



Asian Disaster Reduction Center

Natural Disaster Data Book 2020

An Analytical Overview



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1. Introduction

Annually, ADRC publishes the *Natural Disaster Data Book* to provide statistical perspectives in figures and tables of natural disaster data. ADRC obtains data from EM-DAT and analyses it to show the occurrence, death tolls, people affected, and economic impact of disasters (See Annex 1: Notes on the Sources of Data). For this year's (FY2020) issue, two sets of data for statistical perspectives are added: data relating to climate-related disasters and data relating to COVID-19 situation. The approach of presenting the data is as follow:

- Natural disaster data of 2020 is compared with the annual average of disaster data of the past three decades (i.e., 1990-2019) at the global level and at the Asian level
- Climate-related disasters of 2020 is compared with the annual average of the past three decades (i.e., 1990-2019) at the global level and at the Asian level
- COVID-19 situation (i.e., using cumulative data of confirmed cases and deaths) is presented at global level as well as in the ADRC member countries

While many observations could be made after looking at the infographics, the following could be highlighted. Firstly, flood and storm have been the most frequent causes of disasters in 2020 as well as during the last 30 years. These two disaster types also account for the highest number of people affected and the highest economic losses in 2020 and in the last 30 years. This observation indicates that disaster risk reduction and management actions for flood and storm need further improvements. Secondly, flood and storm (unlike earthquake) are climate-related disaster types that show the tendency of frequently occurring, as observed in 2020 and during the last 30 years. This observation is notable not only globally, but also, in Asia. Thirdly, the number of confirmed cases and deaths from COVID-19 has peaked in several occasions since the World Health Organization (WHO) declared the pandemic on 11 March 2020. The highest peak so far was on 26 April 2021, recording a total of 5,695,585 COVID-19 confirmed cases globally on that day. Although some western countries rolled out vaccines, there emerged some COVID-19 variants (e.g., delta variant) that might have contributed to the increasing number of confirmed cases. In ADRC member countries, cumulative data shows that COVID-19 situation is so varied, reflecting the differences in policies as well as socioeconomic conditions of Asian countries.

2. Global Disaster Data

This section presents the global disaster data pertaining to the occurrence, death tolls, people affected, and economic losses in 2020 as compared to the last 30 years (1990-2019). The source of all data, as used in this section, is from *EM-DAT/CRED*, UC Louvain, Brussels, Belgium, www.emdat.be (D. Guha-Sapir), 26 May 2021.

2.1. Occurrence

The total number of disaster occurrence in 2020 is 398. This number is higher compared to the annual average of 374 disaster occurrence in the past three decades (1990-2019). Flood and storm show the highest number of occurrences in 2020 as well as during the last 30 years (Figure 1).

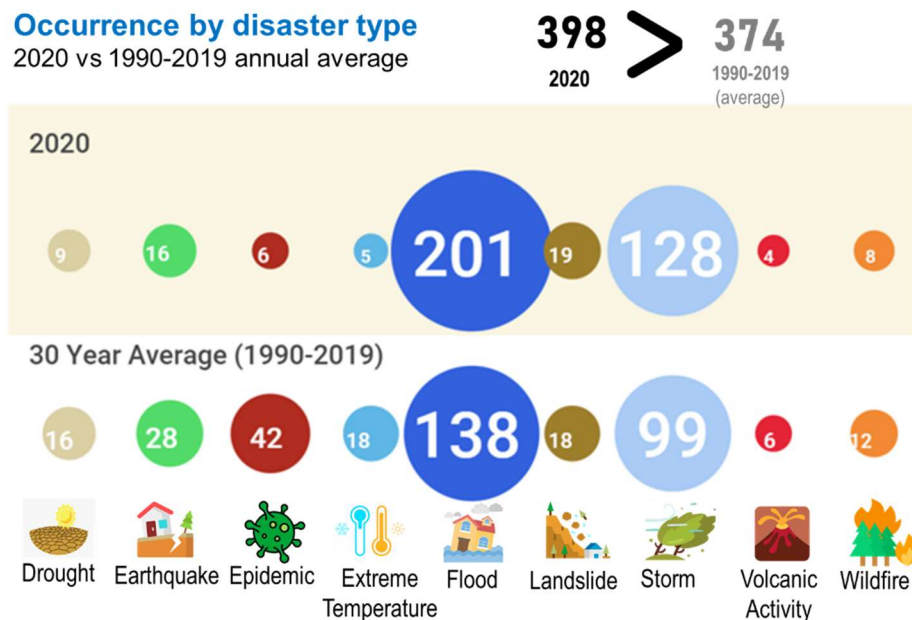


Figure 1 Occurrence of Disaster 2020 vs 1990-2019 (EM-DAT/CRED, 2021)

Of the total recorded disasters in 2020, forty one percent (163) occurred in Asia, indicating that Asian region remains the most disaster-prone region in the world (Figure 2).

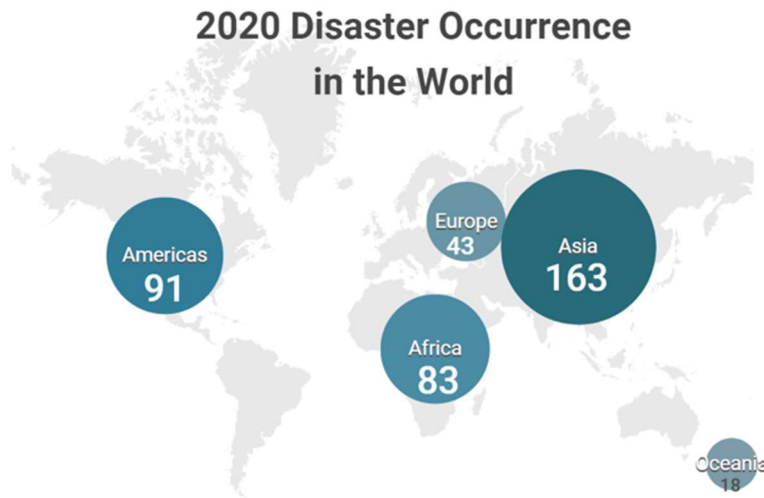


Figure 2 Disaster Occurrence by Region (EM-DAT/CRED, 2021)

2.2. Deaths

In 2020, the total number of deaths from disasters (excluding deaths from COVID-19) is 15,286. This number is lesser compared to the annual average of 62,361 deaths from disasters in the last three decades (Figure 3).

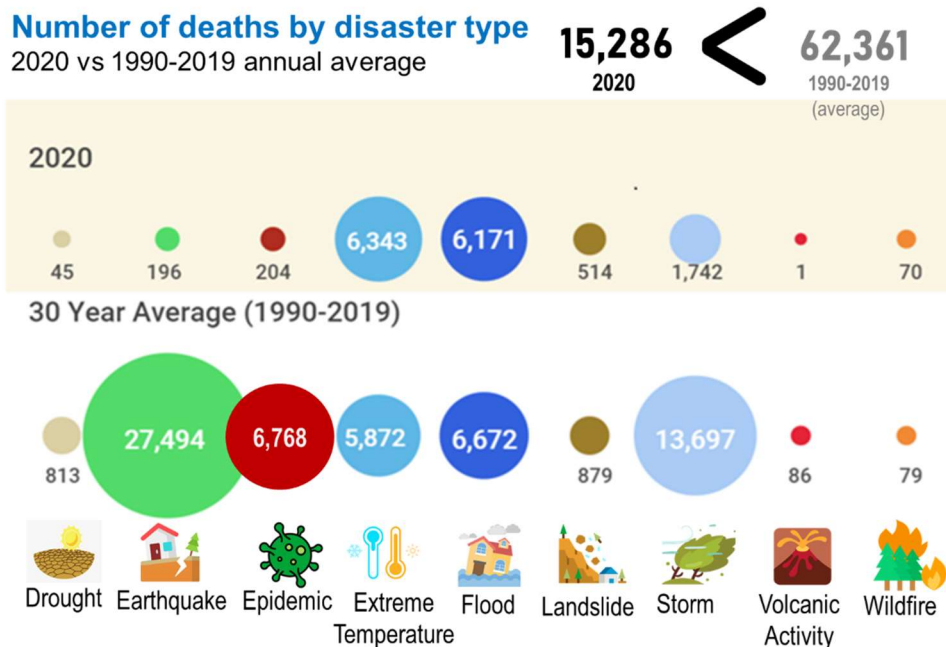


Figure 3 Deaths by Disaster Type 2020 vs 1990-2019 (EM-DAT/CRED, 2021)

The occurrence of high mass casualty events, such as the 2004 Indian Ocean Tsunami, the 2010 Haiti Earthquake, and the 2011 Great East Japan Earthquake,

explains why the annual average number of deaths during the last 30 years is much higher compared with the deaths from disaster in 2020.

2.3. People Affected

People affected by disaster in 2020 is about 99.1 million. This number is lesser compared to the annual average of 202.1 million people affected by disasters in the past three decades (Figure 4).

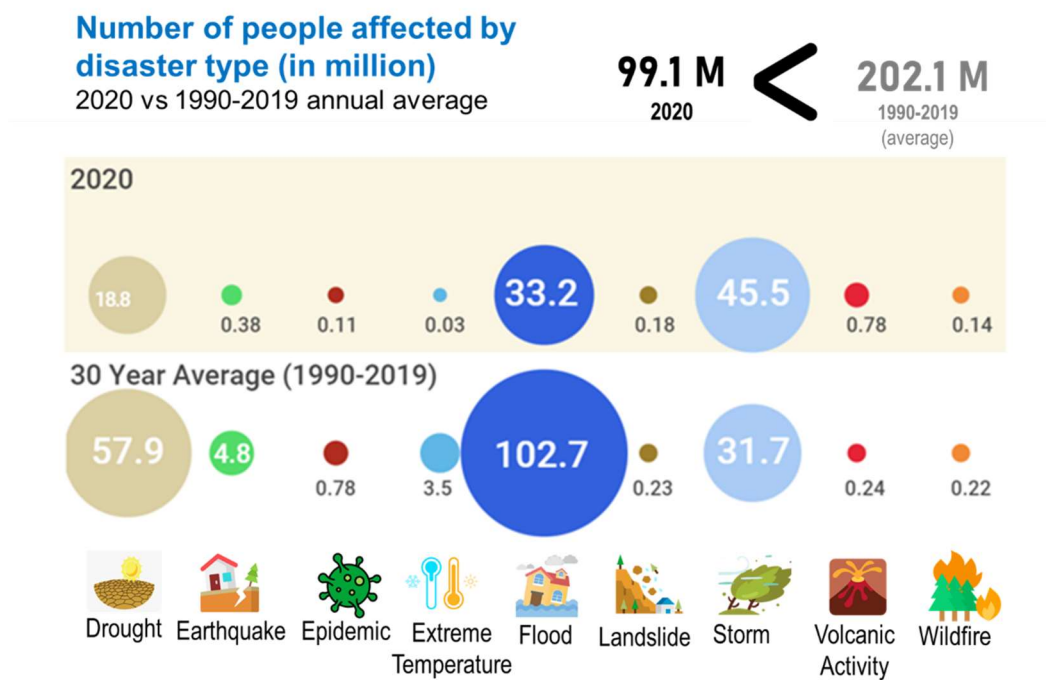


Figure 4 People Affected by Disaster 2020 vs 1990-2019 (EM-DAT/CRED, 2021)

Compared to the last 30 years, there were less occurrences of high-impact events (e.g., the 2015/2016 drought in India) in 2020. This could be one of the reasons why the number of affected people in 2020 is lesser compared to the annual average of the last three decades.

2.4. Economic Losses

Economic losses due to disasters in 2020 is recorded at US\$ 173.1 billion. This figure is higher compared to the annual average of US\$ 108.5 billion disaster economic losses in the past three decades. Notably, much of the economic losses were caused by storms and floods (Figure 5).

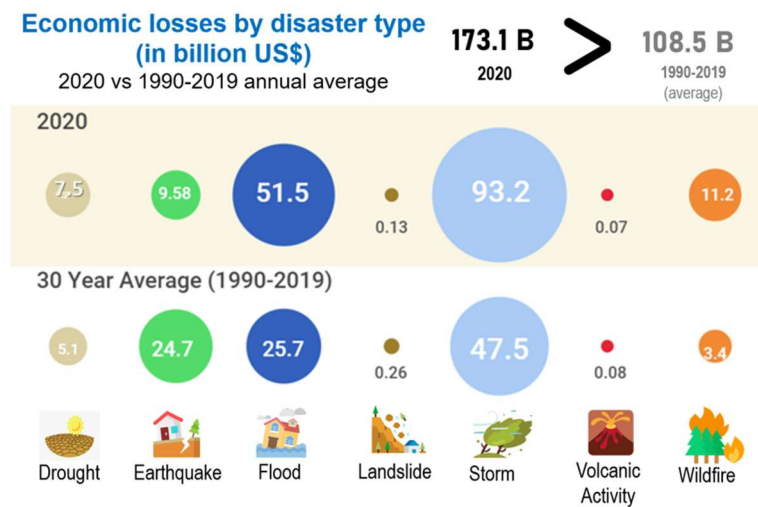


Figure 5 Economic Losses 2020 vs 1990-2019 (EM-DAT/CRED, 2021)

3. Asian Disaster Data

This section presents the Asian disaster data pertaining to the occurrence, death tolls, people affected, and economic losses in 2020 as compared to the last 30 years (1990-2019). The source of all data, as used in this section, is from *EM-DAT/CRED*, UC Louvain, Brussels, Belgium, www.emdat.be (D. Guha-Sapir), 26 May 2021.

3.1. Occurrence

Asian region recorded a total number of 163 disaster occurrence in 2020. This number is higher compared to the annual average of 146 disaster occurrence in the past three decades (1990-2019) as shown in Figure 6.

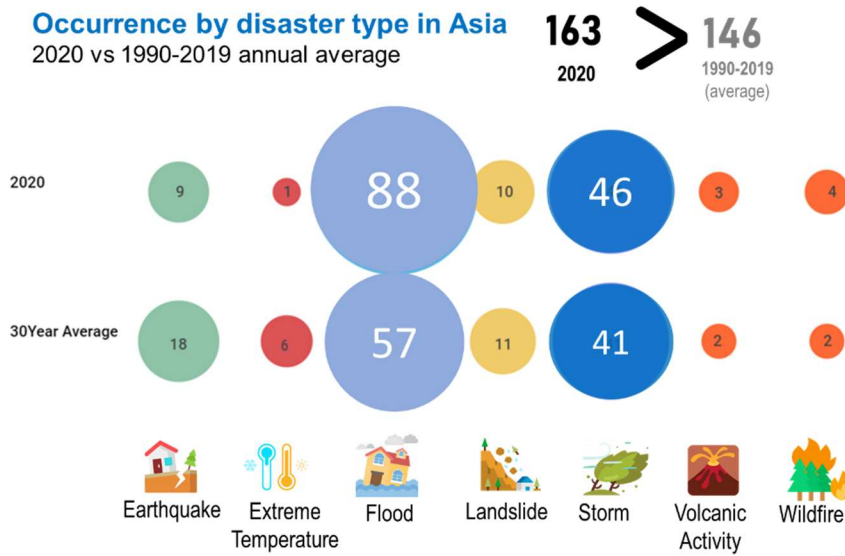


Figure 6 Occurrence Disasters in Asia 2020 vs 1990-2019 (EM-DAT/CRED, 2021)

Similar to the global trend, flood and storm show the highest number of occurrences in 2020 as well as during the last 30 years in Asia. These disasters mostly occurred in Indonesia, China, Vietnam, India, Turkey, Philippines, Iran, Afghanistan, and Pakistan (Figure 7).

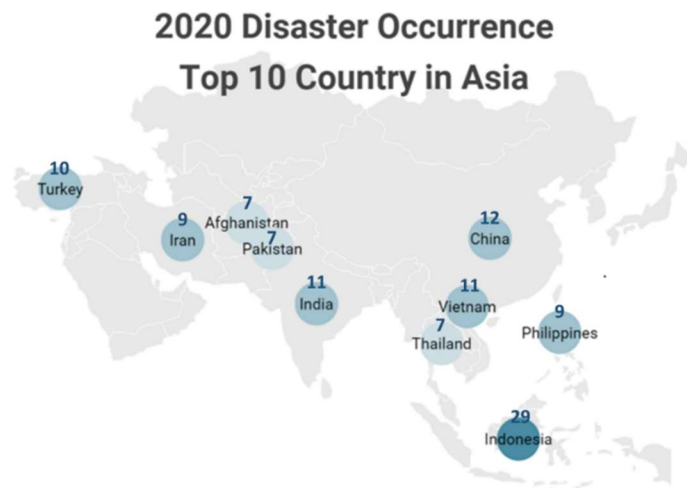


Figure 7 Top 10 Countries of Disaster Occurrence 2020 (EM-DAT/CRED, 2021)

3.2. Deaths

In Asia, the total number of deaths from disasters (excluding deaths from COVID-19) in 2020 is 6,042. This number is lesser compared to the annual average of 38,398 deaths from disasters in the last three decades (Figure 8).

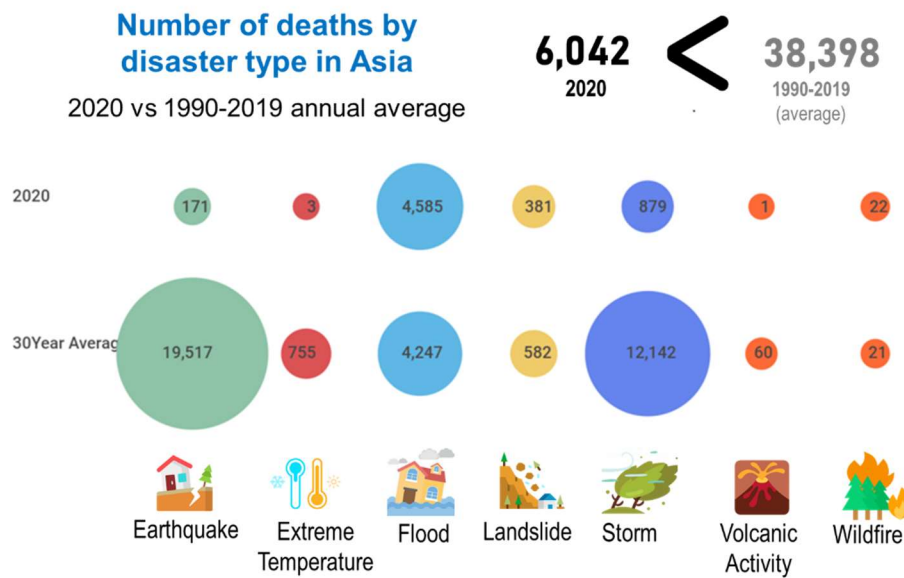


Figure 8 Number of Deaths in Asia 2020 vs 1990-2019 (EM-DAT/CRED, 2021)

3.3. People Affected

People affected by disaster in Asia in 2020 is about 62.4 million. This number is lesser compared to the annual average of 175.5 million people affected by disasters in the past three decades in the region (Figure 9).

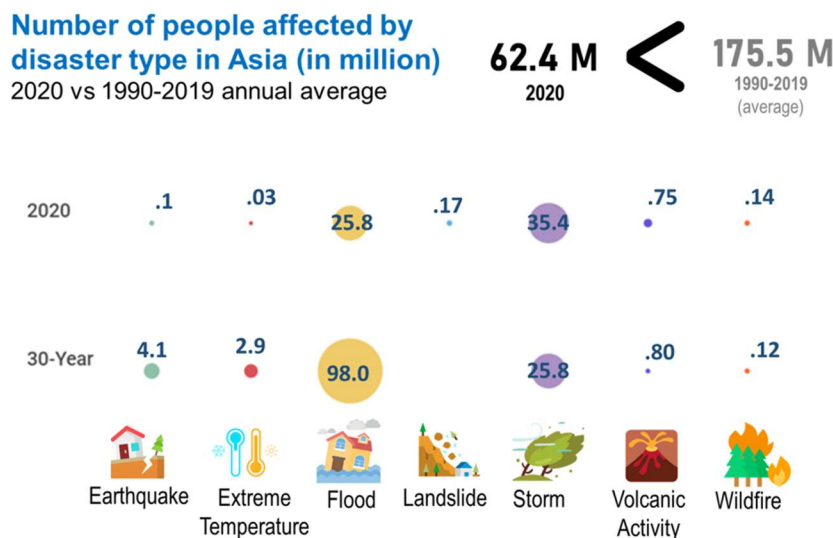


Figure 9 People Affected in Asia 2020 vs 1990-2019 (EM-DAT/CRED, 2021)

3.4. Economic Losses

While the number of deaths and people affected by disaster is lesser compared to annual average of the past 30 years, the economic losses are higher. Economic losses

in 2020 is US\$ 67.4 billion, which is higher than the annual average of US\$ 49.2 billion during the past three decades (Figure 10).

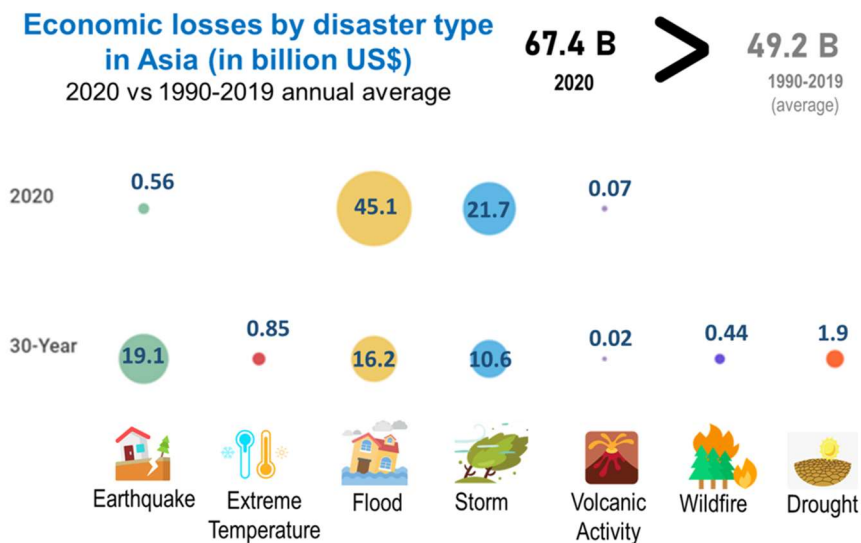


Figure 10 Economic Losses in Asia 2020 vs 1990-2019 (EM-DAT/CRED, 2021)

4. Climate-Related Disasters

This section looks into the occurrences of climate-related disasters, especially flood and storm during the past 30 years (1990-2019) as compared to its occurrences in 2020. The source of all data, as used in this section, is from *EM-DAT/CRED, UC Louvain, Brussels, Belgium, www.emdat.be (D. Guha-Sapir), 26 May 2021.*

In the past 30 years, the tendency of occurrences of flood and storm have been consistently high. Of the 10,686 global total disaster occurrences during the period 1990-2019, flood accounts for 4,366 (41%) occurrences while storm accounts 3,214 (30%) of occurrences. In other the combined occurrences of flood and storm account for 71% of total disaster events. A similar trend is shown in Asia (Figure 11).

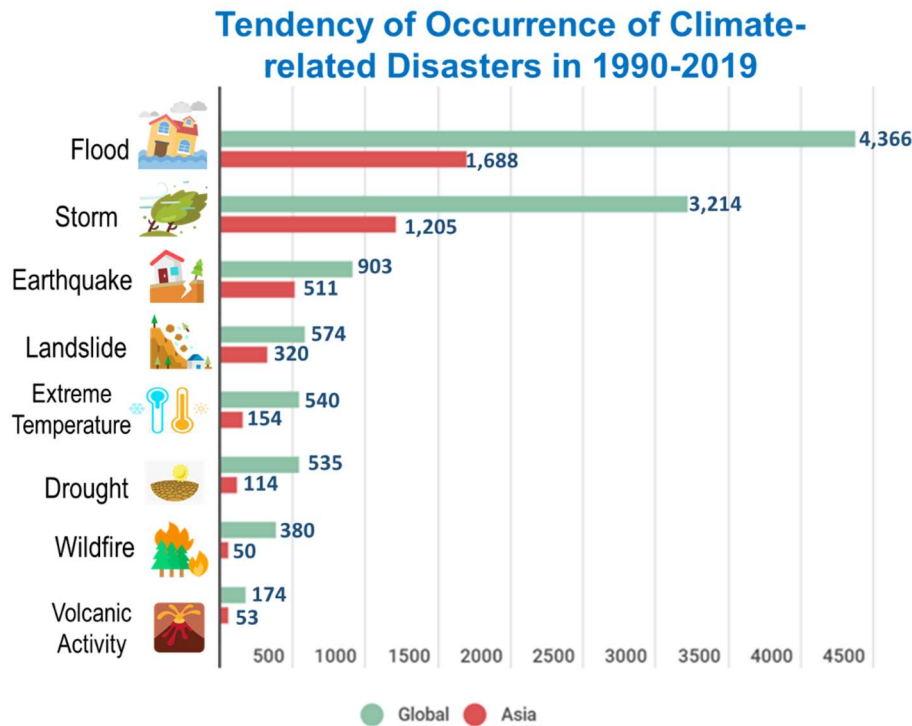


Figure 11 Tendency of Occurrence of Flood and Storm 1990-2019 (EM-DAT/CRED, 2021)

4.1. Global Trend in Climate-Related Disasters

In 2020, flood and storm (which are climate-related disasters) account for the highest number of disaster occurrences globally. This number shows a similar trend during the past 30 years (1990-2019) as shown in Figure 12.

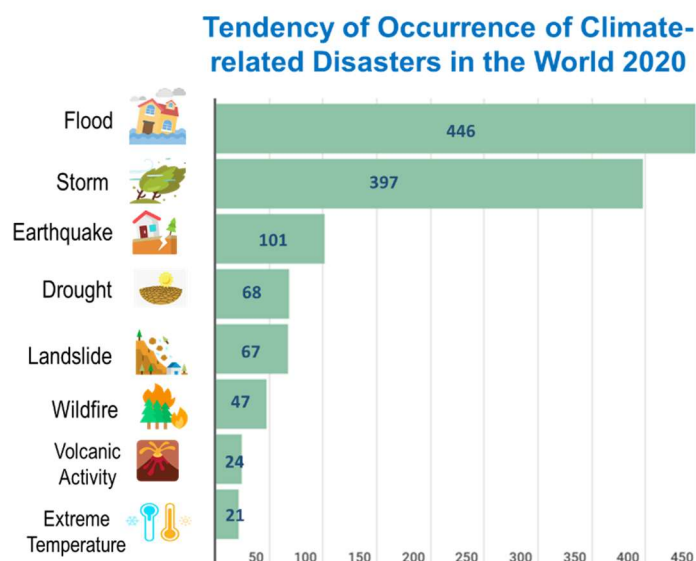


Figure 12 Tendency of Occurrence of Flood and Storm 2020 (EM-DAT/CRED, 2021)

As noted earlier, flood and storm are not only the most frequent causes of disasters in 2020 and during the last 30 years, but these also account for the highest number of people affected as well as economic losses.

4.2. Asian Trend in Climate-Related Disasters

Similar to the global data, flood and storm account for the highest number of disaster occurrence in Asia in 2020 (Figure 13).

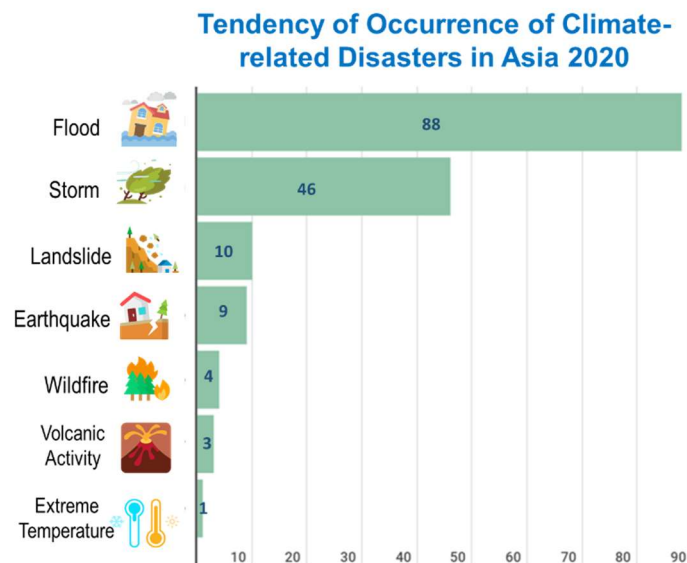


Figure 13 Tendency of Occurrence of Flood and Storm in Asia 2020 (EM-DAT/CRED, 2021)

5. COVID-19 Data

This section looks into the cumulative data of COVID-19 confirmed cases and deaths since 11 March 2020 when the World Health Organization (WHO) declared it as a pandemic. Infographics in this section show the global COVID-19 situation as well as the situation in ADRC member countries. The source of all data, as used in this section, is from the *World Health Organization Coronavirus (COVID-19) Dashboard*, <https://covid19.who.int/>, 21 September 2021.

5.1. Global Situation

Since 11 March 2020, the number of confirmed cases has been peaking for several occasions (Figure 14). The highest peak was on 26 April 2021, recording a global total of 5,695,585 confirmed cases on that day.

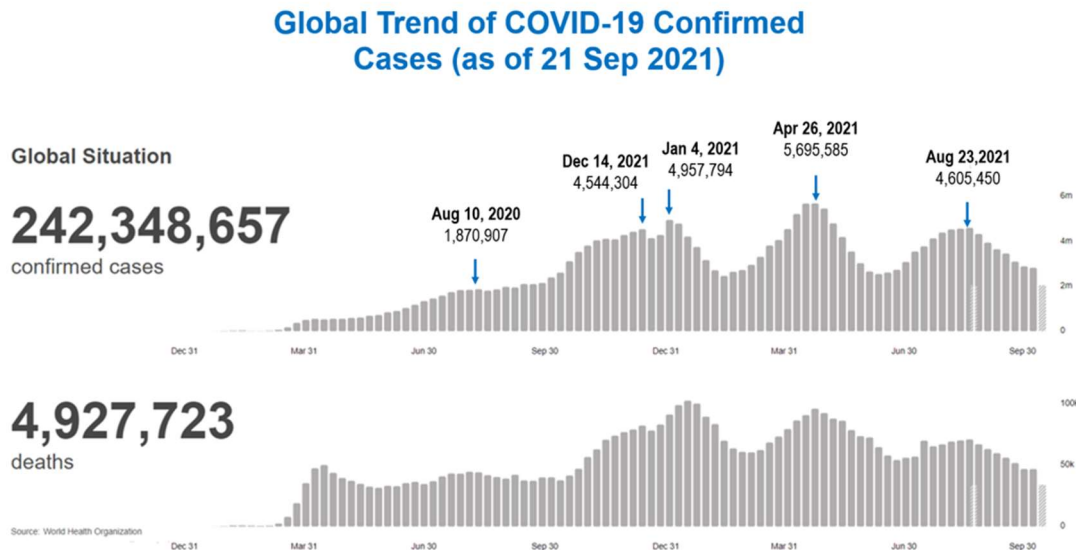


Figure 14 Global Situation of COVID-19 (WHO, 2021)

In January 2021, western countries started rolling out COVID-19 vaccines which maybe contributing to the declining number of confirmed cases of infection during the months of February and March. However, during those times, there were also new variants of COVID-19 (e.g., delta variant) that were more transmittable. It is likely that the variants contributed to the increasing number of confirmed cases, reaching the highest record in 26 April 2021.

5.2. Situation in ADRC Member Countries

At the outset, it should be noted ADRC has a total of 31 member-countries. However, due to lack of data reported to the WHO, only the COVID-19 situation of 20 member-countries are presented (Figure 15).

COVID-19 Situation in ADRC Member Countries (as of 21 Sep 2021)

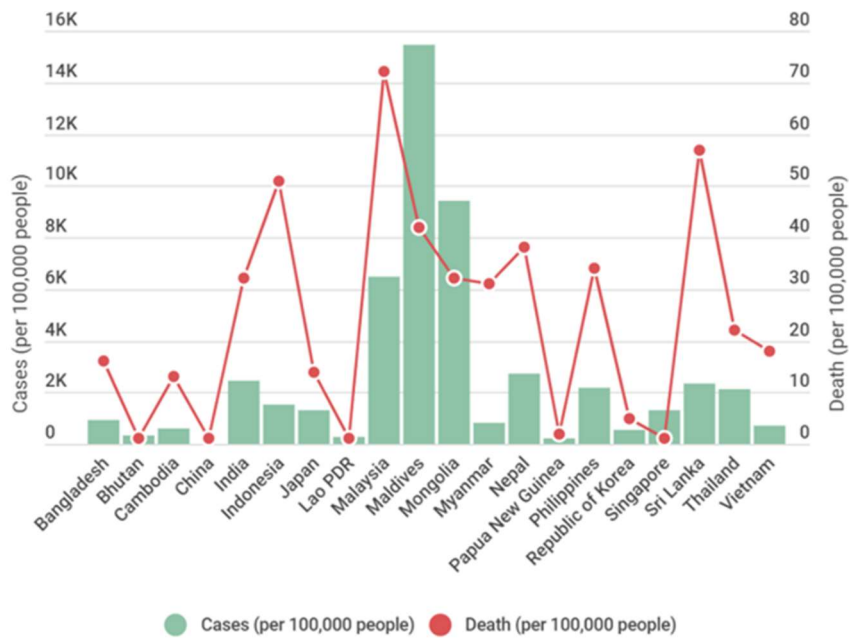


Figure 15 COVID-19 Situation in ADRC Member Countries (WHO, 2021)

The data indicates that countries in Asian region are so diverse in terms of policies and programs in controlling the spread of COVID-19 infection. Why is it that countries like Bhutan, China, Lao PDR, Papua New Guinea and Singapore could minimize the number of deaths from COVID-19 while India, Malaysia, and Sri Lanka could not? One likely explanation is that ADRC member countries vary in the degree of implementing the common countermeasures for COVID-19 (e.g., face covering, social distancing, and hand sanitation) due to differences of local situations, including economic conditions and socio-political contexts. For instance, Japan and the Republic of Korea did not implement nationwide lockdowns nor strict travel restrictions while countries like India and the Philippines imposed lockdowns, and even commanding the military to enforce those restrictions.

Annex 1: Notes on Sources of Data

Natural Disaster Data

All disaster data are based on EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium. Data set was obtained on 26 May 2021, unless otherwise stated.

EM-DAT Criteria:

For a disaster to be entered into the database, at least one of the following criteria must be fulfilled:

- Ten (10) or more people reported killed
- Hundred (100) or more people reported affected
- Declaration of a state of emergency
- Call for international assistance

Data Book 2020 follows the EM-DAT definitions of “people killed” as persons confirmed as dead and persons missing and presumed dead; “people affected” as the sum of injured, homeless, and affected requiring immediate assistance during the period of emergency and requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance.

Disaster Terms:

Drought includes an extended period of unusually low precipitation that produces a shortage of water for people, animals and plants.

Earthquake includes ground shaking and tsunami.

Epidemic includes bacterial and viral infectious diseases.

Extreme Temperature includes heat wave, cold wave, and extreme winter conditions.

Flood includes general flood, and flash flood.

Insect Infection is pervasive influx and development of insects or parasites affecting humans, animals, crops and materials.

Landslide includes avalanche, debris, and rockfall.

Storm includes local storm, tropical cyclone, and winter storm.

Volcanic activity means volcanic eruption.

Wildfire includes bush/brush fire, forest fire, and scrub/grassland fire.

Classification of EM-DAT:

EM-DAT distinguishes between two generic categories for disasters: **natural** and **technological**. The natural disaster category is divided into 5 sub-groups, which in turn cover 15 disaster types and more than 30 sub-types. The technological disaster category is divided into 3 sub-groups which in turn cover 15 disaster types, <https://www.emdat.be/classification>

COVID-19 Data

All COVID-19 data used in the Data Book 2020 is based from the World Health Organization Coronavirus (COVID-19) Dashboard, <https://covid19.who.int/> accessed on 21 September 2021.

Data from the WHO COVID-19 Dashboard are from the official reporting to WHO through regional offices and also from public websites, not official reported to WHO. Member States select the reporting system they prefer to use and data from different reporting systems. Individual countries, area and territories may decline to allow country-level disaggregation.

Some ADRC member-countries have no record of COVID-19 data in the WHO COVID-19 Dashboard.

The Asian Disaster Reduction Center was established in Kobe, Japan in 1998 with the mission to enhance disaster resilience of its member-countries, to build safe communities, and to create a society where sustainable development is possible. The Center works to build disaster resilient communities and to establish networks among countries through many programs including personnel exchanges in this field.



Asian Disaster Reduction Center