

COST OF NATURAL DISASTERS IN OIC MEMBER COUNTRIES

OIC STATISTICAL OUTLOOK 2021



STATISTICAL, ECONOMIC AND SOCIAL RESEARCH
AND TRAINING CENTRE FOR ISLAMIC COUNTRIES



ORGANISATION OF
ISLAMIC COOPERATION

COST OF NATURAL DISASTERS IN OIC MEMBER COUNTRIES

OIC STATISTICAL OUTLOOK 2021



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Abbreviations

ET	Extreme Temperature
CRED	Centre for Research on the Epidemiology of Disasters
MM	Mass Movement
UNDRR	United Nations Office for Disaster Risk Reduction
USD	United States Dollars
VA	Volcanic Activity

Introduction

Even though the terms “hazard” and “disaster” are used in place of each other, these two terms indicate different aspects. A hazard is a physical event, phenomenon or human activity that can cause the loss of life or injury, property damage, social and economic disruption, or environmental degradation. Hazards have different origins: natural (geological, hydro, meteorological and biological) or due to human actions (environmental or technological). Disasters, on the other hand, are a combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the negative consequences of risk. A hazard becomes a disaster when it coincides with a vulnerable situation, when societies or communities are unable to cope with it with their own resources and capacities (UNDRR, 2011).

According to the UNDRR (2021), the year 2020 rivalled 2016 as the world’s hottest recorded year despite the absence of a strong El Niño effect. Apart from the COVID-19 pandemic, the year was dominated by climate-related disasters. While floods were the most common natural disaster worldwide (201 events) in 2020 alone, storms affected the highest number of people (45.5 million) and caused the most economic losses (around 93 billion USD). Moreover, extreme temperatures were the deadliest type of natural disasters, followed closely by floods. These climate-related natural disasters were largely responsible for the 389 recorded events which resulted in 15,080 deaths, 98.4 million people affected, and economic losses of at least US\$171.3 billion.

In parallel to the increasing impact of natural disasters on development gains of the countries, the international community has endorsed the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) which was the first major agreement of the Post-2015 Development Agenda and provides countries with concrete actions to protect development gains from the risk of disaster. The Sendai Framework focuses on the adoption of measures which address the three dimensions of disaster risk (exposure to hazards, vulnerability and capacity, and hazard’s characteristics) in order to prevent the creation of new risk, reduce existing risk and increase resilience. The Sendai Framework also works hand in hand with the other 2030 Agenda agreements, including the Paris Agreement on Climate Change, the Addis Ababa Action Agenda on Financing for Development, the New Urban Agenda, and ultimately the Sustainable Development Goals (SDGs).

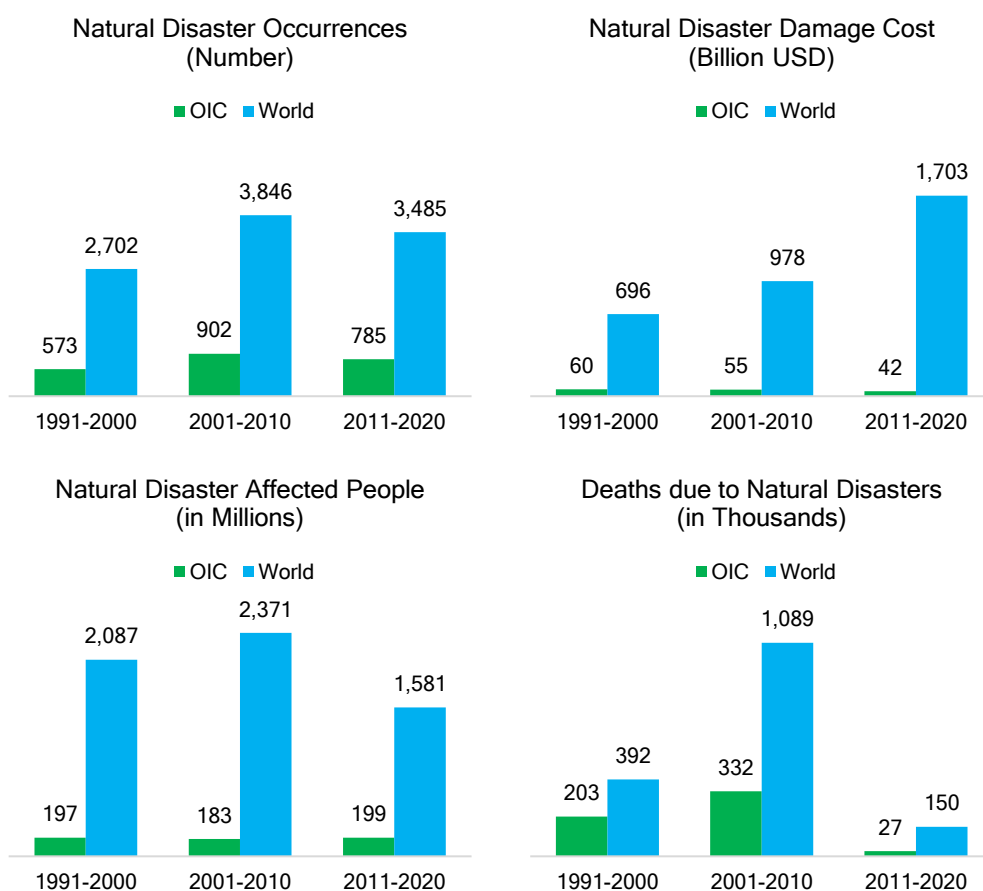
This issue of OIC Statistical Outlook Series sheds light on the broad human and economic cost of natural disasters in the OIC countries group in comparison with the world from a statistical perspective.

Human and Economic Costs of Natural Disasters in OIC Member Countries

Due to the erratic and nonlinear nature of natural disasters, sum of ten-year periods was preferred for making statistically robust comparisons and more reliable conclusions for

the periods 1991-2000, 2001-2010, and 2011-2020. From the period 1991-2000 to 2011-2020, the number of natural disaster occurrences has increased in the world from 2,702 to 3,485. The upward trend also holds true for the OIC countries group in which the number of natural disaster occurrences increased from 573 in the period 1991-2000 (21.2% of world total) to 785 (22.5% of world total) in the period 2011-2020. The cost of damages as a result of natural disasters followed two different trends for the world and OIC countries group. While the global economic cost of natural disaster damages exceeded 1.7 trillion USD in the 2011-2020 period, nearly 1 trillion USD more than its 1991-2000 level, the OIC countries group has recorded declines in the cost of natural disaster damages from 60 billion USD in the 1991-2000 period to 42 billion USD in the 2011-2020 period (Figure 1).

Figure 1: Human and Economic Cost of Natural Disasters, OIC vs. World, 1991-2020



Source: SESRIC staff calculations based on data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database.

As to the human cost of natural disasters, the number of people affected from natural disasters in the world decreased from around 2 billion in the period 1991-2000 to 1.6 billion in the period 2011-2020 whereas the OIC total increased from 197 million to 199

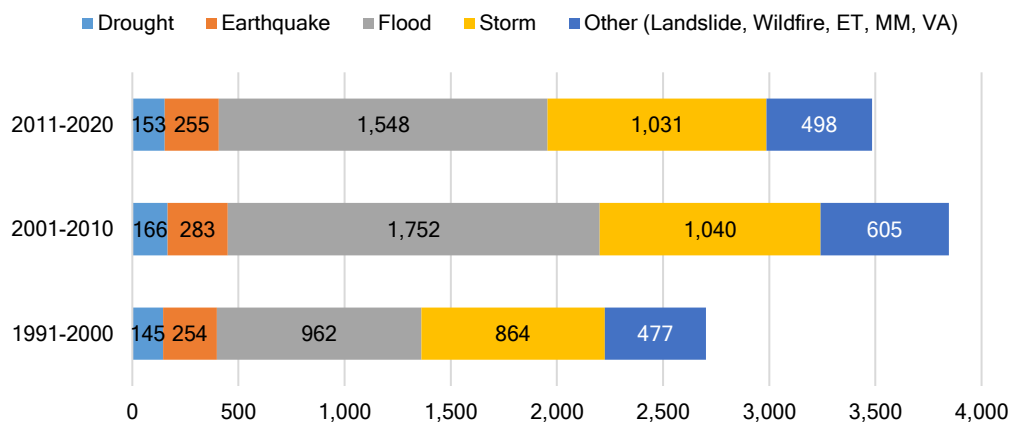
million over the same periods. On the other hand, total number of deaths due to natural disasters in the world decreased from 392 thousand in the period 1991-2000 to 150 thousand deaths in the period 2011-2020. The OIC countries group saw also a decrease from 203 thousand to 27 thousand in the same periods (Figure 1).

Reported Natural Disasters

Accurate recording of natural disasters by type as well as people affected, associated deaths, and economic costs helps us support in formulating policies in mitigating the disruptive impacts of natural disasters on communities. For both the world and OIC countries group, much of the change in the number of natural disaster occurrences over the three decades was due to a significant rise in the number of droughts, extreme temperatures, mass movements, storms, and wildfires, which are all climate-related events.

Considering the world and OIC countries group, the number of natural disaster occurrences recorded was the highest in the 2001-2010 period (Figures 2 and 3). At the global level, floods and storms were the two most frequently occurred types of natural disasters during the period 2011-2020 which were followed by earthquakes (255), extreme temperature (185), landslides (171), drought (153), wildfire (97), volcanic activity (40), and mass movement events (5). Considering the change in the number of occurrences of disasters from 1991-2000 to 2011-2020 in the world, largest increases were observed in floods (586 occurrences) and storms (167 occurrences) (Figure 2).

Figure 2: Number of Natural Disasters in the World, by Type, 1991-2020

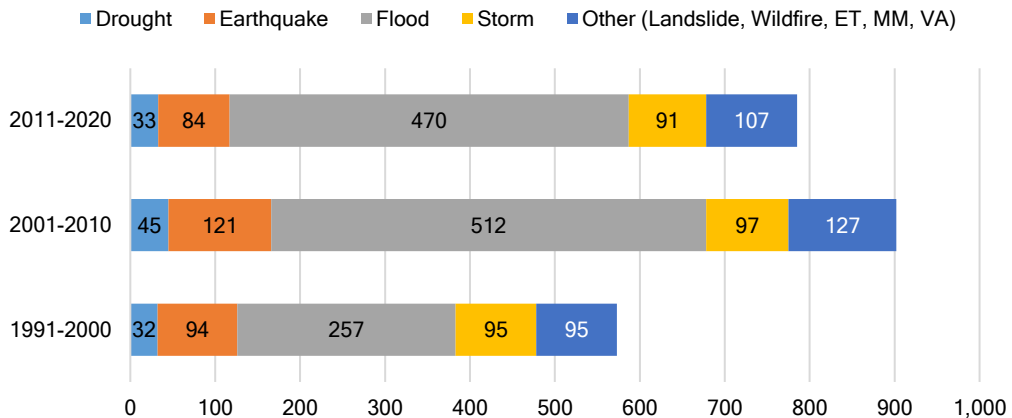


Source: SESRIC staff calculations based on data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database. ET=Extreme Temperature, MM=Mass Movement, and VA=Volcanic Activity.

Floods were also responsible for the largest number of natural disaster occurrences recorded in the OIC countries group which increased from 257 in the 1991-2000 period to 470 in the 2011-2020 period, a change equal to 213 occurrences. Another type of

natural disaster that withdrew attention in the OIC countries group was the landslides which can be caused by direct human activities such as cutting trees, overexploiting earth resources as well as indirectly by climate change. The landslide occurrences grew from 38 in the 1991-2000 period to 63 in the 2011-2020 period (Figure 3)

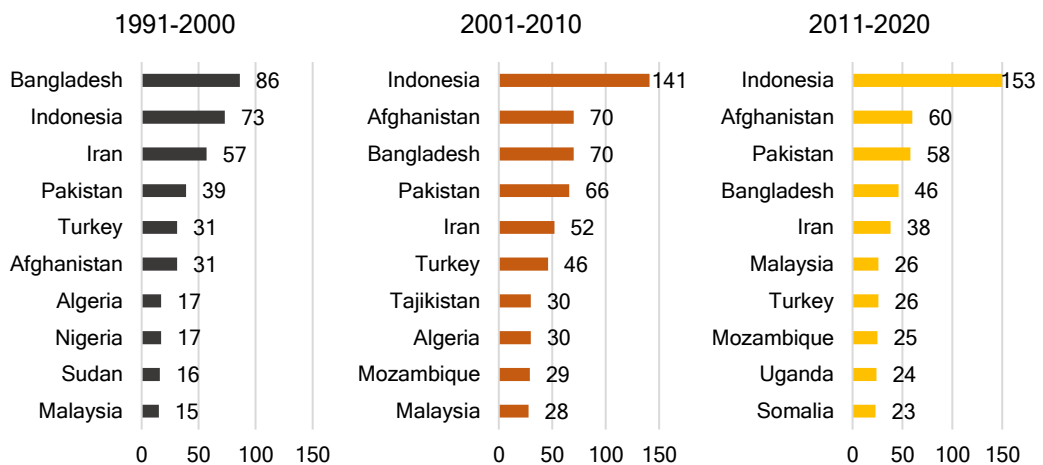
Figure 3: Number of Natural Disasters in OIC Countries Group, by Type, 1991-2020



Source: SESRIC staff calculations based on data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database. ET=Extreme Temperature, MM=Mass Movement, and VA=Volcanic Activity.

At the individual country level, the sum of natural disaster occurrences between 1991 and 2020 exceeded 100 in Indonesia (367), Bangladesh (202), Pakistan (163), Afghanistan (161), Iran (147), and Turkey (103) (Figure 4).

Figure 4: Top 10 OIC Countries in Terms of Number of Natural Disasters, 1991-2020

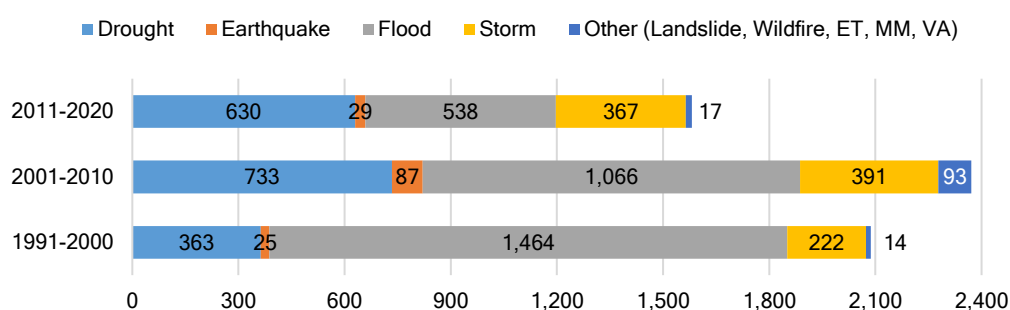


Source: Data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database.

Human Cost of Natural Disasters

In the period 2011-2020, droughts have negatively impacted the lives of 630 million people in the world in comparison to other natural disaster types. This is also a dramatic rise compared to 363 million people affected from droughts in the period 1991-2000. Meanwhile, a substantial decrease has been recorded in the number of people affected by floods from around 1.5 billion in the period 1991-2000 to 538 million in the period 2011-2020. However, number of people affected from storms saw an increase to 367 million in the 2011-2020 period from 222 million in the 1991-2000 period (Figure 5).

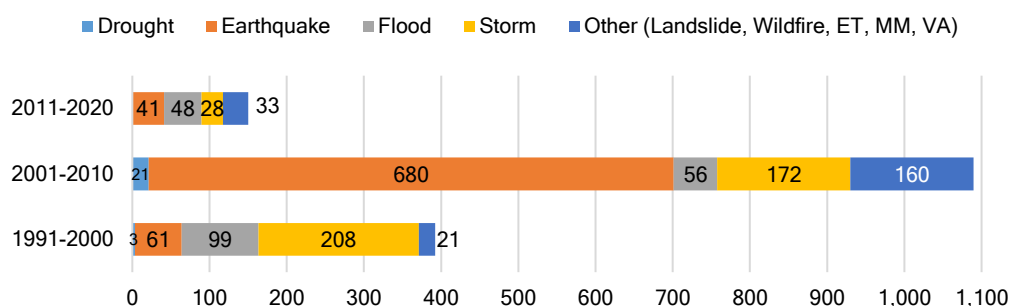
Figure 5: People Affected by Natural Disasters in the World (in Millions), by Type, 1991-2020



Source: SESRIC staff calculations based on data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database. ET=Extreme Temperature, MM=Mass Movement, and VA=Volcanic Activity.

In the 2011-2020 period, floods caused the largest number of deaths (48 thousand) in the world, which was followed by the number of deaths caused by earthquakes (41 thousand), storms (28 thousand), extreme temperature (23 thousand) and landslides (7 thousand). Volcanic activities, wildfires, droughts, and mass movements, on the other hand, caused lower number of deaths in the period 2011-2020 in the world (Figure 6).

Figure 6: Deaths due to Natural Disasters in the World (in Thousands), by Type, 1991-2020

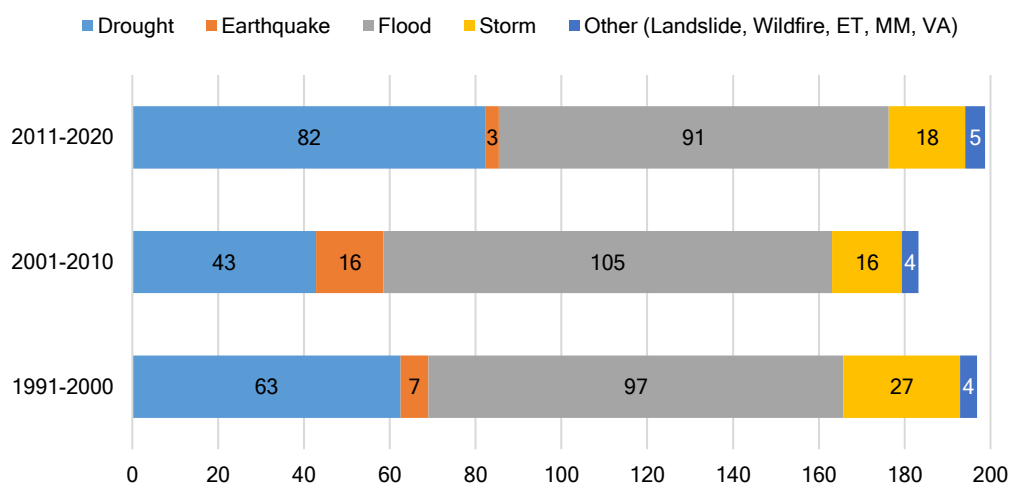


Source: SESRIC staff calculations based on data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database. ET=Extreme Temperature, MM=Mass Movement, and VA=Volcanic Activity.

The picture regarding the changes observed throughout the last three decades in the OIC countries group has noticeably been different from that of world. In the period 2011-2020, 91 million people were affected by floods in the OIC countries group, which was previously 97 million in the period 1991-2000.

The second natural disaster type that affected the largest number of people in the OIC countries group was drought which affected 82 million people in the 2011-2020 period, a significant increase from 63 million people affected in the period 1991-2000 period. These were followed by storm (18 million people affected), and earthquakes and extreme temperatures (each affected 3 million people). Besides, around 1 million people were affected by wildfires and 400 thousand by landslides in the OIC countries group in the 2011-2020 period (Figure 7).

Figure 7: People Affected from Natural Disasters in OIC Countries Group (in Millions), by Type, 1991-2020



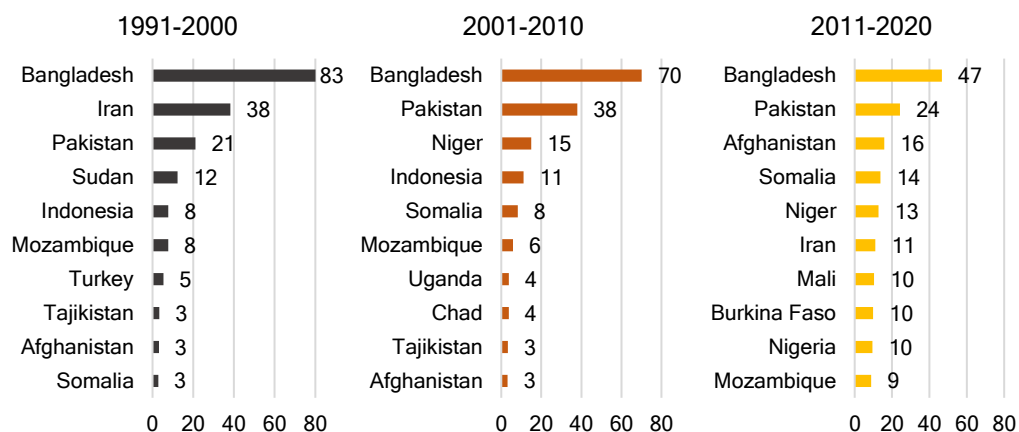
Source: SESRIC staff calculations based on data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database. ET=Extreme Temperature, MM=Mass Movement, and VA=Volcanic Activity.

Overall, over 80% of the people affected by the natural disasters (94% in 1991-2000, 89% in 2001-2010, and 82% in 2011-2020) were living in 10 OIC countries. Among them, Bangladesh had the highest numbers of people affected by the natural disasters in all the three decades covered.

The total number of people affected from natural disasters in Bangladesh between 1991 and 2020 amounted to around 200 million and followed by Pakistan (83 million), Iran (52 million), Niger (28 million) and Indonesia (25 million) (Figure 8).

Despite number of people affected from natural disasters increased in the OIC countries group, number of deaths due to natural disasters fell between the periods 1991-2000 and 2011-2020.

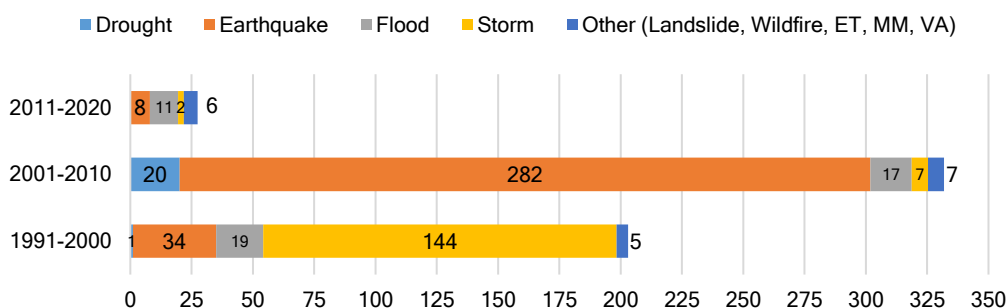
Figure 8: Top 10 OIC Countries in Terms of Number of People Affected from Natural Disasters (in Millions), 1991-2020



Source: Data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database.

The number of deaths due to floods was also the largest in the OIC countries group. In the 2011-2020 period, 11 thousand people died in the OIC countries group as a result of floods (around 23% of the deaths due to floods in the world). Earthquakes were the second deadliest type of natural disaster in the OIC countries group with around 8 thousand deaths in the same period. Followed by landslides with 3.2 thousand deaths, storms and extreme temperature events resulted in a total of around 4 thousand deaths. In the 2011-2020 period, deaths associated with droughts, mass movements, volcanic activities, and wildfires were only around 620 in the OIC countries group (Figure 9).

Figure 9: Deaths due to Natural Disasters in OIC Countries Group (in Thousands), by Type, 1991-2020

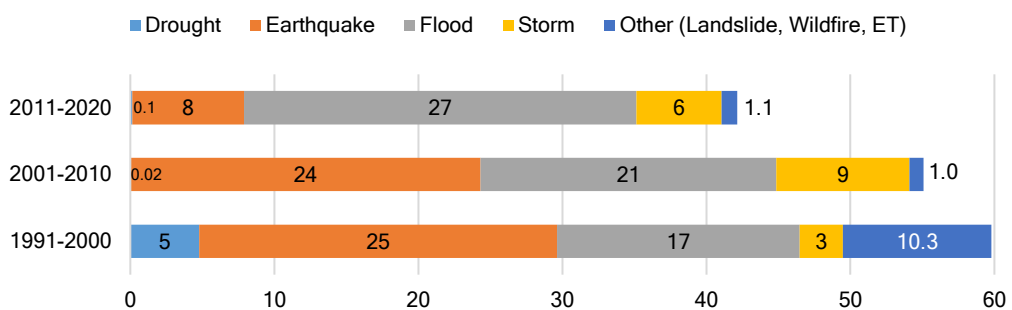


Source: SESRIC staff calculations based on data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database. ET=Extreme Temperature, MM=Mass Movement, and VA=Volcanic Activity.

Considering the period 2011-2020, 10 OIC countries registered a total death of 24 thousand people due to natural disasters (89% of total deaths due to natural disasters in the OIC countries group), which decreased from around 199 thousand deaths (accounting

Contrary to the upwards trend in the world, the cost of damages associated with natural disasters in the OIC countries group decreased from 60 billion USD in the period 1991-2000 to 42 billion USD in the period 2011-2020. In the period 2011-2020, the cost of damages due to floods (27 billion USD) was highest when compared to other natural disaster types, accounting for 65% of the total cost of natural disaster damages. It was followed by the costs caused by earthquakes (8 billion USD - 18% of the total cost of natural disaster damages) and storms (6 billion USD - 14% of total cost of natural disaster damages). Other natural disaster types claimed a share of 3% in the total cost of natural disaster damages in the OIC countries group in the period 2011-2020 (Figure 12).

Figure 12: Cost of Natural Disaster Damages in OIC Countries Group (in Billion USD), 1991-2020



Source: SESRIC staff calculations based on data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database. ET=Extreme Temperature.

Figure 13: Top 10 OIC Countries in Terms of Cost of Damages due to Natural Disasters (in Billion USD), 1991-2020



Source: Data extracted from Centre for Research on the Epidemiology of Disasters (CRED), EM-DAT International Disaster Database.

The OIC countries that were vulnerable to natural disasters were also among those that were hit hard economically due to the high cost of damages caused by natural disasters. Between 1991 and 2000, Turkey alone incurred a cost of damage due to natural disasters

equal to 24 billion USD. During the periods 2001-2010 and 2011-2020, Pakistan incurred cost of damages due to natural disasters equal to 17 billion USD and 10 billion USD, respectively. Between 1991 and 2020, the OIC countries with total cost of damages due to natural disasters over 10 billion USD included Indonesia (33 billion USD), Pakistan (28 billion USD), Turkey (28 billion USD), Iran (18 billion USD), and Bangladesh (17 billion USD) (Figure 13).

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