

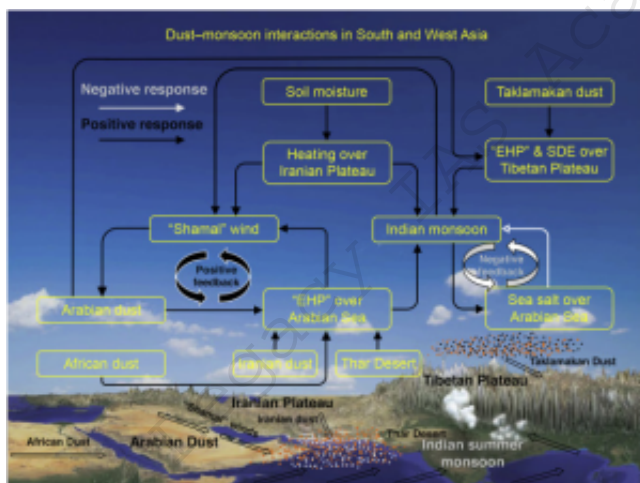


## Explain How Desert Dust Particles Impacts the Occurrence of Indian Summer Monsoon. (150 Words / 10 M) (GS-1 Geography)

### Approach:

1. Introduction.
2. With a diagrammatic illustration, mention how desert dusts influence Indian summer monsoon.
3. Conclusion – highlighting few effects of dust particles across globe.

A study showed that desert dusts coming from **West, Central and East Asia** impacts the Indian summer monsoon.



### How it impacts ?

- **Strong winds** carry the dust particles from Middle East into the atmosphere. Dust particles **absorb solar radiation** and become extremely hot.
- This causes **heating of atmosphere – decreasing the air pressure & changes the wind circulation patterns**. Further, it **increases the moisture transport** capacity of air & thereby, increasing precipitation and rainfall. This phenomenon is called “**elevated heat pump**” – responsible for driving sea moisture into the Indian subcontinent.
- In turn, the **monsoons increase the winds in the Middle East**, subsequently producing more dust aerosols. This creates a positive feedback loop.
- The **Iranian plateau** also influences the Indian summer monsoon. The hot air over the Iranian plateau heats the above atmosphere, further strengthening the circulation over the deserts of the Arabian peninsula, which increases dust emission from West Asia.

The dust aerosols from deserts in West China like the **Taklamakan Desert** and the **Gobi desert** can be transported eastward to eastern China, which influences the East Asia summer monsoon. The small deserts in the southwest USA are known to influence the North African monsoon.



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