ASEAN DISASTER RESILIENCE OUTLOOK

Preparing for a Future Beyond 2025

one vision
one identity
one community

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The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam.
The ASEAN Secretariat is based in Jakarta, Indonesia.

For inquiries, contact:
The ASEAN Secretariat
Community Relations Division (CRD)
70A Jalan Sisingamangaraja
Jakarta 12110, Indonesia
Phone : (62 21) 724-3372, 726-2991
Fax : (62 21) 739-8234, 724-3504
E-mail : public@asean.org

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FOREWORD

by Chair of the 9th AMMDM & 10th COP to AADMER

The COVID-19 pandemic has brought about many changes to the world. As ASEAN continues to live with the pandemic and adapt to the new normal brought about by COVID-19, natural disasters continue to occur in our region.

Since the endorsement of the ASEAN Vision 2025 on Disaster Management in 2016, ASEAN has come a long way, from being a beneficiary of international assistance to a contributor of experience and expertise on disaster management at global platforms. As ASEAN pushes ahead in our transformation journey in disaster management, we must continue to look beyond the horizon to innovate, transform and strengthen our disaster management and resilience capabilities.

The ASEAN Disaster Resilience Outlook (ADRO) elevates ASEAN as a global leader in disaster management by tapping on trends, opportunities and exciting innovations that could revolutionize ASEAN's approach to disaster risk reduction, preparedness and response, recovery and capacity building. The ADRO highlights emerging challenges, explores and discusses key concepts of disaster management in the future, and proposes future-proof solutions, all aimed at enhancing ASEAN's disaster management capabilities and resilience by 2025 and beyond.

Significant resources and efforts have been invested into the development and publication of the ADRO. I would like to express my deepest appreciation to the S. Rajaratnam School of

International Studies – Nanyang Technological University (RSIS – NTU), Singapore, the ASEAN Committee on Disaster Management (ACDM) and the ASEAN Secretariat for their dedication and support. I would also like to thank the ASEAN-China Cooperation Fund for its sponsorship of the ADRO.

As One ASEAN, One Response, let us all continue to work together and remain united for a more disaster resilient ASEAN.

K. SHANMUGAM

Chair of the 9th AMMDM & 10th COP to AADMER
Minister for Home Affairs and Minister for Law
Republic of Singapore

FOREWORD

by Secretary-General of ASEAN

Since the *ASEAN Agreement on Disaster Management and Emergancy Response* (AADMER) came into force in 2009, ASEAN has made great strides in enhancing its capabilities in preventing and responding to disasters in the region. At the same time, the ever-changing landscape of disasters risks is becoming even more complex as we experience the increasing impacts of climate change, global health emergencies, and possible technological and human induced disasters.

Guided by the *ASEAN Vision 2025 on Disaster Management*, ASEAN Member States recognise the importance of addressing these challenges holistically and developing disaster resilience across all levels of society. As we have just commenced the implementation of the recently adopted ADMER Work Programme 2021-2021, it is timely to reflect on the frameworks and mechanisms we have in place, as well as the areas which would require further strengthening.

In this regard, the *ASEAN Disaster Resilience Outlook (ADRO): Preparing for a Future Beyond 2025* provides valuable insights on ways we can realise a resilient ASEAN by 2025 and beyond. The outlook gives a candid and comprehensive assessment on our progress in achieving the vision, and identify new and emerging risks posed by the rapid changing humanitarian landscape. It also offers innovative solutions and strategic recommendations to ASEAN Member States to consider as it seeks to realise its place as a global leader in disaster management by 2025 and beyond.

I wish to congratulate the ASEAN Committee on Disaster Management (ACDM) for their continued leadership in advancing disaster resilience in our region. I also commend Singapore for their outstanding leadership in the ACDM this year and

strong collaboration in developing this publication.

I acknowledge the significance of the discussions at the annual ASEAN Strategic Policy Dialogue on Disaster Management (SPPDM) in contributing to this publication. I also wish to express my appreciation to the Government of the People's Republic of China, for their support for this publication through the ASEAN-China Cooperation Fund (ACCF) and strong collaboration in supporting ASEAN's cooperation in disaster management.

I hope that the outlook will serve as a useful resource for ASEAN Member States in helping them shape their policies and initiatives on disaster management. In the spirit of 'One ASEAN, One Response', let us continue to work together towards building a safer and sustainable ASEAN Community.

DATO LIM JOCK HOI
Secretary-General of ASEAN

ACKNOWLEDGEMENT

The *ASEAN Disaster Resilience Outlook (ADRO): Preparing for a Future Beyond 2025* was prepared by the Humanitarian Assistance and Disaster Relief research programme team at the Centre for Non-Traditional Security Studies, S. Rajaratnam School of International Studies, Nanyang Technological University, Singapore. The team consists of Dr. Alistair D. B. Cook as the team leader, Dr. Lina Gong, Mr. Christopher Chen, and Ms. S. Nanthini.

Valuable contributions and inputs were obtained from the ASEAN Committee on Disaster Management, ASEAN sectoral bodies from all three pillars of the ASEAN Community, ASEAN centres, think tanks, academia, UN agencies, NGOs, bilateral development agencies, multilateral financial institutions, Red Cross and Red Crescent Movement, and the private sector. Their views and perspectives were documented through the ADRO survey and a series of consultations conducted for this publication.

This publication was developed in close coordination with the ASEAN Secretariat and Singapore Civil Defence Force (SCDF), as the Chair of the ASEAN Committee on Disaster Management in 2021. This publication was made possible through support of the ASEAN-China Cooperation Fund (ACCF), and with inputs by National Disaster Reduction Centre of China (NDRCC). The People's Republic of China is an important partner of ASEAN in the area of disaster management.

LIST OF ABBREVIATIONS

AADMER	:	ASEAN Agreement on Disaster Management and Emergency Response
ACE Programme	:	AHA Centre Executive (ACE) Programme
ACDM	:	ASEAN Committee on Disaster Management
ACSCC-DRFI	:	ASEAN Cross-Sectoral Coordination Committee on Disaster Risk Financing and Insurance
ADINet	:	ASEAN Disaster Information Network
ADRFI	:	ASEAN Disaster Risk Financing and Insurance
ADRO	:	ASEAN Disaster Resilience Outlook
AFCDM	:	ASEAN Finance and Central Bank Deputies Meeting
AHA Centre	:	ASEAN Co-ordinating Centre for Humanitarian Assistance on disaster management
AI	:	Artificial Intelligence
AMMDM	:	ASEAN Ministerial Meeting on Disaster Management
AMRDPE	:	ASEAN Ministers Meeting on Rural Development and Poverty Eradication
ASDMP	:	ASEAN Science-based Disaster Management Platform
ASEAN	:	Association of Southeast Asian Nations
ASEAN-ERAT	:	ASEAN Emergency Response and Assessment Team
ASEAN ESC	:	ASEAN Environmentally Sustainable Cities
ASSC	:	ASEAN Socio-Cultural Community
ASSI	:	ASEAN Safe School Initiative
CFR	:	Community First Responders
DELSA	:	Disaster Emergency Logistics System of ASEAN
DMF	:	Data Management Framework (ASEAN)
DMRS	:	Disaster Monitoring and Response System (ASEAN)
DRFI	:	Disaster Risk Financing and Insurance
DRR	:	Disaster Risk Reduction

ESCAP	:	United Nations Economic and Social Commission for Asia and the Pacific
EU	:	European Union
GDP	:	Gross Domestic Product
ICT	:	Information and Communications Technology
IFRC	:	International Federation of Red Cross and Red Crescent
IPCC	:	Intergovernmental Panel on Climate Change
JAIF	:	Japan-ASEAN Integration Fund
JTF on HADR	:	Joint Task Force to Promote Synergy with Other Relevant ASEAN Bodies on Humanitarian Assistance and Disaster Relief
JSPADM	:	ASEAN-UN Joint Strategic Plan of Action on Disaster Management
MCC	:	Model Contractual Clauses for Cross Border Data Flows
NDMO	:	National Disaster Management Organisations
NGO	:	Non-Governmental Organisations
OCHA	:	UN Office for the Coordination of Humanitarian Affairs
RCCE	:	Risk Communication and Community Engagement
RCG	:	Regional Consultative Group on Humanitarian Civil-Military Coordination for Asia and the Pacific
ROHAN	:	Regional Organizations Humanitarian Action Network
SCDF	:	Singapore Civil Defence Force
SDG	:	Sustainable Development Goals
Sendai Framework	:	Sendai Framework on Disaster Risk Reduction
SEPDM	:	ASEAN Senior Executive Programme on Disaster Management
SME	:	Small Medium Enterprises
SOMRDPE	:	Senior Officials Meeting on Rural Development and Poverty Eradication
SPDDM	:	ASEAN Strategic Policy Dialogue in Disaster Management
UN	:	United Nations

GLOSSARY OF TERMS

Anticipatory action

An approach which systematically links early warnings to actions designed to protect communities ahead of a hazard.

ASEAN Declaration on One ASEAN One Response

The concept of ensuring unity during regional response to disasters. Open and inclusive, it thus relies on coordination of all relevant stakeholders to achieve speed, scale and solidarity.

Disaster

A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses.

Disaster management

A framework of activities that are planned to take place, prior to, during and after disasters, which is designed to maintain control over disasters and help vulnerable communities avoid, minimise or recover from the impact of disasters.

Disaster resilience

The ability of individuals and entities to cope with and recover from any hazards, shocks or stresses without compromising long-term prospects for development.

Disaster risk reduction

A conceptual framework of elements designed to minimise vulnerabilities and disaster risks throughout a society as well as to avoid through prevention or to limit through mitigation and preparedness the adverse impacts of disasters.

Hazard

A potentially damaging physical event, phenomenon and/or activity, which may cause injury, loss of life, property damage or any other social, economic, environmental, and political disruptions.

Localisation

The process through which international humanitarian actors ensure local and national actors are engaged in the planning, delivery, accountability of humanitarian action, while ensuring humanitarian needs can be met in a swift, effective, and principled manner.

Strategic foresight

An organisational, social, and personal practice that allows for the creation of functional and operational views of alternative futures and possibilities. Foresight is not prediction. It allows us to mine the external environment for trends and issues and leverage those insights to create maps of the emerging landscape. These well-informed maps of the future allow us to test our current strategy, develop breakthrough innovations, and create transformative change.


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EXECUTIVE SUMMARY

SOUTHEAST ASIA IS AMONG THE MOST DISASTER-PRONE REGIONS IN THE WORLD, AND THE PRESSURE ON DISASTER MANAGEMENT IN THE REGION INTENSIFIES AS RECENT STUDIES SHOW THAT THE EFFECTS OF CLIMATE CHANGE SUCH AS HEATWAVES AND STRONG MONSOONS ARE PROJECTED TO BECOME MORE PRONOUNCED IN SOUTHEAST ASIAN COUNTRIES IN THE DECADES TO COME.

Vulnerability to disasters has prompted the region to establish a multi-layer system of disaster management that consists of regional, national and subnational levels and features the primary role of the national disaster management authorities and the regional leadership in ASEAN. The regional association adopted the ASEAN Vision 2025 on Disaster Management in 2015, which is part of its broad vision to build a peaceful, stable, and resilient Community. ASEAN envisions itself to have enhanced capacity to respond effectively to disasters and to demonstrate global leadership in disaster management by 2025. This vision is in line with global action to strengthen disaster resilience and prosperity through the Sendai Framework on Disaster Risk Reduction (2015-2030) and the Sustainable Development Goals.

Six years on, ASEAN and its member states have progressed in many of the set targets related to disaster resilience. Economic loss and affected infrastructure and services from disasters have reduced. Coping capacities of ASEAN member states have consistently improved. ASEAN has diversified and deepened partnerships with extra-regional countries, international organisations, civil society as well as the private sector and gained global recognition for its important work in disaster management. Nevertheless, there are still challenges ahead for ASEAN to realise its vision on disaster management by 2025. Financial sustainability remains a major constraint for many actors of disaster management in the region, particularly at the local level. Progress in different components of disaster management has varied, with disaster prevention and mitigation

lagging behind preparedness and emergency response. While the use of technologies has catalysed positive development in many aspects of disaster-related activities, such as risk monitoring, financing, resource mobilisation, and personnel deployment, it has given rise to new problems, some of which include misinformation and disinformation as well widening digital divides. Localisation still needs to be further embedded. The COVID-19 pandemic has revealed the vulnerabilities of the global logistics and strategic supply chains, which impacted ASEAN Member States. The pandemic reminds the region of the growing risk of simultaneous, concurrent and complex disasters which further tests national and regional disaster management systems and highlights the urgency to build and strengthen the capacity to deal with disasters.

To achieve the targets set in the ASEAN Vision 2025 on Disaster Management, the Sendai Framework on Disaster Risk Reduction and the Sustainable Development Goals, ASEAN should employ strategic foresight, develop a regional data platform, increase gender inclusivity in disaster management, strengthen investment in risk assessment and monitoring, disaster education and communication, enhance cross-sectoral synergies and inter-regional cooperation, diversify finance mechanisms, and support the development of sub-national disaster management actors including the provincial, city and community levels. More importantly ASEAN needs to implement a whole-of-society anticipatory approach to build disaster resilience and regional prosperity by 2025 and towards 2035

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INTRODUCTION

DISASTER RESILIENCE IS A CRUCIAL COMPONENT OF SOUTHEAST ASIA'S ASPIRATION TO BUILD A RESILIENT REGIONAL COMMUNITY, WHICH CAN ADAPT AND RESPOND TO THE PLETHORA OF CHALLENGES IN THE REGION RANGING FROM SOCIAL AND ECONOMIC VULNERABILITIES TO DISASTERS AND CLIMATE CHANGE.

In 2020, the region was hit by 405 disaster events, which affected 19.3 million people, displaced 2.4 million and led to damages worth of $227.4 million.[1] The effects of climate change are projected to become more intense and pronounced in Southeast Asian countries. The report of the IPCC in 2021 finds that the region has significant increases in extreme weather events, such as heatwaves and strong monsoons, which are projected to intensify as global temperatures rise further in the future. Vulnerability to natural hazards and the effects of climate change points to the mounting pressure on Southeast Asia to further strengthen disaster management and resilience to ensure a prosperous future. The significant disruptions caused by the COVID-19 pandemic since 2020 have again highlighted the importance and difficulty in building disaster resilience, as the world faces increasing risks of concurrent or complex disasters.

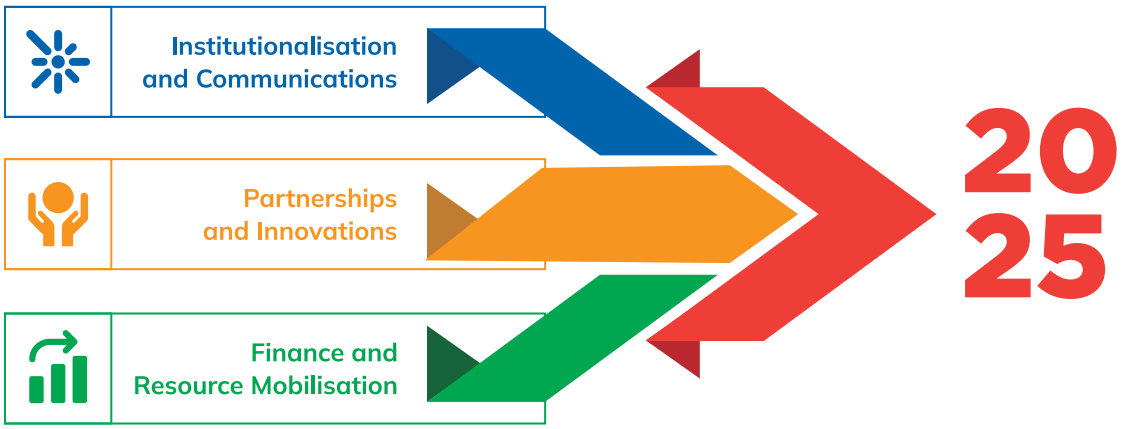
Under ASEAN leadership, Southeast Asia has achieved notable progress in disaster management since the Indian Ocean tsunami in 2004. ASEAN Member States adopted the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) in 2005, which serves as the legal framework to define roles and responsibilities of member states in regional disaster management and cooperation. In 2015, ASEAN endorsed the ASEAN Vision 2025 on Disaster Management, which set the strategic pathway to strengthen regional disaster resilience between 2015 and 2025. In addition, ASEAN aims to share with the world its experience and knowledge on disaster management and thus build global leadership in this area. To achieve these goals, the Vision 2025 on Disaster Management identifies three key areas for ASEAN to move towards a people-centred, financially sustainable, and networked approach to disaster management: 1) institutionalisation and communications; 2) finance and resource mobilisation; 3) and partnerships and innovations. As ASEAN is now at the mid-point of the 2015-2025 timeframe, there is a need to evaluate the progress made to date, to scan and analyse the evolving regional and international landscapes of disaster management, to chart the pathways for the region to attain the set goals by 2025, and to build a more resilient and prosperous future.

Against this background, ASEAN produced the ASEAN Disaster Resilience Outlook (ADRO) to assess the prospects for realising the ASEAN Vision 2025 on Disaster Management on time and look beyond and anticipate the action needed to prepare ASEAN for disaster risks in the decade after 2025.

THE ADRO IS A KEY DELIVERABLE OF THE AADMER WORK PROGRAMME 2021-2025 PRIORITY PROGRAMME 5 ON GLOBAL LEADERSHIP.

Figure 1

THREE PILLARS OF THE ASEAN VISION 2025 ON DISASTER MANAGEMENT



Source: ASEAN Vision 2025 on disaster Management

As a knowledge product in line with the outcome of an "[expanded] and consistent Global Thought Leadership and Engagement of ASEAN", ADRO consolidates the best practices, concepts and ideas presented and discussed by policy makers, practitioners, and researchers to examine how they can be adapted or implemented to enhance and build ASEAN's future. Related targets of the Sustainable Development Goals (SDGs) and the Sendai Framework on Disaster Risk Reduction (Sendai Framework) are important references of the assessment on disaster resilience in ASEAN. In addition, this publication is part of ASEAN's mid-term review on its overall progress in materialising the broad vision of "a peaceful, stable and resilient Community with enhanced capacity to respond effectively to challenges, and ASEAN as an outward-looking region within a global community of nations", as stated in the *ASEAN Community Vision 2025*.[3] Disaster management is categorized to the remit of the ASEAN Socio-Cultural Community (ASCC)[4], which works towards a "resilient community with enhanced capacity and capability to adapt and respond to social and economic vulnerabilities, disasters, climate change, and other new challenges".

The analysis and projections in this publication are based on the data collected through desk research, consultation meetings, an online survey and key informant interviews. The use of concepts and the exploration of best and innovative practices and ideas were informed by existing academic, policy and scientific research. Practitioners, policy makers, and scholars within and beyond Southeast Asia were engaged to garner insight and inputs through three online events, which included two consultation meetings and the ASEAN Strategic Policy Dialogue in Disaster Management (SPDDM) 2021. Semi-structured interviews were conducted with actors involved in disaster-related activities in ASEAN, which were designed purposely to represent a cross-section of actors. A survey titled "ASEAN Disaster Resilience Outlook - ASEAN's Journey for a Disaster Resilient Region" was circulated among disaster management experts in the region from ASEAN partners, think tanks, and the academic and scientific communities.

This publication proceeds in three parts. Section two analyses the evolving regional and global trends concerning disaster management and reviews ASEAN's achievement in enhancing regional cooperation and global leadership in disaster management. Section three discusses how ASEAN can build and strengthen disaster resilience in the face of technological transformation, reduced funding and increasing complexities of disasters through innovative financing and resource mobilisation, higher levels of institutionalisation, more effective communication, more diverse partnerships, and an emphasis on anticipation. Section four summarizes the policy recommendations for ASEAN Member States to implement the ASEAN Vision 2025 and achieve the related targets of the SDGs and the Sendai Framework by 2030 to be future-ready and thrive in the decades ahead. In summary, ASEAN has substantively enhanced its capacity in emergency response but needs to upscale commitment to and investment in disaster preparedness and mitigation. Existing research underlines the importance of anticipatory action which is more effective than reactive approaches in reducing damaging impacts caused by disasters. Furthermore, the intersecting risks the region faces, such as the

COVID-19 pandemic, natural hazards, extreme weather events and socio-economic vulnerabilities, highlight the need to implement a nexus approach to ensure a resilience baseline for the ASEAN Community to thrive. Social, economic and security developments at regional and global levels, such as technological advancement, economic downturn, emergence of new risks and occurrence of man-made and health crises necessitate adaptation, transformation and innovation of policy and practices in financing, communication, mobilisation and deployment of material and human resources for ASEAN to build leadership in global disaster management.

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DISASTER MANAGEMENT AND RESILIENCE IN SOUTHEAST ASIA

2.1

Global and Regional Trends

The global riskscape continues to evolve. The significant socio-economic, political and security disruptions caused by COVID-19 have led many people to view infectious diseases as the top threat to humanity presently. Meanwhile, extreme weather events, climate action failure and natural hazards have consistently featured in the list of top global risks by likelihood in the Global Risks Perception Survey conducted by the World Economic Forum since 2014 as indicated in Table 2.1.1.[5] The ranking of disaster-related risks on the list suggests a common recognition of the threat posed by disaster-related risks and points to the urgency to build disaster resilience.

Table 2.1.1

RANKING OF DISASTER-RELATED RISKS BY LIKELIHOOD

Risks/Year	Extreme weather	Climate action failure	Natural disasters
2021	1st	2nd	N.A.
2020	1st	2nd	3rd
2019	1st	N.A.	3rd
2018	1st	5th	2nd
2017	1st	N.A.	3rd
2016	2nd	3rd	5th
2015	2nd	N.A.	N.A.
2014	2nd	4th	N.A.

Source: "The Global Risks Report 2021" (Geneva; World Economic Forum, 2021), 14.

The Sendai Framework is a key international initiative to guide global efforts to strengthen disaster resilience, which sets seven targets to lessen the impact of disasters on human life and well-being, to mitigate the socio-economic disruptions and to strengthen national capacity in disaster management.[6] Some of these targets are represented in the SDGs, which are grouped into Goal 11 on sustainable cities and communities and Goal 13 on climate action. Progress on these targets has been mixed. A total of 120 countries worldwide have reported the development or adoption of national and/or local disaster risk reduction (DRR) strategies by April 2020, up from 48 in 2015.[7] Disaster-induced mortality has been declining since 2005. 24,000 people were killed in disasters in 67 countries in 2019, down from 126,000 in 79 countries in 2018. 54 percent of the countries that have reported adaptation information prioritise disaster risk management.[8] However, the COVID-19 pandemic may reverse the progress achieved over the past few years.

The trend in Southeast Asia is largely consistent with global perceptions. The convergence is supported by a finding of the ADRO survey that 86.4 percent of the respondents agreed that ASEAN's priorities in disaster management aligned with the global ones. The region has been affected by at least 2260 disaster events since 2012 (Figure 2.1.1), including large-scale disasters such as the Sulawesi Earthquake and Tsunami (2018), Typhoon Haiyan (2013) and Typhoon Damrey (2017).[9] Before the outbreak of COVID-19, climate change was viewed as one of the top three security challenges facing the region in 2019, after domestic political instability and economic downturns.[10] In 2020, 53.7% of Southeast Asians considered climate change as an immediate danger, up from 52.7% in 2019, primarily due to the myriad of natural hazards striking the region in the year.[11]

Survey Chart 2.1.1

ALIGNMENT OF ASEAN AND GLOBAL PRIORITIES ON DISASTER MANAGEMENT

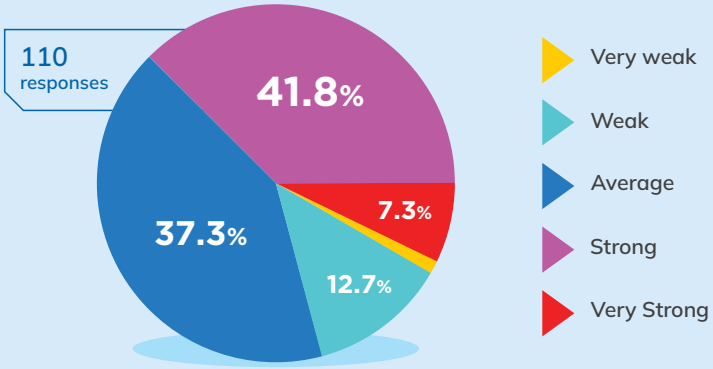
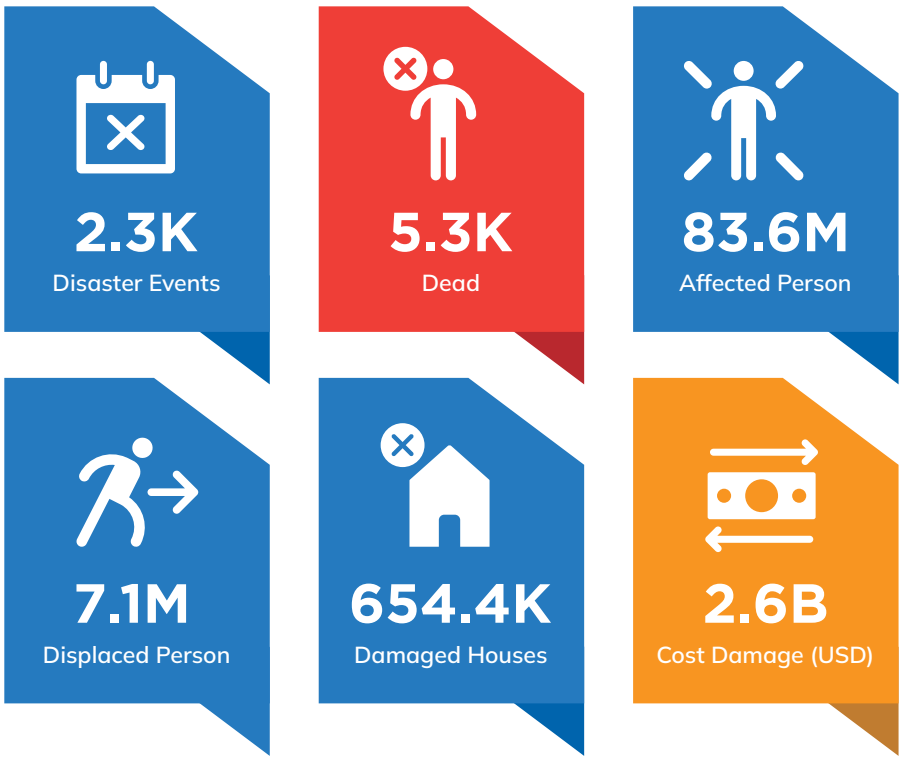


Figure 2.1.1

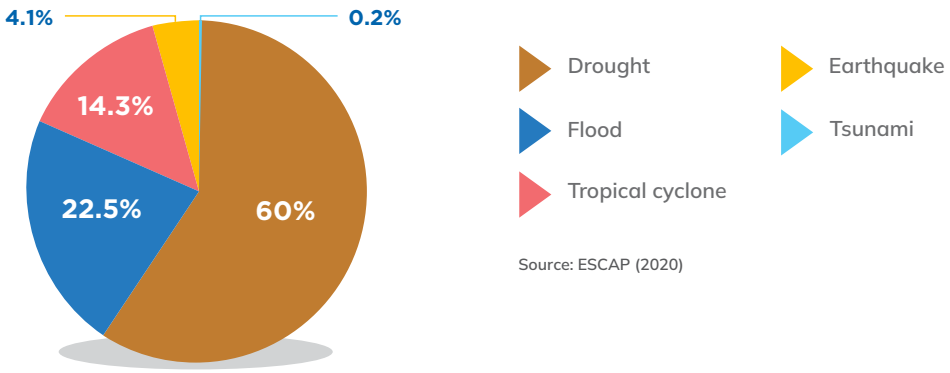
STATE OF DISASTERS IN SOUTHEAST ASIA 2012-2021



Source:
AHA Centre
Disaster
Information
Network

Figure 2.1.2

ANNUAL AVERAGE LOSSES CAUSED BY MAJOR NATURAL HAZARDS IN SOUTHEAST ASIA



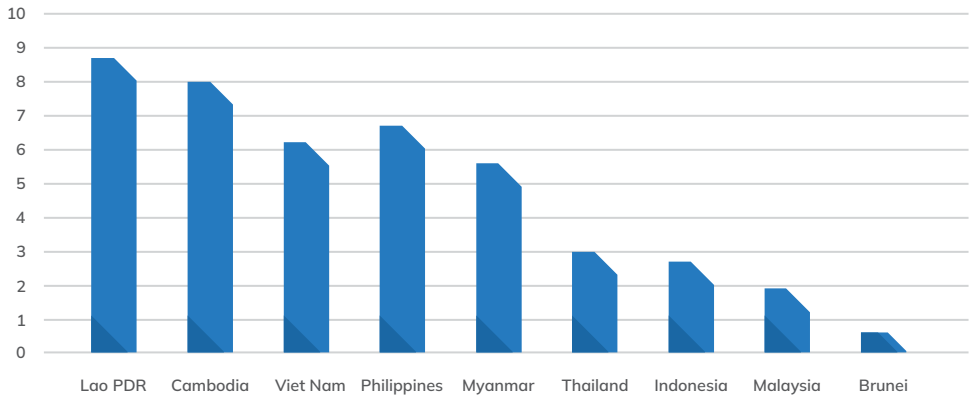
Source: ESCAP (2020)

Major natural hazards affecting Southeast Asia include droughts, floods, tropical cyclones, earthquakes, and tsunamis. A total of 530 natural hazards were reported in the region between 2019 and 2020 from earthquakes to cyclones and floods. This is a significant increase from the previous year's reported 188 disasters.[12] It also indicates more effective disaster monitoring and technical capacity. This has resulted in over 24 million people affected, including 3.37 million people displaced – all significant increases from previous years. However, contrary to the increase in people affected, the number of casualties decreased by 25% in 2020, with a 75% reduction in the numbers of the injured and missing.[13]

In terms of economic loss, the average annual losses from natural hazards in Southeast Asia amounted to US$86.5 billion in 2019, which was four times higher than the previous estimate in 2017.[14] According to the Economic and Social Commission for Asia and the Pacific (ESCAP), agricultural droughts cause the most losses in the region, which amount to US$51 billion. Droughts account for 60 percent of the total average annual losses, floods 22.5 percent, tropical cyclones 14.3 percent, earthquakes 4.1 percent and tsunami 0.2 percent.[15] As a percentage of GDP, the annual average loss from natural hazards is equal to 1.8 percent of GDP in Southeast Asia. Lao PDR loses 8.7 percent of its GDP to natural hazards annually, the highest in ASEAN (Figure 2.1.3).

Figure 2.1.3

ANNUAL AVERAGE LOSSES AS PERCENTAGE OF GDP IN SOUTHEAST ASIA, BY COUNTRY



Note: Singapore is not included in the chart as its value is below 0.5 per cent

Source: ESCAP (2020)

Table 2.1.2

LACK OF COPING CAPACITY IN ASEAN MEMBER STATES (2016-2020)

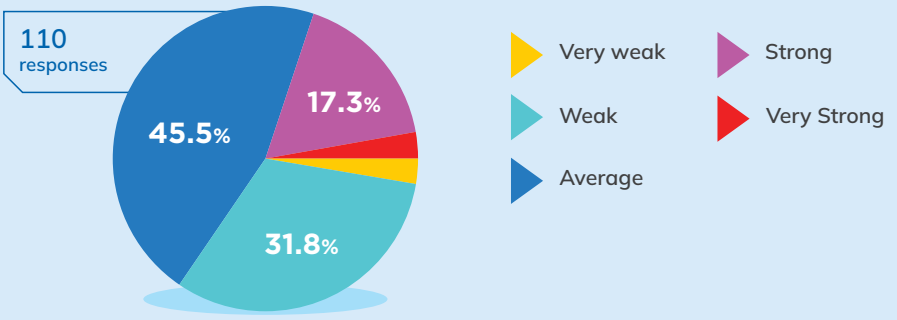
Country	2016	2017	2018	2019	2020
Brunei Darussalam	4.7	4.5	4.4	4.3	3.5
Cambodia	6.8	6.5	6.5	6.6	6.2
Indonesia	5.2	4.8	4.8	4.7	4.5
Lao PDR	6.5	6.2	6.2	6.1	5.8
Malaysia	3.3	3.1	3.1	3.2	3.1
Myanmar	7	6.6	6.4	6.3	5.5
Philippines	4.4	4.1	4.2	4.3	4.1
Singapore	1.2	1.1	1.1	1.1	1.1
Thailand	4.3	4	4.1	4	3.9
Viet Nam	4.6	4.3	4.2	4.2	4.4

Source: Compiled by authors from the INFORM Reports 2016-2020[16]

High exposure to natural hazards has incentivised ASEAN to build and strengthen disaster resilience in the region. The INFORM annual reports find that ASEAN Member States have improved steadily in disaster management. The reports assess the risks that a country faces, and lack of coping capacity is one indicator of the risk assessment. The lower the score on the lack of coping capacity indicator, the lower the risk. The Index for Risk Management (INFORM) reports between 2016 and 2020 show that the scores of ASEAN Member States on this indicator have decreased, so there is greater coping capacity and less risk (Table 2.1.2). Despite this progress, however, the region has much room to improve in disaster resilience to create a common baseline from which to thrive. Of the ADRO survey respondents, 34.5 percent considered the region as weak or very weak in disaster resilience, substantively higher than the 20 percent seeing ASEAN strong or very strong in this area. Specifically, disaster risk assessment, monitoring, prevention and response are strengths of ASEAN. 31.8 percent of responses rated the region as strong or very strong in disaster risk assessment and monitoring, which was 12.7 percent more than those who responded "weak" or "very weak". 37.1 percent considered ASEAN strong or very strong in disaster preparedness and response in contrast to 21.8 percent who believed it weak or very weak. In respect of ASEAN's capacity to manage disasters, the views were generally balanced, with 27.3 percent considering the region "weak" compared to 23.6 percent choosing "strong". Disaster prevention and mitigation in ASEAN are considered "weak" with a substantially higher number of respondents.

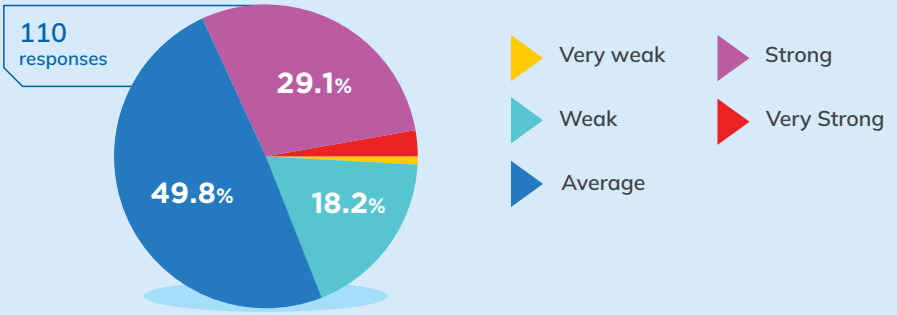
Survey Chart 2.1.2

DISASTER RESILIENCE IN ASEAN REGION



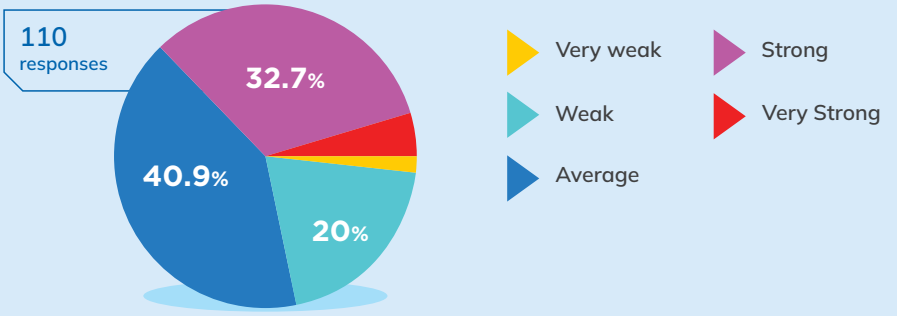
Survey Chart 2.1.3

DISASTER RISK ASSESSMENT AND MONITORING IN ASEAN REGION



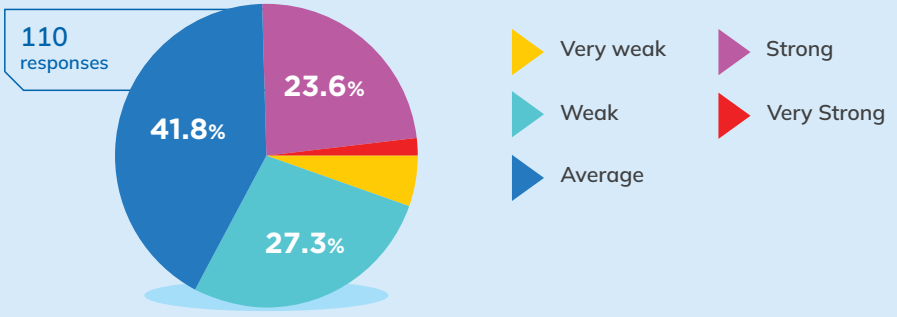
Survey Chart 2.1.4

DISASTER PREPAREDNESS AND EMERGENCY RESPONSE IN ASEAN REGION



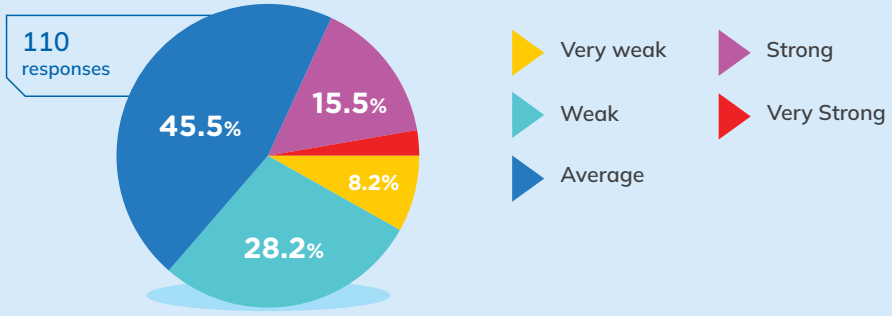
Survey Chart 2.1.5

ASEAN'S CAPACITY IN MANAGING AND REDUCING DISASTER RISK IN THE REGION



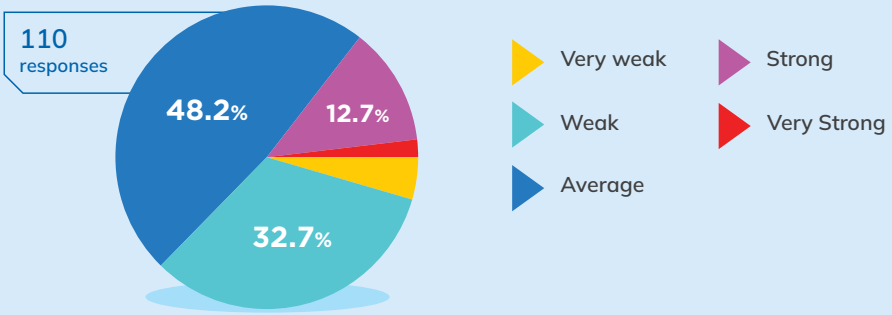
Survey Chart 2.1.6

ASEAN'S CAPACITY IN DISASTER ASSESSMENT, MITIGATION AND PREPAREDNESS.



Survey Chart 2.1.7

DISASTER PREVENTION AND MITIGATION IN ASEAN REGION



For disaster-related SDG targets, the progress of ASEAN Member States has been very slow in achieving Goal 11 on sustainable cities and communities and regressing on the achievement of Goal 13 on climate action, according to ESCAP and highlights an area to improve as we move towards 2030. Only the target of economic loss and affected infrastructure & services from disasters (11.5.2) has been on track, while the target of deaths/missing/affected from disaster has reversed. A lack of data hampers the effort to track the region's progress in the SDGs. Currently there is no sufficient data to evaluate the region's expenditure on preservation of cultural and natural heritage (11.4.1), score adoption and implementation of national DRR strategies (13.1.2) and calculate the proportion of local governments that adopt and implement local DRR strategies (13.1.3).[18] To achieve the related targets of SDGs and the Sendai Framework, the region must improve regional and national disaster management.

2.2

ASEAN Policy and Strategy Frameworks on Disaster Management

Apart from national commitments, cooperation is essential for disaster resilience, as reflected in the Sendai Framework. In Southeast Asia, there has long been an awareness of the importance of regional cooperation on managing disasters. Since the early days of ASEAN as seen by the *ASEAN Concord I* (1976) and the *ASEAN Concord II* (2003), there has been an emphasis on the need for ASEAN Member States to extend assistance and intensify regional cooperation as part of regional disaster management. However, the 2004 Indian Ocean tsunami provided the catalyst for more substantive action in disaster management in Southeast Asia. The impact of the tsunami prompted ASEAN Member States to accelerate the AADMER negotiations, which was signed in July 2005 and came into force in December 2009. As one of the few legally binding documents in ASEAN, AADMER lays out objectives for national systems and provides regional cooperative mechanisms to jointly respond to disaster emergencies through national, regional and international cooperation.

AADMER explicitly designates the ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre) as the regional operational engine for disaster management. The AHA Centre supports and facilitates disaster operations in ASEAN through activities such as collating documents/reports, organising regional training, running the ASEAN Disaster Information Network (ADINet) database and managing the ASEAN Emergency Response and Assessment Team (ASEAN-ERAT).[19]

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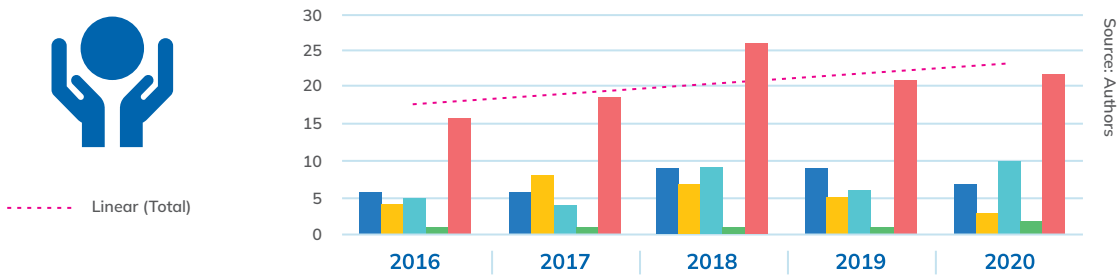
Table 2.2.1

AHA CENTRE'S ENGAGEMENTS WITH PARTNERS (2016-2020)



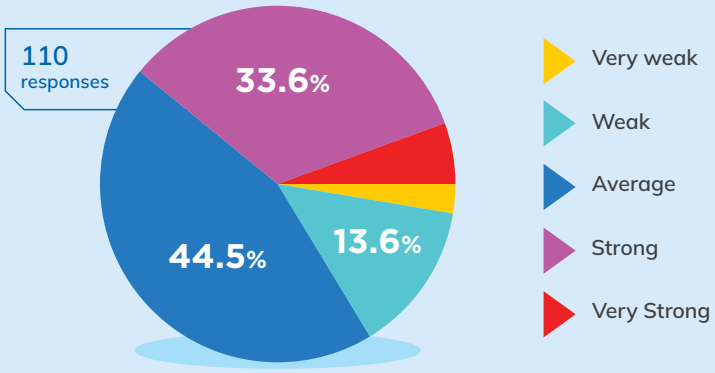
Source: Authors

	2016	2017	2018	2019	2020
Countries/Blocs	6	6	9	9	7
UN Agencies	4	8	7	5	3
Humanitarian Agencies/Others	5	4	9	6	10
Private Sector	1	1	1	1	2
Total	16	19	26	21	22

Several trends can be observed from the AHA Centre's engagements with external partners over the past 5 years (Figure 2.2.1). Firstly, the general trend is that partnerships with tangible outcomes have been gradually increasing. The AHA Centre has been active in not only strengthening existing and expanding partnerships but also developing new partnerships. These partnerships take the form of direct support, mutually beneficial activities, or inter-organisational sharing and learning. Secondly, engagement with humanitarian agencies over the past five years have increased. This is indicative of ASEAN's growing recognition among the humanitarian community as a clearing house for disaster management in the region, as well as a legitimate humanitarian partner. This observation is in line with the finding of the ADRO survey that over 80 percent of respondents agreed that ASEAN contributed to better regional disaster management. Thirdly, UN-ASEAN interoperability is gaining normative and operational relevance, with the AHA Centre having frequent interactions with UN entities, particularly noteworthy in 2018. This spike in engagement with the UN is attributed to the previous year's SPDDM in which ASEAN-UN partnership in enhancing disaster management capabilities and resilience in the ASEAN region was a key thematic area of discussion. Finally, there are relatively low levels of interaction and collaboration with the private sector. Prior to 2020, DHL was the sole private sector entity which had engagement with the AHA Centre in logistics management.

Survey Chart 2.2.1

ASEAN's CONTRIBUTION TO BETTER DISASTER MANAGEMENT IN THE REGION



The AADMER Work Programmes establish regional initiatives such as ASEAN-ERAT and Disaster Emergency Logistics System of ASEAN (DELSA) as well as build partnerships with stakeholders while still maintaining ASEAN centrality in the broader region.[20] The AADMER Work Programme 2021 - 2025 continues the momentum set up by previous Work Programmes by incorporating significant ASEAN documents such as the ASEAN Declaration on One ASEAN One Response as well as relevant global agreements such as the Sendai Framework.[21] These commitments are contained in its five priority programmes that also reflect AADMER's major provisions: Risk Assessment and Monitoring, Prevention and Mitigation, Preparedness and Response, Resilient Recovery, and Global Leadership.[22]

The developments in disaster management and resilience in the ASEAN region have contributed to the decreases in disaster-induced damages and losses. However, the significant increase in disaster numbers and the more devastating impact of disasters also point to the ever-growing impact of climate change in the region. Disasters are increasing in frequency, intensity and deviating from their usual patterns – affecting areas with little historical precedent.[23] This in turn, makes it harder for policymakers and other stakeholders to respond with adequate disaster management strategies reliant on past experience and underscores the need to 'plan from the future'.

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In view of the evolving regional riskscape, ASEAN has adopted a two-pronged strategy to strengthen regional disaster resilience. ASEAN develops capacity in the region through training programmes and concurrently invests in international cooperation. Global frameworks such as the Sendai Framework, the 2030 Agenda for Sustainable Development, the Paris Climate Agreement, the Addis Ababa Action Agenda and the New Urban Agenda provide general guidance for the development of disaster management in Southeast Asia.[24] Meanwhile, ASEAN, in collaboration with international partners has formulated strategies and action plans that take into account the distinctive challenges and needs in the region. Droughts inflict most economic losses in ASEAN Member States where agriculture is a pillar of national economy. In the third quarter of 2018 alone, 4.8 million people in ASEAN were affected by droughts.[25] ASEAN adopted the Declaration on Strengthening of Adaptation to Drought in 2020, and it has been collaborating with ESCAP on developing the regional plan of action 2021-2025 to implement the declaration.

Moving beyond frameworks however, there is also a need to look at the interlinkages that exist in the ASEAN context. The COVID-19 outbreak has highlighted the ramifications of a crisis that moves beyond sectors and a singular response to the pandemic. In a region beset with natural hazards, humanitarian action is further compounded by simultaneous emergencies. In the case of the COVID-19 pandemic, the unique features of an infectious disease and the measures taken in response has led to disaster management and humanitarian challenges including disrupted supplies of relief items, impacts of social distancing measures on response plans and cuts to funding in other policy areas. The outbreak highlighted the need for the sector to reconsider its preparedness planning to be better prepared for a much more complex and uncertain future. Given this increasing uncertainty and complexity, strategic foresight and investing in future systems within existing institutions are vital for ASEAN's resilience to build a more prosperous region.

2.3

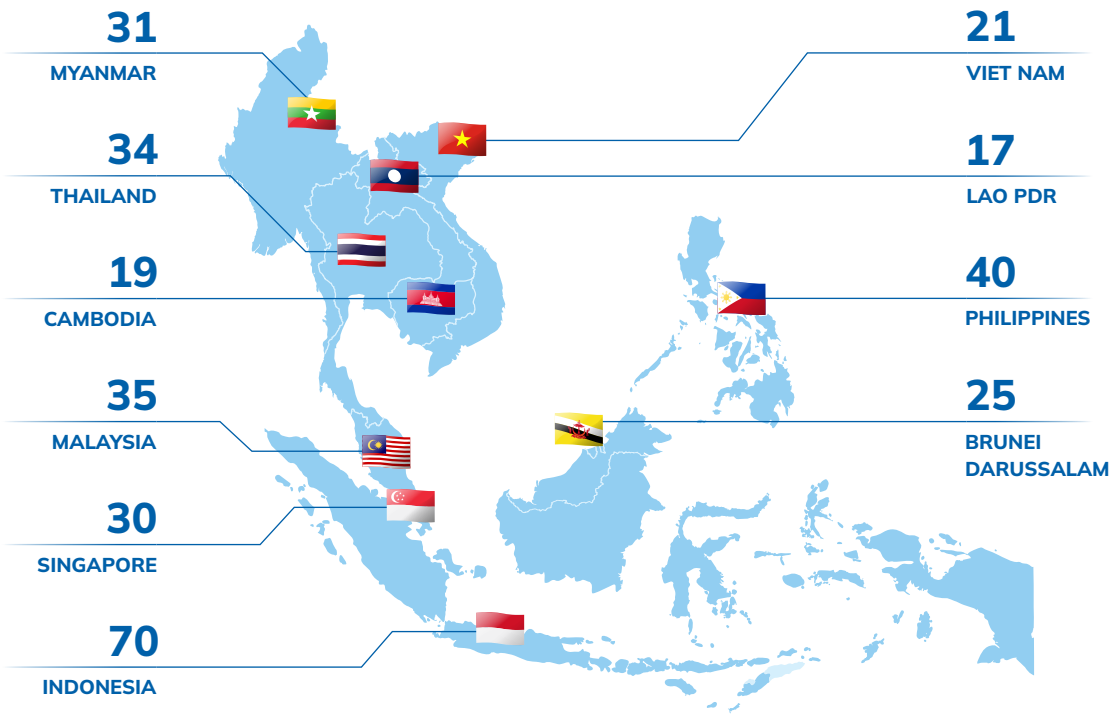
ASEAN as a Global Leader in Disaster Management

The ASEAN Vision 2025 on Disaster Management outlines the regional commitment to be a global leader. ASEAN demonstrates its experience, knowledge, and expertise in disaster management and emergency response through building partnerships with civil society groups, international organisations, private sector and dialogue partners and by being a resource for best practices in disaster management. At the World Humanitarian Summit in May 2016, ASEAN highlighted its commitment to enhancing the role of regional organisations in disaster management. This commitment feeds into the global trend of a greater emphasis on localisation. ASEAN's aspiration for global leadership was also manifested in the Declaration of One ASEAN One Response: ASEAN Responding to Disasters as One in the region and Outside the region, which was endorsed by ASEAN Member States in September 2016. The UN is a key partner of ASEAN and provides the platform for ASEAN to build global leadership. ASEAN and UN began the ASEAN-UN Joint Strategic Plan of Action on Disaster Management (JSPADM) in 2012 and will launch the JSPADM IV (2021-2025) in October 2021 on the side-lines of the 9th ASEAN Ministerial Meeting on Disaster Management (AMMDM). Within this framework, ASEAN has engaged the UN Office for the Coordination of Humanitarian Affairs (OCHA) to enhance interoperability in times of need. This partnership led to the ASEAN-OCHA Interoperability Brief in 2017 and the ASEAN-OCHA Partnership Roadmap in 2020. ASEAN and OCHA organised a joint session during the Humanitarian Networks and Partnerships Weeks in 2021 to promote international awareness of the partnership. The joint event introduced the community of disaster management and emergency response professionals to regional policy and practices in ASEAN and the roadmap of ASEAN and OCHA in deepening disaster resilience cooperation.

ASEAN demonstrates its ability to function as a 'knowledge base' in disaster management and emergency response by hosting important annual collaborative and learning events such as the ASEAN SPDDM in Singapore, ASEAN Senior Executive Programme on Disaster Management (SEPDM) in Singapore, and the High-level Symposium on Disaster Management in Jakarta. These dialogue sessions provide a platform to: 1) showcase the strong collaboration between ASEAN, UN Agencies, dialogue partners, and various stakeholders by creating a network of actors in the disaster management space, 2) enhance and nurture the planning capabilities of ASEAN, UN Agencies, dialogue partners, and various stakeholders in disaster management and; 3) identify ways in which policy engagement between ASEAN, dialogue partners and the UN can be further strengthened, and 4) enable ASEAN to share its disaster management best practices with partners from other regions.

Figure 2.3.1:

ASEAN-ERAT MEMBERS ACROSS ASEAN



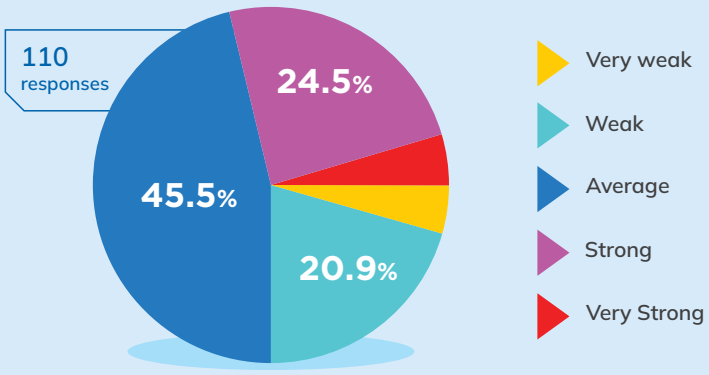
Source: AHA Centre, "Annual Report 2020: Transformation Through Adversity", 2021
Disclamer: The map in this publication is only indicative and is not drawn to scale

As the operational engine of regional disaster management and emergency response in ASEAN, the AHA Centre also contributes to ASEAN's global leadership. As the focal point for disaster management in the region, the AHA Centre is moving beyond emergency response after a decade of development. With strong support from Brunei and Philippines, it has coordinated the construction of the ASEAN Village in Palu City in Central Sulawesi, which provides housing to the affected communities after the 2018 Central Sulawesi tsunami and earthquake. The project is an example of partnership between ASEAN, its member states, dialogue partners and the AHA Centre's first foray into the resilience and recovery space.[26] The AHA Centre acts as the regional network coordinator for training and leadership in disaster management and emergency response. In particular, the ASEAN-ERAT programme is a core component of ASEAN's effort to develop human resources for disaster management in the region. There are 322 ASEAN-ERAT members across the various ASEAN member states allowing ASEAN to further develop the next generation of leaders in the region as of 31 December 2020 (Figure 2.3.1).

The extensive knowledge and experience accumulated from regional disaster management practices and capacity building has formed the basis for the AHA Centre to contribute to ASEAN's global leadership through engagement with international agencies, other regional organisations, civil society groups, and the private sector. ASEAN is a member of the Regional Organizations Humanitarian Action Network (ROHAN) which is an informal network of 13 regional entities working in humanitarian affairs. The AHA Centre and the Humanitarian Policy Group co-hosted the second ROHAN meeting on 16 November 2016 in Jakarta. Even though ROHAN is inactive now, this inter-regional platform presented an instructive model to demonstrate ASEAN's leadership in global disaster management. Through such activities, the AHA Centre promoted ASEAN's experience and best practices in disaster management and emergency response with other regional organisations, contributing to the collaborative model of disaster management, which is nationally led, regionally supported and international-as-necessary. These external engagements have led to a recognition of ASEAN's leading role in global disaster management with 74.5 percent of the ADRO survey respondents agreeing that ASEAN has demonstrated leadership. Nevertheless, 25.5 percent of the respondents disagreed with this observation, which points to the need to strengthen ASEAN best practices and its participation in disaster management dialogues.

Survey Chart 2.3.1

ASEAN'S GLOBAL LEADERSHIP IN DISASTER MANAGEMENT

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ASEAN-ERAT
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One ASEAN
ne Response
One ASEAN


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ASEAN
Response
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10

TOWARDS A RESILIENT ASEAN BY 2025 AND BEYOND

3.1

Institutionalisation and Communications

3.1.1

Proximity, Legitimacy and Capacity: Future-Ready Regional, National and Local Entities in disaster management

Since AADMER came into effect, the ASEAN Committee on Disaster Management (ACDM) drives the strategic implementation of the agreement and the AHA Centre provides operational leadership. The AADMER thus provides the legitimacy to the regional model for a nationally led, regionally supported and international-as-necessary system. The agreement provides a platform to build the capacity of NDMOs through training activities, exercises, information sharing and deployments in fellow ASEAN Member States to augment emergency response in disasters. This has built a baseline capacity across the region in line with the 2015 Declaration on Institutionalising the Resilience of ASEAN and its Communities and Peoples to Disasters and Climate Change. As such, the next step forward would be to institutionalise these developments at the local level within ASEAN Member States through a concerted effort and collaborative model driven at the regional level to develop guidelines and frameworks for implementation.

The ASEAN disaster management community should develop a 'Go Out' strategy to develop a collaborative framework for action by 2025 for implementation towards a resilient ASEAN in 2035. This would involve developing linkages with other sectors with direct contributions to Climate Change Adaptation and Disaster Risk Reduction such as the agriculture, health, national planning, and social welfare sectors. In terms of planning, the primary areas of focus should be on infrastructure design and integration of local decision making, the development of robust planning, regulations and permits, and inclusion of these components into national developments plans.[28] A flagship ACDM initiative, the ASEAN Safe Schools Initiative (ASSI) highlights the importance of developmental planning, building infrastructure resilience and ensuring a deeper cross-sectoral collaboration as part of a holistic disaster management strategy. With the *ASEAN Common Framework for Comprehensive School Safety* completed and the ASSI Programme Strategy developed as part of the previous ASEAN Work Programme, it is now time to institutionalise stronger school safety programming. This would take the form of enhancing coordination through the regional, national and local levels by alignment with the Global School Safety Initiative. Engaging and developing partnerships with stakeholders both in and out of the region should be a future focus of ASSI as it would enable the Initiative to further strengthen capacity. The ASSI also provides an instructive example of how ASEAN can build collaborative models and partnerships in other sectors.

Collaborative models will also facilitate the development of regional best practices to mainstream Disaster Risk Reduction and Climate Change Adaptation with other relevant ASEAN sectoral bodies. ASEAN should be prioritised. Through a strong intra-regional collaborative network, it would enable links to be

forged with other regional bodies through multiple sectors to build a resilience coalition grounded in complementarity (Figure 3.1.1.1). The aim of a resilience coalition is to share best practices, build training partnerships and facilitate regional platforms representation in global dialogues. ASEAN already has an existing partnership with the European Union to develop further, and the region shares common natural hazards with countries in the Pacific Islands Forum and Pacific Community. Through forging stronger ties by 2030, ASEAN can demonstrate new global leadership to facilitate a resilience coalition that nurtures a more anticipatory and forward-looking approach to disaster management, disaster risk reduction and climate change. In particular, the inclusion of ASEAN's near neighbours – Timor-Leste and Papua New Guinea – would be a key building block in enhancing not only their individual capacities, but also overall regional capacity. Not only are these states affected by disasters, coordinating in the area of disaster management would be an opportunity for

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further interaction between these countries and regional organisations in the Asia-Pacific. This would reshape the regional disaster management approach into one which centres on people and partnership networks. This would further fulfil the goals of the One ASEAN One Response declaration in the achievement of faster response, the mobilisation of increased resources and the establishment of strong forms of coordination to ensure a collective regional response to any disasters inside and outside the regional organisation.

A continuous challenge to disaster management and emergency response is the need to instil continuity in leadership and human resources. Institutional memory and knowledge management are central to these efforts and should be integrated into a supportive ecosystem with predetermined relevant research institutes and think tanks by 2025. These relationships should be formalised over the next five years with the aim of developing an active network of supportive research institutes and think tanks with direct channels to the disaster management community. By creating an active ASEAN platform that connects to and embeds partners with local and national entities in Foresight Hubs (Figure 3.1.1.2), ASEAN will be able to plan from the future and develop the capacity of sub-national governments across the region.

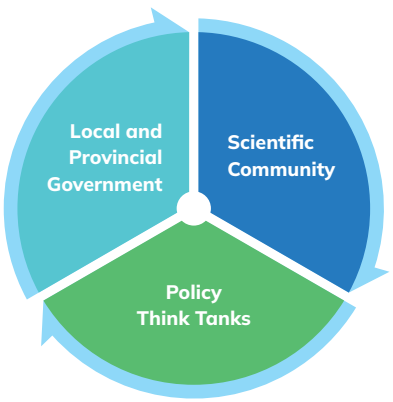
Figure 3.1.1.1

RESILIENCE COALITION

Source: Authors

Figure 3.1.1.2

FORESIGHT HUBS AT LOCAL AND PROVINCIAL LEVELS



Source: Authors

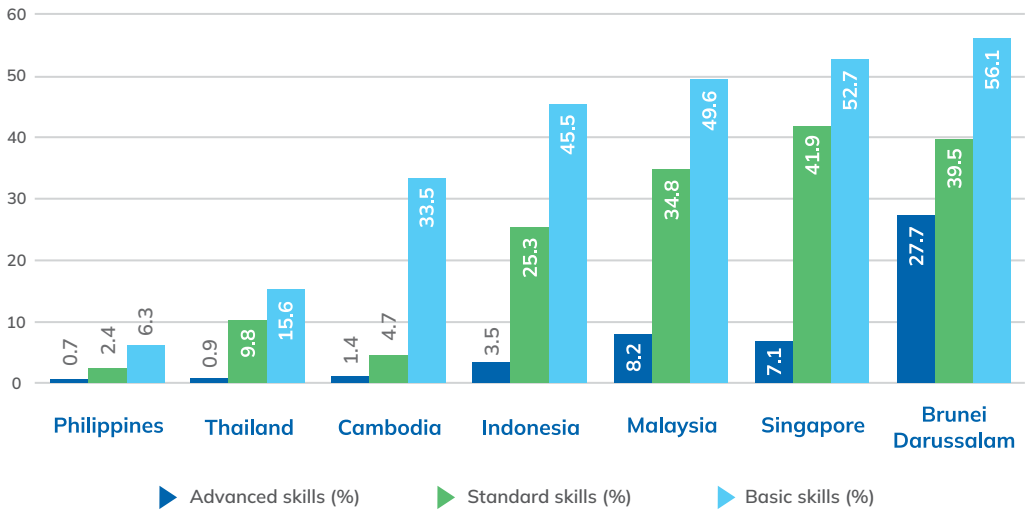
3.1.2
Retooling for Digital Literacy and Interactive Information Crowdsourcing in Disasters

The COVID-19 pandemic has further increased the demand for digital connectivity as lower costs and relative ease of data platforms has impacted how decisions are made across all sectors. It has become a new and significant driver of greater digital connectivity that will characterise the 2020s. Climate responsibility, continued economic development, demographic shifts and social well-being are other key drivers towards the need for more comprehensive regional engagement. In line with this trend are policy developments focused on issues of inclusion, access, security, skills, and sustainability in terms of emerging technologies. All these components are critical in the development of a resilient ASEAN and have significant implications for the structure of disaster management in the region.

Across the wider Asia-Pacific the number of people accessing the internet increased from 38.6% in 2017 to 44.5% at the end of 2019 (Figure 3.1.2.1).[30] However, there remains a digital divide as most people remain unconnected. The digital divide is observed as particularly acute between men and women, and urban and rural households. In 2019, 41.3% of women accessed the internet compared to 48.3% of men. The divide between urban and rural households is starker with 70.4% of urban households accessing the internet compared to 37% of rural households (Figure 3.1.2.1).[31] Satellite broadband and connectivity solutions offer an effective means of addressing the digital divide across the region. The goal of ending the digital divide in ASEAN by 2030 through the further penetration of existing internet connections and utilising satellite solutions will be necessary to ensure a resilient region and a prosperous future.

Figure 3.1.2.1

ICT SKILLS IN ASEAN 2017 - 2019*



*Myanmar, Laos, Viet Nam data unavailable

Source: ITU Digital Trends in the Asia-Pacific, 2021.

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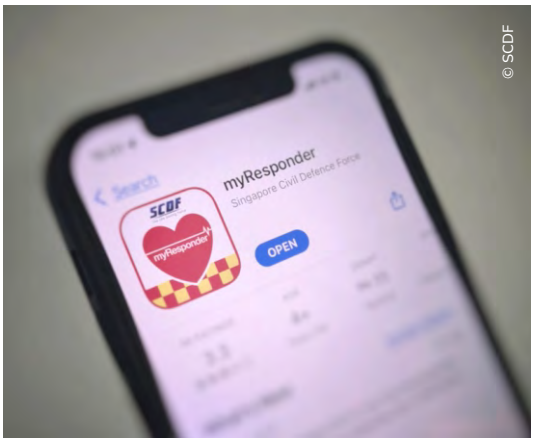
Over the last decade the regional community has trained disaster management leaders and responders through the ASEAN Senior Executive Programme on disaster management, AHA Centre Executive (ACE) Programme, and ASEAN-ERAT. For ASEAN to become a resilient and prosperous region, it is imperative that its reach expands beyond current and immediate future leadership training to include young people, women, and community leaders. To date, the latest developments of disaster digital literacy has primarily focused on the next generation and digital comics, videos and gamification. Students more easily understand the implications of natural hazards if they experience it themselves and the audio-visual level has a higher percentage of understanding than the level of listening and reading. As ASEAN moves towards 2030, the widespread accessibility and utilisation of online digital literacy tools and social media will be necessary to increase leadership skills and preparedness for a disaster or emergency.

Such training would include how to access information on disasters and disaster preparedness, online tools and social media to build trust, and informed use of online information in disaster recovery. There are numerous available materials for disaster preparedness and recovery but there remains a disconnect between available materials and the digital literacy and accessibility of vulnerable areas in the region. It is therefore important to devise a roadmap for digital literacy for disasters to achieve a comprehensive and substantive increase in awareness across ASEAN by 2025. However, the current inequality in development and over-reliance on digital technology in disasters will likely increase the inequities between the haves and have-nots. It is therefore crucial that the digital literacy roadmap is people-centred and needs-driven.

A core element in increasing disaster awareness is through interactive information crowdsourcing. It is essential that a collaborative approach to leadership is integrated into the strategy for increasing digital literacy. Out of the top ten biggest Facebook user bases in the world, four countries – Indonesia, Philippines, Viet Nam, and Thailand – are from Southeast Asia. As such, the importance of using georeferenced social media data to provide a different perspective for disaster management to fill gaps in authoritative data cannot be denied. There is a need to build more comprehensive situational awareness across the region and interactive information crowdsourcing complements government data collection.

While not directly related to disaster management, Singapore's myResponder app was launched to take advantage of the digital literacy and crowdsourcing mentality of the population. Using this app, the Singapore Civil Defence Force (SCDF) is able to notify members of the public – also known as Community First Responders (CFRs) of cardiac arrest and minor fire cases within 400m radius of their location. myResponder also highlights nearby AEDs that may be available to responders. CFRs can then proceed to the stated location and assist by performing CPR or applying AED, mitigating minor fires using available extinguishing means, and/or providing further information to the SCDF's Emergency Operations Centre.

Overall, using Volunteered Geographic Information (VGI) and georeferenced social media data to improve the situational awareness in the region will contribute to a disaster management system ready for future disasters. The use of social media in ASEAN thus needs to move from a dissemination exercise to an interactive approach where users contribute to building a more complete picture in the region.



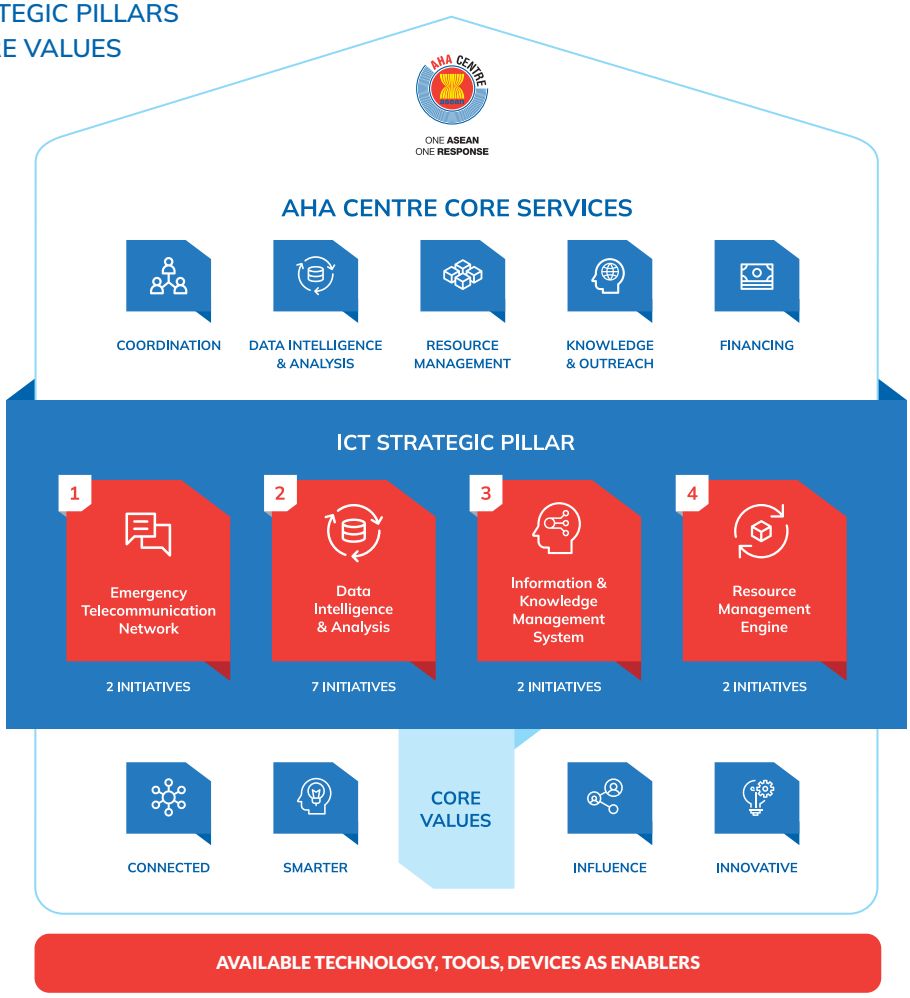
The increasing popularity of social media as a source of information has meant ASEAN's utilisation of social media is and will continue to be a key factor in any communication strategy. Unfortunately, along with the high consumption and dissemination of news via social media, the risk of misinformation has also grown. Beyond legislation – as has already been passed in several Southeast Asian countries including *Singapore's Protection from Online Falsehoods and Manipulation Act* and Viet Nam's *Law on Cyber Security*, a long-term multi-stakeholder approach is needed. This approach must include not just digital literacy, but also overall information literacy – and a commitment to enhance critical thinking skills.

At the local and national level, this can be achieved through building digital education into school education, or the development of programs for specific vulnerable groups such as the elderly. At a regional level, ASEAN should work to strengthen their relationships with the media sector, legitimate news agencies and fact-checkers, and involving the sector in training, exercises and dialogue. By 2025 it will be essential to activate collaborative mapping exercises of users and geographical information through collective intelligence. Only then can the region generate solutions that are well informed and generate user trust in the development of an interactive situational awareness plan of action – one that integrates local knowledge, scientific evidence and user expertise.

3.1.3
Disaster Risk Communication Fit for the Next Generation

Within ASEAN, the most prominent regional entity to communicate disaster risk is through the AHA Centre disaster information management platforms and tools. In 2019, the AHA Centre launched the ICT Roadmap on Disaster Management for 2025 and Beyond (Figure 3.1.3.1). In the same year the ASEAN Risk Monitor and Disaster Management Review was launched to further bridge science and decision-making in disaster management. This publication contributes to a comprehensive approach to disaster management taken by the AHA Centre. It demonstrates a key outlet to share knowledge and build institutional memory in ASEAN and its first two editions primarily showcase and communicate the work of disaster risk reduction in-house and external experts. The AHA Centre also runs a series of online platforms to share knowledge and information on hazards and disasters in the region and for ASEAN Member States – the ADINet, the ASEAN Science-based Disaster Management Platform (ASDMP), and the Disaster Monitoring and Response System (DMRS) of ASEAN.

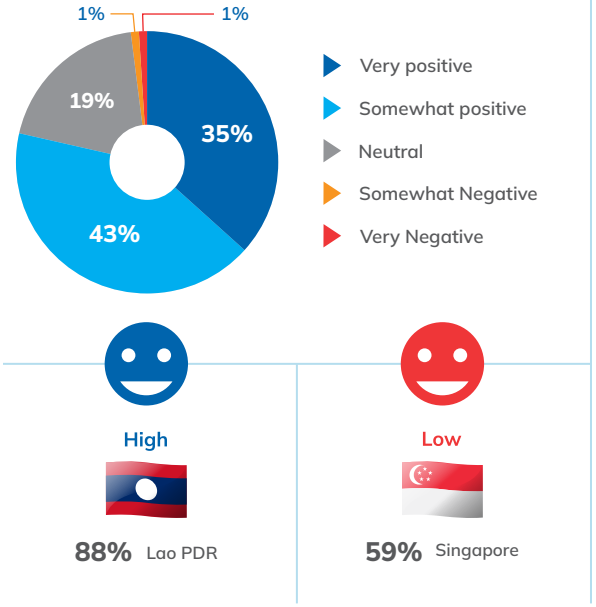
Figure 3.1.3.1
ICT STRATEGIC PILLARS AND CORE VALUES

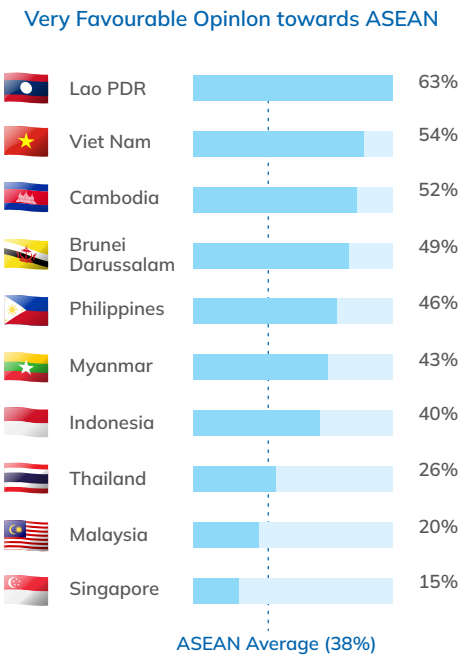


Source: ICT Roadmap on Disaster Management for 2025 & Beyond

Figure 3.1.3.2

VIEWS OF ASEAN WITHIN THE REGION





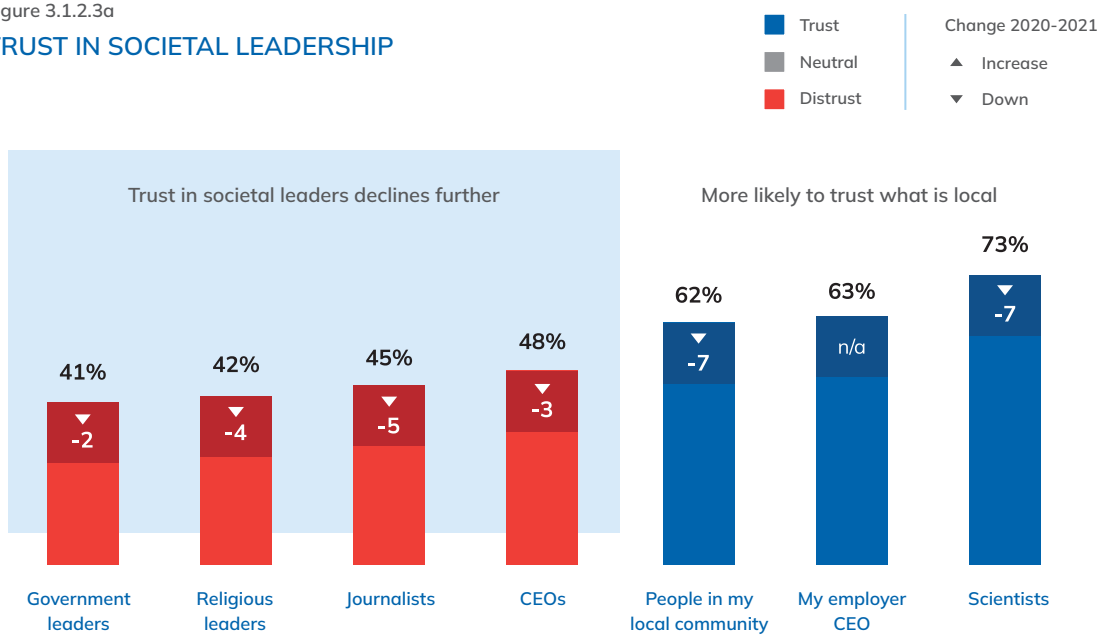
Source: Blackbox ASEAN Turns 50, 2017

Disaster management now encompasses all hazards driven by the realities of our surroundings, implementation of policy changes and a strategic direction to address the vulnerability, exposure and resilience of communities yet sectoral siloes remain. The predictions of an increased global population and urbanisation along with increasingly extreme weather events have caused policy-makers to focus on disaster management fit for the future. This strategic revolution will require a synthesised approach to disaster management that draws on data and scientific information from multiple sources, collaboration, standardisation, interoperability, and effective communication and integration of anticipatory action into social protection systems. It is important to integrate local and provincial level actors into the ICT infrastructure to ensure a functional smart and integrated system for all hazards, agencies, and communities by 2025. Political commitment is a key factor to mobilise the existing infrastructure into practice, particularly with anticipatory action. It is essential to implement the structures, practices and mechanisms in place to mitigate, prepare for, manage, respond and recover from disasters.

The 2021 Edelman Trust Barometer (Figures 3.1.2.3a and 3.1.2.3b) shows that the people surveyed have very high levels of trust in their employer in ASEAN Member States – more than in their government leaders. The development of trust was a key component in the ISC-ITU Report on The Age of Digital Interdependence in 2019 presented to the UN Secretary-General. ASEAN was found to have a favourable image in the Blackbox ASEAN Turns 50 survey in 2017 (Figure 3.1.3.2).[33] Trust levels are generally stable or increasing across ASEAN (Figure 3.1.2.3c). It is therefore critical to actively engage employers in a forum for dialogue with relevant ASEAN entities and offer disaster awareness training tailored to employers to facilitate the communication of disaster risk as an important avenue to reach people in ASEAN as part of its strategy towards a resilient and prosperous region by 2035.

Figure 3.1.2.3a

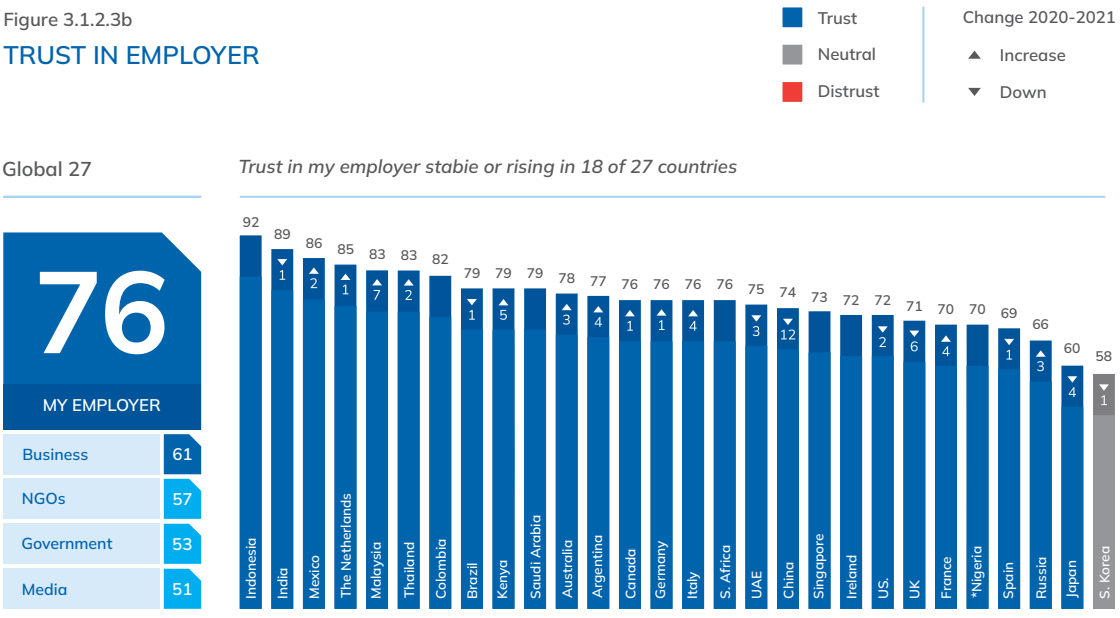
TRUST IN SOCIETAL LEADERSHIP



Source: 2021 Edelman Trust Barometer, 2021

Figure 3.1.2.3b

TRUST IN EMPLOYER



Source: 2021 Edelman Trust Barometer, 2021

Figure 3.1.2.3c

TRUST IN EMPLOYER ACROSS SOUTHEAST ASIA

ASEAN Member State	% Trust in my employer	Change from 2020 to 2021
Indonesia	92	0
Malaysia	83	+7
Thailand	83	+2
Singapore	73	0
Average	82.75	

Source: 2021 Edelman Trust Barometer

With significant levels of trust at the local level and a positive image of ASEAN, there is an immediate need to elevate the role that risk communication and community engagement (RCCE) plays in disaster management at the regional level. Implementation of such a strategy will further the end goal of a people-centred and community-led approach in ASEAN to communications in disaster management. This shift will increase trust and social cohesion and reduce the impact natural hazards have in the region. This would necessarily include shared situational awareness which moves from information dissemination to a people-centred approach. The development of digital technologies and social media platforms have led to new ways of delivering better targeted, actionable risk information to diverse publics across multi-cultural, multi-agency and multi-jurisdictional boundaries.

The key challenge for innovation in disaster and risk communication lie not in the generation of innovative practices, but in the implementation of mechanisms by which innovations and improved practice are diffused and moved from a state of emergency to wide-scale adoption. How innovations are stabilised and grown in terms of institutionalisation, scope and function[34] are the core areas that need to be addressed by 2030 – 2035. This necessarily includes the use of early action triggers to activate plans to provide strategic information to inform who acts when, where, and how. It is therefore important to devise a framework and key ingredients to inform ASEAN Member States to create, disseminate and engage communities in key recovery messages within a few days after a disaster event, establish mechanisms for coordinated and consistent communication across government entities, and encourage the adaptation and use of pre-existing communication platforms and networks rather than necessarily develop new ones. Multi-stakeholder partnerships have been successful in raising awareness and communicating risk in affected communities.

Research on crisis communications has highlighted that technical advice about forthcoming disaster events does not generate widespread impact in affected communities. The more successful dissemination strategies are those that include messages that simulate face-to-face communication and should be a medium for hazard warnings.[35] In 2014 the Prudence Foundation and National Geographic launched the SAFE STEPS Natural Disasters as a pan-Asian public service initiative aimed at providing people with basic education messages on how to prepare for natural hazards. All steps provided were approved by the International Federation of Red Cross and Red Crescent Societies (IFRC).[36] Further developing this communication medium between scientists, operational and technical agencies in ASEAN is important to raise awareness and empower communities to develop preparedness strategies ASEAN by 2035.

These communication avenues need to be developed while paying attention to increasingly prevalent disruption. Disinformation campaigns can be used by states or non-state actors through a variety of media outlets targeting different communities. There are three main ways that disinformation impacts disaster management activities. Firstly, they can contribute to creating new crises or exacerbate existing ones. Secondly, malicious actors can use information sharing channels to discredit responding organisations to generate distrust. Thirdly, disinformation can undermine political will and negatively impact the commitments made by supporting partners. As such it is incumbent upon the ASEAN Community to devise an appropriate action plan to better understand the trends and typologies of various potential attacks in order to combat them and assess the impact of such policies on the free flow of information.[37]

Rather than producing officious messages which seek to change behaviours, there is a need to explore creative means to keep the audience engaged enough to ensure information retention, which in turn would shape behaviour. The challenge is in the modality of the information to be communicated. For example, in Singapore, the Singapore Civil Defence Force (SCDF) regularly communicates public education messages for emergency situations. These include updates on ongoing or recent emergency incidents as well as public education messages in the areas of fire safety, first aid and community first response. The SCDF has also developed an award-winning[38] social media strategy based on three key pillars - Incident Coverage,[39] Trend-Jacking[40] and Creative Content Production,[41]– in a bid to deliver high-quality, targeted, and engaging disaster risk information to the public. Similarly, in the Philippines, the Office of Civil Defence (OCD) created a Civil Defence Viber Group to strengthen its information drive on disaster awareness and mitigation. The aim is to create a platform for the dissemination of disaster mitigation and resilience principles, and to encourage the community to propagate messages from official sources.[42]

3.1.4
Disaster Leadership for Tomorrow

The ACDM has established itself as a key forum for global thought leadership through the hosting of dialogues and participation in global forums such as the annual ASEAN SPDDM. The professionalisation of NDMOs at the national level is the most prominent indicator of this success. Tangible evidence of this can be seen in increased engagements with regional bodies and NDMOs taking on leadership and organisational roles in capacity-building initiatives and programmes. With the establishment of the AHA Centre in 2011, the region has continued to build capacity and become a global leader in disaster governance.

The AHA Centre has invested in developing key leadership skills through the AHA Centre Executive (ACE) Programme and the ASEAN-ERAT programmes producing a solid cadre of leaders across the ASEAN region. Efforts to further mature these processes are currently underway. Singapore's Civil Defence Academy (CDA) offers disaster management courses, with a focus on leadership development. The Senior Executive Programme on Disaster Management (SEPDM) is a flagship programme that brings together future leaders, academics, and experts in the disaster management community. The Leadership in Emergency and Disaster Management (LEAD) Centre is a designated facility within the CDA that also facilitates the learning, research, and networking of its course participants. To develop future-oriented disaster management professionals, the AHA Centre is developing FUTURESCAPES (Future-Driven Strengthening of Capacities of ASEAN Professionals in Emergency Response and Building Resilience). This course seeks to build the capacity of NDMO professionals with a solid grounding of the current and emerging trends and challenges in disaster management.

The ASEAN Standards and Certification for Experts in Disaster Management (ASCEND) is an initiative by ASEAN Member States and endorsed by the ACDM in 2018 to establish a common set of standard skills and competencies for each profession in the disaster management sector. Phase 2 (2020-2023) of this project is currently being implemented by the AHA Centre, with support from the Republic of Korea. The Vietnam National Disaster Management Authority's (VNDMA) partnership with the AHA Centre organised the Humanitarian and Emergency Logistics Innovation Expo (HELIX) is another recent example that highlights how NDMOs get involved in regional efforts to build disaster management capacity.

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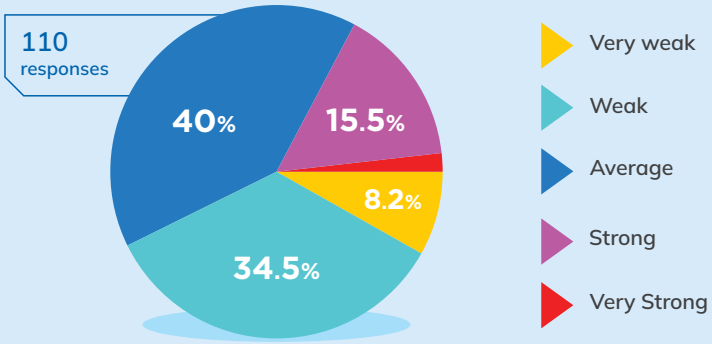
Survey Chart 3.1.4.1

GENDER AND SOCIAL INCLUSION IN ASEAN DISASTER MANAGEMENT



The principle of Gender and Social Inclusion was was marked as a key priority area for ASEAN through its inclusion in the AADMER Work Programme 2021-2025. Current efforts include the ASEAN Technical Working Group on Protection, Gender, And Inclusion (TWG PGI).

The TWG PGI was created in March 2021 with the objectives to: (i) address specific issues in the context of PGI in humanitarian action and disaster relief (HADR) in ASEAN, using AADMER as the regional policy backbone and common platform to maintain ASEAN's Centrality; and (ii) serve as an inter-sectoral platform to promote and technically support all ACDM WGs and other actors working towards the achievement of gender equality, elimination of violence against women, and protection and empowerment of everyone at risk in disasters, including women and people with disability, through gender and protection mainstreaming across the region.

Other ongoing projects by ASEAN include the ASEAN Regional Framework & Guidance on Protection, Gender, and Inclusion in Disaster Management 2021-2025. Set to be launched in October 2021, this framework aims to support ASEAN by creating a common vision of gender inclusion for the region and actively provide support for countries in setting priorities, indicators and targets. This would also allow ASEAN to improve its data availability, particularly in the form of sex-disaggregated data as has been highlighted in the UN's ASEAN Gender Outlook.[44] This would also support ASEAN's evolution from a 'need to know' to a 'need to share' policy on information management.

Figure 3.1.4.2

More women are now participating in decision making, but parity has not been reached:

20% **of parliament seats are occupied by WOMEN.**

MEN ARE

11.5

TIMES

as likely as women to be employed in ASEAN Member States.

Efforts should focus on promoting. among others, young women's engagement

Source: ASEAN Gender Outlook, 2021

Figure 3.1.4.3a

ERAT BY GENDER, 2020

	Male	Female
ERAT Members	64.28%	25.71%
ERAT Trainers	71.87%	28.12%
ASEAN Population	49.9%	50.1%

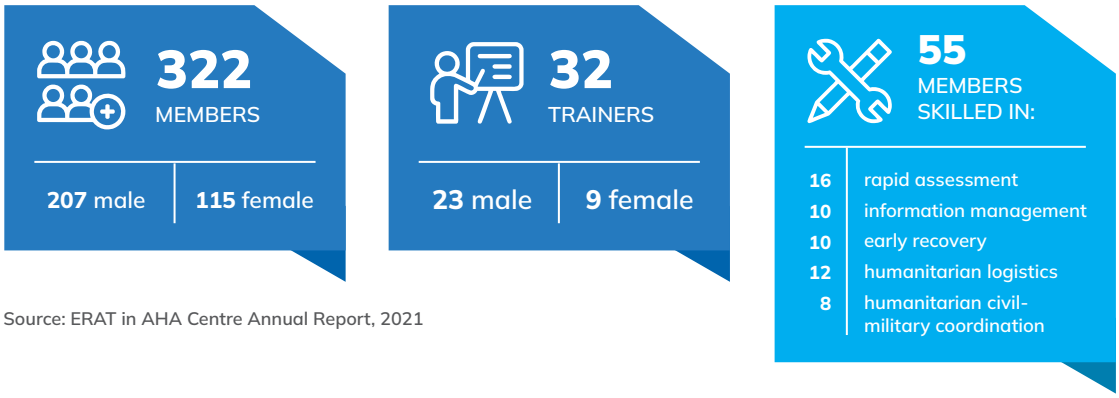
Source: ERAT in AHA Centre Annual Report, 2021; ASEAN Statistical Yearbook 2020.

ASEAN has reduced gender inequalities from enhancing women's access to education and participation in decision-making. As ASEAN moves towards a resilient and prosperous region, there is a need to increase female representation not only at the leadership and management levels but also in the overall workforce as well (Figure 3.1.4.2). 64.28% of ERAT members were male and 35.71% were female (Figure 3.1.4.3a). Moreover 71.87% of ERAT trainers were male and 28.12% were female (Figure 3.1.4.3a), which when compared to the ASEAN population distribution by gender of 49.9% male and 50.1% female (Figure 3.1.4.3c), is indicative of the work that still needs to be done.[45]

Beyond developing policies such as the inclusion of gender sensitivity in training modules and materials as seen in the AADMER Work Programme 2021 - 2025, ASEAN should assess a quota system for a minimum percentage of women in organisational roles to advance gender equality. COVID-19 has further heightened the need for gender equity in the region. Although the virus infects people regardless of gender, its impacts are nonetheless gendered with women disproportionately impacted.[46] As such, beyond representation in leadership positions, representation in policy development is also vital. Rather than creating 'gender-blind' policies which do not sufficiently address the specific vulnerabilities of women during disaster situations, policies should instead be gender-sensitive, taking gender relations into account.[47]

Figure 3.1.4.3b

ERAT COMPOSITION



Source: ERAT in AHA Centre Annual Report, 2021

Figure 3.1.4.3c

ASEAN POPULATION BY GENDER

Country	Number ('000)			Percentage			Sex Ratio
	Male	Female	Total	Male	Female	Total	
Brunei Darussalam	244.5	215.0	459.5	53.2	46.8	100.0	113.7
Cambodia	8,014.6	8,274.7	16,289.3	49.2	50.8	100.0	96.9
Indonesia	134,025.6	132,886.3	266,911.9	50.2	49.8	100.0	100.9
Lao PDR	3,569.0	3,554.1	7,123.1	50.1	49.9	100.0	100.4
Malaysia	16,830.7	28,150.0	32,581.5	51.7	48.3	100.0	106.4
Myanmar	25,950.0	53,656.9	108,274.3	48.0	52.0	100.0	92.2
Philippines	54,617.4	2,056.8	4,026.2	50.4	49.6	100.0	101.8
Singapore	1,969.4	34,831.3	67,989.8	48.9	51.1	100.0	95.7
Thailand	33,158.5	48,466.3	96,484.0	48.8	51.2	100.0	95.2
Viet Nam	48,017.7	48,017.7	48,017.7	49.8	50.2	100.0	99.1
ASEAN	326,397.3	327,842.3	654,239.6	49.9	50.1	100.0	99.6

Source: ASEAN Secretariat
ASEAN Statistical Yearbook 2020

Note: 1) Data for Singapore refer to resident only
2) Total ASEAN exclude Singapore's non-resident population

As the region moves towards realising the ASEAN Vision 2025 on Disaster Management it is important to invest and plan for the future. This will ensure that it consolidates its prominent global leadership position in disaster management. This will require continued investment in active leadership in disaster management through the effective identification of project objectives and identification of relevant stakeholders, the efficient management of stakeholder engagement and the robust understanding of the socio-cultural context.[48]

As the global governance system continues to be stymied by sectoral siloes, disaster management in ASEAN can lead the way by reinvigorating its own disaster management system. Through adopting a nexus approach, it will initially bridge sectoral siloes and move strategy and practice in the region to systems thinking rooted in collaborative governance by 2030. This will require multi-modal implementation that reconfigures disaster management leadership both horizontally across the ASEAN communities and vertically investing in leadership at the provincial and local levels.[49]

In 2009, the role of the ASEAN Secretary-General was revised to include the role of ASEAN Humanitarian Assistance Coordinator. This role is only activated in times of major disasters such as pandemics and natural disasters, and only at the behest of or with the consent of the affected ASEAN Member State. While this role was created to enhance ASEAN coordination and cooperation during times of disasters, the scope of these efforts is narrow – a potential weakness as disasters are now greater in frequency and magnitude. The appointment of a full-time Chief Risk Officer covering all ASEAN Communities would create an avenue to reshape disaster management leadership towards fulfilling the vision of a resilient and prosperous ASEAN fit for purpose and ready for the challenges ahead. Anchored in the ASEAN Secretariat under the ASEAN Secretary –General, the Chief Risk Officer should be advised by an Advisory Group comprising key partners from the people and private sectors in ASEAN such as academics, employers, scientists, sectoral leaders, and workers (Figure 3.1.4.4). Within the office of the Chief Risk Officer would be an important component to ensure that future risks are embedded in strategic planning. The development of a Pandora Cell and Strategic Futures Cell would inform a future ready strategy by strengthening disaster management and emergency response within ASEAN. The adoption of a Pandora Cell and Strategic Futures Cell within NDMOs and at the local and provincial levels would further enhance its commitment to revising strategies fit for purpose.[50] The development of this core capacity both horizontally and vertically within ASEAN with contribute towards a future focused disaster management leadership to build a resilient and prosperous ASEAN.

Figure 3.1.4.4


ASEAN-ERAT
asean
One ASEAN
One Respons
© AHA Centre


BNPB
PUSDIKLAT PB
© AHA Centre


© SCDF


© AHA Centre


BNPB
ASEAN-ERAT
© AHA Centre

3.2

Finance and Resource Mobilisation

3.2.1
Forging Pathways for Parametric Insurance ahead of Disaster and Environmental Triggers

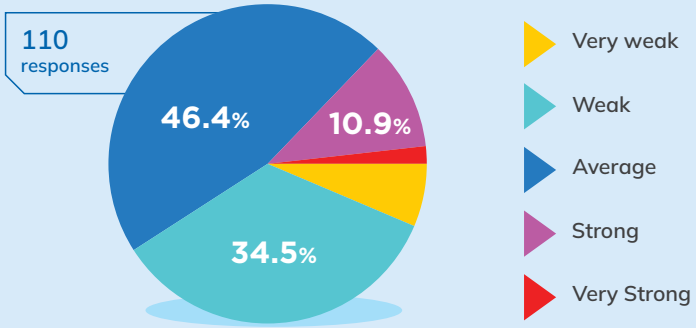
Disaster risk financing is crucial to ASEAN's efforts to strengthen disaster resilience in the region. Existing studies suggest that every $1 spent in disaster risk reduction can save $4-$7 in response.[51] Nevertheless, disaster risk reduction still faces enormous financial challenges. Only 3.8 percent cent of disaster-related international development aid was invested in prevention and preparedness between 2005 and 2017, with the rest allocated for emergency response and early recovery.[52] Moreover, some studies show that expenditure for disaster management are positively correlated to temperature. An increase in global temperature by 1°C results in the need for an additional $1 trillion of investment to address its consequences.[53] Greater investment in disaster risk reduction therefore is imperative and in line with the priorities of the Sendai Framework.

Parametric insurance has been increasingly adopted to transfer natural hazard risks to the markets and reduce the burden on government budgets.[54] The turn to disaster risk insurance to enhance disaster resilience has been evident in the establishment of disaster risk pools in different regions such as the Caribbean Catastrophe Risk Insurance Facility (CCRIF), African Risk Capacity (ARC) and the Pacific Catastrophe Risk Insurance Company (PCRIC). These successes have offered lessons and inspiration for ASEAN, where exposure to natural hazards are high, with five countries scoring above five out of ten (Figure 3.2.1.1). In the case of ASEAN, the Disaster Risk Financing and Insurance (DRIF) Roadmap has been implemented since its adoption in 2011, with the ASEAN Cross-Sectoral Coordination Committee on Disaster Risk Financing and Insurance (ACSCC-DRFI) established in 2013 to implement this Roadmap while serving as a platform for coordination among ASEAN Finance and Central Bank Deputies Meeting (AFCDM), AIRM, and ACDM. Since 2019, ASEAN has moved into Phase 2 of its ASEAN DRFI (ADRFI-2) 'Plan of Action' by enhancing risk management and risk transfer capabilities of ASEAN Member States further enabling them to overcome the financial burdens caused by disasters. In October 2019, ASEAN set up the ASEAN Disaster Risk and Insurance Facility (SEADRIF) to provide climate and disaster risk insurance for participating states. Its first product is a flood risk insurance pool which provides immediate financing to Lao PDR and Myanmar in the aftermath of a disaster.[55]

There has been progress in disaster risk pooling within ASEAN Member States. Ten city governments in the Philippines are collaborating with the Asian Development Bank on the Philippine City Disaster Insurance Pool project, which allows the participating cities to lower insurance premiums and share disaster risks more effectively.[56] The World Bank provided $500 million to support Indonesia's efforts to strengthen its resilience against different shocks (natural hazards, climate risks and public health emergencies) in 2021, with the use of insurance and reinsurance instruments to support a risk pooling fund for disasters at the centre of the plan.[57]

Survey Chart 3.2.1.1

FINANCIAL MOBILISATION TO ENHANCE DISASTER MANAGEMENT IN ASEAN



Survey Chart 3.2.1.2

BUILD BACK BETTER IN ASEAN

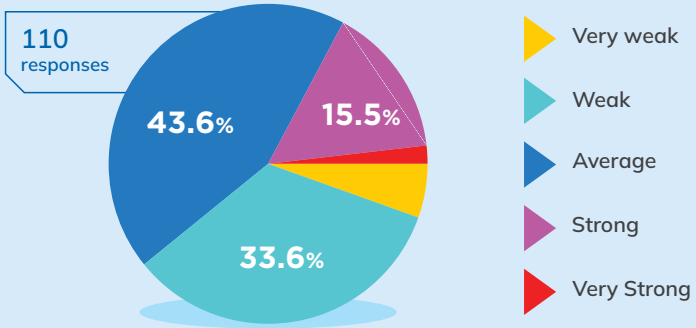
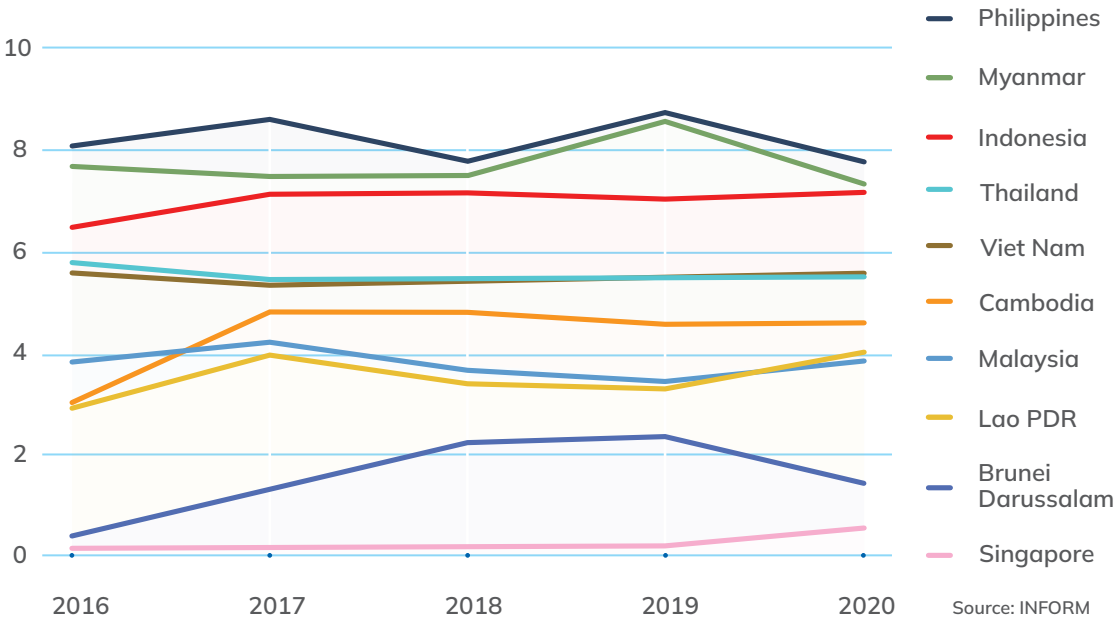


Figure 3.2.1.1

EXPOSURES TO NATURAL HAZARDS IN ASEAN



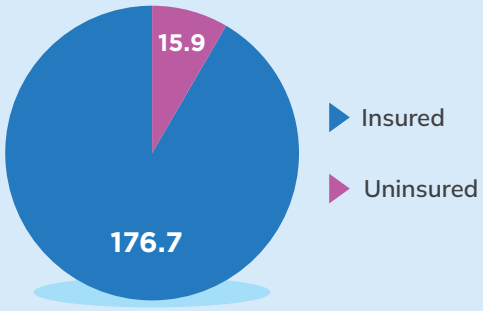
Source: INFORM

Despite progress at multiple levels, there are still significant protection gaps in ASEAN. Statistics show that only 9 percent of disaster-induced losses were insured in Asia (including ASEAN) in 2020 (Figure 3.2.1.2), compared to 38 percent in North America, 37 percent in Oceania, 22 percent in Europe and 14 percent in Latin America.[58] National insurance penetration rates in most ASEAN Member States are lower than the world's average (Figure 3.2.1.3). Moreover, the level of insurance coverage has not seen substantive changes over the past five years, despite the increasing awareness about the value of parametric insurance for lessening disaster damages.

Figure 3.2.1.2

PROTECTION GAPS IN ASIA 2020

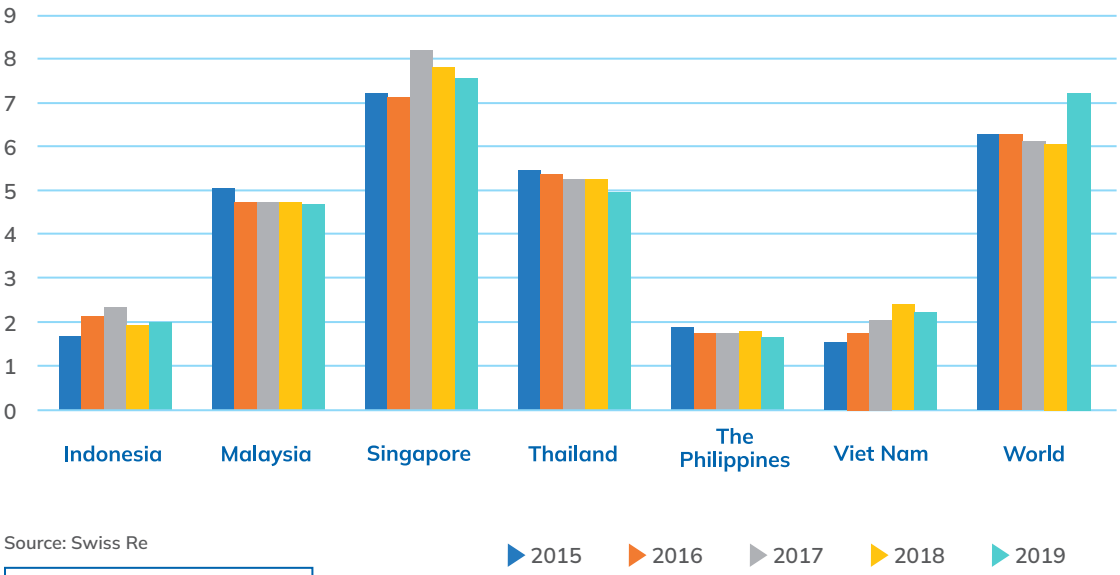
Insured and uninsured annual economic losses in Asia (in billion)



Source: AIR Worldwide Corporation
https://www.air-worldwide.com/Publications/Infographics/Measuring-the-Global-Insurance-Gap/

Figure 3.2.1.3

INSURANCE PENETRATION RATE % OF GDP (2015-2019)



Source: Swiss Re

Note: Data for Brunei, Cambodia, Lao PDR, Myanmar are not availabe.

To narrow protection gaps in ASEAN, insurance schemes can diversify the covered risks, sectors, and losses. Firstly, apart from agriculture which is usually covered in disaster risk financing, insurance solutions can be provided to mitigate the risks facing other key economic sectors in ASEAN, such as manufacturing, tourism and transport. Secondly, current risk pools prioritise natural hazards that frequently affect the region, such as earthquakes, tropical storms, floods and droughts. However, the disruptions induced by the COVID-19 pandemic point to the need to be financially prepared for the co-occurrence of natural hazards and other shocks, such as major outbreaks of infectious disease. The soon-to-be operationalised ASEAN Centre for Public Health and Emerging Diseases (ACPHEED) can provide an avenue to increase the availability of pandemic data and enable insurers to price risks accurately. This needs to work in tandem with insurance education/awareness building strategies at the regional and national level, which will help individuals and communities to understand the associated risks of simultaneous disasters and disease outbreaks, as well as insurance options available to them.

Thirdly, disaster risk insurance should be more inclusive and improve access to financial solutions for vulnerable communities, such as women, people with disabilities, low-income households and rural communities. Microinsurance can be a useful instrument to reduce vulnerability of these groups, which offers affordable insurance policies and timely and effective financial solutions for disaster damages at individual and household level.[60] Fourth, a paradigm shift towards anticipatory action will contribute to better financial protection for communities at risk, as studies show disbursement of funds prior to disaster occurrence can reduce the impact of disasters

such as drought for four to five times.[61] ASEAN can integrate forecast-based financing in its disaster risk insurance programme, which refers to early release of fund for preparedness and resilience-building on the basis of forecast.[62]

ASEAN can explore new partnerships to diversify the sources of financing as well as knowledge and best practices about disaster risk insurance, in addition to its collaboration with ASEAN partners like Japan. South-South Cooperation is a potential framework for closer engagement between ASEAN and other parts of the developing world, such as Africa, the Caribbean and the Pacific, which have successful experiences in disaster risk pooling. In addition to knowledge sharing, the possibility of inter-regional schemes for disaster risk financing can be explored. Emerging market economies such as China and India can be additional sources of support, as disaster risk reduction is a focus of China's and India's assistance to developing countries as part of their South-South Cooperation.

3.2.2

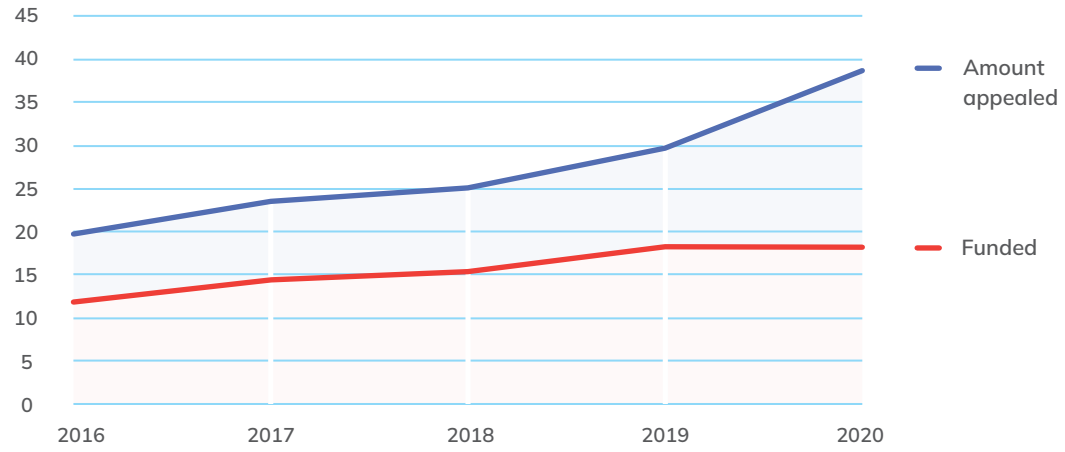
Transformational Financing: Disaster Relief Fund, Bonds, Endowment, Crowdfunding, and Cryptocurrency

Financial sustainability has been a challenge for disaster management as the growth in spending has been outpaced by increase in needs (Figure 3.2.2.1). Over 60 percent of UN appeals for funding for emergency response were met between 2011 and 2019 but the COVID-19 pandemic has reduced funding to only 47 percent of the total requirements in 2020.[63] The gaps in funding are likely to widen further as major donors such as the UK and Australia cut their aid budgets due to the global economic downturn.[64] To cope with the financial stresses on disaster management, ASEAN Member States should increase their own investment in the sector. For instance, disaster management can be integrated into national budgets as a regular line item across all departments so that funds can be designated specifically for disaster-related purposes.[65]

The market can also provide alternative solutions such as capital bonds to the financial challenge. Indonesia started exploring the option of catastrophe bonds after the Palu earthquake and tsunami in 2018.[66] The Philippines had its first two sovereign catastrophe bonds (CAT bonds) worth of $225 million issued by the World Bank in 2019, which provide financial protection against losses from earthquakes ($75 million) and tropical cyclones ($150 million) for a period of three years.[67] The two bonds are the first of its kind in Asia and also the first CAT bonds listed on the Singapore Exchange. The collaboration of the Philippines, the World Bank and Singapore on the issuance set a good example of how ASEAN Member States can jointly find market-based solutions to enhance disaster resilience in the region with support of international development partners.

Figure 3.2.2.1

REQUIREMENTS AND FUNDING FOR UN COORDINATED APPEALS, 2016-2020 (US$, BILLION)



Source: OCHA FTS

Figure 3.2.2.2

ASEAN DIASPORA

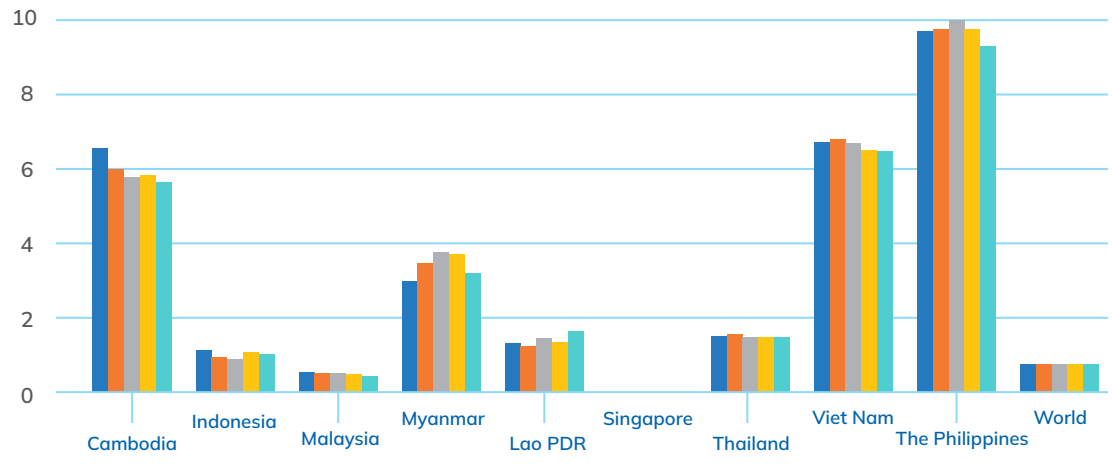
Country	Cambodia	Indonesia	Lao PDR	Myanmar	Philippines	Thailand	Viet Nam
Diaspora as % of Population	7.60%	1.50%	19.80%	5.30%	5.30%	1.30%	2.70%

Source: Asian Development Bank Institute, Organisation for Economic Co-operation and Development, and International Labour Organization, *Labor Migration in Asia: Increasing the Development Impact of Migration through Finance and Technology*, 2018, p.50.

Diaspora bonds are "bonds sold by the home country to its own diaspora as an alternative to borrowing from the capital markets"[68] and are another financing instrument that ASEAN can leverage, in view of the large expatriate populations of several ASEAN member states (Figure 3.2.2.2). Seven ASEAN Member States have the percentage of remittances in their GDP higher than the world average (0.75 percent) (Figure 3.2.2.3). Studies show that remittances contribute significantly to socio-economic development in developing countries as they are larger than international development assistance and more stable than private capital.[69] In view of this vast pool of financial resources, ASEAN can consider diaspora catastrophe bonds to systematically increase contributions of private remittances and donations to disaster resilience in the region. Patriotism and trust in the financial products are key elements of successes in diaspora bonds.[70] In collaboration with international development partners, ASEAN can provide guidance and supervision over the management of diaspora catastrophe bonds to enhance trust and confidence in such financial instruments.

Figure 3.2.2.3

REMITTANCES AS % OF GDP IN ASEAN (2015-2019)

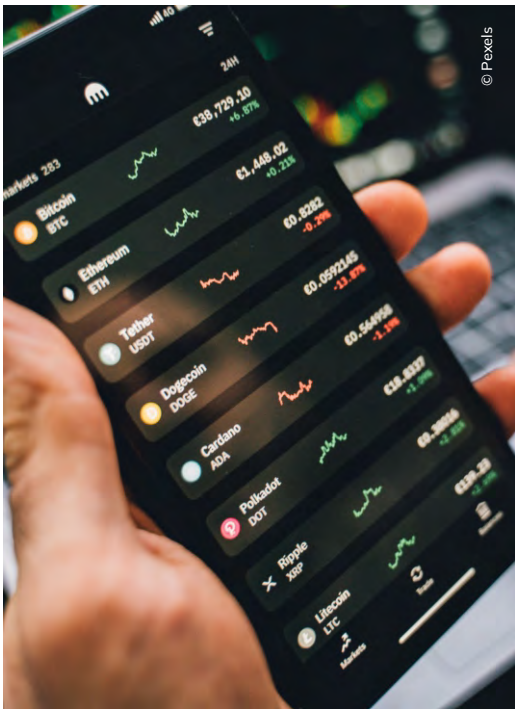


Source: World Bank

Note: Data not available for Brunei

Another innovative way of raising private funds is by drawing on SDG Bonds. To accelerate the progress in achieving the SDGs (including climate action), public funding alone is not enough. There is a need to mobilise capital markets to leverage private investments. Green/SDG-linked bonds can enhance sustainable financing strategies and investments in the region, enabling bond markets to become a powerful force in addressing climate change and to build back better from COVID-19.[71] SDG Bonds can assist national governments and regional institutions in fulfilling their commitment to the SDGs. As such, ASEAN should consider using SDG bonds as another means of accessing funds for innovative projects aligned to making a positive contribution to achieving the SDGs by 2030.

Technology has driven some transformation in disaster financing. Crowdfunding is the practice of raising small amounts of money from many people to fund a project or venture has been considered by some practitioners as a possible addition to existing financing mechanisms.[72] Crowdsourcing initiatives are often easy to set up compared with traditional funding mechanisms and allow funds to be disbursed in a quick and timely manner. After the Nepal earthquake in 2015, the global community witnessed the efficiency of crowdfunding, which raised over $20 million in two months for the relief efforts.[73] Nevertheless, issues such as transparency, accountability, trust, and effectiveness have given rise to concerns and questions over this approach to fundraising. ASEAN as a trusted agent in the region can assume the role of convening and moderating crowdfunding initiatives and projects.



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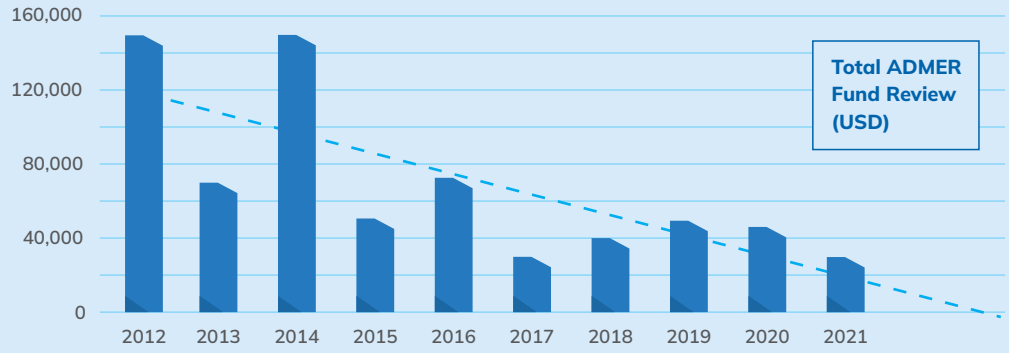
Cryptocurrency presents another potential option for disaster financing, which has been discussed by some humanitarian organisations in recent years.[74] Proponents of cryptocurrency claim that this form of digital currency, supported by the development of blockchain technology, can solve the problems such as efficiency, accountability and transparency in emergency response, owing to the decentralised and trustless nature of blockchain.[75] However, critics question the feasibility and reliability of blockchain for emergency response as this technology is fragile, complex and electricity consuming.[76] ASEAN should explore the use of cryptocurrency as an alternative financing mechanism for disaster management in the region. It can partner with technology companies and banks to conduct feasibility studies in this area.

ADMER Fund

The ASEAN Disaster Management and Emergency Response (ADMER) Fund was established under the auspices of AADMER. The Financial Rules of the ADMER Fund was adopted at the 1st Conference of Parties to the AADMER in Jakarta, Indonesia, in 2012. The ADMER Fund serves as a pool of financial resources to support the implementation of AADMER, in particular: (i) to provide emergency funds for emergency relief purposes, including but not limited to, the deployment of rapid assessment teams; (ii) to support the implementation of activities under the AADMER, including its Work Programme, project-based activities, and any other activity contributing to the AADMER; and (iii) to provide necessary resources to support the operational activities of the AHA Centre.

Figure 3.2.2.4

TOTAL CONTRIBUTION TO THE ADMER FUND (USD) BY YEAR TO DATE (2012-2021)



Source: ASEAN

To date, the ADMER Fund has received sporadic contributions from ASEAN Member States, with minor contributions to the Fund from leftover balance of project funds. The ADMER Fund has never received contribution from any ASEAN Dialogue Partners or other donor sources since its establishment in 2012. Based on ASEAN Secretariat's record of the ADMER Fund account from FY2012 to FY2021 (as of 30 June 2021), there is a decreasing trend of ADMER Fund contribution that is projected to decrease further beyond 2021. This poses an alarming concern for the sustainability of the ADMER Fund should there be no urgent intervention by the ACDM.

Hence, it is in ASEAN's interests to diversify sources of funding to address the multi-faceted challenges of the ASEAN Community building and integration efforts, especially those involving natural hazards and humanitarian challenges. The 53rd ASEAN Foreign Ministers Meeting (AMM) on 9 September 2020 endorsed the Concept Paper to Enable the Peoples of ASEAN to Contribute during Natural Disasters submitted by ASEAN SOM Brunei Darussalam. A Task Force on the Review of the ADMER Fund was established by the ACDM on 5 July 2021. Building on these reviews and feasibility studies, ASEAN should continue to identify ways in which funding can be activated from within the region. Mobilising ASEAN's own funding resources would reduce reliance on external funds for disaster relief and humanitarian assistance and ensure response to the challenges faced as a region are predicated on ASEAN principles and needs.

3.2.3
The Digital Frontier: Calibrating Remote Working and Deployment

The COVID-19 pandemic requires us all to revisit the way we interact. Adaptation of emergency response to the restrictions induced by the COVID-19 pandemic led to curtailed deployments due to infection risks and travel restrictions. International aid agencies therefore have adopted remote programming to stay connected with the communities in need of assistance. It allows international organisations to continue operations without physical presence in the affected areas with the specific activities undertaken by local organisations.[77]

Remote programming is not new in the disaster sector, it is used in emergency situations with heightened security risks and shrinking humanitarian access.[78] The disruptions induced by COVID-19 show that non-security risks such as major outbreaks of infectious diseases can also lead to restrictions on the environment of emergency response. In October and November 2020, the Philippines, Viet Nam, and Cambodia were hit by massive floods, but the AHA Centre was unable to deploy ERAT teams due to travel restrictions.[79]

Figure 3.2.3.1

SPECTRUM OF REMOTE MANAGEMENT MODALITIES

Source: Humanitarian Advisory Group and CARE, "Remote Humanitarian Management and Programming Guidance Note", 2020

© NCDM

Remote programming is closely linked to localisation of emergency response. Localisation was championed at the World Humanitarian Summit in 2016 and emphasizes the importance of local actors in decision making and aid delivery due to their proximity to and legitimacy generated by local communities.[80] Yet localisation of emergency response still faces many challenges despite its necessity during the pandemic. Critics are skeptical as it remains unclear what qualifies as "local", how much capacity local actors have, and whether local humanitarian organisations are

trusted by donors to manage their funds well.[81] The pandemic has forced the transformation to partner local actors as the only game in town.[82] However, it remains far from certain if localisation will continue and deepen as restrictions on international deployment are lifted.

As a leader of disaster management in the region, ASEAN should champion remote programming as part of localisation, by strengthening the capacity of local responders, issuing guidelines on the governance of remote programming, provide a framework for action on mis/disinformation and connecting communication between local and international humanitarian actors. ASEAN needs to establish flexible remote management approaches that can be adapted to contextual changes. There are differing degrees of remote management (Figure 3.2.3.1). The AHA Centre can act as an intermediary between international and national and sub-national stakeholders. It can help to identify relevant national and sub-national partners, thus allowing international partners to tap on their knowledge and networks to co-design disaster management projects.

Technology is a key enabler of remote working and deployment. It can enable effective planning of deployment during emergencies and support remote deployment and monitoring initiatives. Some innovations and their respective applications are highlighted for their utility in a remote deployment setting (Figure 3.2.3.2).

Figure 3.2.3.2

Innovation	Application
Videoconferencing platforms	Facilitates communication and interactions between partners at the local, national, and international levels amid border closures and lockdowns
Geographic information systems	Facilitates more effective allocation of resources
Drones	Deployed to deliver relief items to remote/inaccessible locations
Artificial intelligence and data analytics	Allowed more complex forms of virtual collaboration, such as crowdsourcing and crowdfunding[83]
Digital payment systems	Improved the efficacy of cash programming[84]

ASEAN NEEDS TO PREPARE FOR A FUTURE WHERE COMPLEX AND SIMULTANEOUS EMERGENCIES MIGHT RESTRICT THE PHYSICAL PRESENCE OF RESPONDERS IN AFFECTED COUNTRIES. IT CAN DRAW ON BEST PRACTICES AND INNOVATIVE SOLUTIONS IN THE REGION. THE SINGAPORE CIVIL DEFENCE FORCE (SCDF) HAS EMBARKED ON A TRANSFORMATION JOURNEY THAT FOCUSES ON DATA ANALYTICS AND PREDICTIVE MODELLING PROJECTS TO OPTIMISE THE MOBILISATION OF RESOURCES DURING EMERGENCY SITUATIONS (SEE CASE STUDY).

Case Study:

HOW THE SCDF USES TECHNOLOGY TO OPTIMISE EMERGENCY RESPONSE AND ENABLE REMOTE DEPLOYMENT

Dynamic Resource Optimisation (DRO)

SCDF's DRO aims to address a fundamental operational issue –placement of resources for deployment to emergencies. Using data analytics and modelling, the DRO recommends optimal placement of resources which minimises the response time and meets specified Key Performance Indicators for emergency response. Since the DRO's rollout in 2017, results have been encouraging with better response KPIs to emergency calls.

Video Enabled Emergency Number (VEEN)

As the public reports emergencies to SCDF via 995, these callers are usually located at or near to the incident scene; the proposed VEEN System aims to establish a dedicated video stream from the caller's mobile phone to the operations Centre to enable call-takers to dispatch resources with better speed and accuracy.

Rapid Sensemaking

SCDF also aims to utilise AI for quick sensemaking capabilities by amalgamating key information (including video feeds) associated with each 995 call. Operational capabilities are expected to be enhanced in the following areas:

1. **Automatic Speech Recognition (ASR995):**

   Leveraging on AI to convert telephone 995 calls into digital text for multiple potential uses such as automated triaging, customer service and as an operations communications log.

2. **Video Analytics (VA):**

   With machine-learning, VA software can be trained to associate and identify images from open sources that precede the onset of incidents, and enable early warning as well as recommendations for emergency dispatch.

3

Natural Language Processing (NLP):

Calls that have keywords associated with a certain type of incident e.g. a pungent smell can be plotted across time and space, to identify and triangulate the origin or cluster of cases, for further investigation.

Mobility Implementation Strategy

SCDF's Mobility Implementation Strategy for frontline operations aims to introduce wearables and mobile devices to transform the way frontliners operate daily. This approach espouses the Integrated, Incident Management Communications, Command and Control (IM3C) concept designed to centralise all Command, Control, Communications, Computers and Intelligence (C4I) functions onto a single platform. The end result will integrate all the data for real time monitoring, tasking and analysis, to provide of a comprehensive situation picture to users across various levels of the command chain.

3.2.4
Navigating Complexities: Strategic Supply-Chain Resilience and People-Centred Programming

COVID-19 disrupted international humanitarian supply and logistic chains and exposed the need to develop strategic supply-chain resilience as a necessity.[85] The shutdown of businesses and factories in key manufacturing centres threatened supplies of essential items. For instance, the reduction in production and export of medical equipment from China contributed to severe shortages of medical supplies in the world in the first half of 2020.[86] Export and import of humanitarian aid became slower due to restrictions on export of certain critical items, a reduction in air and sea freight, low handling capacity at ports, and longer customs clearance.

While the pandemic is an extraordinarily catastrophic event, it exposed the inherent weaknesses of emergency supply and logistic chains, such as uncertainty, susceptibility to the broad economic, political and security environment, and complexity in coordination between multiple actors (government, industry, academia, and other humanitarian aid organizations).[87] Moreover, donors usually prefer to support projects with immediate impact, such as providing relief aid and services over indirect services such as information systems, staff training, and logistics infrastructure.[88] Challenges facing emergency response supply chains are grouped into five categories – organisational, social, technical, economic, and environmental.[89] To strengthen the resilience of the supply chains, an inter-disciplinary approach that involves "disaster studies, medical fields, planning, business, engineering and the like" is needed to address the issues in different sectors.[90]

© AHA Centre

ASEAN has made substantive progress in strengthening logistic infrastructure, exemplified by the implementation of the DELSA project, with the support of the Japan-ASEAN Integration Fund (JAIF). Currently ASEAN has established three warehouses in Malaysia, Thailand and the Philippines, which support rapid response to disasters in different parts of the region. Apart from stockpiles of common relief items for natural hazards, the warehouses can be designed or transformed to store emergency supplies for other disasters, such as public health emergencies and complex disasters involving multi-faceted consequences. To cope with future shocks, ASEAN should digitalise DELSA and logistics processes. Artificial Intelligence and Machine Learning can be used to improve the efficiency of humanitarian logistics systems and optimise resource mobilisation processes. For instance, algorithms can be designed to create predictions of future demand in countries with higher exposure to disaster risks.

One way of digitalising supply-chain management processes is to utilise smart 'control towers'. A supply chain control tower is traditionally defined as a connected, personalised dashboard of data, key business metrics and events across the supply chain. A supply chain control tower enables organizations to understand, prioritise and resolve critical issues in real time more fully.[91] By leveraging on AI and Machine Learning, control towers can help to break down data silos, reduce manual processes, and facilitate real-time actionable insights.[92] Implementing such a system within existing DELSA infrastructure would allow the ASEAN humanitarian community to better predict disruptions, improve resilience, manage exceptions, and respond to unplanned events. This can help improve the efficiency of last-mile distribution, optimising delivery routes while allowing key stakeholders to remain informed regarding the status of aid items.

ASEAN should establish humanitarian lanes with pre-agreed conditions.[93] By removing bureaucratic barriers, these lanes would help cut delays, as well as taxes and restrictions on the entry of relief personnel, goods, and equipment into affected countries. The standardisation of relief items can also reduce processing times and facilitate quicker mobilisation of resources. This standardisation should be accompanied by a diversification of supply networks.[94] While this rebalancing of efficiency and resilience is often difficult and costly, the pandemic has shown that the cost of doing nothing is significant.

© DDPM Thailand

Finally, the pandemic has also highlighted the criticality of regional infrastructure in facilitating the smooth provision of transport, connectivity, and utility services.[95] In line with SDG 9[96] – to build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation – ASEAN should invest in critical infrastructure and develop smart and resilient cities. It also needs to ensure that progress is inclusive and people-centred. In particular, the COVID-19 pandemic has led to an increased reliance on digital infrastructure and connectivity.[97]

As digital technologies become more entrenched in our everyday lives, 'connectivity' is not just an enabler for faster and more efficient humanitarian action. Internet and mobile access – which enables affected populations to maintain contact - is now seen as a form of humanitarian assistance that is as important as other forms of aid.[98] A failure to strengthen digital infrastructure at the urban and rural level runs the risk widening the digital divide and marginalising populations. ASEAN Member States should partner with telecommunications providers, and work towards providing connectivity options to every spectrum of society. In this era of increasing and overlapping risks, countries and cities have no choice but to invest heavily in strategic resilient development rather than solely on reactive recovery efforts.[99]

3.3

Partnerships and Innovations

3.3.1

Breaking New Ground: Partnerships within and beyond the Region

The ASEAN Vision 2025 on Disaster Management highlights the importance of regional, national, and local partners across multiple sectors. Successful partnerships are critical to ensure disaster management and emergency response engages affected populations to ensure efficient and effective planning, implementation, monitoring and appraisal of policies to ensure a resilient ASEAN by 2025.[100] The AHA Centre plays an important role as the operational network coordinator of disaster management and humanitarian entities in the region (Figure 3.3.1.1). In the AAMDER Work Programme 2021 – 2025, the AHA Centre is tasked with approximately 80% of the deliverables to implement the programme of action.

Figure 3.3.1.1

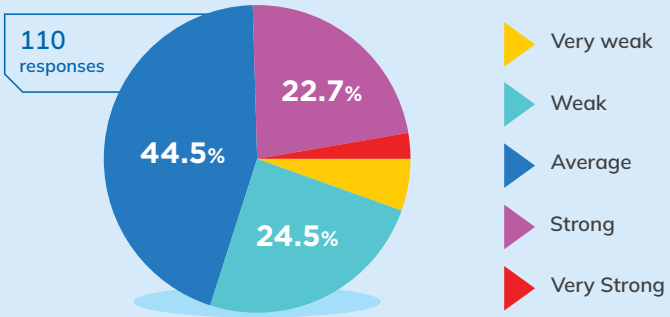
SIGNIFICANT COLLABORATIONS BETWEEN AHA CENTRE AND EXTERNAL PARTNERS, 2017 – 2021

Logistics	**2019**	MOI with DHL (2019)
Training and Accreditation	**2020**	ASEAN Standards and Certification for Experts in Disaster Management (ASCEND) with Korea
ICT	**2017**	MOI with Pacific Disaster Centre (Technical Assistance for DMRS)
Telecommunications	**2018**	MOI with Telecoms Sans Frontieres
Capacity-building/ knowledge sharing	**2019**	EU-SAHA Project
	2021	MOI with Temasek Foundation; Temasek Foundation National University of Singapore Disaster Management Programme in Southeast Asia
	2021	Humanitarian and Emergency Logistics Innovation Expo (HELIX)

Source: Authors

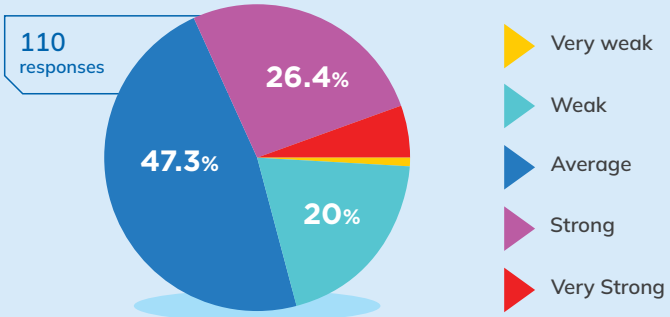
Survey Chart 3.3.1.1

IMPLEMENTATION OF MULTI-LAYERED AND CROSS-SECTORAL GOVERNANCE APPROACHES IN ASEAN



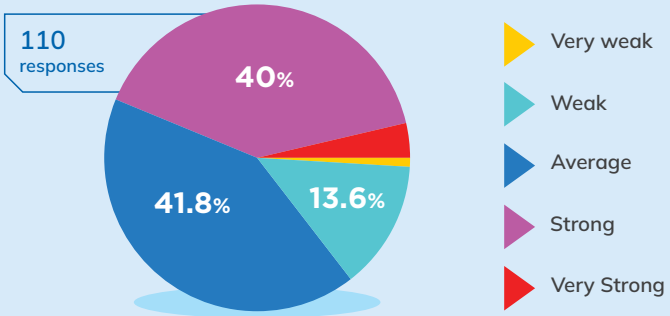
Survey Chart 3.3.1.2

ASEAN'S PARTNERSHIP WITH NGOs TO ENHANCE DISASTER MANAGEMENT



Survey Chart 3.3.1.3

ASEAN'S PARTNERSHIPS WITH REGIONAL AND INTERNATIONAL ORGANISATIONS TO ENHANCE DISASTER MANAGEMENT



Disaster Governance is an umbrella term for distinct yet interrelated organisational and institutional processes to reduce disaster risks and manage their impacts. It also refers to the diverse and vast network of actors – representing governments, multilateral organisations, NGOs, faith groups, local communities, trade unions, academia and the scientific community, and the private sector – that connect and interact to co-govern disaster risk reduction and management at different levels.[101] It is necessary to build partnerships with different sectors to build effective, accountable and transparent policies to govern and communicate new and emerging risks in the region. Therefore, the disaster management community in ASEAN needs to ensure an adaptive system that engages relevant stakeholders in partnerships.

THERE ARE THREE THEMATIC PARTNERSHIPS TO DEVELOP EFFECTIVE MECHANISMS FOR DISASTER MANAGEMENT AND EMERGENCY RESPONSE BY 2025:

Disaster risk financing

As illustrated in the chapter on finance and resource mobilisation, there are several innovations to augment available finance and resources. The implementation structure further highlights the need to ensure that strategy is informed by a partnership consortium from governments, multilateral institutions, non-governmental organisations, and academia and scientific communities. Through the establishment of a tripartite taskforce between disaster management, labour, and finance sectors, this will ensure that new innovative ways of funding disaster management and emergency response are designed and implemented with the known attendant risks to individuals and communities associated with these innovative solutions.

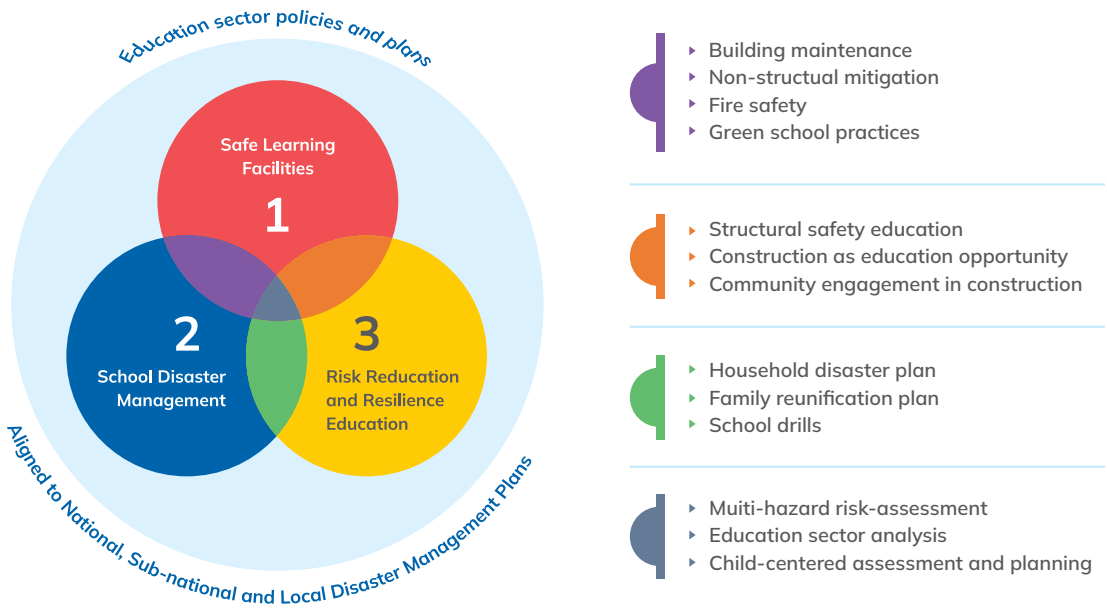
Disaster education

The ASSI has highlighted the importance of developing preparedness plans, training people, and building educational infrastructure resilience. The ASSI consortium partners (Plan International, Save the Children, World Vision and MERCY Malaysia) have provided several important avenues to contribute to the next ASSI phase for ASEAN to achieve a resilient region by 2025. These include the inclusion of national safe school baselines across the region, sharing evidence-based research to improve resilience and emergency preparedness, utilising e-learning to complement current capacity building measures for students and teachers around disaster preparedness, life-saving skills, child-focused education in an emergency, expanding champion networks at the local and provincial level,

strengthening links to improve disaster resilience awareness between schools and local government, linking universities to schools to support implementation of preparedness plans, student peer-to-peer learning, national monitoring and evaluation of resilience in education sector through school data collection, and the implementation of Comprehensive School Safety Framework (Figure 3.3.1.2).[102] The ASSI successes to date illustrate the importance of engaging multiple stakeholders. For ASEAN to continue its progress towards a disaster resilient region and ensure future prosperity, it is important to draw on this success and adapt these efforts to additional sectors and the positive contributions to building capacity at local and provincial levels of government.

Figure 3.3.1.2

COMPREHENSIVE SCHOOL SAFETY FRAMEWORK



PILLAR 1

Safe School Facilities

This first pillar involves education authorities, planners, architects, engineers, construction workers, and school communities in determining a safe location planning, design, construction and maintenance of the school.

PILLAR 2

Disaster Management at School

This pillar is determined by parties in charge of education at the national, sub-national, and local level. The school community is also involved, including the students and parents, in cooperation with partners in disaster management, to maintain a safe learning environment and to plan education sustainability, in accordance with these international standards

PILLAR 3

Risk Reduction and Resilience Education

Risk Reduction and Resilience Education must be designed to develop a safe culture and resilient community.

Source:
ASEAN, 2018, Towards School Safety in ASEAN – Capturing the Initiative, Jakarta: ASEAN Secretariat.
ASEAN Common Framework for Comprehensive School Safety (ACFCSS)

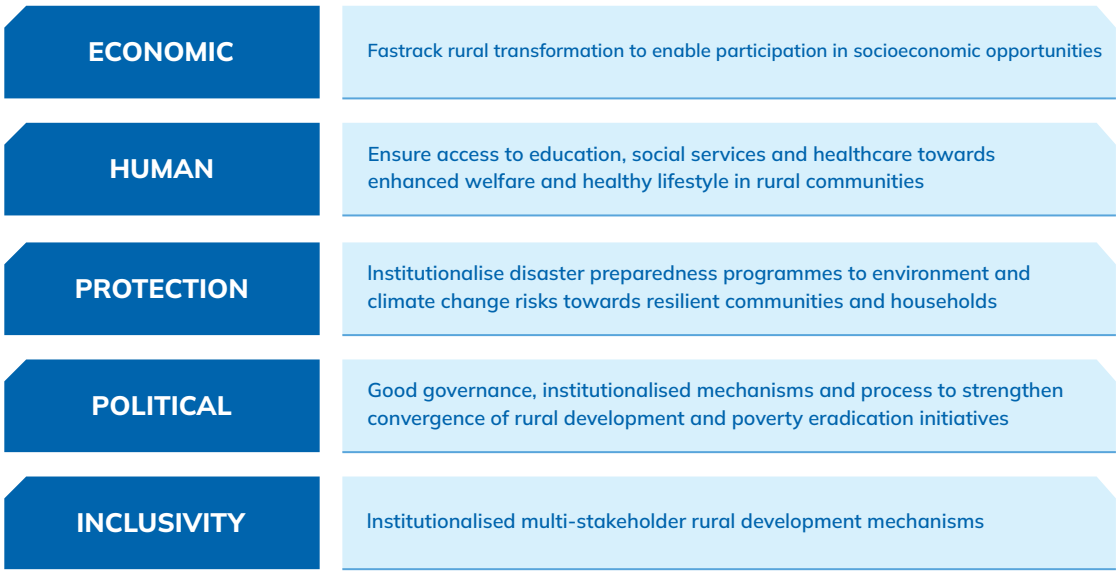
Urban and rural disaster resilience

Across ASEAN region, national governments are incorporating the SDGs into development plans to provide overall frameworks for action. Cities are acting on SDGs ahead of national governments to implement commitments. Davao in the Philippines set a precedent for other cities by conducting a preliminary inventory of its local initiatives with baseline local indicators, mapping them to each of the 17 SDGs. Other Model Cities that may now follow suit include Kep in Cambodia, Malang in Indonesia and Dipolog in the Philippines, as well as several small municipalities in Thailand such as Kohkha, Chiengkiean and Nongteng.[103] While these initiatives may tackle environmental and pollution concerns, it is important to consider their spill over impacts outside the cities. The ASEAN Environmentally Sustainable Cities (ESC) working group has facilitated the High-Level Seminar on Sustainable Cities and the ASEAN ESC Model Cities Programme, both of which serve as regional platforms to help localise the SDGs to facilitate knowledge-sharing between cities in ASEAN. ASEAN can bolster city-to-city cooperation and knowledge transfer to build up an enabling environment and work with national government to scale up good practices. It is necessary to ensure that these positive contributions have undergone impact assessments for areas outside municipal and national borders. These municipal efforts also face fiscal constraints as most cities rely on central government funding. Mayors and municipal authorities can be creative in mobilising resources such as community-driven projects relying on volunteers and local capacities.

These positive contributions need to be scaled up and national governments can support this effort through the allocation of special nation-wide grants in addition to normal fiscal transfers with the explicit objective of scaling up and replicating good practices and support face-to-face networking events to facilitate knowledge transfer and provide a forum to mitigate spill over effects. The Senior Officials Meeting on Rural Development and Poverty Eradication (SOMRDPE) is a subsidiary body of the ASEAN Ministers Meeting on Rural Development and Poverty Eradication (AMRDPE) which has developed a Framework and Action Plan on Rural Development and Poverty Eradication 2021-2025 (Figure 3.3.1.3). In the next five years, SOMRDPE intends to contribute to the overall goal of improving the economic and social living conditions of poor people in rural areas and assist poorest groups among the people living in rural areas to benefit from development. Rural communities disconnected and structurally challenged. It will be important for ASEAN to provide a platform for these two important efforts to work together on attaining the SDGs and mitigate negative spill over effects within their respective sectors.

Figure 3.3.1.3

SOMRDPE FIVE STRATEGIC AREAS



Source: ASEAN Secretariat, 2021

Innovative partnerships

Innovative partnerships build capacity and implement effective policies in these areas to improve disaster resilience across the region (Figure 3.3.1.4). For the next phase towards a resilient and prosperous region, ASEAN will need to develop partnerships with key stakeholders representing groups across society affected by disasters. This will involve working the voluntary sector to provide communities with an information support system that offers independent and impartial advice on disaster-related decisions such as the financing and insurance options available and their suitability.

Further the involvement of employers and trades unions will assist in ensuring no-one is left behind or voice is unheard. These innovative partnerships will necessarily need to involve multiple sectors such as the academic and scientific community to support evidence-based decision-making in disaster management across multiple levels of government. Finally the involvement of media companies and specific sectoral bodies will catalyse action to move ASEAN forward to a resilient and prosperous region where communities can thrive in sustainable surroundings.

Figure 3.3.1.4

INNOVATIVE PARTNERSHIP DEVELOPMENT IN ASEAN

Potential Partnerships	Areas of Cooperation
Insurance Companies International Labour Organisation	▸ Insurance ▸ Reinsurance
Multilateral Institutions International Labour Organisation	▸ Disaster risk financing ▸ Insurance
Think-tanks and Academia	▸ Disaster education ▸ Evidence-based decision-making ▸ Policy formulation
Urban Planning Authorities and Architecture Companies	▸ Urban and rural disaster resilience ▸ Building back better ▸ Greening humanitarian responses
Telecommunications Companies	▸ Emergency Telecommunications ▸ Early Warning Systems ▸ Humanitarian Connectivity Charter[104]
Media Companies, Philanthropic Foundations, Red Cross Movement	▸ Public information and disaster awareness campaigns
International Labour Organisation	▸ Post-Disaster Needs Assessment to link the disaster recovery with national development objectives.

Source: Authors

In the decade ahead, ASEAN will need to strengthen and adapt regional platforms such as the SPDDM. The SPDDM provides a platform to: 1) showcase the strong collaboration between ASEAN, UN Agencies, ASEAN Dialogue Partners, and various stakeholders, and 2) identify ways in which policy engagement between ASEAN, ASEAN Dialogue Partners and the UN can be further strengthened. In 2019, the dialogue included a session with the African Union and the Pacific Islands Forum, with a focus on learning from other regions' capabilities and reflections and developing and sustaining partnerships with others. In 2021, the dialogue included the Pacific Community in a panel discussion on 'Introducing Game-Changers in Disaster Management: Leveraging on Technology and Innovation'. ASEAN should build on this momentum and become a hub for the engagement of regional organisations in disaster management on knowledge-sharing, joint training programmes and exercises to consolidate its position as a global leader in disaster management. By promoting South-South Cooperation, ASEAN can also position itself as a convenor for regional organisations and offer a leading platform for more voices to be heard on disaster management and emergency response in global conversations to fulfil its One ASEAN One Response vision of responding to disasters as one inside and outside the region.

3.3.2
Driving Interoperability Forward

Intra-ASEAN interoperability

Since the development of the SDGs were set in 2015, progress is underway in ASEAN to meet them by 2030. These goals are necessarily interlinked and impact upon one another. Herein lies the challenge for local communities, national governments, regional and international organisations because many of these actors continue to operate in sectoral siloes. As a result, the SDG interlinkages and spill over effects can be overlooked and need an effective strategy to progress on one SDG and avoid backsliding on other SDGs. If one city aims to become carbon neutral by the year 2030 by increased electrification or increased use of biofuels it can cause spill over effects elsewhere. The increase in electrification increases water and land use within a country. The increase in the use of biofuels increases water and land use abroad in the producing country.[105] This commitment to carbon neutrality by 2030 will advance SDG 7 (clean energy) and SDG 13 (climate action). However, it can also hinder progress on SDG 15.1 (terrestrial biodiversity) elsewhere in the country and compromise SDG 6.4 (sustainable water use) in biofuel producing countries.

While the commitments to advance the SDGs in the region is commendable, these commitments need to assess the impact of advancing these elsewhere. This will require an effective strategy and framework for action across the ASEAN community to ensure comprehensive and inclusive progress and mitigate negative spill over effects generated within ASEAN with impacts both inside and outside the region to achieve the SDGs by 2030.

UN-ASEAN Interoperability

The UN agencies present in ASEAN Member States provide sector-specific support and expertise before, during and after a disaster. They usually work in partnership with NDMOs and with respective ASEAN Member State line ministries on emergency preparedness and response.[106]

UN OCHA plays a critical role in coordinating international humanitarian assistance. It provides support at the regional and country level to coordinate humanitarian action, develop humanitarian policies, manage humanitarian information systems, oversee humanitarian pooled funds, and support resource mobilisation for the humanitarian community. It works with the AHA Centre to coordinate international humanitarian assistance with the regional mechanisms. The AHA Centre and OCHA possess various tools and mechanisms to support various stages of disaster management (Figure 3.3.2.1).

Figure 3.3.2.1

AHA CENTRE AND OCHA RESOURCES[107]

	AHA CENTRE (ONE ASEAN ONE RESPONSE)	OCHA
TECHNICAL TEAMS	▸ ASEAN - ERAT	▸ UNDAC ▸ JEU
DEPLOYABLE ASSETS	▸ ASEAN Standby Assets and Capacities	▸ IHP ▸ APHP ▸ UNHRD network
RESPONSE PLANNING	▸ Emergency Response Action Plan	▸ Flash Appeal ▸ Strategic Response Plan
FINANCIAL RESOURCES MECHANISMS	▸ ADMER Fund ▸ Partnership Conference ▸ High Level Conference ▸ Dialogue Partners Funds	▸ CERF ▸ ERF ▸ UN OCHA Emergency Cash Grants
COORDINATION CENTRE	▸ JOCCA	▸ OSOCC

Source: AHA Centre, "ASEAN Joint Disaster Response Plan", 2017

The UN and ASEAN have developed a strong relationship since the Indian Ocean tsunami in 2004. Apart from working together in times of disaster, other collaborations include capacity-building workshops, knowledge-sharing exercises, and joint training programmes. While the UN traditionally takes the lead in disaster responses, there has been a shift in this dynamic. In the aftermath of the 2018 Central Sulawesi earthquake and tsunami, the AHA Centre, for the first time, was put in charge of coordinating offers of international and non-government assistance. Moreover, while the influence of international actors such as the UN remained relatively high, they were tangibly different in the way it was operationalised. For example, OCHA played a support role in mobilising clusters rather than a leading role. Instead, the clusters were led by national and local government representatives from Indonesia in the emergency response.

Locally led and owned disaster response is becoming the predominant norm in the Southeast Asia. There is now a growing preference for a nationally led, regionally supported and international-as-necessary disaster management and emergency response model. Future developments surrounding UN-ASEAN interoperability must integrate this dimension. Documents such as the Joint Strategic Plan of Action on Disaster Management (JSPADM) and the ASEAN-OCHA Interoperability Brief should reflect the changing disaster management and emergency response landscape. The JSPADM IV (2021-2025) outlines ASEAN and the UN's mutual intentions and commitments to continue to work together. It is guided by the strategies and priorities in the AADMER Work Programme and global priorities in humanitarian action.[110] Iterations in the immediate future should identify and designate the AHA Centre to train and mentor local

community and sub-national government leadership as co-leads in priority areas and programmes as a new component for the JSPADM. Specific line items on funding the training-of-trainers for local leadership in disaster management should be identified as a strategic priority to implement by 2025. As the region and the world faces more complex, concurrent, and simultaneous disasters it is imperative to reflect these dynamics in exercises and training to enhance the interoperability between the UN and ASEAN to build resilience and deliver effective responses. These additions underscore the necessary evolution of interoperability and the adaptability of relevant ASEAN and UN entities to ensure a resilient and prosperous region.

Civilian-Military-Police Engagement

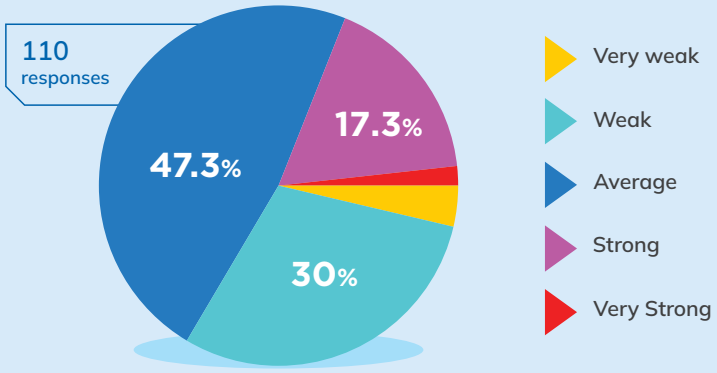
Civil-military coordination in the region at present mostly involves dialogue and interaction between humanitarian agencies, NDMOs and military actors. An absent dimension of interoperability in disaster management in the region is the inclusion of police forces in civil-military coordination mechanisms and initiatives. Within ASEAN disaster management, the technical working group on Civil-Military coordination involving NDMOs, Ministry of Defence officials and military personnel. At the Fifth Session of the Regional Consultative Group (RCG) on Humanitarian Civil-Military Coordination for Asia and the Pacific in 2019, there was a consensus that future iterations of the RCG should involve police personnel as their expertise and role in disasters in the Asia-Pacific is central. Their role in disaster response during the COVID-19 pandemic enforcing movement control and safe distancing orders highlighted the important overlaps between these sectors. The ASEAN disaster management community should devise an inclusive and flexible coordination architecture for the role of the military and police so that they can be recognised as key operational partners in the region. The engagement of the police in a reformed ACDM technical working group on civil-military coordination by 2025 will position ASEAN well for the decade ahead and beyond.

With the niche capabilities of those outside of the public sector yet to be integrated into the regional disaster management system, it is important to establish a mechanism to draw on their expertise as needed. Australia Assists is one successful program outside the region run by RedR Australia to engage professionals to work with governments and communities to prepare for, respond to, and recover from natural hazards. The program enables the rapid mobilisation and deployment of professionals into priority areas. It involves a standby roster of over 700 technical specialists reflecting the skills and experience required in the context of disaster preparedness, response and recovery. As ASEAN realises the potential of the multi-stakeholder environment, the development of such a mechanism to draw on the talent pool within the region will match skill sets to priority areas.

3.3.3
Future-proofing Disaster Management with Innovations and Technologies

Survey Chart 3.3.3.1

ASEAN'S USE OF SCIENCE-BASED APPROACH
AND NEW TECHNOLOGIES IN DISASTER MANAGEMENT



While much progress has been made in terms of cooperation and collaboration models, it is evident that, faced with the continued evolution of the humanitarian landscape and riskscape, ASEAN will need to further develop its mechanisms to respond to these new challenges. As the international humanitarian and disaster management community collectively acknowledges the need for sector-wide change, rhetoric has focused mainly on improving the effectiveness of humanitarian action. Technological innovations are perceived as an enabler in realising this goal and addressing emerging challenges. New forms of humanitarian technology encompass both hardware – drones, modular shelters, robots and software, such as data collection systems, biometric identification programs, block chain components.

According to a report published by the European Parliamentary Research Service, technological innovations such as data preparedness, innovative financing and cash transfer programming offer the most concrete value in supporting the 'Agenda for Humanity' (figure 3.3.3.2).[111] As such, ASEAN should incorporate partnerships with industry experts in these areas into existing disaster management frameworks to ensure a resilient and prosperous ASEAN in line with its global commitments to the Sendai Framework on Disaster Risk Reduction and the Sustainable Development Goals by 2030.

A significant development on this front is the ICT Roadmap on Disaster Management for 2025 and Beyond.[112] The strategic planning document ensures that any ICT initiatives are aligned and relevant with the organisational plan and strategic direction of the AHA Centre. It also provides guidelines for any future ICT solutions that the AHA Centre and ASEAN Member States might choose to implement. In doing so, it endeavours to further enhance the ICT capabilities of ASEAN Member States for the betterment of disaster management in the region (Figure 3.3.3.1).

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SCDF is exploring the application of emerging technologies and innovations, such as robotics and unmanned vehicles for disaster management. Examples such as Rover-X and H3M bring a new dimension to conventional disaster response. These innovations can navigate autonomously with minimal operator intervention, traversing through hazardous terrain, and performing challenging tasks that are otherwise beyond the capabilities of humans.

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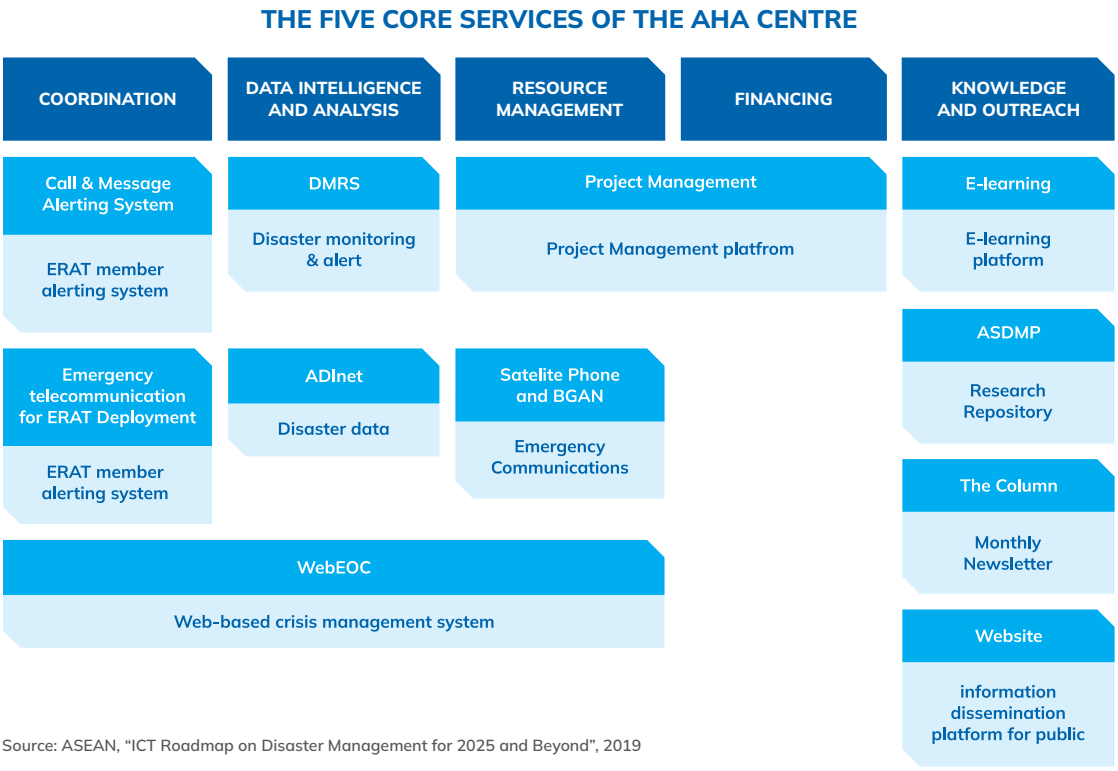
Column of pictures at the right: from top to bottom
Rover X,
Unmanned Aerial Vehicle (UAV) capabilities,
High Mobility Modular Machine (H3M)

Figure 3.3.3.1

CURRENT ICT SERVICES OF THE AHA CENTRE



Source: ASEAN, "ICT Roadmap on Disaster Management for 2025 and Beyond", 2019

Figure 3.3.3.2

LIST OF TECHNOLOGY ENABLERS

1.	3D terrain map
2.	Application Platform Interface (API) Management
3.	Artificial intelligence
4.	Big Data
5.	Blockchain technology for supply chain
6.	Business intelligence tool
7.	Chatbot
8.	Cloud backup system
9.	3D terrain map
10.	Application Platform Interface (API) Management
11.	Artificial intelligence
12.	Big Data
13.	Blockchain technology for supply chain
14.	Business intelligence tool
15.	Chatbot
16.	Cliud Backup system
17.	Collaborative-based map platform
18.	Crowdfunding platform
19.	Data analytics tool
20.	Data management tool
21.	Extract Transform Load (RTL) and Data warehouse platform
22.	ICT Training for AMS
23.	Internet of Things (IoT)
24.	Low earth orbit satellite
25.	Machine learning
26.	Mobile device platform
27.	Natural language
28.	Open-source data collection
29.	Open-source data sharing platform
30.	Open-source email platform with official domain address
31.	Advanced Cyber Security
32.	Predictive analysis tool
33.	Sensors
34.	Satellite phones
35.	Very Small Aperture Terminal (VSAT)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ASEAN CAN FUTURE-PROOF ITS DISASTER MANAGEMENT EFFORTS BY INSTITUTING FIVE KEY PRIORITY AREAS FOR PARTNERSHIPS AND INNOVATIONS:

Cash-Transfer Programming

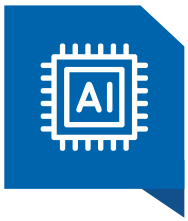
Donors and humanitarian agencies increasingly view cash-based interventions as an appropriate emergency response to meet immediate needs in the aftermath of a humanitarian crisis. By providing affected populations with immediate access to funds to purchase supplies, it cuts down on the time delays that are often associated with procurement procedures. Cash assistance has been a popular response to the COVID-19 crisis, with 340 programs introduced by 156 countries since March 2020, and has proven to be an efficient means of getting support to affected people fast, providing protection, empowering families to meet their basic needs, and mitigating some of the negative socio-economic impacts of COVID-19.[113] While international humanitarian agencies such as the World Food Programme have significantly invested in this area, ASEAN Member States and the humanitarian community will also need to implement cash-transfer programming in their respective jurisdictions.

SEAN's goal for 2030-2035 should be to address some of the challenges of implementing effective cash transfer programmes. Effective targeting – ensuring that assistance reaches the right people and achieves the intended outcomes – is one such challenge. Moreover, there is often a lack of quality data to determine the eligibility of households and individuals. ASEAN Member States will need to develop the institutional capacity and infrastructure to carry out these programmes.

These implementation challenges necessitate a more concerted effort to:

1. Improve accountability mechanisms,
2. Build robust data collection processes, and
3. Bridge the digital gap in ASEAN.

Through an inclusive and robust approach to the facilitation of more effective cash transfer programmes in the region, ASEAN can both provide guidance on the benefits of cash transfer programmes and to mitigate negative implications it may have for affected populations.



AI for Anticipatory Humanitarian Action

Developments in Artificial Intelligence/Machine Learning and predictive analytics make it possible to anticipate when disasters are about to strike. This facilitates a more proactive, anticipatory approach to humanitarian action and disaster management and enables delivery of more timely assistance to populations. AI may be harnessed to improve workflows and optimise the disbursement of aid. In July 2020, predictive analytics frameworks implemented by the UN and other partner organisations forecasted severe flooding along the Jamuna River in Bangladesh. In response, OCHA's Central Emergency Response Fund (CERF) allocated and released funding – roughly $5.2 million - to several humanitarian agencies, which enabled them to provide humanitarian assistance to vulnerable populations before flooding reached critical levels. This was CERF's fastest-ever disbursement of funds in a crisis.[114] As ASEAN moves towards anticipatory humanitarian action, utilising similar predictive analytics tools will be instrumental in helping the sector mobilise resources faster and more efficiently. This however comes with significant caution, in that predictive analytics have become more accurate, but they need to trigger action by the relevant authorities and affected communities. In Germany in 2021, early warning systems predicted and communicated the forthcoming floods, but authorities were slow to adequately respond, and many affected communities were unaware of the flood risk or unwilling in significant numbers to act upon the early warning.[115] This links back to the development of structural and social systems fit for purpose in recognising the technological developments in anticipatory humanitarian action.

AI developments also offer ASEAN a tool to collect and collate disaster-relevant data across ASEAN to feed into a central data hub to inform evidence-based decision-making. This would require recognition of moving from 'need to know' to a 'need to share' information management[116] Algorithms can be written to trawl through large amounts of online data– a process called web scraping – and aggregate them. This information can then be fed into a common regional repository or database to provide timely and relevant information to stakeholders. The use of AI developments support the commitment to create an ASEAN Data Hub by 2025.

Data Governance

Technological developments allow for easier and faster processing of large quantities of personal data and information. Unfortunately, this is also accompanied by an increase in the risk that sensitive information can fall into the wrong hands – harming the very people that the humanitarian and disaster management community are seeking to help. The exceptional circumstances in which humanitarian organisations and NDMOs operate in can create special challenges regarding data protection.[117] Accordingly, this means that particular care and flexibility is required when applying data protection principles in the humanitarian and disaster management sector.

While individual ASEAN Member States have their own data and privacy laws, regional data protection and governance frameworks, particularly for use in a disaster management context, have so far remained underdeveloped. In January 2021, the ASEAN Data Management Framework (DMF), ASEAN Model Contractual Clauses for Cross Border Data Flows (MCCs), ASEAN CERT Information Exchange Mechanism, and the ASEAN Digital Masterplan 2025 were approved at the First ASEAN Digital Ministers' Meeting.[118] However, these initiatives are primarily targeted at businesses and SMEs operating in the region. The DMF, for example, provides a step-by-step guide for businesses, SMEs, to put in place a data management system, which includes data governance structures and safeguards.[119] The ASEAN disaster management community can draw inspiration from these developments to create a regional framework that addresses data protection and governance in disaster management. Concurrently, it is also important to build public awareness on the importance of data security and privacy. Communities should be fully engaged in data collection processes and aware of the associated risks and vulnerabilities.

Information-Sharing Platforms

As ASEAN moves towards 2025 there is a need to develop a region-wide information sharing hub that consolidates national and non-governmental platforms. ASEAN can draw lessons from best practices and successful platforms at the national level. For instance, Malaysia's kitaMATCH platform was created to provide information on aid demand and the needs of vulnerable communities impacted by the COVID-19 pandemic and was relatively successful in facilitating multi-stakeholder coordination. The platform attempted to match donors' contributions with aid demands, boosting transparency and accountability, while at the same time reducing duplication of humanitarian efforts. This was designed by the Boston Consulting Group as a platform to link community needs with providers. Such a platform ensures that assistance is more equitably distributed, and that resource mobilisation is optimised through data-driven decision-making that facilitates trust between stakeholders and builds capacity at the community level. ASEAN's dialogue partners also provide useful examples. In 2020, the

Ministry of Emergency Management of China launched an applet on Alipay, a widely used digital payment platform in China, to allow the general public to report and update disaster-related information, which complements the official disaster reporting system. Information-sharing systems that integrate different services and platforms maximise the sources of information, offer a way to triangulate information, and improve timeliness and efficiency of sharing.

Use of Space Technology

The importance of space technology is reflected in the Sendai Framework, which suggests greater and enhanced use of space technologies as part of the strategy to "promote real time access to reliable data" and to "enhance measurement tools and the collection, analysis and dissemination of data".[122] Geospatial and space-based technologies and tools, such as remote-sensing, satellite imagery, geographic information system (GIS), and satellite-based meteorological tools provide critical data for disaster-related activities, such as disaster risk monitoring, early warning, risk communication, positioning, mapping and emergency response. For instance, remote-sensing satellite imagery is an important tool for earth observation which detect and monitor disaster risks and exposure to vulnerability and map damages and losses caused by disasters.

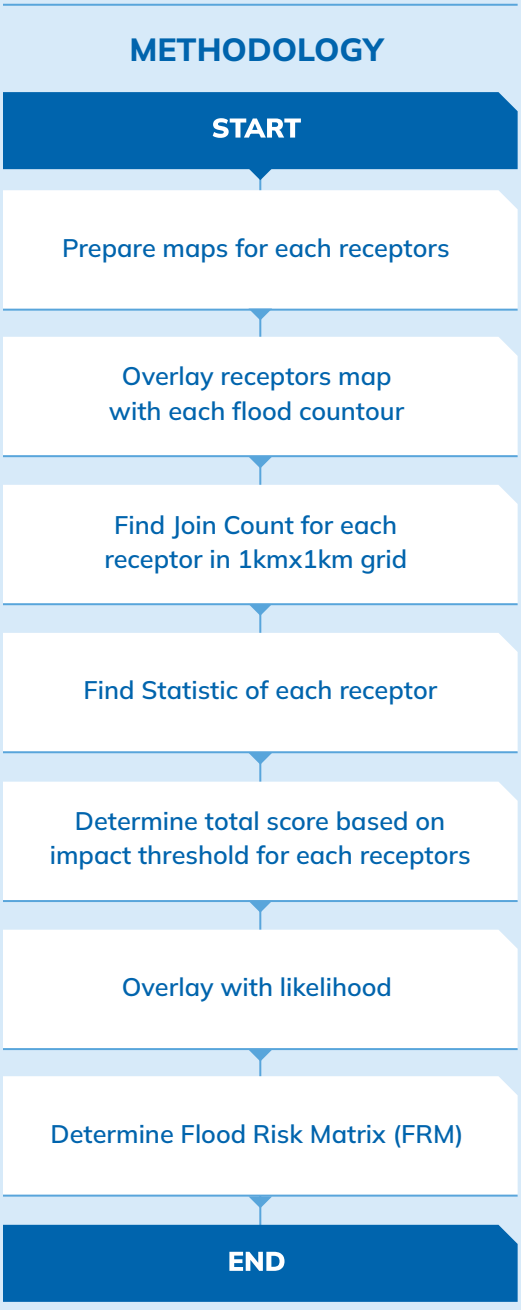
These technologies have been widely used in disaster management in ASEAN and as an area of international cooperation between ASEAN Member States and ASEAN Dialogue Partners. Myanmar established the Emergency Operation Centre in 2018 which hosts a section dedicated to the use of Earth observation data, and a Satellite Imagery and Research Section. Viet Nam has a bilateral Memorandum of Understanding with Japan on sharing satellite images during emergencies. The development of technology and social media has enabled technical and technological contributions to disaster management through informal channels and initiatives in Southeast Asia, such as the Humanitarian OpenStreetMap Team Indonesia.

However, there are major barriers in enhanced use of space technology in disaster management and resilience. These barriers include insufficient training for disaster management practitioners on the use of satellite-derived and geospatial information, low standardisation of processes and procedures across agencies and between countries for requesting and sharing data, limited awareness about the availability of data of open sources for emergency response, and the absence of policy guidelines on data governance. Since 2014, UN-SPIDER, the AHA Centre, the National Institute of Aeronautics and Space (LAPAN) of Indonesia and ESCAP have been working to develop procedural guidelines for sharing space-based information during emergency response in ASEAN Member States. These activities have been in line with the target of implementing the Sendai Framework to enhance international cooperation to support developing countries by 2030.

Case Study:

MALAYSIA'S DEVELOPMENT OF A FLOOD WARNING APPROACH BASED ON IMPACT BASED FORECASTING

Figure 1
THE METHODOLOGY FOR
THE DEVELOPMENT FLOOD RISK MATRIX



In line with the World Meteorological Guidelines on Multi - Hazard Impact Based Forecast and Warning Services, Malaysia has begun a study on the development of a flood disaster early warning system using the Impact Based Forecast (IBF) method. This study was conducted in collaboration between the Malaysian government and the United Kingdom government involving the main agencies in Malaysia namely MiGHT, NADMA, DID, MMD, NAHRIM and UNITEN while UK MetOffice on behalf of the United Kingdom government.

Phase 1 of the study was conducted from 2017 to 2021. In this phase, the study area is concentrated in the Kelantan river basin and the Muar river basin. Both river basins have experienced very severe flood disasters in 2014 and 2006/2007 for Sungai Kelantan and Sungai Muar, respectively. Sungai Kelantan and Sungai Muar are affected by heavy rains during the northeast monsoon which will occur from November to January of the following year.

The development of Impact Based Forecast in these two basins involves a very comprehensive study. It involves the development of flood hazard maps for each river basin using 2D river hydrodynamic modeling, Machine Learning tools to assess flood risk levels, flood impact analysis using GIS Tool and rainfall forecast modeling analysis and likelihood threshold setting.

Based on the research methodology as in Figure 1. The generation of flood hazard maps requires hydrological and hydrodynamic analysis involving the development of flood models specific to the Kelantan and Muar river basins. Hydrological analysis requires input of catchment characteristics such as catchment area, river length, slope and land use. Meanwhile, for hydrodynamic analysis, river cross -sectional data as well as structural information along the rivers are the main inputs for river modeling. Both hydrological and hydraulic analysis will use rainfall data, water level and streamflow as the main data during the calibration and verification process. 2D hydrodynamic modeling analysis will be used to determine the areas that will be flooded based on the rainfall amounts.

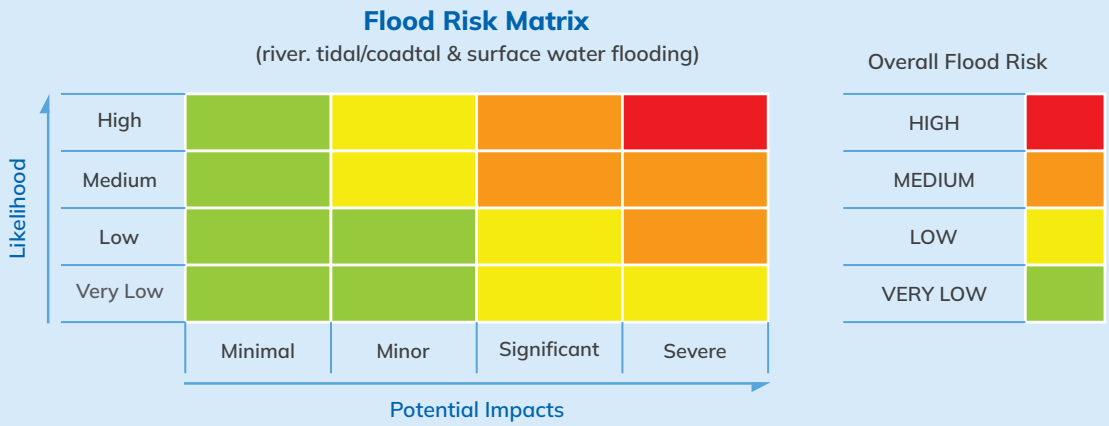
Using flood hazard maps derived from hydrodynamic models, Machine Learning techniques will be used to produce various flood hazard maps generated based on data on rainfall amounts. Use of Supervised Machine Learning algorithm such as Decision tree-based classification algorithm is used for predicting flood depth. This allows flood hazard maps to be generated quickly and accurately.

GIS processing methods that combine raster and vector data as well as layer-based analysis are used to obtain the potential impact of various vulnerable receptors. There are more than 30 layers of vulnerabilities that have been categorized into 7 main categories (receptors), namely Utilities, Agriculture, Public Facilities, population, Housing/Properties, Transportation Infrastructure and Road & Railway. For all these analyzes, ArcGIS and Global Mapper software were used intensively including threshold determination analysis for each receptor.

Impact Based Forecast relies on the production of a Flood Risk Matrix (as shown in Figure 2) which contains 2 main components namely Potential Impact for X-Axis and Likelihood for Y-Axis. To determine the likelihood threshold for rainfall forecast, the method used is the Time-Lagged Ensemble prediction system. It is based on dynamic rainfall data for each gridded cell for various accumulated rainfall i.e. 1-hour, 3-hour, 6-hour, 12-hour, 24-hour, 48-hour and 72-hour four each of four initial data 00UTC, 06UTC, 12UTC and 18UTC.

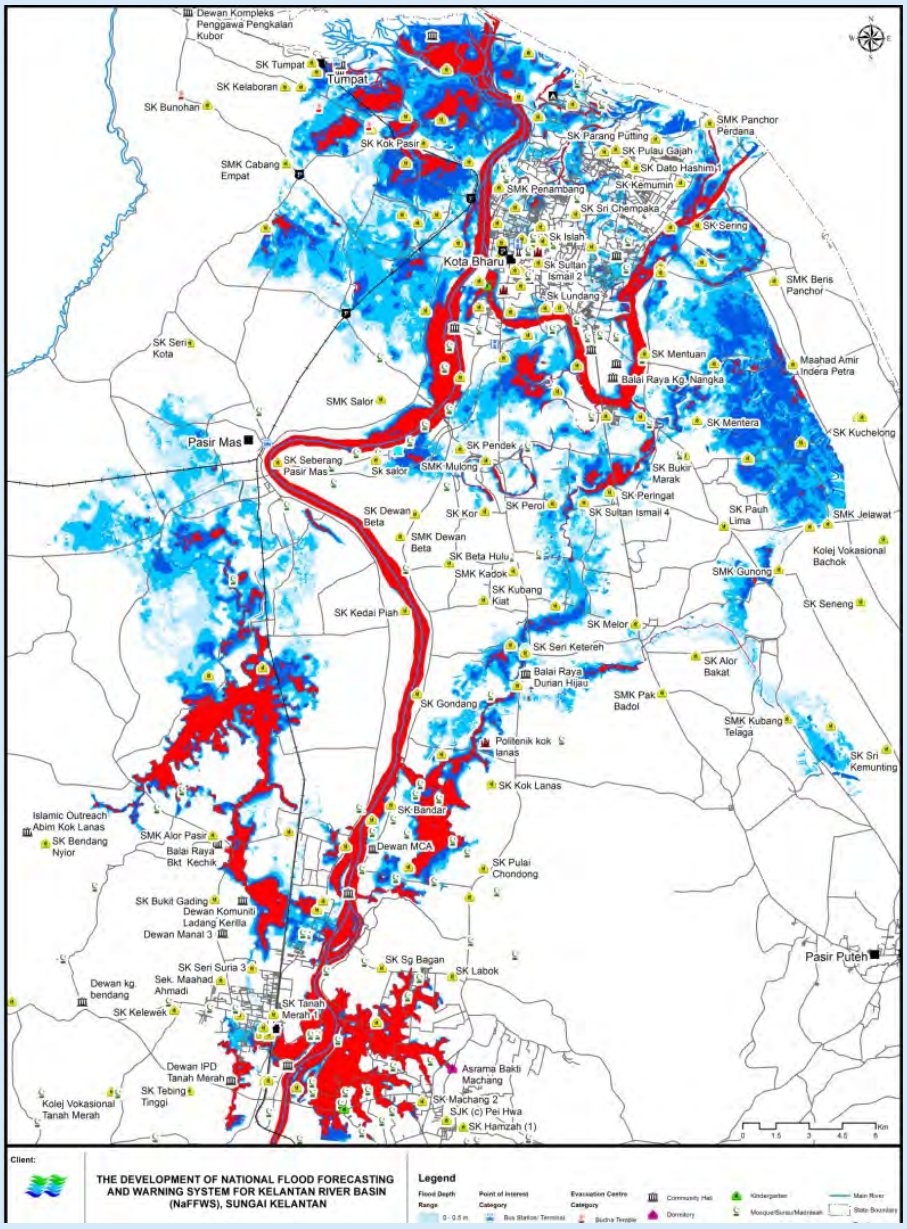
Figure 2

THE STANDARD 4 X 4 FLOOD RISK MATRIX



THE IBF STUDY IN THE KELANTAN AND MUAR RIVER BASINS HAS BEEN ABLE TO PRODUCE SEVERAL KEY OUTPUTS THAT CAN BE USED AS A REFERENCE FOR FURTHER STUDIES EITHER IN MALAYSIA OR ASEAN COUNTRIES. THE OUTPUT RESULTS ARE AS FOLLOWS:

(i) FLOOD HAZARD MAP FOR VARIOUS RAINFALL DEPTH



Through the output obtained from this project, Malaysia can share expertise with ASEAN countries, and work towards scaling up the processes to facilitate better anticipatory action in response to disasters.

(ii) IMPACT THRESHOLD FOR VARIOUS RECEPTORS

1KM GRID-CALL IMPACET THRESHOLDS

IMPACT (S)	MINIMAL	MINOR	SIGNIFICANT	SEVERE
Utilities (Point)	0-2	3 - 6	7-8	>8
Agriculture (Polygon)	10% - 30%	40% - 50%	50% - 80%	>80%
Public Facilities (Point)	0-2	3-4	5-6	>6
Housing (Point)	0-3	4-5	6-15	>15
Road & Railway (Point)	0-5	6-10	11-17	>17
Transportation Infrastructure (Point)	0-2	3-4	5-6	>6
Population (Point)	0	1-10	11-100	>100

(iii) LIKELIHOOD THRESHOLD FOR RAINFALL FORECAST

LEVEL OF SEVERITY	Very Low	Low	Medium	High
PERCENTAGE (%)	< 20	20-39	40-60	> 60

(vi) FLOOD GUIDANCE STATEMENT FOR VARIOUS FLOOD RISK CATEGORY

Advisory Table	Example of flood risk for the public associated with a heavy continuous rainfall	
Very Low	ALERT : Unlikely the LIGHT RAINFALL will affect the designated region.	ACTION : Keep an eye on the weather and flood forecasts.
Low	ALERT : Likely the MODERATE RAINFALL will cause some limited flooding and wind damage in the designated region.	ACTION : Remain alert and ensure you access the latest weather forecast for up to date information. Prepare to act to protect life, livelihood and property in the designated region.
Medium	WARNING : Likely the HEAVY RAINFALL will cause widespread flooding and wind damage in the designated region.	ACTION : Secure property and livelihood assets. Be prepared to evacuate. Be aware of the potential risk of landslides and flash floods in your area. Follow civilprotection orders. Maintain radio/media watch for the latest update.
High	WARNING : Certain VERY HEAVY RAINFALL will cause widespread flood and wind damage in the designated region.	ACTION : Evacuate if ordered to do so by civil protection. Be prepared for extraordinary measure to protect life and property.

3.4

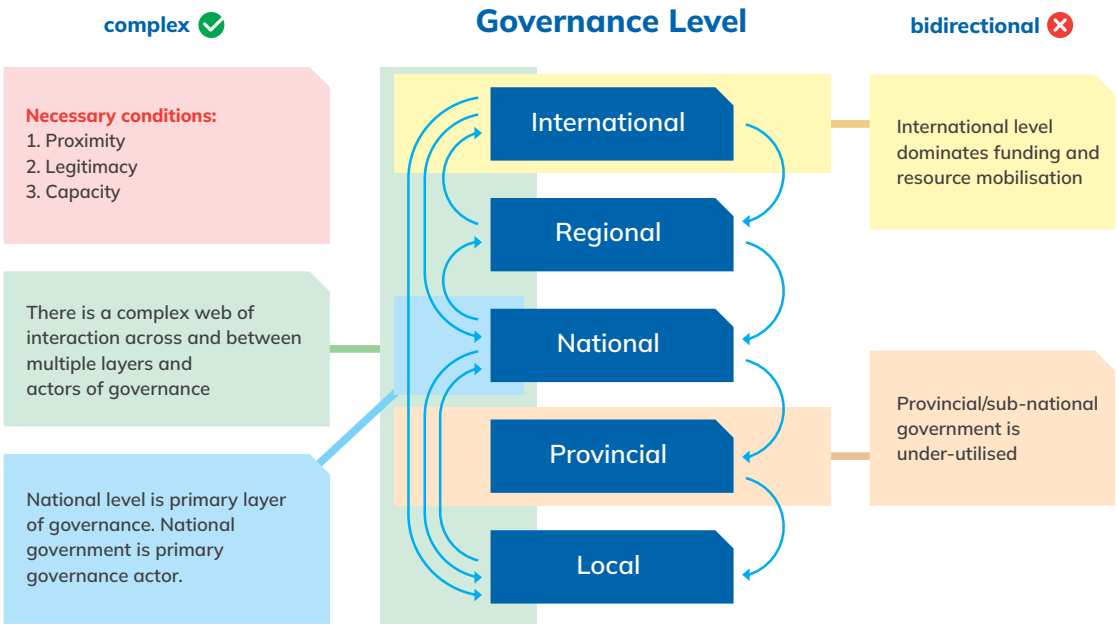
Anticipatory Action in the Complex Riskscape

3.4.1 Networked Resilience in a Post-Pandemic Region

As the COVID-19 pandemic continues to evolve, regional cooperation in ASEAN is an essential component to build disaster resilience and facilitating effective disaster management. However, it does not take place solely at the regional level. A networked approach should be prioritised that links the relevant communities, sub-national government structures, national agencies and ministries, regional entities, trade unions, the private and philanthropic sectors, and the broader international community to build resilience and effective disaster management. It is best captured as Disaster Governance. Community resilience focuses on responsibility and empowerment and leads some to argue it detracts away from the impact and importance of national governments. Rather community resilience seeks to redress the balance of responsibility away from government dependence and recognises what many communities are already doing. Indeed, recognising the importance of the multiple stakeholders involved illustrates a complex web of decision-makers. It is decision-making at the most appropriate level which determines how resilient a state and its society is for ASEAN to become a resilient and prosperous region.

Decisions made by leveraging on a mix of community, local government, NGO and national government inputs will create more sustainable solutions. Resilience built through this networked approach necessitates a holistic framework.[123] This goes beyond simply identifying stakeholders and promoting collaboration. ASEAN needs to facilitate structured engagement with greater emphasis being placed on niche capacity development and clearer designation of roles and responsibilities of relevant stakeholders to resolve collective action problems.

Figure 3.4.1.1
MULTIPLE LEVELS OF DISASTER GOVERNANCE



Source: Authors

ASEAN should examine how multi-layered and cross-sectoral governance processes in the region facilitate or limit the effective coordination of actors, information, and resources in disaster management (Figure 3.4.1.2). ASEAN remains the essential component to facilitate the establishment of a comprehensive framework and platform of action for disaster governance at the international, regional, national, provincial, and local levels. Disaster governance is a multi-tiered, multi-stakeholder exercise (Figure 3.4.1.1). Disaster governance is currently dominated by international, regional, and national actors. With the localisation agenda, grassroots actors have greater attention. Provincial and sub-national actors, on the other hand, remain underappreciated.

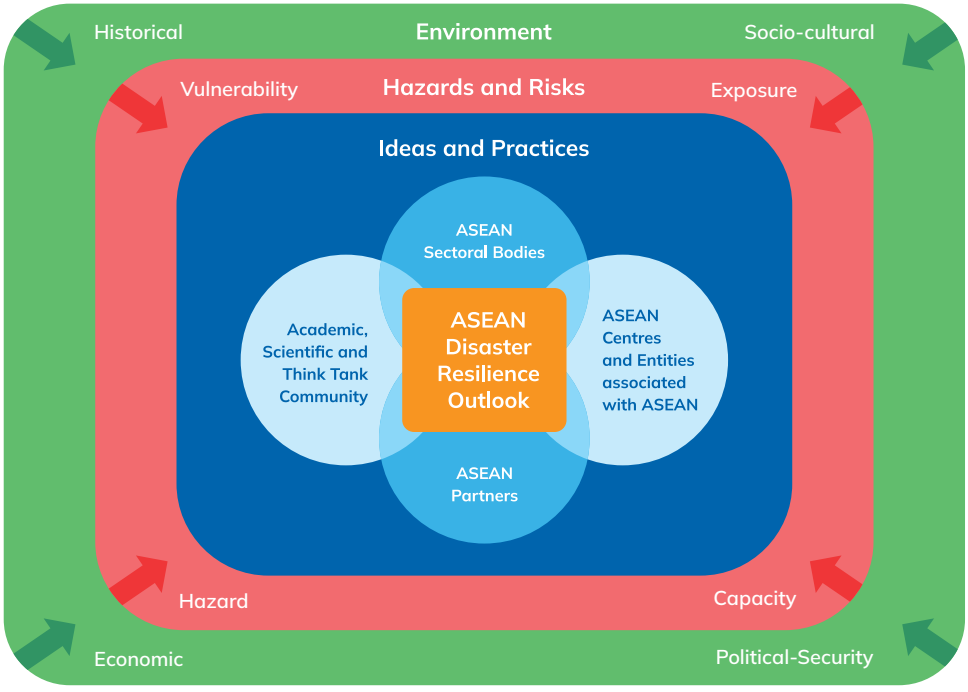
While regional and national capacity have developed steadily over the past decade, this progress has not effectively devolved to the sub-national levels. This is a huge gap as provincial and local governments provide a necessary bridge between national governments and local communities. These levels of government play an essential role in aligning disaster management frameworks, strategies, and practices to achieve more robust disaster governance because they connect upper and lower government functions.[124] ASEAN can facilitate clarification of the roles and responsibilities of sub-national government entities to ensure that mandates and resources match the implementation needs for the Sendai Framework and SDGs.

For effective disaster governance, ASEAN needs to reorient its approach to disaster management and move successful sub-national pilot projects towards wider connected implementation for a resilient and prosperous region. Drawing on the experience of pilot projects and initiatives like the ASSI will inform strategies to increase participation in individual sectors and the wider region in localised efforts to implement the Sendai Framework and achieve the SDGs by 2030.

This reorientation will require the necessary financial support to mobilise these resources through a combination of government funds complemented by innovative finance mechanisms from diaspora bonds to crowdsourcing and parametric insurance. Through such a reorientation the disaster management and resilience agenda needs to be embedded in government agencies and ministries to ensure a multi-level whole-of-society approach to the current and future biological, geological, hydrological and meteorological landscape, now recognised as the riskscape to build towards a prosperous region.[125] This will require the mitigation of negative spill over effects[126] in other sectors in the individual line ministry or government agency. Through these components of the reorientation, it is essential that ASEAN facilitates the consolidation of effort across the region. As mentioned earlier, the establishment of an ASEAN Chief Risk Officer will inform immediate and longer-term future priorities for the region. For a data-driven and evidence-based approach, progress in the development of a regional data platform will collate information from the respective components and allow for assessment of negative spill over effects, prioritise areas for improvement, bridge sectoral divides and facilitate a multi-level whole-of-society approach to achieve a resilient and prosperous ASEAN by 2030 (Figure 3.4.1.1).

Figure 3.4.1.2

ASEAN DISASTER RESILIENCE OUTLOOK



Source: Authors

It is important to recognise that disaster governance involves a complex web of decision-makers. Decision-making processes need to be identified at the most appropriate levels to utilise the niche capabilities of the stakeholders and to build a resilient and prosperous region. It is therefore important to perform a broad network analysis exercise across the region through a regional data platform to help identify where the gaps are through the use of inter-organisational network mapping to model inter-organisational networks.[127] Through this analysis of networks, the ASEAN community can locate where disaster governance issues develop, how it intersects with broader contextual problems, and what alternative pathways to address them using subsidiarity – decisions made at the lowest possible level – as a critical commitment. By visualising the ways in which different stakeholders interact, insights can inform structural responses that balance centralisation and integration with flexibility and adaptability to achieve a resilient and prosperous region.[128] A second step towards a more integrated framework would be to initiate ASEAN Dialogue Partner participation in the regional data platform to link global expertise and niche capabilities into regional disaster governance. The third step would be to train and build capacity of sub-national entities to participate in the regional data platform to ensure optimal use of the data-driven platform to inform policy development, implement projects and integrate sustainable development commitments at all levels of government and across all sectors.

Resilience recast as networked resilience provides recognition to the roles and responsibilities of relevant stakeholders to better mitigate, prepare, respond, and recover from disasters, build stronger communities, and create employment opportunities to implement the Sendai Framework and achieve the SDGs. Decisions made by leveraging on a mix of communities, local governments, national governments, NGOs, regional and international bodies will create more sustainable solutions. ASEAN is well-placed to facilitate embedded multi-level and cross-sectoral partnerships to further integrate the Sendai Framework and achieve the SDGs by 2030.

3.4.2
Strategic Foresight in Disaster Management

The world evolves with powerful economic, climatic, demographic, environmental, and technological drivers of change. These cause shifts in the international system, which in turn have significant impact on society. Organisations do not need to simply rely on current systems and policies, but must be willing to emphasise creative, collaborative, and flexible thinking to successfully navigate these large-scale changes – especially in the field of disaster management.

Having a robust strategic foresight framework will enable ASEAN to:

1. Hedge against uncertainty;
2. Avoid strategic surprises;
3. Promote inter-sectoral collaboration through information-sharing and engagement;
4. Identify early warning signs of potential developments affecting ASEAN; and
5. Aid in charting effective anticipatory and future pathways for ASEAN.

Since the 1990s the UN has advocated the use of disaster risk management to change the paradigm through which we understand disasters. Through disaster risk reduction, efforts in the global community have sought to reduce the effects of natural hazards on vulnerable communities. In 2015 the United Nations Office for Disaster Risk Reduction led a global effort which led to the adoption of the Sendai Framework to reduce risks by minimising losses due to the occurrence of natural hazards.[129] The Sendai Framework recognises the need to address existing challenges and prepare for future ones by focusing on monitoring, assessing and understanding disaster risk governance and coordination across relevant stakeholders at appropriate level; investing in the economic, social, health, cultural and educational resilience of persons, communities and countries and the environment, as well as through technology and research; and enhancing multi-hazard early warning systems, preparedness, response, recovery, rehabilitation and reconstruction.[130]

Science and technology are continuing to improve our ability to predict geophysical hazards and hydrometeorological hazards, parts of the disaster risk management landscape that is especially relevant to Southeast Asia (Figure 3.4.2.1). Strategic foresight goes beyond the monitoring of known natural hazards and plans from the future. It categorises the impact and scale of future global hazards, how to frame the likelihood of such threats occurring, analyses the strengths and weaknesses of existing global structures in dealing with global hazards, and explores new systems to anticipating, monitoring, and mitigating global hazards in the future (Figure 3.4.2.2).[131]

Figure 3.4.2.1

DISASTER FORECASTING - THE CURRENT AND LIKELY FUTURE STATE OF SCIENCE

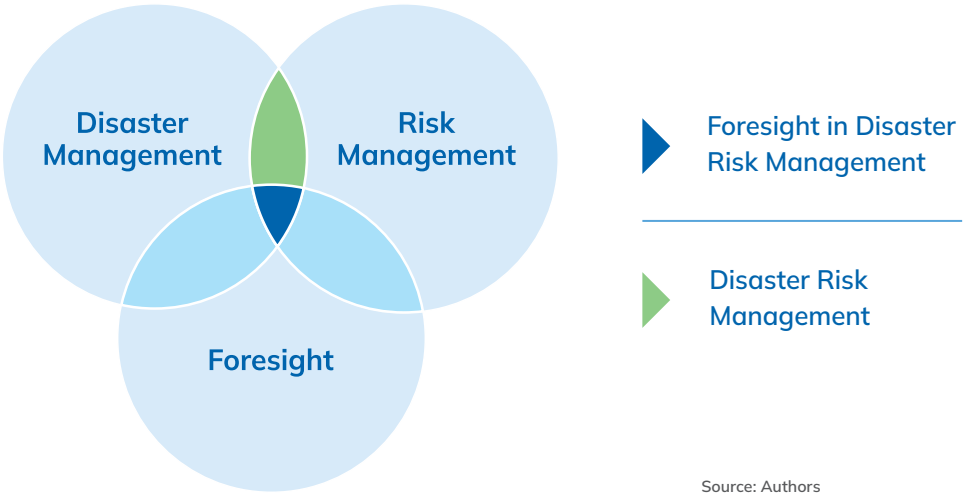
Ability to produce reliable forecasts on a scale from 1 (low) to 5 (high)

	Now (2014-2015)			2040		
	Space	Magnitude	Time	Space	Magnitude	Time
Geophysical hazards						
Earthquakes	2	1	1	3	2	1
Volcanoes	3	2	2	5	3	3
Landslides	2	2	1	3	3	2
Tsunamis	2	2	1	3	3	2
Hydrometeorological hazards 6 days ahead						
Storms	3	3	4	5	5	5
Floods	3	3	4	5	5	5
Droughts	5	5	5	5	5	5
Hydrometeorological hazards 6 months ahead						
Storms	2	2	2	3	3	3
Floods	2	2	2	4	4	4
Droughts	2	2	2	4	4	4

Source: Foresight Reducing Risks of Future Disasters: Priorities for Decision Makers (2012) Final Project Report. The Government Office for Science, London. Available from https:/www.gov.uk/government/uploads/system/uploads/attachment_data/file/286476/12-1289-reducing-risks-of-future-disasters-report.pdf

Figure 3.4.2.2

FORESIGHT IN DISASTER RISK MANAGEMENT



Source: Authors

Going beyond natural hazards, strategic foresight also considers the interconnecting risks that threaten states, societies and individuals. By 2025, ASEAN should be guided by an ASEAN Chief Risk Officer and a dedicated staff to project possible future scenarios to communicate to ASEAN Member States.

Within each NDMO there should also be a similar framework established to evaluate and plan for the disaggregated risks that each ASEAN Member State faces according to their risk profile. These risks and accompanying response plans must be communicated to the most appropriate sub-national level. Where relevant the affected ASEAN Member State should work collectively to plan for threats and enhance regional resilience.

The ultimate test of an early warning system is whether it provides timely and actionable information to all the most vulnerable people – including children, migrants, refugees, pregnant and lactating women, older persons, the sick, people with disabilities and indigenous peoples. All information should be easily accessible and provided in simple and straightforward language. After all, if these vulnerable groups are not adequately informed and supported, the whole system must be judged to have failed.[132]

It is only at the sub-national level that there is enough information about local surroundings such as the demographics, cultural practices and infrastructure to devise specific strategies to address the needs of the affected communities, particularly those most vulnerable.[133] Such a strategy would include impact assessments of current frameworks, plans and response teams trained for these specific needs such as the integration of the Guidelines to Protect Migrants in Countries Experiencing Conflict or Natural Disasters.[134]

With the integration of strategic foresight into the decision-making systems across ASEAN, it will be a necessary component to achieve a resilient and prosperous region and allow communities to thrive in sustainable surroundings. These component parts constitute the workforce behind the framework, but it will require the necessary investment in the regional data sharing platform to facilitate the monitoring, evaluation, and design of effective action plans. It would therefore be crucial for ASEAN to design and implement codified commitments to these needs. These developments would propel ASEAN to implement the Sendai Framework and achieve the SDGs by 2030 and ensure a resilient and prosperous ASEAN by 2035.

3.4.3
Nexus Governance for Planetary Resilience: Intersection of Sectoral Bodies

Planetary health is a necessary lens through which to view disaster management in the region. Defined as the "the health of human civilisation and the state of the natural systems on which it depends", it seeks to encapsulate the intersectionality between natural systems and human health, and emphasises that an approach to examine any issue within this field must be collaborative and multi-sectoral.[135] The framework of the planetary boundaries presents another perspective to assess and monitor the health of our planet and take timely action to address challenges. The planetary boundaries framework consists of four dimensions, which are the global biogeochemical cycles - nitrogen, phosphorus, carbon, and water - and the major physical circulation - the climate, stratosphere, ocean systems, the biophysical features of the earth - marine and terrestrial biodiversity, land systems - and the two critical features associated with anthropogenic global change - aerosol loading and chemical pollution.[136] A safe boundary is delineated for each of the twelve elements in the framework, which are intersecting and interacting with each other, and crossing of the boundaries means significant increases in the risk of disruptions.

The concepts of planetary health and planetary boundaries represent complements to the nexus approach mentioned earlier to manage growing risks and uncertainties. This approach appreciates the intersection and linkages of human activities and the planet, which have important bearing on our efforts to strengthen our disaster resilience. As the effects of climate

change and environmental degradation continue to intensify and increase the prevalence of disasters in Southeast Asia, and the probability of future infectious diseases with zoonotic origins remaining high, a nexus approach to disaster management provides the impetus and guiding framework to achieve a resilient and prosperous ASEAN by 2035.

By considering the interlinkages between the different risks in a complex situation, a nexus approach considers the possible social, political, economic and environmental factors that influence any disaster risks. For example, interoperability within and between ministries – particularly the health, disaster and defence sectors – have proven vital to address the COVID-

19 pandemic.[137] One challenge that has emerged is the absence of a common operational picture across government ministries. The differences in organisational culture, priorities and language disrupts interoperability by inhibiting communication and information-sharing. By the institutionalisation of information-sharing or knowledge-sharing practices – moving from a 'need-to-know' to a 'need-to-share' culture, the individual sectoral silos of each ministry will be overcome. This in turn allows for a more holistic and sustainable response in times of crisis. It supports the importance of a networked, multi-stakeholder response to any disaster – one that has the space for government, private and non-governmental organisations.

ASEAN Comprehensive Recovery Framework

Enabling Factors

(i) Policy measures and responses (ii) Financing and resource mobilisation
(iii) Institutions and governance mechanisms
(iv) Stakeholder engagement and partnerships (v) Effective monitoring

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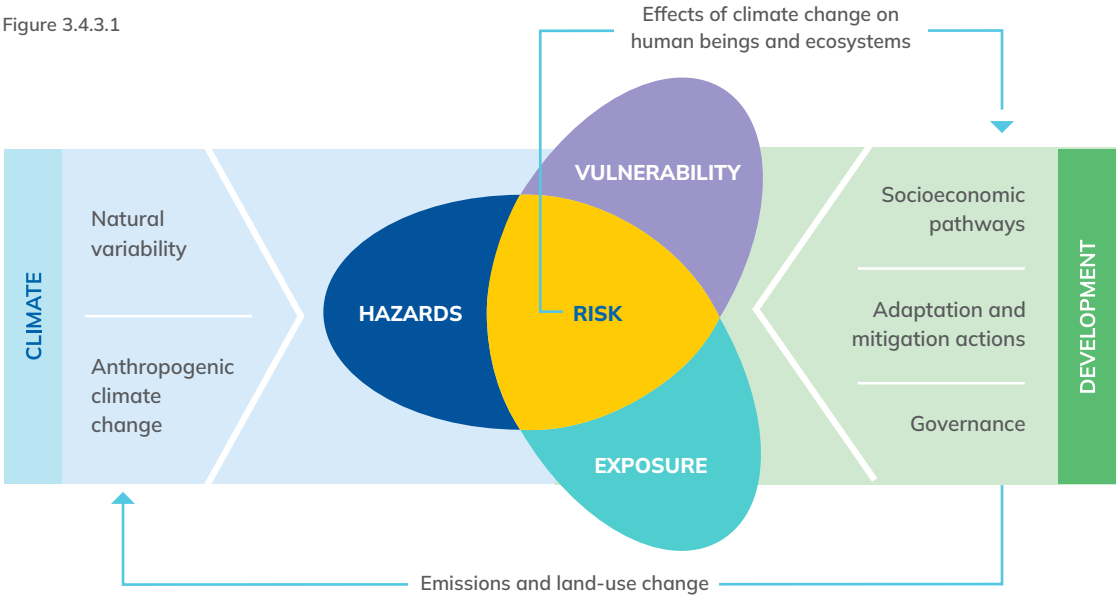
With the increase in incidences of infectious diseases including the ongoing COVID-19 pandemic, the climate change-disaster-health nexus should be of particular relevance to the region. After all, according to the recent IPCC report, Southeast Asia faces particularly stark consequences as temperatures continue to climb. Triggered by climate change and continued environmental degradation, not only disasters such in the region are likely to continue to increase in frequency, they are also likely to intensify.[138] As such, climate change is not only a hazard in itself, but is also a 'threat multiplier', further exacerbating the impact of other hazards including biological hazards.[139]

It is becoming increasingly evident that without sufficient investment in health, post-disaster recovery is likely to lengthen further and undermine future attempts at disaster risk management. As such, short-term humanitarian responses alone will not address the longer-term impacts of any and all hazards on people.[140] The need for ongoing support to national health systems will require preventive mechanisms, preparedness planning and coordination with the regional, national and local authorities as well as the private sectors and other non-governmental organisations.

As the region's experience with COVID-19 has laid bare, the effects of a humanitarian crisis are far beyond the ability or indeed, expertise, of any one sector to handle. To ensure a holistic and sustainable response to a disaster, a nexus approach which is inter-sectoral and multi-stakeholder is needed. In Southeast Asia's disaster context, using a nexus approach will allow for a multisectoral collaborative approach that allows for burden sharing between the various stakeholders – beyond the ASEAN and national governments to the inclusion of civil society organisations, international organisations, and the private sector. This approach also considers the sustainability of any response by highlighting the importance of localisation and localised perspectives. Overall, it highlights the importance of inter-sectoral engagements among ASEAN bodies, which have different but complementary mandates, particularly in cases of disasters with multiple components.

Within the remit of the ASCC, there are a wide range of areas, such as gender, rights of women and children, rural development and poverty eradication, labour, civil service, environment, haze, and health, in addition to disaster management. Many of these policy areas are cross-cutting in nature. The worsening of climate change has led to greater attention to the environmental impacts of disaster-related activities,[141] evident in the inclusion of "climate crisis" as one of the nine priority topics of the Humanitarian Networks and Partnerships Week 2021.

Figure 3.4.3.1



Source: IPCC. Summary for policy makers. Contribution of working group II to the fifth assessment report of the Intergovernmental Panel on Climate Change 2014: impacts, adaptation, and vulnerability. 2014. http://www.ipcc.ch/report/ar5/wg2/

To further improve ASEAN's disaster resilience, it is important to enhance cooperation and coordination across ASEAN. The ASCC developed two platforms (1) the ASCC Council, supported by the Senior Officials Meeting on the ASCC (SOCA) and (2) the Coordinating Conference on the ASCC (SOC-COM).

The ASCC Council ensures that relevant decisions of the ASEAN Summit are implemented. SOCA supports the ASCC Council through the provision of policy recommendations on issues requiring a cross-sectoral approach and supports collaboration between ASCC sectoral Bodies.

The SOC-COM supports the work of SOCA on coordination of cross-sectoral issues particularly at the technical and operational level and meets at least once a year. These mechanisms need to establish channels and to develop frameworks to ensure sufficient coordination and cooperation between ASEAN bodies working on different policy issues. For instance, the established facilities and logistic systems for dealing with natural hazards can be transformed for multiple purposes to enable ASEAN's timely response to different disasters and emergencies in the future.

A plan can be developed to allow the newly established ACPHEED to utilise the DELSA warehouses of the AHA Centre across the region when it is possible and necessary in the face of public health emergencies.[142] Increasing the synergy between different policy areas is essential for ASEAN to build a resilient and prosperous region in the face of more intense and complex disasters in the future.

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CONCLUSION & RECOMMENDATIONS

4.1

Achieving a Resilient ASEAN by 2025 and beyond

This section provides the policy recommendations for ASEAN Member States to implement the ASEAN Vision 2025 on Disaster Management, achieve the related targets of the Sustainable Development Goals and the Sendai Framework on Disaster Risk Reduction by 2030, and provide a firm basis for the next decade. The recommendations draw on insights derived from existing academic, policy, and scientific research, as well as consultation meetings and informant interviews. They are forward-looking and based on emerging best practices. These recommendations offer a substantive pathway to build the regional organisation's profile as a global leader in disaster management, contribute to realising regional disaster resilience, and enable ASEAN to thrive in the decades ahead.

RECOMMENDATIONS

AWP 2021 – 2025	Enhancements/ and links

Priority Programme 1: Risk Assessment and Monitoring

- Prioritise and deepen gender inclusivity by using existing community-based DRM networks to empower and mobilise women in local communities to enhance local capacity in assessing and monitoring disaster risks.
- Initiate a regional mechanism to compile national and sub-national risk profiles and capacities. Review mandates and capacities.
- Develop an ASEAN Data Hub that provides a platform to share disaggregated information from different sectors and organisations. This can further inform training, capacity building and education programmes to build a resilient and prosperous ASEAN.
- Design and deliver an annual ASEAN-wide public perception survey on disaster management and emergency response to monitor progress and the priorities of communities in the region.

Priority Programme 2: Prevention and Mitigation

- ASEAN should pilot capacity building at sub-national disaster management offices drawing on the experience of the ASEAN Smart Cities Network.
- Invest greater resources to improve physical and digital infrastructure to achieve resilience.

Priority Programme 3: Preparedness and Response

- Commit to integrating risk communication and community engagement (RCCE) as part of communication strategy.
- Invest more internal financial, physical and human resources to ensure ASEAN mechanisms are sustainably funded and integrated into the broader ASEAN community.
- Enhance interoperability by ensuring a default "need to share" approach, rather than a "need to know" approach.
- ASEAN Member States should establish national data-driven platforms that match funders with community projects. Organisations from different sectors could utilise the platform as a trusted avenue for engagement.
- Explore diaspora bonds as a financial instrument to leverage the large expatriate populations of ASEAN Member States.

- Convene a cross-sectoral and multi-stakeholder Expert Working Group on ASEAN humanitarian supply chains in disasters and pandemics to investigate an agreement to expedite the supply of relief items, particularly during crises and major disruptions.
- Reform ACDM technical working group on civil-military coordination to include the police.

Priority Programme 4: Resilient Recovery

- Integrate a gendered perspective in the planning and management of disaster recovery by increasing consultation and participation of women to protect women against various insecurities in all disaster management phases.
- Develop ASEAN's global leadership role as a humanitarian and disaster risk financing hub. Prioritise knowledge sharing on risk financing, including drawing on regional mechanisms such as SEADRIF for a resilient recovery.

Priority Programme 5: Global Leadership

- Establish an office for an ASEAN Chief Risk Officer which will include dedicated staff to focus on immediate future scenarios through a Pandora Cell and a team to project possible longer term future scenarios to communicate to ASEAN Member States.
- Develop an inter-regional disaster governance agreement to act as the framework for action on shared challenges through a joint roster of technical experts and disaster management specialists.
- Facilitate inter-regional cooperation through Tracks 1.5 and 2 activities such as academic exchanges, practitioner engagements, and country-level knowledge sharing. Develop an active formal network of research institutes and think tanks with direct channels to the disaster management community by 2025.
- Strengthen and adapt regional platforms such as the SPDDM to become a hub for regional organisations in disaster management through knowledge-sharing, joint training programmes and exercises to consolidate its position as a global leader in disaster management.
- ACDM should prioritise engagement with Timor-Leste in disaster management to build capacity and offer access to training programmes to realise the One ASEAN One Response declaration outside the region.
- Commit to an ASEAN framework on data protection and governance in disaster management.
- Design a strategy to combat disinformation in disaster management and emergency response.

RECOMMENDATIONS

SFDRR and SDGs Recommendations beyond 2025 to 2030

Institutionalisation and Communications

- Develop a collaborative implementation framework by 2025 with other sectors with direct contributions to Climate Change Adaptation and Disaster Risk Reduction. This includes the agriculture, health, national planning, and social welfare sectors. This will provide the impetus to achieve a resilient and prosperous region by 2030.
- Build a resilience coalition grounded in complementarity that coordinates regional strategies at the global level with the European Union, Pacific Islands Forum and Pacific Community.
- Implement a quota system which mandates, or at least recommends, a minimum percentage of women in organisational to advance gender equality.
- Benchmark and track disaster management leadership progress both horizontally across the ASEAN communities and vertically at the provincial and local levels .

Finance and Resource Mobilisation

- Form an agreement for ASEAN Member States to include disaster management in national budgets as a regular line item, so that funds can be designated specifically for disaster-related purposes across government entities.
- Champion remote programming as part of localisation by:
  - Strengthening the technical capacity of local responders to use digital and remote management platforms.
  - Issue guidelines on the governance of remote programming.
  - Develop a framework for action on mis/disinformation.
  - Facilitate shared communication between local and international humanitarian organisations.
- Utilise SDG bonds as to access funds for innovative projects aligned to making a positive contribution to achieving the SDGs.
- Develop comprehensive disaster risk insurance education/awareness building strategies and programs targeted at the regional and national level to help individuals and communities understand the associated risks of simultaneous disasters and disease outbreaks, as well as insurance options available to them.

- Partner telecommunications providers and work towards providing whole-of-society connectivity options to strengthen digital infrastructure with a priority focus on the intersection of urban and rural communities.
- Digitalise DELSA and logistics processes including the use of smart control towers to optimise supply chain management and allow the region to cope with future shocks.
- Develop a strategic supply chain resilience roadmap for disasters and emergencies.

Partnerships and Innovations

- Develop formal cross-sectoral partnerships focusing on three thematic areas for disaster management and emergency response: disaster risk financing, disaster education, urban/rural disaster resilience.
- Design an effective strategy and framework to mitigate negative spill over effects generated within ASEAN with impacts both inside and outside the region to achieve the SDGs.
- Designate the AHA Centre to train and mentor local community and sub-national government leadership as co-leads in priority areas and programmes as a new component for the JSPADM .
- Enhance data literacy for disasters in ASEAN via the ASEAN Data Hub as a learning portal.
- Initiate a scoping study on the use of AI to collect and collate disaster-relevant data across ASEAN communities for an ASEAN Data Hub to enhance evidence-based decision-making.
- Finalise an ASEAN framework on data protection and governance in disaster management.
- Launch an ASEAN strategy on disinformation in disaster management and emergency response.

Anticipatory Action in the Complex Riskscape

- Codify the roles and responsibilities of sub-national government entities to ensure that mandates and resources match the implementation needs for the SDGs.
- Reorientate the ASEAN approach from disaster management to disaster governance.
  - Transition successful sub-national pilot projects towards wider implementation.
- Benchmark and track capacity development of sub-national entities to participate in the regional data platform to ensure optimal use of the data-driven platform to inform policy development, implement projects and integrate sustainable development commitments at all levels of government and across all sectors.
- Devise specific strategies to address the needs of the most vulnerable populations in disasters - including children, pregnant and lactating women, refugees, migrants, older persons, the sick, people with disabilities and indigenous peoples – and implement codified commitments to their needs.

RECOMMENDATIONS

New Ground Future possibilities (2030 to 2035)

Institutionalisation and Communications

- Strengthen relationships with the, legitimate news agencies and fact-checkers to improve information dissemination and reduce misinformation.
- Actively engage employers in a forum for dialogue on disasters with relevant ASEAN entities.
- Offer tailored disaster risk training to employers to facilitate disaster risk communication .
- Revisit and evaluate the role RCCE plays in disaster management.

Finance and Resource Mobilisation

- Diversify insurance schemes to cover multiple risks, sectors, and losses.
- Reassess crowdfunding initiatives and projects to raise funds for disaster management initiatives and the role of ASEAN.
- Re-evaluate the use of cryptocurrency as an alternative financing mechanism for disaster management in the region.
- Launch a comprehensive disaster risk finance curriculum in ASEAN.
- Integrate forecast-based financing into comprehensive disaster risk insurance programmes.
- Announce humanitarian lanes with pre-agreed conditions to expedite the flows of relief items under restricted conditions.

Partnerships and Innovations

- Institutionalise four key priority areas for partnerships and innovations: (1) cash-transfer programming; (2) AI for Anticipatory Humanitarian Action; (3) Data Governance; and (4) Information-Sharing Platforms, to future-proof the region.
- Revisit and update ASEAN framework on data protection and governance and disinformation strategy in disaster management and emergency response.
- Launch formal communication mechanism in ASEAN between scientists, operational and technical agencies to empower communities to develop local preparedness strategies and comprehensive resilience.
- Review coordination mechanisms for the military and police to engage ACDM as key operational partners for humanitarian action during disaster relief operations in the region.
- Launch a standby roster of disaster management professionals to work with governments and communities to prepare for, respond to, and recover from natural hazards. Drawing on the experience of Australia Assists, such a program would enable the rapid mobilisation and deployment of professionals into priority areas.
- Upskill ASEAN certified core deployment teams (e.g. ERAT) to improve inter-operability and engagement in all hazard scenarios.

Anticipatory Action in the Complex Riskscape

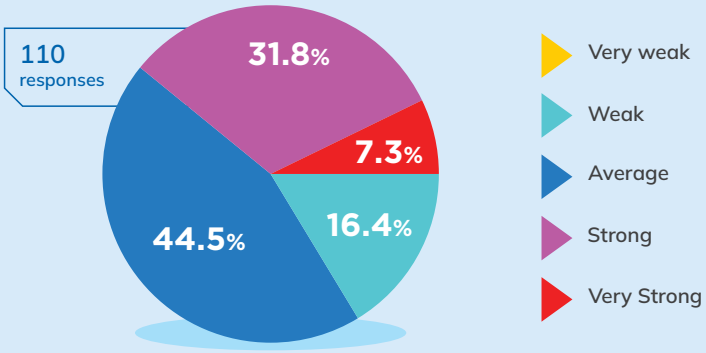
- Conduct a broad network analysis exercise across the region through the ASEAN Data Hub to identify gaps using inter-organisational network mapping with a commitment to subsidiarity.
- Review the role of the ASEAN Chief Risk Officer. Commit to regular updates on possible future scenarios to communicate to ASEAN Member States.

4.2

Realising ASEAN's Global Leadership in Disaster Management: Contributing towards SFDRR (2015-2030) and the 2030 UN Agenda for Sustainable Development

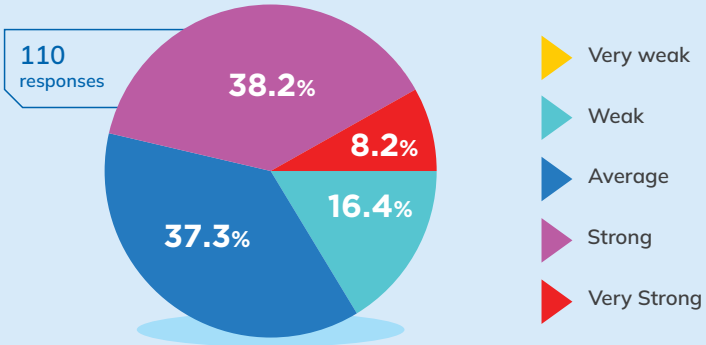
Survey Chart 4.2.1

POTENTIAL CONTRIBUTION OF AWP 2021 – 2025
TO ACHIEVE THE SUSTAINABLE DEVELOPMENT GOALS



Survey Chart 4.2.2

POTENTIAL CONTRIBUTION OF AWP 2021 – 2025
TO ACHIEVE THE SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION TARGETS



The COVID-19 pandemic has impacted all aspects of our lives. What started out as a health crisis quickly cascaded into a human and socio-economic crisis which impacts all SDGs. In September 2019 the UN Secretary-General Antonio Guterres declared 2020 to 2030 the Decade of Action. This will require accelerated implementation of sustainable solutions to address poverty and gender inequalities, climate change and the financing gap as identified in the ADRO survey.

In the disaster management sector, ASEAN adopted the Vision 2025 on Disaster Management in 2015 to guide the implementation of sectoral transformation to achieve a more robust and strategic approach to our immediate and future disaster scenarios. The Vision 2025 on Disaster Management document identified three mutually reinforcing core elements (1) institutionalisation and communications; (2) finance and resource mobilisation; and (3) partnerships and innovations to focus the work in the region.

As we take stock at the mid-point towards 2025, it is essential to build on the achievements made to ensure the full implementation of this vision on time and to further accelerate the journey to achieve the SDGs by 2030 towards a more resilient and prosperous region. For ASEAN to become a global leader on disaster management it is important to offer insights into the successes and challenges faced and chart a way forward to achieve the Sendai Framework and the SGDs by 2030.

Over the past five years ASEAN has instituted a framework for action at the regional level. It is necessary as we embark on the Decade of Action to take a multi-pronged approach that moves implementation of the resilience agenda beyond sectoral siloes that includes domestic capacity building and international cooperation. ASEAN will therefore need to first lead by example through accelerated capacity development across the region towards a common multi-sectoral baseline and promote international cooperation on disaster management concurrently.

This will require the development of an ASEAN Data Hub as a one-stop shop that documents and disseminates progress on the Sendai Framework and the SDGs. This will necessarily include the disaggregated data on the policies of individual ASEAN Member States, relevant sectoral bodies and implementing agencies, and the projects and programmes of international partners. The ASEAN Data Hub will need the necessary human and financial resources to ensure its effectiveness, such as a designated person to ensure the relevant data is available to inform evidence-based decision making. This will be critical to overcome sectoral siloes to ensure comprehensive and inclusive implementation at the national and sub-national levels. It will be necessary to recalibrate efforts at the regional level to develop sub-national entities to provide for more effective policy implementation. Further it will be important to communicate these developments with the wider public and be able to assess communication strategies through annual ASEAN public perception surveys and analysis.

Beyond the monitoring and evaluation of policy implementation to realise the Sendai Framework and SDGs there is a need to ensure a future oriented ASEAN through the establishment of an ASEAN Chief Risk Officer and support team in the ASEAN Secretariat with a multi-stakeholder advisory body to plan from the future for the immediate and longer-term potential scenarios that face the region and global community.

The second strategy to develop effective global leadership on disaster management will be for ASEAN to lead regional organisations around the world to build more cohesive regional contributions to the implementation of the Sendai Framework and the SDGs and reform the global humanitarian system. This initiative will need to provide a platform for the exchange of ideas and sharing of experiences between regional organisations anchored by ASEAN to realise the Decade of Action.

The third strategy for effective global leadership will be for ASEAN to showcase the development of innovative finance and resource mobilisation at the regional level. The development of innovative finance mechanisms such as diaspora bonds, crowdsourced funding initiatives, and the facilitation of regional disaster risk insurance pooling mechanisms for an informed public to increase access to financial support and mitigate and respond to future disaster scenarios. Further, ASEAN is well-placed to consolidate networks and engage across all sectors to implement a comprehensive nationally led, regionally supported and international-as-necessary approach to the Sendai Framework, SDGs and reform the global humanitarian system. Through the development of a regional talent pool drawing on capacities and expertise across all relevant sectors, it can reduce participation barriers and maximise implementation effectiveness.

The final mutually reinforcing element for ASEAN to consolidate its global leadership in disaster management is to deepen partnerships and foster innovation. Through the UN-ASEAN interoperability agenda, the regional organisation can further consolidate the partnership between the ASEAN sectoral bodies and UN agencies to provide greater synergy between the two entities. ASEAN is well-placed to be a global leader in the development of an effective data governance and protection framework to ensure data security and information access and awareness to move from a 'need to know' to a 'need to share' information culture. With the establishment of a regionwide secure data-driven and evidence-based policy system it will facilitate anticipatory action to avert future crises.

As the Decade of Action progresses it is critical to accelerate implementation of the SDG commitments by 2030. ASEAN has a supportive ecosystem to facilitate and coordinate an approach that turns these commitments into action and achieve a resilient and prosperous region on time. This will ultimately be the most important demonstration that ASEAN is a global leader in disaster management.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5 Other risks included in this survey include cyberattacks, data fraud/theft, involuntary migration, unemployment, income disparity, failure of national governance, inter-state conflict and water crises.

6 Specifically, the targets include reduce disaster mortality, reduce the number of affected people, reduce direct disaster economic loss in relation to gross domestic product, reduce disaster damage to critical infrastructure and disruption of basic services, increase the number of countries with national and local disaster risk reduction strategies, enhance international cooperation and increase the availability of and access to early warning systems. "UN Launches 'Sendai Seven' Campaign Aimed at Boosting Disaster Risk Management," UN News, July 11, 2016, https://news.un.org/en/story/2016/07/534132-un-launches-sendai-seven-campaign-aimed-boosting-disaster-risk-management.

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