



# Disasters Incurred By Natural Hazards

## Definition

The impact of disasters incurred by natural hazards on ecosystems has grown (number of people involved, global cost, etc.) due to a combination of population growth, settlement patterns, and the increasing frequency of events (floods, storms, heat waves, etc.). Between 1994 and 2018, natural disasters have claimed 666 822 lives<sup>1</sup>, representing an average of 27 784 lives every year<sup>2</sup> and impacting one billion more. Disasters incurred by natural hazards lead to displacement, exacerbate health and economic vulnerabilities, and disrupt ecosystems. Natural disasters often worsen the situation of already fragile populations.

## Key Insight

**By 2030 there will be a consistent increase in the impact of natural disasters and an exacerbation of humanitarian issues.**

Climate change is increasing the frequency of climatological (droughts, wildfires), meteorological (storms, heatwaves), hydrological (floods, landslides), and biological (human and agricultural epidemics) disasters. Continued environmental degradation reduces resilience to these shocks. With increased urbanization, particularly in coastal zones, natural disasters will be increasingly devastating. While the frequency and impact of natural disasters has been increasing, long-term planning by policy makers could help to mitigate the worst impacts of these events.

## Main trends

### ➤ Increasing occurrence of natural disasters, particularly floods and storms

Disasters incurred by natural hazards have become more frequent particularly due to the increase of weather-related disasters like floods and storms. An average of 335 disasters

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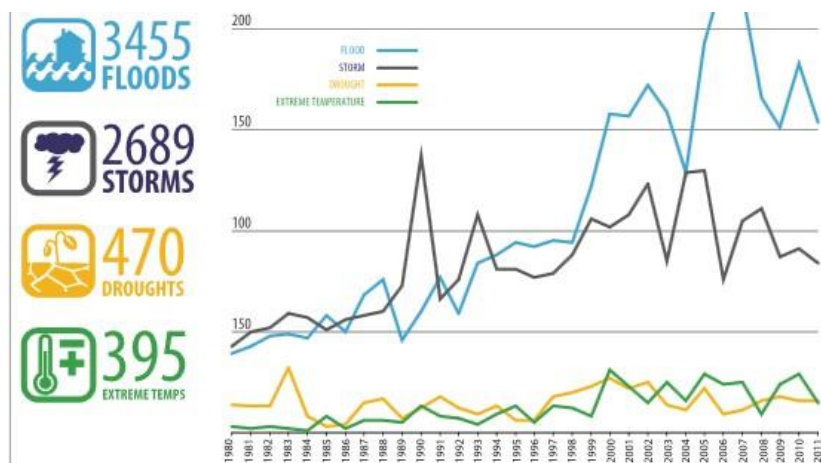
<sup>1</sup> Centre for Research on the Epidemiology of Disasters (2018) [Natural disasters 2018](#).

<sup>2</sup> According to the Centre for Research on the Epidemiology of disasters (CRED), every year, an average of 218 million people were affected by natural disasters between 1994 and 2013. Not less than 6,873 disasters were recorded during this period, claiming the lives of 1.35 million people with an average of almost 68,000 deaths per year. [The human cost of weather-related disasters 1995-2015](#).



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have been reported each year since 2005 representing an increase of 14% in comparison to the 1995-2004 decade and more than double the number of disasters recorded in the 1980-1989 period<sup>2</sup>. Floods and storms represent the most dramatic increase while the number of geophysical events (such as earthquakes, volcanic activity and mass movements) remained quite stable, suggesting that this increase is due to climate change rather than improvements in reporting.



**Fig. 2.6** Number of climate-related disasters around the world (1980–2011). Data from EM-DAT. EM-DAT records a natural hazard as a disaster if one of the following criteria is met: ten or more people are reported killed, hundred or more are reported affected, state of emergency is declared, or international assistance is called for (Reproduced from UNISDR 2012)

Source: The United Nations office for disaster risk reduction, disaster statistics, counting the costs and impacts;

### ➤ **A slight decline in number of affected people**

Despite the increasing number of natural disasters, the number of people affected by a hazardous event (including climate-related events and others) has slightly declined during the last decade. The number of affected people<sup>3</sup> reached a peak in 2002 and then slightly declined to an average of 165 million people affected each year during the 2005-2015 period

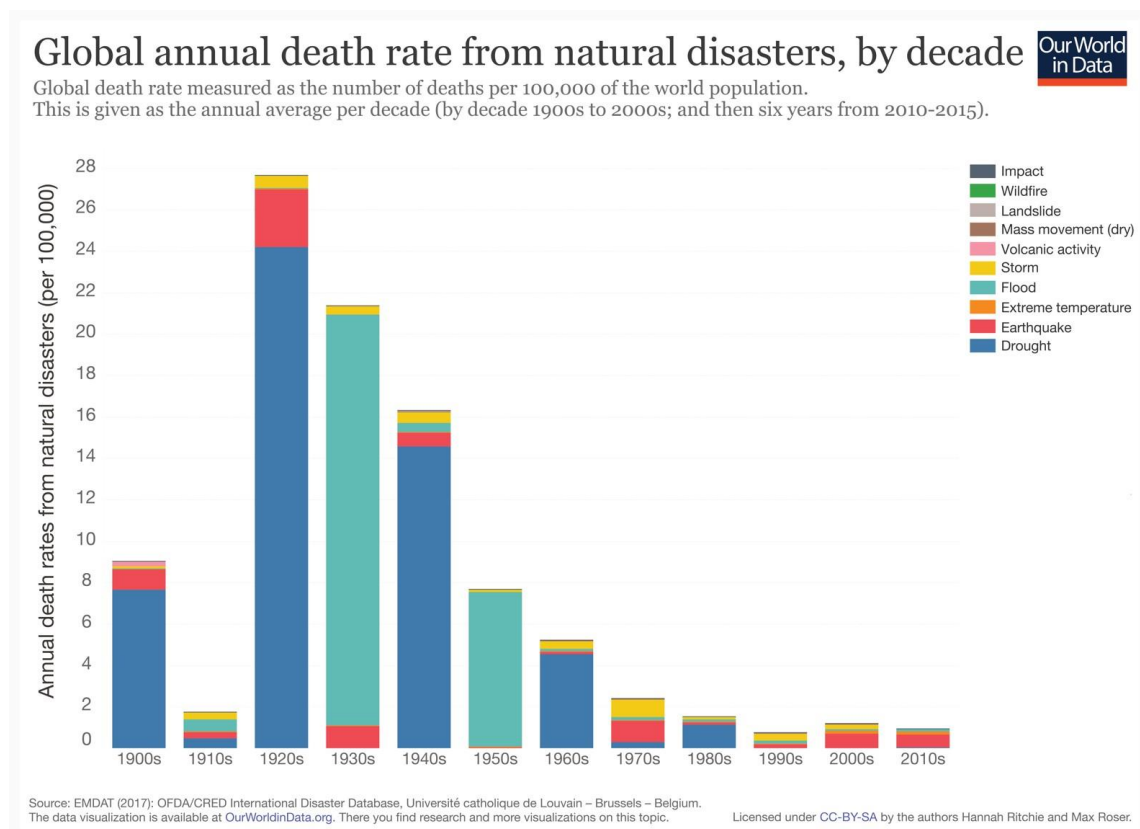
<sup>3</sup> Centre For Research On The Epidemiology Of Disasters (CRED) and The United Nations office for disaster risk reduction (UNISDR) (2015) [The human cost of weather-related disasters 1995-2015](#)

<sup>4</sup> According to UNISDR, people affected are all people affected either directly or indirectly, by a hazardous event. Directly affected are those who have suffered injury, illness, or other health effects; who were evacuated, displaced, relocated, or have suffered direct damage to their livelihoods. Indirectly affected are people who have suffered consequences, other than or in addition to direct effects, over time, due to disruption or changes in economy, critical infrastructure, basic services, commerce, or work, or social, health and psychological consequences.



against 245 million in the 1995-2004 period<sup>4</sup>. Deaths induced by natural disasters have increased to reach an average of 34,000 deaths in the last decade compared to 26,000 during the 1995-2004 period. However, cyclone Nargis which claimed the lives of 138,000 people has distorted the average; with that event removed, the death toll follows the same pattern of decline as the number of affected people with an average of 20,000 deaths each year from 2005 to 2015. This downward trend is also illustrated in the long term. The deadliest natural disasters since the beginning of the twentieth century have mostly occurred before the 1990s. Concurrently, since 1900 the population has grown by fivefold.

This situation is mainly explained by **the anticipation, adaptation and disaster risk reduction measures** taken by policy makers (national, international, NGOs) to reduce the risk of natural disasters and the vulnerability of at-risk populations.

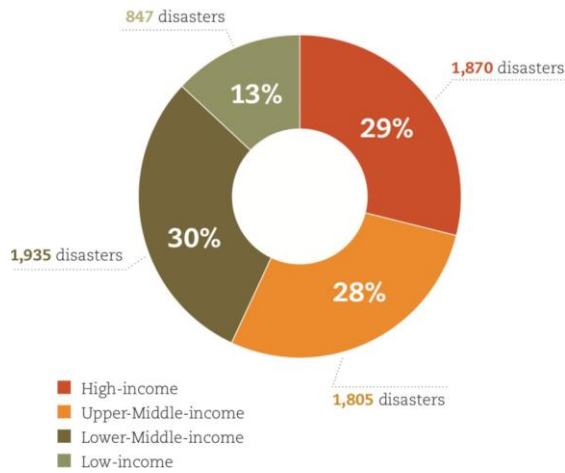


Source: Max Roser, Annual global death rate (per 100,000) per decade from natural catastrophes, 1900-2013, Our World in Data; Web; Accessed November 2, 2016

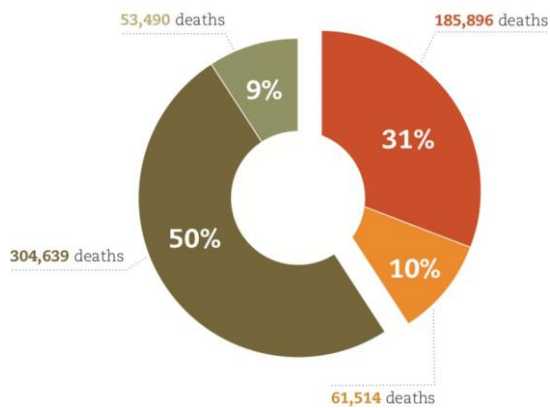
<sup>5</sup> Centre For Research On The Epidemiology Of Disasters (CRED) and The United Nations office for disaster risk reduction (UNISDR) (2015) [The human cost of weather-related disasters 1995-2015](#)



Number of weather-related disasters per income group (1995-2015)



Number of deaths per income group for weather-related disasters (1995-2015)



Source: Centre For Research On The Epidemiology Of Disasters (CRED) and The United Nations office for disaster risk reduction (UNISDR) (2015), The human cost of weather-related disasters 1995-2015;

## ➤ Growing inequalities between countries facing natural disasters

Asia and North America, more precisely the United States, India, and China, are the countries who suffer more frequently natural disasters. Significant inequalities between countries are observable regarding event impacts. Among the 2.3 billion people affected by flooding during the 1995-2004 period, 95% lived in Asia<sup>6</sup>. The World Resources Institute (2015) has calculated that among the top 15 countries with greatest population exposed to river flood risk, 10 are in Asia.<sup>6</sup> However, when looking at the ratio of natural disasters to total population by country, African countries are the most impacted.

South and South East Asia are particularly affected by storms; the region registered just 21% of the world's storms but 80% of global deaths induced by storms. Africa is particularly impacted by drought with 136 events accounting for 41% of the global total in the 1995-2015 period. Moreover, the very low number of deaths registered as drought related (4% of the total death) is a misleading figure as it excludes indirect deaths (malnutrition, disease, etc.) and it reflects countries under-reporting.

Economic impacts also exhibit clear disparities. Though disasters in developed countries have a much higher absolute cost (such as Hurricane Katrina) they do not account for a large percentage of GDP. Looking at lost percentage of Gross Domestic Product (GDP),

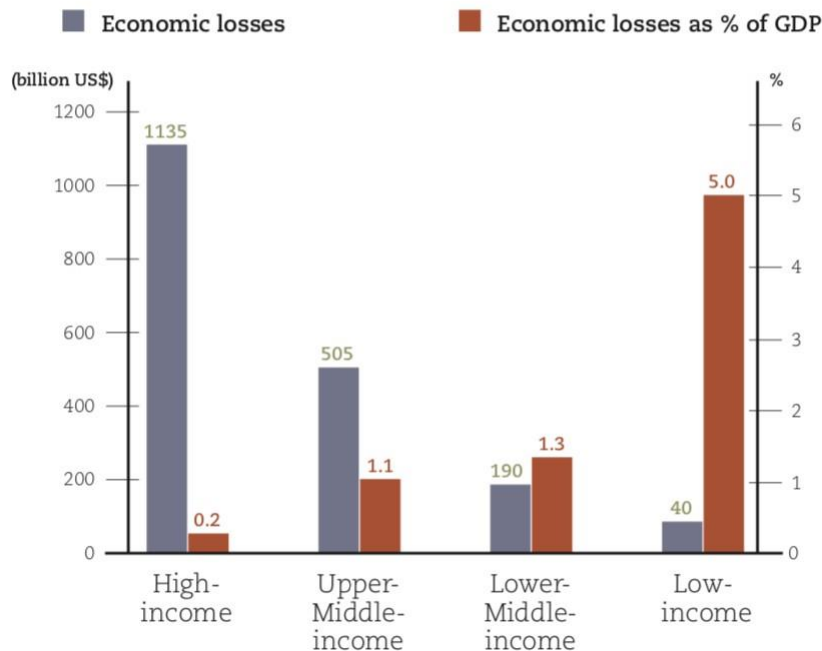
<sup>6</sup> Centre For Research On The Epidemiology Of Disasters (CRED) and The United Nations office for disaster risk reduction (UNISDR) (2015) [The human cost of weather-related disasters 1995-2015](#)

<sup>7</sup> World Resources Institute (2015) ["World's 15 countries with the most people exposed to river flood"](#)



low income countries are clearly the most impacted with an average of 5% GDP loss compared to an average of 0.2% for high-income countries. In absolute terms the Americas and Asia account for respectively 46% and 37% of economic recorded losses. This number is seen as a low estimate due to under-reporting of losses worldwide. Only 36% of the disasters are recorded.

### Economic losses in absolute values and as a percentage of GDP from weather-related disasters (1995-2015)



Source: Centre For Research On The Epidemiology Of Disasters (CRED) and The United Nations office for disaster risk reduction (UNISDR)(2015), The human cost of weather-related disasters 1995-2015; Print.

#### ➤ Increase of the brittleness (less resilience, less variety) of human ecosystems

The resilience of communities is essential to reducing the impact of natural disasters. A lack of international assistance needed in the immediate aftermath and continued funding of long-term recovery leads to increased fragility for more vulnerable countries. Natural disasters damage countries essential infrastructure such as drinking water systems, homes, clinics,



hospitals, and schools. Though the damage from disasters induced by natural hazards is ubiquitous, less developed countries have fewer resources to rebuild and repair critical infrastructure and are less able to adapt infrastructure to be disaster resilient.

The more the GDP and the labor force of a country depend on agricultural sector, the higher the risk of ecosystemic destabilization<sup>7</sup>.

➤ **Rise of population displacement associated with natural hazards**

Each year an average of 26.4 million<sup>8</sup> people are displaced by natural hazards, particularly by floods and storms. “The likelihood of being displaced by a disaster today is 60% higher than it was four decades ago”<sup>9</sup>. Developing countries are “consistently the worst affected”<sup>10</sup> accounting for 95% of the global total of people displaced since 2008<sup>11</sup>. Asia is the most affected area with large and recurrent population displacement; eleven of the twenty countries most affected by displacement are located in Asia.

Asia will continue to be the most impacted area with a higher risk of displacement and a greater number of people concerned during the 2015-2025 period, particularly in China, India, and the Philippines (see map below). More than 10% of the population of countries such as the Philippines and Afghanistan are likely to be displaced because of weather-related disasters over the next 10 years. In China and India it is 22 million and 7 million people respectively who may be displaced each year<sup>12</sup>.

While most of displacements caused by natural disasters are internal, they can also induce people to cross borders. None of the existing international and regional refugee law instruments specifically address the plight of such people. Displacement caused by the slow-

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<sup>8</sup> Food and agriculture organization of the United Nations (2015) [The Impact of Natural Hazards and Disasters on Agriculture and Food Security and Nutrition](#)

<sup>9</sup> Internal Displacement Monitoring Centre (2015) [Global estimates 2015: People displaced by disasters](#)

<sup>10</sup> Internal displacement monitoring center (2015) [Global Estimates 2015: People displaced by disasters](#)

<sup>11</sup> Internal displacement monitoring center (2015) [Global Estimates 2015: People displaced by disasters](#)

<sup>12</sup> Internal displacement monitoring center (2015) [Global Estimates 2015: People displaced by disasters](#)

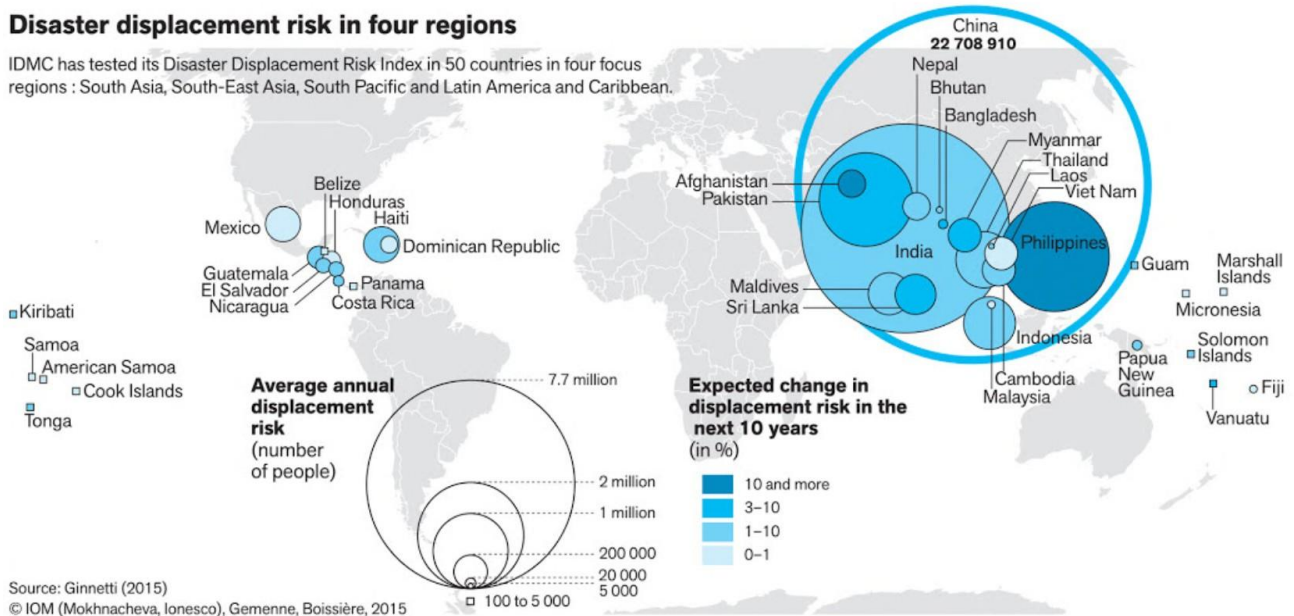
<sup>12</sup>Alex Bastien et Gemenne François (2016) [Impacts du changement climatique sur les flux migratoires à l'horizon 2030](#) [Impacts of climate change on migrations flows by 2030] report n°1, may 2016, Observatoire des enjeux géopolitiques de la démographie [Observatory of geopolitical issues of demography], Futuribles International and IRIS for DGRIS



onset effects of climate change is largely internal as well. However, the intensification of climate change impacts might contribute to the increasing of international migrations.<sup>13</sup>

### Disaster displacement risk in four regions

IDMC has tested its Disaster Displacement Risk Index in 50 countries in four focus regions : South Asia, South-East Asia, South Pacific and Latin America and Caribbean.



<sup>13</sup> United Nations, [Refugees](#) retrieved 05 May 2017