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CLIMATE CHANGE AND
PERSONS WITH DISABILITIES
IN THE ASEAN:

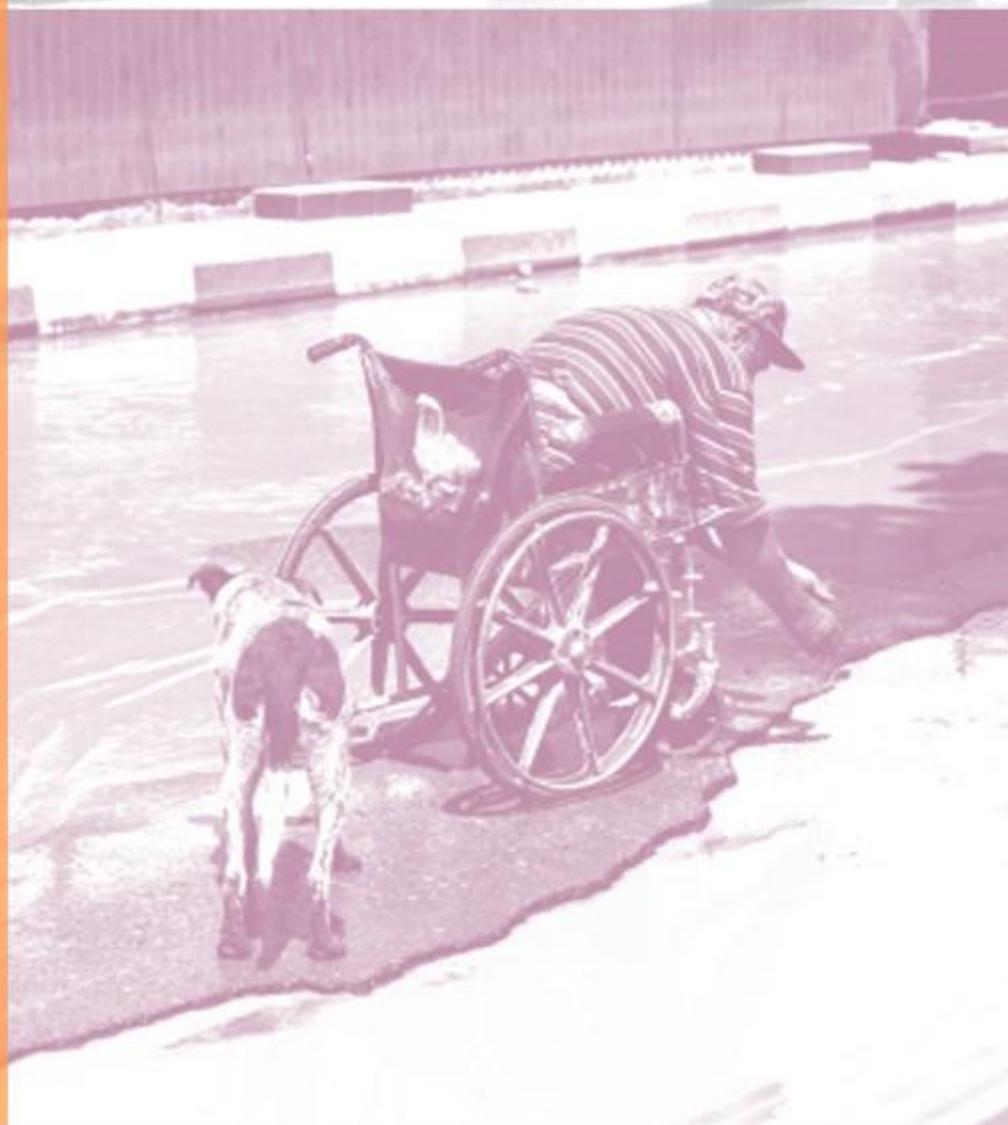
A REVIEW OF GAPS IN EXISTING CLIMATE POLICIES

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INTRODUCTION

The world is at the brink of a planetary crisis. Already, six out of the nine planetary boundaries have been crossed¹, which shows we are living outside of the safe operating space for humanity. This comes at the tail of the Intergovernmental Panel on Climate Change's Sixth Assessment Report (IPCC AR6) that "[t]here is a rapidly closing window of opportunity to secure a livable and sustainable future for all."

While climate change affects everyone, its impact varies in different magnitudes. Globally, developing countries have been facing adverse effects of climate change. For instance, countries like the Philippines, Pakistan, Thailand, and Somalia have all experienced different climate impacts for years - if not decades now - ranging from extensive periods of droughts to destructive typhoons. Due to economic resource immobility and inaccessibility, developing countries struggle with responding and recovering from the implications of climate change respectively. This does not disregard developed countries from simultaneously experiencing climate impacts such as the United Kingdom and Italy, who have also faced unprecedented climate-related events through severe flooding and prolonged heat waves. However, developed countries have comparatively greater access to proper technology, and research and development to provide for their entire community, especially for demographics who require specialized material or equipment during climate disasters.

In the ASEAN context, the region, mostly comprised of developing countries, remains greatly vulnerable when it comes to the impacts of climate change, especially marginalized communities such as Persons with Disabilities (PWDs). GermanWatch, a civil society organization aiming to influence public policy on the environment, recently released its Global Climate Risk Index Report and showed that three (3) of the ten countries most affected by climate change from the years 2000 to 2019 were from Southeast Asia; namely, Myanmar (2nd), the Philippines (4th), and Thailand (9th). Understanding the high vulnerability of the ASEAN and limited economic availability of resources accessible in the region, marginalized communities such as PWDs face the relatively harsher impacts of the climate crisis where their needs are not addressed immediately during both climate disasters and slow onset climate events.

¹ Richardson, K., Steffen, W., Lucht, W., Bendtsen, J., Cornell, S.E., Donges, J.F., Drüke, M., Fetzer, I., Bala, G., von Bloh, W., Feulner, G., Fiedler, S., Gerten, D., Gleeson, T., Hofmann, M., Huiskamp, W., Kummu, M., Mohan, C., Nogués-Bravo, D., Petri, S., Porkka, M., Rahmstorf, S., Schaphoff, S., Thonicke, K., Tobian, A., Virkki, V., Weber, L. & Rockström, J. 2023. Earth beyond six of nine planetary boundaries. *Science Advances* 9, 37.

To address climate change, in 2015, countries negotiated the Paris Agreement, the first international treaty on climate, where one of its goals is to limit the global temperature to 2C, with efforts to limit it further to 1.5C. Cognizant of country differences, the Agreement was to be “implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.”² This principle is further enshrined in Article 4 of the Paris Agreement, where country Parties are mandated to “prepare, communicate and maintain successive nationally determined contributions.”³ Ultimately, the Agreement is what will reflect the highest possible climate ambitions that countries will commit to and implement in their local plans, programs, and policies.

The year 2023 is the end of the first round of the global stocktake (GST) since the adoption of the Paris Agreement. This means that countries are expected to submit their updated Nationally Determined Contributions (NDCs) before the end of the year to monitor if each nation meets the temperature goals of the Agreement through programs and policy. The table below showcases ASEAN countries and the status of their NDCs:

Country	Version	Submission Date
Brunei Darussalam	1	31 December 2020
Cambodia	2	31 December 2020
Indonesia	3	23 September 2022
Lao People’s Democratic Republic	2	11 May 2021
Malaysia	2	30 July 2021
Myanmar	2	03 August 2021
Philippines	1	15 April 2021
Singapore	3	04 November 2022
Thailand	3	02 November 2022
Timor-Leste	2	08 November 2022
Vietnam	3	08 November 2022

Figure 1. NDC status of ASEAN countries as of October 2023. Data from the UNFCCC.⁴

²Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104. Part 2, Article 3

³Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104. Part 2, Article 4

⁴United Nations Climate Change. (n.d.). Nationally Determined Contributions Registry [Dataset].

https://unfccc.int/NDCREG?gclid=CjwKCAjwg4SpBhAKEiwAdyLwvKISUU-gs4odGG9BfxBxx4d69BBM_I\XbvSFVHFfIKDzku4Fr-2FF0wxoC6eUQA_vD_BwE

As ASEAN countries prepare to update their respective NDCs, it is important that their commitments reflect the needs and priorities of marginalized and vulnerable groups such as PWDs. The UNDESA estimates that “for every person who dies during a disaster, it is estimated that three people sustain an injury, many causing long-term disabilities.”⁵ It is therefore important that NDCs reinforce programs where PWDs may successfully benefit from while responding to climate change, whether it be through adapting or mitigating. In response to maintaining a sustainable environment, there is the need to include PWDs in their respective national and local policies and programs, not only to ensure their representation but to be consistent with the principle of climate justice. In the fight against climate crisis, *no one should be left behind*.

Thus, this workbook aims to contribute to the body of knowledge surrounding climate change and climate justice with a specific focus on Southeast Asia and persons with disabilities (PWDs). In order to fulfill this objective, the workbook is divided into five (5) main parts – (a) the science of climate change, (b) climate resilience, (c) climate justice, and (d) a deep-dive into, specifically, persons with disabilities in Southeast Asia and the need to include their perspectives, priorities, and needs in climate policy, and (e) policy recommendations and ways forward.

⁵ United Nations Department of Economic and Social Affairs. (n.d.). *Disability-inclusive humanitarian action*. United Nations. <https://www.un.org/development/desa/disabilities/issues/whs.html>

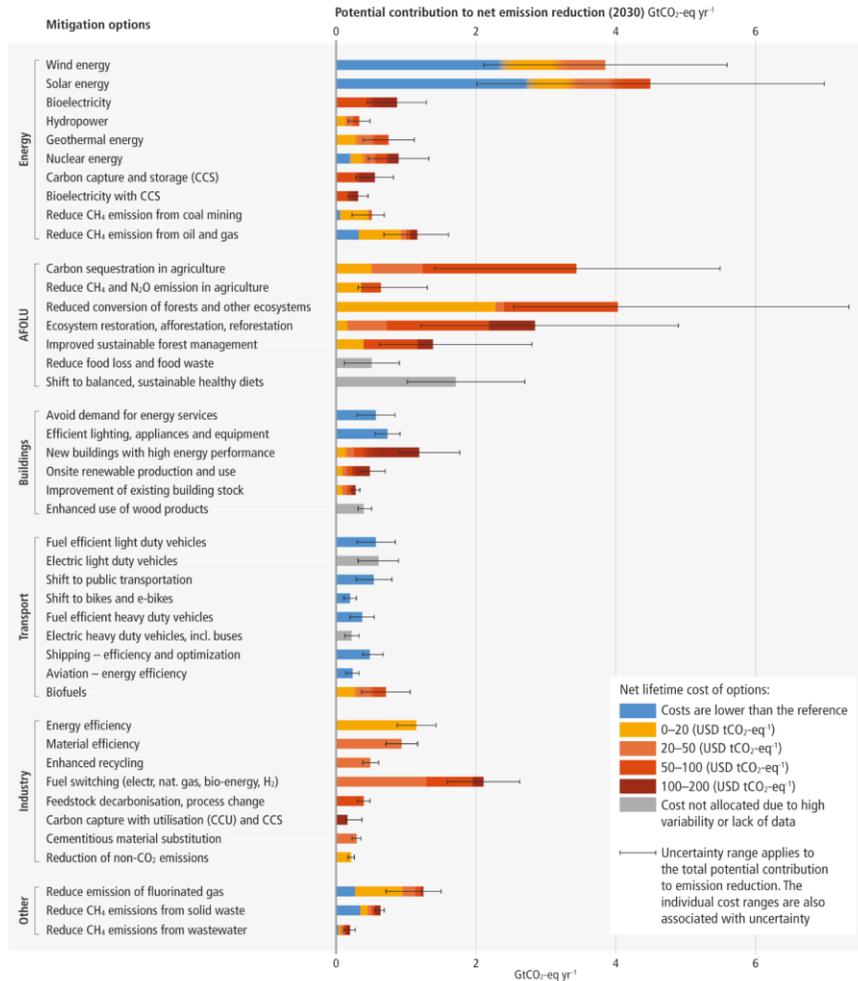
I. Climate Change

Due to human influence on climate change, the Intergovernmental Panel on Climate Change (IPCC) reports that global surface temperature has already reached 1.1°C above pre-industrial levels in 2011–2020. In Southeast Asia, this has already led to perceivable changes in climate averages and extremes: while mean temperature and warm days and nights have been increasing, wet days have been decreasing in number yet increasing in intensity. With further global warming, extreme events are projected to continue to increase both in terms of frequency and intensity. In Southeast Asia, climate impact drivers such as mean air temperature, extreme heat, heavy precipitation and pluvial flood, coastal flood and erosion, ocean acidity, marine heatwave, and relative sea level are all projected to increase with high confidence.

Within the next 20 years, the latest IPCC projections indicate that global surface temperature is expected to reach or exceed 1.5°C. Whether this overshoot remains temporary or becomes permanent will still depend on our ability to cut global CO₂ emissions in half by the 2030s, and achieve, as well as sustain, net negative emissions from the 2050s onwards. With this, the IPCC underscores the urgency of climate action, given the brief and rapidly closing window of opportunity to secure a livable future for all.

Every bit of warming counts, and every fraction of a degree of global warming that we can prevent through our choices and actions today will have lasting implications for hundreds of years to come. Fortunately, the IPCC also presents multiple, feasible and effective mitigation and adaptation options that are already available today (see Figure 2 below) and highlights how current global capital is already sufficient. Thus, political commitment, international cooperation, and adequate financing play a critical role in achieving effective and accelerated climate action.

Many options available now in all sectors are estimated to offer substantial potential to reduce net emissions by 2030. Relative potentials and costs will vary across countries and in the longer term compared to 2030.



Contribution of adaptation options to potentially successful adaptation and to the risk of maladaptation

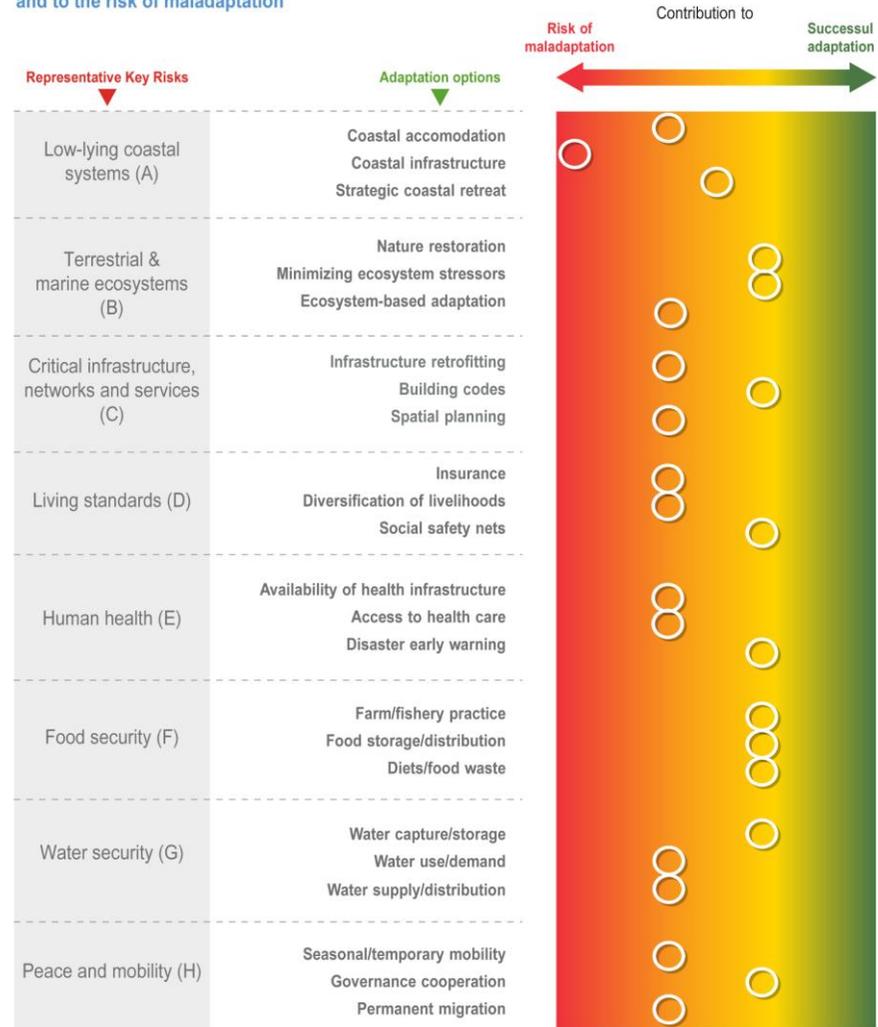


Figure 2. (left) IPCC AR6 - WGIII Figure SPM.7. Available mitigation options for significantly reducing GHG emissions by 2030. (right) IPCC AR6 - WGII Figure FAQ17.5.1. Examples of available adaptation options for various representative key risks, and their contribution to successful adaptation.

II. Climate Resilience

Climate action is not only limited to reducing the *causes* of climate change (i.e., mitigating greenhouse gas emissions), but dealing with its *effects* as well (i.e., adapting to rapidly escalating climate impacts, and addressing related losses and damages). Under the solutions framework proposed by the IPCC called “Climate Resilient Development”, mitigation and adaptation ultimately need to advance sustainable development *for all*. Aside from reducing climate risks, successful adaptation can be achieved when it also promotes equity outcomes and proves to be beneficial, especially for the most vulnerable groups including PWDs.

Given that the underlying drivers of climate vulnerability are mainly socio-economic in nature (e.g., poverty, poor health, lack of education, gender discrimination), reducing climate vulnerability and increasing adaptive capacity necessarily entail achieving sustainable development. The United Nations Sustainable Development Goals (SDGs, see Figure 3 below) provides the blueprint for achieving the triple bottom line of profit - planet - people, where the pursuit of climate action (SDG 13), conserving life on land (SDG 15), and below water (SDG 14) should promote affordable clean energy (SDG 7) and decent work and economic growth (SDG 8), while also alleviating poverty (SDG 1) and hunger (SDG 2). Indeed, the SDGs need to be taken as a *collective* to maximize synergies amongst each goal (including climate action) while minimizing trade-offs.

“proactive, rather than reactive adaptation is needed in order to prevent maladaptation resulting from the lack of a holistic approach towards tackling the climate problem”

With this, *proactive*, rather than reactive, adaptation is needed in order to prevent maladaptation resulting from the lack of a holistic approach towards tackling the climate problem. Furthermore, *transformational*, rather than incremental, adaptation is preferred to usher in system-wide changes warranted by the climate emergency.

Finally, to avoid the worst impacts of climate change, it is important to implement adaptation strategies with significant mitigation co-benefits – specifically those aimed at helping limit global warming below 1.5C. On one hand, recent studies show that exceeding the 1.5C limit set by the Paris Agreement could already trigger multiple climate tipping points, starting with the die-off of warm water coral reefs in the tropics, the collapse of Greenland and West Antarctic ice sheets, and the widespread and abrupt

thaw of permafrost.⁶ On the other hand, staying below 1.5C supports ecosystem-based adaptation strategies, where they can still remain effective in reducing climate risks. Beyond the 1.5C global warming level, ecosystems and their biodiversity become increasingly vulnerable to climate impacts – thus rendering ecosystem restoration critical and urgent. With this, the United Nations has declared this decade as the Decade on Ecosystem Restoration to protect ecosystems and their biodiversity and, at the same time, drive climate action, particularly ecosystem-based adaptation.⁷



Figure 3. United Nations 2030 Sustainable Development Goals

⁶ McKay, D. I. A., Staal, A., Abrams, J. F., Winkelmann, R., Sakschewski, B., Loriani, S., Fetzer, I., Cornell, S., Rockström, J., & Lenton, T. M. (2022). Exceeding 1.5°C global warming could trigger multiple climate tipping points. *Science*, 377(6611). <https://doi.org/10.1126/science.abn7950>

⁷ UN decade on restoration. (n.d.). UN Decade on Restoration. <https://www.decadeonrestoration.org/>

III. Climate Justice

Climate justice places an ethical and moral challenge to the ways we find solutions to the climate crisis. It “identifies climate change as a symptom of unfair and unrepresentative economic, social and political institutions”⁸ and has “emerged from the idea that historical responsibility for climate change lies with wealthy and powerful people – and yet it disproportionately impacts the most vulnerable.”⁹ A movement decades in the making, it “means putting equity and human rights at the core of decision-making and action on climate change.”¹⁰



A grade-school teacher in the Philippines prepares for a new school year in the middle of a flooded classroom. Climate change affects access to basic human rights, such as access to education.

⁸ What is meant by ‘climate justice’? - Grantham Research Institute on climate change and the environment. (2022, June 8). Grantham Research Institute on Climate Change and the Environment.

<https://www.lse.ac.uk/granthaminstitute/explainers/what-is-meant-by-climate-justice/>

⁹ Staff of Carbon Brief. (2022). In-depth Q&A: What is ‘climate justice’? *Carbon Brief*. <https://www.carbonbrief.org/in-depth-qa-what-is-climate-justice/>

¹⁰Climate change is a matter of justice – here’s why. (2023, June 30). UNDP Climate Promise. <https://climatepromise.undp.org/news-and-stories/climate-change-matter-justice-heres-why>

The impacts of climate change are diverse and numerous, and many of them are so overreaching and urgent that a new term has gained prominence in the last three (3) decades, dubbed “loss and damage.” While it does not yet have a working definition in the conventions, it is usually used to refer to those losses and damages that communities and countries can no longer adapt to because of certain limitations like funding. They are usually divided into two categories: economic loss and damage (ELD) and non-economic loss and damage (NELD). Economic loss and damage refers to things that can be valuated, including loss to business operations and destruction of property, while non-economic loss and damage are those losses and damages that cannot be quantified, including loss of cultural heritage and ecosystem services as a result of the climate crisis.

Displacement is an indicator of loss and damage, a loss or damage in itself, and a cause of loss and damage, according to the Loss and Damage Collaboration and Researching Internal Displacement¹¹. Forced displacement occurs when people are unable to cope with hazards and face risks that are beyond endurance when remaining in places that are becoming uninhabitable due to slow onset and extreme weather events. It is a climate justice issue in itself, as displacement robs people and communities of their liberty to choose where and how to live. According to the IPCC, displacement perpetuates socioeconomic vulnerability in the context of climate change.

¹¹ Loss and Damage Collaboration & Researching Internal Displacement. (Sept 2023). Loss and Damage and Displacement: Key Messages for the Road to COP 28. Retrieved from <https://www.lossanddamagecollaboration.org/stories/loss-and-damage-and-displacement-key-messages-for-the-road-to-cop-28>.

LOSS AND DAMAGE ASSOCIATED WITH THE IMPACTS OF CLIMATE CHANGE

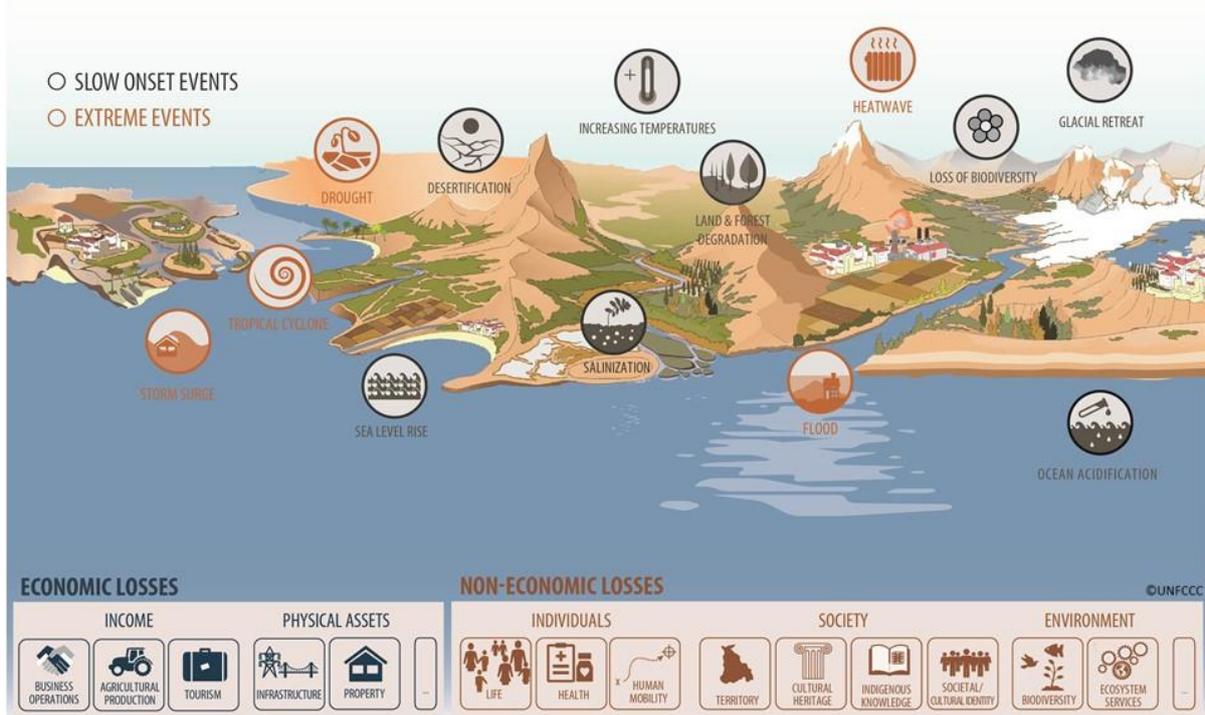


Figure 4. Impacts of climate change include both slow onset and extreme events that result in both economic and non-economic losses and damages. Credit: UNFCCC

In 2022, COP27 in Sharm el-Sheikh in Egypt became known as the “climate justice COP.” Finally, after decades, countries came together and did not just include loss and damage as an agenda item, but also agreed to create a Loss and Damage Fund (LDF) that could – if operationalized – be a source of money that vulnerable and low-income countries and communities can use after they experience the impacts of climate change. A Transitional Committee was also created; its job was to collate submissions and provide recommendations on how the Fund should look like, and how the Fund can become a mechanism that would prove to be helpful to those that would need it most.

If the Fund is operationalized, it will be a monumental win for climate justice. It will be a way for developing countries, and particularly vulnerable communities in these developing countries, to be able to recover, rehabilitate, and rebuild after they experience disasters caused by increasing global temperature levels.

Moreover, a very important group that is central to climate justice and loss and damage discussions are persons with disabilities (PWDs).

Already a vulnerable group because of existing limitations, the marginalization of persons with disabilities are amplified by climate change. They face heightened protection risks and barriers to inclusion, especially in areas that face a higher probability of forced displacement because of the increased frequency or intensity of extreme weather events.¹² Often, evacuation areas are not accessible to those with mobility concerns, and are not well-equipped to provide assistance for those with specific needs, such as signs in Braille as well as first responders who can communicate with those who are deaf or hard of hearing. In many cases, they are not given information in accessible formats on how to be involved in climate action and are also not included in emergency plans of action.¹³ Persons with disabilities are often among those most adversely affected in emergency situations, sustaining “disproportionately higher rates of morbidity and mortality, and at the same time being among those least able to have access to emergency support” with reports providing that they also face the interruption of the provision of assistive devices and aids, many of which their lives depended on, including respirations. Moreover, the lack of inclusion of PWD concerns in climate policies translates to a lack of response regarding provision of the following devices and equipment post-disaster:

- a. Mobility devices (wheelchairs, prosthesis, canes, including white canes);
- b. Hearing and communication devices
- c. Life-saving medication and equipment (e.g., Respirators)
- d. Elimination equipment (e.g., catheters, adult diapers)
- e. Equipment vital for communication for D/deaf, Blind and Deafblind individuals

Further, in emergency contexts, women and girls with disabilities were at greater risk of gender-based violence.

Apart from material necessities, climate change impacts also cause loss of accessible housing, separation from support animals, and loss of autonomy for PWDs, all of which can be considered noneconomic loss and damage.

Thus, it matters in the context of climate justice that persons with disabilities are to be imperative stakeholders. They must be able to meaningfully participate in disaster risk management and climate-related decision-making at all levels of governance, including occupying leadership positions.

Countries, for their part, need to make sure that their climate policies are inclusive and responsive, particularly to the needs and concerns of persons with disabilities. According to a study, persons with disabilities are being “systematically ignored” by governments around the world, even though they face particular risks.¹⁴ Very few countries include the

¹² UNHCR UK -. (2021, April.). *Disability, Displacement and Climate Change* | UNHCR UK. UNHCR UK. <https://www.unhcr.org/uk/media/disability-displacement-and-climate-change>

¹³ <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G20/353/67/PDF/G2035367.pdf?OpenElement>

¹⁴ Harvey, F. (2022, June 10). Disabled people being ‘systematically ignored’ on climate crisis, says study. *The Guardian*. <https://www.theguardian.com/environment/2022/jun/10/disabled-people-systematically-ignored-climate-crisis-study>

needs of persons with disabilities when they make plans for adaptation, and none mention PWDs in the mitigation programs. The Report, published in June 2022 by the McGill Centre for Human Rights and Legal Pluralism, the Disability Inclusive Climate Action Research Program (DICARP) at McGill University, and the International Disability Alliance emphasized the need for a disability rights approach to climate governance and stressed the importance of recognizing and protecting the substantive and procedural rights held by persons with disabilities in the development, implementation, monitoring, and evaluation of climate policies and programs.¹⁵ The Report ended with a list of suggestions that States should adopt to ensure that the rights of persons with disabilities are protected in the context of the climate crisis:

1. Adopt and implement ambitious measures to reduce greenhouse gas emissions in a manner compatible with maintaining the global temperature increase below 1.5 degrees Celsius above pre-industrial levels in order to limit the detrimental impacts of climate change on persons with disabilities;
2. Ensure the meaningful, informed, and effective participation of persons with disabilities in climate policy-making and decision-making processes;
3. Ensure that the rights of persons with disabilities are respected, protected, and fulfilled in the design, development, implementation, monitoring, and evaluation of climate policies;
4. Adopt and implement disability-inclusive climate change adaptation policies that enhance the resilience of persons with disabilities to different climate impacts;
5. Adopt and implement disability-inclusive climate change mitigation policies that enable persons with disabilities to contribute to, and benefit from, efforts to decarbonize societies;
6. Adopt an intersectional perspective towards disability-inclusive climate action that recognizes and addresses the multiple barriers faced by women with disabilities, children, Indigenous peoples, racialized individuals, and older adults; persons with disabilities living in poverty; and underrepresented groups of persons with disabilities, such as persons with intellectual disabilities, persons with psychosocial disabilities or persons with deaf blindness;
7. Adopt a disability-inclusive approach to international cooperation in the field of climate change; and
8. Support measures to ensure the meaningful inclusion of persons with disabilities and their human rights under the United Nations Framework Convention on Climate Change (UNFCCC), including in the context of climate-related education, capacity-building, training, and public participation and through a comprehensive set of measures to ensure that States adopt disability-inclusive solutions to the climate crisis.

¹⁵ McGill Centre for Human Rights and Legal Pluralism & International Disability Alliance. (2022, June). Status Report on Disability Inclusion in National Climate Commitments and Policies. <https://www.internationaldisabilityalliance.org>. https://www.internationaldisabilityalliance.org/sites/default/files/drcc_status_report_english_0.pdf

Reminder

At this juncture, it is important to note that even the term “**persons with disability**” casts a wide net. Disabilities range from visible disabilities (which can be noticed by an individual through the naked eye) to hidden or non-visible disabilities (NVDs), which are disabilities that are not immediately apparent. While the former category can include disabilities like hearing or visual impairments or cerebral palsy, the latter includes chronic illnesses and conditions that significantly impair normal, everyday living, such as debilitating pain, cognitive dysfunction which may or may not be caused by brain injury, mental health issues, and partial visual or hearing loss. Both categories of disabilities are valid and people living with both must be included in climate action policies.

Climate justice means that in the fight against the climate crisis and as we collectively envision and create a future that is adaptive to climate change, *no one gets left behind*.

The next section focuses on persons with disabilities in Southeast Asia. It will discuss the barriers that PWDs often face and impacts of climate hazards on PWDs. It will also look at best practices of other countries and how these countries have included persons with disabilities in their respective plans, priorities, and programs.

PERSONS WITH DISABILITIES IN SOUTHEAST ASIA

In the past decades, Southeast Asia (SEA) has been particularly prone to natural disasters such as typhoons, droughts, and cyclonic storm hazards, wherein the effects of these climatic disasters are further amplified due to income development gaps, regional distribution disparities and proper infrastructure.¹⁶ Due to this, from 2000 to 2019, the Global Climate Risk Index included in its ranking the nations Myanmar, Philippines, and Thailand as part of the top 10 countries most affected by climate change with a total average of losses in millions of USD 12,410.38 (Myanmar: 1512.11; Philippines: 3179.12; Thailand: 7719.15).



Figure 5. Global Climate Risk Index from the years 2000 to 2019.¹⁷

¹⁶ Chia, S.Y. 2013. The ASEAN Economic Community: Progress, Challenges, and Prospects. ADBI Working Paper 440. Tokyo: Asian Development Bank Institute. Available: <https://www.adb.org/publications/asean-economic-community-progress-challenges-and-prospects>

¹⁷ Germanwatch. (2021). *Global Climate Risk Index*. In https://www.germanwatch.org/sites/germanwatch.org/files/2021-01/cri2021_table_10_countries_most_affected_from_2000_to_2019.jpg

As of 2022, the Asia-Pacific region, including countries part of the Association of Southeast Asian Nations (ASEAN), has incurred an overall USD 80 billion worth of damage due to these natural calamities across the region, where flood and landslide disasters were more commonly occurring. From the rapid volatility of the global climate status, the Asia-Pacific Disaster Report (APDR) reported that social protection, housing, and health¹⁸ were some of the most impacted sectors during these climate disasters, affecting several vulnerable communities' livelihoods in the region.¹⁹

In the Asia-Pacific, 650 million individuals live with a disability and are 2-4 times more likely to become casualties during climate change and disasters due to poor contingency planning exclusive of PWD needs.²⁰ Similarly, the ASEAN region ultimately faces the same dire issue of crafting inclusive policies catered to aiding PWDs in need of basic resources and security aid.

¹⁸ Keaokiriya, P., Sivapuram, P., Rama, V., Binaya, K., & Shivakotiet, R. (2022). Disaster risk reduction in the ASEAN region: Understanding and assessing systematic risks of floods and landslides in a river basin context. In <https://www.undrr.org/quick/71656>

¹⁹ UN.ESCAP (2020). *The disaster riskscape across South-East Asia: key takeaways for stakeholders*. Retrieved from: <https://hdl.handle.net/20.500.12870/3952>.

²⁰Disability in Asia and the Pacific: THE FACTS. (2022). *United Nations ESCAP*.

I. Barriers experienced by PWDs

On a day-to-day basis, PWDs significantly experience several barriers to independent living, including physical, communicational, informational accessibility, and attitudinal barriers, which are further amplified during climatic disasters. To contextualize the discussion, the disaster cycle will be utilized, which involves four phases of emergency management: **Preparedness, Response, Recovery, and Mitigation**. Each barrier discussed will correspond to one or more phases in the disaster cycle; however, it is important to note that all these barriers can overlap with multiple stages of the disaster cycle.

A. Communication or informational accessibility barriers

Communication or Informational accessibility barriers are when PWDs are unable to fully communicate, understand, deliver, or receive information and utilize other ways to enact these. This applies to circumstances when PWDs with a speech coherence difficulty would require an intermediary/ assistive device or a PWD with hearing difficulty would need a translator to properly communicate with their environment. During disasters, PWDs with auditory impairments are unable to perceive nationwide media announcements, emergency sound alert systems, and evacuator alarms. On the other hand, PWDs with visual impairments cannot perceive visual signals and cues as to where to go for refuge (signal lights, emergency exits, corridor signs etc.) Due to the absence of alerting systems inclusive of PWDs, the demographic remains uninformed of incoming disasters, potential refuge centers, and mobility transit ways in case collateral debris obstructs the area. Ultimately, this interferes with the preparedness phase of the disaster cycle, which funnels into the issue of national disaster data gathering and its mode of dissemination to the public.

B. Physical barriers

Physical barriers are often used to describe PWD healthcare inaccessibility such as, but not limited to, the lack of diagnostic equipment and preventive services. Yet, the issue extends further to institutional infrastructure where the United Nations Convention on the Rights of Persons with Disabilities' (UNCRPD) regulatory recommendation for inclusive architecture has yet to be revisited.²¹ For example, the absence of tactile walking surface indicators (TWSI), color signages, and railways incapacitate PWDs with

²¹ Tesfaye, T., Woldesemayat, E. M., Chea, N., & Wachamo, D. (2021). Accessing Healthcare Services for People with Physical Disabilities in Hawassa City Administration, Ethiopia: A Cross-Sectional Study. *Risk management and healthcare policy*, 14, 3993–4002. <https://doi.org/10.2147/RMHP.S317849>

visual difficulty in navigating across roads or pavements independently. Similarly, the absence of ramps or elevators are also an issue, where PWDs with limited mobility are not given efficient travel accessibility.²² These are further amplified during climatic disaster evacuation when PWDs are unable to perceive any visual signals and cues as to where to go for refuge and evacuation or are unable to utilize stairway evacuation facilities. In evacuation centers themselves, poor accommodation furniture such as wheelchairs, and the lack of adaptive toilets and assistive devices (e.g., wheelchairs, crutches, orthopedic shoes, etc.) are also common challenges PWDs experience as a vulnerable demographic.²³ Here, physical barriers play an imperative role in the responsive phase of disaster management where facility accessibility can also potentially determine how quickly a community may progress to post-recovery.

C. Attitudinal barriers

Attitudinal barriers primarily focus on the external viewpoint of others on PWDs that may limit PWDs in several aspects. During disasters, these are much more exemplified when there is no exact legislation or program that caters to PWDs specifically. For instance, emergency healthcare and PWD negligence during disaster evacuation may be prompted as an issue due to surrounding stigma and the lack of education of health personnel on how to cater to the needs of a PWD patient. This lack of awareness and understanding on the needs of PWDs also leads to a lack of access to disaster-related services, resulting to institutionalization. Post-disaster institutionalization of PWDs may cause difficulties in community reintegration and being located by family and loved ones²⁴.

The quality of mitigation response of national governance towards PWDs is also highly impacted due to policies mostly centralized upon external demographics compared to the PWD population, wherein PWDs are ill-equipped with any resources to receive quality disaster care and management.

²² Alaa Bashiti, Asiah Abdul Rahim, Physical Barriers Faced by People with Disabilities (PwDs) in Shopping Malls, *Procedia - Social and Behavioral Sciences*, Volume 222, 2016, Pages 414-422, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2016.05.199>.

²³ Pakjoui, S., Aryankhesal, A., Kamali, M., & Seyedin, S. H. (2018). Experience of people with physical disability: Mobility needs during earthquakes. *Journal of education and health promotion*, 7, 80. https://doi.org/10.4103/jehp.jehp_40_18

²⁴ National Council on Disability. (2019). Preserving Our Freedom Ending Institutionalization of People with Disabilities During and After Disasters. Retrieved from https://ncd.gov/sites/default/files/NCD_Preserving_Our_Freedom_508.pdf.

II. Causes of poor PWD-inclusive disaster management

The [recent 2022 policy brief](#) held by the ASEAN Socio-Cultural Community (ASCC) Research and Development platform identified three resilience hindrances in the ASEAN during disasters, listed below:

1. Lack of institutional coherence
2. Lack of the use of frontier analysis and technologies
3. Limited scope of disaster finance and insurance

The lack of institutional coherence focuses on the lack of ASEAN institutions that supervise sectors other than disaster management, such as vulnerability assessments and relief transportation. For instance, in 2018, the Lao People's Democratic Republic (PDR) incurred USD 371.5 million worth of loss and damage costs from consecutive flooding disasters, caused by Tropical Storm Son-Tinh, the Xe Pien-Xe Nam Noy dam flash flood, and Tropical Storm Bebinca. The [2018 Lao PDR Post Disaster Needs Assessment](#) released that 57% of total losses were incurred from the agriculture sector and 40% were attributed to the transport sector, but did not include PWDs during consultation, excluding the PWD demographic in the recovery strategy of Lao PDR. This indicates that these statistics still do not magnify the 3.33% of PWDs located in rural areas without roads, 2.86% situated in rural areas with roads, and a vast majority of PWDs in ethnic groups.²⁵ A majority of Lao PDR PWDs are also situated in remote geographical areas where a significant percentage of loss and damage are incurred during the disasters, and the lack of monitoring bodies further incapacitates the nation's ability to identify PWD populations more susceptible to sectoral damage.

Correspondingly, the Lao PDR flooding disasters have also shown the lack of an inclusive supply chain during recovery such as in the reconstruction of infrastructure and buildings subsequent to these disasters. Within affected areas, service delivery and acquisition of rehabilitation material are unavailable and would require financial aid to physically deliver infrastructural material to several areas. PWDs would be highly vulnerable to the barriers imposed by the general process of rehabilitation, which would include communicating materials needed and requiring aid from an external body to reconstruct land due to physical barriers.

²⁵ *Towards better inclusion of People with Disability rights in Lao PDR.* (2020, December 18). UNFPA Lao People's Democratic Republic. <https://lao.unfpa.org/en/news/towards-better-inclusion-people-disability-rights-lao-pdr>

This further emphasizes the necessity of a proper institutional body to assist PWDs both nationally and internationally, as the population continuously remains negated during contingency and post-evacuative processes where PWDs still remain highly vulnerable.

As of 2022, intersectoral collaboration amongst institutions representing PWDs are not as prevalent in the ASEAN, despite the emergence of the Joint Task Force on Humanitarian Assistance and Disaster Relief (JTF-HADR), which was replaced by the ASEAN Disaster Resilience Platform in 2022. Although it is important to note that the platform had formulated the ASEAN Joint Statement on Strengthening Resilience to Disasters,²⁶ the statement still does not fully reflect a cohesive sentiment on institutions that may particularly improve PWD-inclusive/ specific risk assessments and rehabilitation.

On the contrary, researchers from the Unit for Environmental Sciences and Management, African Centre for Disaster Studies have argued that the support system for PWDs should be built on sustaining an increased capacity for PWDs rather than establishing more intermediaries.²⁷ However, despite the claim, they did not further expound on potential resolutions for increasing capacity.

²⁶ Association of Southeast Asian Nations. (2022, May 27). *ASEAN strengthens partnerships at the 7th Global Platform for Disaster Risk Reduction*. <https://asean.org/asean-strengthens-partnerships-at-the-7th-global-platform-for-disaster-risk-reduction/>

²⁷ Lunga, W., Pathias Bongo, P., van Niekerk, D., & Musarurwa, C. (2019). Disability and disaster risk reduction as an incongruent matrix: Lessons from rural Zimbabwe. *Jamba (Potchefstroom, South Africa)*, *11*(1), 648. <https://doi.org/10.4102/jamba.v11i1.648>

EWS Component	1 Risk Knowledge	2 Monitoring and warning service	3 Warning dissemination	4 Linkage to emergency response	5 Legal & policy aspect
COUNTRY					
Brunei Darussalam	4.44	5.56	4.17	3.33	3.33
Cambodia	4.44	6.67	5.00	3.33	3.33
Indonesia	7.78	8.89	8.33	7.50	6.67
Lao PDR	3.33	5.56	3.33	3.33	3.33
Malaysia	6.67	7.78	5.00	5.00	5.56
Myanmar	5.56	5.56	5.00	4.17	4.44
Philippines	7.78	8.89	8.33	8.33	6.67
Singapore	7.78	7.78	7.50	7.50	6.67
Thailand	7.78	7.78	6.67	5.00	6.67
Viet Nam	7.78	7.78	6.67	5.00	6.67

Source: Calculated by authors based on fulfilment to criteria and indicators in Table 4.1. Range of value is 0-10 (value expressed is normalized).

Table 4.4 Classification of Early Warning Components in ASEAN Member States

Figure 6. Functional Early Warning System (EWS) in ASEAN, in the AHA Centre, 2019, ASEAN Risk Monitor and Disaster Management Review (ARMOR), Jakarta: ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre). Available online: ahacentre.org/armor²⁸

On the other hand, the lack of frontier analysis and technologies centralizes on the lack of technologies to hold anticipatory warnings and facilitate resource mobility. This includes predictive data modelling systems to identify any nearby hazards, increasing the proximity of preparedness planning, emergency warning information and response. Several nations in the ASEAN utilize Early Warning Systems (EWS) yet aggregated data from the 2019 ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management’s (AHA Centre) Review showcase that not all of ASEAN have garnered an exemplary high performance in this aspect. For instance, Lao PDR remains the lowest-ranked country in the review whereas Cambodia and Brunei Darussalam were recommended to concentrate their early warning information into preparedness (see Figure 6).

²⁸ Susanto, J., Djalante, R., Cook, A., Kamal, A., Summa, Dipo., Adhityawarma, J., Dimailig, L., Bisru, M., Faisal, S., Malole, Y. 2019, Functional Early Warning System (EWS) in ASEAN, in the AHA Centre, 2019, ASEAN Risk Monitor and Disaster Management Review (ARMOR), Jakarta: ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre). Available online: ahacentre.org/armor#

The Indonesian Central Sulawesi Earthquake and tsunami also remain as a concrete example of the implications that accompany delayed emergency responses during common disasters in the ASEAN. In 2018, The Indonesian Tsunami Early Warning System released earthquake alerts that did not fully transmit to several areas due to non-functioning powerlines, destroyed detection units, and collaterally damaged infrastructure. The subsequent effects of the absence of transmitted early warning alerts and the disaster incurred up to 1.4 million casualties and USD 1.3 billion in losses,²⁹ wherein the statistics of PWDs' part of the population who were only given a very limited time window to evacuate due to delayed alerting remains unknown. The after-effects of the disaster primarily showcase the necessity of proper early warning systems to inform the public beforehand of a disaster where vulnerable communities such as PWDs are accounted for in the timing and delivery of early warning alerts.

In the ASEAN, there remains the absence of Dynamic Resource Optimization, rapid mobility, and Video Enabled Emergency Numbers (VEEN), satellite-based information, and aerial surveillance by Unmanned Aerial Vehicles (UAVs); all of which are integral in the data gathering and dissemination of disaster information to the public.

Lastly, the absence of finance and insurance leads to reduced accessibility to proper budgetary sourcing and provisions. In the ASEAN, disaster operations are largely dependent on governmental finance and budget and do not extend further towards contingent credit. For instance, Cambodia's Law of Disaster Management (DM) only establishes that the expenditure for the National Committee for Disaster Management (NCDM) be funded by the national budget but does not elaborate on insurance market penetration pre- and post-disaster.³⁰ This eventually causes an inflated liquidity rate, which is further amplified by restricted borrowing rates and inaccessibility to reinsurance markets.

²⁹ Vun, E. Y. C. T. H. D. M. J. S. P. J. (2023, August 7). Central Sulawesi disaster: An opportunity to strengthen road and bridge resilience in Indonesia? *World Bank Blogs*. <https://blogs.worldbank.org/transport/central-sulawesi-disaster-opportunity-strengthen-road-and-bridge-resilience-indonesia#:~:text=The%20magnitude%207.5%20earthquake%20and,3%20billion%20in%20economic%20losses>

³⁰ International Federation of Red Cross and Red Crescent Societies & United Nations Development Programme. (2017). Implementing the Law on Disaster Management in Cambodia: Developing Subsidiary Legislation. <https://www.ifrc.org>.

III. Impacts of climate hazards on PWDs

The several barriers PWDs would have to endure contribute to the community's vulnerability to larger issues incurred by disasters themselves. Listed below are primary issues PWDs would face that are statistically relevant within Southeast Asian nations; however, it is imperative to note that the impacts felt by PWDs may extend further outside of what is discussed.

A. Water scarcity and livelihood

The United Nations-Water (UN-W) describes water scarcity as an effect of increased demand and/or decreased water quality and quantity. In 2050, global water demand is expected to spike up to 20-30%, and its implications on SEA are expected to be amplified due to the region's increasing population and rapid industrialization. Across the region, water supply remains an issue with the continuous onset of long dry periods and no rainfall. Water shortages then often occur from increasing water demand and simultaneous diminishing supply.

During slow-onset events such as increasing global temperatures, water accessibility and supply are the first to be impacted across communities. For example, the Mekong River flows through five Southeast Asian countries (Myanmar, Lao PDR, Thailand, Cambodia, and Vietnam³¹) and partly supplies groundwater for these respective places. With the gradual increase of global temperatures, record low flows have been recognized for the second consecutive year in 2020, impacting Cambodia's fishing industry, and Lao PDR and Thailand's agricultural productivity³². This greatly impacts rural livelihood, especially for PWDs who rely on agricultural livelihood to fend for themselves. With water scarcity, PWDs' livelihoods are compromised, including their own health, especially understanding that they are more vulnerable to economic externalities alike.

³¹ Mekong River Commission (MRC). (n.d.). *Mekong Basin*. <https://www.mrcmekong.org/about/mekong-basin/>

³² Mekong River Commission (MRC). (2020, August 7). *Mekong countries urged to address low water flows: Mekong River Commission*. <https://www.mrcmekong.org/news-and-events/news/mekong-low-water-flows/>

B. Food insecurity

A vast majority of the ASEAN includes most of their PWD population within rural areas, such as Cambodia³³, Thailand³⁴, and the Philippines³⁵ between the years 2020-2022. Understanding that rural areas usually have poorer supply chains and infrastructure supporting agricultural land during a calamity, local crop yield is expected to decrease rapidly due to drought and flood, propagated by volatile climate temperature changes. Those PWDs who are unable to relocate temporarily would then have to endure a shortage of food supply due to lessened crop yield, increasing their susceptibility to malnutrition alongside their preexisting condition.³⁶ With the loss of a primary source of nutrition and a heightened morbidity and mortality rate, PWDs in rural areas are forced to face food insecurity for prolonged periods of time.³⁷

C. Post-disaster displacement

During climate disasters, PWDs are vulnerable to relocating to areas that are unable to provide them with the proper medical and assistive aid they require. PWDs left behind often are forced to move to urban areas due to slow restoration response or completely disrupted livelihood. This makes them more susceptible to permanently relocating to urban poverty-stricken areas where they are still equally exposed to more natural disasters and a lack of proper healthcare and basic facilities, including unsanitary utilities. This is evidently exemplified in the displacement number of individuals in the Philippines, reaching a number of 5,681,000 displaced individuals right next to Indonesia with 749,000, where relocation also developed into an issue for both nations.³⁸ Although there is no exact statistic to determine the number of PWDs displaced specifically, this still highly showcases that displacement still remains an issue in the developing nations of ASEAN where PWDs still are extremely vulnerable to forced displacement. People who live in long-term care facilities are systematically neglected in case of natural disasters, and PWDs face a similar, if not greater challenge as they are completely dependent of assistance from personnel that work in such institutions. They live isolated, oftentimes in inhuman conditions, and deprived from their freedom and autonomy. Displacement also

³³ Pov, S. (2021), "Education of Children with Disabilities in Cambodia: Trends, Collaborations, and Challenges", Semon, S.R., Lane, D. and Jones, P. (Ed.) *Instructional Collaboration in International Inclusive Education Contexts (International Perspectives on Inclusive Education, Vol. 17)*, Emerald Publishing Limited, Bingley, pp. 139-150. <https://doi.org/10.1108/S1479-363620210000017014>

³⁴ PROMOTING AN INCLUSIVE WORKPLACE FOR PERSONS WITH DISABILITIES IN THAILAND. (2022). UNDP.

³⁵ ENABLING THE DISABLED. (2020). *LABOR MARKET INTELLIGENCE REPORT, 1*.

³⁶ Lewis, D. L., & Bellard, K. B. (2012). Understanding Vulnerability and Building Resilience in a Changing World. *Disability and Climate Change*.

³⁷ Yarlaga, K. (2022, August 20). Climate Change Is a Double Blow for People With Disabilities - Health Policy Watch. *Health Policy Watch*. <https://healthpolicy-watch.news/climate-change-twofold-blow-for-disabled/>

³⁸ *Climate displacement & migration in Southeast Asia - Viet Nam*. (2023, February 28). ReliefWeb. <https://reliefweb.int/report/viet-nam/climate-displacement-migration-south-east-asia>

affects families and communities. Relocation may cause distress for the family and individuals that PWDs themselves look up on.

Post-disaster displacement also results to PWDs being institutionalized in centers, living facilities, nursing homes, and other types of institutions that may not be entirely appropriate to their needs³⁹. Disaster-related institutionalization happens when PWDs are forced to evacuate due to inadequate planning and support and non-existent services. In such situations, PWDs are left to look after and care for oneself despite being dependent. It is already difficult to adapt to new environments, and this difficulty is exacerbated by any form of impairment.

D. Other impacts

In addition to those already mentioned, PWDs face a multitude of other impacts that either arise, or are harder to adapt to, as a result of their existing vulnerabilities. In an ever-warming world, these impacts are made more apparent. Adverse health impacts, for instance, is one such consequence, both physical and mental. Health of individuals is intimately connected to the climate in which they live, and therefore changes in the climate will pose new challenges and risks to the population. Changes in climate can also introduce new diseases which will further increase the vulnerabilities of PWDs, such as what has been witnessed at the height of the COVID-19 pandemic, which have led to (1) higher rates of infection and death, (2) less access to healthcare and information, (3) worsened mental health, (4) increased gender-based violence, and (5) inaccessible remote-learning, among others.⁴⁰

³⁹ National Council on Disability. (2019). (rep.). *Preserving Our Freedom Ending Institutionalization of People with Disabilities During and After Disasters*. Retrieved from https://ncd.gov/sites/default/files/NCD_Preserving_Our_Freedom_508.pdf.

⁴⁰Crosta, N., and A. Sanders (2021), 'Overview: Disability in the ASEAN Region', in Crost, N. and A. Sanders (eds.), *Social Enterprises and Disability: Fostering Innovation, Awareness and Social Impact in the ASEAN Region*. ERIA Research Project Report FY2021 No. 12, Jakarta: ERIA, pp.1-7.

	Climate Driver	Exposure	Health Outcome	Impact
 Extreme Heat	More frequent, severe, prolonged heat events	Elevated temperatures	Heat-related death and illness	Rising temperatures will lead to an increase in heat-related deaths and illnesses.
 Outdoor Air Quality	Increasing temperatures and changing precipitation patterns	Worsened air quality (ozone, particulate matter, and higher pollen counts)	Premature death, acute and chronic cardiovascular and respiratory illnesses	Rising temperatures and wildfires and decreasing precipitation will lead to increases in ozone and particulate matter, elevating the risks of cardiovascular and respiratory illnesses and death.
 Flooding	Rising sea level and more frequent or intense extreme precipitation, hurricanes, and storm surge events	Contaminated water, debris, and disruptions to essential infrastructure	Drowning, injuries, mental health consequences, gastrointestinal and other illness	Increased coastal and inland flooding exposes populations to a range of negative health impacts before, during, and after events.
 Vector-Borne Infection (Lyme Disease)	Changes in temperature extremes and seasonal weather patterns	Earlier and geographically expanded tick activity	Lyme disease	Ticks will show earlier seasonal activity and a generally northward range expansion, increasing risk of human exposure to Lyme disease-causing bacteria.
 Water-Related Infection (<i>Vibrio vulnificus</i>)	Rising sea surface temperature, changes in precipitation and runoff affecting coastal salinity	Recreational water or shellfish contaminated with <i>Vibrio vulnificus</i>	<i>Vibrio vulnificus</i> induced diarrhea & intestinal illness, wound and bloodstream infections, death	Increases in water temperatures will alter timing and location of <i>Vibrio vulnificus</i> growth, increasing exposure and risk of water-borne illness.
 Food-Related Infection (<i>Salmonella</i>)	Increases in temperature, humidity, and season length	Increased growth of pathogens, seasonal shifts in incidence of <i>Salmonella</i> exposure	<i>Salmonella</i> infection, gastrointestinal outbreaks	Rising temperatures increase <i>Salmonella</i> prevalence in food; longer seasons and warming winters increase risk of exposure and infection.
 Mental Health and Well-Being	Climate change impacts, especially extreme weather	Level of exposure to traumatic events, like disasters	Distress, grief, behavioral health disorders, social impacts, resilience	Changes in exposure to climate- or weather-related disasters cause or exacerbate stress and mental health consequences, with greater risk for certain populations.

Figure 7. While not specific to Southeast Asia, this figure shows the examples of climate impacts on human health

IV. Frameworks catered to disabled communities

A. Convention on the Rights of Persons with Disabilities (CRPD)

Adopted in 2006, the CRPD remains the key regulatory framework for ASEAN to utilize in protecting PWDs. The treaty includes the propagation of the utilization of logistical and accessible facilities, including PWD-friendly warning systems that should be integrated within state environments, mobility entities and intermediaries to aid PWDs, and basic social protection; all of which are applicable during climate change and disaster management.

Processing this framework, an anticipatory yield of action in executing the sentiment of the treaty would be viable as most of the region is based and specialized in agriculture.

The [anticipatory approach](#) involves three fundamental steps:

1. Risk information, forecasting, and early warning systems
2. Planning, operations, and delivery
3. Pre-arranged finance

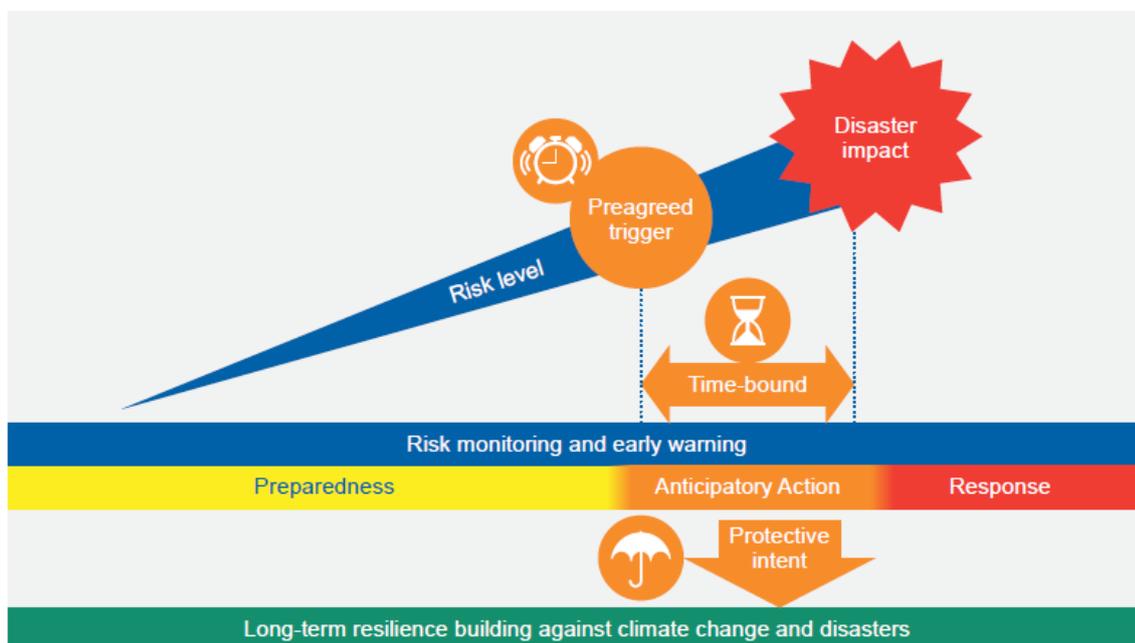


Figure 8. Key Characteristics of Anticipatory Action

B. Dhaka Declaration of 2015

Many organizations have been advocating for the inclusion of persons with disabilities in disaster risk reduction strategies, in line with the Sendai Framework for DRR⁴¹ and its guiding principle of all-of-society engagement and partnership. Priority 4 of the Sendai Framework explicitly calls for the empowerment of PWDs to lead and promote accessible DRR strategies, recognizing the large role they play in risk assessment and planning tailored to specific requirements. Following this, the Dhaka Declaration of 2015⁴² aims to advance disability-inclusive responses through increasing the participation of PWDs and Disabled Peoples Organizations (DPOs) in decision-making. It calls for the implementation of a human-rights based approach (specifically the principles of the United Nations Convention on the Rights of Persons with Disabilities or UNCRPD⁴³) to ensure the “participation, inclusion and leadership” of PWDs in DRR programs and processes. Furthermore, all-of-society’s work towards implementing the Sendai Framework — particularly Priority 4 — need to be increased, including through the identification of a focal point for inclusive DRR per country. As an important component of implementing the Sendai Framework, an effective mechanism for collecting data (including disability disaggregated data) pre- and post-disaster also needs to be established, which can then be used for creating early warning systems and disaster preparedness plans that are accessible by all. Finally, efforts towards disability-inclusive responses need to be rooted in Sustainable Development, through which all kinds of barriers to the self-reliance and resilience of PWDs can be removed. Advocacy for disability-inclusive DRR continues today against the background of increasing climate risk especially from extreme events, which disproportionately affect the world’s poor and in particular the majority of PWDs who live below the poverty line. This important advocacy work needs to be shared not only by DPOs, focal points and concert government agencies, but all-of-society based on an understanding that inclusion builds the resilience not only of people in vulnerable situations but of the whole of society. That is, without inclusion, it is not possible to achieve true resilience for everyone.

⁴¹ UNISDR (2015). Sendai Framework for Disaster Risk Reduction 2015-2030 (p. 32). United Nations Office for Disaster Risk Reduction (UNISDR).

⁴² Dhaka Conference on Disability and Disaster Risk Management. (n.d.). Dhaka. Retrieved from <https://globalplatform.undrr.org/sites/default/files/2022-04/The%20Dhaka%20Declaration%20on%20Disability%20and%20DRM.pdf>.

⁴³ United Nations Department of Economic and Social Affairs. (n.d.-a). *Convention on the rights of persons with disabilities*. United Nations. <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/convention-on-the-rights-of-persons-with-disabilities-2.html>

C. Other frameworks

Additional frameworks that can be utilized to draft PWD-inclusive policies include the Incheon Strategy, the Social Model of Disability in Shelter Management, the Sphere Humanitarian Charter and Minimum Standards in Humanitarian Response (which included commitment to disability inclusion in 2011), and the Sendai Framework for Disaster Risk Reduction agreed into during the 2016 World Humanitarian Summit (which endorsed the Charter on Inclusion of Persons with Disabilities in Humanitarian Action). The ASEAN Agreement on Disaster Management and Emergency Response (AADMER) is also a valuable resource.

V. Policies for the Anticipatory Framework

A. Japan

The following Act primarily addresses the issue of lacking frontier analysis and technologies wherein the first phase of the anticipatory approach on risk information, forecasting, and early warning systems is efficiently executed:

The Act Concerning Promotion of Project for Facilitation of Use of Telecommunications by People with Disabilities Contributing to Improved Convenience of People with Disabilities (Act No. 54 of 1993)

The Act is concerned upon managing communication barriers towards PWDs during climate disasters such as closed captioning, sign-language interpreters, and explanatory broadcasting. This is utilized to signal and inform PWDs beforehand together with the general public on any approaching natural disasters that may gravely impact affected areas.

The Act also supplements the NET 119 report system, where PWDs with both hearing and speech impairments are able to contact operators online via chat for immediate emergency response.

B. Singapore (BASED ON THE [ASEAN Baseline Report](#))

The codes listed are mainly focused upon the planning, operations, and delivery aspect of the Anticipatory framework, where Singapore successfully showcases its contingency management planning catered to PWDs. These codes are not specifically inclined to Climate impacting PWDs solely, but exemplify successful implementation of

PWD inclusion in any emergency operation - applicable for other nations to additionally implement in their own contingency management policies. Other policies are stated within the Baseline report, including mentions of staff training in administering aid to PWDs, PWD-friendly Emergency Helpline systems, and smart transportation systems for a quicker evacuative response.

The Fire Code (2018)

The Fire Code mainly specializes upon fire precautions rather than climate hazards, but still contains exemplary risk and contingency management solutions applicable to PWDs and climate hazards.

In Chapter 2.4, the code mentions communication provisions through voice communication devices and distress buttons within local buildings, which also includes PWDs participating in public risk information in case an emergency may occur. The code also stated the presence of Custodian care facilities, which are healthcare facilities specifically catered to PWDs. The code delineates that PWD placement utilities will be separate from a normal evacuation center wherein each floor will be designated to a specific category of disability to properly address the health concerns per PWD. Chapter 4.1 also mentions fire safety provisions for PWDs, where evacuation protocols for buildings with and without evacuation lifts are listed and the construction of PWD holding points with sufficient handrails, ramps, and wheelchair stairlifts are prioritized. Here, the code sufficiently showcases potential solutions that may be implemented during climate hazards, as fire emergencies still considerably incur similar information management and displacement issues compared to climate hazards.

The Code on Accessibility in the Built Environment by the Building and Construction Authority (BCA)

The code pivots across all infrastructural aspects to benefit PWDs in menial activities such as building and restroom accessibility, transport aid, passenger boarding points, and sanitary wheelchair transfer. This includes accessible toilet utilities provided for PWDs wherein one in five toilets are engineered to be ambulant and elevator lifts to aid PWDs in mobility, whether for day-to-day activities or emergencies.

The Building Control Act of 1989

The code mostly centralizes on corporate regulations in infrastructure construction but is vague upon what specific utilities should be implemented. However, it is notable that Part 3A 22D in the code states buildings should remain up to par with a performance requirement to facilitate the needs of PWDs in its listed building regulations. This allows the prevention of poorly constructed buildings which may inhibit the response time of personnel and evacuation of PWDs as well as assurance that all buildings maintain sanitary facilities to cater to PWDs.

C. The Republic of Uzbekistan

The following discussion mainly focuses on financial data gathered rather than a particular policy, but would provide insight on the implications of increasing and efficiently allocating disaster funds towards PWDs within the sector. This may provide a baseline for ASEAN nations to understand budgetary considerations in disaster management and the implications of social protection and insurance for PWDs subsequently.

On the Rights of Persons with Disabilities (2020)

The Asian Development Bank's (ADB) 2021 Brief on Disability and Social Protection in Asia mentions that the social protection of disabled individuals heavily relies on cash benefits to aid income security, accessible services, and reasonable education and employment support; all of which are interlinked together by finance and budgetary consideration.

In 2018, Uzbekistan was ranked by the ADB as the top contributor toward social protection expenditures for PWDs in Asia wherein the nation allocated 16.48% of its overall social protection to disabled individuals. This is highly correlated to its legislation wherein it emphasizes its state budget to be the financial provider towards rehabilitation programs, technical rehabilitation services, additional local safeguards, and interpreters compared to other nations that lack adequate budgetary considerations in their social protection policies for disabled individuals specifically. These are well applicable to climate hazards where clean water services, elderly aid, and [facility management](#) are sufficiently funded for in the long run by the government, rather than as only an immediate response to disaster.

Based on the findings on resolving the lack of finance and insurance in ASEAN countries, the Republic of Uzbekistan may be used as a baseline for formatting proper social protection programs and insurance for PWDs. However, it is recommended to extend further to national contingent credit to diversify the national insurance portfolio.

WAYS FORWARD:

ASEAN POLICY RECOMMENDATIONS VIS-A-VIS PERSONS WITH DISABILITIES

ASEAN is currently facing a great opportunity to ensure that the climate policies of its member states are aligned with the Paris goal, while also making sure that these climate policies are inclusive and allow for participatory governance.

While it is difficult to look at specific country policies, the authors looked at country NDCs and NAPs, where available, to look at whether ASEAN countries have included PWDs in their respective climate action plans. While mere mention of the term “PWD” or “Persons with Disability/ies” or the lack thereof are not categorical proof of whether the countries indicated have PWD-inclusive policies, there still is value in looking at these documents and seeing the breadth of the coverage of these plans.

Country	Explicitly mentioned PWDs/ vulnerable groups in particular?	Remarks (NDCs)	Remarks (NAPs)
Brunei Darussalam	No	However, the NDC ⁴⁴ made mention of the fact that there are health impacts on children and elderly with pre-existing medical conditions.	Brunei Darussalam’s National Adaptation Framework and priorities under the Strategic National Action Plan for Disaster Risk Reduction (SNAP) do not explicitly state PWD inclusive policies, but aims to “reduce vulnerability” across key sectors of development activity ⁴⁵
Cambodia	Yes ⁴⁶ The Foreword makes mention of paying particular attention to gender and vulnerable groups, so that adaptation and mitigation actions contribute to a more inclusive society.	The table on enabling actions mentioned the need to enhance coordination and the implementation of accountability mechanisms to reduce the vulnerabilities of disadvantaged women and other marginalized groups, including PWDs Moreover, it mentioned that “[d]ifferent social groups experience climate vulnerability differently, and women, children, the disabled, the elderly and other socially marginalized groups are often hit harder.”	Cambodia, by far, is the only Southeast Asian country that has submitted their National Adaptation Plan to the UNFCCC Secretariat. The process of creating their NAP involved the development of communication specifically for PWDs, participation of PWDs in workshops for the formulation of inclusion/ accessibility plans, and participation in climate change trainings ⁴⁷

⁴⁴ Brunei Darussalam Nationally Determined Contribution (NDC) 2020. (2020). In <https://unfccc.int/>.

⁴⁵ Brunei Darussalam’s Initial National Communication Under the United Nations Framework Convention on Climate Change <https://unfccc.int/sites/default/files/resource/brnnc1.pdf>

⁴⁶ Cambodia’s Updated Nationally Determined Contribution. (2020). In <https://unfccc.int/sites/>. The General Secretariat of the National Council for Sustainable Development/Ministry of Environment, the Kingdom of Cambodia.

⁴⁷ Establishing an Evidence-Based National Adaptation Plan (NAP) process at National and Subnational Scales in Cambodia Phase 1 (2020). (Proposal). In <https://www.greenclimate.fund/sites/default/files/document/cambodia-dcc-nap-7-july-2022.pdf>

Country	Explicitly mentioned PWDs/ vulnerable groups in particular?	Remarks (NDCs)	Remarks (NAPs)
Indonesia	Yes, termed “persons with different abilities” ⁴⁸ However, there are many mentions of ensuring the provision for the needs of vulnerable groups	In the discussion of National Context, Indonesia says that it respects, promotes, and considers its obligations on human rights and the other rights of persons with different abilities	Indonesia’s National Adaptation Plan in 2019 explicitly states that “vulnerable groups” need to be considered by the four clusters of adaptation strategies (capacity building, infrastructure, climate-proof technology, and CCA governance) ⁴⁹
Lao People’s Democratic Republic	No	Made mention of disadvantaged groups ⁵⁰ and vulnerable communities	Lao PDR’s National Adaptation Programme of Action to Climate Change in 2009 made no mention of PWDs ⁵¹
Malaysia	No	Made mention of the need to include and mainstream gender, youth, and vulnerable groups in adaptation and disaster risk reduction programs ⁵²	Malaysia’s NAP is currently under development.

⁴⁸ Enhanced Nationally Determined Contribution Republic of Indonesia. (2022). In <https://unfccc.int/sites/>. <https://unfccc.int/sites/default/files/NDC/2022-09/ENDC%20Indonesia.pdf>

⁴⁹ Ministry of National Development Planning/ National Development Planning Agency (Bappenas) (2019). National Adaptation Plan Executive Summary. In <https://lcdi-indonesia.id/wp-content/uploads/2020/05/Executive-Summary-NAP.pdf>

⁵⁰ Laos People’s Democratic Republic. (2020). In <https://unfccc.int/sites/>. <https://unfccc.int/sites/default/files/NDC/202206/NDC%202020%20of%20Lao%20PDR%20%28English%29%2C%2009%20April%202021%20%281%29.pdf>

⁵¹ Lao People’s Democratic Republic (2009). NATIONAL ADAPTATION PROGRAMME OF ACTION TO CLIMATE CHANGE. In <https://www.undp.org/laopdr/publications/national-adaptation-programme-action-climate-change>

⁵² MALAYSIA’S UPDATE OF ITS FIRST NATIONALLY DETERMINED CONTRIBUTION. <https://unfccc.int/sites/> p12. <https://unfccc.int/sites/default/files/NDC/2022-06/Malaysia%20NDC%20Updated%20Submission%20to%20UNFCCC%20July%202021%20final.pdf>

Country	Explicitly mentioned PWDs/ vulnerable groups in particular?	Remarks (NDCs)	Remarks (NAPs)
Myanmar	Yes, with the term “disabled”	Made mention of the government’s efforts in improving the collection of data on loss and damage and archiving the same, as well as the fact that a large proportion of those affected are women, children, the elderly, and disabled ⁵³	Myanmar’s National Adaptation Programme of Action (NAPA) to Climate Change (2012) made no explicit mention of PWDs ⁵⁴
Philippines	Yes, termed “differently abled”	Philippines NDC made mention of the importance of meaningful participation of women, children, youth, persons with diverse sexual orientation and gender identity, differently abled, indigenous peoples, elderly, local communities, etc.	The priority of the Human Security agenda of the National Climate Change Action Plan (NCCAP) is “to reduce risks of men and women and other vulnerable groups (children, elderly and persons with disability, etc.) from climate and disasters” ⁵⁵
Singapore	No	NDC made mention to engage stakeholders, but did not mention PWDs ⁵⁶	Singapore’s Fifth National Communication – which includes their first Adaptation Communication made no explicit mention of PWDs ⁵⁷

⁵³ The Republic of the Union of Myanmar NATIONALLY DETERMINED CONTRIBUTIONS. (2021, July). <https://unfccc.int/sites/>. p77.

<https://unfccc.int/sites/default/files/NDC/2022-06/Myanmar%20Updated%20%20NDC%20July%202021.pdf>

⁵⁴ National Environmental Conservation Committee, Ministry of Environmental Conservation and Forestry (2012). Myanmar’s National Adaptation Programme of Action (NAPA) to Climate Change. In <https://unfccc.int/resource/docs/napa/mmr01.pdf>

⁵⁵ Climate Change Commission Philippines. National Climate Change Action Plan (NCCAP). In <https://climate.emb.gov.ph/wp-content/uploads/2016/06/NCCAP-1.pdf>

⁵⁶ SINGAPORE’S SECOND UPDATE OF ITS FIRST NATIONALLY DETERMINED CONTRIBUTION (NDC) AND ACCOMPANYING INFORMATION. <https://unfccc.int/sites/>. p6., <https://unfccc.int/sites/default/files/NDC/2022-11/Singapore%20Second%20Update%20of%20First%20NDC.pdf>

⁵⁷ National Environment Agency (2022). Singapore’s Fifth National Communication and Fifth Biennial Update Report. In <https://unfccc.int/sites/default/files/resource/Singapore%20-%20NC5BUR5.pdf>

Country	Explicitly mentioned PWDs/ vulnerable groups in particular?	Remarks (NDCs)	Remarks (NAPs)
Thailand	No	However, it was mentioned that the National Adaptation Plan was developed through a participatory process which included talking to relevant stakeholders including vulnerable groups ⁵⁸	Thailand has completed the first draft of their NAP in 2017. Climate adaptation is included in Thailand National Strategy 2018 – 2037, but made no explicit mention of PWDs in relation to climate change adaptation ⁵⁹
Timor-Leste	No	But in many instances makes mention of the need to include and enhance the resiliency of vulnerable communities ⁶⁰	Timor-Leste’s National Adaptation Plan was submitted to the UNFCCC last March 2021. The NAP identifies “vulnerable groups” (e.g., women, persons with disabilities, youth, elderly, rural and urban poor) as a priority sector. The NAP shall “Identify pathways to build resilience and adaptive capacity among the most vulnerable groups” ⁶¹

⁵⁸ Thailand’s 2nd Updated Nationally Determined Contribution. <https://unfccc.int/sites/>. p5.

<https://unfccc.int/sites/default/files/NDC/202211/Thailand%202nd%20Updated%20NDC.pdf>

⁵⁹ Thailand National Strategy 2018 – 2037 (2018). In https://www.sme.go.th/upload/mod_download/download-20201012111719.pdf

⁶⁰ Nationally Determined Contribution Timor-Leste 2022-2030. <https://unfccc.int/sites/>.

https://unfccc.int/sites/default/files/NDC/202211/Timor_Leste%20Updated%20NDC%202022_2030.pdf

⁶¹ DEMOCRATIC REPUBLIC OF TIMOR LESTE Secretariat of State for Environment, Coordinating Minister for Economic Affairs (2021). TIMOR-LESTE’S NATIONAL ADAPTATION PLAN Addressing climate risks and building climate resilience. In <https://www4.unfccc.int/sites/NAPC/Documents/Parties/Timor%20Leste%20NAP.pdf>

Country	Explicitly mentioned PWDs/ vulnerable groups in particular?	Remarks (NDCs)	Remarks (NAPs)
Vietnam	Yes, termed “people with disabilities” or “people with chronic illnesses”	Makes mention of the need to update the assessments of impacts of climate change on people with disabilities, as well as the fact that “[t]he poor, ethnic minority groups, people whose livelihoods depend on climate, and the elderly, women, children, and people with chronic illnesses are those with the highest level of vulnerability.” ⁶²	Vietnam’s National Adaptation Plan (2021-2030) explicitly recognizes that PWDs are affected by climate change and that resources must be allocated for them to actively and effectively adapt to climate change. ⁶³

Figure 9. PWDs in country NDCs and NAPs

⁶² SOCIALIST REPUBLIC OF VIET NAM NATIONALLY DETERMINED CONTRIBUTION (NDC) (UPDATED IN 2022). <https://unfccc.int/sites/>. p13. <https://unfccc.int/sites/default/files/NDC/2022-11/Viet%20Nam%20NDC%202022%20Update.pdf>

⁶³ THE SOCIALIST REPUBLIC OF VIET NAM MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT (2022). NATIONAL ADAPTATION PLAN FOR THE PERIOD 2021-2030, WITH A VISION TO 2050. In <https://www.undp.org/vietnam/publications/national-adaptation-plan-period-2021-2030-vision-2050>

The next figure will lay down the main policies and laws that each ASEAN country has with regard to climate change. While the authors did not look into each of these policy instruments individually, they posit that these instruments (as well as subsequent ones) can always benefit from reviews to ensure that they are inclusive of marginalized groups, including persons with disabilities. However, it is to be noted that this is not an exhaustive list (most of which data have been culled from the respective countries' NDCs):

Country	Laws and Policies on Climate
Brunei Darussalam	<ul style="list-style-type: none"> ● Brunei National Climate Change Policy 2020
Cambodia	<ul style="list-style-type: none"> ● Cambodia National Strategic Development Plan 2019-2023 ● Cambodia Climate Change Strategic Plan 2014-2023 ● Land Law (2001) ● Forest Law (2002) ● Protected Areas Law (2008) ● National REDD+ Strategy 2017-2021 ● Cambodia's Sustainable Development Goals 2016-2030 ● National Strategic Plan on Green Growth 2013-2030 ● Rectangular Strategy IV (2018) ● National Environmental Strategy and Action Plan 2016-2023
Indonesia	<ul style="list-style-type: none"> ● National Medium-Term Development Plan 2020-2024 ● Law on National System for Science and Technology ● Visi Indonesia 2045
Lao People's Democratic Republic	<ul style="list-style-type: none"> ● 8th National Socio-Economic Development Plan 2016-2020 ● National Green Growth Strategy to 2030 ● Ten-Year Natural Resources and Environment Strategy 2016-2025 ● Urban Development Strategy to 2030 (draft) ● Agriculture Development Strategy to 2025 and Vision to 2030 ● Strategy on Climate Change and Health Adaptation 2018-2025 and Action Plan 2018-2020 ● Disaster Risk Management Law 2019 ● 2019 Decree on Climate Change ● 2010 National Strategy on Climate Change
Malaysia	<ul style="list-style-type: none"> ● Eleventh Malaysia Plan 2016-2020 and Twelfth Malaysia Plan 2021-2025 ● Water Sector Transformation 2040
Myanmar	<ul style="list-style-type: none"> ● Myanmar Sustainable Development Plan 2018-2030 ● National Environmental Policy 2019 ● Myanmar Climate Change Policy 2019

Country	Laws and Policies on Climate
	<ul style="list-style-type: none"> ● Myanmar Climate Change Strategy 2018-2030 ● Myanmar Climate Change Master Plan 2018-2030
Philippines	<ul style="list-style-type: none"> ● Climate Change Act 2009, as amended by Republic Act No. 10174 ● National Framework Strategy on Climate Change 2010-2022 ● National Climate Change Action Plan 2011-2028 ● Philippine Development Plan 2017-2022 ● Philippine Energy Plan 2018-2040 ● Philippine National Security Policy 2017-2022 ● National Climate Risk Management Framework 2019 ● Sustainable Finance Policy Framework 2020
Singapore	<ul style="list-style-type: none"> ● Singapore Green Plan 2030 ● National Climate Change Strategy 2012 ● Sustainable Singapore Blueprint 2015 ● Singapore's Climate Action Plan: Take Action Today, for a Sustainable Future 2016 ● Charting Singapore's Low-Carbon and Climate Resilient Future (2020, updated 2022)
Thailand	<ul style="list-style-type: none"> ● 13th National Economic and Social Development Plan 2023-2027 ● National Energy Plan Framework 2022 ● Climate Change Master Plan B.E. 2558-2593 (2015-2050) ● Power Development Plan B.E. 2561-2580 (2018-2037) ● Thailand Smart Grid Development Master Plan B.E. 2558-2579 (2015-2036) ● Energy Efficiency Plan B.E. 2561-2580 (2018-2037) ● Alternative Energy Development Plan B.E. 2561-2580 (2018-2037) ● Master Plan for Sustainable Transport System and Mitigation of Climate Change Impacts 2013-2030 ● National Industrial Development Master Plan B.E. 2555-2574 (2012-2031) ● Waste Management Roadmap ● National Forest Policy ● National Adaptation Plan
Timor-Leste	<ul style="list-style-type: none"> ● National Climate Change Policy 2021 ● Strategic Development Plan 2011-2030 ● Growing Tourism to 2030 ● Biodiversity Decree-Law 2020 ● National Adaptation Plan
Vietnam	<ul style="list-style-type: none"> ● Law on Environmental Protection 2020

Country	Laws and Policies on Climate
	<ul style="list-style-type: none"> ● Law on Forestry 2017 ● Law on Economical and Efficient Use of Energy 2011 ● National Climate Change Strategy to 2050 ● National Strategy on Green Growth for the period 2021-2030 ● Viet Nam’s Forestry Development Strategy for the period 2021-2030 ● Viet Nam’s Renewable Energy Development Strategy to 2030, with a vision to 2050 ● Viet Nam’s Transportation Development Strategy to 2020, with a vision to 2030 ● National Energy Development Strategy to 2020, with a vision to 2050⁶⁴

Figure 10. ASEAN Member States laws on climate. The authors posit that these laws can be further looked into to ensure that they are inclusive of PWDs.

Moreover, there already exists both regional and national stakeholders that cater to the needs of PWDs. Regionally, these are the ASEAN Disability Forum and the Asia-Pacific Development Center on Disability; nationally, health departments and ministries, as well as women and social welfare departments and ministries usually take the lead in ensuring that policies are inclusive and responsive to the needs of PWDs. It bears noting that Vietnam has a Ministry of Labour, Invalids, and Social Affairs, while the Philippines has a National Council on Disability Affairs, which focus specifically on PWDs.

⁶⁴ More of the programs and plans can be found at p4 of SOCIALIST REPUBLIC OF VIET NAM NATIONALLY DETERMINED CONTRIBUTION (NDC) (UPDATED IN 2022). <https://unfccc.int/sites/>. <https://unfccc.int/sites/default/files/NDC/2022-11/Viet%20Nam%20NDC%202022%20Update.pdf>

The ERIA⁶⁵ has also listed down other key stakeholders whose work revolve around PWDs, in Figure 11 below:

<p>Universities and research institutes</p>	<p>Asian Institute of Disability & Development - Institute conducting research, capacity building, and advocacy to promote inclusion, based at the University of South Asia, Dhaka, Bangladesh.</p> <p>Australia-Indonesia Disability Research and Advocacy Network (AIDRAN) - Network of Australian and Indonesian disability advocates, researchers, and practitioners who promote broader social inclusion through interdisciplinary research on disability and social inclusion, and evidence-informed, disability-inclusive policy.</p> <p>Disability Research and Capacity Development - Research and training institute based in Ho Chi Minh City, Viet Nam.</p> <p>Brawijaya University Center for Disability Studies and Services - Major university research center based in Malang, Indonesia.</p> <p>Social Service Institute of Singapore - A key research division under the National Council of Social Service of Singapore.</p>
<p>Non-profits</p>	<p>Humanity & Inclusion (H&I) - Formerly known as Handicap International, H&I is one of the world's largest international non- profits dedicated to supporting people with disabilities.</p> <p>Action on Disability and Development (ADD) - International non- profit based in the United Kingdom, supporting programmes in Cambodia and other ASEAN nations.</p> <p>Movement for the Intellectually Disabled of Singapore (MINDS) - Leading non-profit supporting persons with disabilities in Singapore.</p> <p>The Fred Hollows Foundation - An Australian non-profit focused on ending avoidable blindness in more than 25 countries worldwide.</p> <p>Christian Blind Mission (CBM) - An international non-profit with an Asia Regional Hub Office located in Bangkok, Thailand. CBM's mission is to promote inclusion and prevent blindness. CBM has presence in 19 countries, including the Philippines and Indonesia.</p>

Figure 11. Key stakeholders in ASEAN that work with PWDs.

⁶⁵Crosta, N., and A. Sanders (2021), 'Overview: Disability in the ASEAN Region', in Crost, N. and A. Sanders (eds.), Social Enterprises and Disability: Fostering Innovation, Awareness and Social Impact in the ASEAN Region. ERIA Research Project Report FY2021 No. 12, Jakarta: ERIA, p6.

As above, this list is not exhaustive; however, it is a good starting point for collaboration in the creation of inclusive climate policies.

Practically, there needs to be an emphasis on downscaling data as well as disaggregating data to ensure that persons with disabilities are included in the statistics, especially as a vulnerable population. Presently, there are very few numbers and sources of information available on the number of persons with disabilities living in shelters, and no disaggregated data on persons with disabilities who die in the aftermath of extreme weather events.

This way, there will be concrete ways in which PWDs can meaningfully engage and participate in climate policy- and decision-making, in addition to being empowered to take on leadership roles. There also needs to be the creation of bottom-up technical working groups or committees which can collate information and suggestions from the respective groups that they represent to ensure that the policies made for these communities come from these communities themselves.

CONCLUSION

The world is about to enter the midpoint of this crucial decade for climate action. Experts have already sounded the alarms that urgent and immediate actions are to be taken if we want to secure a future for all that is livable, inclusive, and sustainable.

However, all is not lost. While progress is slow, countries have begun to work together to achieve this goal – the Paris Agreement was a good first step in the right direction; now, countries need to work collectively and collaboratively to ensure that the goals that were set out to be achieved in the Paris Agreement will be met. There needs to be updates not just on countries' Nationally Determined Contributions but also on their local policies and laws to reflect a stronger commitment to combat the worsening impacts of climate change.

To ensure that we create a world that is livable for all, countries have to make sure that they include everyone in policymaking, not just as recipients of programs, but as decision-makers and leaders as well.

At the core of all conversations on moving forward, however, is climate justice. To ensure that we create a world that is livable for all, countries have to make sure that they include everyone in policymaking, not just as recipients of programs, but as decision-makers and leaders as

well. This means giving those who have been historically excluded and marginalized seats at the table and ensuring that the needs and priorities of these groups are brought up and responded to. Persons with disabilities, as one of these marginalized groups, must be given the opportunity to help create climate policies that will be responsive to their needs.

For their part, ASEAN countries and ASEAN as an association need to also be mindful of including persons with disabilities in their plans. There needs to be strong social and natural science research, as well as downscaling of models to ensure that the policies are backed by data, and replicable and useful. There still appears to be very little literature on the intersections of PWDs and climate change in the ASEAN region, and it is hoped that this body of knowledge, including this workbook, will grow in the coming years to reflect both inclusion and justice principles.

ADDITIONAL RESOURCES

- World Bank Regulatory Framework on economic and financial implications regarding disaster management:
https://www.gfdr.org/sites/default/files/publication/GFDRR%20Disability%20Inclusion%20in%20DRM%20Report_F.pdf
- Counterarguative research (2020) Against Singaporean response for analytical depth: <https://dr.ntu.edu.sg/handle/10356/141685>

Additional policies/ frameworks that can be utilized aside from what was proposed by the CRPD:

- The Incheon Strategy:
<https://drive.google.com/file/d/1fZ8UUweKH03xNHjirOZGrwSvXWtkw9fc/view?usp=sharing>
- Social Model of Disability in Shelter Management:
<https://www.preventionweb.net/news/equalizing-access-ensuring-people-disabilities-dont-lose-out-emergency-shelters>
- Sphere Humanitarian Charter and Minimum Standards in Humanitarian Response (which included commitment to disability inclusion in 2011):
<https://handbook.spherestandards.org/en/sphere/#ch001>
- The 2016 World Humanitarian Summit (which endorsed the Charter on Inclusion of Persons with Disabilities in Humanitarian Action):
<http://humanitariananddisabilitycharter.org/>
- *The Sendai Framework for Disaster Risk Reduction
- *AADMER Work Program 2021-2025
- Disaster displacement in Asia Pacific:
<https://www.adb.org/sites/default/files/publication/823176/disaster-displacement-asia-pacific.pdf>
- Issues faced by PWDs globally:
https://drive.google.com/file/d/1JXt2KgBET2iW_nMdrEZkd46A2ijTc6V5/view?usp=sharing
- Global overview of food insecurity + a few ASEAN nation statistics as well that may benefit the research further:
https://www.internal-displacement.org/sites/default/files/publications/documents/IDMC_GRID_2023_Global_Report_on_Internal_Displacement_LR.pdf
- Water literacy in the Southeast Asian context: <https://www.mdpi.com/2073-4441/13/16/2311>
- Water security in Asia:
<https://www.adb.org/sites/default/files/publication/663931/awdo-2020.pdf>
- Disability and social protection:
<https://www.unescap.org/sites/default/files/publications/SDD%20BDIS%20report%20A4%20v14-5-E.pdf>

IMAGE DESCRIPTIONS

Figure 2. (left) IPCC AR6 - WGIII Figure SPM.7. Available mitigation options for significantly reducing GHG emissions by 2030. (right) IPCC AR6 - WGII Figure FAQ17.5.1. Examples of available adaptation options for various representative key risks, and their contribution to successful adaptation.

- The image is captured from the IPCC AR6 report. It lists available options that are estimated to offer substantial potential to reduce net emissions by 2030. Mitigation options are categorized into Energy, Agriculture, Forestry, and Other Land Use, Buildings, Transport, and Industry. Each mitigation option's potential contribution to net emission reduction vis-a-vis cost is presented.
- The image is lifted from the IPCC AR6 and shows the contribution of adaptation options to successful adaptation (colored green), and to the risk of maladaptation (colored red). The image consists of a list of representative key risks, corresponding adaptation options, and the rating of each adaptation option in a red to green gradient.

Figure 3. United Nations 2030 Sustainable Development Goals

- The image shows a graphic of the seventeen Sustainable Development Goals, namely: No poverty (SDG 1), Zero hunger (SDG 2), Good health and well-being (SDG 3), Quality education (SDG 4), Gender equality (SDG 5), Clean water and sanitation (SDG 6), Affordable and clean energy (SDG 7), Decent work and economic growth (SDG 8), Industry, innovation and infrastructure (SDG 9), Reduced inequalities (SDG 10), Sustainable cities and communities (SDG 11), Responsible consumption and production (SDG 12), Climate action (SDG 13), Life below water (SDG 14), Life on land (SDG 15), Peace, justice, and strong institutions (SDG 16), and Partnerships for the goals (SDG 17)

Climate Justice Photo

- The image contains a classroom with blue tables and chairs with school supplies atop, with floors submerged in floodwater. A woman sits in one of the desks and prepares for the new school year despite the flooded classroom.

Figure 4. Impacts of climate change include both slow onset and extreme events that result in both economic and non-economic losses and damages. Credit: UNFCCC

- The image illustrates loss and damage associated with the impacts of climate change. An illustration with mountains and a body of water can be seen, with small icons indicating slow onset events and extreme events in several parts of the landscape. An example of economic and non-economic losses is shown in a bar below the image, with icons to illustrate the examples. Economic losses include loss of business operations, agricultural production, tourism, infrastructure, and property.

- Non-economic losses are divided into three: Individuals which include life, health, and human mobility, Society which includes territory, cultural heritage, indigenous knowledge, and cultural identity, and Environment, which includes biodiversity and ecosystem services.

Figure 5. Global Climate Risk Index from the years 2000 to 2019

- This image shows a table of the top ten countries with the highest climate risk index scores. The list is as follows: Puerto Rico, Myanmar, Haiti, Philippines, Mozambique, The Bahamas, Bangladesh, Pakistan, Thailand, and Nepal.

Figure 6. Functional Early Warning System (EWS) in ASEAN, in the AHA Centre, 2019, ASEAN Risk Monitor and Disaster Management Review (ARMOR), Jakarta: ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre).

- The image shows a table classifying five Early Warning Components in ASEAN Member States, namely: Risk Knowledge, Monitoring and warning Service, Warning dissemination, Linkage to emergency response, and Legal and Policy aspect. Each ASEAN member state is listed on the left, with scores pertaining to each of the five components listed on the right.

Figure 7. While not specific to Southeast Asia, this figure shows the examples of climate impacts on human health

- The image shows examples of climate impacts on human health which include health-related death and illness, premature death, mental health consequences, bloodstream infections, death, distress, grief, and behavioral health disorders to name a few.