



ASEAN Insurance Pulse 2021

An Annual Market Survey

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Supporting organisations:



Prepared by
Faber Consulting AG

ASEAN Insurance Pulse 2021

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Foreword Malaysian Re

This year's *ASEAN Insurance Pulse* focuses on natural catastrophes and in particular flood risk, which caused 45 % of all economic losses in ASEAN countries in the past 30 years – well ahead of any other peril. Due to climate change, human intervention, but also rising values on the ground these losses are expected to rise, while insurance penetration for these risks is still low.

Malaysian Re through its Pulse publications continuously seeks to investigate and explain these unique features as part of our efforts to improve our understanding of the ASEAN community and the regional insurance market.

In this regard, we would like to record our deepest appreciation to the industry leaders who participated in the surveys as your invaluable inputs enabled our researchers from Faber Consulting to perform independent and comprehensive assessments which you will find in this publication to be refreshingly distinct.

We are also grateful to Bank Negara Malaysia, Malaysian General Insurance Association (PIAM), ASEAN Insurance Council and the respective Insurance Associations of ASEAN countries for the steadfast support of this initiative.

We hope that you will enjoy reading the Pulse and we look forward to your feedback.

Zainudin Ishak

President & Chief Executive Officer,
Malaysian Reinsurance Berhad

Foreword Faber Consulting

We are pleased to present the fifth edition of *ASEAN Insurance Pulse*.

This year's *ASEAN Insurance Pulse* focuses on natural catastrophes and flooding as the key peril that on average causes the highest devastation in the region. Climate change and urbanization are expected to further aggravate frequency and severity of floods and inundations. The impact from heavy monsoon rains is often amplified by drainage systems incapable to handle masses of water.

This year's edition of the *ASEAN Insurance Pulse* examines the main trends that influence the risk management of natural catastrophes and flooding. In this regard we also explored the increasing relevance of ESG principles for underwriting, asset management and insurers' operations.

The *ASEAN Insurance Pulse* draws once again on diligent market research as well as in-depth interviews with senior executives from national, regional and international insurance and reinsurance companies, intermediaries and trade associations operating across the ASEAN region. Our qualitative interviews, the familiarity with the industry and its drivers allowed us to identify the main challenges and opportunities that the ASEAN insurers face with regard to natural catastrophes and flooding and how they manage the risk.

Now for the fifth time, Malaysian Re has been our indispensable partner. Through the continued support of the *ASEAN Insurance Pulse* Malaysian Re demonstrates its commitment to the ASEAN insurance community and to advancing the regional markets. We would like to extend our deepest thanks to Malaysian Re for once again enabling this research project, which is designed to benefit the ASEAN insurance market as a whole.

Finally, our gratitude goes to our interviewees, the many insurers, brokers and members of associations that have shared once again their expertise and opinion so openly with us.

We hope that you will enjoy reading the fifth edition of *ASEAN Insurance Pulse* and consider its findings useful.

Henner Alms
Chairman and Partner
Faber Consulting

Andreas Bollmann
Partner
Faber Consulting

Methodology

The findings of this report are based on structured interviews with executives representing 27 regional and international (re)insurance companies, intermediaries, policy makers and trade associations. The interviews were conducted by Faber Consulting, a Zurich-based research, communication and business development consultancy, from August to September 2021. Interviewees belong to the regional network of Faber Consulting or were recommended by Malaysian Re. In addition, the General Insurance Association of Malaysia (PIAM) encouraged their members to support this research. We would like to thank the following organisations for sharing their insights with us:

- AIG, Malaysia
- Berjaya Sompo Insurance Berhad, Malaysia
- BIDV Insurance Corporation, Vietnam
- Brunei Insurance and Takaful Association (BITA)
- Campu Lonpac Insurance, Cambodia
- Etiqa General Takaful Berhad, Malaysia
- Fortune General Insurance Corporation, Philippines
- General Insurance Association of Malaysia (PIAM), Malaysia
- Great Eastern General Insurance Indonesia, Indonesia
- Great Eastern General Insurance (Malaysia) Berhad, Malaysia
- Great Eastern Life Assurance Company, Singapore
- Liberty Insurance Berhad, Malaysia
- Lloyd's (Asia-Pacific), Singapore
- Malaysian Re, Malaysia
- Malayan Insurance, Philippines
- MPI Generali Insurans Bhd, Malaysia
- Myanma Insurance Company, Myanmar
- Myanmar Insurance Association, Myanmar
- National Insurance Company, Brunei
- National Reinsurance Corporation of the Philippines, Philippines
- RHB Insurance, Malaysia
- Swiss Re, Malaysia
- Thai General Insurance Association, Thailand
- Vietnam National Reinsurance Corporation (VINARE), Vietnam
- Wahana Tata Insurance, Indonesia
- Willis Re, Malaysia
- Zurich General Takaful Malaysia Berhad, Malaysia

Key Pulse readings

Their unique geographic and climatic conditions make the ASEAN countries one of the world's most vulnerable regions to disasters caused by natural hazards as well as climate change. A major part of the population lives in riverine plains, delta and coastal plains. Hence, the most populous areas are prone to periodic and extensive hazards such as flood, tsunami, and cyclone, which recurrently cause flooding and landslides.

The share of uninsured losses of total economic losses continues to exceed 90 % for storms, floods and earthquakes in Emerging Asian countries.¹ Among all natural perils, floods represent one of the main drivers of natural disaster losses worldwide. Globally, flooding caused 16 % of all secondary peril's insured losses from 2011–2020. In nine ASEAN countries, floods were responsible for more than 45 % of accumulated total natural disaster losses of US\$ 137 billion since 1990 – well ahead of storms or earthquakes.²

Interviewees see sufficient capacity

Notwithstanding the region's considerable natural catastrophe exposure, the executives interviewed for this year's *ASEAN Insurance Pulse* regard the access to private sector capacity as adequate. However, this assessment refers to the insurance customers who actively seek natural catastrophe protection – not to those who might be in need for NatCat protection. Despite rising exposure, capacity might have declined. Due to improved modelling capabilities ASEAN insurers have also been able to reduce capacity as risks became more transparent. Furthermore, due to inadequate pricing of NatCat risk in the region, some international and regional insurers decided to reallocate capacity to markets or risks with a more attractive risk-return ratio.

Demand for natural catastrophe protection is high. Customers are aware that they live in a natural catastrophe exposed region. The main buyers are commercial entities, while the private sector remains largely uninsured. Across ASEAN, natural catastrophe protection for the private sector is limited due to the low insurance penetration. Differences are substantial between the rural and urban population, with the latter buying far more coverage, although – as insurers frequently pointed out – it is particularly the rural population who is most exposed to natural catastrophes.

The cost of insurance and the willingness or ability to pay are the most decisive factors for the purchase of natural catastrophe coverage in the ASEAN insurance markets. Clients are highly cost conscious with a short-lived memory for past losses. Weak enforcement of building codes, flood zones or settlement restrictions also affect insurance demand in the ASEAN markets. On the supply side key challenges are the limited technical capacity in markets with a high natural catastrophe exposure. In addition, the ability to adequately model natural catastrophe risks is still perceived as insufficient. Interviewees from large natural catastrophe markets like the Philippines, Indonesia or Vietnam point out that many CAT decisions are not yet based on reliable models.

¹ Geneva Association (2018): Understanding and addressing global insurance protection gaps.

² World Bank; EM-DAT.

Key Pulse readings

According to our interviewees the ASEAN governments are expected to take a more active role in protecting the lower income groups through premium subsidies and public private partnerships. Recommendations focus on the uninsured parts of society and range from the introduction of mandatory insurance to improving awareness and education about insurance products or on creating insurance pools, for instance to better protect paddy farmers against flooding or drought.

Climate change is a key driver for increased demand. People do no longer just read or hear about climate change but perceive a change in weather related events as for instance rising sea levels, a frequent shift in monsoon seasons or different patterns in rainfall. However, the most obvious driver for increasing demand for natural catastrophe protection are the increasing values on the ground. For the last twenty years, GDP has grown by more than 8 % annually across the region. Nevertheless, rising demand does not necessarily translate into higher volumes. Although frequently exposures increased, rates declined due to excess capacity, improved modelling capabilities or rate liberalizations due to de-tariffication.

Although difficult to model, floods are considered insurable overall

Flooding in the ASEAN region is overall considered insurable. Due to improved risk management and modelling capabilities, insurers increasingly focus more attention on flood prone areas and are trying to manage their exposure through cautious risk selection. The insurability of flooding in the ASEAN markets also benefits from sufficient availability of primary insurance and reinsurance capacity at stable rates. Residential and commercial property are almost equally exposed to flooding. As a result, property and fire insurance is the main line affected, followed by motor insurance and to a small degree, business interruption.

Pricing as well as terms & conditions for flooding have been stable across the ASEAN markets with some downward pressure. Going forward, rates are expected to remain under pressure, as margins are still adequate and loss ratios remained low in recent years. The modelling of natural catastrophe risks has improved moderately in the ASEAN markets. Apart from reinsurers and brokers who have provided models for ASEAN markets, more and more vendor models are introduced to the markets as well. The better modelling quality allows for more granularity and assessments of natural catastrophe risks. As a result, insurers are able to improve pricing and risk selection, which may translate into a decrease of capacity as insurers are better equipped to determine their capacity needs.

The governments of the ASEAN countries are moving forward to develop solutions that improve the natural catastrophe protection of particularly the lower income parts of society. However, the efficacy of the partnership between the public and the private sector is still met with some scepticism. Although many interviewees recognized that public support is needed to improve awareness, financial literacy and insurance protection of vulnerable income groups, most Public Private Partnership programmes are perceived as only partially effective. Often enough programmes lack scale as the number of insureds is insufficient to build a diversified pool of people and risk.

Key Pulse readings

Rising importance of ESG for insurers' underwriting, asset management and operations

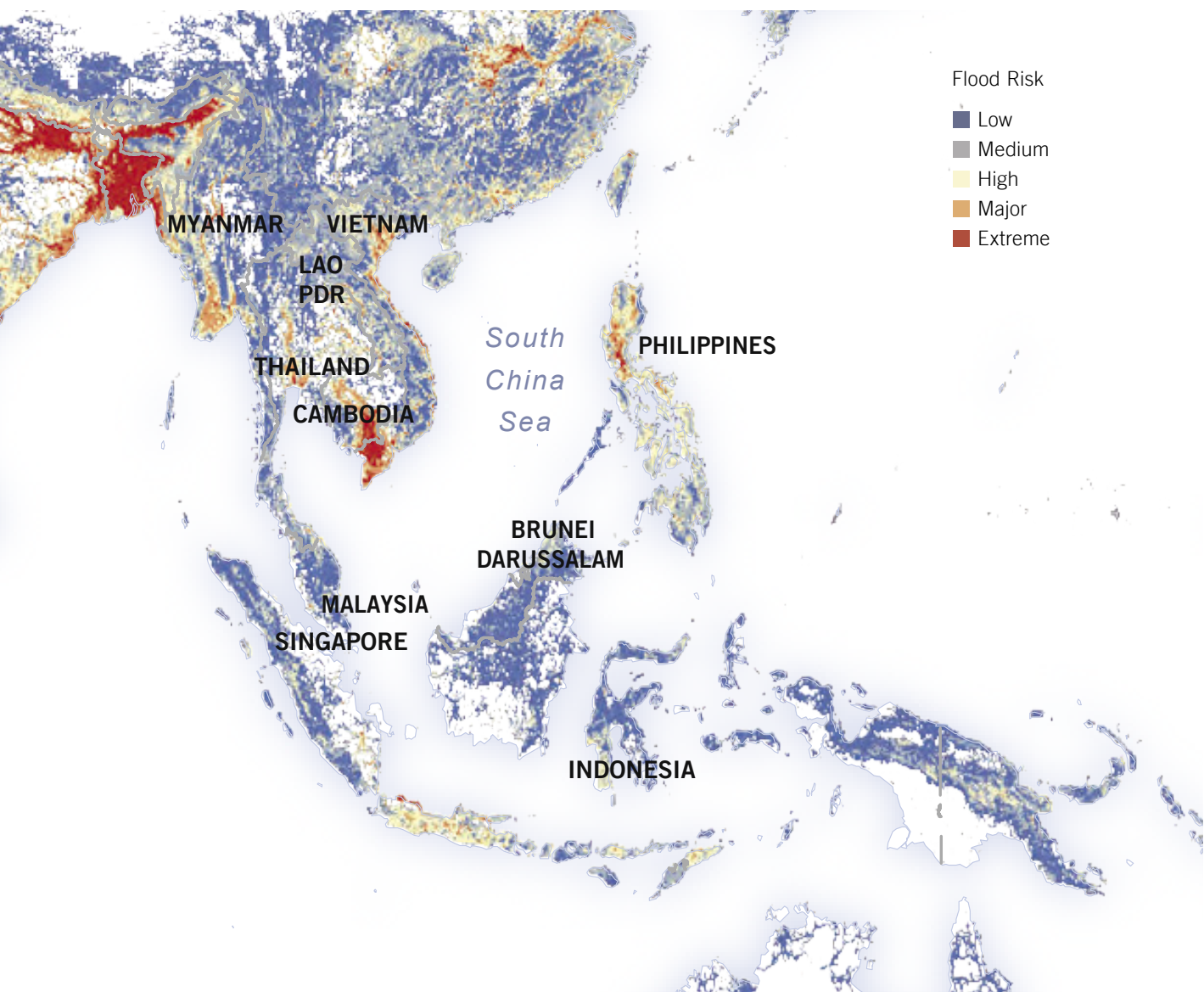
Environmental, social and governance (ESG) factors are a relatively new concept to the ASEAN region, although the discussion is already quite advanced in some markets. Governments' pressure and a changing environmental consciousness are among the main drivers for an increasing interest in ESG. While values and ethics among the general public have been changing, another important driver for the accelerating momentum of the debate are the international corporations and investors, the financial services sector with banks as owners of insurers, and the trade markets requiring ASEAN exporters to meet the ESG criteria of their international trading partners.

Insurers are taking different approaches to incorporating ESG measures into their strategies. The focus is mostly on developing an underwriting approach by gradually reducing their exposure and involvement in sectors with a negative ESG impact while bolstering those with a positive profile, like renewable energy risks. The asset management follows a fairly similar strategy, analyzing the portfolio according to a fixed set of ESG criteria and then slowly phasing out those assets with a negative ESG profile while increasing investments in assets that bear a more positive profile.

Market research

Natural disaster risk overview

Map 1: Estimated risk for multiple hazards



Source: United Nations Office for the Coordination of Humanitarian Affairs: GIS processing UNEP/GRID Europe. <http://preview.grid.unep.ch>

Market research

Natural disasters in ASEAN: A broad range of hazards often affects very vulnerable communities

ASEAN countries are frequently hit by a variety of natural disasters, and a significant share of economic activity in ASEAN countries is located in areas exposed to these natural perils. These natural disasters cause high numbers of fatalities and economic losses in the region. The unique geographic and climatic conditions make ASEAN one of the world's most vulnerable regions to disasters caused by natural hazards as well as climate change impact. A major part of the population lives in riverine plains, delta and coastal plains. Hence, the most populous areas are prone to periodic and extensive hazards such as flood, tsunami, and cyclone. Powerful typhoons that cause flooding and landslides hit the region almost every year. In addition, the region faces risk from earthquakes, volcanic eruptions, tsunamis, and forest fires that threaten life and property, and drought that leaves serious lingering effects.

Economic growth is an important objective as it leads to an increase of the standard of living. In all ASEAN markets, GDP by far outpaced population growth from 2000 – 2020, indicating a strong GDP per capita growth and hence a steep increase in the standard of living – and accordingly an increase in the value of insurable assets.

Table 1: ASEAN countries: GDP (current prices, in US\$) and population, 2000 and 2020

	<i>GDP 2000</i>	<i>GDP 2020</i>	<i>CAGR</i>	<i>Population 2000</i>	<i>Population 2020</i>	<i>CAGR</i>
<i>Brunei</i>	6'641	12'016	3.0 %	0.3	0.5	1.8 %
<i>Cambodia</i>	3'667	25'953	10.3 %	12'223	15'678	1.3 %
<i>Indonesia</i>	179'482	1'059'638	9.3 %	206'265	270'204	1.4 %
<i>Lao PDR</i>	1'720	19'078	12.8 %	5'324	7'266	1.6 %
<i>Malaysia</i>	102'149	338'276	6.2 %	23'495	32'939	1.7 %
<i>Myanmar</i>	7'736	81'257	12.5 %	45'585	53'199	0.8 %
<i>Philippines</i>	83'667	362'243	7.6 %	76'950	108'770	1.7 %
<i>Thailand</i>	126'132	501'888	7.1 %	62'953	69'800	0.5 %
<i>Singapore</i>	96'077	339'981	6.5 %	4'028	5'772	1.8 %
<i>Vietnam</i>	39'585	340'821	11.4 %	79'395	97'406	1.0 %
<i>Total</i>	646'856	3'081'151	8.1 %	516'218	661'034	1.2 %

Source: IMF World Economic Outlook Database April 2021

Market research

ASEAN is a high growth insurance region: Since 2020, insurance outgrew GDP by far in most countries

As in many growing economies, a market for insurance is both a consequence and contributor to this economic growth. In most ASEAN countries, insurance penetration has grown since 2000, indicating that insurance growth has outpaced GDP growth. In Indonesia and the Philippines, insurance and GDP growth has been closely aligned, whereas in Malaysia the economy grew faster than insurance premiums.

Table 2: ASEAN countries: Non-life insurance penetration 2000 and 2020 and penetration compound annual growth rate (CAGR), in %

	<i>Non-life penetration 2000*</i>	<i>Non-life penetration 2020*</i>	<i>CAGR</i>
<i>Brunei</i>	0.8 %	1.0 %	1.1 %
<i>Cambodia 2003</i>	0.2 %	0.5 %	5.5 %
<i>Indonesia</i>	0.5 %	0.5 %	0.0 %
<i>Lao PDR 2001</i>	0.3 %	0.4 %	1.5 %
<i>Malaysia</i>	1.6 %	1.5 %	−0.3 %
<i>Myanmar</i>	0.1 %	0.2 %	3.5 %
<i>The Philippines</i>	0.5 %	0.5 %	0.0 %
<i>Thailand</i>	1.1 %	1.9 %	2.8 %
<i>Singapore</i>	1.1 %	1.9 %	2.8 %
<i>Vietnam</i>	0.3 %	0.7 %	4.3 %

* Cambodia: 2003; Lao PDR: 2001

Source: Faber Consulting AG, based on Swiss Re institute, sigma 3/2021, sigma-explorer.com

Annual non-life insurance premiums in six ASEAN countries increased six-fold between 2000 and 2020 to over US\$ 33bn. Over the coming years, Swiss Re expects that Asia will continue to outperform other regions, also as a reflection of the shift in economic power from west to east.

Market research

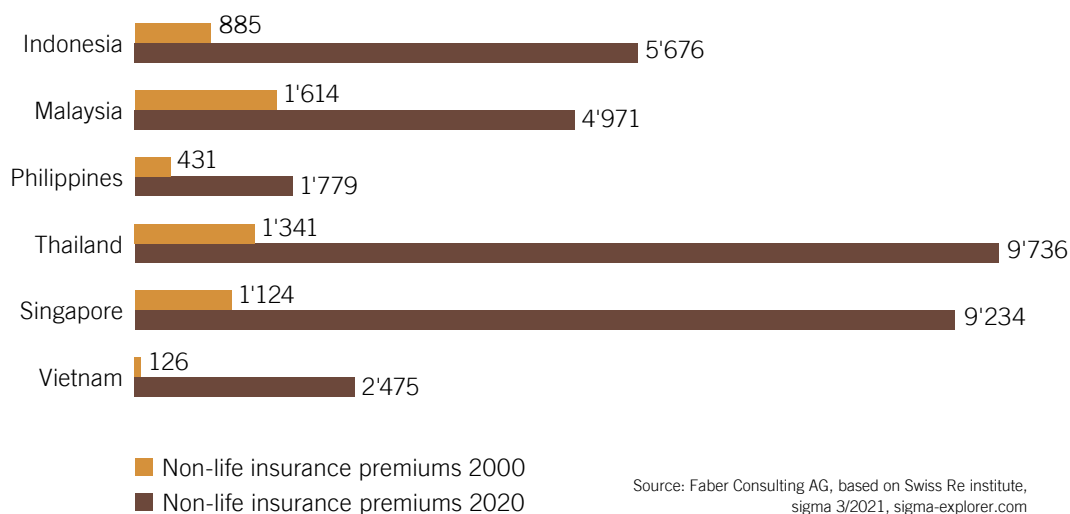
More than 90 % of total economic losses caused by natural disasters in ASEAN are not covered by insurance

Currently, most natural catastrophe risk-management mechanisms in the region rely on ad-hoc government relief, which is not sustainable. Natural disaster insurance markets in the region are clearly underdeveloped, in particular in personal lines – with the exception of motor insurance.

According to the Geneva Association³ the protection gap – the share of uninsured losses of total economic losses – continues to exceed 90 % for all three major perils – storms, floods and earthquakes – in Emerging Asian countries. Other estimates from UNESCAP (United Nations Economic and Social Commission for Asia and the Pacific) and the MAS (Monetary Authority of Singapore) of the protection gap in the Asia-Pacific region and developing Asia, such as Cambodia, Lao PDR, and Myanmar, range between 92–95 %.

In 2016, with the objective to address the lack of quality catastrophe exposure and loss data in Asia, the MAS launched the Natural Catastrophe Data Analytics Exchange (NatCatDAX) in partnership with the insurance industry to address the lack of quality catastrophe exposure and loss data in Asia. The platform supports an enhanced quantification of catastrophe risks in Asia in an attempt to accelerate the development of innovative risk transfer and financing solutions, including parametric solutions and insurance-linked securities.

Chart 1: Non-life insurance premiums 2000 and 2020 in US\$ million, 6 selected ASEAN markets

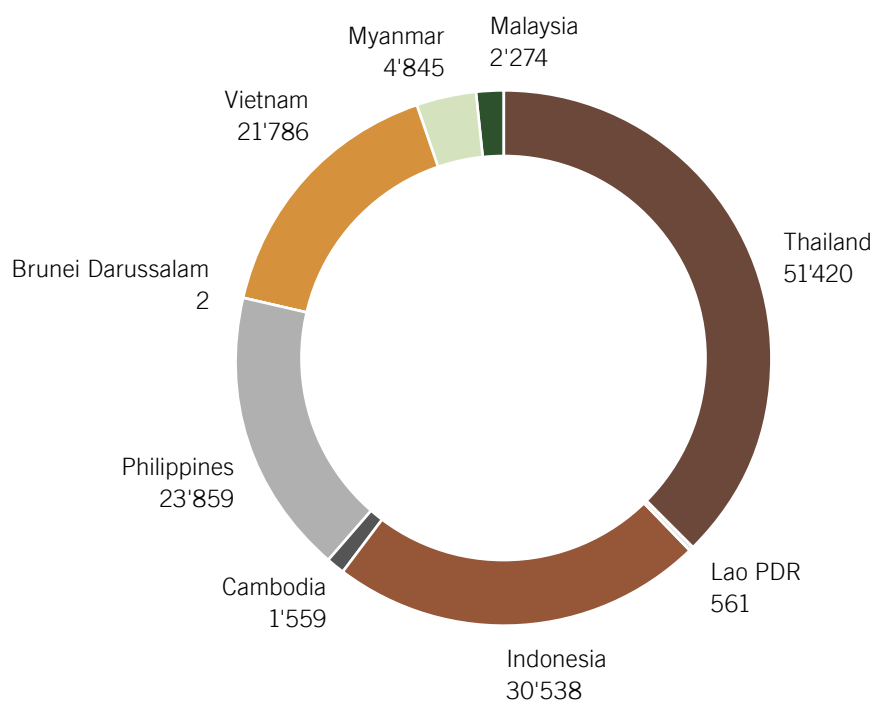


³ Geneva Association (2018): Understanding and addressing global insurance protection gaps

Market research

Multilateral cooperation in the areas of risk-modeling and mapping as well as joint efforts to establish financial risk-transfer solutions could help to overcome existing challenges in this area. The Integrated Disaster Risk Management Fund, established by the Asian Development Bank (ADB) and the Government of Canada in February 2013, supported the Philippines in designing the world's first city disaster insurance pool, covering earthquakes and typhoons.

Chart 2: Disaster impact in 9 ASEAN countries 1989–2019, in US\$ million
(total: US\$ 137 billion)



Source: World Bank; EM-DAT

Market research

Myanmar hit hardest since 2000, the Philippines suffer from a variety of regularly occurring natural disasters

Germanwatch 2021 Global Climate Risk Index (CRI): A backward-looking risk assessment based on incurred losses for the period 2000–2019 ⁴

The Global Climate Risk Index analyses and ranks to what extent countries and regions have been affected by impacts of climate related extreme weather events (storms, floods, heatwaves etc.). The CRI indicates a level of exposure and vulnerability to extreme weather events but does not consider important slow-onset processes such as rising sea levels, glacier melting or ocean warming. The data only reflects the direct impacts – direct losses and fatalities – of extreme weather events, whereas indirect impacts, such as food scarcity because of drought, are not captured.

Table 3: Climate Risk Index for 2000–2019, ASEAN country overview

CRI global rank	Country	CRI score	Average fatalities (rank)	Average fatalities per 100'000 inhabitants (rank)	Average losses in US\$ million (rank)	Average losses per unit GDP in % (rank)
2	Myanmar	10.00	1	1	19	19
4	Philippines	18.17	7	16	8	31
9	Thailand	29.83	22	60	3	17
13	Vietnam	35.67	15	47	11	47
14	Cambodia	36.17	38	35	53	28
52	Lao PDR	60.50	82	66	73	38
72	Indonesia	74.00	14	91	18	115
116	Malaysia	105.67	64	108	66	144
176	Brunei	167.50	167	151	178	179
179	Singapore	172.00	172	172	162	177

Classification according to the quintile method:

- dark green = very low
- light green = low
- orange = medium
- brown = high
- red = very high

⁴ https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf

The index is based on data from the Munich Re NatCatSERVICE. The CRI examines both absolute and relative impacts to create an average ranking of countries in four indicative categories, with a stronger emphasis on the relative indicators. The countries ranking highest are the ones most impacted by extreme weather events and should consider the CRI as a warning sign that they are at risk of either frequent events or rare but extraordinary catastrophes. The index is based on data reflecting the current and past climate variability and also on climate change – to the extent that it has already left its footprint on climate variability over the last 20 years.

Between 2000 and 2019, over 475'000 people lost their lives worldwide and losses of US\$ 2.56 trillion (in purchasing power parity – PPP) were incurred as a direct result of more than 11'000 extreme weather events. Slow-onset processes are already adding an additional burden and will increasingly do so in the future.

The list of countries featured in the long-term bottom 10 can be divided into two groups: firstly, those which were most affected due to exceptional catastrophes and secondly, those which are affected by extreme events on an ongoing basis. Myanmar belongs to the first category, as Cyclone Nargis in 2008 caused more than 95 % of the accumulated damage and fatalities since 2000. Countries like the Philippines, that are recurrently affected by catastrophes, belong to the second category as they continuously rank among the most affected countries both in the long-term index and in the index for each respective year.

Many ASEAN member countries are highly exposed to natural catastrophes – Myanmar and Lao PDR are very vulnerable despite relatively moderate exposures

WorldRiskIndex: A forward-looking assessment based on exposure and vulnerability⁵

The WorldRiskIndex is based on the understanding that disaster risk is not determined solely by the occurrence, intensity and duration of extreme natural events. It assumes that social factors, political conditions and economic structures are also responsible for whether or not a disaster occurs in the wake of extreme natural events. To show the interaction of natural events and social factors, the WorldRiskIndex multiplies the values of two dimensions: exposure to extreme natural events and vulnerability.

The calculation of the disaster risk has been performed for 181 states worldwide and is based on the following components:

- Exposure to earthquakes, storms, floods, drought, and sea-level rise. Exposure means that a population or an area is exposed to the effects of one or more natural hazards – earthquakes, storms, floods, droughts or sea-level rise.
- Vulnerability is composed of the components (1) susceptibility, (2) lack of coping capacity and (3) lack of adaptation capacity. It refers to social, physical, economic and environmental factors that make people or systems vulnerable to the effects

⁵ <https://reliefweb.int/sites/reliefweb.int/files/resources/WorldRiskReport-2020.pdf>

Market research

of natural hazards, the negative impacts of climate change or other processes of change. Vulnerability also includes the ability of people or systems to cope with and adapt to the negative impacts of natural hazards.

- Susceptibility is depending on infrastructure, food supply, and economic framework conditions
- Coping capacities are depending on governance, health care, social and material security
- Adaptive capacities are related to upcoming natural events, climate change, and other challenges

The index aims to assess the general risk of countries to face a disaster in the wake of extreme natural events, but it does not predict the probability or timing of the next disaster.

Table 4: WorldRiskIndex 2020, ASEAN country overview

<i>Global rank</i>	<i>Country</i>	<i>WorldRiskIndex</i>	<i>Exposure</i>	<i>Vulnerability</i>	<i>Susceptibility</i>	<i>Lack of coping capacities</i>	<i>Lack of adaptive capacities</i>
7	Brunei	22.30	57.61	38.70	14.75	33.35	67.99
9	Philippines	20.96	42.30	49.55	28.97	39.32	80.37
16	Cambodia	15.76	26.80	58.82	38.94	50.57	86.94
40	Indonesia	10.39	20.97	49.54	26.03	44.56	78.02
43	Vietnam	10.30	22.02	46.76	23.88	39.78	76.63
72	Malaysia	7.71	19.05	40.46	16.90	33.59	70.89
81	Myanmar	7.18	12.96	55.39	28.97	51.38	85.82
90	Thailand	6.54	14.81	44.13	17.52	36.25	78.63
127	Lao PDR	4.47	8.02	55.76	33.26	51.23	82.79
164	Singapore	2.57	8.87	28.97	11.29	21.60	54.03

Max. value / category = 100, classification according to the quintile method:

- dark green = very low
- light green = low
- orange = medium
- brown = high
- red = very high

Market research

Flood is the most relevant hazard in ASEAN – Vietnam, Myanmar, Cambodia and Lao PDR highly exposed to flood

INFORM Risk Index – A forward-looking assessment for humanitarian crisis and disasters ⁶

INFORM is a collaboration of the Inter-Agency Standing Committee Reference Group on Risk, Early Warning and Preparedness and the European Commission. The INFORM Risk model balances two major forces: The hazard and exposure dimension on one side, and the vulnerability and the lack of coping capacity dimensions on the other side. Hazard dependent factors are treated in the hazard and exposure dimension, while hazard independent factors are divided into two dimensions: The vulnerability dimension that considers the strength of the individuals and households relative to a crisis situation, and the lack of coping capacity dimension that considers factors of institutional strength.

	INFORM																	
Dimensions	Hazard & Exposure					Vulnerability				Lack of coping capacity								
Categories	Natural		Human			Socio-economic		Vulnerable groups		Institutional		Infrastructure						
Components	Earthquake	Flood	Tsunami	Tropical Cyclone	Drought	Epidemic	Current conflict intensity	Projected conflict risk	Development and Deprivation (50 %)	Inequality (25 %)	Aid Dependency (25 %)	Uprooted people	Other vulnerable Groups	DRR	Governance	Communication	Physical infrastructures	Access to health system

⁶ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk>

Market research

The INFORM Risk Index uses 80 different indicators. The index creates a risk profile for every country. Each has a rating between 0 and 10 for risk and all of its components to facilitate a comparison.

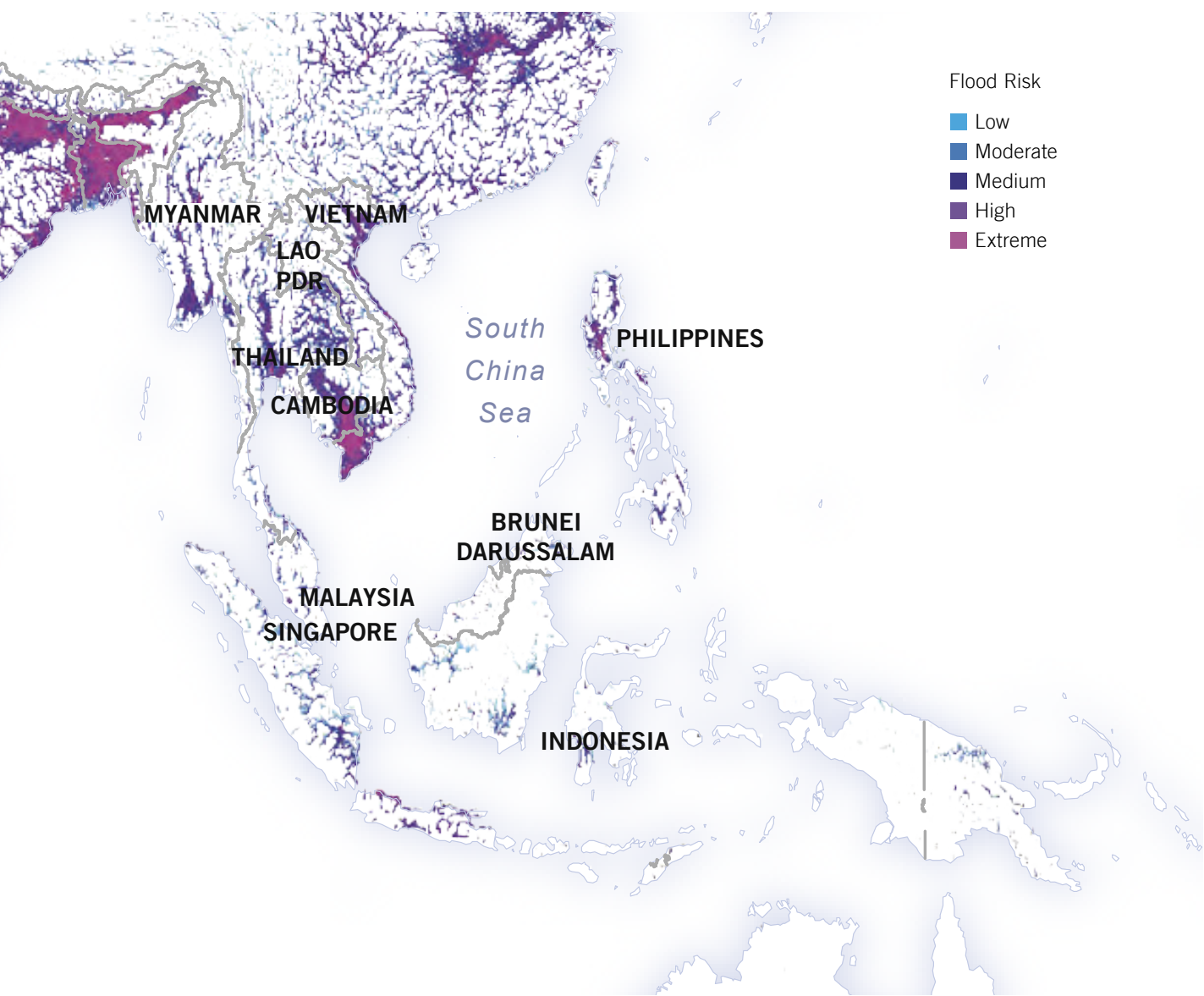
The hazard and exposure dimension reflects the probability of physical exposure associated with specific hazards. There is no risk if there is no physical exposure, no matter how severe the hazard event is. As such it represents the load that the community has to deal with when exposed to a hazard event.

Table 5: INFORM Risk Index results 2021: ASEAN countries–selected hazard & exposure indicators

Country	Overall risk	Hazard & Exposure					
	index / category	Earthquake	Flood	Tsunami	Tropical Cyclone	Drought	Epidemic
Myanmar	6.3 / high	9.1	9.9	8.9	5.6	1.0	6.8
Philippines	5.3 / high	10.0	7.2	9.3	9.5	4.1	6.5
Indonesia	4.8 / medium	8.9	8.1	9.7	6.1	3.2	7.2
Cambodia	4.7 / medium	0.1	9.5	5.2	4.0	4.6	6.6
Thailand	4.0 / medium	2.1	8.8	7.2	4.9	5.7	5.3
Lao PDR	4.0 / medium	3.1	9.1	0.0	3.3	2.7	6.6
Vietnam	3.7 / medium	4.1	10.0	7.4	7.8	4.1	6.8
Malaysia	3.1 / low	2.3	6.6	7.1	2.9	3.2	5.6
Brunei	1.7 / very low	0.1	1.4	5.0	1.9	2.4	4.3
Singapore	0.5 / very low	0.1	0.1	0.0	0.0	0.0	4.3
ASEAN country average	3.8 / medium	4.0	7.1	6.0	4.6	3.1	6.0

Flood risk overview and modelling

Map 2: Flood risk in ASEAN

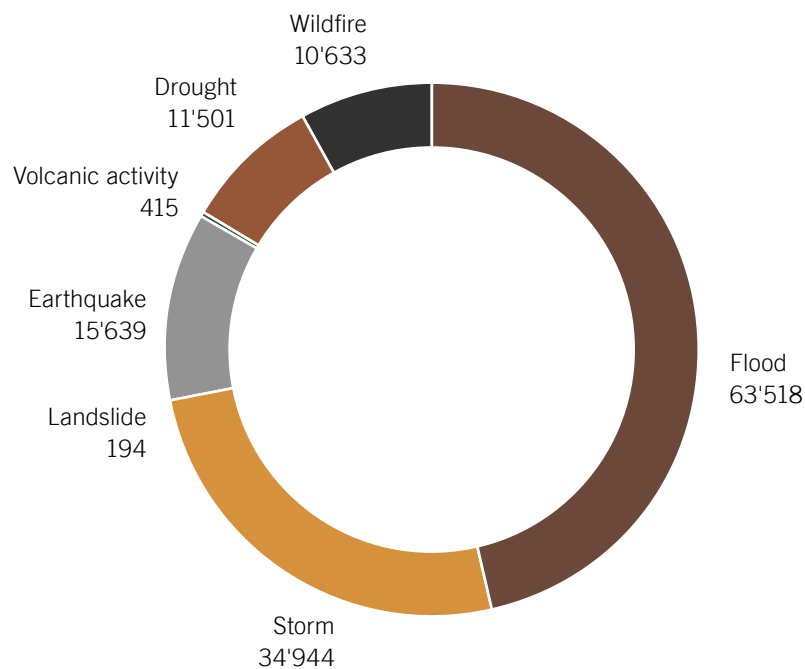


Source: United Nations Office for the Coordination of Humanitarian Affairs: GIS processing UNEP/GRID Europe. <http://preview.grid.unep.ch>

Flooding caused more than 45 % of all natural disaster losses in ASEAN over the past 30 years

Among all natural perils, floods represent one of the main drivers of natural disaster losses worldwide. According to Swiss Re⁷, flooding – in particular river flooding, flash flooding and surface water flooding – was the main secondary peril⁸ in Europe, South America and Asia over the last decade. Globally, flooding caused 16 % of all secondary peril insured losses from 2011–2020. This share increases to 20–25 %, if floods resulting from tropical cyclone induced precipitation and storm surge are included. As shown in graph 3 below, from 1989–2019, floods caused more than 45 % of accumulated total natural disaster losses of US\$ 137 billion in nine ASEAN countries.

Chart 3: Disaster impacts in 9 ASEAN countries by perils, accumulated losses 1989–2019, US\$ million (total: US\$ 137 billion)



Source: World Bank; EM-DAT

⁷ Swiss Re sigma 1/2021: Natural catastrophes in 2020

⁸ Secondary perils are those that generate small to mid-sized losses, such as hail, flood, storm or bushfire.

Market research

Few catastrophe models available to estimate the financial impact of flooding

Natural disaster risk assessments are carried out to identify the source and extent of potential damages, and the proposed mitigation and protection measures. Regarding the modelling of flood risk, a wide gap is still present in the market, with few models available to estimate the financial impact of flooding as the dynamics that dictate flood risk are difficult to model. When assessing flood risk, a key concern is related to triggering factors. There is no single source that causes a flood; it can arise from multiple drivers, such as heavy rain, a dam break, a storm surge, inadequate water management practices, and others.

Considering the challenges in accuracy related to short-term weather forecasts, where at least some of the dynamics can be modelled, the challenge of projecting the risk for precipitation drivers of flooding are far more complex. Precipitation patterns must consider multiple sources. Even in the same catchment area, the same precipitation distributed in different ways can lead to vastly different results. In addition, other parameters must be factored in: For example, soil conditions (very dry, partial saturation, etc.), must then be linked to local factors that are not always possible to project at the global level. The primary difference between global and local models is not the processes, but rather the ability to tailor them to a local context that can make the difference for producing a comprehensive understanding of risk.

It is important to move away from a simple risk paradigm and instead focus on impact. If exposure and vulnerability are adequately incorporated into models, probabilistic modelling becomes more important to provide information on the potential impact, not just to understand a hazard. Some recent initiatives are developing methods to embed local flood models within global models, resulting in an increased computational efficiency and enhancing localized accuracy in those areas where the local models exist. These models can then be used to inform public and private sector decision makers so that they are able to develop disaster risk management strategies, issue detailed early warnings, or over a larger timescale, incorporate the information into decisions on land use planning, building approvals and infrastructure development.

ASEAN country overview

Brunei

Despite its location in a hazard and disaster hotspot, Brunei has historically been perceived as one of the countries least exposed to natural hazards in Southeast Asia, and generally is seen as being vulnerable only to low-level hazards from earthquakes, cyclonic storms, floods, landslides, seasonal forest fires, and smoke/haze. In reality however, floods remain unarguably the most vivid and costly threat in Brunei Darussalam.

Table 6: Brunei: Average Annual Loss* by Hazard type

<i>Hazard</i>	<i>Absolute (US\$ million)</i>
<i>Earthquake</i>	5.94
<i>Storm surge</i>	0.02
<i>Tsunami</i>	0.40
<i>Flood</i>	30.95
<i>Multi-hazard</i>	37.31

* Average annual loss (AAL) is the expected loss per annum associated with the occurrence of future perils assuming a very long observation time-frame

Source: CRED

According to Center for Research on the Epidemiology of Disasters (CRED, 2015), out of the total annual losses of about US\$ 37.31 million, up to US\$ 31 million worth of losses are incurred from floods alone. In addition, the occurrence and impacts of landslides – often a consequence of heavy rain and flooding – have remained largely under-reported in international disaster databases.

Throughout the recent years, extensive financial provisions in each national development plan have been allocated for structural measures to improve the drainage system in flood-prone areas. About US\$ 236 million and US\$ 136 million were allocated during the 8th (2001–2005) and 9th (2007–2012) National Development Plans respectively, and a further US\$ 122 million was allocated under the Flood Action Plan (FAP) of 2012. However, numerous areas around the country continue to be affected by floods and landslides on an annual basis. The costly infrastructural projects already undertaken have not reduced the risk of severe flooding and associated damage within numerous communities in the country.¹⁰

¹⁰ Ndah, A.B., Odihi, J.O. A Systematic Study of Disaster Risk in Brunei Darussalam and Options for Vulnerability-Based Disaster Risk Reduction. *Int J Disaster Risk Sci* 8, 208–223 (2017).

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Cambodia

Cambodia is among the most exposed countries to disasters worldwide, ranking 14th in the global long-term Climate Risk Index (CRI) and 16th in the WorldRiskIndex 2020.

Hazards in Cambodia include almost every hydrometeorological event ranging from floods, storms and tropical cyclones to droughts. Furthermore, fires, epidemics, lightning strikes and landslides (in the northern mountainous regions) contribute to disaster risks. According to UNISDR, riverine flooding poses the highest risk in terms of Average Annual Loss (AAL) in Cambodia, placing the country 3rd highest after Myanmar and Lao PDR in a global comparison.

As a predominantly low-lying country with large flood plains, flooding is common across the country. While floods have a beneficial impact on agriculture-based livelihoods as they increase soil moisture and fertility, they have often caused loss of lives, homes and livelihoods in already fragile communities. Mekong flooding and flash flooding are the most common hydrometeorological hazards, and major events occur approximately every five years. According to the Royal Government of Cambodia (2010), annual flooding alone during the wet season is causing estimated losses of US\$ 100 to 170 million each year. Malnutrition, agricultural dependence and high number of settlements in flood plains all contribute to the increased vulnerability to weather events and disasters.

Storms and typhoons in Cambodia are often not considered a significant threat as the country is sheltered by mountain ranges which lessen the impacts. However, in 2009, typhoon Ketsana crossed through the Philippines, Vietnam and Lao PDR before impacting Cambodia. According to the Cambodian government, total economic damages were estimated at US\$ 132 million.

So far, Cambodia relies largely on the overall contingency budget to provide financing in the event of disasters, but this budget is not earmarked for such usage. In the past, the process of covering disaster costs has regularly been supported by donor assistance, but the affected populations have still absorbed most of the costs which has often resulted into increased debt levels and poverty.

Indonesia

Indonesia is exposed and vulnerable to a range of natural hazards, including earthquakes, tsunamis, volcanic eruptions, flooding, droughts, landslides and epidemics. Due to Indonesia's location on the Pacific Ring of Fire, many active volcanoes are found in the country, and seismic risks produce frequent and sometimes destructive earthquakes. According to the government's estimates, between 1970–2015, there have been 97 earthquakes which have amounted to US\$ 11.7 billion in losses and damages.

The southern and western islands – including Java and Sumatra – are exposed to the largest number of hazards and have high risk levels for droughts, earthquakes, floods, landslides, and volcanoes. The geophysical hazards are confined to the mountainous

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regions of the islands while droughts and floods affect larger areas. On other islands, droughts are the most widespread hazard, though landslides, floods, and earthquakes affect selected regions.

Compared to other hazards, floods have the largest risk when weighted by the proportion of GDP and mortality. According to GFDRR, the 2007 floods in Jakarta affected 80 districts, destroyed 70'000 homes and displaced over 400'000 people. Throughout the country, millions are exposed to flooding events. More than 42 million people are living on low-lying land, less than 10 meters above sea level, and the country comprises more than 81'000 kilometers of coastline (USAID, 2017). Moreover, high precipitation increases landslide risks in hilly or mountainous regions.

In 2019, Indonesia's government has reportedly secured approximately US\$ 770 million of natural disaster insurance coverage for state buildings and assets under the control of the Ministry of Finance. This insurance covers a broad range of perils, including earthquake, floods and fires, as well as certain man-made disasters such as damage caused by riots, terrorism and plane crashes. A panel of 56 insurance and reinsurance companies have backed this arrangement, with the government paying a fixed premium for the coverage – reported as more than IDR 21 billion (approx. US\$ 1.5 million).

Lao PDR

Unlike many of its neighbors, Lao PDR has not often been susceptible to disasters of catastrophic scale due to its landlocked position amongst countries, low seismic activity and distance from the ocean. In the past, Lao PDR has witnessed several small and moderate-scale earthquakes in the northern and western parts of the country. Only one big event of an earthquake with a magnitude of more than seven was reported in 1988.

However, the past decade has had some notable weather-related events which have impacted not only the economy, but also the livelihoods of people: In 2009 the typhoon Ketsana caused damages of US\$ 94.2 million after hitting southern parts of Lao PDR. The typhoon severely damaged roads, irrigation networks and public infrastructure. In 2018, the country was affected by three consecutive disasters; the storm Son-Tinh, which breached Xe pien-Xe Nam Noy hydropower saddle dam causing flash flooding, followed by the storm Bebinca in August. According to Laos' Ministry of Labour and Social Welfare, total damage reportedly mounted up to US\$ 147 million, while the total loss added up to US\$ 225 million. The country's GDP decreased by 2.01 %, which corresponds to 9.6 % of Lao PDR's annual budget. The effects of regularly occurring Mekong and Sekong river flooding events are magnified by deforestation and land degradation due to agricultural practices.

In 2017, funding of US\$ 30 million was granted by the World Bank to implement the Lao PDR Southeast Asia Disaster Risk Management (DRM) Project, a massive investment in the ex-ante Disaster Risk Reduction (DRR) programme, with a comprehensive focus on flood risks, including integrated urban flood risk management, resilient urban planning, and financial planning for disaster resilience.

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Malaysia

With regards to disasters Malaysia is relatively sheltered from hazards originating from the tectonic movements. It is also too far south from major typhoon paths due to which storm impacts are often relatively minor. However, occasionally, the country faces threats arising from cyclones, floods, landslides, droughts, epidemics or environmental degradation. These events have the potential to endanger the country's development aspirations, and the wellbeing of its population. Within the range of possible events, flooding and landslides are the most severe concerns. Large areas of the country are flooded annually, and heavy precipitation increases the likelihood of landslides depending on the topography and soil conditions

Malaysia is one of the most urbanized countries in Southeast Asia, and the increasing concentration of population and assets, together with an equatorial climate and the presence of two monsoon seasons, make flooding the most expensive natural disaster in the country.

Monsoonal floods are among the severe threats, made worse by an increasing concentration of assets and population, climate change and environmental degradation. Although monsoons very rarely impact the country directly, the months between May and November may be affected by heavy winds and storms.

According to a report from 2017¹¹, flooding alone has caused annual economic damages of over US\$ 60 million annually in Malaysia, and have had negative impacts on agriculture, especially, by decreasing the sectoral GDP by 0.22 % per every one % increase of flooded areas in the longer-term. The costs and damages of the Johor flooding between 2006 and 2007 exceeded US\$ 1 billion. According to Marsh McLennan, the late 2014 / early 2015 floods, described as one of the worst in the last decades, caused economic loss exceeding US\$ 280 million on the Malaysian Peninsular, with estimated insured losses of around US\$ 63 million (Axco).

Myanmar

Myanmar is exposed and vulnerable to a broad range of natural hazards. According to a 2015 JICA study, approximately half of total number of disasters in the country are caused by flooding, followed by storms (23 %), earthquakes (15 %) and mass soil movement (12 %). Other hazards include droughts, wildfires and a potential for tsunamis.

The UNDRR's Asia-Pacific Disaster Report of 2012 estimated that the average annual economic loss due to disasters in Myanmar nears 0.9 % of the country's GDP, one of the highest figures in Southeast Asia. Cyclone Nargis in 2008 alone had an impact of US\$ 4.02 billion.

Organic growth of cities and inadequately managed development also contributes significantly to environmental degradation. According to the World Bank (2019)¹², between 1990 and 2015, the forest cover of Myanmar has been declining at an average rate of 1.2 % annually, and the rates of mangrove forest loss are highest in Southeast Asia. Given that mangrove forests act as important buffer zones against inundation and storm surges, this translates to increasing flood risks in coastal zones.

¹¹ Mai Syaheera M. Shaari & Mohd Zaini Abd Karim & Bakti Hassan Basri, 2015. Flood Disaster and Mining Sector GDP Growth: The Case of Malaysia.

¹² World Bank (2019): Myanmar Country Environmental Analysis

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The Philippines

In terms of disaster risk, Philippines ranked ninth among all of the countries with the highest risks worldwide according to the World Risk Report 2020, with an index value of 20.96. According to GFDRR, more than 60 % of the country's total land area is exposed to multiple hazards, and 74 % of the population is susceptible to their impact. As the islands of the country are located within the «Ring of Fire», earthquakes and volcanoes are posing serious risks. Additional natural disaster threats are posed by flooding, landslides, droughts and tsunamis. Since 1990, the Philippines has been affected by 565 disaster events which have caused an estimated US\$ 23 billion in damages. Hydro- and meteorological events, such as typhoons and floods, accounted for over 80 % of the natural disasters in the country during the last 50 years. On average, about 20 tropical cyclones enter the Philippines waters each year, with approximately eight or nine making landfall. One of the most severe typhoons to directly hit the Philippines in the recent history was Haiyan in 2013. Annual GDP decreased by 0.9 % and according to the government, the typhoon season costs an average of approximately 2 % of the country's yearly GDP while an additional 2 % is consumed by the recovery. The Department of Finance estimates that the Philippines may sustain PHP 177 billion (US\$ 3.53 billion) worth of losses to public and private assets due to typhoons and earthquakes each year.

The projected impacts of climate change to agricultural production are severe. It is estimated that per capita GDP will decline by 10 %, and that the overall yearly cost to the country's economy could reach over US\$ 3.5 billion.

Singapore

Natural disaster risks in Singapore are low as indicated in the WorldRiskReport 2020, which ranked Singapore 164th out of 180 countries assessed. There have been no recorded events that have caused a significant number of deaths or damage. Earthquake risks are marginal, large-scale tsunami impacts are very unlikely. However, due to the monsoonal climate, the risk of flooding is moderate, and inundation has impaired infrastructure, such as in 2010 – 2011, when high precipitation caused flooding that damaged malls and underground parking garages.

Much of the potential damages related to hydrometeorological hazards can nowadays be avoided because of significant investments made into drainage projects and sustainable public planning. Since 1973, more than US\$ 2 billion has been spent on improving drainage infrastructure. However, during the June 2010 flooding caused by heavy rainfall, 100 shops were flooded along the Orchard Road, leading to over US\$ 17 million in insured losses.

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Thailand

Thailand is exposed to a wide range of hazards, including flooding, storms and droughts alongside forest fires, landslides and extreme temperatures. Located in the tropical climate zone, the country is affected by two monsoonal seasons. From February-March, different areas across the country could experience local storms, characterized by strong winds, thunder, and rainfall lasting for hours. The mountainous areas in the north and south are highly susceptible to landslides triggered by heavy precipitation. Sometimes, massive catastrophes and unique events, such as the Indian Ocean Tsunami of 2004, may affect the country as well. The 2004 Indian Ocean Tsunami, an extremely severe and unique event, that was triggered by a strong earthquake in the Andaman Sea, caused approximately 5'000 casualties and an estimated economic loss of US\$ 2.2 billion in Thailand alone.

When assessing the economic costs of disasters affecting Thailand, it becomes apparent that flooding, droughts and storms are causing the highest combined damages and losses in the country. The severe 2011 flood event, caused by tropical storm Nock-ten, led to estimated economic losses of US\$ 46.5 billion, contributing to a projected decrease in GDP by 1.1 percentage points. According to Swiss Re, insured losses only amounted to US\$ 16 billion.

Vietnam

Numerous hazards affect Vietnam with varying scales of frequency and impact. Vietnam's overall development is threatened by floods, drought, typhoon, storms, and landslides. Slow onset events, such as coastal erosion, sea level rise and saline intrusion as a result of climate change also aggravate disaster risks. The country's coastal regions experience five to six typhoons on average each year during the southwest monsoon from June to November, while northern parts of the country are susceptible to landslides and flash floods during heavy rain and storms. While the Mekong Delta flooding has been considered as a part of the natural water cycle in the past, increased tides, heavy precipitation, erosion and sea level rise affected by the changing climate are aggravating floods, which are the most frequent and deadliest hazard in Vietnam. According to PreventionWeb, floods have caused 69 % of all casualties between 1990–2014. While most parts of the country receive an annual average of 2,000 mm of rainfall, highlands in the northern and southern regions experience an average of 3,000 to 4,000 mm. Given the higher rate of precipitation and varying soil conditions, flash flooding and landslides are a major threat in mountainous provinces.

Despite its impressive economic development, Vietnam has suffered profound impacts of disasters which have affected macroeconomic conditions, public finance and longer-term fiscal health. According to the Vietnamese government, the country has suffered an average annual GDP loss from natural disasters of 1–1.5 % over the past three decades.

Selected Public Private Partnership (PPP) solutions in ASEAN

South East Asia Disaster Risk Insurance Facility (SEADRIF)

SEADRIF is the first regional catastrophe risk facility established in Asia by ASEAN member states. SEADRIF will increase insurance cover and boost regional disaster resilience in Asia by providing participating countries with climate and disaster risk financing solutions. Incorporated and domiciled in Singapore, the SEADRIF insurance company was officially launched and licensed as a general insurer in October 2019. The company is fully owned by SEADRIF members and regulated by the Monetary Authority of Singapore.

In partnership with Japan, the project is supported by the World Bank. It will provide ex-ante climate and disaster risk and insurance financing solutions for these countries. Such disaster risk solutions will facilitate immediate liquidity financing so that countries can receive help promptly. These solutions will also reduce disruptions to national budgets and reliance on humanitarian assistance which can take time or is uncertain. Unlike traditional indemnity insurance, the countries determine how much premium they can pay, and the SEADRIF Insurance Company calculates the level of coverage it can offer in return.

Factors taken into consideration when designing the insurance product include: a) the countries' ability to pay their premium; b) simplicity of the product such that it can be easily understood; c) the willingness of the international market to provide reinsurance at a competitive rate so that SEADRIF Insurance is protected against heavy losses; and d) SEADRIF being a sustainable initiative on a long-term basis.

SEADRIF's first product provides insurance to Lao PDR against climate shocks and natural disasters. The insurance policy has a three-year period and consists of two complementary components: (1) The core feature of SEADRIF's first insurance product is its parametric component which uses a stepped payout structure. The structure has fixed parameters that correspond to predefined levels of the modelled number of people affected by a flood, which trigger pre-agreed payout amounts. More specifically, 40 % of the policy limit is payable in the event of a 'medium' disaster, and 100 % of the policy limit is payable in the case of a 'severe' disaster. The parametric component must comprise a minimum of 50 % of the total premium paid.

(2) The finite risk component provides countries with protection against events that might not trigger a payout under the strictly objective rules of the parametric component. This could be due to: a) basis risk; b) small flood events that do not trigger a payout under the parametric component; or c) losses that are caused by natural disasters which are not flood-related, but for which the insured country requires a degree of financial support. To qualify for a payout under this component, the insured country is required to provide evidence that a disaster event has occurred.

SEADRIF's proprietary Flood Risk Monitoring Tool serves as the basis for the first insurance product and enables the SEADRIF Insurance Company to calculate if a payout has been triggered. The Tool also serves as a public good to provide governments with rapid, reliable, and relevant information to make more informed decisions before, during and in the aftermath of a flood.

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The Tool has two key functions: 1) to help assess the probabilities of a flood event so SEADRIF can price the insurance product, including how often a payout is expected to occur, and thus how much premium needs to be charged; and 2) to continuously monitor the situation on the ground and determine whether a flood is occurring and, if so, how severe it is.

Pulling from satellite data, meteorological data and the country's hydrological history, the Tool provides near real-time flood impact assessments like estimated water levels, flood maps and an estimate of the number of people affected. Over time, the analysis and information produced is expected to become more sophisticated as more data is collected.

Philippines Catastrophe Insurance Facility (PCIF)

The PCIF is intended to expand the domestic insurance industry's ability to take on more risk. Currently, insurance firms need to seek reinsurance coverage overseas for their natural disaster-related insurance products. The Philippines Insurance Commission said that the new Philippine Catastrophe Insurance Facility (PCIF) will be the first private sector focused disaster risk financing initiative of scale, allowing all insurers to pool their disaster risks and therefore benefit from efficiencies. The PCIF has been established by the Insurance Commission, working alongside the National Reinsurance Corporation of the Philippines (Nat Re) and the Philippine Insurers and Reinsurers' Association (PIRA).

Through the facility, non-life insurers will be able to cede a portion of their catastrophe risks, with the results being a more diversified and larger pool, which will allow the facility to benefit from economies of scale. However, rather than seeking international reinsurance for this pool of catastrophe risk, the idea is to allow the PCIF to share the pooled risks back to the non-life insurers. The plan is to help the insurers more efficiently manage their catastrophe exposures, presumably by giving them a slice of the more diversified pool instead of their own more concentrated risk portfolio, which the Commission believes will boost their capacity to take in more catastrophe risks. The strategy is designed to see more risk stay onshore in the Philippines, along with the risk premium, rather than being transferred internationally to global reinsurance companies. This goes against a lot of the theories around management of catastrophe risk, with most in the industry believing that retaining all the risk within a country can actually be negative when major disaster strike. But the strategy of pooling and mixing the risks, then sharing a pro-rate slice of that pool back does have some merit. The question is what happens when the pool becomes so large that catastrophe risk concentrations build-up and insurers would normally benefit from reinsurance protection. It's an interesting model being taken by the Philippines, quite distinct from other regions where catastrophe risk pools aggregate the exposure to then cede it to reinsurance capital more cost effectively.

PCIF is for non-life insurers in the country to redirect the catastrophe risks to the facility that shares the pooled risks with the participating companies. By doing so, the facility capacitates the insurers to cover catastrophe risks and manage their exposures to catastrophes more effectively.

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The PCIF has four objectives:

1. Stronger Philippine non-life insurance industry
2. Higher insurance penetration
3. Adequate & sustainable catastrophe premiums
4. Increased local catastrophe retention

PCIF is currently in the inception phase and thus the details are still being discussed. Nevertheless, when starting to pursue the four objectives, PCIF is expected to become a facility of more than PHP 1 trillion (US\$ 25.5 million), stimulate more insurers to provide cover against catastrophes and promote the uptake of catastrophe insurance. The PCIF is targeted for launch by April 2022. The Philippines' Insurance Commission (IC) has ordered P&C insurers under its jurisdiction to implement a new pricing structure for catastrophe risk policies, effective April 2022.

According to regulatory circular, all non-life insurers must adopt new catastrophe insurance premium rates and help establish the Philippine Catastrophe Insurance Facility. The Philippine Catastrophe Insurance Facility (PCIF) framework will likely price catastrophe risk policies based on so-called risk zones.

Thailand National Catastrophe Insurance Fund

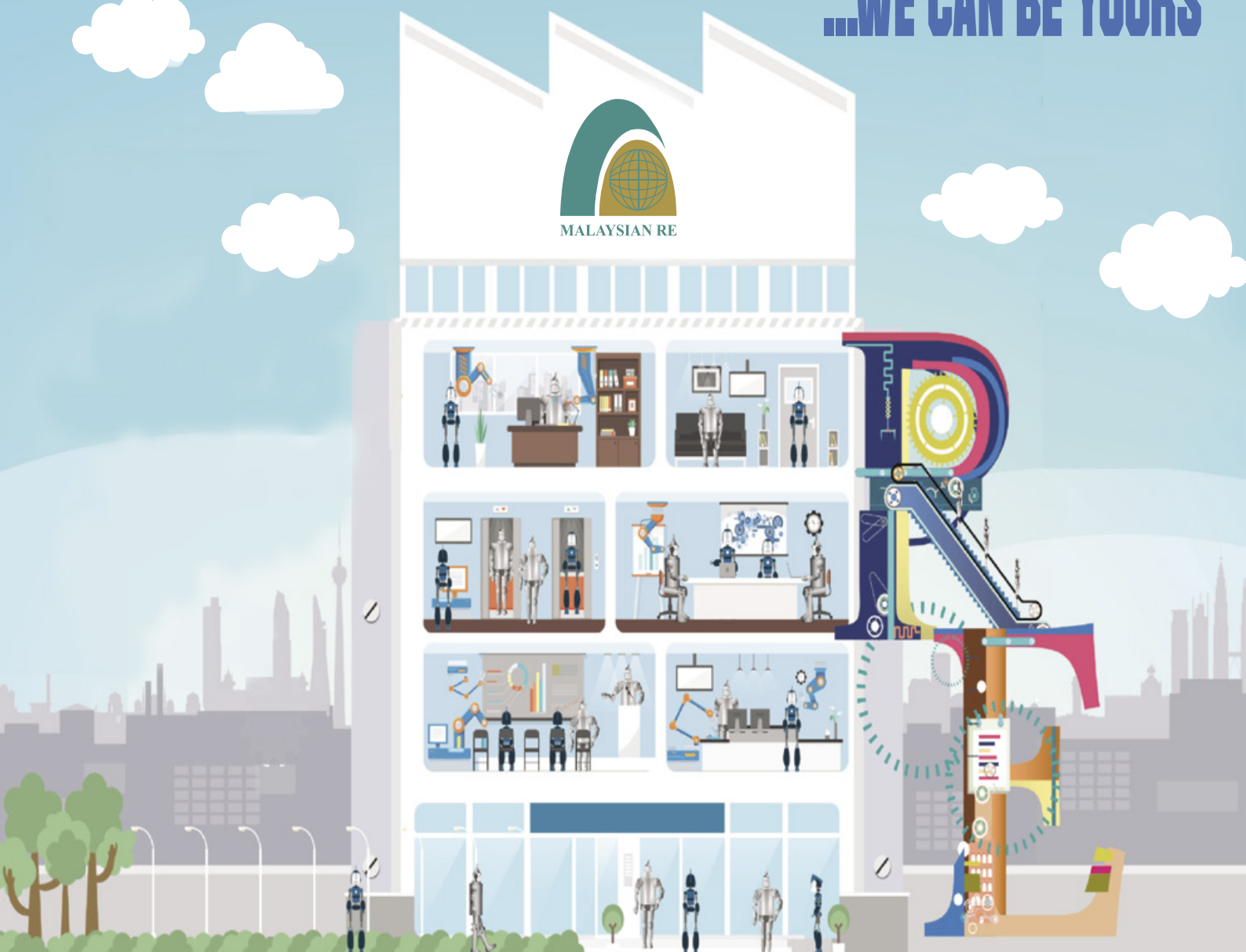
Due to a massive flood in 2011 which was declared as one of the biggest insurance losses with the country's economic loss at THB 1.4 trillion (US\$ 47 billion), the government decided to develop a natural disaster insurance program. The program involved a pool of funds with an initial size of THB 50 billion (about US\$ 1.57 billion). The fund provided protection for floods, windstorms, and earthquakes. Most insurance companies had a coverage limit of THB 100'000 with an annual premium of 0.5 % for household damage. For damages suffered by the SME sector, there was a sub-limit of up to 30 % of the insured building value with 1 % annual premium. Coverage was available for households, businesses and industrial factory complexes that were affected by a flood event (Willis Thailand, 2012). However, over time, this disaster insurance program became less attractive. After approximately three years, the government of Thailand revoked this flood disaster insurance program due to high insurance premium payments and a fear of further flooding which have caused many insurance and reinsurance companies to withdraw.

The Philippines City Insurance Disaster Pool (PCIDP)

The Philippines developed the PCIDP (Philippines City Insurance Disaster Pool) program which funds cities in the early recovery phase after earthquakes and typhoons that are not covered by existing local resources. PCIDP was developed under the guidance of the Ministry of Finance as part of the 2015 Disaster Risk Financing and Insurance Strategy. This program uses a parametric insurance structure that bases payments on earthquakes and typhoons according to physical damage, rather than actual losses (Asian Development Bank, 2018). The Philippines understands critical details when deciding efficient financial instruments to finance

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disaster losses, based on risk profiles and political constraints. The World Bank has been working with the Philippines over the past nine years to strengthen its resilience to natural disasters through CAT bonds which provide protection against earthquakes and tropical storms in 25 provinces. In 2019, the World Bank issued a two-phase disaster-related bond to provide the Philippines with financial protection of up to US\$ 75 million against losses from earthquakes and US\$ 150 million against losses from tropical cyclones over three years (World Bank, 2019).

Malaysian pool solution for flood risk – under development

While Malaysia's insurers generally acknowledge that the country's rural population and those in the lowest income bracket (B40) are most exposed to natural catastrophes and flood risks, this group nevertheless has the least access to insurance protection.

However, Malaysia's government is well aware of this challenge and therefore allocates a budget to compensating the B40 population for losses arising from flooding such as losses and damage to crop, livestock or housing.

In 2015, following its worst flood event thus far in December 2014, the government founded the National Disaster Management Agency (NADMA) which currently manages the country's flood risk. According to NADMA about 9 % of Malaysia's territory is regarded as flood prone, which includes a population of close to 5 million people.

While the B40 segment depends on public support in case of a disaster, insurance protection is easier to access for the higher income groups. Most homeowners are insured against flood losses in Malaysia. The coverage is rather nominal, generally amounting to about 0.086 % of the sum-insured for standalone fire policy, whilst the flood is included in the homeowner policy with an overall premium rate without premium breakdown for flood according to the building construction. Homeowners typically purchase the cover that is arranged by their bank when they sign their mortgage.

The B40 segment which due to its income structure is still not part of the banking system and has little access to credit, will not be able to purchase this cover.

In recognising this short-coming and the inefficiency of a post-disaster financing scheme – as it is currently pursued – NADMA has approached Malaysian Re to look into different solutions in managing flood risk and among other, potential of a flood pool in mitigating this issue. This is still in its infancy stage but nonetheless such mechanism will be able to spread cost thus making it affordable in the long run and this can be seen in the success stories from various markets.

Survey results

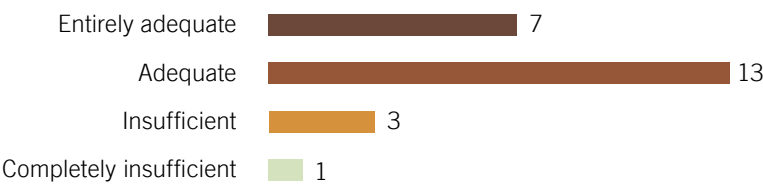
Natural disaster insurance

Overall, access to private sector natural catastrophe capacity has been deemed adequate or even entirely adequate by our interviewees. However, there are significant differences between the ASEAN insurance markets, reflecting their natural catastrophe exposure as well as the maturity of the insurance markets and their access to reinsurance capacity.

For Malaysia insurers uniformly agree that capacity is sufficient. However, Malaysia’s largest natural catastrophe exposure is flooding, which compared to typhoon or earthquake risks – as in other ASEAN markets – or compared to the significant flood risks in Thailand – is rather low. Given that even in respect to the limited exposure, insurance penetration for natural catastrophe risk is also low, there is no shortage of reinsurance capacity.

However, parameters are shifting as with the improving modelling capabilities in Malaysia, flood prone zones are more easily identifiable and – since flood risk is mainly part of the tariffed standard fire policy – might be excluded by insurers. In fact, according to some interviewees, natural catastrophe capacity is shrinking as improved modelling allows for a more precise assessment of the risk.

Chart 4: Availability of private sector capacity for natural catastrophe insurance (i.e. international reinsurance), (number of mentions)



«The cost for flood insurance is rather nominal. The cover is available as an extension to the standard fire police and costs about 0.086 % of the sum-insured. However, in Malaysia mostly only homeowners are insured as the banks arrange the cover as part of the mortgage. As a consequence, only those people who due to their income are regarded as creditworthy, will have access to flood insurance. However, the B40 segment, who struggle to

access financing, are also exposed to flood risk, but have to rely on the government to compensate them in case of an event. Together with Bank Negara and Malaysia’s National Disaster Management Agency we are currently developing a pool solution that ties together those who can afford to insure with those who can’t afford it but are in need of cover.»

Zainudin Ishak, CEO, Malaysia Reinsurance Berhad

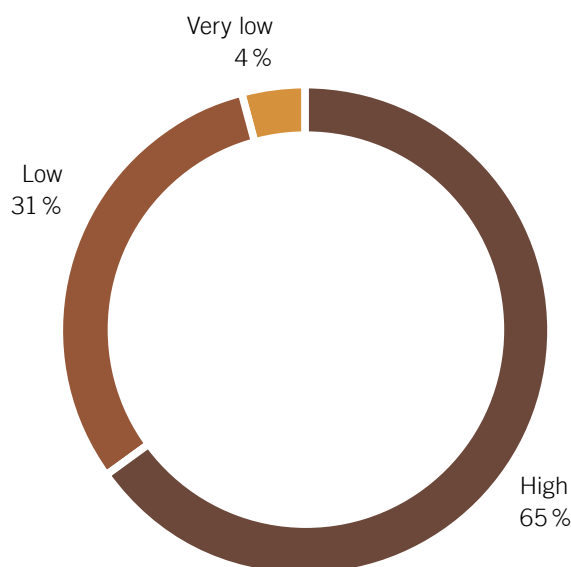
Survey results

For Singapore the situation is very similar as flooding is the country's predominate natural catastrophe risk. Overall, some Singapore based insurers observe rather a decline in capacity – particularly from international insurers and reinsurers – due to inadequate pricing of the risk, which causes a reallocation of capacity to regions or risks with a more attractive risk-reward return.

In the Philippines as well as in Indonesia, access to capacity is more complex. Firstly, in the Philippines capacity might be sufficient, but is deemed expensive and thus not bought. As a result, penetration is very low. Certain risks, as for instance in the eastern seaboard regions, are difficult to insure and insurers find it challenging to obtain reinsurance capacity on a proportional basis. In Indonesia, local capacity is limited as insurers' equity levels are often low and thus risk capacity is insufficient. In fact, interviewees were concerned that given current equity positions, many local insurers would not survive a large natural catastrophe event.

In many ASEAN markets natural catastrophe risks are an integral part of the standard fire policy (i.e. Malaysia, Cambodia, Vietnam, Brunei, and Myanmar). While this inclusion might help to increase the penetration and improve the insurability of the risk – spreading it across as many shoulders as possible – insurers manage their risk through event limits, thus controlling their maximum exposure.

Chart 5: Assessment of the demand for insurance solutions for natural disasters (independent of the supply situation / restrictions)



«Both the Philippine insurance market and the foreign reinsurers could benefit significantly from reinsurance companies and catastrophe modelling agencies taking better account of local market knowledge and experience in assessing and quantifying natural catastrophe risks.»

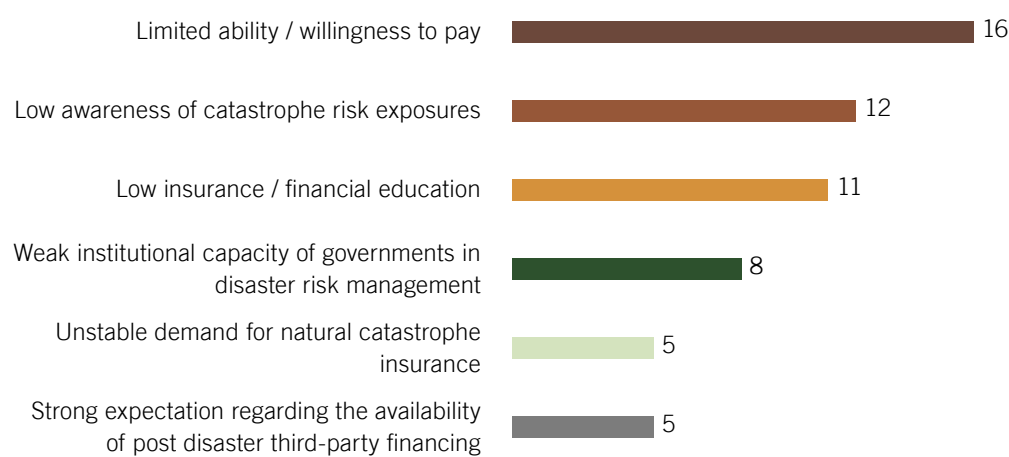
Eden R. Tesoro, Chief Underwriting Officer, Malayan Insurance Company

Survey results

According to 65 % of our interviewees demand for natural catastrophe protection is high, and there is no shortage in capacity to meet it. Customers are aware that they live in a region that is vulnerable to natural catastrophes, although the exposure may naturally vary significantly. The main buyers are commercial entities, while the private sector remains largely uninsured, unless they are partially covered through the fire policy of their building or additional coverage for their motorcycle or car. Across ASEAN though, natural catastrophe protection for the private sector is limited by the low insurance penetration. Differences are substantial between the rural and urban population, with the latter buying far more coverage, although – as insurers frequently pointed out – it is particularly the prior who are most exposed to natural catastrophes.

However, demand has been rising recently, which in turn depends on the exposure and the maturity of the insurance markets. Firstly, according to insurers, many in the ASEAN population notice a subtle change in weather patterns. Monsoon seasons are longer or different, or typhoons hit locations, which previously had been deemed safe. Furthermore, the discussion about climate change in the public domain impacts people’s risk perception. This trend is further heightened by the commitment and pledges of ASEAN countries in the Paris climate accord as well as the measures of many financial institutions and international corporations to install ESG measures.

Chart 6: Most relevant natural catastrophe insurance market imperfections (number of mentions)



«Among Malaysian insurers, demand for NatCat and flood cover is driven by rising awareness of these exposures and climate change as well as increasing pressure from the

regulator. Insurers are expected to think ahead and account for a rise in potential flood events. Insurers need to anticipate this development and integrate it into their risk analysis. In

addition they need to factor in sustainability and ESG trends in the future.»

Faris Davidson, Managing Director, Willis Re

Survey results

The cost of insurance and the willingness or ability to pay are still the most decisive factors for the coverage of natural catastrophe risk in the ASEAN insurance markets. Although rates might have been low for the most part in the past years, clients are highly cost conscious – as due to the availability of capacity lower rates might be accessible. Price sensitivity further increased during the COVID-19 pandemic as long lock-down measures have depleted corporate accounts. Furthermore, although values at risk have also risen among consumers it is still only bought after most of the essential consumer needs have been paid for.

Furthermore, the willingness to pay is also largely influenced by the risk perception of customers, which is often rather short fetched. Finally, the last point in the above graphic has a strong influence on the willingness to pay for insurance coverage, as in markets like Malaysia for instance the expectation among the lower income segment is widespread, that following a large natural catastrophe event the government will step in and somehow compensate the lower income groups (B40) for their loss.

Awareness for risk exposure and financial education are aspects closely correlated with insurance penetration. According to our interviewees, their clients who buy natural catastrophe cover are aware of the risk, understand its financial ramifications as well as the concept of insurance. However, among the lower income segments of the ASEAN society awareness for insurance and the understanding of risk remains low. That is particularly true for crop farmers and the rural populations, who have a large exposure but are hardly insured.

Weak enforcement of building codes, flood zones or settlement restrictions also affects insurance demand in the ASEAN markets. The risk is particularly high in urban or suburban areas, while in rural regions people tend to avoid flood prone areas. In Indonesia, insurers complain that building structures wildly fluctuate in type or strength and might not withstand earthquakes. In Malaysia, insurers pointed out that especially in urban areas, drainage systems and clogged riverbeds in flood-prone areas pose a challenge.

«Overall, in Malaysia flood risk is adequately covered by the general fire policy. Corporate clients have access to sufficient capacity. Given the current exposure the private sector is well equipped to handle and cover the risk. SMEs and consumers are more reluctant to buy the cover. Here might be a role for the government to support demand with solutions such as micro insurance or public private partnerships.»

Kong Shu Yin, MD/CEO, RHB Insurance Berhad

«We observe an increasing demand for natural disaster microinsurance in the Philippines. However, providing disaster microinsurance to low-income individuals is not easy. Designing and structuring products so that they can be sold at low cost raises a set of challenges, and even then, the level of voluntary purchase can be

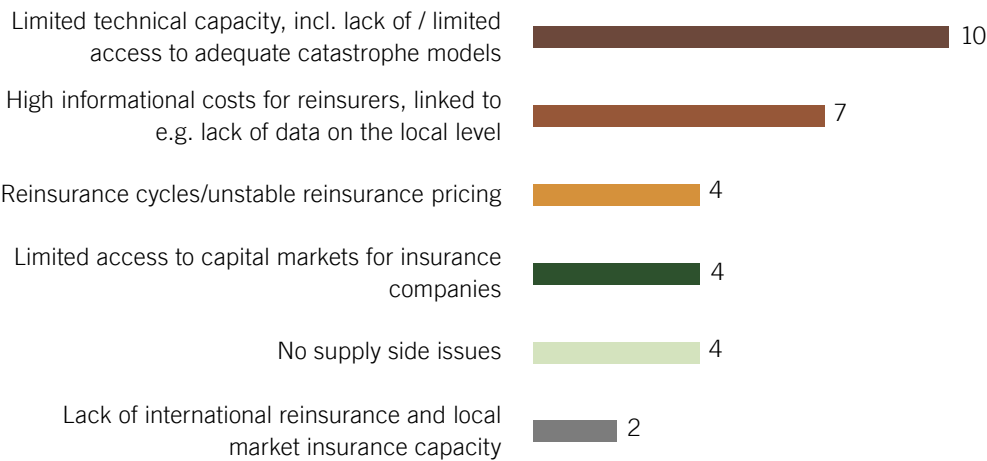
disappointingly low. In early stages of development, it might be necessary that the government supports the establishment of financially sustainable disaster microinsurance markets.»

Manuel M. Maloles, President and CEO, Fortune General Insurance Corporation (FGIC)

Survey results

Depending on the markets, significant differences exist in perceived supply side imperfections. In the more sophisticated and capitalized markets that do not exhibit a large natural catastrophe exposure, insurers do not see substantial supply side issues, as primary and reinsurance capacity are sufficiently available, reinsurance pricing is stable, and regulators are primarily pushing for enhanced transparency on the risk.

Chart 7: Supply side market imperfections (number of mentions)



«In terms of the insurance capacity available for natural catastrophe coverage, we need to keep in mind that small households and the B40 segment are still covered by the Malaysian government. While that view is shifting and the private sector is asked to take on more of that risk, the frequency of flood events and the losses thereof are rising. Insurers are thus been asked by the regulator to include the right information into their risk management and assess the impact of a once in 200 years-event

to their capital. Based on the current exposure, insurers are adequately capitalised. However should additional risks be introduced, overall underlying exposure of each insurer will be altered and thus overseas capacity may help to elevate the consequential pressure on capital.»

**Ahmad Noor Azhari Abdul Manaf,
SVP & Head of International
Treaties, Malaysia Reinsurance
Berhad**

«The availability of capacity for natural catastrophe coverage is less a question of supply than demand. Although demand has been trending upwards, the ASEAN insurance markets remain highly price sensitive. The focus remains on insurance as a cost. As a result, we see international capacity being reallocated to risks which seem to offer a more attractive risk/return ratio.»

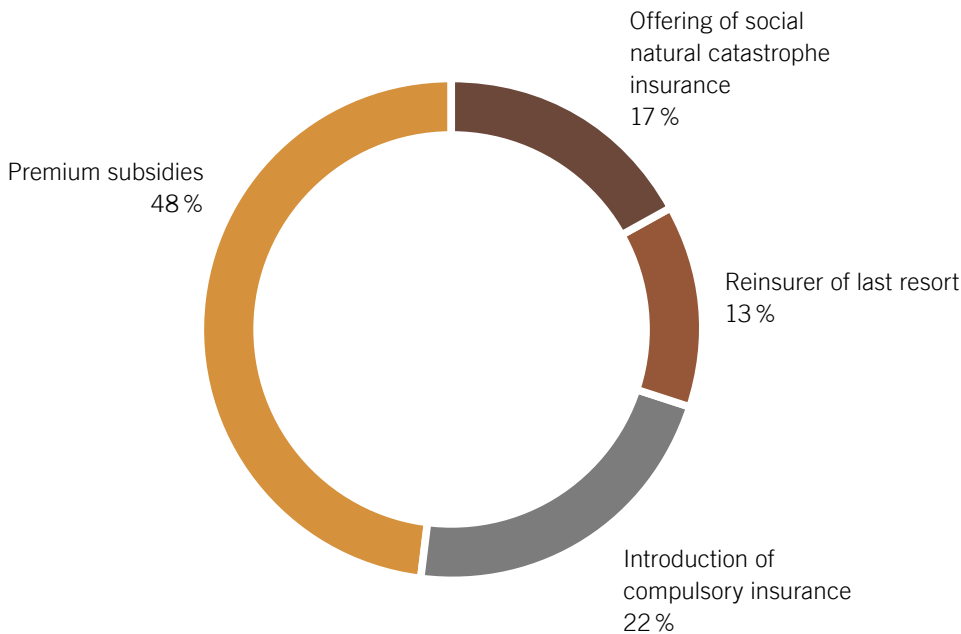
**Pavlos Spyropoulos, Country
Manager, Singapore & CEO, Lloyd's
Asia at Lloyd's**

Survey results

However, in the more natural disaster exposed markets, the limited technical capacity as well as the ability to adequately model natural catastrophe risks are still perceived as insufficient or most wanting. Interviewees from large natural catastrophe markets like the Philippines, Indonesia or Vietnam point out that many CAT risk related decisions are not yet based on reliable models.

Nevertheless, even advanced markets like Malaysia state that models lag precision, although great advances have been made, and further vendor models are about to come onto the market, in addition to those from reinsurers and brokers. However, challenges remain as Malaysia’s postal codes, for instance, cover areas considered too large for geo-coding. Furthermore, the country’s floods – typical for flash floods – are a very localized phenomenon, which is difficult to model.

Chart 8: Tasks and responsibilities to be assumed by the public sector in the natural catastrophe insurance market



«Fortunately, Brunei so far has not been exposed to major natural disasters such as earthquakes, volcanic eruptions, and typhoons. However, the country regularly experiences thunderstorms, monsoon

floods, as well as heavy rain and Brunei's hilly areas are at risk of landslides.»

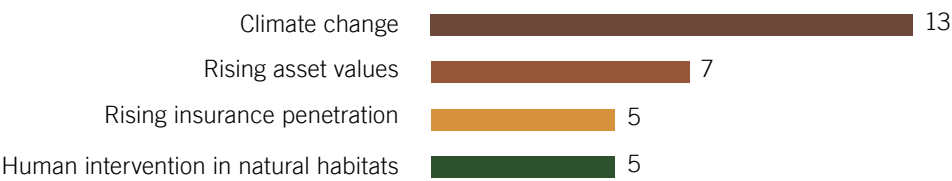
**Klaus Tomalla, General Manager,
National Insurance Brunei**

Survey results

The differences across the ASEAN markets almost show a continuum from markets like Singapore or Malaysia, where the governments should broaden their role from an insurer of last resort to one that provides a more efficient role in protecting the lower income groups (B40) though premium subsidies and public private partnerships. While these recommendations focus on the uninsured parts of society, the private sector feels well-equipped to cover the risks of those who are already insured.

Where insurance penetration is lower and the natural catastrophe risk is higher, insurers see a larger role and responsibility for the government. Recommendations range from mandatory insurance covers to not only build sufficient scale to insure, but also to drive forward the awareness and education of insurance products in general. Further suggestions include the establishment of insurance pools, in particular to insure paddy farmers – a coverage that is discussed for several ASEAN markets as they are largely affected by monsoon season fluctuations that deviate from their normal pattern. However, although some of the ASEAN markets are working on crop insurance solutions, insurers generally acknowledge that most of these micro-insurance products have not been able to overcome a general lack in demand that would have guaranteed a survival of these programmes beyond government subsidy. Interviewees thus stated that for countries like Malaysia, which holds a budget to cover flood losses among lower income groups, this might be more economical than subsidizing premiums for this market segment.

Chart 9: Main reasons for rising demand for natural catastrophe covers
(number of mentions)



«The National Disaster Management Center is the lead agency for disaster response in Brunei. The agency's national disaster response and recovery practices also include financial assistance and free health and medical treatment for the victims of the disaster.»

Jack Gan, Manager, Brunei Insurance and Takaful Association (BITA)

«Insufficient event-to-loss data records and the unavailability of natural catastrophe models are a major impediment to natural disaster insurance growth in Myanmar. The public and private sector should join forces to address this protection gap.»

Dr. Sandar Oo, Managing Director, Myanma Insurance and Chairperson, Myanmar Insurance Association

Survey results

Demand for natural catastrophe cover does not necessarily translate into higher premium volumes. But there was a strong consensus among interviewees, that the perception of climate change is stimulating demand. According to these interviewees risk perception is changing because people do no longer just read or hear about climate change but they have already experienced that weather patterns have changed, as for instance sea levels have risen, monsoon seasons seem to have shifted or rainfalls appear at uncommon times.

The perception of climate change – at least in some ASEAN markets – is however also driven by the strong focus within the financial services industry, among global corporations but also by ASEAN regulators and central banks on ESG. Several interviewees mentioned that the constant discussion about climate change and ESG – further heightened by the experiences from the COVID-19 pandemic – trigger increased sensitivity and a changed risk perception among clients.

According to our interviewees, the most obvious driver for increasing demand for natural catastrophe protection is the increasing values on the ground. For the last twenty years, GDP has grown by more than 8 % annually across the region. This has translated into heightened insurance demand and higher exposures too. In addition, as premiums outgrew GDP, insurance penetration has increased too in almost all ASEAN countries.

Finally, people recognize that the human intervention into natural habitats has increased the exposure to natural catastrophes as riverbeds have been changed, urbanization has reduced the ability to absorb water, and deforestation increased the risk of landslides.

Nevertheless, rising demand does not necessarily translate into higher premium volumes. Interviewees pointed out, that while exposures increased, rates declined. This particularly concerned markets with decreasing rates due to sufficient capacities or improved and actually lower risk profiles due to extended modelling capabilities. But it also affected markets where rates were liberalized and subsequently insurers reduced prices to a certain extent.

«Overall, insurance penetration and awareness are still low in Indonesia, and are particularly low for disaster-related products like earthquake protection. While most corporate clients meanwhile buy some natural disaster insurance, the coverage in personal lines – except for Motor insurance – is close to zero.»

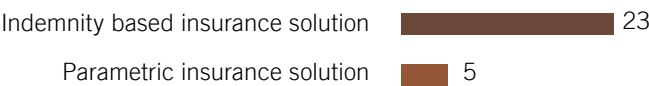
**Christian W. Wanandi, President
Director, Asuransi Wahana Tata
(ASWATA)**

«The domestic catastrophe risk insurance market is relatively underdeveloped in Cambodia, with no or minimal coverage for public assets, private property, or agricultural production. Flood insurance is typically added as an endorsement to the standard policy. Sub-limits are applied, and the additional premium rate for flood coverage is 0.05 % for the sum insured within the fire tariff.»

**Soh Jiun Hong, General Manager,
Campu Lonpac Insurance**

Survey results

Chart 10: Availability of specific type of cover for natural catastrophe insurance (number of mentions)



Indemnity based insurance is by far the most common insurance solution for natural catastrophe risks in the ASEAN markets. Parametric solutions are under evaluation or used in first pilots. In markets such as Vietnam, Indonesia or Malaysia the public and the private sector investigate to form public-private-partnerships and to use parametric solutions to create crop insurance for rice or paddy farmers. In Indonesia the government explores parametric solutions for CAT bonds and has already implemented earthquake policies in five regions of the country. However, on a purely private sector basis parametric insurance is still limited in its application as thus far it is often not yet adequately licensed or regulated.

«Demand for natural catastrophe insurance has been steadily rising in the past years. Climate change is certainly one of the drivers as people recognise themselves that weather patterns have changed and that we witness phenomena which seem unheard off. As a result, we also see a different attitude towards human intervention and ESG as well which is met with strong acceptance in markets such as Singapore and Malaysia, where it is also strongly endorsed by the insurance regulators in both markets.»

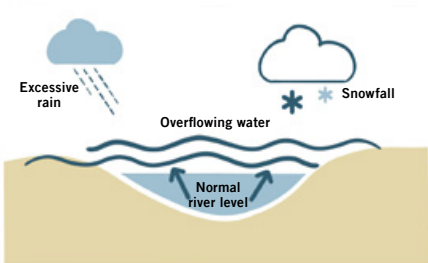
**Jimmy Tong, Managing Director
General & Group Insurance, The
Great Eastern Life Assurance Co Ltd**

Survey results

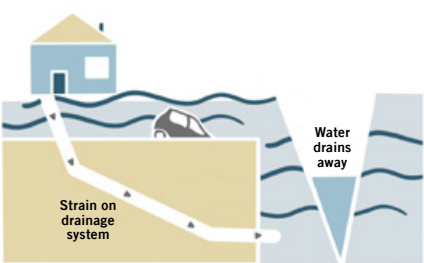
Flood insurance

Main types of flood

Fluvial floods (river floods)



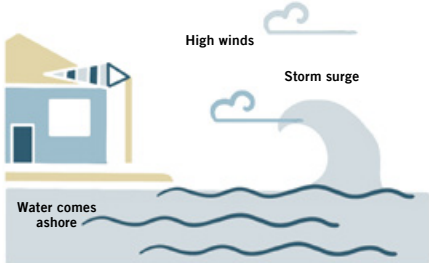
Pluvial floods (surface water floods)



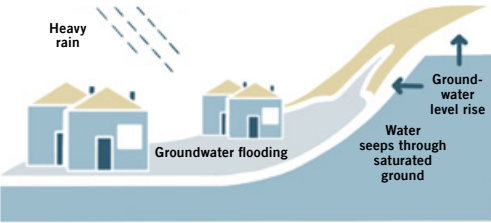
Flash flooding



Coastal flood (storm surge)



Groundwater flooding



Source: Zurich Insurance¹³ and floodguidance¹⁴

¹³ Zurich Insurance. Four common types of flood explained. <https://www.zurich.com/-/media/project/zurich/dotcom/industry-knowledge/flood-and-water-damage/docs/four-common-types-of-flood-explained.pdf?la=en>
¹⁴ Floodguidance. Types of flooding. <https://www.floodguidance.co.uk/what-is-resilience/types-flooding/#Groundwater%20flooding>

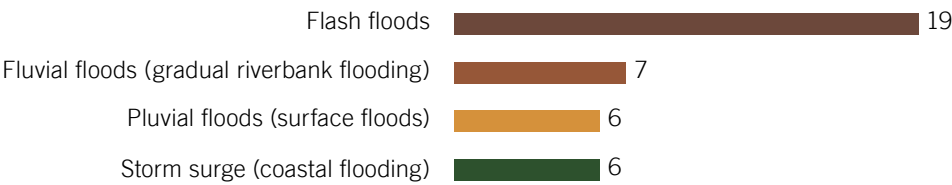
Survey results

Exposure, vulnerability and insurability

Across the ASEAN region flash floods are the most common type of flooding, caused by heavy rain, often during the monsoon season. Their occurrence is difficult to model because flash floods are very localized events. Nevertheless, certain regions suffer recurrently from inundations and these flood prone areas are becoming more difficult to insure or are seeing rising rates.

Flash floods often occur in urban areas – turning into pluvial floods – when sewage and drainage systems are incapable to handle the sudden surge of water or when due to the impermeable surfaces in cities the soil can no longer absorb the water. However, interviewees recurrently pointed out that flooding mostly affects rural areas and the lower income parts of society. Thus, in most ASEAN countries more government intervention is needed to improve the insurability of these people and reduce their risk to suffer from flood losses.

Chart 11: Most severe type of flood risks (number of mentions)



«The 2011 mega floods were a game changing event for the insurance market in Thailand. Available natural disaster capacity was reduced by more than 50 % and in particular small and mid-sized domestic insurers experienced difficulties in securing adequate reinsurance support.»

**Kheedhej Anansiriprapha, Director,
Thai General Insurance Association**

«Flood risk is very difficult to model. Although modelling capabilities have greatly improved in Malaysia, flooding remains a very localised risk and current models still don't provide sufficient granularity to assess it adequately. We therefore deploy our own risk engineering to identify and assess flood prone areas. This is very important as under Malaysia's tariff regime, pricing is still largely predetermined and we therefore need to manage our exposure and returns through cautious risk selection.»

**K.G. Krishnamoorthy Rao, CEO, MPI
Generali Insurans Bhd**

Survey results

In terms of pluvial floods insurers point out that more government action is needed to mitigate this risk and to improve drainage systems. In some ASEAN markets, like Malaysia, the government has built new water systems to get access water out of urbanisations, such as the SMART tunnel (Stormwater Management And Road Tunnel) in Kuala Lumpur – the most famous example of an intelligent water system.

Coastal flooding is also becoming an increasing risk as sea levels rise and windstorms or tropical cyclones become more frequent or stronger, pushing seawater towards the coast. The Philippines, Indonesia and Vietnam are particularly exposed to this threat, but even for Malaysia a recent study was cited according to which 50 % of the population are exposed to natural catastrophe risk with a particularly high exposure for the east coast of the Peninsular Malaysia and the coastal regions of Sabah and Sarawak.¹⁵

The above-mentioned types of flood events are all considered to be insurable in the ASEAN region. Firstly, apart from the Thai flood in 2011, large catastrophic floods are rare. Events are quite localized and – given the low penetration – they are insurable for the ASEAN insurance industry, in particular in markets, where primary insurers are well capitalized.

«We expect the demand for NatCat and flood coverage in Malaysia to rise due to new regulatory requirements and the effects of climate change. Bank Negara Malaysia plans to enact a new RBC framework by 2024 which will require insurers to factor-in their NatCat risk. According to the current draft, a principle based quantification of flood risks will become mandatory, replacing the current practice which does not require the NatCat exposure to be taken into consideration. In addition, climate change will continue to accelerate and lead to an increase in flood risks, in particular along river banks and coastal areas.»

**Marcel Omar Papp, Head Retakaful,
Swiss Re Asia Pte. Ltd., Malaysia
Branch**

¹⁵ Managing the flood problem in Malaysia: <https://water.gov.my/jps/resources/auto%20download%20images/584130f6ea786.pdf>

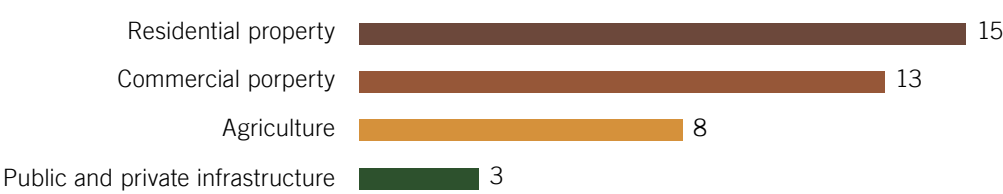
Survey results

However, with improved risk management and modelling capabilities, insurers are able to focus more attention on flood prone areas and to manage their risks by only writing as much as they are willing to bear. Since flooding is mostly part of the regular fire policy and thus in many countries part of tariff, cautious risk selection is the most efficient way to manage the risk – as pricing is more or less fixed. In some markets though, like Malaysia, which are steadily moving towards a de-tariffication, insurers expect that rates in flood prone areas will increase once the line is liberalized. Since these areas are often located in rural, low income regions, pressure remains high on the public and private sector to jointly develop solutions for these regions.

Finally, the insurability of flooding in the AESAN markets also benefits from the sufficient availability of primary insurance and reinsurance capacity at fairly stable rates. In fact, as rates have remained low while exposures increased, some international insurers have started to reallocate their capacity to markets or lines with a more favourable risk-return ratio.

Residential and commercial property are almost equally exposed to flooding. Although – according to our interviewees – rural areas seem to be affected the most, financial losses are higher in urban areas and will have a stronger effect on commercial property. Also, in cities, residential property might be insured through the property insurance, however, the content of these buildings will remain largely uninsured. Given the exposure of rural areas to flooding, agriculture – in particular paddy farmers – can be severely affected by heavy rainfalls. However, agricultural or crop insurance is still a rarity in the AESAN markets.

Chart 12: Assets most affected by floods in recent years (number of mentions)



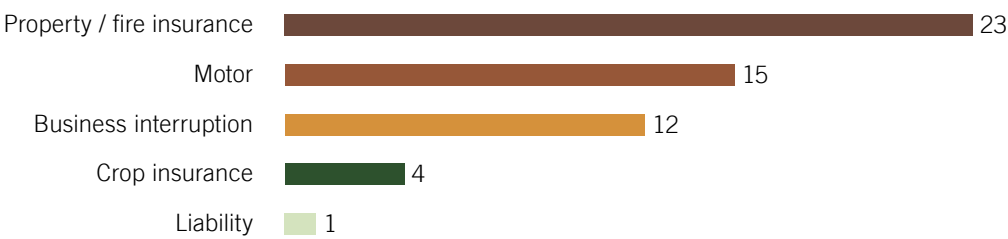
«The impact of natural disasters on public assets is one of the main sources of fiscal vulnerabilities in Vietnam. In 2017, the government revised its Law on Public Asset Management, so that public assets that are highly exposed to natural disasters must now integrate financial risk management measures through a combination of financing instruments

including insurance. Insurance capacity is available in the local market, however, as of today, many public assets still remain underinsured due to a lack of funds.»

Tran Trung Tinh, Chief Underwriting Officer, BIDV Insurance Corporation (BIC)

Survey results

Chart 13: Lines of business mainly affected by flood losses (number of mentions)



As a result of these exposures, property and fire insurance is the main line affected by flooding. Motor insurance is also impacted. While in some markets the risk is included in the motor policy, in others it is a top-up coverage which is scarcely bought. Additional protection against flooding is only bought if the insured sees a high likelihood that a vehicle could suffer from sudden flooding.

In Malaysia for instance only about 5 % of vehicles have a flood cover. Insurers pointed out that most people believe they rather move their car in case of flooding than to protect it by an insurance. In fact, for instance in the Philippines following high motor losses in 2009 a warning system has been installed that provides text messages from the government if the risk of flooding is imminent.

Business interruption is the third most affected line, but again, the cover is mainly bought by large corporations and thus not widely sold.

«The exposure of Malaysian flood risk has increased in recent years due to climate change resulting in rising rainfalls, increased urbanisation and higher values-at-risk. However, insurers have not expanded their capacity for flood risks in tandem as the modelling capabilities in the market are greatly improved. Insurers are able to differentiate between flood

prone areas and those that are less exposed enabling to move to more risk adjusted prices. New product innovation (Detariffed products) also led to flood offered with sublimits versus full value, so this lowers the insurers' flood aggregates yearly.»

Puneet Pasricha, CEO, Liberty Insurance Berhad

Survey results

Chart 14: Flood insurance: Pricing and capacity (number of mentions)

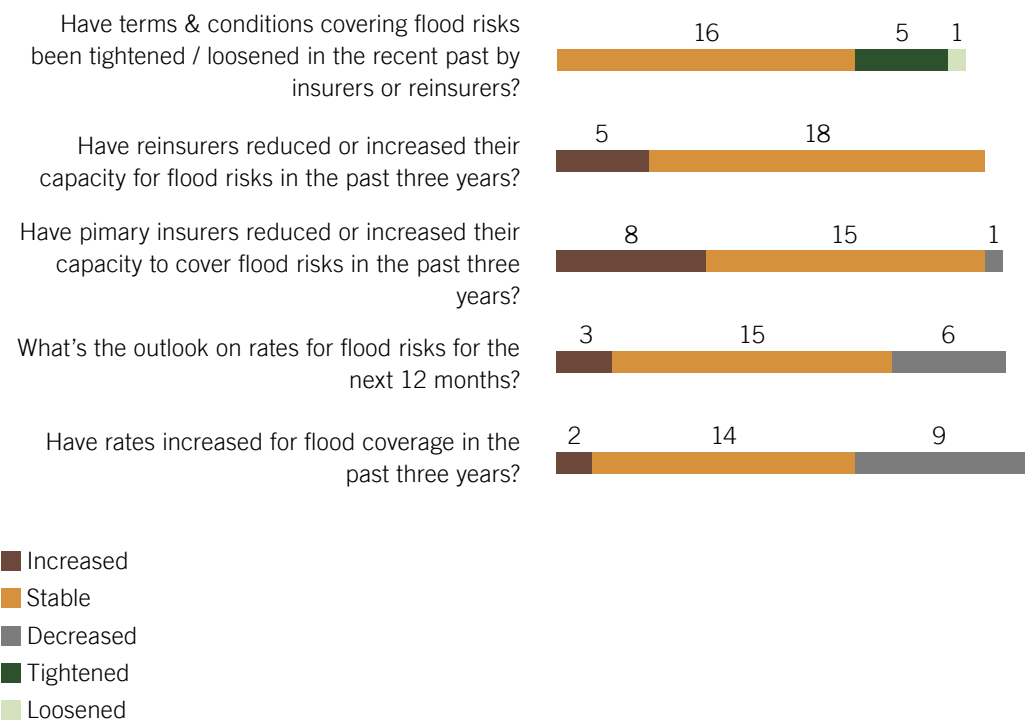


Chart 15: Improvement of flood risk modelling and model availability (number of mentions)



Pricing has been fairly stable across the ASEAN markets with some downwards pressure. Since capacity is sufficiently available insurers saw little room for price increases. In Malaysia flood rates are affected by the de-tariffication of the fire policies by Bank Negara. In the current phase, rates have only been partially liberalized with insurers being able to lower rates by as much as 30 %. Since margins are still adequate and loss ratios remained low in recent years, pressure on prices stays high.

In Cambodia and the Philippines flood or natural catastrophes come with a surcharge, which, however, is not consistently applied. Similarly, mandatory tariffs exist in these markets too, but again, are not always utilized.

Survey results

As capacity is expected to remain abundantly available, the trend of the past years is expected to continue going forward, with stable to slightly declining rates. Upward changes only happen in flood prone regions, where recurrent losses occur or where improved modelling indicates heightened risk.

Overall, primary insurers' capacity for flood cover seems to have remained largely flat or slightly increased. According to our interviewees, the capacity increase reflects the steady rise in demand, driven by higher values-at-risk and GDP growth.

Reinsurers' capacity has been sufficiently available as globally capital remained abundant and reinsurers were keen to deploy their capital. Some capacity shortages exist in Indonesia, where local insurers are insufficiently capitalized or in the Philippines, where non-proportional rates have increased even for loss-free treaties.

In line with rating and capacity, terms & conditions for natural catastrophe cover – namely fire, business interruption and motor policies – have also remained mainly unchanged in the recent past. Firstly again, in a largely regulated tariff environment the adjustment of conditions depends on the regulator's approval. Secondly, with capacity abundantly available it would come as a surprise if conditions were tightened. Obviously, the COVID-19 pandemic had an influence on terms and conditions (T&C) as the risk of infectious diseases was strictly excluded. But in terms of natural catastrophe risks there was some tightening of events limits, rising deductibles but also more generous reinsurance conditions in the Philippines, where the emergence of a local CAT pool encouraged reinsurers to loosen T&Cs.

The modelling of natural catastrophe risks has improved moderately in the ASEAN markets. Apart from reinsurers and brokers who have provided models for ASEAN markets, more and more vendor models are introduced to the markets as well. However, the availability of models also depends very much on the maturity and size of the market. Insurers in the ASEAN frontier markets complained that no reliable models exist, while for the larger ones different providers are available.

The better modelling quality allows for a higher granularity and improved assessments of natural catastrophe risks. As a result, insurers are able to improve pricing and risk selection, which – according to interviewees – actually also translates in a decrease of capacity as insurers are better equipped to determine their capacity needs.

«With regards to the demand side and its impact on premium volume, we see two conflicting developments in Malaysia. On the one side, exposures to flood risks are rising. According to a recent study about 50 % of Malaysia's population is exposed to some sort of flood risk. This is particularly true for the east coast of Malaysia. On the other side, flood is available as extension coverage in the standard

fire policy, subject to underwriter's assessment. Current de-tariff allows insurers to reduce rates by up to 30 %, that is typically granted to risks where flood exposures are considered as acceptable by the underwriter.»

**Nazrul Hisham Abdul Hamid, CEO,
Zurich General Takaful Malaysia
Berhad**

Survey results

Chart 16: Flood risk awareness and mitigation (number of mentions)

How do you assess the awareness of flood risks in your market among consumers, corporations, government?

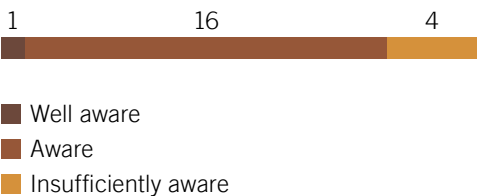


Chart 17: Effectiveness of existing PPPs in terms of risk reduction or coverage (number of mentions)

How do you assess the effectiveness of existing PPPs such as SEADRIF, National Flood Insurance Program Philippines; National Flood Insurance Program Indonesia; National Catastrophe Insurance Fund Thailand in terms of risk reduction or coverage?

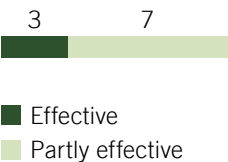
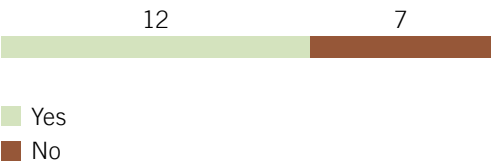


Chart 18: Awareness of public / private partnerships as a solution to cover flood risks (number of mentions)

Are you aware of public / private partnerships where government and insurers created a solution to cover parts of the flood risk in your market?



Awareness for flood risk across the ASEAN markets has improved. However, among the most vulnerable, the rural population and lower income parts of society, the awareness for insurance and flood risks it still low. Among the middle and upper classes as well as among corporate buyers there seem to exist few deficiencies in understanding the risk. However, as already cited, natural catastrophe and flood risk buying still suffers from high price sensitivities or a reluctance to pay as well as a short memory of buyers for past events and the extend of the risk.

Survey results

Governments are aware of the risk too. Pressure increases from the regulatory side for a more robust coverage of natural catastrophes and an improved understanding for the ramifications of climate change. While on the one side regulators emphasise the need for heightened ESG preparedness, Bank Negara for instance currently prepares a new RBC framework that will come into force in 2024 and requires insurers to quantify their natural catastrophe risk and to introduce a principle-based flood risk monitoring, which will go well beyond the current best-efforts practice.

Furthermore, the governments of the ASEAN countries are moving forward to develop solutions which improve the natural catastrophe protection of particularly the lower income parts of society. In Vietnam the government launched two pilot projects with involvement of the Asian Development Bank (ADB). Similarly in Cambodia the Japanese International Cooperation Agency (JICA) has been approached for support in developing flood risk mitigation projects. Furthermore, in the Philippines a domestic CAT Pool is planned to help stabilize the pricing of natural catastrophe risk. In addition, the ASEAN SEADRIF programme is the region's first catastrophe risk facility established by the ASEAN member states, which will strengthen the region's disaster resilience by providing participating countries with climate and disaster risk financing solutions. Malaysia is currently also evaluating programmes to improve the insurability of its B40 segment of the country's low-income group through premium subsidies, but also crop insurance solutions.

However, the efficacy of the partnership of the public sector with the private sector is still met with some scepticism. Although many interviewees recognized that in particular public support is needed to improve awareness, financial literacy and also insurance protection of vulnerable income groups, most programmes are perceived as only partially effective. Many programmes often lack scale as the number of insureds is insufficient to build a diversified pool of people and risk. Thus the partnership often lacks size to withstand larger losses.

«Awareness for the NatCat and flood risk in Malaysia has been rising steadily in the recent past. This is also reflected in the heightened importance of ESG and a motivation of Etiqa to take the initiative and implement a robust ESG framework for our company. We are collaborating

with industry partners and academia to first analyse and assess our own risk. In a second step then we will be able to assist our customers in their transformation to improve their ESG compliance.»

**Shahrul Azuan Mohamed, CEO,
Etiqa General Takaful Berhad**

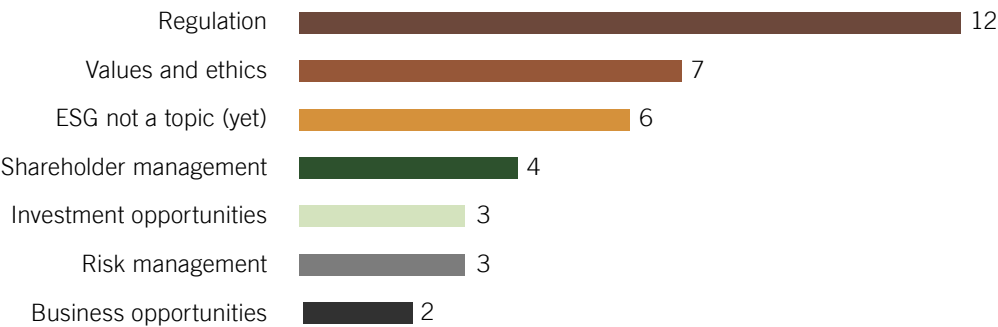
Survey results

Climate change and ESG

The differences in preparing for ESG factors across the ASEAN region.

In some countries it is considered a rather new concept for which there are no regulatory provisions yet and where it is no part of the general public discourse. In others, such as Singapore and Malaysia, however, discussions in the public domain and among policymakers and supervisors are already quite advanced while in countries like the Philippines or Indonesia discussions are in their early phase but are expected to gain momentum. Furthermore, as interviewees pointed out, the region or rather its main countries still need to position themselves. Indonesia, Brunei or Malaysia are fossil fuel exporters or use thermal coal for considerable parts of their electricity production. Also, some of its other sectors, like its leading palm-oil production, are not ESG positive either. However, the ASEAN countries also see a substantial opportunity in renewable energy – namely solar power – and accelerate their commitment and investments in this sector.

Chart 19: Main drivers of sustainable investment (and / or underwriting) in insurance (number of mentions)



«As the National Reinsurer, we are fully committed in consciously managing our business' impact on the economy, the environment, and the greater society, and monitoring our contributions to achieving universal sustainability goals. Our particular focus areas are strengthening the country's disaster resilience and improving financial inclusion.»

Allan R. Santos, President and CEO, National Reinsurance Corporation of the Philippines

Survey results

Some of the main drivers for an increasing interest in ESG are governments, regulators and rating agencies. The ASEAN countries have deposited pledges of reducing their carbon footprint with the Paris climate accord. These decisions also define the public discussion on the subject and have raised awareness for the topic of climate change and sustainability. The Central banks and insurance supervisors have adopted the ESG frameworks and issued their own guidance or – like Bank Negara in Malaysia – a taxonomy on climate change for financial institutions, which includes insurers and reinsurers. The document, which came into effect in April 2021, introduces a classification to assess and categorize economic activities and to determine how they affect climate objectives and to promote a transition to a low carbon society.

While values and ethics among the general public have been changing too – also in terms of the other subjects of ESG, such as the societal and governance factors – another important driver for the accelerating momentum of the debate are the international corporations and investors. International companies with affiliates or subsidiaries in the ASEAN countries require their subsidiaries to adapt the ESG principles introduced by the parent company. Furthermore, many ASEAN insurers are owned by banks, which are further advanced in the introduction of ESG factors. In addition, the ASEAN countries are export markets. Their international buyers also increase requirements on meeting ESG criteria throughout the supply chain.

«In terms of ESG we must not forget that Malaysia is a strong fossil fuel producer and exporter. Although in the past decades we have further diversified our economy into sectors such as electronics and tourism, these are not without environmental challenges either. As insurers we must therefore manage this transformation carefully. We need to support our clients in their transition towards a business model which reduces their carbon emissions.»

**Antony Lee, Chairman of the board
of PIAM**

Survey results

ASEAN's goals towards realising the Paris climate accord

Indonesia	Reduce emissions by 29 % by 2030 compared to business as usual levels. That number could rise to 41 % if the country gains sufficient international support.
Malaysia	Reduce greenhouse gas (GHG) emissions intensity of gross domestic product (GDP) by 45 % by 2030 relative to the emissions intensity of GDP in 2005. This consists of 35 % on an unconditional basis and a further 10 % dependent upon receipt of climate finance, technology transfer and capacity building from developed countries.
Thailand	Aims for an unconditional 20 % reduction in emissions by 2030, compared to business as usual levels which could increase to 25 %, conditional upon the provision of international support.
Vietnam	Aims for an 8 % reduction in emissions compared to a business as usual scenario until 2030. This could increase to 25 % but is contingent upon international support. On top of that, the country also pledged to increase forest cover to 45 %.
The Philippines	Aims for a reduction in emissions of approximately 70 % by 2030, relative to a business as usual scenario. However, this is also on condition of international support.
Cambodia, Lao PDR and Myanmar	Cambodia, Lao PDR and Myanmar are by far the fastest growing markets in the region with average economic growth rates of 7.4 % according to ADB projections. As these countries aim to improve the income and living conditions of their citizenry, they become lucrative investment destinations for many foreign investors. The governments there have initiated a plethora of projects in the energy sector which aim to improve urban and rural electrification.

Survey results

However, only Lao PDR no longer falls into the «least developed country» (LDC) category defined by the United Nations (UN). Therefore, these countries need as much international support as possible to meet their own commitments to global climate change goals.

Thus far, Lao PDR has committed to a number of policies and actions designed to reduce emissions.

Cambodia aims to reduce emissions by 27 % below a business as usual scenario by 2030, with an additional target to increase forest cover to 60 % of national land area by 2030.

Myanmar, while not explicit in its aims to reduce carbon emissions, still pledged steps to reduce its carbon footprint by increasing hydropower capacity to 9.4 gigawatts (GW) by 2030, achieving rural electrification based on at least 30 % renewable sources and increasing forested area to 30 % by 2030.

Singapore

Singapore has been at the forefront of technological developments including energy efficient buildings and smart grids powered by renewable sources. The country aims to reduce emission intensity by 36 % by 2030 compared to 2005 levels without international market mechanisms.

Brunei

Brunei's economy is highly dependent on the oil and gas sector which is a heavy industry responsible for increased levels of GHG emissions.

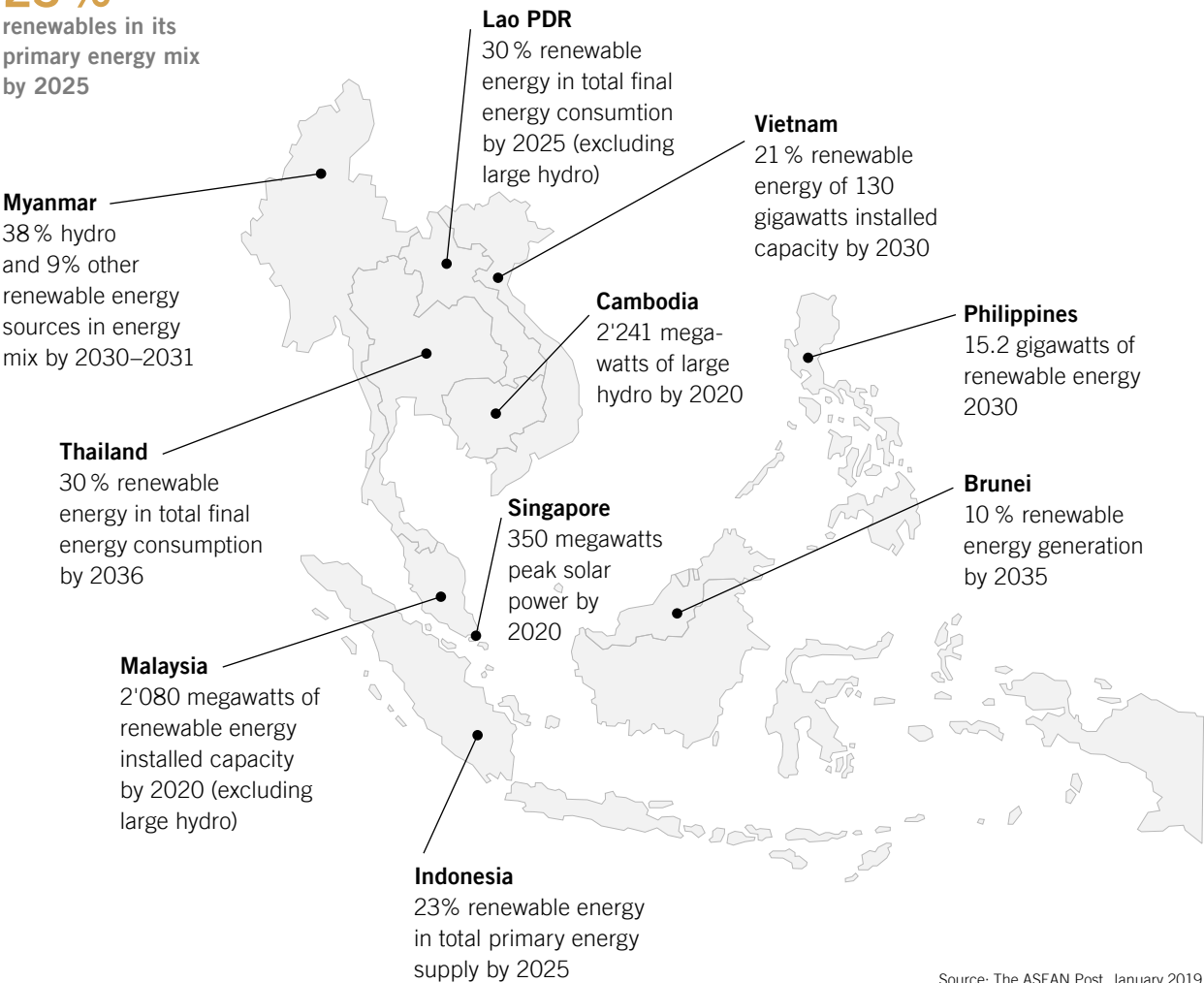
The country aims to reduce total energy consumption by 63 % by 2035 compared to business as usual levels. It is also bent on shying away from petroleum-reliance and looking to increase the share of power generated by renewables to 10 % by 2035. Besides that, it also pledges to reduce CO₂ emissions from morning peak hour vehicle use by 40 % in the same time period.

Source: The ASEAN Post, January 2019.

Map 3: Renewable energy targets for ASEAN member states

ASEAN targets

23%
renewables in its
primary energy mix
by 2025



Source: The ASEAN Post, January 2019

«In Vietnam, there are currently few mandatory ESG related disclosure obligations, and a strong corporate culture of voluntary disclosure has not yet been developed. However, most public companies in Vietnam have gradually integrated ESG measures

into setting business strategies and managing their daily operations.»

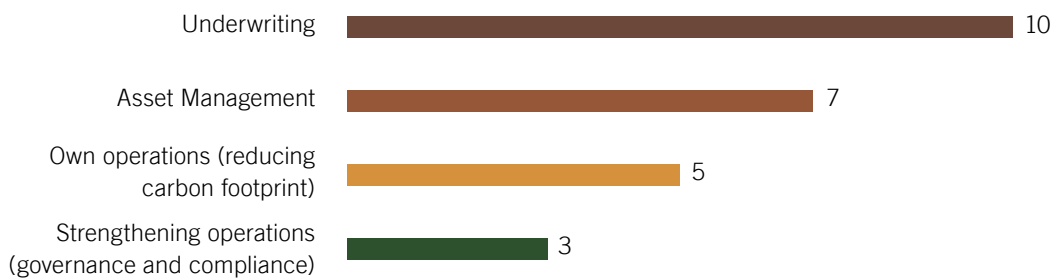
Nguyen Thi My Hanh, Deputy Manager, Marketing Department / Dao Manh Duong, Marketing Manager, Vietnam National Reinsurance Corporation (VINARE)

Survey results

Chart 20: Implementation of ESG measures in own company



Chart 21: Prioritized areas where ESG criteria are applied (number of mentions)



«Malaysia’s ESG goal will be largely driven by corporations, and particularly by financial institutions that are supported by the regulator Bank Negara Malaysia. Insurers will take a step-by-step approach, gradually reducing risks with potential negative ESG implications, while increasing their investments and underwriting

of risks that have a positive impact such as renewable energy initiatives. This gradual process approach will allow customers time to transition, especially in the area affecting climate change.»

Kok Kheng Ng, CEO, Great Eastern General Insurance (Malaysia) Berhad



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Insurers are taking different approaches to adopt ESG measures into their strategies. About a third of our interviewees considered it altogether as still too early to implement ESG measures as it is not yet a relevant topic to their markets, clients or investors. However, about two thirds of our interviewees have started with preparations for an ESG framework. Strategically the most important focus for our interviewees is in developing an underwriting approach for ESG. Almost all of these interviewees stated that they foresee a gradual process of reducing their exposure in sectors with a negative ESG impact.

Insurers mostly differentiate between 'writing new business' in these sectors – such as the combustion of thermal coal for instance – which can be earlier, and 'ceasing to renew existing business', which might take slightly longer. Both, regulators and insurers agree that in case of these industries, insurers need to assure that they somehow take along their clients and define a transition path with them. That strategy may also include recommendations to clients on how to improve their ESG profile.

Insurers also take action to improve the profile of their own underwriting portfolio. They develop criteria how to screen and assess their risks according to an ESG rating. In a second step they aim to reduce risks with a negative ESG profile and to bolster those with a positive profile, like renewable energy risks.

With regard to their assets, insurers follow a fairly similar strategy – first to analyze their own portfolio according to a fixed set of ESG criteria and then slowly phasing out assets with a negative ESG profile while increasing investments in assets that bear a more positive profile.

Changing their own carbon footprint and defining targets for carbon neutrality or even 'net zero' – as announced by international insurers and reinsurers, also affects the insurers in the ASEAN countries. Firstly, there are those who are subsidiaries of international insurers and who have to follow their group's criteria on carbon emissions.

Furthermore, national or regional insurers also manage their footprint, setting themselves targets and defining a roadmap how to achieve these goals. Interviewees frequently stated that during COVID-19 related lock-downs they were able to reduce their footprint in a first step, but also learned to implement measures, like work from home, different marketing measures or less travelling activities, which they now turn into policies to benefit from these changes in terms of ESG.

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