Natural Disaster Data Book 2017
An Analytical Overview

Asian Disaster Reduction Center
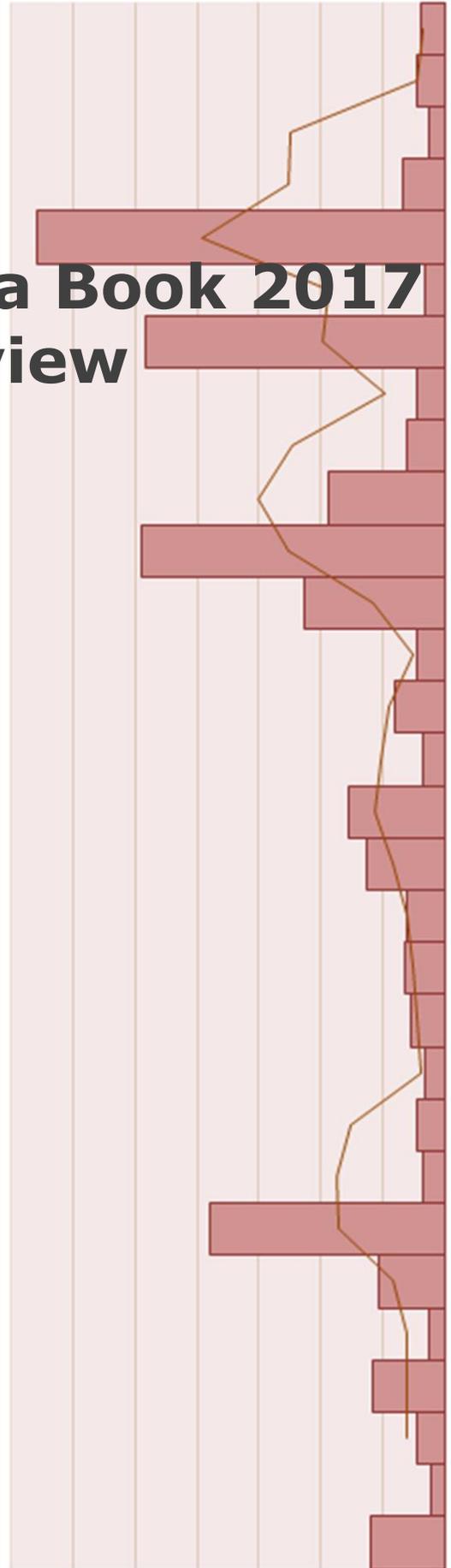
Overview

Asian Disaster Reduction Center (ADRC) Natural Disasters Data Book (Hereafter "Data Book" for short) 2017 provides statistical perspectives in figures and tables for 2017 as well as for the period 1988-2017 based on data obtained by EM-DAT.

According to EM-DAT, 366 natural disasters occurred in 2017 worldwide, killing 11,843 people and affecting over 959 million people. The estimated amount of economic damage came close to US$337.5 billion.

In 2017, the landslide that hit Sierra Leone in August brought about serious damages to the country. The disaster claimed more than 1000 people. The flood that hit the India in August has the largest affected people in the world with over 17.2 million.

On the other hand, the storm that hit United State in August caused the largest economic damage worth US$95.0 billion, which ranked the highest in the world.

By region, Asia is ranked the highest in the indices of disaster occurrences, the number of people killed and people affected. Asia accounts for 42.1 percent in occurrences; number of people killed, 50.8 percent; and the number of people, 69.6percent. As for amount of economic damage, Americas topped by 87.9 percent.

By disaster types, flood is tops in killed, and affected by 28.2 percent, and 57.9 percent, respectively, while storm tops in number of occurrences and amount of economic damage by 35.5 percent, and 84.6 percent respectively.

Data Book 2017 also contains tables of the 25 worst disasters by number of people killed and total affected people, economic damage, and their respective ratios to population and gross domestic product. It also includes tables of 2017 disasters in Asian countries sorted by country and disaster type.

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 2017 "Total deaths" are defined as persons confirmed as dead and persons missing and presumed dead. "Total Affected" 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.

1. IMPACTS OF NATURAL DISASTERS BY REGION

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 2017. As shown in Figure 1, Asia ranks the first among all regions in the categories of disaster occurrence, the number of killed people, and affected people, accounting for 42.1 percent, 50.8 percent, and 69.6 percent, respectively. On the other hand, Americas is ranked the highest in the amount of economic damage, which is largely attributed to storm in Americas.
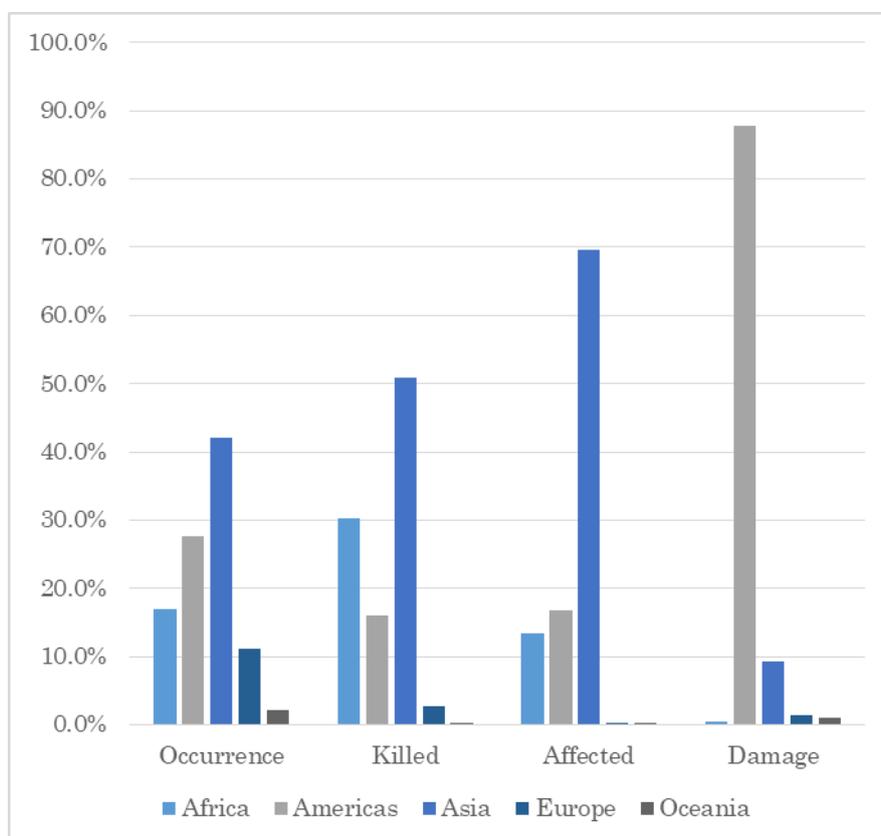
Figure 1: Impacts of Natural Disasters by Region, 2017

Table 1: Impacts of Natural Disasters by Region, 2017

Region	Impact							
	Occurrence (share in %)		Killed (share in %)		Affected (share in %)		Damage (US$ million) (share in %)	
Africa	62	(16.9%)	3,588	(30.3%)	12,934,765	(13.5%)	1,291	(0.4%)
Americas	101	(27.6%)	1,893	(16.0%)	16,077,404	(16.8%)	296,608	(87.9%)
Asia	154	(42.1%)	6,019	(50.8%)	66,742,475	(69.6%)	31,489	(9.3%)
Europe	41	(11.2%)	331	(2.8%)	130,952	(0.1%)	4,852	(1.4%)
Oceania	8	(2.2%)	12	(0.1%)	72,094	(0.1%)	3,303	(1.0%)
Total	366	(100.0%)	11,843	(100.0%)	95,957,690	(100.0%)	337,543	(100.0%)

2. IMPACTS OF NATURAL DISASTERS BY DISASTER TYPE, 2017

Regarding the breakdown of impacts of disasters by disaster type, two disasters, flood and storm, are dominant in all categories. Flood tops at 28.2 percent and 57.9 percent while in the number of killed and affected people. The number of occurrence, storm has the largest shares, 35.5 percent followed by flood, 34.4 percent. Storm brings the heaviest economic damage by 84.6 percent followed by flood, 6.0 percent.
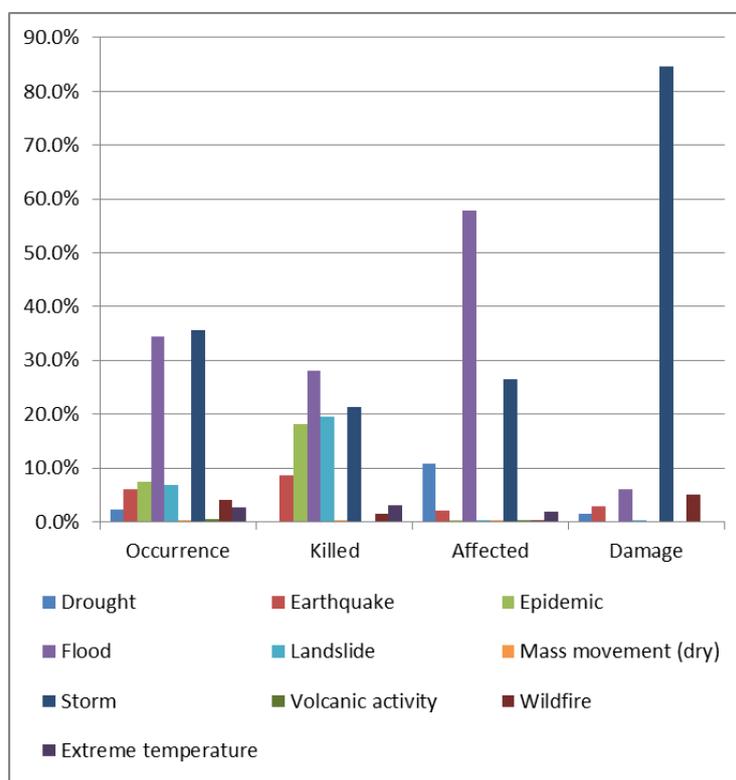

Figure 2: Impacts of Natural Disasters by Disaster Type, 2017

Table 2: Impacts of Natural Disasters by Disaster Type, 2017

Disaster Type	Impact							
	Occurrence		Killed		Affected		Damage (US$ million)	
	(share in %)		(share in %)		(share in %)		(share in %)	
Drought	8	(2.2%)	0	(0.0%)	10,331,874	(10.8%)	4,922	(1.5%)
Earthquake	22	(6.0%)	1,012	(8.5%)	2,006,792	(2.1%)	9,613	(2.8%)
Epidemic	27	(7.4%)	2,140	(18.1%)	359,031	(0.4%)	0	(0.0%)
Flood	126	(34.4%)	3,331	(28.1%)	55,586,840	(57.9%)	20,339	(6.0%)
Landslide	25	(6.8%)	2,312	(19.5%)	201,573	(0.2%)	147	(0.0%)
Mass movement (dry)	1	(0.3%)	8	(0.1%)	200	(0.0%)	0	(0.0%)
Storm	130	(35.5%)	2,516	(21.2%)	25,410,994	(26.5%)	285,599	(84.6%)
Volcanic activity	2	(0.5%)	0	(0.0%)	144,349	(0.2%)	0	(0.0%)
Wildfire	15	(4.1%)	165	(1.4%)	88,278	(0.1%)	16,922	(5.0%)
Extreme temperature	10	(2.7%)	359	(3.0%)	1,827,759	(1.9%)	0	(0.0%)
Total	366	(100.0%)	11,843	(100.0%)	95,957,690	(100.0%)	337,543	(100.0%)

3. IMPACTS OF NATURAL DISASTERS IN ASIA BY DISASTER TYPE, 2017

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, 77.2 percent followed by storm, 18.1 percent.
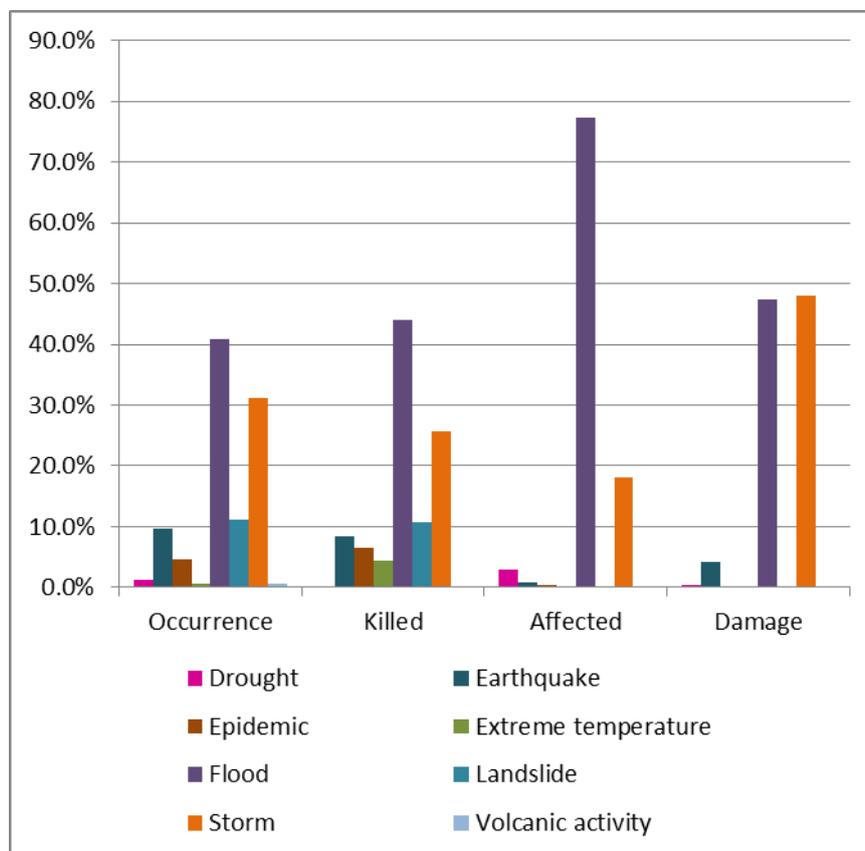

Figure 3: Impacts of Natural Disasters by Disaster Type in Asia, 2017

Table 3: Impacts of Natural Disasters by Disaster Type in Asia, 2017

Disaster Type	Impact							
	Occurrence (share in %)		Killed (share in %)		Affected (share in %)		Damage (US$ million) (share in %)	
Drought	2	(1.3%)			2,000,000	(3.0%)	122	(0.4%)
Earthquake	15	(9.7%)	511	(8.5%)	543,437	(0.8%)	1,295	(4.1%)
Epidemic	7	(4.5%)	395	(6.6%)	285,868	(0.4%)		
Extreme temperature	1	(0.6%)	264	(4.4%)				
Flood	63	(40.9%)	2,650	(44.0%)	51,549,735	(77.2%)	14,916	(47.4%)
Landslide	17	(11.0%)	648	(10.8%)	140,157	(0.2%)	15	(0.0%)
Storm	48	(31.2%)	1,551	(25.8%)	12,089,929	(18.1%)	15,140	(48.1%)
Volcanic activity	1	(0.6%)			133,349	(0.2%)		
Total	154	(100.0%)	6,019	(100.0%)	66,742,475	(100.0%)	31,489	(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, 1988-2017

4-1 NUMBER OF DISASTERS IN THE WORLD (1988-2017)

In terms of number of disasters, the year 2017 sees a decrease from the previous year. 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 2003-2007 period.
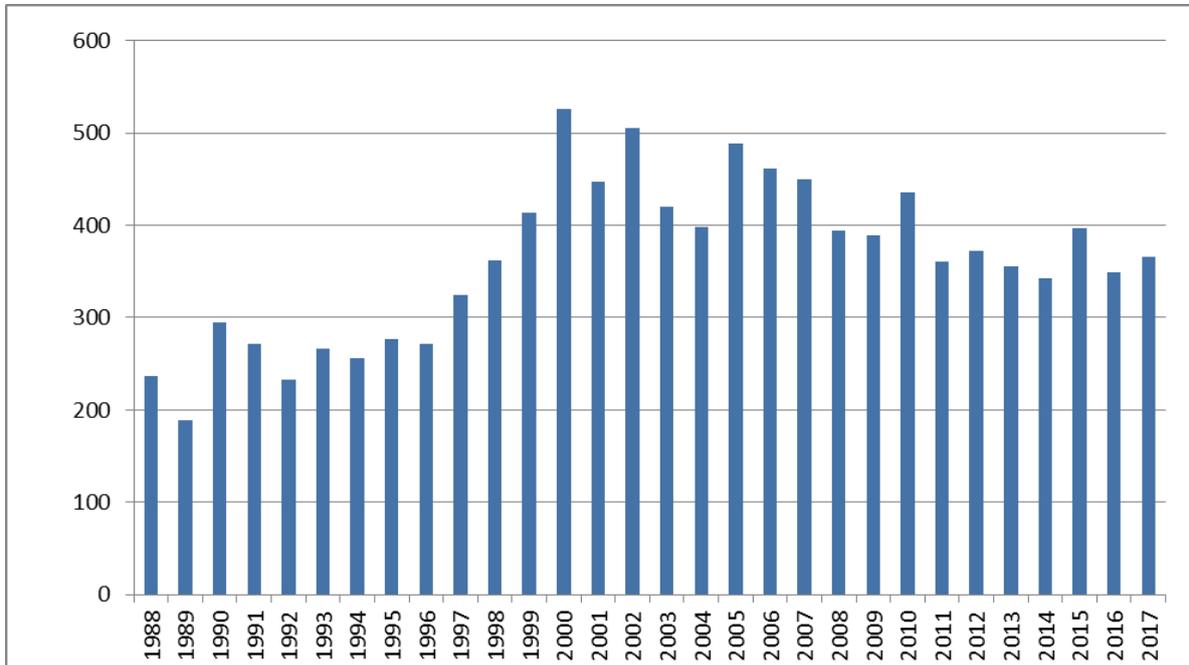
Figure 4-1: Disaster Occurrence, 1988-2017
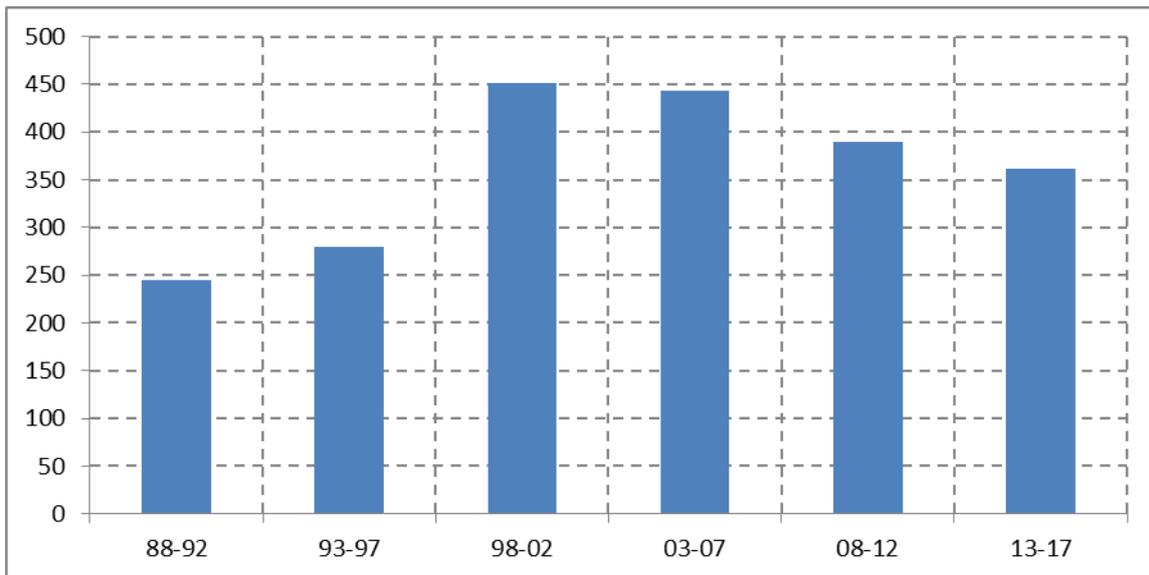
Figure 4-2: Disaster Occurrence (Average of 5-year period), 1988-2017

4-2 NUMBER OF PEOPLE KILLED IN THE WORLD 1988-2017

The year 2017 shows a decrease of death toll from the previous year. As seen in Figure 4-4 about the trend of the 5-year period average, the number of people killed for the period 2013-2017 shows drastic decrease from 126,787 to 17,858.
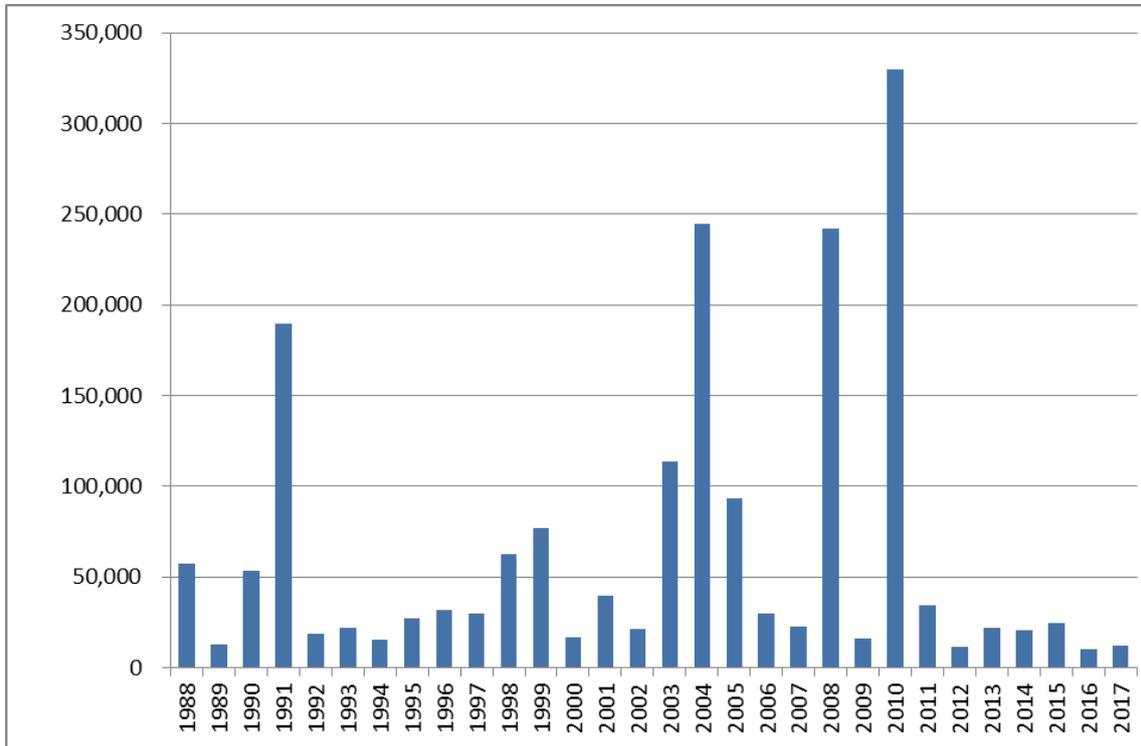
Figure 4-3: Number of People Killed, 1988-2017
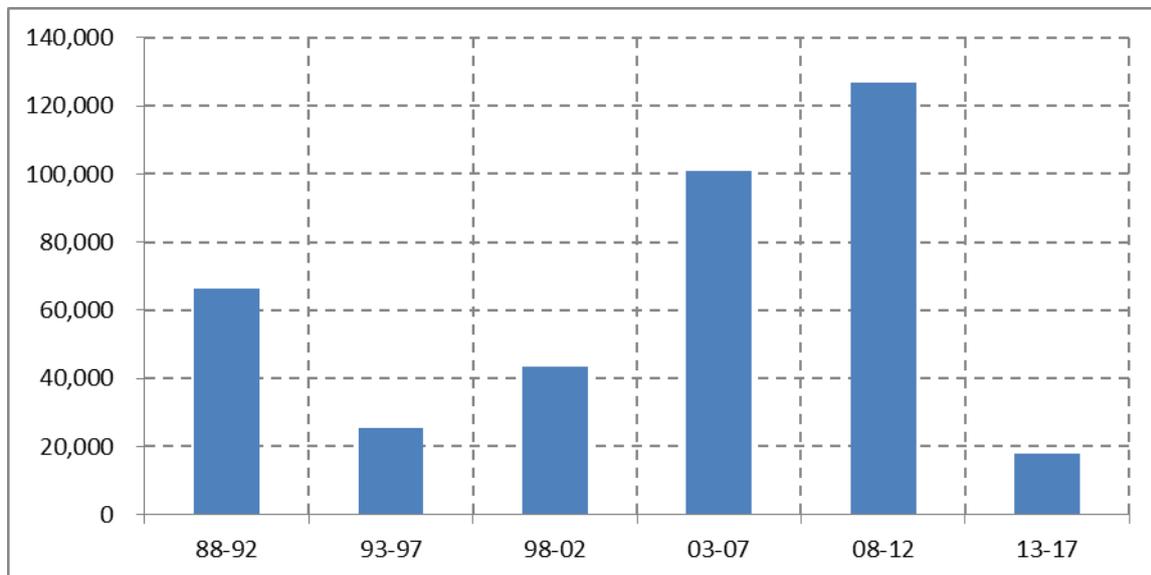
Figure 4-4: Number of People Killed (Average of 5-year period), 1988-2017

4-3 NUMBER OF PEOPLE AFFECTED IN THE WORLD (1988-2017)

In terms of number of affected people, 2017sees lowest in the past 20 years. For the 5 year period average representation of data, the number of affected people in the last five-year slightly increases with nearly 200 million people affected.
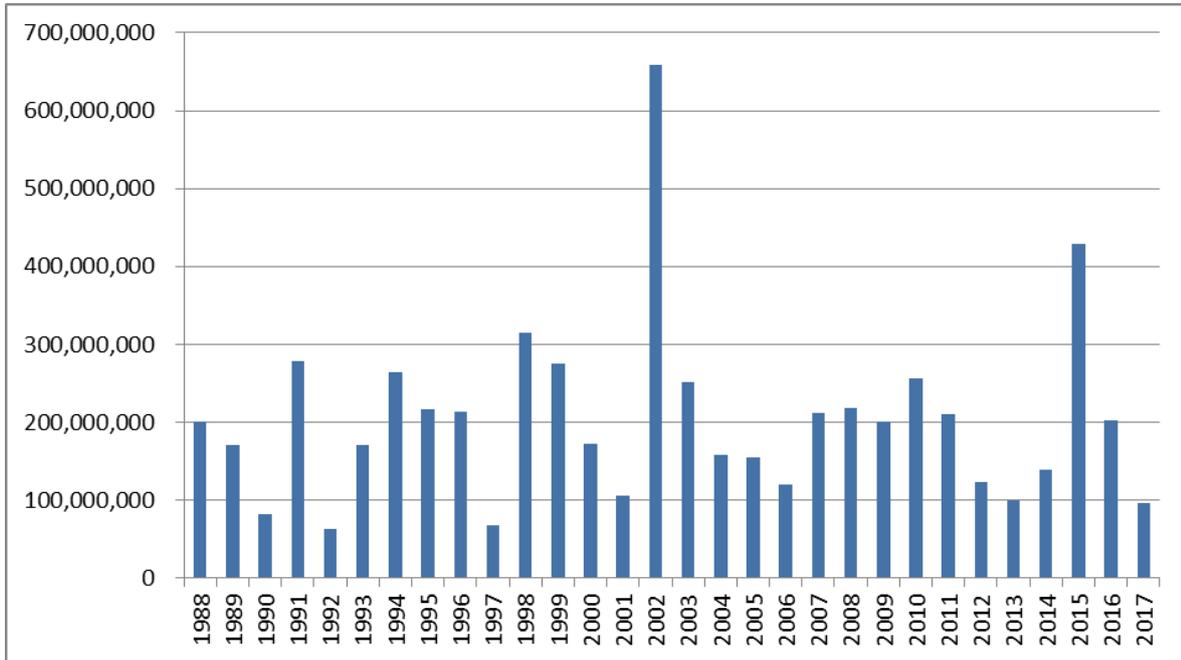
Figure 4-5: Total Number of Affected People, 1988-2017
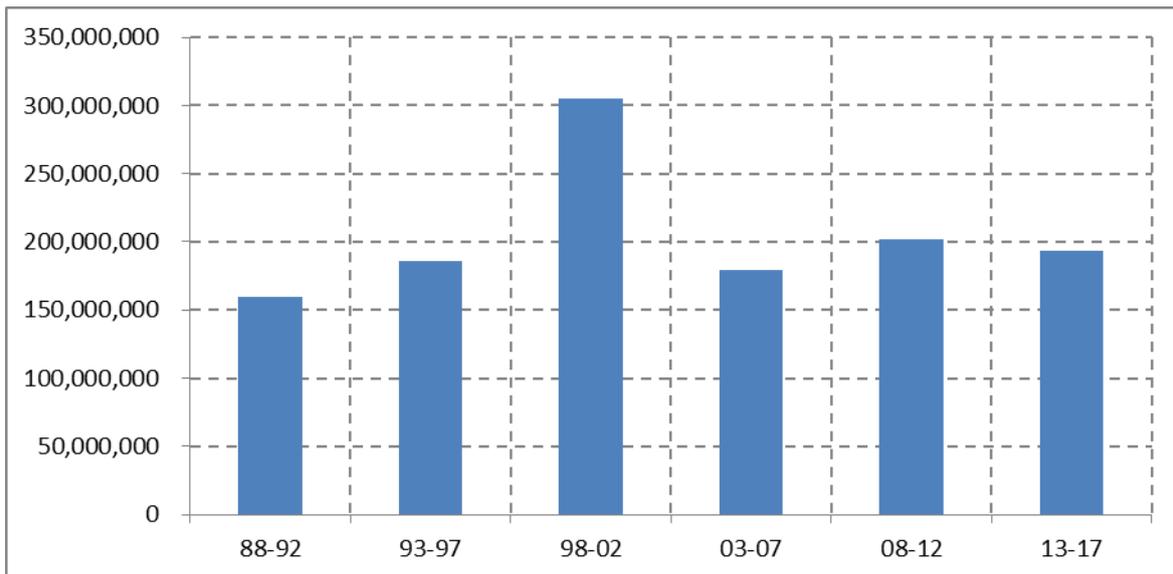
Figure 4-6: Number of Affected People (Average of 5 year period), 1988-2017

4-4 ECONOMIC DAMAGE IN THE WORLD (1988-2017)

Economic damage caused by natural disasters, the year 2017 sees an increase from the year 2016. By contrast, in the 5-year period average analysis, the 2013-2017 average sees a decrease.
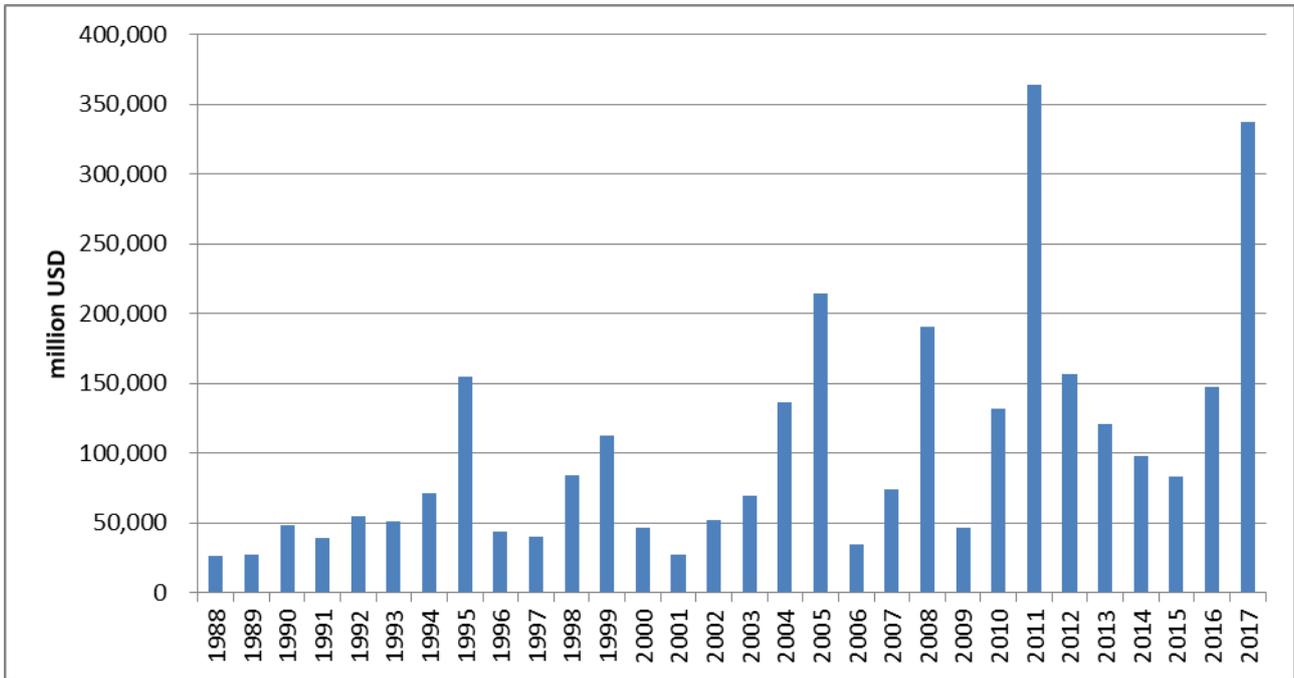
Figure 4-7: Amount of Damage (million USD), 1988-2017
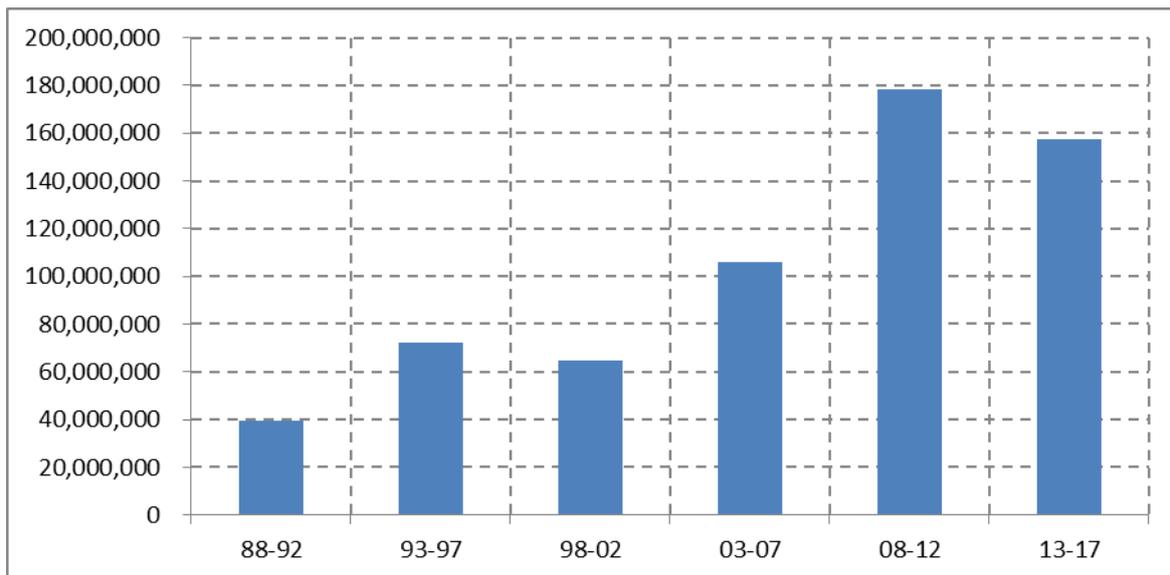
Figure 4-8: Economic Damage (Average of 5-year period), 1988-2017

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

For the period 1988-2017, 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.
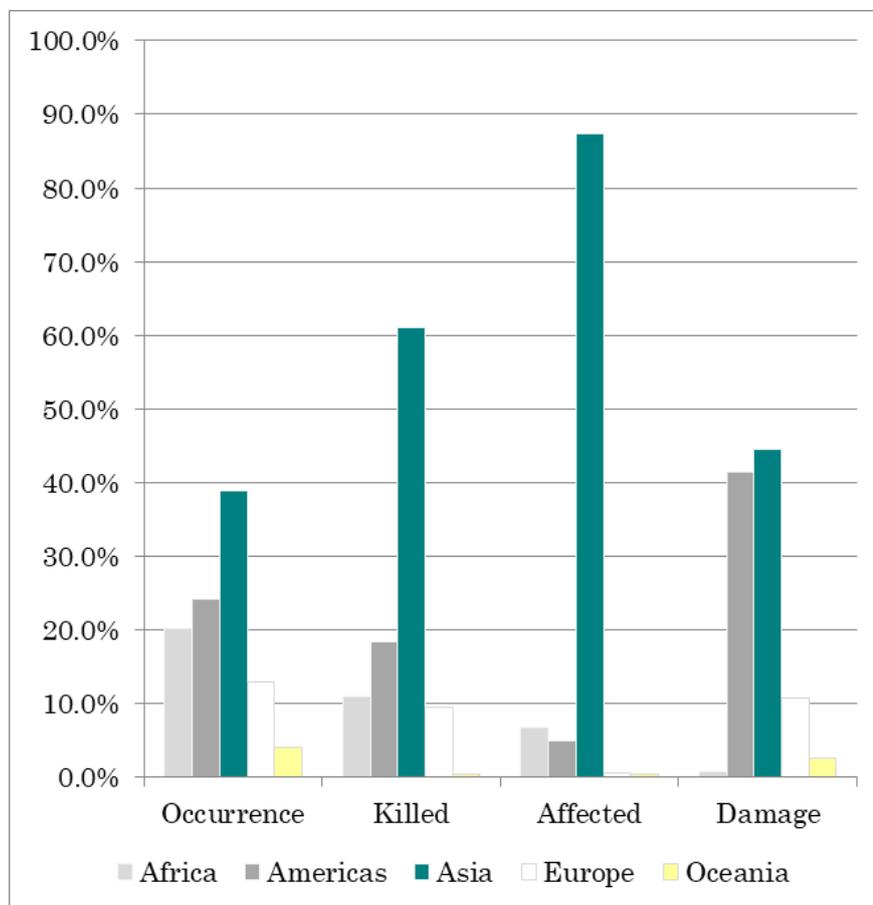
Figure 5: Impacts of World Natural Disasters by Region, 1988-2017

Table 5: Impacts of Natural Disasters by Region, 1988-2017

Region	Impact							
	Occurrence (share in %)		Killed (share in %)		Affected (share in %)		Damage (US$ million) (share in %)	
Africa	2188	(20.2%)	206770	(10.9%)	415145309	(6.8%)	24,304	(0.8%)
Americas	2615	(24.1%)	349536	(18.4%)	303471222	(5.0%)	1,272,869	(41.4%)
Asia	4218	(38.8%)	1162223	(61.1%)	5347804067	(87.3%)	1,369,500	(44.5%)
Europe	1402	(12.9%)	179137	(9.4%)	34737246	(0.6%)	331,664	(10.8%)
Oceania	435	(4.0%)	5622	(0.3%)	22980502	(0.4%)	76,168	(2.5%)
Total	10,858	(100.0%)	1,903,288	(100.0%)	6,124,138,346	(100.0%)	3,074,506	(100.0%)

6. THE 25 WORST DISASTERS IN ASIA 2017

6-1 THE 25 WORST DISASTERS IN ASIA BY NUMBER OF PEOPLE KILLED, 2017

The death toll by the storm in India in December tops at 884 in Asia in 2017, followed by the flood in India at 514. There are 13 disaster events in Asia found in the list which claimed more than 100 lives. Flood occupies thirteen ranks in the worst 25 list.

Table 6-1: The 25 Worst Disasters in Asia by Number of People Killed, 2017

	Disaster Type	Country	Date	Killed	Affected	Economic Damage (US$ Million)
1	Storm	India	02/12/2017	884	60,000	
2	Flood	India	31/08/2017	514	17,200,000	1,567
3	Earthquake	Iran Islamic Rep	12/11/2017	444	209,000	740
4	Epidemic	Sri Lanka	09/10/2017	320	155,715	
5	Flood	Sri Lanka	31/05/2017	293	879,932	389
6	Flood	India	/08/2017	284	520,000	250
7	Extreme temperature	India	15/06/2017	264		
8	Flood	Nepal	07/09/2017	176	1,700,134	595
9	Flood	Pakistan	11/09/2017	167	2,367	110
10	Landslide	Bangladesh	14/06/2017	160	80,187	
11	Flood	Bangladesh	31/08/2017	144	8,000,000	500
12	Storm	Viet Nam	05/11/2017	123	4,330,000	1,000
13	Flood	India	23/08/2017	101	2,700,000	
14	Flood	Thailand	31/01/2017	96	1,800,000	1,000
15	Storm	Philippines	18/12/2017	91	1,861,328	72
16	Landslide	China P Rep	23/06/2017	83	400	
17	Flood	China P Rep	07/07/2017	78	12,000,008	6,000
18	Flood	India	24/07/2017	75	1,735,000	
19	Flood	Viet Nam	16/10/2017	75	40,038	88
20	Landslide	Afghanistan	05/02/2017	73		
21	Storm	Philippines	26/12/2017	58	923,757	50
22	Landslide	Afghanistan	05/02/2017	50	363	
23	Flood	Yemen	30/08/2017	50	8	
24	Landslide	India	13/08/2017	46	100	
25	Flood	Iran Islamic Rep	16/04/2017	42		353

6-2 THE 25 WORST DISASTERS IN ASIA BY NUMBER OF PEOPLE AFFECTED, 2017

In terms of the number of people affected, the flood in India ranks the first with 17.2 million people affected. In 2017, the number of disaster events that affected more than one million amounts to 13. By country, Philippines has five ranks in the list. By disaster type, flood amounts to 15 out of the 25 disasters followed by 7 storms.

Table 6-2: The 25 Worst Disasters in Asia by Total Number of People Affected, 2017

	Disaster Type	Country	Date	Killed	Affected	Economic Damage (US$ Million)
1	Flood	India	11/08/2017	514	17,200,000	1,567
2	Flood	China P Rep	22/06/2017	78	12,000,008	6,000
3	Flood	Bangladesh	10/08/2017	144	8,000,000	500
4	Storm	Viet Nam	04/11/2017	123	4,330,000	1,000
5	Storm	Bangladesh	30/05/2017	7	3,300,012	
6	Flood	India	16/08/2017	101	2,700,000	
7	Drought	China P Rep	/04/2017		2,000,000	122
8	Storm	Philippines	16/12/2017	91	1,861,328	72
9	Flood	Thailand	01/01/2017	96	1,800,000	1,000
10	Flood	India	25/06/2017	75	1,735,000	
11	Flood	Nepal	10/08/2017	176	1,700,134	595
12	Flood	Philippines	16/01/2017	9	1,500,000	8
13	Flood	Thailand	05/07/2017	23	1,000,000	307
14	Storm	Philippines	21/12/2017	58	923,757	50
15	Flood	Sri Lanka	25/05/2017	293	879,932	389
16	Storm	Viet Nam	15/09/2017	14	692,012	484
17	Flood	Thailand	10/10/2017	9	605,000	1
18	Flood	India	/06/2017	284	520,000	250
19	Flood	Thailand	25/11/2017	22	385,498	
20	Flood	Philippines	01/02/2017	13	334,000	
21	Flood	Indonesia	01/06/2017	4	282,420	
22	Earthquake	China P Rep	08/08/2017	29	218,325	500
23	Earthquake	Iran Islamic Rep	12/11/2017	444	209,000	740
24	Storm	China P Rep	13/07/2017	36	174,300	3,400
25	Storm	Philippines	18/10/2017	9	163,349	3

6-3 THE 25 WORST DISASTERS IN ASIA BY ECONOMIC DAMAGE, 2017

According to the EM-DAT database, the flood in China tops in the 25 ranks of the worst economic damage in Asia in 2017 with US$ 6.0 billion. By disaster type, flood and storm have the largest shares with 12 and 11, ranks respectively.

Table 6-3: The 25 Worst Disasters in Asia by Economic Damage, 2017

	Disaster Type	Country	Date	Total deaths	Total affected	Economic Damage (US$ Million)
1	Flood	China P Rep	22/06/2017	78	12,000,008	6,000
2	Storm	China P Rep	24/08/2017	8	22,273	3,500
3	Storm	China P Rep	13/07/2017	36	174,300	3,400
4	Flood	India	11/08/2017	514	17,200,000	1,567
5	Storm	Viet Nam	24/08/2017	1	1	1,430
6	Storm	Macao	24/08/2017	10	200	1,420
7	Storm	Viet Nam	04/11/2017	123	4,330,000	1,000
8	Flood	Thailand	01/01/2017	96	1,800,000	1,000
9	Storm	Japan	22/10/2017	8	18,810	1,000
10	Storm	Hong Kong	24/08/2017		156	756
11	Earthquake	Iran Islamic Rep	12/11/2017	444	209,000	740
12	Flood	Japan	06/07/2017	37	2,944	700
13	Storm	Turkey	27/07/2017		270	600
14	Flood	Nepal	10/08/2017	176	1,700,134	595
15	Flood	Bangladesh	10/08/2017	144	8,000,000	500
16	Earthquake	China P Rep	08/08/2017	29	218,325	500
17	Storm	Japan	17/09/2017	2	21,656	500
18	Flood	China P Rep	26/04/2017	8	76,800	492
19	Storm	Viet Nam	15/09/2017	14	692,012	484
20	Flood	China P Rep	11/08/2017	18	37,800	429
21	Flood	Sri Lanka	25/05/2017	293	879,932	389
22	Flood	China P Rep	24/09/2017	16	61,500	361
23	Flood	Iran Islamic Rep	15/04/2017	42		353
24	Storm	Sri Lanka	29/11/2017	27	160,077	346
25	Flood	China P Rep	08/08/2017	40	45,000	315

7. DISASTERS IN ASIA BY COUNTRY, 2017

country	disaster type	occurrence	Total deaths	Total affected	damage ('000 US$)
Afghanistan	Flood	1	36	1,822	
	Landslide	2	123	363	
	Storm	2	67	9,055	
Bangladesh	Epidemic	1	15	789	
	Flood	2	144	8,086,025	628,000
	Landslide	1	160	80,187	
	Storm	2	19	3,300,012	
China P Rep	Drought	1		2,000,000	122,000
	Earthquake	4	37	248,417	533,000
	Flood	12	231	12,333,608	8,446,000
	Landslide	4	155	1,162	2,300
	Storm	9	91	307,206	7,381,600
Hong Kong (China)	Storm	2		156	755,500
India	Extreme temperature	1	264		
	Flood	9	1,046	22,271,843	2,117,000
	Landslide	3	96	100	
	Storm	5	940	123,252	
Indonesia	Earthquake	1	4	8,895	
	Flood	7	44	339,880	21,000
	Landslide	2	40	50,677	13,000
	Storm	1	11	2,035	
	Volcanic activity	1		133,349	
Iran Islamic Rep	Earthquake	3	449	211,382	742,000
	Flood	2	60	2,000	388,000
Iraq	Earthquake	1	10	5,969	
Japan	Flood	1	37	2,944	700,000
	Storm	3	12	41,855	1,502,000
Kazakhstan	Flood	1		7,000	
Korea Dem P Rep	Drought	1			
	Epidemic	1		126,574	
Korea Rep	Earthquake	1		5,057	
Kyrgyzstan	Earthquake	1		5,000	
	Landslide	1	24	55	
Lao P Dem Rep	Storm	1			
Macao (China)	Storm	2	10	200	1,420,000
Malaysia	Flood	3	9	21,981	
	Storm	1		426	
Mongolia	Landslide	1	17		
Myanmar	Flood	1	3	92,000	
	Storm	1		107,520	
Nepal	Flood	2	187	1,706,134	595,000
	Landslide	1	11	7,500	
Oman	Flood	1	3	200	
Pakistan	Epidemic	1	25	2,492	
	Flood	2	180	63,017	110,000
	Landslide	1	9	113	
	Storm	2	26	113	
Philippines (the)	Earthquake	3	11	58,357	20,338
	Flood	3	22	1,842,000	8,100
	Storm	8	200	2,966,048	132,776
Saudi Arabia	Flood	1	4	481	

country	disaster type	occurrence	Total deaths	Total affected	damage ('000 US$)
Sri Lanka	Epidemic	1	320	155,715	
	Flood	2	302	893,129	389,000
	Storm	1	27	160,077	346,000
Taiwan (China)	Flood	1	5	4,074	28,100
	Storm	1	1	131	17,200
Tajikistan	Epidemic	1			
	Flood	1		700	
	Landslide	1	13		
Thailand	Flood	4	150	3,790,498	1,308,400
	Storm	2		28,560	
Turkey	Earthquake	1		360	
	Storm	1		270	600,000
United Arab Emirates (the)	Flood	1		188	
Viet Nam	Flood	5	137	90,203	177,655
	Storm	4	147	5,043,013	2,985,000
Yemen	Epidemic	2	35	298	
	Flood	1	50	8	
total		154	6,019	66,742,475	31,488,969

8. DISASTERS IN ASIA BY DISASTER TYPE, 2017

disaster type	country	occurrence	Total deaths	Total affected	damage ('000 US$)
Drought	China	1		2,000,000	122,000
	Korea Dem P Rep	1			
Earthquake	China	4	37	248,417	533,000
	Indonesia	1	4	8,895	
	Iran Islamic Rep	3	449	211,382	742,000
	Iraq	1	10	5,969	
	Korea Rep	1		5,057	
	Kyrgyzstan	1		5,000	
	Philippines (the)	3	11	58,357	20,338
	Turkey	1		360	
Epidemic	Bangladesh	1	15	789	
	Korea Dem P Rep	1		126,574	
	Pakistan	1	25	2,492	
	Sri Lanka	1	320	155,715	
	Tajikistan	1			
	Yemen	2	35	298	
Extreme temperature	India	1	264		
Flood	Afghanistan	1	36	1,822	
	Bangladesh	2	144	8,086,025	628,000
	China	12	231	12,333,608	8,446,000
	India	9	1,046	22,271,843	2,117,000
	Indonesia	7	44	339,880	21,000
	Iran Islamic Rep	2	60	2,000	388,000
	Japan	1	37	2,944	700,000
	Kazakhstan	1		7,000	
	Malaysia	3	9	21,981	
	Myanmar	1	3	92,000	
	Nepal	2	187	1,706,134	595,000
	Oman	1	3	200	
	Pakistan	2	180	63,017	110,000
	Philippines (the)	3	22	1,842,000	8,100
	Saudi Arabia	1	4	481	
	Sri Lanka	2	302	893,129	389,000
	Taiwan (China)	1	5	4,074	28,100
	Tajikistan	1		700	
	Thailand	4	150	3,790,498	1,308,400
	United Arab Emirates	1		188	
	Viet Nam	5	137	90,203	177,655
	Yemen	1	50	8	

disaster type	country	occurrence	Total deaths	Total affected	damage ('000 US$)
Landslide	Afghanistan	2	123	363	
	Bangladesh	1	160	80,187	
	China	4	155	1,162	2,300
	India	3	96	100	
	Indonesia	2	40	50,677	13,000
	Kyrgyzstan	1	24	55	
	Mongolia	1	17		
	Nepal	1	11	7,500	
	Pakistan	1	9	113	
	Tajikistan	1	13		
Storm	Afghanistan	2	67	9,055	
	Bangladesh	2	19	3,300,012	
	China	9	91	307,206	7,381,600
	Hong Kong(China)	2		156	755,500
	India	5	940	123,252	
	Indonesia	1	11	2,035	
	Japan	3	12	41,855	1,502,000
	Lao P Dem Rep	1			
	Macao(China)	2	10	200	1,420,000
	Malaysia	1		426	
	Myanmar	1		107,520	
	Pakistan	2	26	113	
	Philippines (the)	8	200	2,966,048	132,776
	Sri Lanka	1	27	160,077	346,000
	Taiwan (China)	1	1	131	17,200
	Thailand	2		28,560	
	Turkey	1		270	600,000
	Viet Nam	4	147	5,043,013	2,985,000
Volcanic activity	Indonesia	1		133,349	
total		154	6,019	66,742,475	31,488,969

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