Mains Practice Question

Q. Do you think that the pattern of Indian monsoon has changed in past decade? Discuss how it impacts various facets of our lives. (150 words)

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Approach:

- Define monsoon.
- Give facts about changing pattern.
- Possible reasons of change
- Implications of changing Indian monsoon.
- Importance of Indian monsoon

Answer:

Introduction

- The term monsoon has been derived from the Arabic word **mausim** meaning 'season'.
- It marks the seasonal reversal of easterly winds blowing from the northeast during cooler months and reverse direction to blow from the southwest during the warmer months of the year.
- Indian monsoon is the most prominent of the world's monsoonsystems, which primarily affects India and its surrounding water bodies.
- Majority of rainfall in India is convectional in nature and falls between the months of June and September.

Changing pattern of monsoon

- Indian monsoon is considered a 'textbook phenomenon' clearly defined which has not changed much in the preceding century.
- The average rainfall has remained within the 10% of the long term average.
- However this process has hit an erratic front, with floods in the northwest and the northeast and rainfall deficit in southern part of the nation.
- Rainfall extremes have increased threefold over the last few years and now extend over all of central India – from Gujarat to Odisha.
- Onset of monsoon has delayed every year since 2002 and it also lasts for shorter duration, compressing the Indian monsoon.
- The interspersed breaks in the monsoon have increased resulting in larger drier periods in the monsoon itself.
- Rainfall intensity, duration, frequency and spatial distribution have significantly undergone change in the past decade or two.

Possible reasons of change

- **Decreasing mean rainfall**, increasing spatial variability of rainfall, and a threefold rise in rainfall extremes – are associated with a weakening monsoon wind circulation and a decrease in the number of monsoon depressions from the Bay of Bengal.

- Subcontinent has warmed significantly in the last decade and the Indian Ocean has cooled down during the same period due to **anthropogenic reasons**.
- The contrast in the temperature between land and sea might result in decreased moisture demand from land.
- India has experienced a reduction in low clouds, due to increase in anthropogenic **aerosols such as black carbon or soot**, which simultaneously absorb and heat the surrounding air, and prevent clouds from forming.

Implications of changing Indian monsoon

- Shifting monsoon patterns of the country has resulted in **acute water shortage** in the nation, with drying up of wells and rivers.
- Major Indian reservoirs runs 10% lower than their normal at any given point of time in the year
- There has been **economic loss across agriculture and industry** sectors caused by water shortage.
- **Cycles of droughts and floods** have become more common in many parts of India.
- Water shortage may fuel **interstate tensions** in India, ex- Cauvery river dispute between Karnataka and Tamil Nadu; Krishna river dispute among Andhra Pradesh, Maharashtra, Karnataka and Telangana;
- Variation in monsoon has also resulted in the **incidence of vector borne diseases** such as malaria, dengue.

Importance of Indian monsoon

- Indian monsoon plays vital role in India’s attempt to achieve food security.
- About 64 % Indian population depend on agriculture for their livelihood, which is based on southwest monsoon.
- Nearly 60 percent of the country’s farms lack irrigation facilities, leaving millions of farmers dependent on the rains
- Monsoon is critical to replenish 81 reservoirs necessary for power generation, irrigation and drinking.
- Monsoon regime emphasizes the unity of India with the rest of Southeast Asian region.