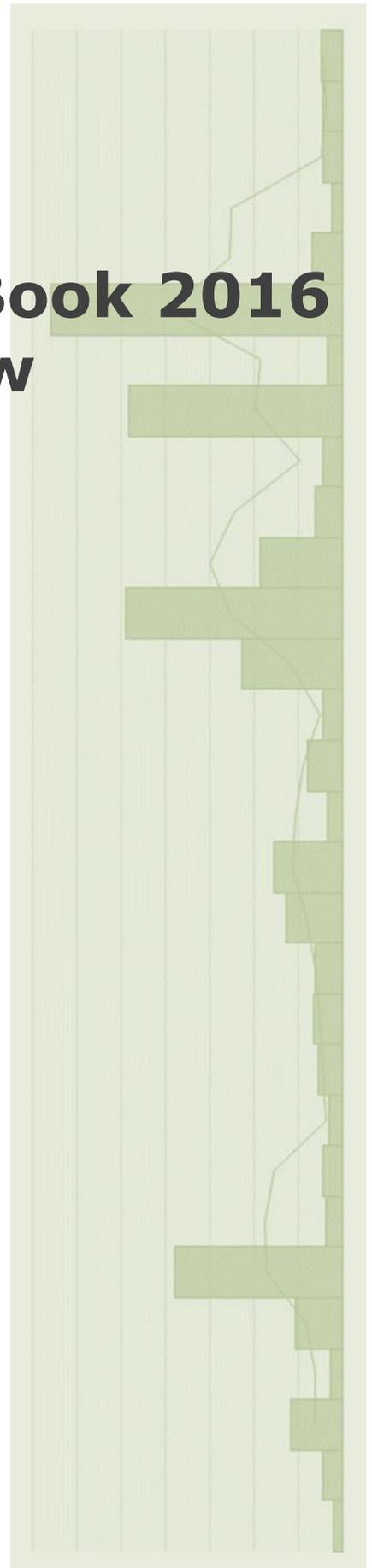


Natural Disaster Data Book 2016 An Analytical Overview

<extracts>



Overview

Asian Disaster Reduction Center (ADRC) Natural Disasters Data Book 2016 provides statistical perspectives in figures and tables for 2016 as well as for the period 1987-2016 based on data obtained by EM-DAT.

According to EM-DAT, 350 natural disasters occurred in 2016 worldwide, killing 10,273 people and affecting over 204 million people. The estimated amount of economic damage came close to US\$147.4 billion.

In 2016, the earthquake that hit Ecuador in April brought about serious damages to the country. The disaster killed nearly 670 people. The storm that hit the United States in January has largest affected people in the world with over 85.0 million.

On the other hand, the flood that hit China in June caused largest economic damage worth US\$2.2 billion, which ranked the highest.

By region, Asia is ranked the highest in the indices of disaster occurrences, the number of people killed and economic damage. Asia accounts for 45.1 percent in occurrences; number of people killed, 50.5 percent; and amount of economic damage, 49.5 percent. As for the number of people affected, Americas topped by 46.4 percent.

By disaster types, flood is dominant in occurrence, killed, and economic damage at 45.7 percent, 45.3 percent, and 38.7 percent, respectively, while storm tops in number of people affected by 46.0 percent.

[Notes]

Source:

All disaster data are based on D. Guha-Sapir, R. Below, Ph. Hoyois - EM-DAT: International Disaster Database – www.emdat.be – Université Catholique de Louvain – Brussels – Belgium. Data set was obtained on 28 March 2018, 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.

In this Data Book 2016 “killed people” are defined as persons confirmed as dead and persons missing and presumed dead. “Affected people” are the sum of injured, homeless, and affected in EM-DAT. EM-DAT defines affected people as people requiring immediate assistance during the period of emergency; it can also include displaced or evacuated people.

Disaster Terms:

“Animal accident” is that human encounters with dangerous or exotic animals in both urban and rural developments.

“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.

“Landslide” includes avalanche, debris, and rockfall.

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

“Volcanic activity” includes volcanic eruption of lava, ash, hot vapour, gas, and pyroclastic material.

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

Disclaimer:

Country and region classification used in this databook is based on EM-DAT criteria.

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1. IMPACTS OF NATURAL DISASTERS BY REGION, 2016

This section shows the impacts of natural disasters in four indices, occurrence, number of deaths, number of affected people and economic damage that were reported across the world in 2016. As shown in Figure 1, Asia ranks the first among all regions in the categories of disaster occurrence, the number of killed people, and economic damage, accounting for 45.1 percent, 50.5 percent, and 49.5 percent, respectively. On the other hand, Americas is ranked the highest in the number of affected people, which is largely attributed to the storm in Americas.

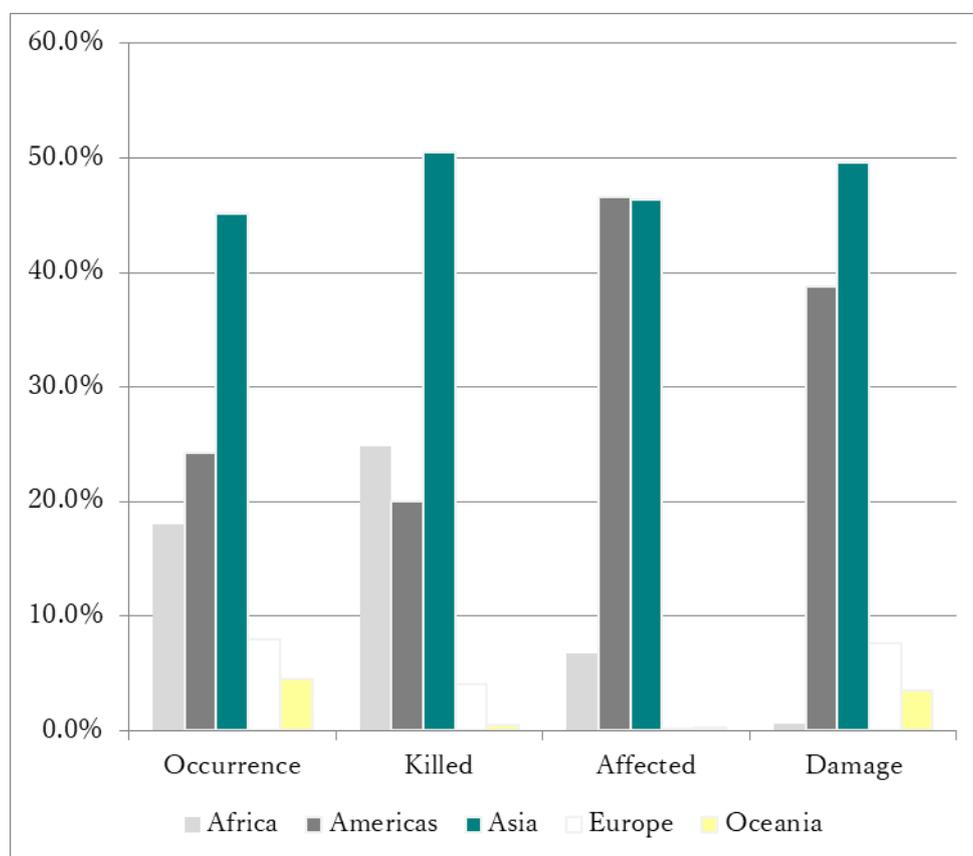


Figure 1: Impacts of Natural Disasters by Region, 2016

Table 1: Impacts of Natural Disasters by Region, 2016

Region	Impact							
	Occurrence (share in %)		Killed (share in %)		Affected (share in %)		Damage (US\$ million) (share in %)	
Africa	63	(18.0%)	2,554	(24.9%)	13,760,813	(6.7%)	867	(0.6%)
Americas	85	(24.3%)	2,062	(20.1%)	95,038,986	(46.6%)	57,148	(38.8%)
Asia	158	(45.1%)	5,186	(50.5%)	94,718,029	(46.4%)	73,017	(49.5%)
Europe	28	(8.0%)	415	(4.0%)	93,426	(0.0%)	11,179	(7.6%)
Oceania	16	(4.6%)	56	(0.5%)	490,911	(0.2%)	5,160	(3.5%)
Total	350	(100.0%)	10,273	(100.0%)	204,102,165	(100.0%)	147,371	(100.0%)

Source:
EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be,
Université Catholique de Louvain, Brussels (Belgium)

2. IMPACTS OF NATURAL DISASTERS BY DISASTER TYPE, 2016

Regarding the breakdown of impacts of disasters by disaster type, two disasters, flood and storm, are dominant in all categories. Flood tops at 45.7 percent and 45.3 percent while in the number of occurrence and killed people. The number of affected people, storm has the largest shares, 46.0 percent followed by flood, 38.3 percent. Flood brings the heaviest economic damage by 38.7 percent followed by storm, 30.6 percent.

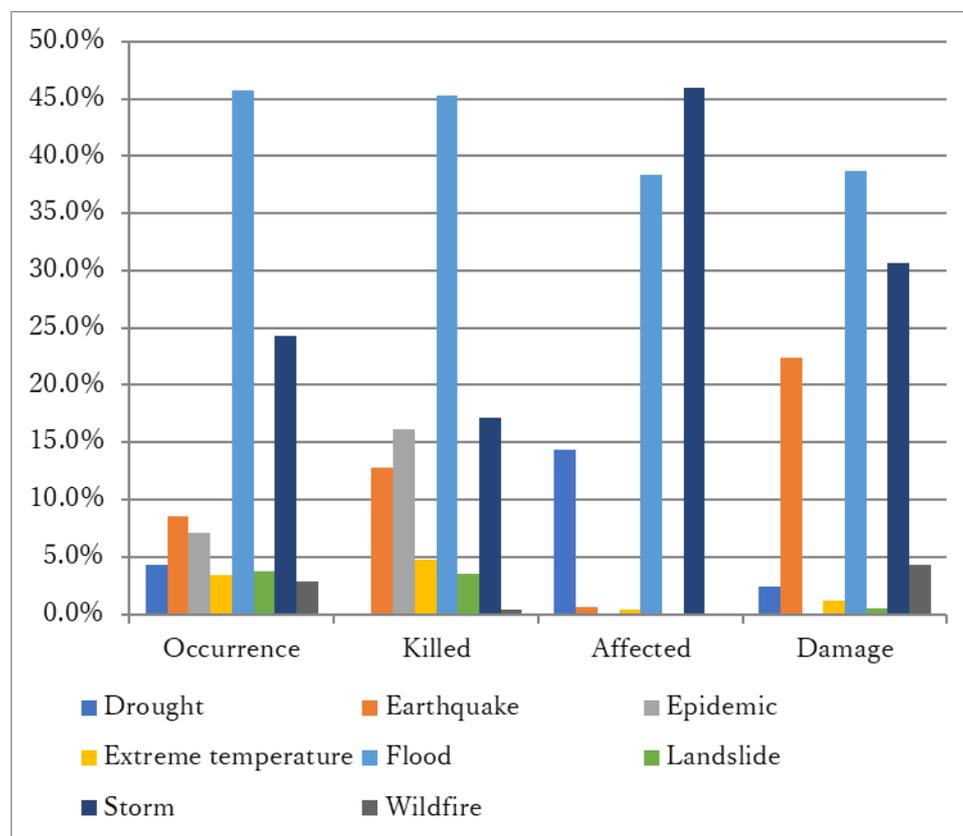


Figure 2: Impacts of Natural Disasters by Disaster Type, 2016

Table 2: Impacts of Natural Disasters by Disaster Type, 2016

Disaster Type	Impact			
	Occurrence (share in %)	Killed (share in %)	Affected (share in %)	Damage (US\$ million) (share in %)
Drought	15 (4.3%)		29,417,000 (14.4%)	3,554 (2.4%)
Earthquake	30 (8.6%)	1,311 (12.8%)	1,185,081 (0.6%)	32,995 (22.4%)
Epidemic	25 (7.1%)	1,656 (16.1%)	130,641 (0.1%)	
Extreme temperature	12 (3.4%)	490 (4.8%)	908,120 (0.4%)	1,727 (1.2%)
Flood	160 (45.7%)	4,656 (45.3%)	78,213,354 (38.3%)	56,972 (38.7%)
Landslide	13 (3.7%)	361 (3.5%)	243,443 (0.1%)	725 (0.5%)
Storm	85 (24.3%)	1,760 (17.1%)	93,846,236 (46.0%)	45,111 (30.6%)
Wildfire	10 (2.9%)	39 (0.4%)	158,290 (0.1%)	6,287 (4.3%)
Total	350 (100.0%)	10,273 (100.0%)	204,102,165 (100.0%)	147,371 (100.0%)

Source:
EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be,
Université Catholique de Louvain, Brussels (Belgium)

3. IMPACTS OF NATURAL DISASTERS IN ASIA BY DISASTER TYPE, 2016

Regarding the overview of impacts of disasters sorted by disaster type in Asia, Figure 3 shows a similar pattern to Figure 2. However, in number of the affected people, flood has the largest shares, 78.3 percent followed by drought, 14.3 percent.

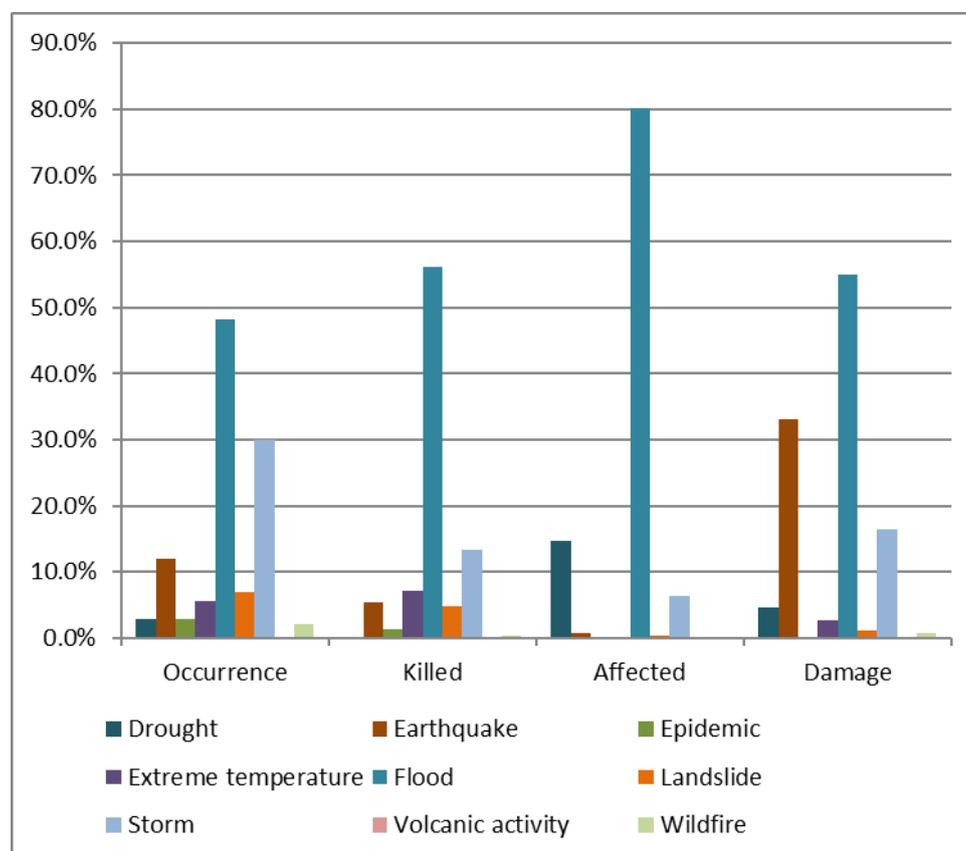


Figure 3: Impacts of Natural Disasters by Disaster Type in Asia, 2016

Table 3: Impacts of Natural Disasters by Disaster Type in Asia, 2016

Disaster Type	Impact			
	Occurrence (share in %)	Killed (share in %)	Affected (share in %)	Damage (US\$ million) (share in %)
Drought	4 (2.5%)		13,520,000 (14.3%)	3,020 (4.1%)
Earthquake	17 (10.8%)	313 (6.0%)	603,727 (0.6%)	21,207 (29.0%)
Epidemic	4 (2.5%)	72 (1.4%)	92,435 (0.1%)	
Extreme temperature	8 (5.1%)	421 (8.1%)	158,100 (0.2%)	1,727 (2.4%)
Flood	69 (43.7%)	3,296 (63.6%)	74,156,199 (78.3%)	35,278 (48.3%)
Landslide	10 (6.3%)	282 (5.4%)	238,397 (0.3%)	725 (1.0%)
Storm	43 (27.2%)	784 (15.1%)	5,889,034 (6.2%)	10,541 (14.4%)
Wildfire	3 (1.9%)	18 (0.3%)	60,137 (0.1%)	520 (0.7%)
Total	158 (100.0%)	5,186 (100.0%)	94,718,029 (100.0%)	73,017 (100.0%)

Source:
EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be,
Université Catholique de Louvain, Brussels (Belgium)

4. TRENDS OF WORLD NATURAL DISASTERS, 1987-2016

4-1 NUMBER OF DISASTERS IN THE WORLD (1987-2016)

In terms of number of disasters, the year 2016 sees a decrease from the previous year's 394 to 350. In the long run, the upward trend continues from the late 1980s till 2000 and the downward trend follows. In the collective 5-year period representation of data in Figure 4-2, a downward trend is observed in the last 15 years starting from 2002-2006 period.

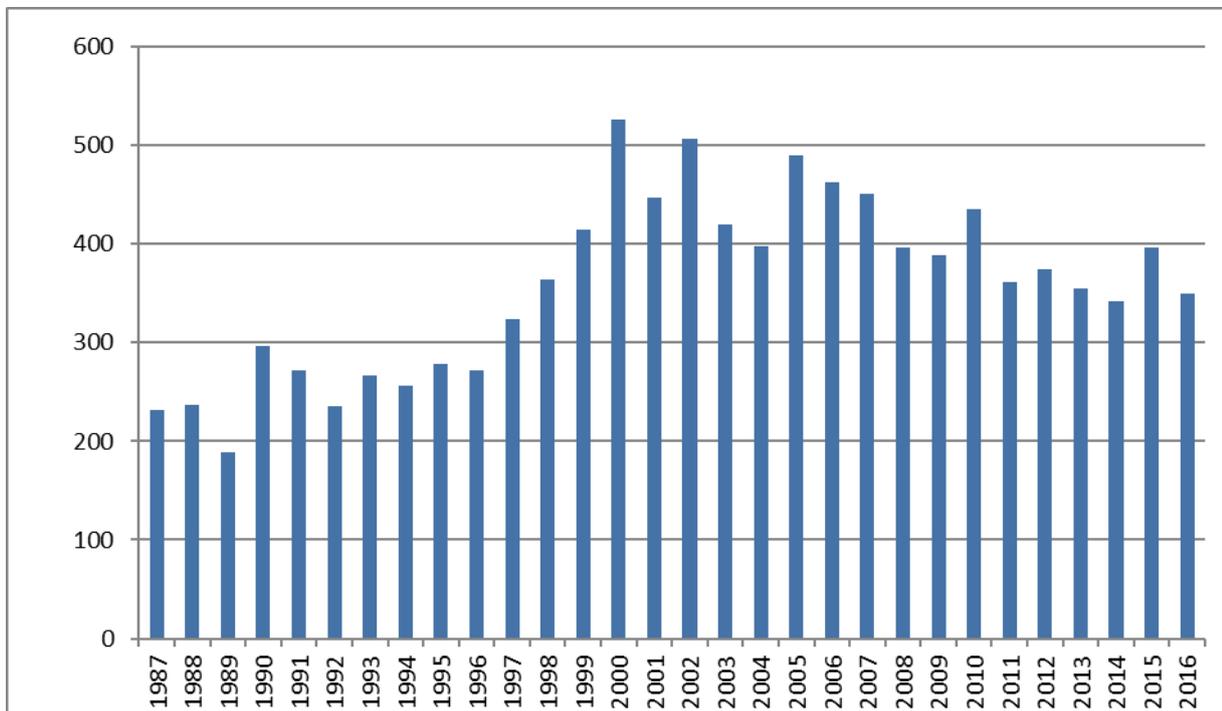


Figure 4-1: Disaster Occurrence, 1987-2016

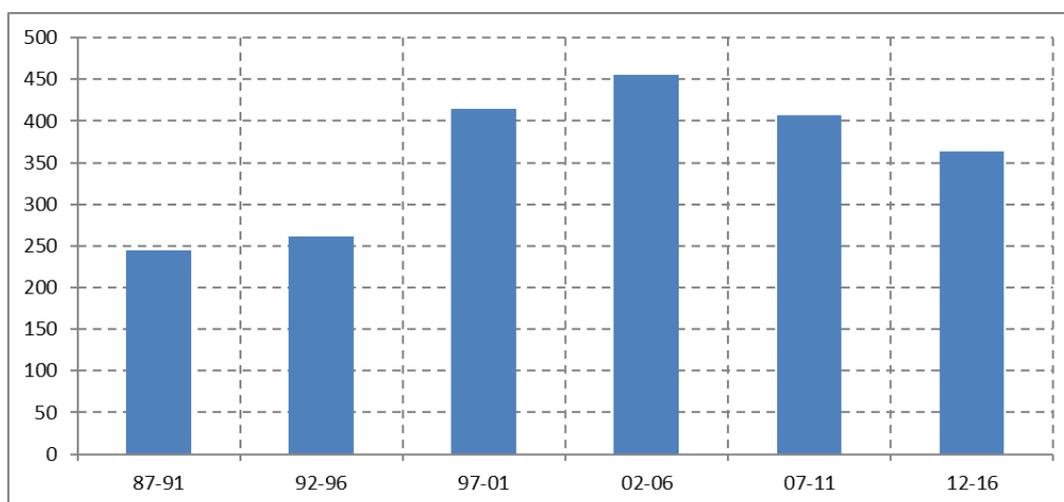


Figure 4-2: Disaster Occurrence (Average of 5-year period), 1987-2016

Source:
EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be,
Université Catholique de Louvain, Brussels (Belgium)

4-2 NUMBER OF PEOPLE KILLED IN THE WORLD (1987-2016)

The year 2016 shows a decrease of death toll from the previous year's 23,900 to 10,273. As seen in Figure 4-4 about the trend of the 5-year period average, the number of people killed for the period 2012-2016 shows a drastic decrease from 128,948 to 17,782.

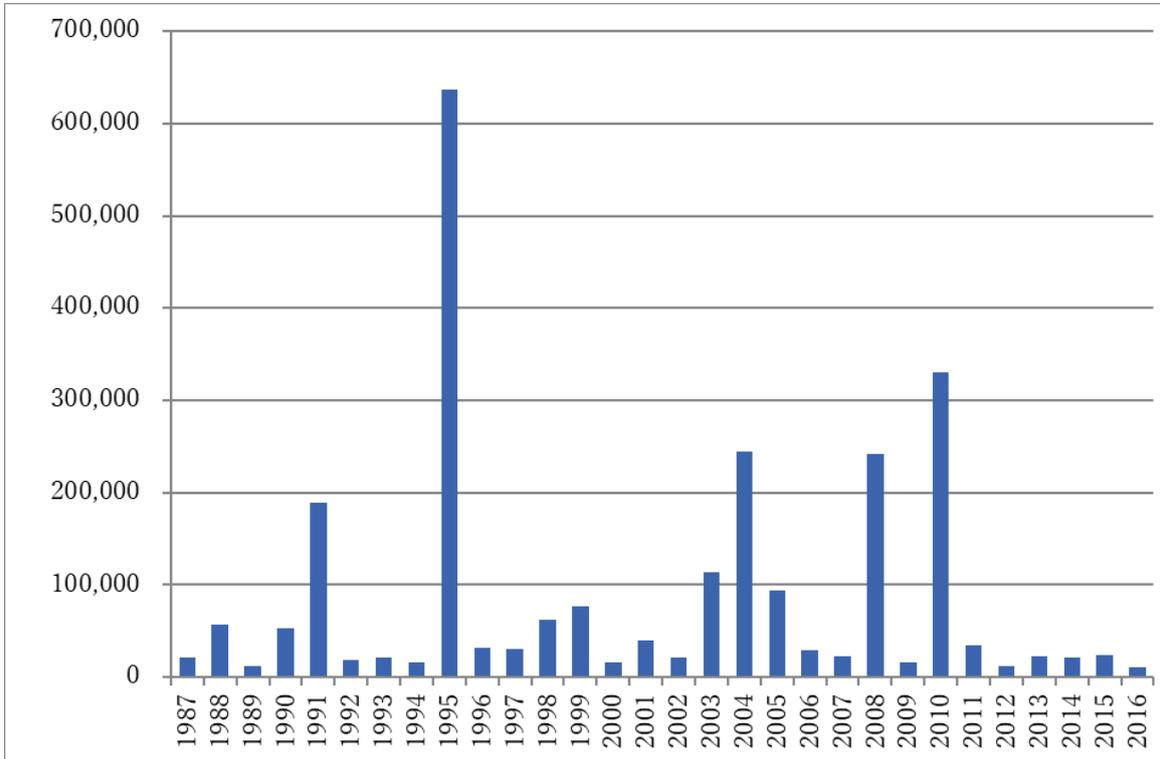


Figure 4-3: Number of People Killed, 1987-2016

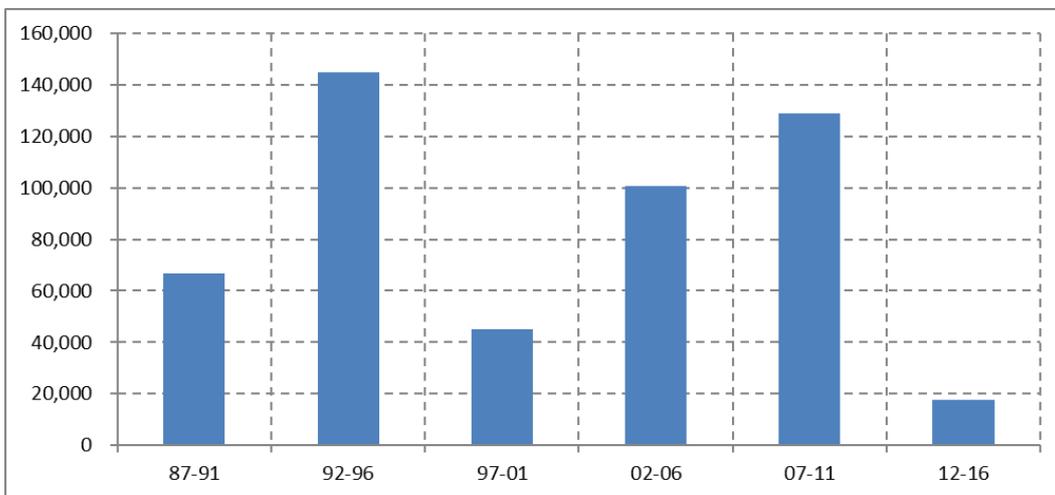


Figure 4-4: Number of People Killed (Average of 5-year period), 1987-2016

Source:
 EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be.
 Université Catholique de Louvain, Brussels (Belgium)

4-3 NUMBER OF PEOPLE AFFECTED IN THE WORLD (1987-2016)

In terms of number of the affected people, the year 2016 sees an increase from the previous year's 429,631,506 people to 204,102,165. The 5-year period average representation shows that the number of affected people continues to decrease in the last 15 years.

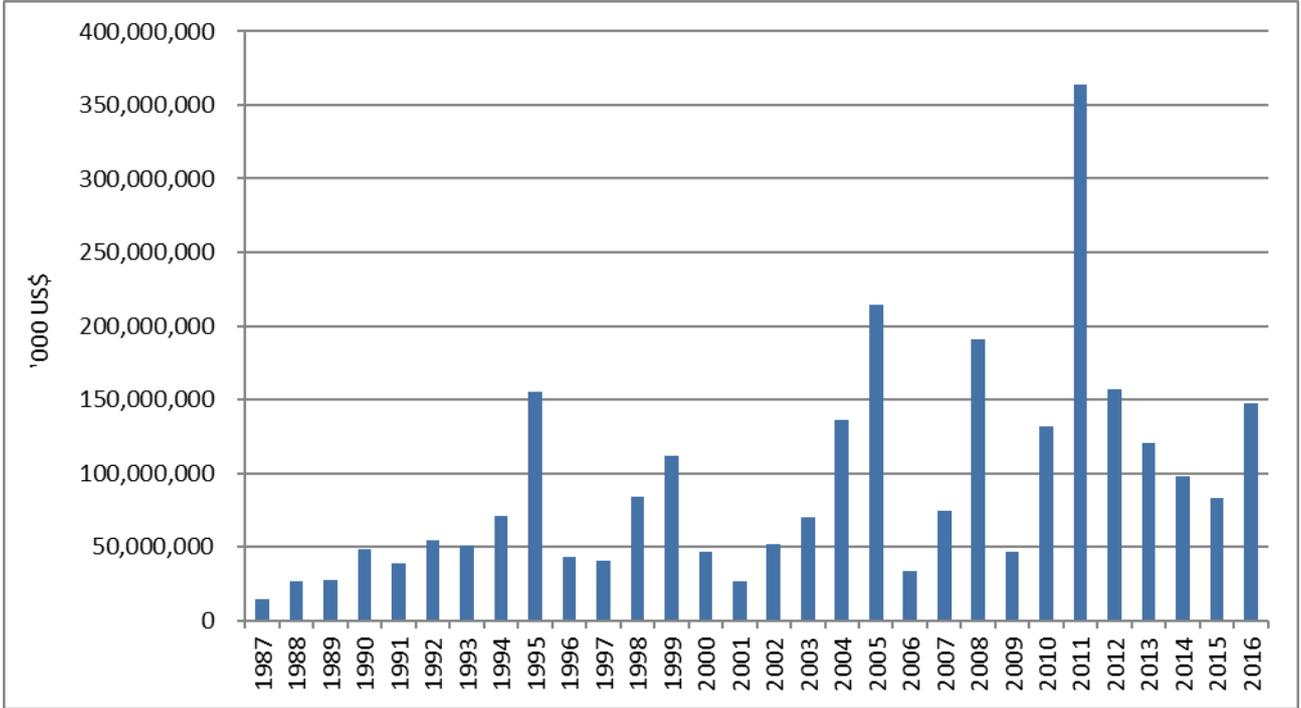


Figure 4-5: Total Number of Affected People, 1987-2016

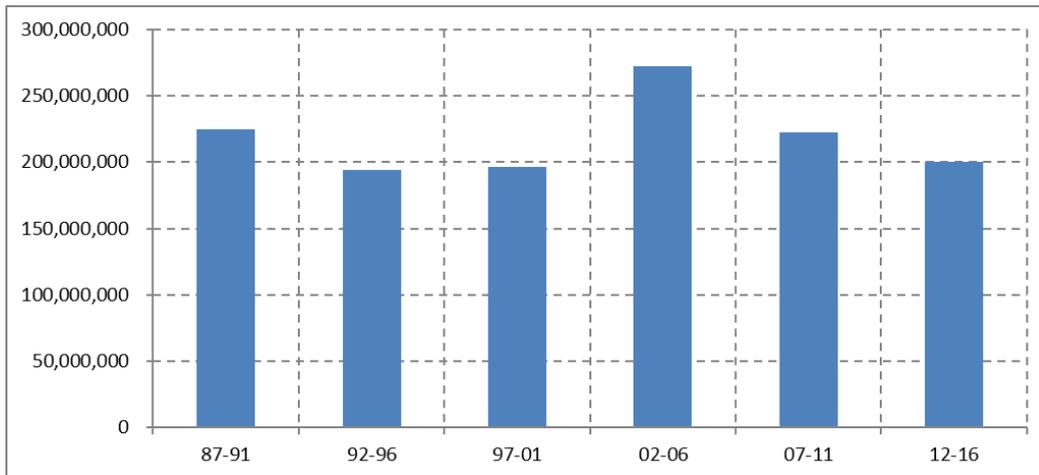


Figure 4-6: Number of Affected People (Average of 5 year period), 1987-2016

Source:
 EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be,
 Université catholique de Louvain, Brussels (Belgium)

4-4 ECONOMIC DAMAGE IN THE WORLD (1987-2016)

Economic damage caused by natural disasters, the year 2016 sees an increase from some US\$72.8 billion in 2015 to US\$ 147.4 billion in 2016. By contrast, in the 5-year period average analysis, the 2012-2016 average sees a decrease.

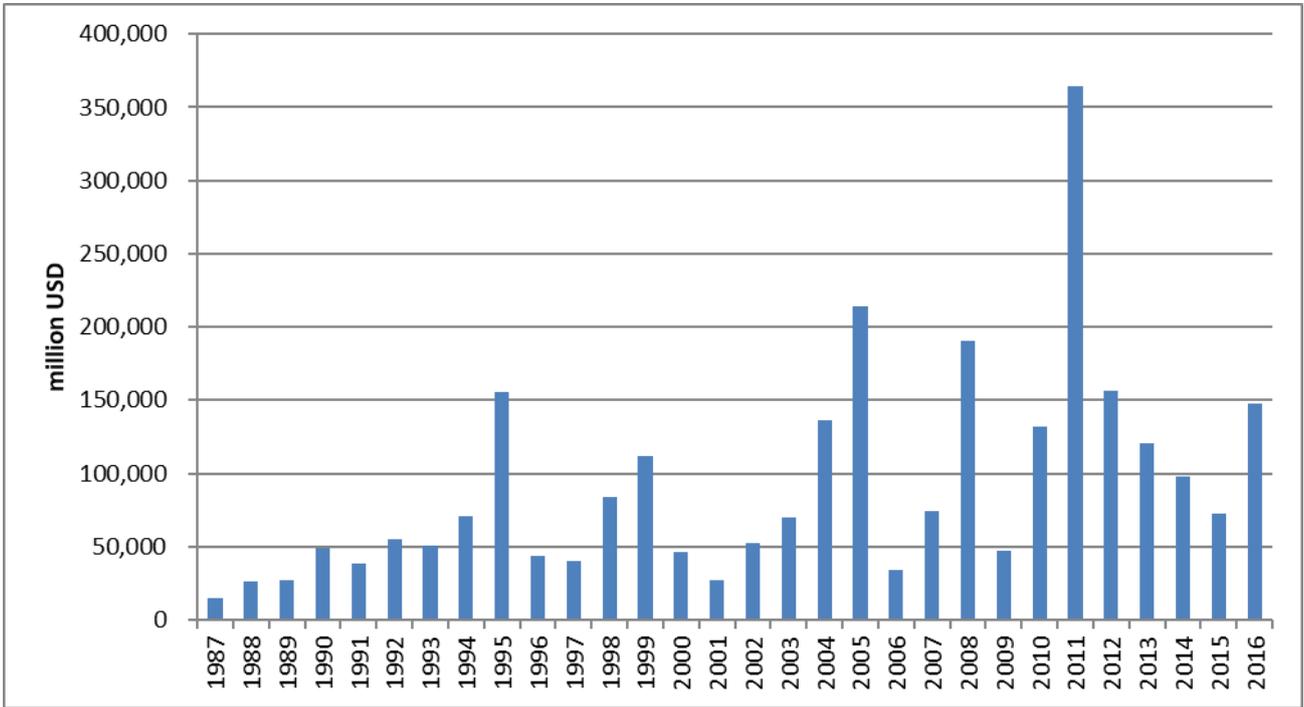


Figure 4-7: Amount of Damage (million USD), 1987-2016

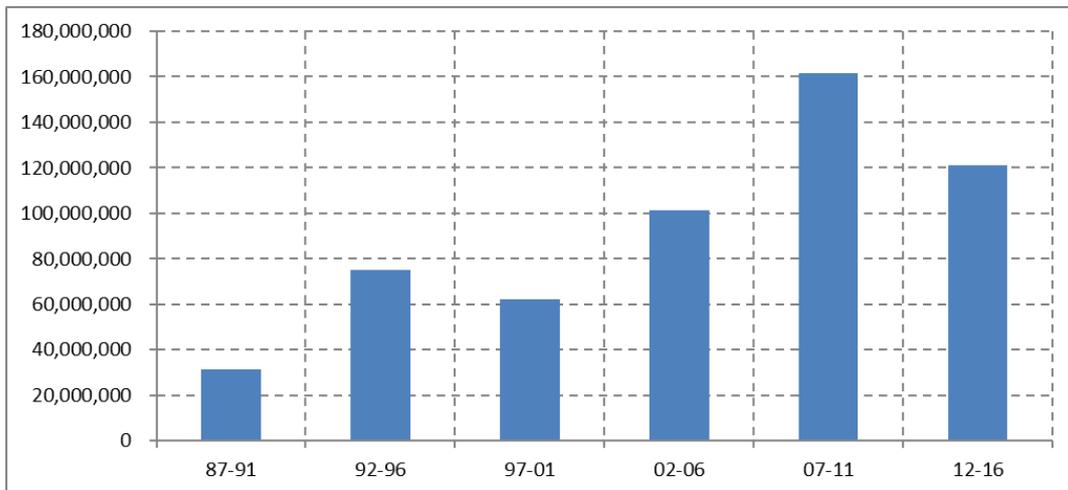


Figure 4-8: Economic Damage (Average of 5-year period), 1987-2016

Source:
 EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be,
 Université Catholique de Louvain, Brussels (Belgium)

5. IMPACTS OF WORLD NATURAL DISASTERS BY REGION, 1987-2016

For the period 1987-2016, Asia dominates and ranks the first in all natural disasters' impact categories across regions of the world, especially in terms of the number of killed and affected.

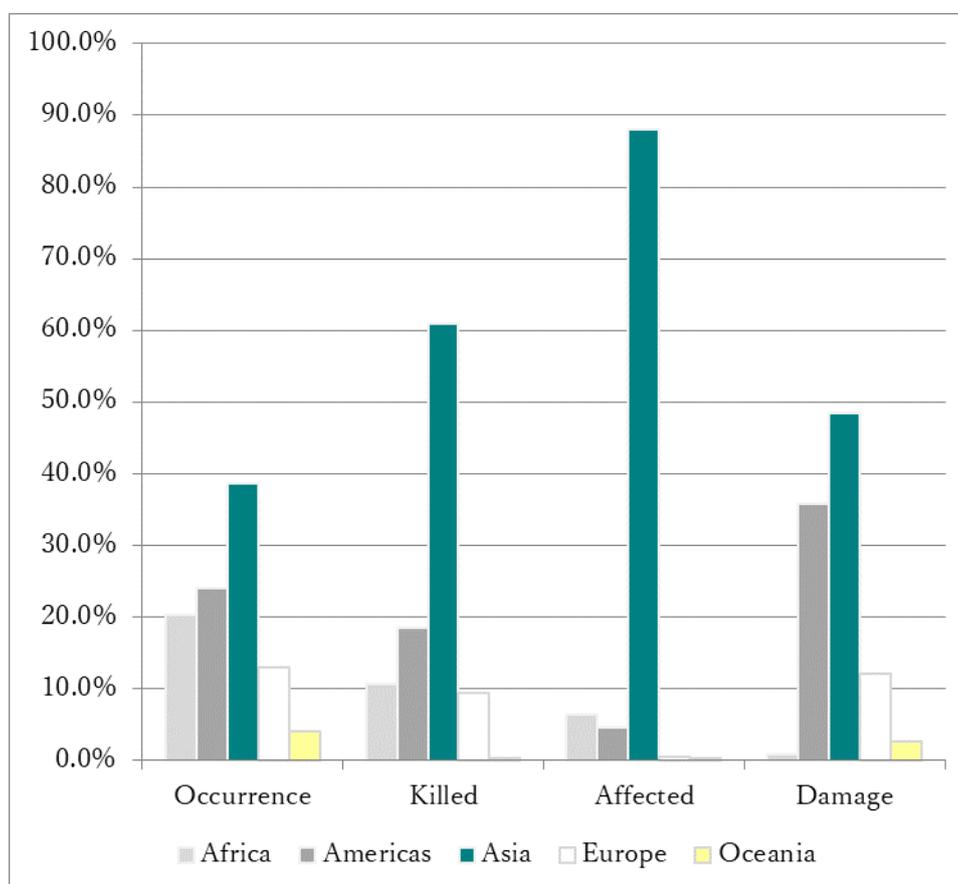


Figure 5: Impacts of World Natural Disasters by Region, 1987-2016

Table 5: Impacts of Natural Disasters by Region, 1987-2016

Region	Impact							
	Occurrence (share in %)		Killed (share in %)		Affected (share in %)		Damage (US\$ million) (share in %)	
Africa	2,172	(20.3%)	205,545	(10.7%)	423,688,214	(6.5%)	22,690	(0.8%)
Americas	2,571	(24.0%)	354,543	(18.5%)	297,061,881	(4.5%)	991,851	(35.9%)
Asia	4,151	(38.7%)	1,166,202	(61.0%)	5,750,586,898	(88.1%)	1,340,762	(48.5%)
Europe	1,387	(12.9%)	180,192	(9.4%)	36,032,240	(0.6%)	334,818	(12.1%)
Oceania	439	(4.1%)	5,680	(0.3%)	23,110,498	(0.4%)	73,154	(2.6%)
Total	10,720	(100.0%)	1,912,162	(100.0%)	6,530,479,731	(100.0%)	2,763,275	(100.0%)

Source:
EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be,
Université Catholique de Louvain, Brussels (Belgium) 20180327

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