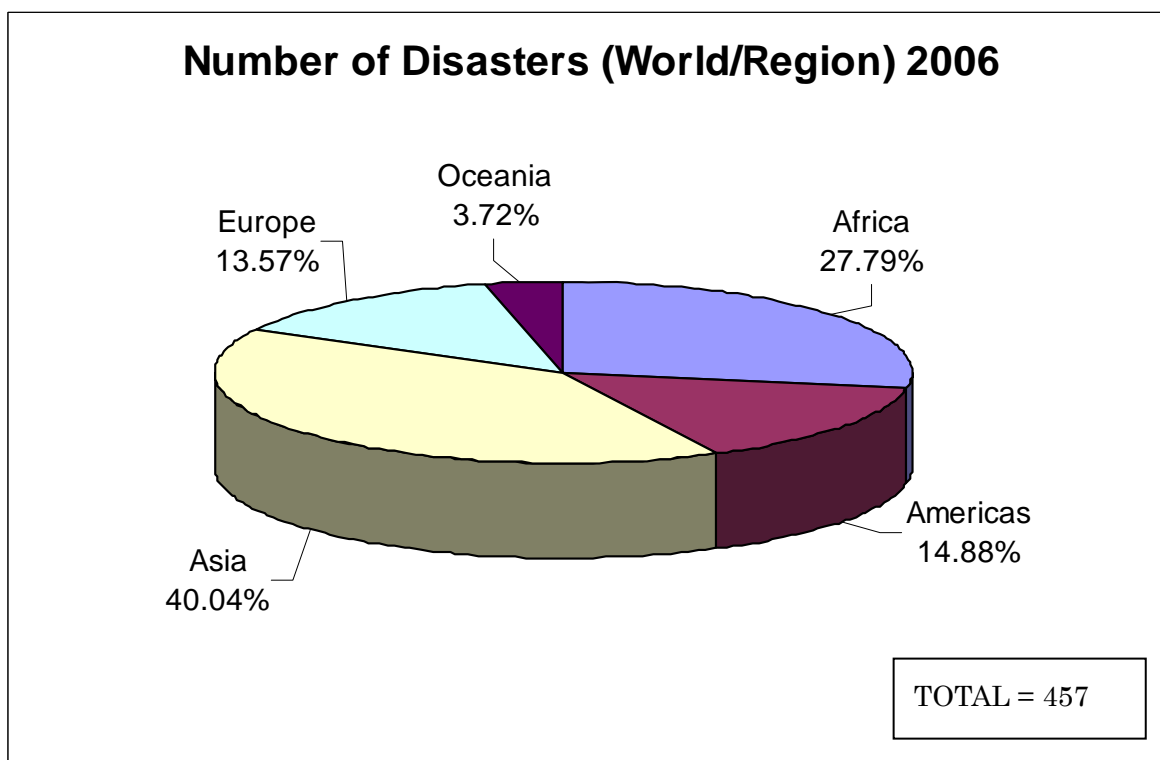


Chapter 3: Regional Characteristics of Natural Disasters

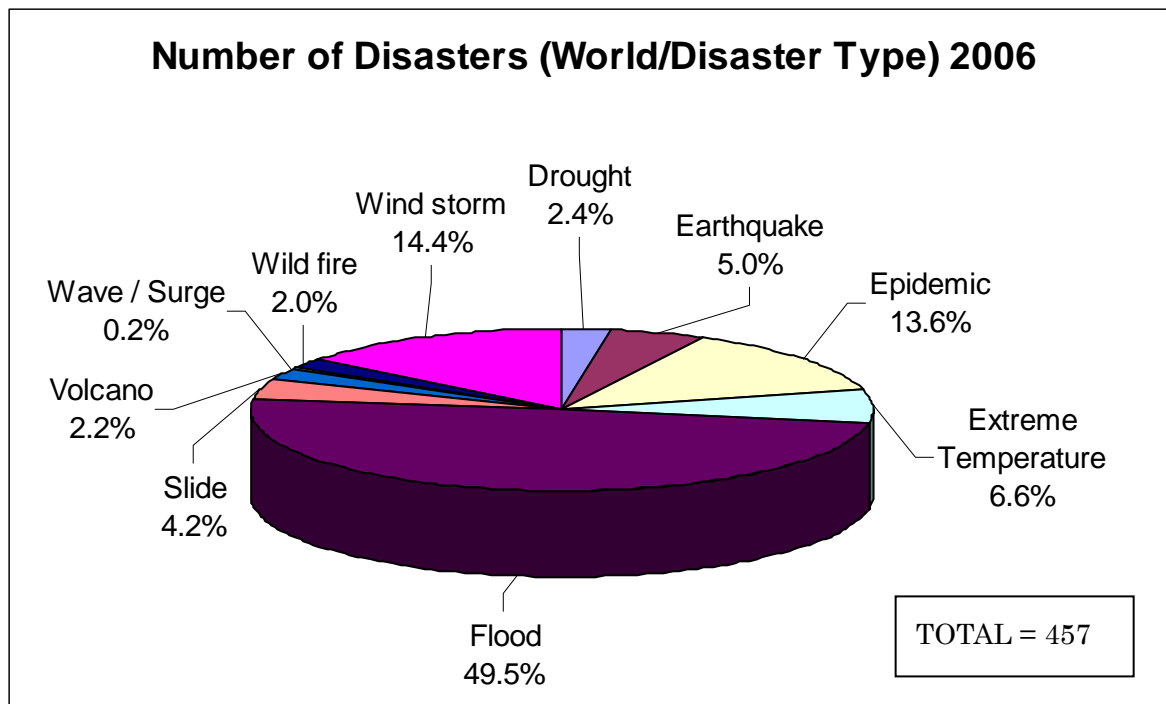
3.1 Proportion of Natural Disasters by Region

As in the previous year, Asia accounted for most of the devastating disasters that occurred in 2006 (40%, increase from 37% in 2005), followed by Africa (28%; an increase from 19% in 2005), the Americas (15%; a decrease from 20% in 2005), Europe (14%; a decrease from 21% in 2005), and Oceania (4%; a marginal increase from 3% in 2005). Although the 2006 disaster trends look similar to those for 2004 and 2005, their impacts in terms of human and economic losses were different. Figure 30A summarizes the 2006 data visually. Figure 30B summarizes the world data by type of disaster. The majority of the disasters in 2006 were floods and wind storms followed by epidemics, extreme temperatures, earthquakes, and slides.

Figure 30A: Proportion of Worldwide Disasters by Region, 2006



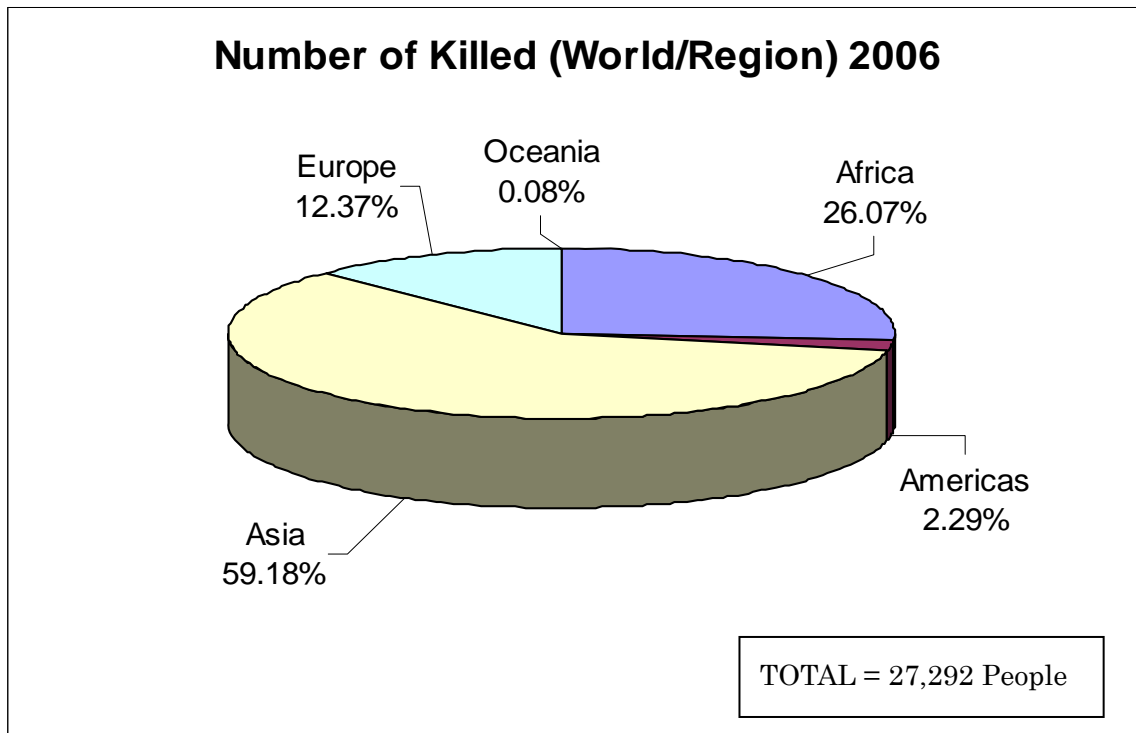
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 30B: Proportion of Worldwide Disasters by Type, 2006

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

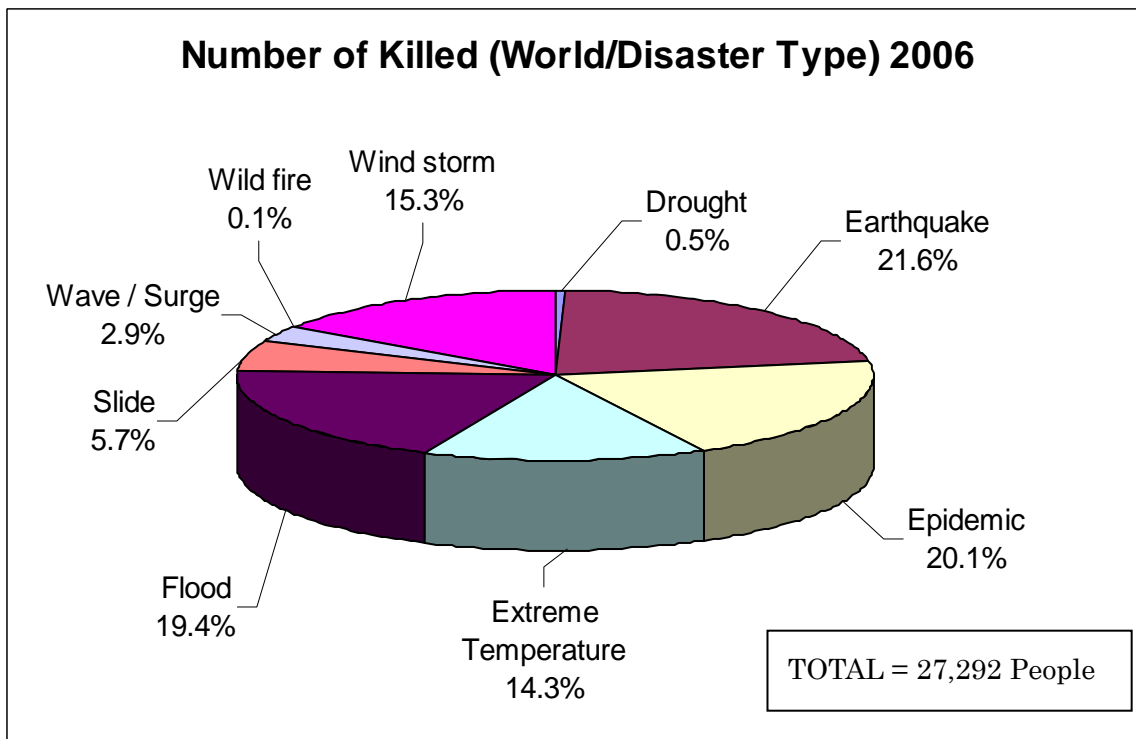
As can be seen in Figure 31A, the majority of people killed by natural disasters in the year 2006 lived in Asia, which accounted for 59% of the total number of people killed by disasters worldwide (considerable decrease from 91% in the previous year). (This decrease from 2005 to 2006 is mainly due to the heavy death toll in 2005 caused by South Asian earthquake that struck India and Pakistan). In 2006 once again Asia accounted for the majority of the people killed due to the floods in China and India, windstorms and slides in the Philippines and the earthquake and tsunami in Indonesia. Another significant region is Africa, which accounted for 26% of the people killed in 2006 (considerable increase from 3% in the previous year 2005 and this is due to the heavy dead toll in Africa caused by epidemic and flood in 2006). The number of people killed in Europe increased from 2% in 2005 to 12% in 2006. This is due to the extreme temperature conditions that prevailed in Europe in 2006. The Americas also saw a decrease in people killed, from 4% in 2005 to 2% in 2006. Oceania registered almost the same number of people killed by natural disasters as in the previous year. The heavy death toll in Asia caused by the Asian disasters in 2006 makes other regions' figures look smaller in 2006 as in the previous years' trend. Earthquakes, epidemics and floods were responsible for the majority of the death toll worldwide (61%), followed by extreme temperature, wind storms and floods, as shown in Figure 31B.

Figure 31A; Proportion of People Killed Worldwide by Region, 2006



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

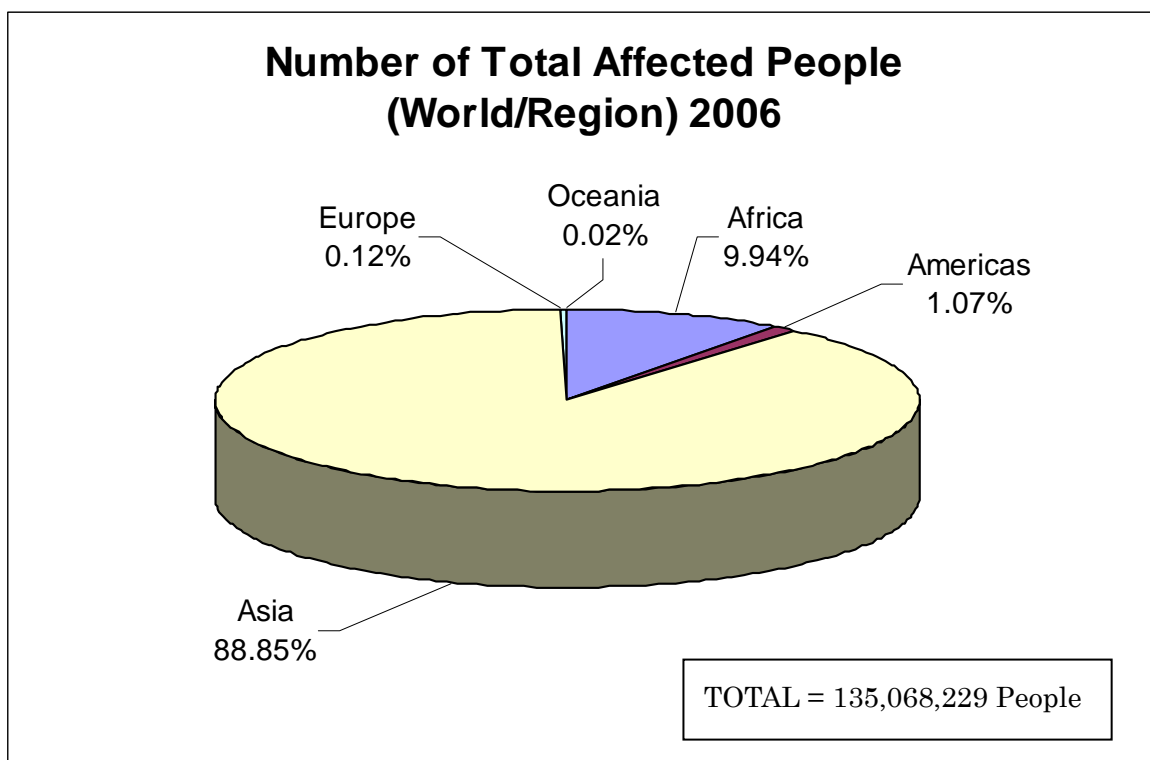
Figure 31B: Proportion of People Killed Worldwide by Disaster Type, 2006



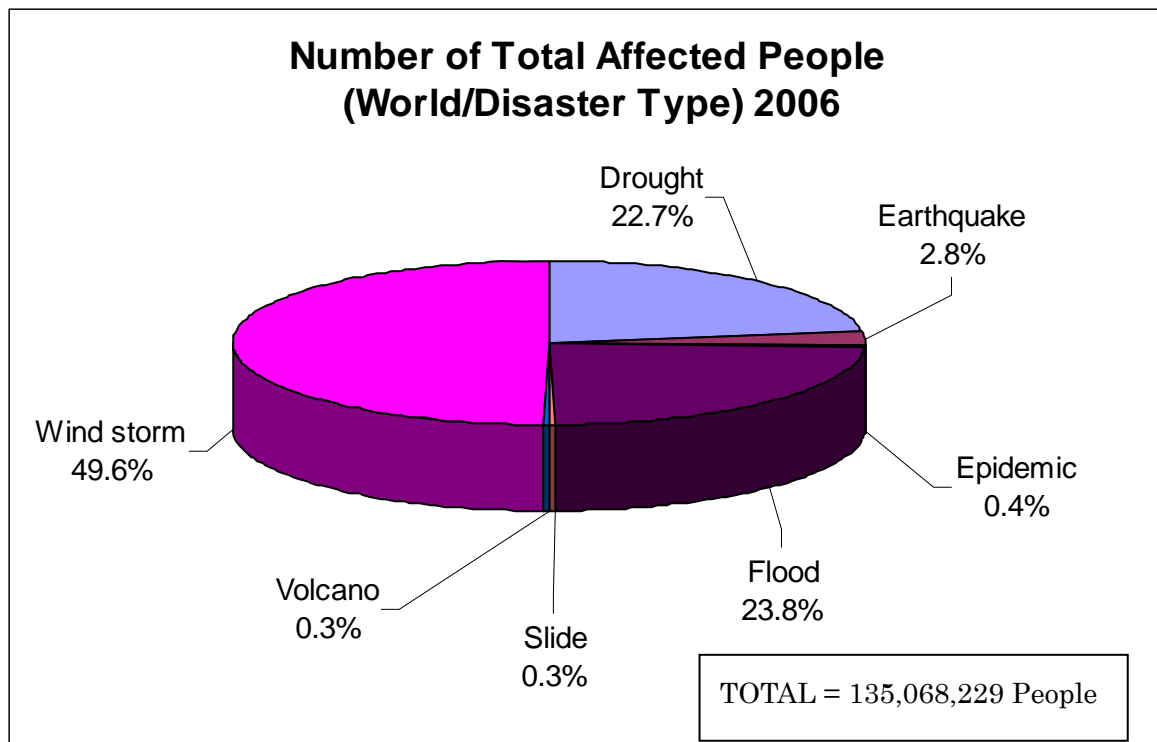
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

The number of total affected people decreased from 158 million in 2005 to 135 million in 2006. As shown in Figure 32A, the Asian region accounted for the highest percentage of total affected people, with 89% in 2006. This is an increase from the previous year's 83%. But the real number of total affected people in Asia this year 2006 has decreased by 8.6%. This an interesting point to note this year. In addition to the 2006 Asian disasters, which affected many people in Asia, other disasters in other parts of the world, especially Africa, also had a significant impact. The number of total affected people in every region worldwide decreased significantly over previous year. Nevertheless, the trend clearly reflects Asia's continued vulnerability to natural hazards. Figure 32B shows the percentages of total affected people by disaster type. Hydro-meteorological disasters, such as floods, wind storms, and droughts had a significant impact on people worldwide.

Figure 32A: Proportion of Total Affected People Worldwide by Region, 2006



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

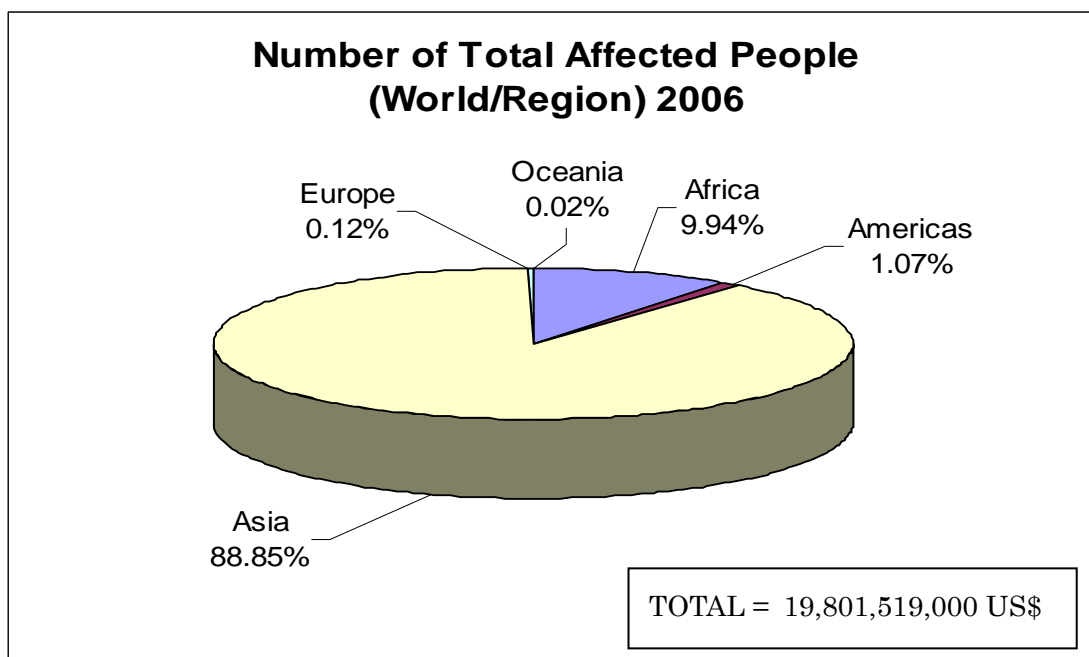
Figure 32B: Proportion of Total Affected People Worldwide by Disaster Type, 2006

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

As in the previous years (except in 2005 in which Americas accounted for the highest damage), Asia accounted for more than two-thirds of the economic damage caused by natural disasters in 2006 (Figure 33A). This is mainly due to the impact of the earthquake and tsunami in Indonesia, windstorms and slides in the Philippines, floods in China and India in 2006. Asia accounted for more economic damage than in the previous year (in 2005, it was 12%), a tremendous increase from 2005. The majority of damage in Asia was due to windstorms, floods and earthquakes. The Americas (15%) accounted for the next highest level of economic losses, in contrast to the pattern in 2005 in terms of damage (in 2005, it was the highest at 86% due to hurricanes Katrina, Wilma and others). All other regions accounted for much less of the economic damage sustained in 2006.

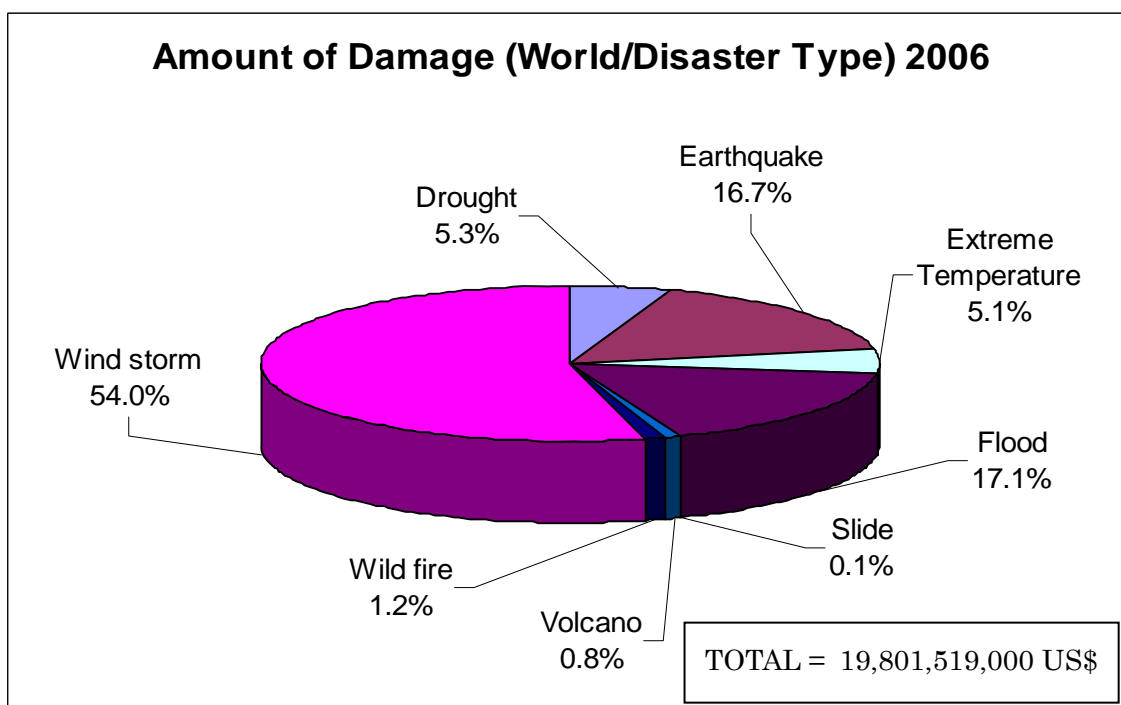
Figure 33B shows the amount of damage worldwide for 2006 by disaster type. Wind storms and floods were the leading causes of damage worldwide, followed by earthquakes. The socio-economic structure of these regions and the disaster occurrences and countermeasures could be attributed to these trends. Overall damage decreased by about 87% from the previous year 2005, from US\$159 billion to US\$20 billion.

Figure 33A: Proportion of Worldwide Damage by Region, 2006



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 33B: Proportion of Worldwide Damage by Disaster Type, 2006



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

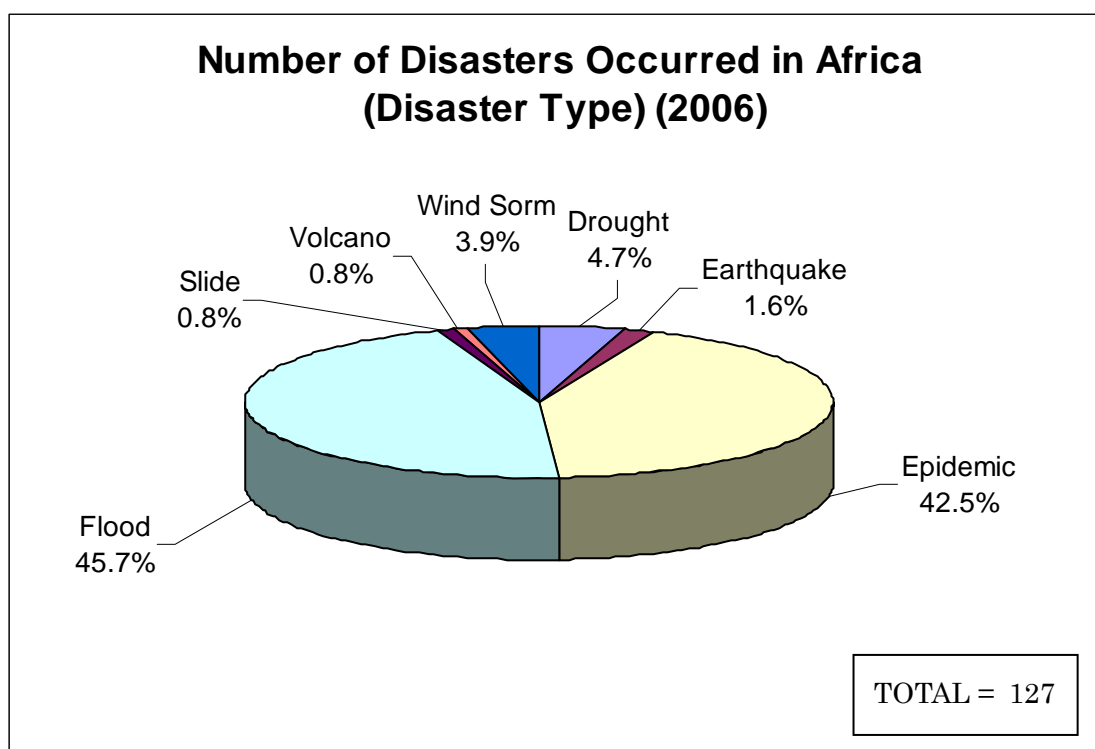
These figures indisputably demonstrate that the disaster vulnerability of the Asian region cannot be neglected in relation to global sustainable development and the need of stronger disaster countermeasures.

3.2 Natural Disasters around the World

3.2.1 Characteristics of Disasters in Africa

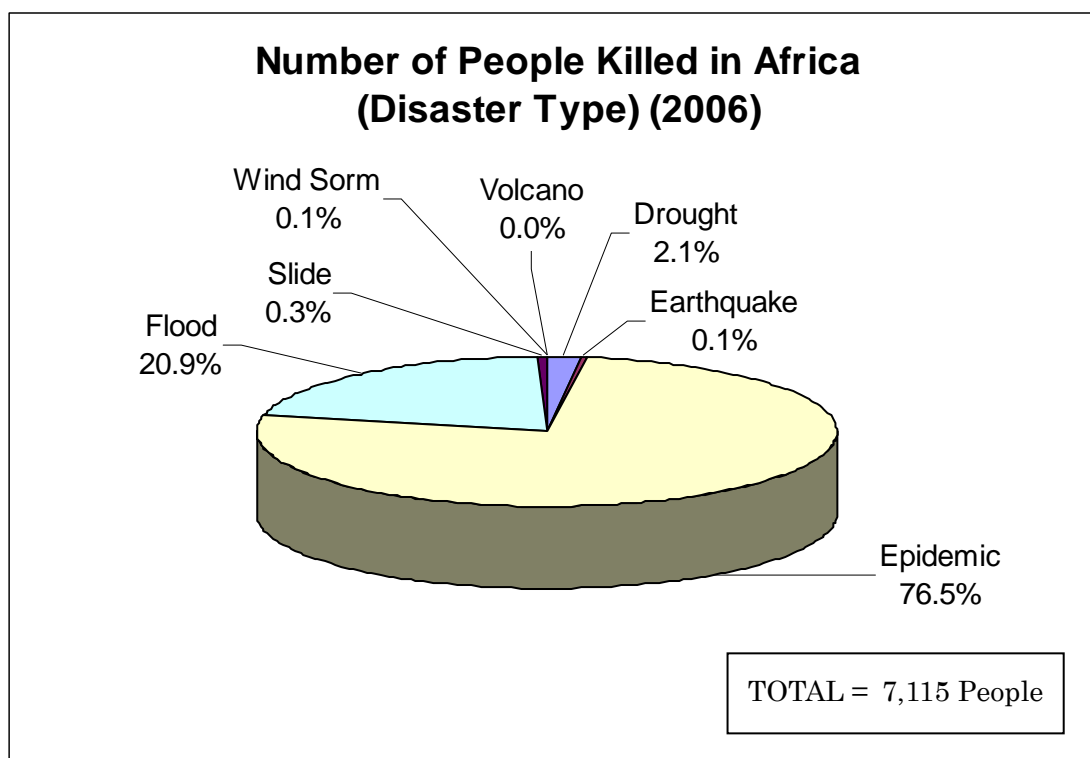
About 93% of the natural disasters that occurred in Africa in 2006 consisted of floods, epidemics and droughts (Figure 34). Furthermore, the majority of the human losses (99.5%) in Africa were due to epidemics, floods, and droughts (Figure 35). Meanwhile, the majority of people affected by disasters in Africa were affected by droughts, which account for nearly 81% of the total affected people in Africa in 2006 (Figure 36). The same pattern was seen in the previous year 2005, when droughts accounted for almost 94% of the people affected. Droughts, floods and epidemics accounted for nearly 99% of the total affected population in Africa in 2006. Kenya, Malawi, Uganda and Burundi were severely hit by drought. It is interesting to note, however, that all of the economic damage sustained in Africa was caused by flooding in 2006 as it was in the previous year 2005 (Figure 37). These figures show Africa to be a disaster-prone region with socio-economic vulnerabilities, where the majority of human suffering comes from droughts, floods, and epidemics.

Figure 34: Proportion of Disasters in Africa by Type, 2006



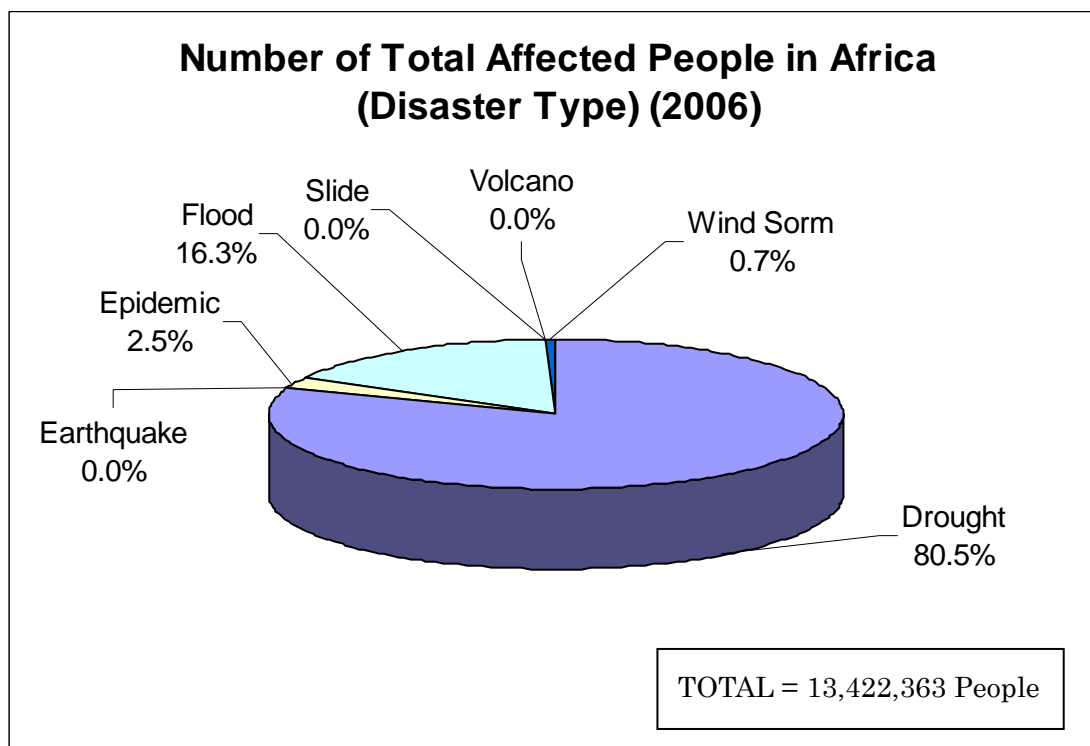
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 35: Proportion of People Killed in Africa by Disaster Type, 2006

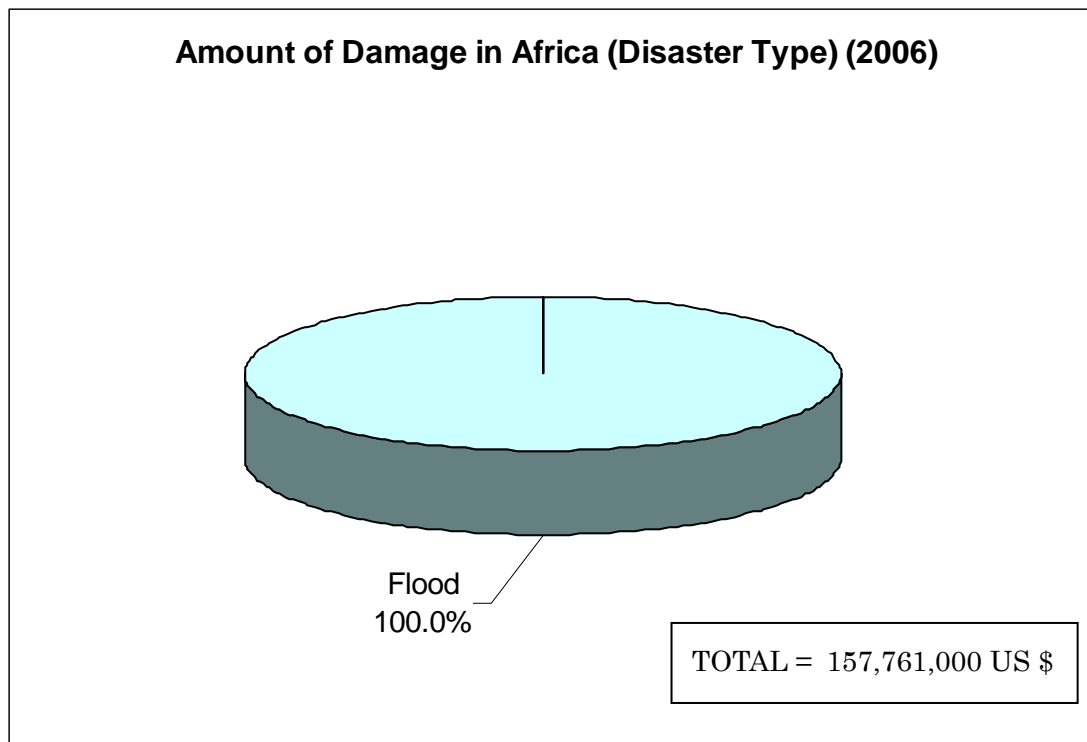


Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 36: Proportion of Total Affected People in Africa by Disaster Type, 2006



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

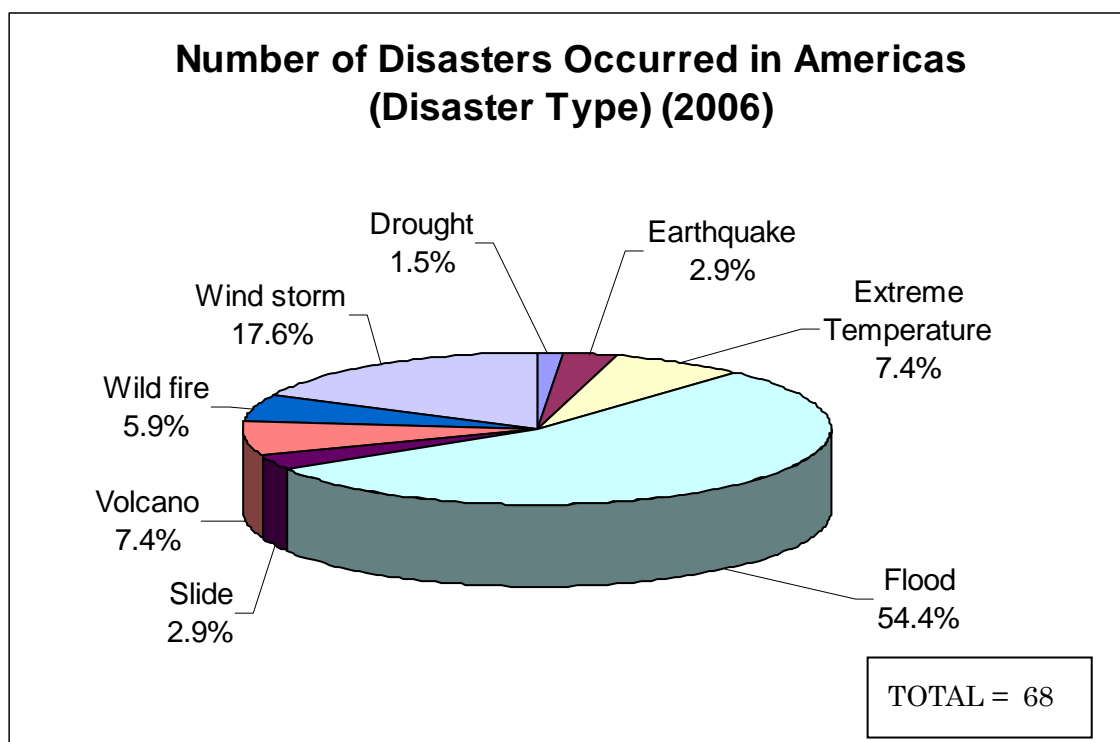
Figure 37: Proportion of Damage in Africa by Disaster Type, 2006

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

3.2.2 Characteristics of Disasters in the Americas

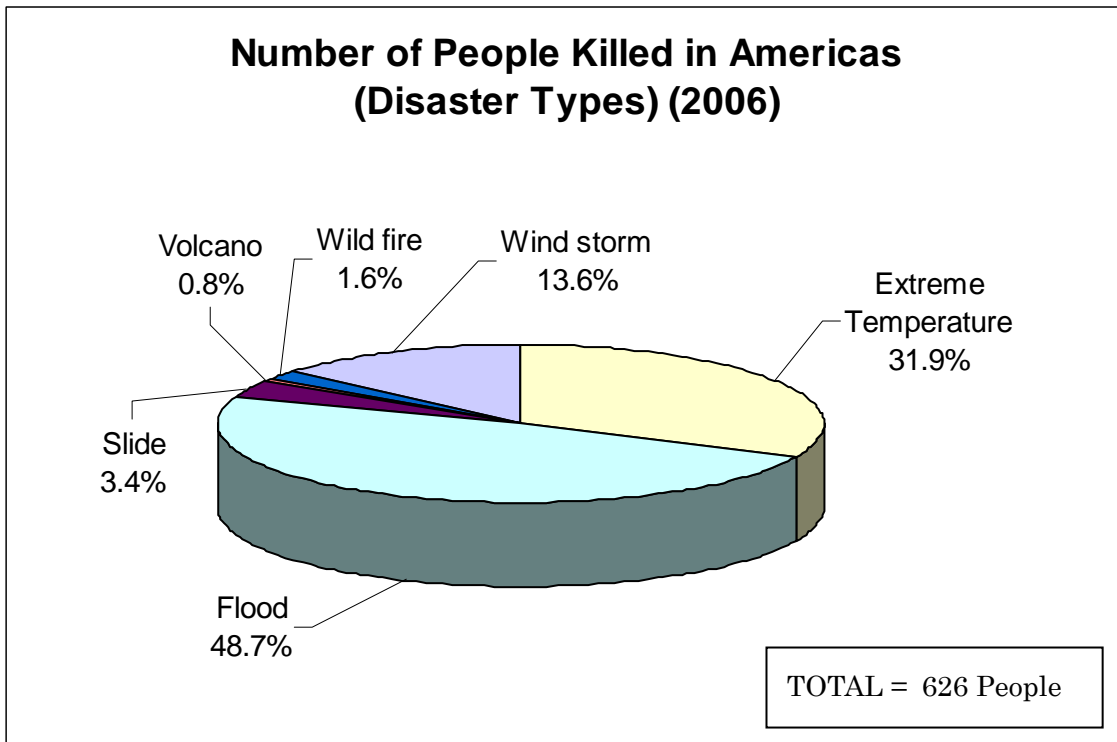
In the Americas, that includes the countries of North and South America, flood, and windstorms accounted for the vast majority (almost 72%) of natural disasters that occurred in 2006 as it was in the previous year 2005 which was a devastating year. Extreme temperatures, volcano eruptions and wildfire also created devastation in the Americas in 2006. In terms of human loss and suffering, about 94% of people killed were by floods, extreme temperatures and wind storms. Nearly 99% of the people affected were affected by wind storms, floods and volcano activities. The majority of the economic damage sustained was caused by floods in 2006. In 2005, severe damage was caused by the historic hurricanes that rocked United States. Severe damage was inflicted by floods and tornados that hit the US and the Caribbean, and the volcano activity in Ecuador. Figures 38 to 41 show that the Americas were visited by significant hydro-meteorological disasters in 2006, as they had been in 2003, 2004 and 2005 as well. Overall the human and economic losses have decreased in the Americas in 2006 in comparison to the previous years.

Figure 38: Proportion of Disasters in the Americas by Type, 2006



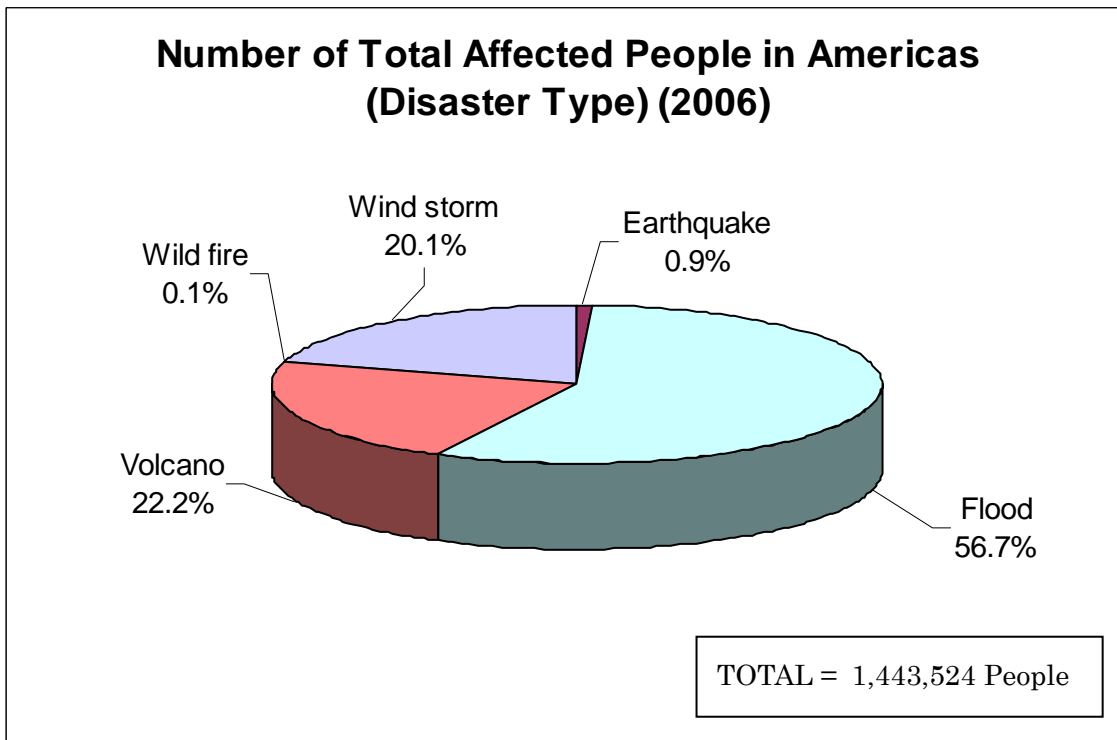
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 39: Proportion of People Killed in the Americas by Disaster Type, 2006

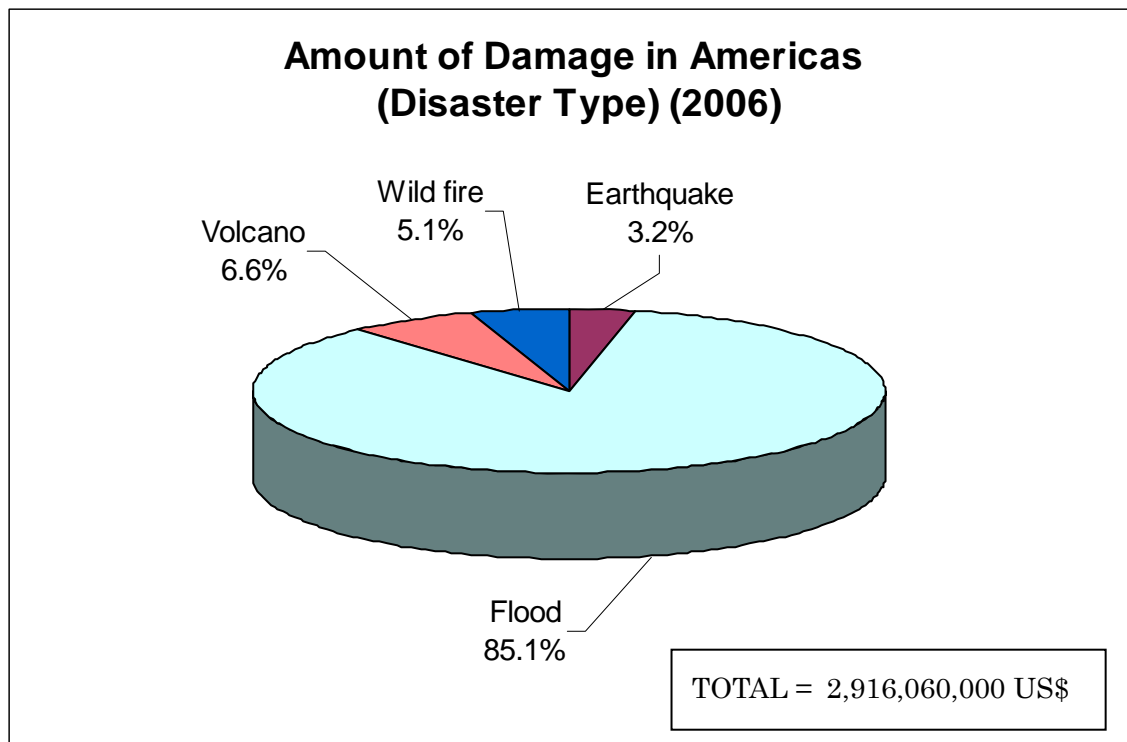


Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 40: Proportion of Total Affected People in the Americas by Disaster Type, 2006



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

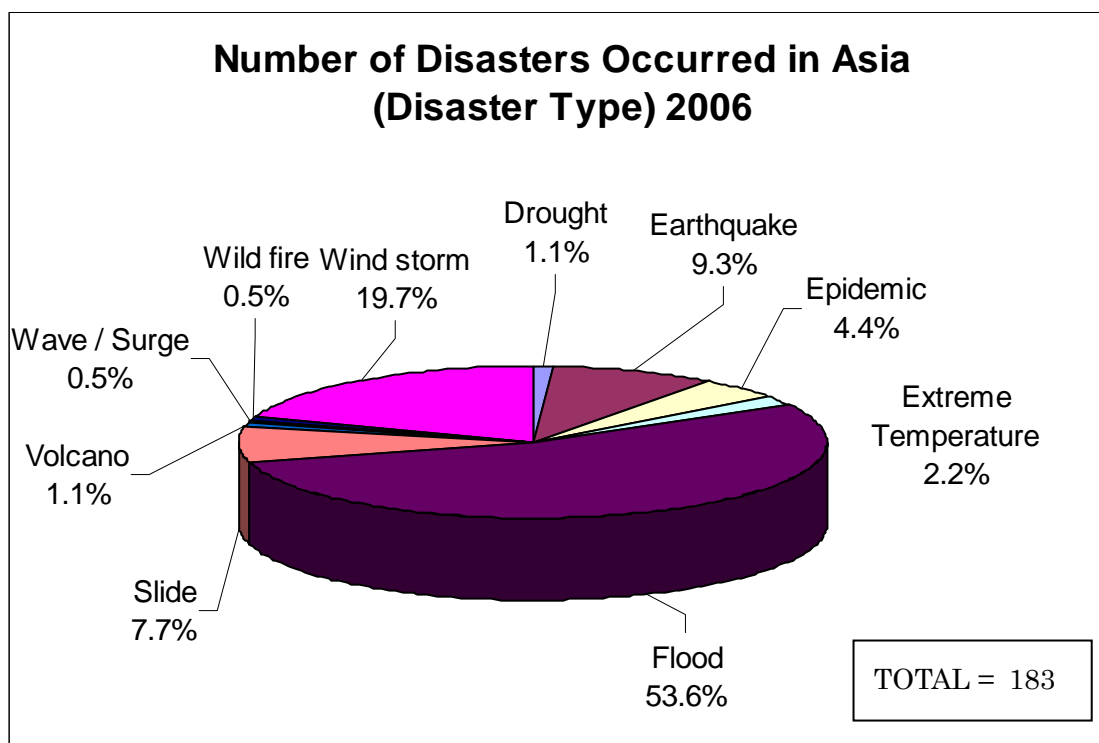
Figure 41: Proportion of Damage in the Americas by Disaster Type, 2006

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

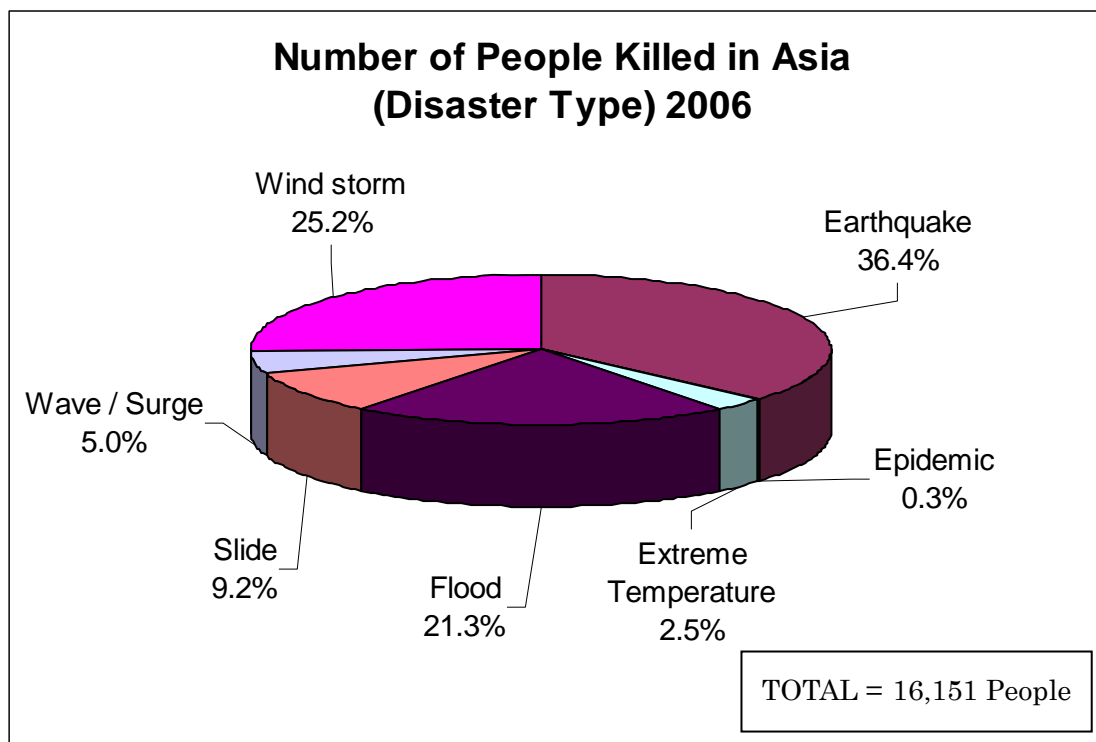
3.2.3 Characteristics of Disasters in Asia

An earlier chapter demonstrated the high vulnerability of the Asian region to natural disasters. The same trend will be observed here. Floods, wind storms, earthquakes, landslides, and epidemics occurred at a greater rate than other disasters in 2005 (Figure 42). About 73% of the disasters in Asia consisted of floods and wind storms, followed by earthquakes (9%), landslides (8%) and epidemics (4%). It is worth noting that earthquakes and tsunami in Indonesia caused considerable human losses (about 41%) in Asia, followed by floods, wind storms and slides (Figure 43). Floods in China, India and Bangladesh also contributed to the high death toll in Asia. Figure 44 shows that wind storms, floods, droughts, and earthquakes caused severe human suffering in Asia, as these accounted for almost all the people affected by natural disasters in the region in 2006. Although the Indonesia earthquake caused heavy human losses, this earthquake and tsunami did not account for a large percentage of the total affected people in Asia in 2006. Furthermore, about 86% of the economic damage sustained was due to windstorms and earthquakes. The remainder was due to floods and droughts (Figure 45). Clearly, the Asian region is severely disaster-prone and vulnerable to both hydro-meteorological and geophysical disasters. The following figures highlight these trends.

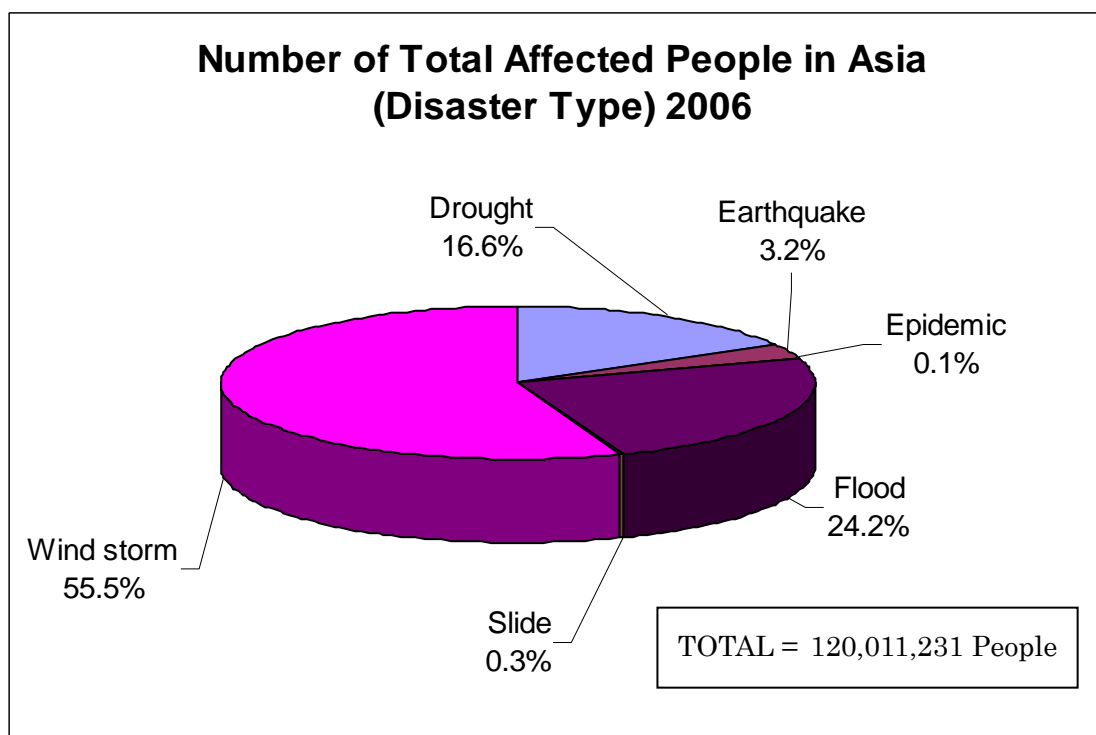
Figure 42: Proportion of Disasters in Asia by Type, 2006



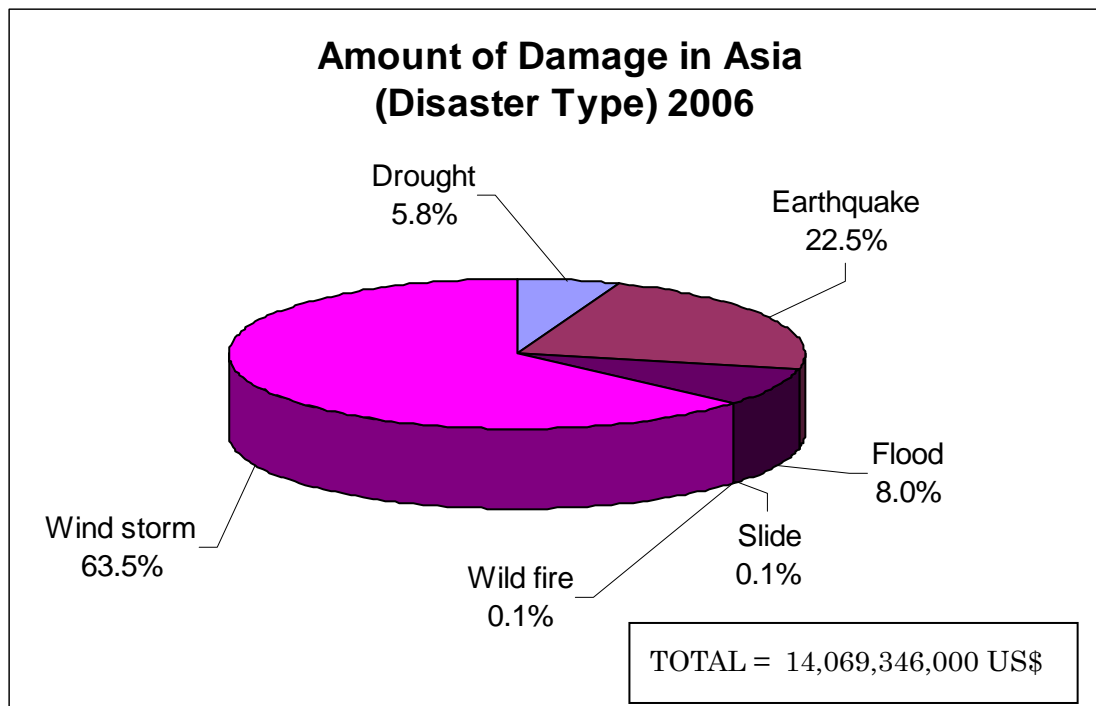
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 43: Proportion of People Killed in Asia by Disaster Type, 2006

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 44: Proportion of Total Affected People in Asia by Disaster Type, 2006

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

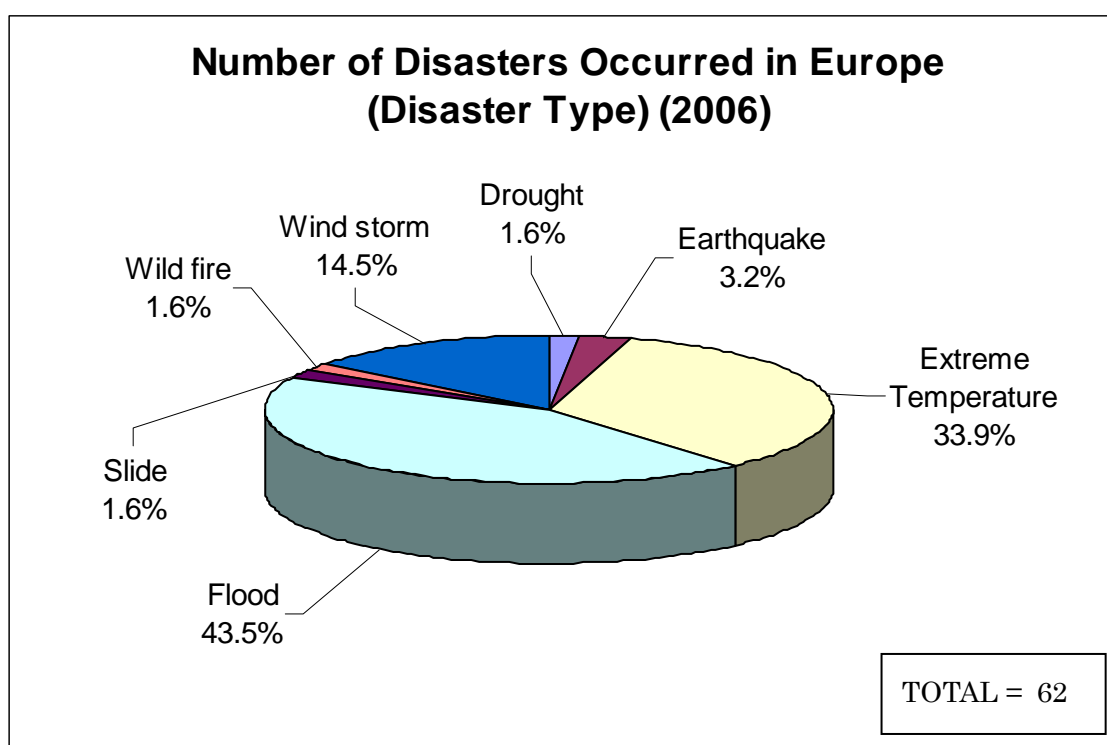
Figure 45: Proportion of Damage in Asia by Disaster Type, 2006

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

3.2.4 Characteristics of Disasters in Europe

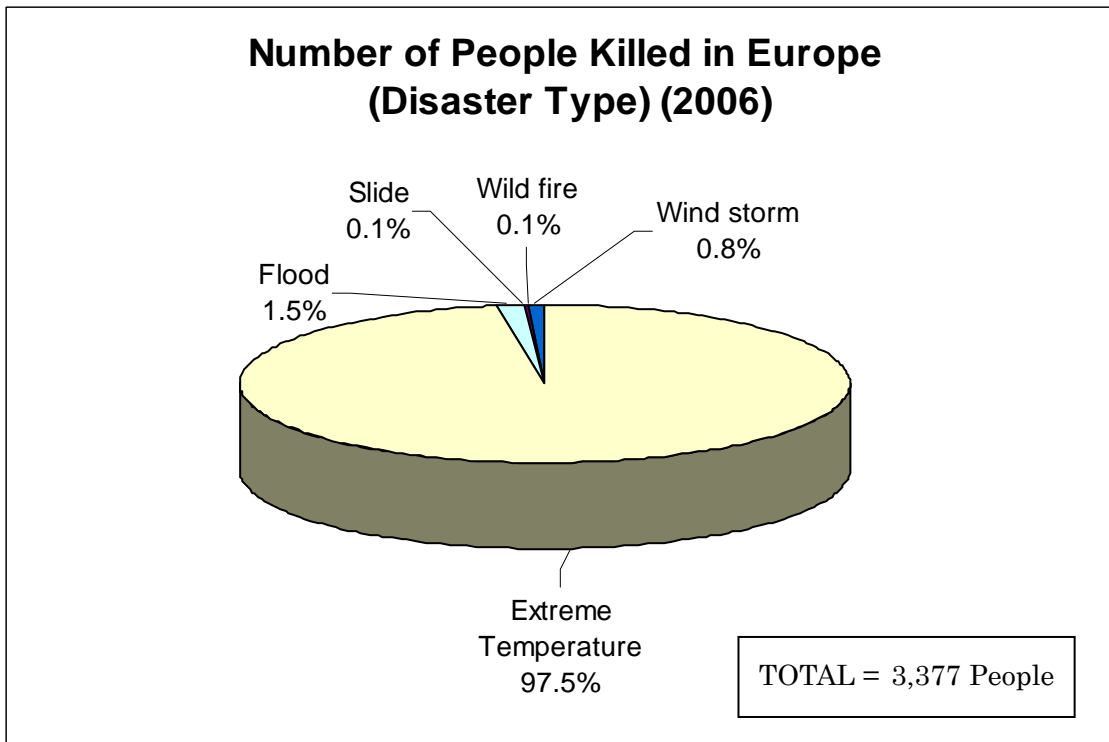
The year 2005 was not a difficult year for Europe in comparison with the devastating floods of 2002 and the extreme temperatures of 2003. But once again, 2006 saw some events of extreme temperatures causing devastation and human loss in the region. Figures 46 to 49 show that mainly extreme temperatures and floods caused severe human losses in the region. The majority of disasters in 2006 were floods and extreme temperatures, accounting for 77% of all disasters (Figure 46). The majority of human losses were due to extreme temperatures (98%), followed floods (Figure 47). All of these disasters caused about 99% of the total human losses in the region in 2006. Furthermore, 91% of the total affected people were affected by floods and extreme temperatures (Figure 48), in contrast to 2005 which saw winstorms affecting majority of the people in the region. In 2004 many people were affected by floods (88%). In 2002, as many as 84% were affected by floods, whereas in 2003, many people were killed by extreme temperatures (99%). Floods in Romania, Serbia, Czech Republic, and Switzerland, and cold wave in Belarus, Ukraine and Russia contributed significantly to the human losses and economic damage in this region in 2006. In 2004, droughts created heavy economic losses in the region, but in 2005 floods caused severe economic damage in the region (much as they had in 2003). The year 2006 was a rather tumultuous one for Europe, which once again sustained significant damage caused by hydro-meteorological disasters.

Figure 46: Proportion of Disasters in Europe by Type, 2006



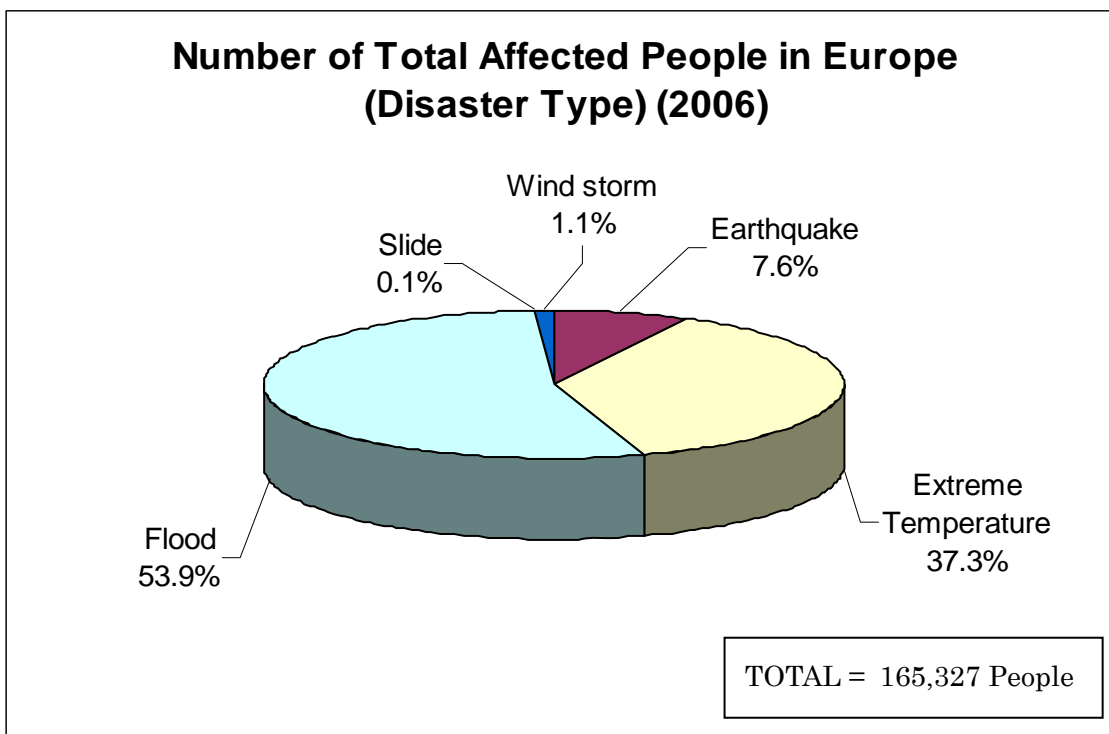
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 47: Proportion of People Killed in Europe by Disaster Type, 2006

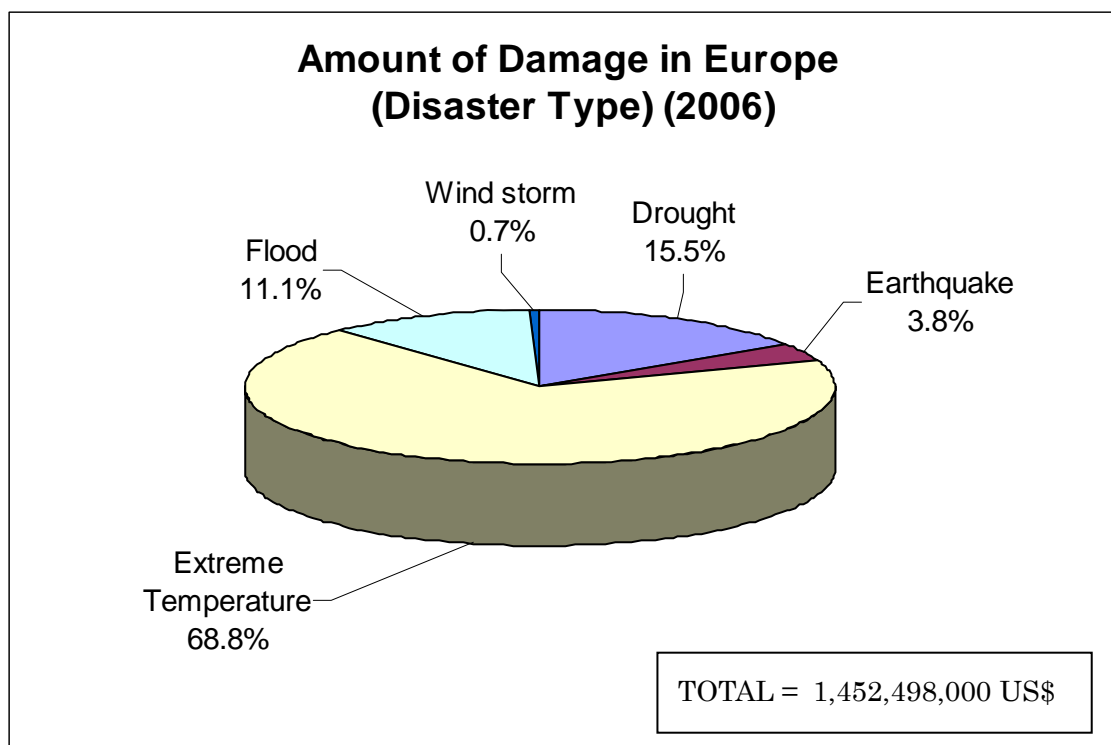


Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 48: Proportion of Total Affected People in Europe by Disaster Type, 2006



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 49: Proportion of Damage in Europe by Disaster Type, 2006

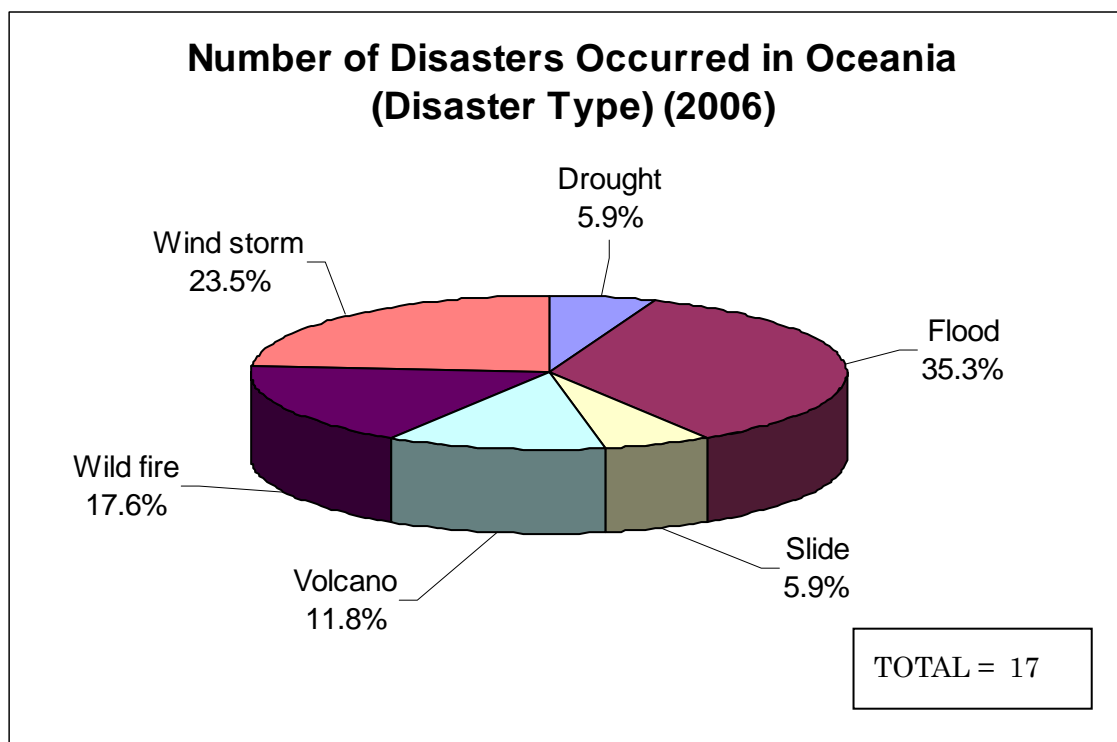
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

3.2.5 Characteristics of Disasters in Oceania

Disaster trends in Oceania were a bit different from those of other regions in previous years as well as in the year 2006, as the natural disasters strayed from the average regional pattern. Not all types of natural disasters occurred here, but the majority that did occur were floods, wind storms, and wildfire, accounting for 76% of the total. The remainder consisted of volcanic eruptions, slides, and drought (Figure 50). The majority of human losses were due to landslides (57%), followed by wildfire and floods (Figure 51). This was due to the slides in Papua New Guinea, floods in Australia and Papua New Guinea, wild fires in Australia and storms in the Pacific island country Fiji and Australia. The total affected people in Oceania in 2006 were largely affected by floods in Papua New Guinea and Australia, and windstorms in Australia (95%), while the remainder was subject to volcanic activity in Vanuatu (Figure 52). The Papua New Guinea floods and windstorms in Australia accounted for the majority of those affected in Oceania in 2006. This is due to severe wind storms that hit Australia and the nearby small Pacific island countries, and wild fires in Australia. The majority of the economic damage was caused by wind storms (91%) and wild fires (8%), mainly from Australia, as shown in Figure 53.

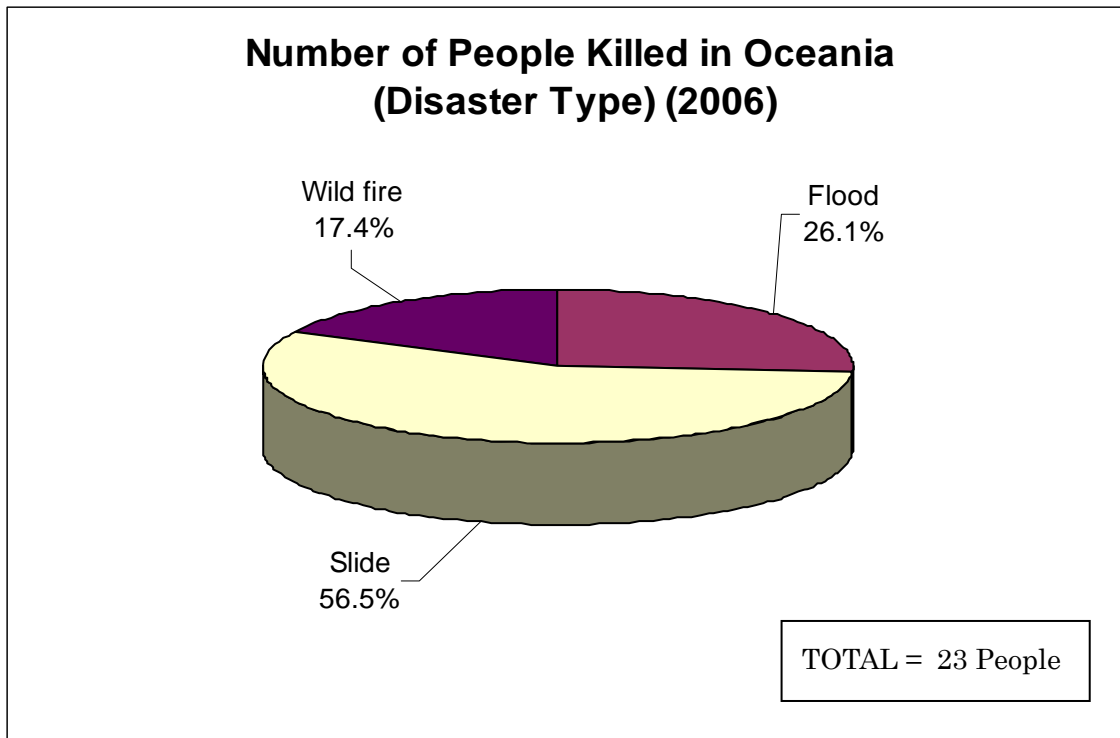
Though Oceania is vulnerable to both hydro-meteorological and geo-physical disasters due its geographical location, in 2006 Oceania experienced mainly hydro-meteorological disasters that created severe economic losses and human sufferings.

Figure 50: Proportion of Disasters in Oceania by Type, 2006



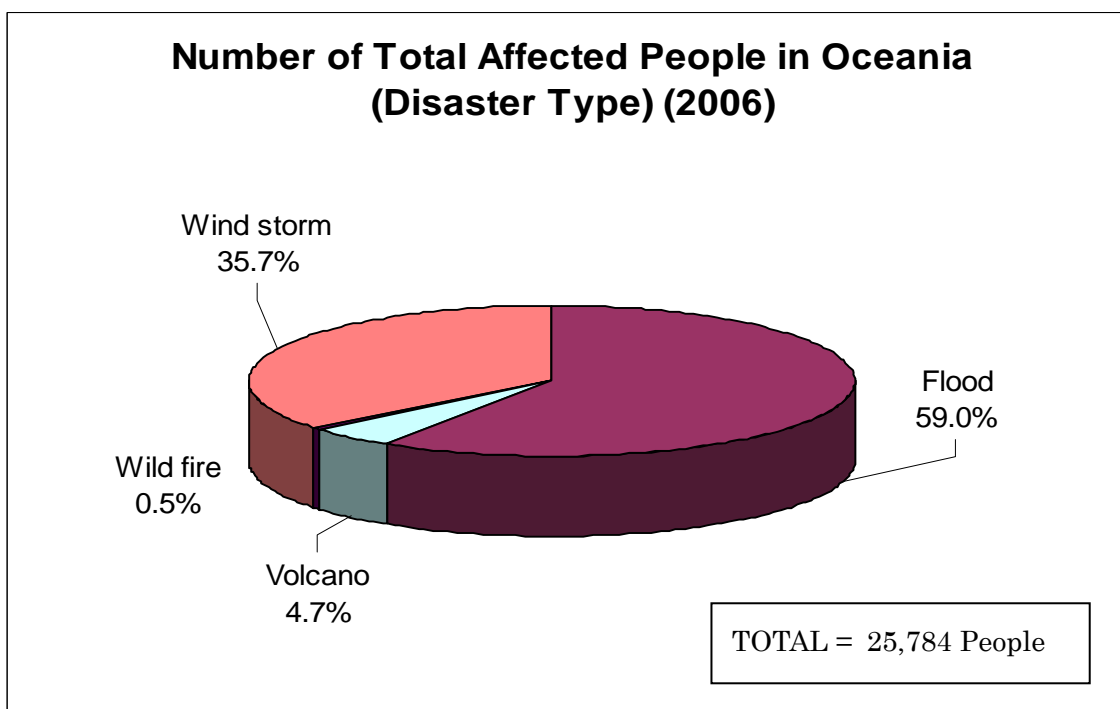
Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 51: Proportion of People Killed in Oceania by Disaster Type, 2006

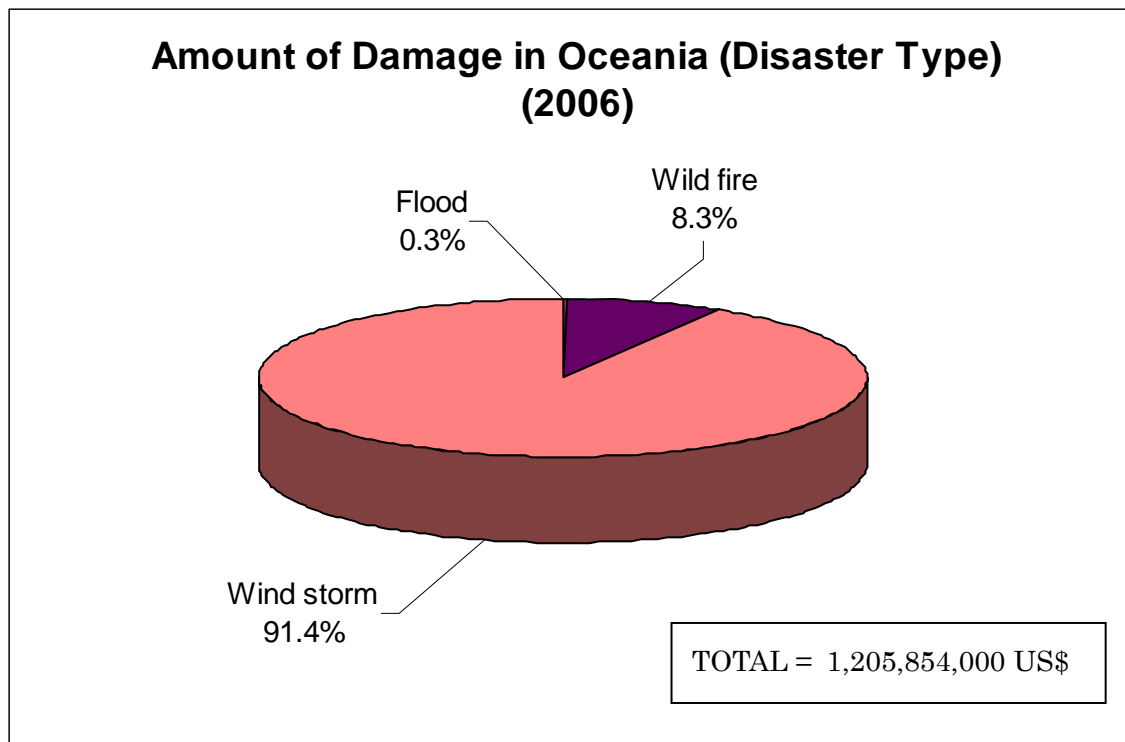


Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 52: Proportion of Total Affected People in Oceania by Disaster Type, 2006



Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

Figure 53: Proportion of Damage in Oceania by Disaster Type, 2006

Source: CRED-EMDAT, Université Catholique de Louvain, Brussels, Belgium, 2006

This section summarizes worldwide natural disaster patterns by region. Tables 2B and 3B in Chapter 1 also provide these figures in a tabulated form. Regions all over the world, including Oceania, experienced both hydro-meteorological and geo-physical disasters in 2006. The most significant human and economic losses resulted from the earthquakes, floods, winstorms and slides that occurred in Indonesia, China, the Philippines, India, and the windstom and flood that hit Australia and the US, respectively. The data shown here clearly demonstrates that Asia is a disaster-prone region of the world that sustains considerable levels of human losses and suffering. The most severe disasters of 2006, such as earthquake and tsunami in Indonesia; floods in China; windstorms and slides in the Philippines, occurred in the Asian region. Natural disasters deprive the affected populations of the benefits of socio-economic development, and hinder progress toward sustainable economic development - in disaster-prone regions and all over the globe.