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Climate Change, Indian Monsoon, and its Impact on Insurance

Source: The Quint

Climate change is making India's monsoon more unpredictable and chaotic. A recent study has warned about potentially severe consequences for food, farming, and the economy affecting nearly a fifth of the world's population.

A study of 30 climate models across the globe has concluded that every degree Celsius of warming would likely increase monsoon rainfall by about 5%. Climate change, the scientists found, is increasing monsoon rainfall in India even more than previously thought. Further, the monsoon season would be more erratic.

Post-world-war II, and with an increase in economic activities and rising population, resulted in edging over the natural processes occurring over a long time. Evidence suggests that the Earth's average surface temperature has gone up 1.1 degrees Celsius on average compared to the late 19th century.

Variability of the Indian summer monsoon has increased significantly since the 1950s. For several regions across India, this means an increase in long dry periods with low or no rainfall, intermittent with short and intense spells of rainfall. These changes are particularly significant for the western, central, and eastern states of India where more than 55% of the cultivated area is largely rainfed and where the adaptive capacity is the lowest.

The changes in rainfall are due to the increase in the global emission of greenhouse gases and air pollutants. At the same time, local changes through urbanization, land-use changes, and deforestation have brought in a non-uniform response in these rainfall trends.

In 2019, in the state of Kerala, at the southwestern tip of the Indian peninsula, June and July were months of inadequate rains, followed by a burst of intense storms in early August, causing floods and landslides in northern districts. The Kodagu and Chikkamaguluru districts in Karnataka state, northeast of Kerala, saw the same pattern. Avalanche Lake, a river valley in the Nilgiris Mountains of Tamil Nadu state, to the east, received more than 900 millimeters (35 inches) of rain in just one day.



Source: Indian Express

Losses Due To Flood and Drought

The southwest monsoon rains, between June and October, account for over 70% of annual precipitation in states located in many large river basins. The large river basins, such as the Indus, Ganges, and Brahmaputra, generate significant monsoon runoff leading to massive flooding in the plains. About 43% of the Indian population is prone to recurrent floods.

The northeast monsoon period (November to March) has mainly dry weather, and a year with below-average monsoon causes droughts in many regions. Annually, droughts also expose a similar percentage of the population.

The Central Water Commission (CWC) data revealed that between 1952-2018, each year India was hit by floods. During these events, 109,412 people lost their lives. Over 258 million hectares of crops were damaged and 81,187,187 houses were raged. The total economic losses due to crop, house, and other property damages came to INR 4.69 trillion. However, due to lower insurance penetration, only a fraction of this loss was insured.

Impact on Insurance Industry

The share of agriculture in GDP has been decreasing gradually, but it still employs 30% population, and it is essential to assess the impacts of natural disasters on agriculture as well non-agriculture sectors.

India is urbanizing rapidly; its cities will keep attracting more workforce. Further, cities are hubs of the service sector – financial, real estate, professional services, trade, hotel, transport, communication and broadcasting – which has also become the biggest contributor in GDP (around 55% in 2020).

With the increase in economic activities, the non-life insurance premium is rising. As of March 31, 2020, the non-life premium was USD 25.561 Billion, which was 11.43% more, compared to the previous year.

Table 1 below shows Gross Direct Premium (Fire + Engg) for top 10 states

States/Union Territory	2019-20 (INR Mln)	2019-20 (USD Mln)
Maharashtra	43,862.40	584.69
Gujarat	22,123.80	294.91
Tamil Nadu	16,699.60	222.61
Karnataka	12,422.90	165.60
Delhi	11,612.00	154.79
Uttar Pradesh	9,358.30	124.75
Haryana	8,940.70	119.18
West Bengal	7,712.70	102.81
Andhra Pradesh	6,466.60	86.20
Rajasthan	5,440.70	72.52
Total	144,639.70	1,928.05

Table 2 below shows Gross Direct Premium of Crop for top 10 states

States/Union Territory	2019-20 (INR Mln)	2019-20 (USD Mln)
Maharashtra	51,513.60	686.68
Rajasthan	47,735.60	636.32
Gujarat	33,025.70	440.23
Madhya Pradesh	32,264.70	430.09
West Bengal	25,458.20	339.36
Karnataka	21,730.10	289.66
Odisha	20,291.30	270.48
Uttar Pradesh	14,367.00	191.51
Tamil Nadu	13,614.20	181.48
Haryana	13,179.70	175.69
Total	273,180.10	3,641.49

Table 3 below shows Gross Direct Premium of Aviation, Marine Hull + Cargo and Motor OD

States/Union Territory	2019-20 (INR Mln)	2019-20 (USD Mln)
Maharashtra	63,832.70	850.89
Gujarat	27,548.20	367.22
Delhi	26,089.80	347.78
Karnataka	25,502.20	339.94
Tamil Nadu	24,283.90	323.70
Uttar Pradesh	24,137.20	321.75
Kerala	15,052.20	200.65
Haryana	14,777.60	196.99
Rajasthan	13,639.20	181.81
Telangana	13,434.70	179.08
Total	248,297.70	3,309.81

Erratic rainfall and droughts / floods induced by it can trigger loss causing events for different classes of business. For example, key crops, including rice, could be swamped during its growing stages. In addition, the cities could come to standstill, as we have witnessed in recent years, for example, Mumbai 2005 and Chennai 2015. So, re/insurers would have to be more prudent in the future to manage their risks.

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