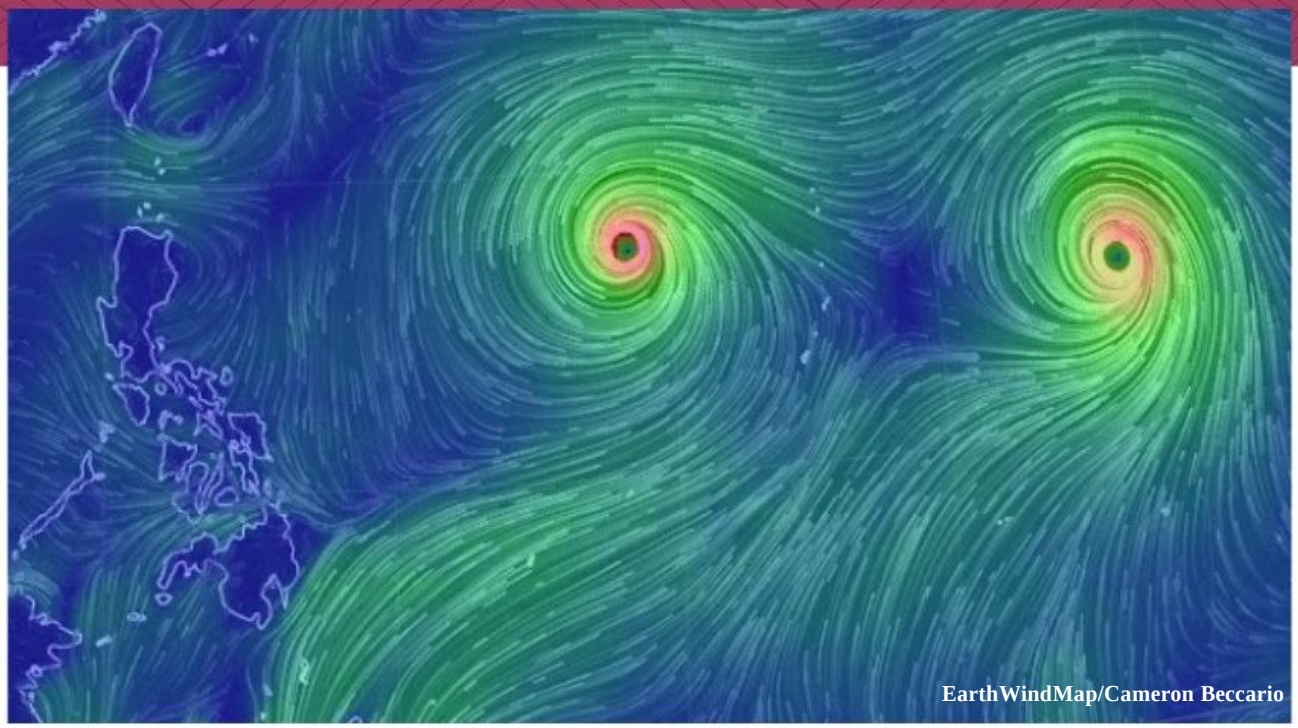
UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

Disasters in Asia and the Pacific: 2015 Year in Review



Typhoon Koppu approaching the Philippines in October 2015

Source: Available from http://earth.nullschool.net (Accessed October 2015).

In 2015, Asia-Pacific continued to be the world's most disaster prone region. 160 disasters were reported in the region, accounting for 47 per cent of the world's 344 disasters.[1] The region bore the brunt of large scale catastrophic disasters with over 16,000 fatalities — more than a two-fold increase since 2014. South Asia accounted for a staggering 64 per cent of total global fatalities — the majority was attributed to the 7.6 magnitude earthquake that struck Nepal in April which caused 8,790 deaths.[2] Asia and the Pacific incurred more than US$ 45.1 billion in economic damage in 2015 and even higher indirect losses. These numbers, however, are gross underestimates as there is no systematic assessment of the cost of all disasters that struck the region, especially slow-onset disasters such as droughts, heat waves, forest fires and haze.

2015 Fact Snapshot: Natural Disasters in Asia and the Pacific

US$ 45.1 billion
total cost of economic damage

59.3 million
affected by disasters

160 disasters
were recorded in the Asia-Pacific region

16,046 deaths
due to natural disasters

Earthquakes
had the highest number of fatalities; with 8,790 killed in the Nepal earthquake

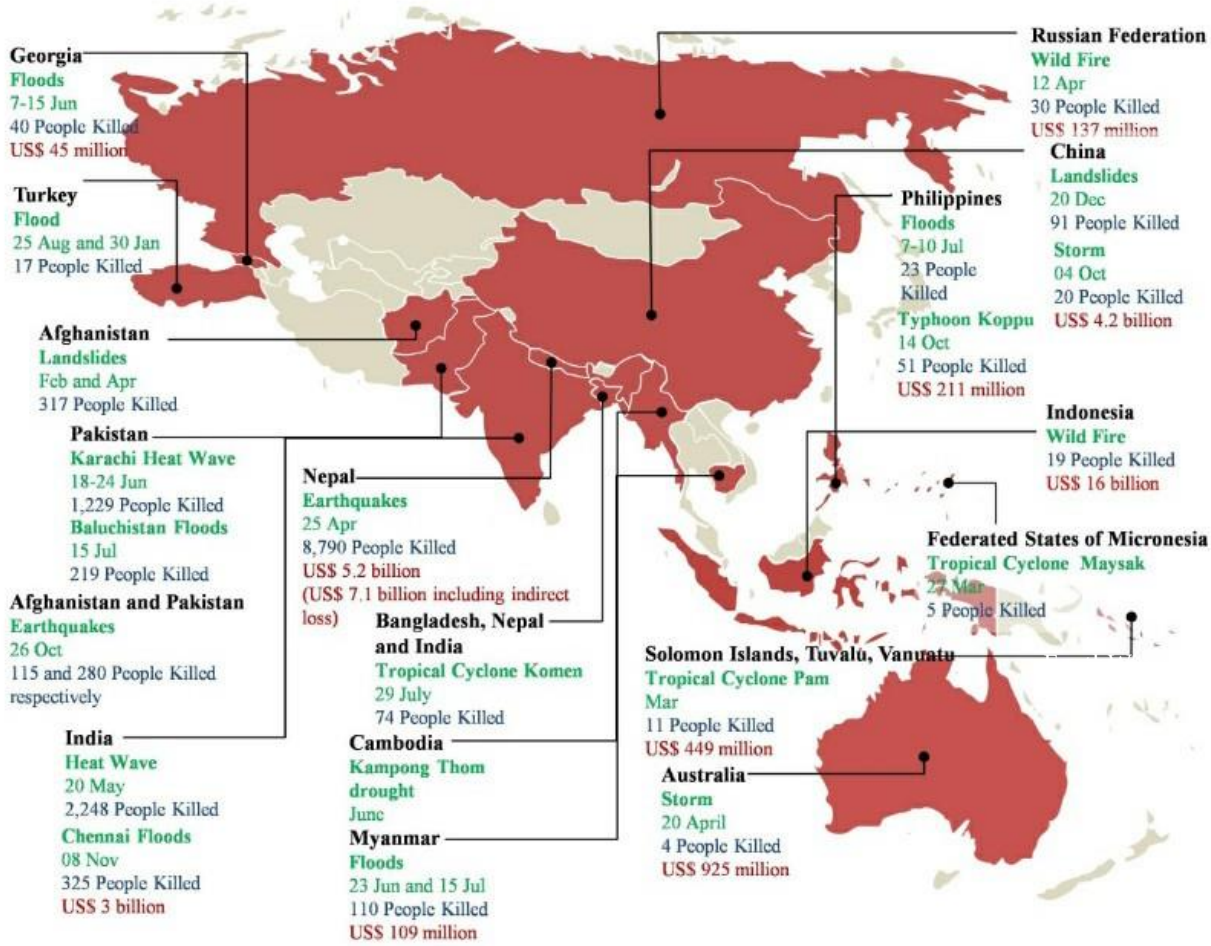
Floods
were the most frequent disaster; and floods and storms were the costliest in terms of economic damage

South and South-West Asia
was the most affected subregion

The range of disasters that affected the region includes earthquakes in Nepal, Afghanistan, Tajikistan and Pakistan; tropical cyclones that struck South-East Asia and the Pacific; floods in China, India, Indonesia, Myanmar, Pakistan and Sri Lanka; and droughts that affected many countries in the region. Out of 90 storms reported across the globe, 43 hit Asia-Pacific countries, of which 33 were high-intensity cyclones. 2015 was also the hottest year on record and saw several intense heat waves striking India and Pakistan between May and June that resulted in 2,248 and 1,229 deaths, respectively.[3] The El Niño phenomenon triggered droughts in several parts of the region, while producing severe rainfall in other places. Many disasters, be they floods, earthquakes or storms, had considerable impacts on urban centres which were not adequately prepared to handle disasters.

The year also saw unprecedented international efforts to prioritize actions to achieve sustainable development. The adoption of both the 2030 Agenda for Sustainable Development along with the Sustainable Development Goals (SDGs) and the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) were landmark events. The 2015 Paris Climate Conference (COP21) resulted in a historic agreement of 195 nations to combat the effects of climate change.[4] These global agendas and debates serve as a collective impetus for future actions towards building resilience in Asia and the Pacific — the most disaster prone region in the world.

Figure 1. Asia-Pacific natural disasters in 2015



Source: EM-DAT International Disaster Database-www.emdat.be &
Reliefweb-reliefweb.int/disaster (Accessed 23 February 2016).
Nepal earthquake data is from Nepal 2015, Post Disaster Needs Assessment.
Tamil Nadu flood damage and loss data is from media.

Main Trends

Urban areas are being severely impacted by natural disasters, particularly floods

Post-disaster response from neighbouring countries is increasing

Higher incidence of disasters with transboundary origins and cascading effects

The 2015-2016 El Niño continues to severely impact the region

Extreme weather conditions are causing a great number of fatalities

Innovative disaster assessment techniques and data gathering tools are increasingly being used

The key lessons from 2015 point to areas that require urgent attention: (1) building urban resilience; (2) promoting regional cooperation for transboundary river basin floods and other cross-border disasters; (3) addressing slow-onset disasters like drought; (4) enhancing end-to-end multi-hazard early warning systems; and (5) promoting the use of innovative technology.

AREAS IN NEED OF URGENT ATTENTION

- Building urban resilience
- Strengthening regional cooperation
- Addressing slow-onset disasters
- Enhancing end-to-end early warning systems
- Promoting use of innovative technology

1. 2015 AT A GLANCE

• 160 out of the 344 globally recorded natural disasters hit Asia-Pacific, accounting for 16,046 lives lost - more than a two-fold increase from 2014.

• The total population affected by disasters in the region decreased from 79.6 million people in 2014 to 59.3 million people in 2015. However, these numbers would be significantly higher if slow-onset disasters such as droughts, heat waves, and forest fires and haze were taken into account.

• The most disaster prone subregion was South Asia, recording 52 disasters and 14,647 deaths - a staggering 64 per cent of the global fatalities in 2015.

• Reported economic damage (not including damage from slow-onset disasters) in the region totalled more than US$ 45.1 billion.

• Floods were the most frequent disaster and had large-scale economic impacts. They comprised two-fifths of all disasters in 2015 and were responsible for 25 per cent of the total economic damage and 37 per cent of the total disaster affected population.

• Around half of the 90 storms recorded globally occurred in Asia-Pacific, affecting over 9 million people with US$ 11.8 billion in economic damage.

Table 1. 2015 Asia-Pacific losses by disaster type

Disaster Type	Occurrence	Deaths	Affected	Economic Damage (US$)
Flood	63	1,863	21,661,443	11.5 billion
Storm	43	446	9,135,551	11.8 billion
Earthquake	17	9,327	6,484,533	5.2 billion
Landslide	15	626	45,234	-
Extreme temperature	4	3,536	1,045,000	-
Others*	18	248	20,883,788	16.7 billion
Total	160	16,046	59,255,549	45.1 billion

*Data on slow-onset disasters are not yet available

Source: EM-DAT (Accessed February 2016).

Table 2. Country rankings: Economic damage and fatalities from disasters in Asia-Pacific in 2015

Top 5 Economic Damage Ranking		
Disaster type	Country	Economic Damage (US$)
Wildfire	Indonesia	16.1 billion
Earthquake	Nepal	5.2 billion (7.1 billion)*
Storm	China	4.2 billion
Flood	India	3 billion (7 billion)*
Flood	China	2 billion

Top 5 Fatalities Ranking		
Disaster type	Country	Fatalities
Earthquake	Nepal	8,790
Extreme Temperature	India	2,248
Extreme Temperature	Pakistan	1,229
Flood	India	325
Flood	India	293

*Numbers in parenthesis include losses

Source: EM-DAT (Accessed February 2016).

2. KEY OBSERVATIONS

Flooding at the airport in Chennai, India in December 2015

1. Impact of disasters in urban areas was significant

Unplanned and unsustainable growth in many cities has exposed its residents to multi-hazard risks with potentially devastating and costly impacts. The year 2015 witnessed a number of urban disasters, including a high incidence of urban flooding. For example, in February, widespread flooding struck Jakarta, Indonesia. In September, the Japanese city of Joso experienced flooding that killed at least eight people and destroyed many homes.[5] In June, the monsoon rainfall caused extensive floods submerging multiple urban areas in Dhaka. The same monsoon season brought Mumbai to a standstill with waterlogged roads and major disturbances in power networks. The Chennai floods in December 2015 demonstrated the serious impact of urban flooding. Economic losses from those floods were more than US$ 7 billion while 325 fatalities were recorded.[6] Similarly, the damage and losses from the Nepal earthquakes that amounted to one-third of the country's GDP were largely attributed to the earthquakes' impacts on the capital city of Kathmandu. While the housing sector was severely affected, productive sectors including tourism, agriculture and commerce saw damage and losses of US$ 1.78 billion.[7] The massive economic damage and the loss of lives from urban disasters call for urgent actions to enhance disaster resilience in cities.

2. Transboundary river basin floods continued to devastate the region

As in other years, many of the large-scale floods that affected the region were transboundary in nature. For example, in July, heavy torrential monsoon rains flooded Pakistan and India.[8] In addition, outbursts from glacial lakes led to flash floods and the flooding of the Indus River in several locations across Pakistan. Similarly, the state of Assam in India and parts of Bangladesh were affected by flooding in the Brahmaputra river basin. While no estimates of economic impact from transboundary floods are available for 2015, ESCAP's 2014 Year in Review highlighted that transboundary floods in the Indus river basin across India and Pakistan attributed to 30 per cent, equivalent to US$ 18 billion, of the economic impacts in the subregion.[9] The transboundary nature of the river-basin floods calls for stronger regional cooperation to coordinate response measures and assess impacts accurately.

The aftermath of Cyclone Komen that struck in July 2015

3. Cross-border disasters had severe cascading impacts

Disasters in Asia-Pacific often tend to affect multiple countries and bring about cascading impacts. In 2015, 48 per cent of all storms in the world occurred in Asia-Pacific countries. Many cyclones also triggered urban flooding, landslides, coastal erosion and several related disasters. In July, tropical cyclone Komen hit India, Bangladesh and Myanmar, causing consecutive floods and landslides and affecting nearly two million people. Komen first made landfall in Bangladesh. It caused floods and landslides in many states and regions of Myanmar, killing 39 people and affecting over 200,000 in Myanmar alone.[10] The cyclone also affected the state of Odisha in India, which was already reeling from the devastation caused by floods. It is a concern that the same communities tend to get repeatedly hit by a series of disasters, seriously eroding their capacity to recover. Other hazards showed a similar pattern. The Nepal earthquake in April impacted the neighbouring countries of Bangladesh, China and India and triggered six landslides – five in Nepal and one in the Tibet Autonomous Region of China – that blocked rivers and increased the risk of flooding.[11] Similarly, the Afghanistan/Pakistan earthquake in October affected neighbouring countries, while the November earthquake in Central Asia impacted Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

4. The hardest hit were the Countries with Special Needs

A single catastrophic disaster can wipe away hard earned development gains. Countries with Special Needs (CSNs) were among those most vulnerable to disasters. The devastating earthquake that hit Nepal in April caused large-scale human and economic loss and may have pushed an estimated 2.5-3.5 per cent of the population into poverty.[12] The 7.5 magnitude earthquake that hit Afghanistan in October killed at least 115 people and injured 538.[13] For many CSNs, the small absolute numbers of fatalities and economic losses disguise the high impact of disasters relative to the scale of the countries' population and economies. For example, in Vanuatu, Cyclone Pam in March 2015 caused approximately US$ 450 million in damage and losses, which was roughly equivalent to 64 per cent of its GDP.[14]

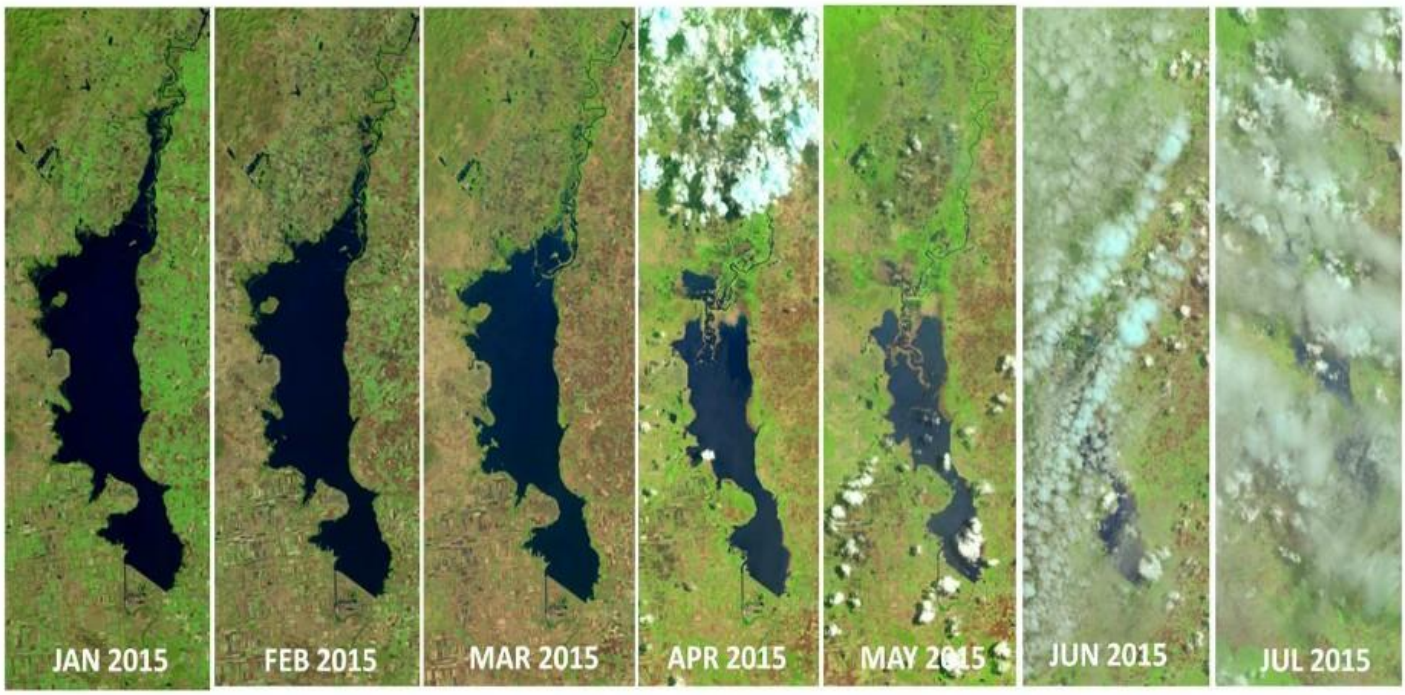
5. Widespread drought

Triggered by the severe El Niño which began in 2014, a weak monsoon season led to drought in a large swath of South and South-East Asia, and the Pacific. It is estimated that more than 20 million people have been affected by drought in 2015, though this figure is likely to be significantly lower than the reality, as drought is not well recorded.

In South Asia, India bore the brunt of drought impact, recording a 14 per cent deficit in the southwest monsoon compared to the annual average. This was the second straight year of sub-par rains in the country. The Indian Ministry of Agriculture reported that 18.93 million hectares of crop area in seven states were affected. In South-East Asia, drought was widespread across many countries. In Thailand, insufficient rainfall depleted water levels in reservoirs across the country, with 17 reservoirs having between 1 and 20 per cent useable storage in July 2015.[15] In Cambodia, drought affected almost 250,000 hectares of cropland in 2015, and destroyed over 40,000 hectares of rice.[16] In Timor-Leste, El Niño caused a prolonged drought which may affect food security. Due to drought, farmers in Thailand postponed or avoided planting of crops.[17] Many farmers found that they faced substantial debt, and many provinces across several South-East Asian countries were declared disaster zones due to drought.[18,19,20]

El Niño was also responsible for triggering drought in parts of East Asia and the Pacific. By October 2015, Mongolia was suffering from a severe drought which reduced wheat harvests by almost 50 per cent from 2014, and 40 per cent below the five-year average.[21] It had been estimated that the carrying capacity for livestock was only 60 per cent of what would be needed without the dzud (a combination of drought and severe winter weather that leaves no fodder or pasture for livestock) which now affects the country.[22] By December 2015, drought warnings were in force for Papua New Guinea, Fiji, Tonga and Samoa; a "drought watch" was in place for the Solomon Islands and the Federated States of Micronesia, and alerts had been issued for Vanuatu and Palau.[23] Since then, a state of emergency has been called in the Marshall Islands with 23 per cent of the population severely affected by drought.[24]

Figure 2. Diminishing water levels in Pasak Chonlasit Dam, Lopburi province, Thailand in 2015



Source: GISTDA, 2015

6. Intense heat waves led to many deaths

South Asia observed anomalous weather conditions with Pakistan and India hit by extreme heat waves. It led to around 3,477 deaths in the two countries, with the majority of deaths among the elderly and manual labourers.[25] According to the Indian Meteorological Department, the soaring heat wave across the country was the worst observed in a decade. An unusual north-westerly wind movement, which led hot air from the north-western desert to spread across India and Pakistan, was reported to be the main cause of the extreme temperatures.[26] The severe nature of heat waves underscores the need for viable heat wave crisis management plans and sustained public awareness campaigns to prevent the loss of lives.

7. The alarming economic cost of forest fires and haze

Forest fire and haze across South-East Asia affected Indonesia as well as the neighbouring countries of Singapore and Malaysia in October. The haze reportedly killed at least ten people and caused respiratory problems for over 500,000 in Indonesia alone.[27] The Centre for International Forestry Research estimated that the economic losses may have reached around US$14 billion.[28]