from a similar disaster. Today, as we remember the 2004 tsunami, we are far more prepared to reduce the impact of similar events in the future.

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The ASEAN

During the 57th ASEAN Day Celebration on 8 August 2024, the ASEAN Secretariat hosted an Open House showcasing culinary delicacies from the ASEAN region and dialogue partners. Simultaneously, ASEAN Centres and Entities displayed their publications and marketing collaterals, including scholarship information. (8/8/2024)



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