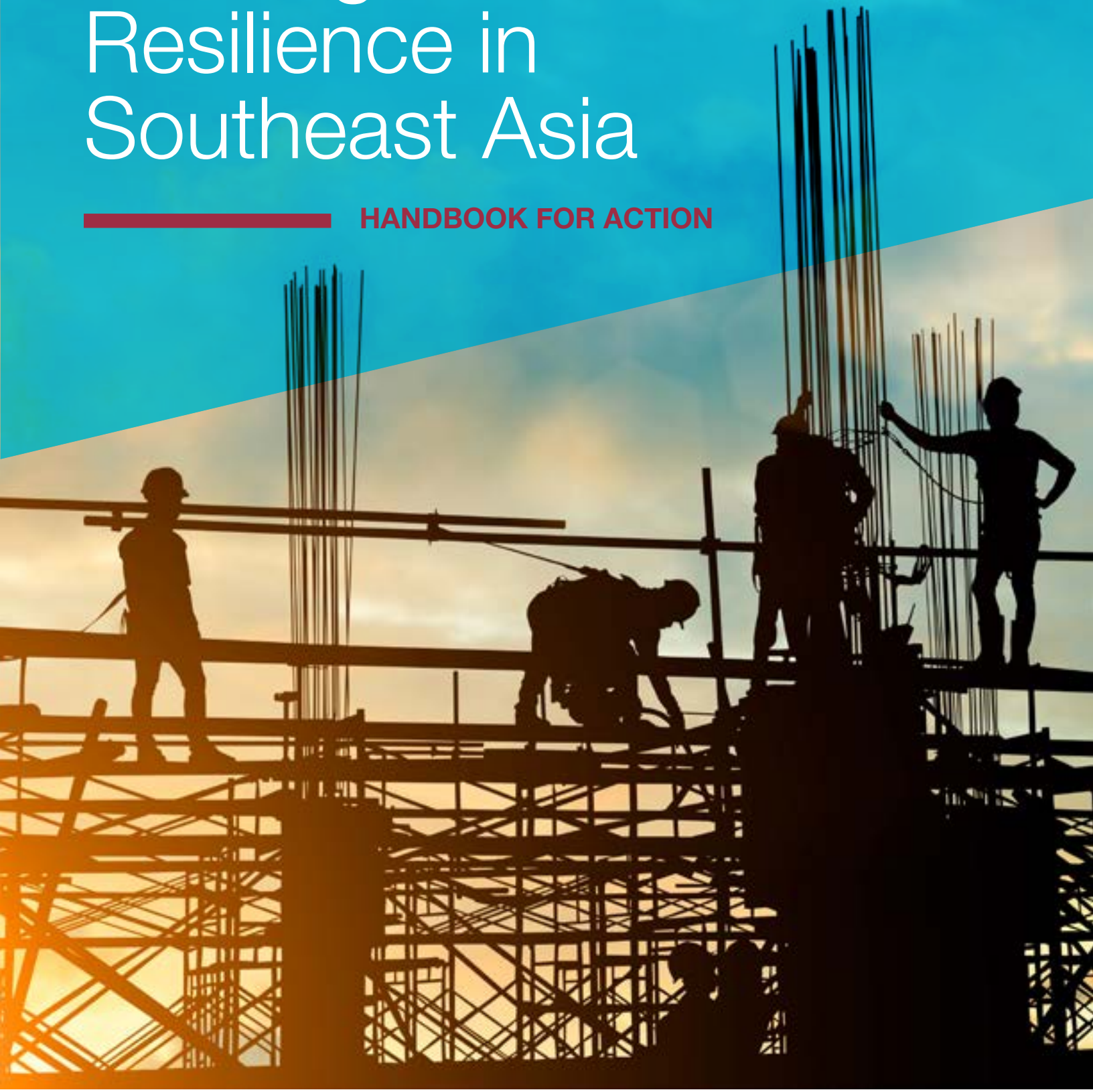
Building Climate Resilience in Southeast Asia

HANDBOOK FOR ACTION



Construction team on a high-rise building, Thailand
Photographer: lamontak

The ROCKEFELLER FOUNDATION

BSR®

CONTENTS

About This Handbook

Businesses and society in Southeast Asia face unprecedented risks caused by climate change. Warming temperatures, sea-level rise, extreme weather events that are more frequent or intense, and threats to ecosystem services can affect the private sector significantly. Businesses that fail to understand and manage climate change are exposed to a range of risks that could impact strategy, finance, operations, human resources, compliance, and sales and marketing.

It is imperative for the private sector to take a two-pronged approach to climate action:

1. **To transition to a low-carbon economy, and**

2. **To enhance adaptive capacity in the face of inevitable climate hazards.**

There is growing momentum among businesses to reduce emissions, but those businesses have not shown similar effort to build resilience to climate impacts. The private sector must pursue efforts to enhance climate resilience with urgency and ambition. This report offers tools and resources for businesses in Southeast Asia to start assessing climate risks and building resilience to climate change.

This report and the accompanying Framework for Private-Sector Action represent the culmination of an 18-month BSR research project that was funded by The Rockefeller Foundation. The goal of the project was to analyze how the private sector in Southeast Asia is approaching climate risk and building resilience. Through these works, we aim to offer businesses tangible and accessible ways to understand climate risk and resilience and the opportunities that can arise from enhancing adaptive capacity.

The Handbook compiles tools and resources with hyperlinks and brief descriptions, offering examples, recommendations, and guidelines to reduce climate risk and build resilience in Southeast Asia. It also includes a pre-assessment questionnaire to help business leaders think about the extent of climate change risks, and how those risks could potentially impact their respective organizations. The tools, resources, and questionnaire in this Handbook are not exhaustive; instead, they are designed to offer a substantial set of options and considerations for how to assess climate risk and build resilience.

METHODOLOGY

BSR conducted research on how businesses in four Southeast Asian countries are addressing climate risks to their operations, their supply chains, and the communities in which they operate. We assessed physical climate hazards facing Indonesia, Myanmar, Thailand, and Vietnam and analyzed private-sector efforts in these four countries to address climate change risk. Our research focused on these four countries due to their exposure and vulnerability to physical climate hazards, the presence of private-sector climate action, and the diversity of context and industry sectors taking action.

The research methodology for this paper is composed of three elements:

1 Literature review

We used research on climate change, risk, and resilience to inform this work. We focused particularly on Southeast Asia and the four aforementioned countries, as well as on private-sector and industry-specific actions pertaining to adaptation. We include findings from the Fifth Assessment Report, "Climate Change 2014: Impacts, Adaptation, and Vulnerability," compiled by the Intergovernmental Panel on Climate Change (IPCC). Furthermore, we have drawn upon research conducted by multilateral development banks, international development agencies, governments, nonprofits, research institutions, universities, and companies specializing in risk.

2 Workshops

We convened four private-sector workshops (one each in Indonesia, Myanmar, Thailand, and Vietnam between November 2017 and April 2018) to test initial research findings and tools with a diverse set of stakeholders and solicit feedback and experience.

3 Semi-structured interviews

Between January 2017 and May 2018, BSR conducted 85 semi-structured interviews, which is a qualitative strategy for data collection. We interviewed leading practitioners and experts in the fields of climate change and disaster risk reduction. We also interviewed representatives from a cross-section of companies. Because almost all business departments face climate risk and share responsibility for building resilience, BSR conducted interviews with business professionals from risk management, sustainability, finance, research and development, sourcing, procurement, human resources, operations, sales, and marketing departments, among others. The insights we gleaned from these discussions have informed our understanding of climate risk and resilience in Southeast Asia; the best way to integrate and implement capital assets to build climate resilience in the private sector in Southeast Asia; and opportunities to leverage business growth from building resilience. Organizations that participated in the interviews are listed in the Appendix.

AUTHORS

This report was prepared by BSR and supported by The Rockefeller Foundation. It was written by Eileen Gallagher, with additional guidance and insights from Brooke Avory, Mark Devadason, Laura Ediger, Samantha Harris, Olivia Li, Jeremy Prepscius, and David Wei. Any errors that remain are those of the authors. Please direct comments or questions to Eileen Gallagher at egallagher@bsr.org.

ACKNOWLEDGEMENTS

BSR wishes to thank The Rockefeller Foundation for funding this research and for all the thoughtful insights and feedback along the way.

BSR also would like to thank the organizations interviewed for their contributions. A full list of stakeholders consulted on this project can be found in the Appendix.

DISCLAIMER

ABOUT BSR

BSR is a global nonprofit organization that works with its network of more than 250 member companies to build a just and sustainable world. From its offices in Asia, Europe, and North America, BSR develops sustainable business strategies and solutions through consulting, research, and cross-sector collaboration. Visit www.bsr.org for more information about BSR's more than 25 years of leadership in sustainability.

ABOUT THE ROCKEFELLER FOUNDATION

For more than 100 years, The Rockefeller Foundation's mission has been to promote the well-being of humanity throughout the world. Together with partners and grantees, The Rockefeller Foundation strives to catalyze and scale transformative innovations, create unlikely partnerships that span sectors, and take risks others cannot—or will not. For more information, please visit www.rockefellerfoundation.org.

SUGGESTED CITATION

Gallagher, Eileen. "Building Climate Resilience in Asia: Handbook for Action." BSR, June 2018.

Overview

Climate change is altering the rules of the game for the private sector.

Businesses worldwide are facing climate risks, and companies with operations or supply chains in Southeast Asia are exposed to a range of climate hazards and vulnerabilities that can exacerbate these risks. To prepare for the effects of climate change, businesses in the region need to build resilience, which is defined as the ability to anticipate, absorb, accommodate, and recover from the impacts of climate change.[1]

In the Framework for Private-Sector Action, we analyze climate risks facing businesses in four Southeast Asian countries—Indonesia, Myanmar, Thailand and Vietnam—because of their exposure and vulnerability to climate hazards, the presence of private sector climate action, and the diversity of context and industry sectors. We conduct our analysis through an industry-specific lens, focusing on agriculture, manufacturing (which includes automobiles, garment, and information communications technology), tourism and hospitality, and financial services.

Our research finds that efforts by the private sector to reduce climate risk and build resilience are highly variable. In response to extreme weather events, businesses have begun to assess disaster risks and implement disaster management practices, including disaster response and relief. But current risk analyses are not capturing the three dimensions of climate risk fully, which include understanding the physical hazards of climate change, minimizing exposure to these hazards, and reducing vulnerability or underlying weaknesses that can exacerbate risk.[2] Current analyses also fall short when considering business exposure and vulnerability to a range of hazards across operations, supply chains, and the communities on which companies depend. A handful of businesses are forming risk committees, developing business continuity plans, and working with suppliers to assess risk and initiate resilience programs. Still, across the region, efforts are neither comprehensive nor consistent.

In conversations with representatives from the private sector, we learned that businesses are eager to understand and mitigate climate risks and build adaptive capacity. We also heard that these entities are looking for more information and guidance to create strategies and implement resilience programs. This Handbook aims to provide a substantial but not exhaustive list of publicly available tools and resources that we discovered in our research. The tools we list in this handbook range from global frameworks and national adaptation plans to descriptions of hazards and vulnerabilities per region. The Handbook also includes a pre-assessment questionnaire to get business leaders thinking actively about the impact of climate change on their organizations. The tools, resources, and questionnaire can help business professionals learn more about the climate risks they face and opportunities to build resilience in both the short and long-term. The Handbook also can help businesses identify outside organizations that can provide support or potentially serve as partners.

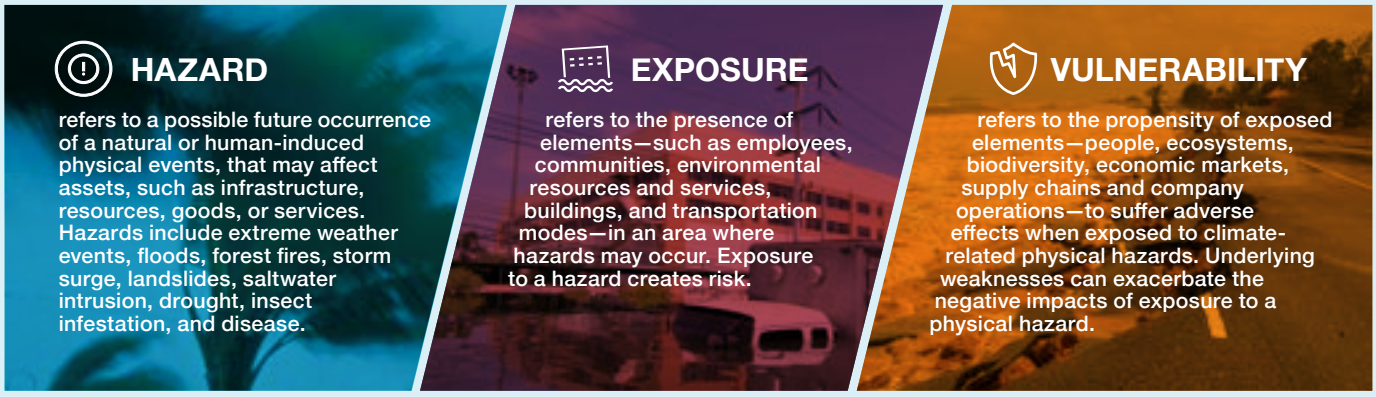
Fig. 1

Assessing Climate Risk and Building Climate Resilience

BSR recommends businesses take a three-dimensional approach to assessing climate risk using the latest science compiled by the IPCC. That process includes understanding the physical hazards of climate change, minimizing exposure to these hazards, and reducing vulnerability or underlying weaknesses that can exacerbate risk. Failing to properly understand and manage climate risk can impact a business's strategy, finances, operations, human resources, compliance, and sales and marketing.

Businesses should assess hazards, exposure, and vulnerability not only for operations, but also throughout the supply chain and in the communities on which they depend. By assessing risk across value chains, businesses can work toward ensuring owned and direct operations are protected, restored, or improved. Businesses also can establish safeguards to reduce climate risk among suppliers and communities.

To mitigate climate risk and find opportunities for growth, businesses should strengthen their resilience to climate change. A climate-resilient business is one that can anticipate, absorb, accommodate, and recover from climate hazards in its own operations, throughout its supply chain, and in the communities where it operates. To build resilience, businesses should strengthen "capital assets" across value chains.[3] These capital assets—physical, financial, political, human, social, and natural—are valuable resources that businesses can modify or create depending on their sector, geography, and needs.



Six Capital Assets to Build Climate Resilience

Human Capital
refers to the skills and knowledge of available human resources, particularly in the workforce.

Political Capital
refers to access to decision-making to shape policy environments that enable resilience.

Financial Capital
refers to the volume of available financial resources and access to financial goods and services.

Physical Capital
refers to infrastructure and equipment, including those related to manufacturing facilities, transport, logisitics, and communications.

Social Capital
refers to the strong relationships, collaborations, and bonds of mutual support and cooperation that are essential for addressing a systemic global challenge such as climate change.

Natural Capital
refers to the full range of services provided by biodiversity and ecosystems, including land and water.

Resilience not only empowers a business and its surrounding community to rebound faster after extreme weather events or other climate hazards, but it also can spur job growth, environmental sustainability, and positive social impact. Known as the "resilience dividend," these benefits can range from ensuring a consistent source of quality ingredients and undisrupted production to healthy and safe employees and customer loyalty.[4] Resilience also can lead to new opportunities in the marketplace in the form of new products and services.

Pre-Assessment Questionnaire

Before reviewing the tools and resources in this Handbook, we recommend that business professionals complete a brief pre-assessment by reviewing the questions that are tailored to their role. Because we found resilience-building to be fragmented across the region, we developed this pre-assessment to help to broaden business considerations of climate change. The questions can uncover potential gaps in existing business efforts to reduce climate risks and identify potential strengths or assets to leverage for building resilience. The questions may be particularly useful for CEOs, CFOs, human resources, and sustainability departments at big companies, as well as small- to medium-sized businesses. Other business professionals also can use the questionnaires to complete their own pre-assessment.

The questions provide a starting point for further investigations that will be unique to each company. Reviewing them can help businesses identify needs, gaps, and strengths as they pertain to reducing risk and building resilience.

Part A:
Review the climate risks and business impacts listed below,[5] and check those that your business is experiencing now or may experience in the future.

What are the climate risks to my business?

HAZARD

- ☐ flooding
- ☐ saltwater intrusion
- ☐ drought
- ☐ rising temperatures
- ☐ heatwaves
- ☐ fire
- ☐ sea-level rise
- ☐ stronger cyclones
- ☐ coastal erosion
- ☐ shifting disease vectors
- ☐ other

EXPOSURE

Office, operations, manufacturing facilities, suppliers, logistics, sourcing, sales, employees, and/or customers located in:

- ☐ flood zones
- ☐ coastal areas
- ☐ areas prone to drought
- ☐ areas experiencing increasing temperatures and/or heat waves
- ☐ other

VULNERABILITY

- ☐ rapid urbanization; low-lying or coastal cities
- ☐ at-risk populations, including the poor, migrants, women, people with disabilities, and farmers
- ☐ weak food supply, infrastructure, health, and ecosystems
- ☐ inadequate roads, ports, and airports to transport people, goods, and services
- ☐ scarce or inconsistent access to resources
- ☐ dependency on one resource, location, or service
- ☐ lack of insurance for businesses, individuals, or housing
- ☐ people or plants susceptible to disease outbreak/crop sensitivity
- ☐ other

How can these climate risks impact my business?

- ☐ pest or mold outbreak
- ☐ crop failure
- ☐ resource shortage
- ☐ damaged infrastructure, equipment, or products
- ☐ disrupted production or services
- ☐ disrupted transportation of people (employees/ customers), products, or services
- ☐ employee absenteeism, illness, or complaints (e.g., too hot, difficult to get to work)
- ☐ land/soil erosion
- ☐ decline in sales
- ☐ other

Part B:
Answer the set of questions that most closely aligns with your role.

QUESTIONS FOR THE CHIEF EXECUTIVE OFFICER:

1. How can climate risk affect the marketplace and the favorable economic conditions essential for my business?
2. Have I assigned someone to assess the climate risks facing my business? Is my risk management department involved? Does my enterprise risk management system include climate risks? Does my business continuity plan address climate risks?
3. What role do I have as the leader of my company to protect my business and people from climate change?
4. What influence does my business have in building resilience to climate change with suppliers and the community? What about in making with policymakers to shape regulation?
5. How will regulations that call for climate adaptation and resilience affect my business and investor/shareholder decisions?
6. Would investments in research, processes, or technology to adapt to climate change give my business a distinct competitive advantage in the marketplace?
7. Could my business offer new goods or services that could help other organizations, communities, or individuals adapt to climate change?

QUESTIONS FOR THE CHIEF FINANCIAL OFFICER:

1. How can climate risk affect my business assets, including physical infrastructure, equipment, and people, among others? Are my operations, suppliers, and employees located in vulnerable areas?
2. How can climate risk affect the marketplace and the favorable economic conditions essential for my business?
3. Am I working with the Chief Risk Officer to understand the range of risks facing my business? To what extent am I building a business continuity plan to safeguard assets?
4. How will regulations that require reporting on climate risk and resilience affect my business and investor/shareholder decisions?
5. How can climate risks affect insurance costs for my business and employees?

QUESTIONS FOR THE CHIEF RISK OFFICER:

1. How do climate risks affect my business assets, including physical infrastructure, equipment and people, among others? Are my operations, suppliers, and employees located in vulnerable areas?
2. Have I accounted for the full range of climate risks in annual risk assessments?
3. Have I accounted for the range of climate risks throughout the supply chain and in the communities where my business works or where my employees are located?
4. Does my enterprise risk management system include climate risks?
5. Have I created business continuity plans that address the range of climate risks?
6. Are employees, suppliers, and business operations prepared for the associated climate risks to my business?

QUESTIONS FOR THE HEAD OF HUMAN RESOURCES:

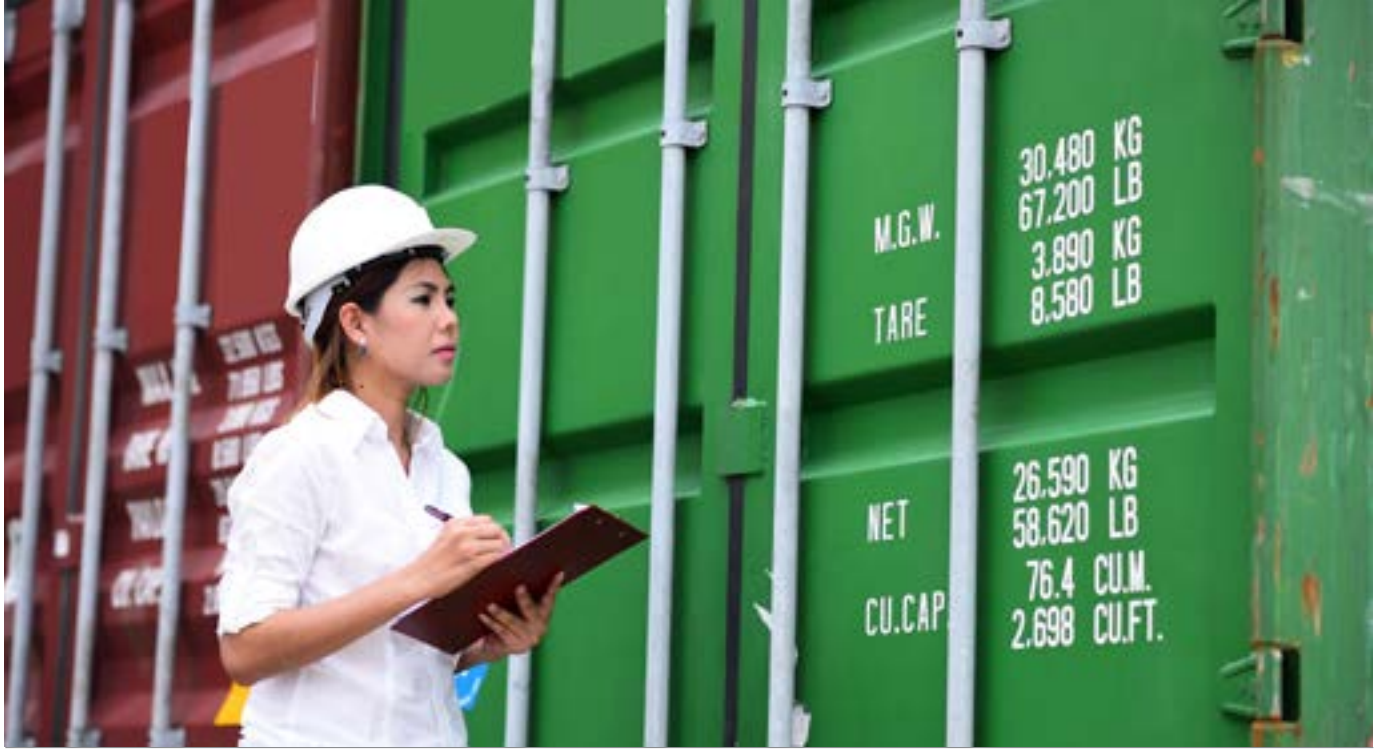
1. How will climate change affect employee health, access to work, and productivity?
2. Are employees working or living in vulnerable areas?
3. Is preparing for climate change and building resilience integrated into employee training modules and performance evaluations? Does our early-warning system include alerts for climate risks?
4. Do employees have access to health care and insurance?
5. What role do I have to ensure employees are resilient to climate change?
6. Has my company addressed vulnerabilities within its labor force and communities that could be worsened by climate change (e.g., disproportionate impact on women, people with disabilities, low-income communities, etc.)?

QUESTIONS FOR THE HEAD OF SUSTAINABILITY:

1. Does my company have a strategy to build climate resilience?
2. Is my company assessing climate risks throughout operations, the supply chain, and in the communities where we work?
3. Do existing programs that benefit the community encompass climate resilience?
4. What existing CSR or sustainability programs can be modified to integrate climate resilience?
5. Are employees trained to prepare for and respond to climate change where they work?
6. How can my company better leverage its strengths, people, and expertise to help build climate resilience within operations, suppliers, and the community?
7. To what extent has my company addressed vulnerabilities within its labor force and communities that could be worsened by climate change (e.g., disproportionate impact on women, people with disabilities, low-income communities, etc.)?

QUESTIONS FOR THE HEAD OF SUPPLY CHAIN, SOURCING, AND PROCUREMENT:

1. To what extent is climate change affecting the quantity or quality of materials or ingredients, supplier facilities, workers' health and access to work, or transportation routes to move goods, services, and people?
2. How will my business be affected if production and logistics are disrupted because of climate change (e.g., poor production yield, ill workers, damaged transport routes, etc.)?
3. Do I have a role in capacity-building throughout the supply chain to anticipate and prepare for climate change? What opportunities may exist if I work with suppliers to build climate resilience?
4. How much influence does my company have to address the impacts suppliers are facing from climate change? What influence does my business have in working with others (e.g., municipalities, government ministries) to build local climate resilience that's essential for business continuity?



Dock worker in Bangkok, Thailand Photographer: Thitivong

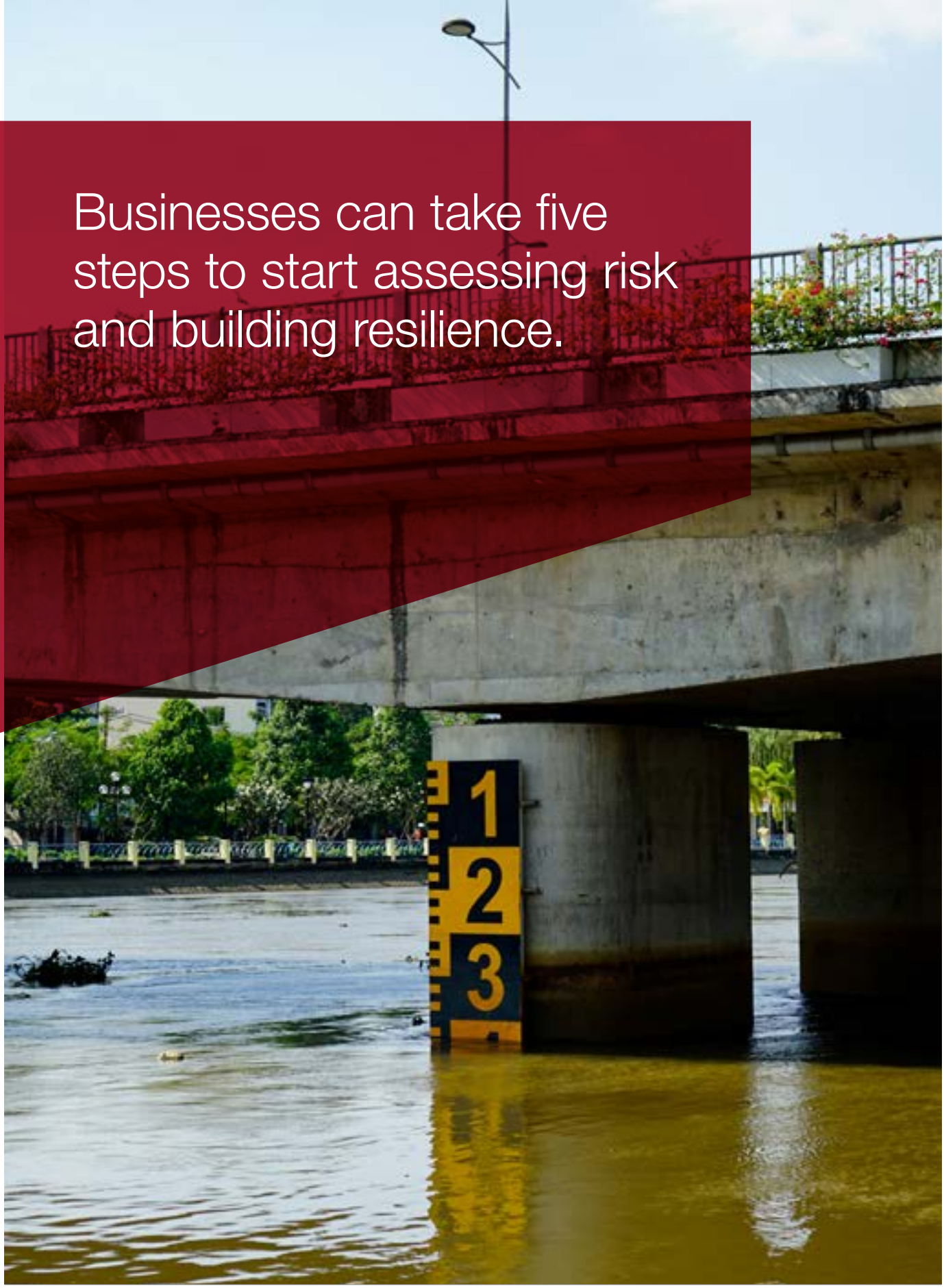
QUESTIONS FOR FACILITY MANAGERS:

1. How will climate change affect facility infrastructure, equipment, raw materials, finished goods, and access to energy and water?
2. How will climate change affect employee health, access to work, and productivity? Are employees complaining about the heat, increasingly absent from work, getting sick, or unable to get to work due to damaged roads or homes?
3. Are employees prepared, and can they respond to climate change?
4. Do customers have tools or resources that they can share to reduce my facility's risk and build resilience?
5. Do the facilities in my industrial zone have tools or resources they can share to collaboratively reduce risk and build resilience?
6. What role do I have as the facility manager to protect employees and the business from climate change?

QUESTIONS FOR SMALL- TO MEDIUM-SIZED ENTERPRISES:

1. How will climate change affect business infrastructure, equipment, raw materials, finished goods, sales, and access to energy and water?
2. Is my business located in a vulnerable area?
3. Can my insurance protect me from business disruptions caused by climate change?
4. Are my employees and I prepared, and can we respond to the range of climate change challenges?
5. Do my customers have tools or resources they can share to reduce business risk and build resilience?
6. Do other SMEs near my business have tools or resources they can share with me to reduce our risk and build resilience collaboratively?

Businesses can take five steps to start assessing risk and building resilience.



Depth meter in the Saigon River, Vietnam

Photographer: dth8xt

Five Steps to Build Resilience

As outlined in the *Business Imperative Framework*, businesses can take five steps to start assessing risk and building resilience. These steps include developing a governance structure; analyzing climate risk throughout operations, the supply chain, and communities in which the business works; mapping assets to mitigate risk and build resilience; partnering with others to streamline resources and scale resilience; and disclosing and reporting on risks and progress to build resilience transparently to boost stakeholder confidence and maintain credibility.

Get started on assessing risk and building resilience ›

1. **Develop a governance structure.**
2. **Assess climate risk throughout operations, supply chain, and the communities in which the business operates.**
3. **Identify and invest in capital assets to build resilience.**
4. **Partner with others to scale up resilience.**
5. **Disclose risks and report on progress.**

1 DEVELOP A GOVERNANCE STRUCTURE

Because climate change is a core business issue, addressing it must be driven by leadership, integrated into strategic planning, and designed to transcend internal business units and silos. Senior executives should designate a qualified individual or team to execute the work on assessing climate risk and building resilience. This is essential for accelerating action as well as ensuring consistency and centralized management. Issues of climate risk and resilience often sit with various roles across risk management, sustainability, and finance. The resilience leader should seek participation from all corners of the business and gather expertise from external sources and organizations that can help and analyze data, identify priorities, map assets, and implement resilience strategies. Businesses can task individuals, departments, or committees to explore specific climate issues.

2 ASSESS CLIMATE RISK THROUGHOUT OPERATIONS, SUPPLY CHAIN, AND COMMUNITIES IN WHICH THE BUSINESS OPERATES

The growing intensity of cyclones, and extreme flooding, and the guidelines outlined in the Sendai Framework for Disaster Risk Reduction have driven businesses in Southeast Asia to assess climate risks, "flood-proof" facilities, or create business continuity plans. Some businesses have a disaster risk management system, enterprise risk management system, or risk register. Businesses also should integrate climate change into existing tools or processes to assess the full range of physical climate hazards, exposure, and vulnerability.

To ensure awareness and efforts are spread across the organization, resilience leaders should seek data and information from peers, partners, investors, and other stakeholders. The manager of these efforts should gather data on hazards and map exposure and vulnerability

throughout operations, supply chain, and the community to identify challenges and gaps to address. Leveraging existing climate science—or investing in company-specific climate modeling—can help forecast specific climate risks. Another option to consider in understanding future potential risks to a business is to conduct a scenario analysis. This exercise can help a business assess the range of hypothetical impacts on operations and the value chain in a variety of future scenarios under a given set of assumptions and constraints.[6] After a business identifies its climate risks and prioritizes areas to address, the company can develop a plan to take action.

3 IDENTIFY AND INVEST IN CAPITAL ASSETS TO BUILD RESILIENCE

To mitigate risks—and eventually to seek opportunities for business growth—businesses should build climate resilience. To start, businesses should take inventory of valuable resources as they pertain to the six capital assets—physical, human, political, financial, social, and natural. Next, businesses should identify which assets can solve immediate risks and which should be enhanced or developed to mitigate future risk.

These initiatives can be integrated within existing departments or programs, including business continuity planning, human resources, and corporate social responsibility. By starting with the workforce, businesses can spread knowledge to help generate awareness of the need to build resilience in the community.

Businesses also should explore what tools and products they can offer the marketplace to help others build resilience. ICT companies can provide communication and monitoring tools for early warning systems. Apparel companies can offer protective garments to keep employees cool or protect against flood waters. Healthcare companies can offer health monitoring devices to ensure the well-being of outdoor workers in warmer temperatures or heatwaves.

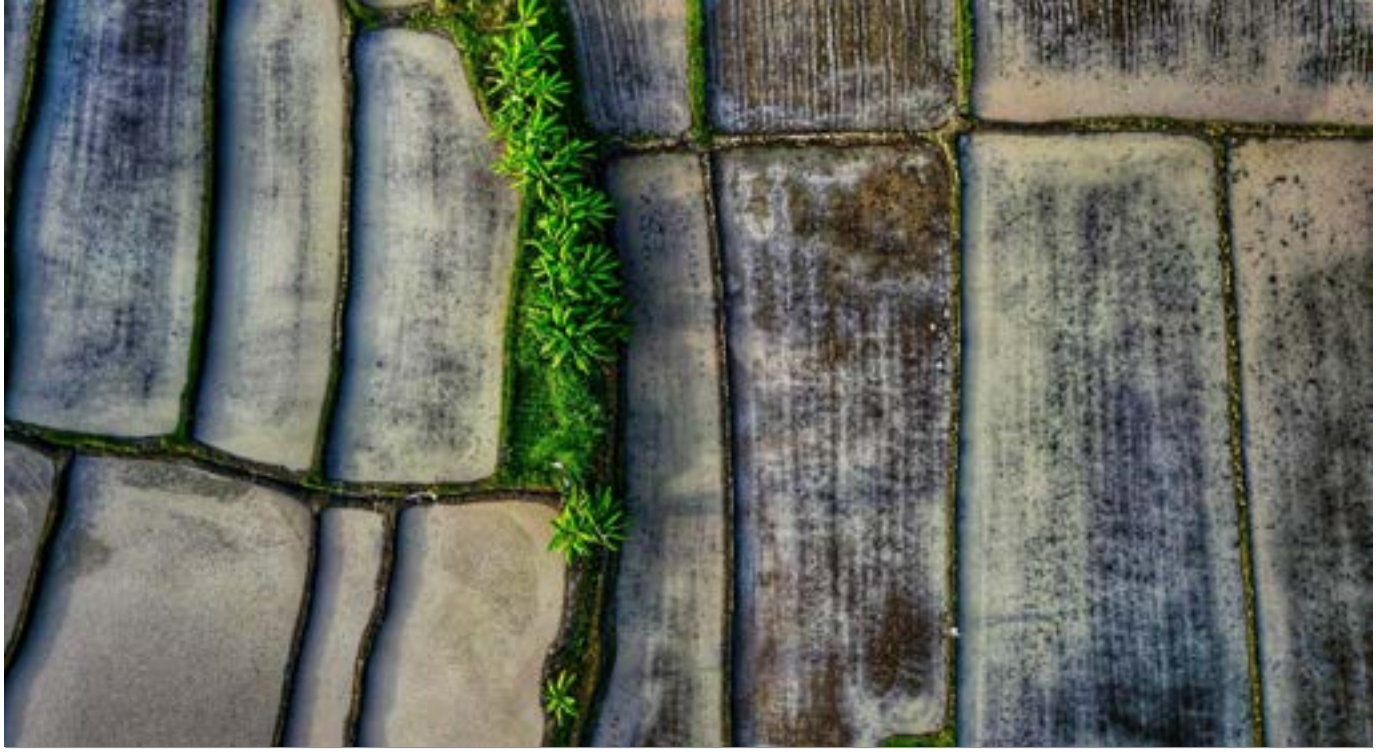
4 PARTNER WITH OTHERS TO SCALE UP RESILIENCE

To enhance resilience efforts inside the company, the community, and the industry at large, businesses should look to partner with suppliers, industry peers, professional networks, and government agencies. By working with SMEs within the supply chain, businesses can address risks that can have cascading effects on operations, production, and logistics. Companies also should consider partnering with government agencies to uphold commitments to the Paris Agreement and the Sendai Framework for Disaster Risk Reduction. Businesses even can collaborate with peers in industrial zones to share knowledge and spread resources to prepare for climate risks.

Finally, the private sector should consider shaping the political, social, cultural, and economic conditions that can reduce climate risk and enhance resilience in the communities where businesses operate. Businesses can influence political decision-making processes in ways that can have long-lasting consequences on the private sector, such as selecting development locations and accessing to financial resources. We advise that businesses engage actively with local and national policymakers, nonprofits, and academia to share challenges and solutions and to uncover new opportunities in building resilience.

5 DISCLOSE RISKS AND REPORT ON PROGRESS

To bolster stakeholder confidence in business, transparently disclose climate risks and efforts to stakeholders. This can help assure investors, maintain a social license to operate in the community, and build trust among customers. As evidenced by industry progress on climate mitigation to set emission targets and work toward a low-carbon economy, reporting on progress and sharing information and knowledge within the business community can help generate awareness and create momentum for resilience-building. Businesses can consider integrating risks into annual reports and are invited to submit their climate action commitments to the Non-State Actor Zone for Climate Action (NAZCA), which tracks commitments from businesses, cities, and nonprofits.



Bali, Indonesia Photographer: Alexey Marchenko

Tools and Resources

To support the private sector in Southeast Asia in implementing the five steps to build resilience, this section offers a compendium of tools and resources for businesses to consult and use.

The tools and resources are divided into eight categories and consist of brief descriptions with hyperlinks to online sources. The tools and resources here are not an exhaustive set of what is available for businesses in Southeast Asia; however, these sources offer a range of tools, examples, and data that can help to provide businesses with additional support and connection points to manage the effects of climate change.

CATEGORIES:

- **National, Regional, and International Plans and Targets**
- **Programming Tools**
- **Research and Data**
- **Education and Training**
- **Examples and Best Practices**
- **Potential Funding Mechanisms**
- **Potential Partners or Partnership Opportunities**
- **Resources for Small- to Medium-sized Enterprises**

National, Regional, and International Plans and Targets

The Paris Agreement	Agreed upon at the 21st Conference of Parties (COP) of the UNFCCC in 2015, the Paris Agreement brings together countries to mobilize around ambitious climate action, including resilience as outlined in Article 7.
Nationally Determined Contributions (NDC)	Under the Paris Agreement, each country is required to submit its best efforts to mitigate emissions through NDCs. Emerging and developing countries' NDCs include goals to adapt to climate change. These goals and programs can have implications for the economy and private sector. NDC Partnership tracks country-specific projects and progress to meet NDCs. It also offers implementation guidance for both countries and organizations, and a funding navigator. Also, Climate Watch offers an open-source data tool to visualize and analyze country-specific progress.
ASEAN Socio-Cultural Community Blueprint 2025	The Blueprint outlines priorities for the region's socioeconomic well-being into the next decade. It aligns goals with the Declaration on Institutionalising the Resilience of ASEAN and its Communities and Peoples to Disasters and Climate Change, which was adopted in 2015. Both Association of Southeast Asian Nations (ASEAN) documents seek to partner with or support the private sector to mitigate climate risk and build resilience.
National Adaptation Programmes of Action (NAPAs)	NAPAs enable Least Developed Countries (LDCs) to identify and communicate priority climate risks and adaptation needs that require immediate attention. (For example, Myanmar, among other Southeast Asian countries, submitted a plan in 2013.) Prioritized, urgent needs then become eligible for funding through the LDC Fund, which is operated by the Global Environment Facility.
National Adaptation Plans (NAP)	NAPs enable both LDCs and developed countries to identify and communicate medium- and long-term climate adaptation needs and strategies to build resilience. Not all countries have submitted formal NAPs; some address resilience and adaptation in related policies (e.g., on disaster risk management or socioeconomic growth), which can often be found in an NDC.
UN Sustainable Development Goals	Adopted by world leaders in 2015, 17 SDGs can guide country governments, aid agencies, the private sector, and civil society to work toward ending poverty, fighting inequality, and curbing climate change by 2030. Goals that promote or incorporate elements of climate resilience include but are not limited to: – Goal 9: Build resilient infrastructure, promote sustainable industrialization, foster innovation. – Goal 11: Make cities inclusive, safe, resilient, and sustainable. – Goal 13: Take urgent action to combat climate change and its impacts.
The Sendai Framework for Disaster Reduction 2015-2030	The UN-endorsed Sendai Framework is a 15-year, voluntary, non-binding agreement that stipulates countries have a primary role to reduce disaster risk, with responsibility being shared with other stakeholders, including the private sector. The goals of this Framework are to reduce fatalities, cut down on damage to livelihoods, and decrease health risks in communities and businesses. It stresses preparedness as being more effective than sole reliance on post-disaster response. Businesses uphold the Sendai Framework through another UN initiative, the Alliance for Disaster Resilient Societies (ARISE), where more than 140 members share best practices, strategies, metrics, standards, and engage in trainings.

Programming Tools

Acclimatise Aware™	A software program that offers a three-step process to screen a company or project for climate risks, developed for investors and lenders. *(fee associated)*
Social Vulnerability Assessment (SVA) Tools	The SVA Tools, created by the UNDP, offer approaches for planning and programming in climate change adaptation, climate risk management, and disaster risk reduction. The tools were designed primarily for DRR practitioners in the community and government, but businesses can use them to understand the different vulnerability types (e.g., socioeconomic, demographics, etc.) and indicators (e.g., GDP per capita, gender, age, disabilities, immigrants, etc.).
Red Cross Red Crescent Climate Centre	With support from the UK-based Climate and Development Knowledge Network, the Climate Centre and its partners in Indonesia and the Philippines have developed tools and resources for community resilience, including minimum standards for disaster risk reduction. While the tools are customized for local government or civil society members, they can also inform risk managers on community needs.
Climate Risk Impact Screening (CRIS)	The CRIS tool allows asset managers and investors to understand the level of climate risk in their portfolios.
Climate Expert Tools	From the Global Programme on Private Sector Adaptation to Climate Change, developed by GIZ, a German development agency, the Guide for Adaptation in Industrial Zones offers practical information for managers of industrial zones to assess vulnerability, develop strategies, and support other companies to adapt to climate change. Case studies are provided.
Climate Change Adaptation Toolkit User Guide[7]	The Toolkit helps to facilitate decision-making and integration of climate change adaptation across the organization. It includes worksheets to analyze risk and build a risk register. See page 55 for decision tools to prioritize adaptation projects.
International Organization for Standardization (ISO): 22301:2012, Societal security - Business continuity management systems	With a membership of 162 national standards bodies, ISO develops voluntary, consensus-based, market-relevant international standards. One of them, ISO22301:2012, aims to build business continuity management systems. Adhering to this standard can help a business plan and implement procedures to build operational resilience. It also can help a business prepare for, protect against, and recover from any potentially deleterious incidents when they arise, such as climate risks. *(fee associated)*
Training in Disaster Management from the International Federation of Red Cross & Red Crescent Societies	Businesses can use the module, Introduction to Disaster Preparedness: Disaster Preparedness Training Programme (2000), as a reference guide and for training. Generalists and professionals with disaster preparedness and/or emergency response responsibilities also can use the model globally. National Red Cross groups often partner with local institutions and businesses to develop and implement programs and projects.

Research and Data

IPCC Fifth Assessment Report (AR5) and corresponding reports	Issued by the IPCC in 2014, AR5 is the leading analysis on the scientific, technical, and socio-economic aspects of climate change. Analysis from the IPCC Working Group II, *Impacts, Adaptation, and Vulnerability of Climate Change*, offers observations on the hazards, exposure, and vulnerability to climate change with a chapter dedicated to Asia as well as a chapter on the implications on economic sectors.
Notre Dame Global Adaptation Initiative's Country Index (ND-GAIN)	Since the mid-1990s, ND-GAIN's Country Index summarizes and ranks vulnerability to climate change in combination with readiness to improve resilience. Vulnerability is measured by a country's exposure, sensitivity, and adaptive capacity; readiness is assessed by a country's economic, governance, and social indicators. Overall the Index aims to help businesses, policymakers, and communities prioritize investments for adaptation and resilience.
WRI Aqueduct	A global water risk mapping tool that can help businesses understand where water risks and opportunities may affect them around the world.
The World Bank Climate Change Knowledge Portal and Climate and Disaster Risk Screen Tools	The Portal offers historical and projected climate hazards per country in Asia. It also offers a range of socioeconomic data, charts, and models for assessment and comparison. Created for development practitioners, the Screening Tools can be used by businesses to explore climate risks in particular sectors and regions.
ThinkHazard!	The Global Facility for Disaster Reduction and Recovery[8] created an online open-source[9] tool that highlights the likelihood of different natural hazards affecting a district, province, or national administrative unit. The tool also provides guidance on how to reduce the impact of these hazards and where to find more information. *(not all countries are included)*
Verisk Maplecroft global risk analytics, research and forecasting services	Verisk Maplecroft offers proprietary risk indices and methodologies that cover 198 countries across 150 issues pertaining to political risk, human rights, and environmental and economic issues. Businesses can use the service to identify risks throughout supply chains, visualize data, and compare commodity risks, among other services and offerings. *(fee associated)*

Education and Training

Asia Disaster Preparedness Center (ADPC) training programs and the iPrepare Business Facility	ADPC Academy, which aligns its work with the Sendai Framework for Disaster Risk Reduction, the UN SDGs, and the Paris Agreement, offers trainings across the Asia-Pacific region. These trainings can be generic or tailored (e.g., disaster management, climate risk management, and climate change adaptation, and community action for disaster response, among many others). The iPrepare Business Facility, led by ADPC, focuses on disaster risk management particularly for SMEs. The Facility offers technical support and knowledge-sharing. The organization conducted surveys of SMEs and developed roadmaps for businesses in Indonesia, Philippines, Thailand, and Vietnam.
Chambers of Commerce	Chambers of Commerce can offer resources and trainings for the business community on climate risks and resilience. Examples include: – The Vietnam Chamber of Commerce and Industry (VCCI) assembles and represents the business community, employers, and related business associations in Vietnam. It promotes business relationships, convenes meetings, and connects businesses with training agencies on issues such as climate change and SDGs. – The Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) serves as a network and government liaison for Myanmar and foreign businesses. It provides coordination on disaster relief efforts and is the lead for the Myanmar Private Sector Disaster Management Network (supported by UNOCHA). UMFCCI offers resources, trainings, and best practices for businesses.
Stock Exchanges	Stock Exchanges can offer guidance and trainings for listed companies on climate risk disclosure and resilience building. For example, the Stock Exchange of Thailand (SET) promotes the sustainable development efforts of listed Thai companies. SET also attempts to address climate change by offering tools, encouraging disclosure and reporting, recognizing outstanding performance, and running trainings.
United Nations Agencies	UNDP has initiatives in climate adaptation and resilience, including food security, water resource management, and climate-resilient infrastructure and energy. UNDP supports the Connecting Business Initiative on disaster risk reduction, response, and recovery. UNOCHA provides technical support for the Myanmar Private Sector Disaster Management Network and works to improve coordination between private sector and public sector disaster response and recovery. UN-Habitat addresses climate change impacts primarily in urban areas through their Cities and Climate Change Initiative and supports coordination of the Myanmar Climate Change Alliance. FAO works on technologies and practices to build food security and resilience in agriculture, supports integration of agriculture into national policies and programs, and supports implementation of the Sendai Framework. UN Environment runs the Asia Pacific Adaptation Network, which manages and disseminates climate change adaptation knowledge and facilitates technology transfer, and also supports the Myanmar Climate Change Alliance.

Examples and Best Practices

BSR industry-specific briefing papers	Brief BSR primers that outline the risks, opportunities, and case studies for each industry on adapting to climate change. Industries covered include Mining, Financial Services, Transportation, Energy/Utility, Consumer Products, ICT, and Food, Beverage, and Agriculture.
CARE's Climate Change and Resilience Platform (CCRP)	CCRP aims to serve the needs of vulnerable communities, including poor and marginalized communities. CARE has developed learning, research, and advocacy programs, including promoting gender equity in climate resilience in the Asia-Pacific region. It offers a variety of tools and publications on climate issues that pertain to gender, disasters, agriculture, and food security, among others.
Climate Expert Tools	From the Global Programme on Private Sector Adaptation to Climate Change, developed by GIZ, the Guide for Adaptation in Industrial Zones offers practical information for managers of industrial zones to assess vulnerability, develop strategies, and support other companies to adapt to climate change. Case studies are provided.
Mercy Corps	Mercy Corps is a global NGO that provides humanitarian and development aid, and also partners with companies on resilience work. The organization has Resilience Hubs in Indonesia and Myanmar and a Resilience Assessment Tool. It also supports pilots of the Z Zurich Foundation flood resilience framework in Indonesia.
NAZCA Tracking Climate Action	Non-state actors, including businesses, launched NAZCA to register and track commitments that align with the Paris Agreement. It serves as a platform to highlight voluntary business commitments on climate change. To get involved, businesses can submit and publicize goals. Businesses can review commitments that other companies have made, too.
PrepareCenter.org[10]	An open forum and library of tools, research, and best practices on more than 150 topics pertaining to disaster preparedness and resilient communities, this website offers resources to develop a business continuity program that focuses on personnel, supply chains, and the surrounding community. Country-specific resources include disaster risk profiles, videos, and case studies. Materials specific to Indonesia, Myanmar, Thailand, and Vietnam are offered and in multiple languages.
Private Sector Initiative (PSI) database of actions on adaptation	This database offers case studies of businesses that successfully executed climate adaptation and resilience projects across the world. Some of the case studies spotlight businesses in Cambodia, Indonesia, Laos, Philippines, Thailand, and Vietnam.

Potential Funding Mechanisms

Asian Development Bank (ADB)	ADB has financed private-sector projects since the 1960s through direct financing (e.g., loans and equity investments), credit enhancements, and risk mitigation instruments. It has committed to increasing its funding for climate change up to US$6 billion by 2020. It supports microfinance operations in Bangladesh and Indonesia and engages in public-private partnerships. ADB's Climate Change Fund also provides funding for adaptation to Developing Member Countries. Through ADB's different funding mechanisms, businesses can seek funding from ADB either directly or indirectly.

Adaptasi Perubahan Iklim dan Ketangguhan (APIK) (Indonesia)	USAID's Climate Change Adaptation and Resilience Project in Indonesia has a Resilience Fund that will co-invest with companies on projects to build climate or disaster resilience in East Java, Southeast Sulawesi, or Maluku.
Global Environment Facility (GEF)	GEF promotes private-sector engagement through a variety of focal points, including climate adaptation. GEF also provides funding to the private sector through non-grant instruments.
Green Climate Fund (GCF)	Established in 2010, the GCF serves as the UNFCCC's funding arm for developing countries. Businesses can work with National Designated Authorities to become accredited entities and apply for funding. GCF also seeks private sector co-investment in climate action.
InsuResilience Initiative and the InsuResilience Investment Fund[11]	The Initiative aims to offer climate risk insurance to 400 million poor and vulnerable people in developing countries by 2020. Projects include providing insurance advice to companies and promoting remote sensing-based information and insurance for crop farmers. The Fund helps to improve access to and the use of insurance in developing countries for micro-enterprises and SMEs as well as individuals.
Livelihoods and Food Security Trust Fund (Myanmar)	The Livelihoods and Food Security Trust Fund is a multi-donor fund that provides financing and technical expertise to address poverty and build rural resilience. It offers funds for the private sector and nonprofit organizations to work on poverty resilience.

Potential Partners or Partnership Opportunities

100 Resilient Cities (100RC)	Pioneered by The Rockefeller Foundation, 100RC is dedicated to helping cities around the world become more resilient to the physical, social, and economic challenges that are a growing part of the 21st century. Businesses can work with the Chief Resilience Officer in the 100 cities to strategize and implement resilience efforts for mutual gain. 100 Resilient Cities in Southeast Asia include Danang, Can Tho, Jakarta, Mandalay, Melaka, Semarang, and Singapore.
Adaptasi Perubahan Iklim dan Ketangguhan (APIK) (Indonesia)	USAID's Climate Change Adaptation and Resilience Project in Indonesia has a Resilience Fund that will co-invest with companies on projects to build climate or disaster resilience in East Java, Southeast Sulawesi, or Maluku.
Asian Development Bank (ADB)	ADB has financed private-sector projects since the 1960s through direct financing (e.g., loans and equity investments), credit enhancements, and risk mitigation instruments. It has committed to increasing its funding for climate change up to US$6 billion by 2020. It supports microfinance operations in Bangladesh and Indonesia, and engages in public-private partnerships. ADB's Climate Change Fund also provides funding for adaptation to Developing Member Countries. Through ADB's different funding mechanisms, businesses can seek funding from ADB either directly or indirectly.
Assist Asia	Asia Society for Social Improvement and Sustainable Transformation (ASSIST) is an international NGO focused on capacity building and promoting sustainable practices to address social problems, including climate adaptation. Assist Asia specializes in implementing public-private partnerships in Asia.

CARE's Climate Change and Resilience Platform (CCRP)	CCRP aims to serve the needs of vulnerable communities, including poor and marginalized communities. CARE has developed learning, research, and advocacy programs, including promoting gender equity in climate resilience in the Asia-Pacific region. It offers a variety of tools and publications on climate issues that pertain to gender, disasters, agriculture, and food security, among others.
Cocoa Sustainability Partnership (CSP) (Indonesia)	This public-private platform for Indonesia cocoa sector has increased communication and collaboration. The CSP engages companies and others on joint efforts toward bolstering resilience of the cocoa sector.
Connecting Business Initiative (CBi)	CBi engages the private sector before, during, and after emergencies to increase the effectiveness and coordination of disaster response. CBI offers an annual event and publications. It convenes networks in Myanmar and the Philippines and engages businesses for coordinated disaster response management.
Cordaid/Caritas	Cordaid/Caritas is a global NGO with expertise in climate and disaster resilience and private sector development, including projects in Indonesia on urban resilience and agriculture.
Grow Asia	A multistakeholder platform established by the World Economic Forum, Grow Asia works toward inclusive and sustainable agricultural development, with a focus on smallholders. It supports five country-level partnerships in Southeast Asia: Cambodia, Indonesia, Myanmar, Philippines, and Vietnam. It connects companies to jointly address agricultural issues, including climate adaptation, to move toward more sustainable supply chains.
Mercy Corps	Mercy Corps is a global NGO that provides humanitarian and development aid and also partners with companies on resilience work. The organization has Resilience Hubs in Indonesia and Myanmar and a Resilience Assessment Tool. It also supports pilots of the Z Zurich Foundation flood resilience framework in Indonesia.
Myanmar Climate Change Alliance (MCCA)	MCCA is a platform for mainstreaming climate change into the Myanmar policy agenda, with a core technical unit based within the Ministry of Natural Resources and Environmental Conservation and a Technical Working Group from line ministries, city governments, academia, civil society and NGOs. MCCA supports national-level policy efforts such as the development of the Myanmar Climate Change Strategy and the National Climate Change Policy, along with training, mentoring, and capacity-building programs.
Myanmar Institute for Integrated Development (MIID)	MIID is a Yangon-based nonprofit organization that works in upland regions and ethnic-minority areas to support integrated development. Programs also include climate change adaptation programs for farmers near Inle Lake and value chain development in Southern Shan state. MIID could serve as a potential partner for implementation of value chain and adaptation projects.
Partners for Resilience (PfR): PfR Philippines[12] and PfR Indonesia[13]	PfR[14] uses an Integrated Risk Management approach to strengthen capabilities to reduce the impact of disasters. The approach integrates climate change adaptation and ecosystem management and restoration with disaster risk reduction. It also emphasizes partnerships among communities, civil society, governments, and the private sector, among others.
Proximity Designs	Proximity Designs is a social enterprise deploying agricultural technology, training, and microfinance in rural Myanmar. Proximity could serve as a potential partner for value chain and adaptation projects.

Rikolto	Formerly known as VECO, Rikolto is a global nonprofit focused on smallholder farmer livelihoods and agriculture value chains. In Indonesia, this includes farmers who focus on cocoa, coffee, cinnamon, and rice. In Vietnam, it extends to farmers who specialize in vegetables, tea, rice, and more.
SwissContact	In Indonesia, this foundation works with companies and nonprofits to improve the productivity and quality of cocoa production. It partners with companies on technical and socio-economic projects to make cocoa supply chains more resilient.
The Asia Foundation	The Asia Foundation brings together local individuals, communities, and governments who are shaping the future of Asia. The Foundation focuses on several issues, including resilience and adaptation. The Foundation partners with others (including businesses), releases reports, and hosts convenings to improve lives across Asia.
United Nations Agencies	UNDP has initiatives in climate adaptation and resilience, including food security, water resource management, and climate resilient infrastructure and energy. UNDP supports the Connecting Business Initiative on disaster risk reduction, response, and recovery. UNOCHA provides technical support for the Myanmar Private Sector Disaster Management Network and works to improve coordination between private sector and public sector disaster response and recovery. UN-Habitat addresses climate change impacts primarily in urban areas through its Cities and Climate Change Initiative and supports coordination of the Myanmar Climate Change Alliance. FAO works on technologies and practices to build food security and resilience in agriculture, supports integration of agriculture into national policies and programs, and supports implementation of the Sendai Framework. UN Environment runs the Asia Pacific Adaptation Network, which manages and disseminates climate change adaptation knowledge and facilitates technology transfer, and also supports the Myanmar Climate Change Alliance.

Resources for Small- to Medium-sized Enterprises

Asia Disaster Preparedness Center (ADPC) training programs and the iPrepare Business Facility	ADPC Academy, which aligns its work with the Sendai Framework for Disaster Risk Reduction, the UN SDGs, and the Paris Agreement, offers trainings across the Asia-Pacific region. These trainings can be generic or tailored (e.g., disaster management, climate risk management and climate change adaptation, and community action for disaster response, among many others). The iPrepare Business Facility, led by ADPC, focuses on disaster risk management particularly for SMEs. The Facility offers technical support and knowledge-sharing. The organization conducted surveys of SMEs and developed roadmaps for businesses in Indonesia, Philippines, Thailand, and Vietnam.
Climate adaptation assessment for small- to medium-sized enterprises (quick and full assessment options)	SMEs can conduct a Quick Company Assessment or use the Full Company Assessment offered by the Global Programme on Private Sector Adaptation to Climate Change, developed by GIZ. Case studies are provided as well. SMEs can conduct evaluations via Excel spreadsheets and can do so in collaboration with a consultant.
Sustainable and Resilient Enterprises (SRE) Platform	The SRE Platform was developed by the International Labour Organization to provide tools, training materials, and support to companies (especially SMEs) in disaster or conflict situations. It offers an assessment tool to help evaluate hazards, impacts, and vulnerability.

Appendix

BSR thanks the following organizations that participated in interviews or workshops. Their insights and feedback helped us shape our analysis, the resilience framework, and this Handbook.

100 Resilient Cities • Advanced Info Service Public Company Limited • AECOM • Allianz • APIK DAI • The Asia Foundation • Asia Disaster Preparedness Center • Asian Cities Climate Change Resilience Network • The Asian Development Bank • Asian Honda Motor Co., Ltd. • ASSIST Asia • Atlantic VN Co. Ltd. • Aung Naing Thitsar Group of Companies • AXA • AYA Bank • B. Grimm Power Public Company Limited • Bangchak Corporation Public Company Limited • Bangkok Bank Public Company Limited • Banpu Public Company Limited • Berli Jucker Public Company Limited • Better Work • Bubler Asia Viet Nam Co. Ltd. • Building Resilience and Adaptation to Climate Extremes and Disasters • Business Association of 5th District, Ho Chi Minh City • Central Plaza Hotel Public Company Limited • Chief Resilience Officers, Da Nang and Semarang • CIMB Thai Bank Public Company Limited • Citymart • Care Vietnam • Cocoa Sustainability Partnership (Indonesia) • Conyat Create • Charoen Pokphand Foods Public Company Limited • DBS Bank • Dragon Capital • East West Seeds • ECOM • Ericsson • Esquel • Evoluzione Tyres • Fico JSC. • Furama Five-Star Resort • Glow Energy Public Company Limited • Great Giant Pineapple • Grundfos • H&M • Hai Vinh Plastic Co. Ltd. • HCMUNRE University • HERO Supermarket Tbk. • Hoanh Phat Trading and Services Co. Ltd • Hoa Sen University • Holcim • HSBC • IDH The Sustainable Trade Initiative • International Institute for Environment and Development • Indonesia Business Council for Sustainable Development • Indonesian Institute for Corporate Directorship • Ingreentech Co., Ltd. • ISET - International Vietnam • KBZ Bank • KDDI Corporation • Livelihoods and Food Security Trust Fund • LiMa Mandalay Technology • The Myanmar Centre for Responsible Business • Myanmar ICT for Development Organization • Myanmar Climate Change Alliance • Medco Energi • Mercy Corps • Myanmar Institute for Integrated Development • Nam Phat Dat Transportation Co., Ltd. • Nang Hom Rom Resort • Nanyang Textiles • Ooredoo • Pembangunan Jaya Ancol Proximity Designs • PTT Exploration and Production Public Company Limited • Pullman Danang Beach Resort • Ratchaburi Electricity Generating Holding Public Company Limited • Seagate • Shwe Than Lwin Co., Ltd. • Siam Cement Group • The Siam Commercial Bank Public Company Limited • Siam Steel Service Center Public Company Limited • Dr. Sikstus Gusli • Simexco • SMEDEC 2 • Standard Chartered • Starbucks • Stock Exchange of Thailand • Swisscontact • Telenor • Textile and Garment Association of Ho Chi Minh City • The Thai Institute of Directors • Thai Oil Public Company Limited • Thai Union Group Public Company Limited • Thaicom Public Company Limited • Thailand Environment Institute • Than Lap Trading Co. Ltd • United Nations Development Programme • True Corporation Public Company Limited • TTCL Public Company Limited • United Nations Office for the Coordination of Humanitarian Affairs • United States Agency for International Development • VECO Indonesia • VF Corporation • Vietnam Chamber of Commerce and Industry • Vietnam Rubber Association • Walmart • WWF • Yoma Bank • Your Trip 365 Co. Ltd. • Zurich Insurance

References

- Cameron, Edward; Samantha Harris; and Emilie Prattico. 2018. "Resilient Business, Resilient World: A research framework for private sector leadership on climate adaptation." BSR, 2018.
- Cardona, O.D.; M.K. van Aalst; J. Birkmann; M. Fordham; G. McGregor; R. Perez; R.S. Pulwarty; E.L.F. Schipper; and B.T. Sinh. 2012. "Determinants of risk: exposure and vulnerability. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation." [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 65-108. https://www.ipcc.ch/pdf/special-reports/srex/SREX-Chap2_FINAL.pdf
- Denton, F.; T.J. Wilbanks; A.C. Abeysinghe; I. Burton, Q. Gao; M.C. Lemos; T. Masui; K.L. O'Brien; and K. Warner. 2014. "Climate-resilient pathways: adaptation, mitigation, and sustainable development." In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L. L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1101-1131. https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap20_FINAL.pdf
- Rodin, J. 2014. The Resilience Dividend: Being Strong in a World Where Things Go Wrong. The Rockefeller Foundation. PublicAffairs™, a Member of the Perseus Books Group.
- TCFD, 2017. "Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities." https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Technical-Supplement-062917.pdf
- UNGC. No date. "The Ten Principles of the UN Global Compact." https://www.unglobalcompact.org/what-is-gc/mission/principles/principle-7

ENDNOTES

1 Denton et al. 2014.

2 Cardona et al. 2012.

3 Cameron et al. 2018.

4 Rodin. 2014.

5 Not an exhaustive list and risks vary per country and region. For more detailed observations and projections, see http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap24_FINAL.pdf

6 TCFD. 2017.

7 Created by RMIT University, Net Balance Foundation, and the City of Greater Geelong.

8 The tool was developed by GFDRR's Innovation Lab, in collaboration with BRGM (the French geological survey), Camptocamp, and Deltares. Other organizations and individuals have contributed information and data for the tool.

9 Members of the public can contribute information and data, and the public can support the development of the tool.

10 Led by the Global Disaster Preparedness Center, which is managed by the American Red Cross.

11 Created by KfW, the German Development Bank, on behalf of the German Ministry for Economic Cooperation and Development (BMZ).

12 PfR Philippines assess and shapes policy instruments to promote the adoption and mainstreaming of IRM. It also encourages private sector investment and practice of IRM.

13 PfR Indonesia works on the local, district, provincial, national, and international level to help vulnerable communities become more resilient to crises associated with climate change and environmental degradation. The organization's work includes reviewing laws and regulations, shaping implementation processes, improving health services, and supporting watershed management development plans.

14 Partners for Resilience (PfR), supported by the Dutch Ministry of Foreign Affairs, is an alliance of the Netherlands Red Cross (lead agency), CARE Netherlands, Cordaid, the Red Cross/Red Crescent Climate Centre, and Wetlands International.

BSR is a global nonprofit organization that works with its network of more than 250 member companies and other partners to build a just and sustainable world. From its offices in Asia, Europe, and North America, BSR™ develops sustainable business strategies and solutions through consulting, research, and cross-sector collaboration.

Visit **www.bsr.org** for more information about BSR's more than 25 years of leadership in sustainability.