



Changing Monsoon & Agriculture

This article is based on [“Make a drop count: Southwest monsoon patterns are changing”](#) which was published in The Times of India on 29/06/2021. It talks about the effect of changing southwest monsoon patterns on Indian agriculture.

Southwest monsoon is perhaps the most important feature of India's climate, because it is very critical for Indian agriculture. Therefore, long-term trends in the southwest monsoon overlap with economic security.

A recent study by IMD on monsoon variability over a 30-year period (1989-2018) is a wakeup call. UP, Bihar and West Bengal are three of five states that have shown a significant decreasing trend in the southwest monsoon. These states have a large bearing on India's agriculture output.

With around 55% of India's arable land dependent on precipitation, the amount of rainfall during the current monsoon season could sway economic activity in the agriculture sector and industries linked to it.

The shift in monsoon may entail grave consequences for India's economy, food systems and people's well-being. Therefore, remedial measures must be taken before it is too late.

Monsoon & Agriculture Linkage

- The Southwest monsoon plays a crucial role in India's agriculture and affects the livelihood of a fifth of the world's population.
- About 80 per cent of the annual precipitation over India occurs during the summer period, supplying water to crops during the prime agricultural season.
 - Monsoon friendly crops with a high requirement of water like sugarcane, jute and paddy can easily be cultivated during southwest monsoon.
- The agriculture sector in India is both economically and politically important. The industry accounts for around 14% of the country's \$2.7 trillion economy and 42% of total employment.
- Further, about one-third of India's manufacturing output — which makes up around 18% of the country's gross domestic product — is linked to turning agricultural products into food.
- Therefore, too much rainfall or too little or a volatile monsoon pattern, can damage crops.

Impact of Changing Monsoon

- **Depletion of Water Table:** In India, a little over 50% of India's net sown area is under rainfed farming and a large part of the irrigated area depends on groundwater extraction through borewells, which needs to be recharged with the groundwater.
 - In the event of a poor monsoon, these aquifers may not get adequately recharged, leading to water crisis.
 - Further, according to a NITI Aayog's report, nearly 21 Indian cities — including New Delhi, Hyderabad and Chennai — could run out of groundwater by 2020.

- **Fiscal Burden:** Multiple crop failures may require the government to actively support farmers. Most likely, it may prompt the government to raise minimum support prices for all of the current season's crops to help support farmers' incomes.
 - This will have a diminishing effect on investments into agricultural investments.
- **Impacting Electricity Generation:** Monsoon rains can be harnessed as hydropower, a valuable energy resource. Hydropower currently provides 25% of India's electricity.
 - Reservoirs are filled during the southwest monsoon rains and then the water is gradually released through dams, turning turbines to create electricity year-round.
 - During years when there is little monsoon rainfall, the reservoirs are not replenished, limiting the amount of hydroelectric power produced during the year.
- **Impacting Inflation:** Normal monsoon rains keep a check on food inflation due to availability of food produce. However in a situation of drought, prices soar significantly.
 - Also, if a poor monsoon results in less crop output, the country may need to import.
 - It also impacts as many as a dozen sectors which depend on monsoon either directly or indirectly.

Way Forward

- **Addressing Water Scarcity:** Water availability is a national challenge. We have 18% of the world's population with just 4% of freshwater resources.
 - Thus, the Indian government needs to put a high priority on investing heavily in improved water storage systems for the agricultural sector.
 - It would be worthwhile to give high priority to "more crops per drop" approach, rainwater harvesting, aquifer recharge, revival of water bodies and conservation technologies.
- **Addressing Inefficient Water Use:** Water use patterns are awfully inefficient in India, where Indian farmers use two to four times more water to produce a unit of any major food crop.
 - Thus, Indian agriculture needs to adopt newer, less water-intensive technologies faster.
 - In this case, it needs a doubling down on efforts such as the ongoing government of India schemes to incentivise the use of micro irrigation measures that use water more efficiently.

Conclusion

Global climate change is not a new phenomenon. The effect of climate change poses many threats; one of the important consequences is bringing about changes in southwest monsoon and its impact on agriculture.

As India has set a target of halving greenhouse gas emissions by 2050 [15]. There is an urgent need for coordinated efforts to strengthen the research to assess the impact of climate change on agriculture, forests, animal husbandry, aquatic life and other living beings.

Drishti Mains Question

The shift in monsoon may entail grave consequences for India's economy, food systems and people's well-being. Discuss.