Soil Erosion in India

- **Total area under water +wind erosion is 80 million hectares or 1/4th of total area.**
- **40,000 hectares of our land is permanently lost to cultivation and much larger area is rendered less productive every year due to wind and water erosion.**
- **21 million hectares are subject to severe wind erosion in Rajasthan and its adjoining areas e.g. Punjab, Haryana and Gujarat.**

Soil erosion by wind in India:

- About 45 million heactares of land is subject to severe wind erosion.
- 34 lakh tonnes of fertile soil is removed by wind every year in the districts of Jodhpur, Bikaner, Kota, Jaipur, Bharatpur, Kishangarh etc. in Rajasthan.
- These areas receives scanty rainfall.
- Vegetation cover and sandy soil.
- Causes: Faulty farming practices, failure to conserve moisture, lack of management and over grazing.

Soil erosion by water in India:

- Wet region / intesive rainfall region
- Steep slope, scarce vegetation, .
- ICAR: loss due to water erosion is 53.34 million hecatares annually.
- 18 states: 39.75 lakh hectares
- Among which 27.65 lakh hect. (69.55 %) –UP, M.P., Rajasthan, Gujarat.

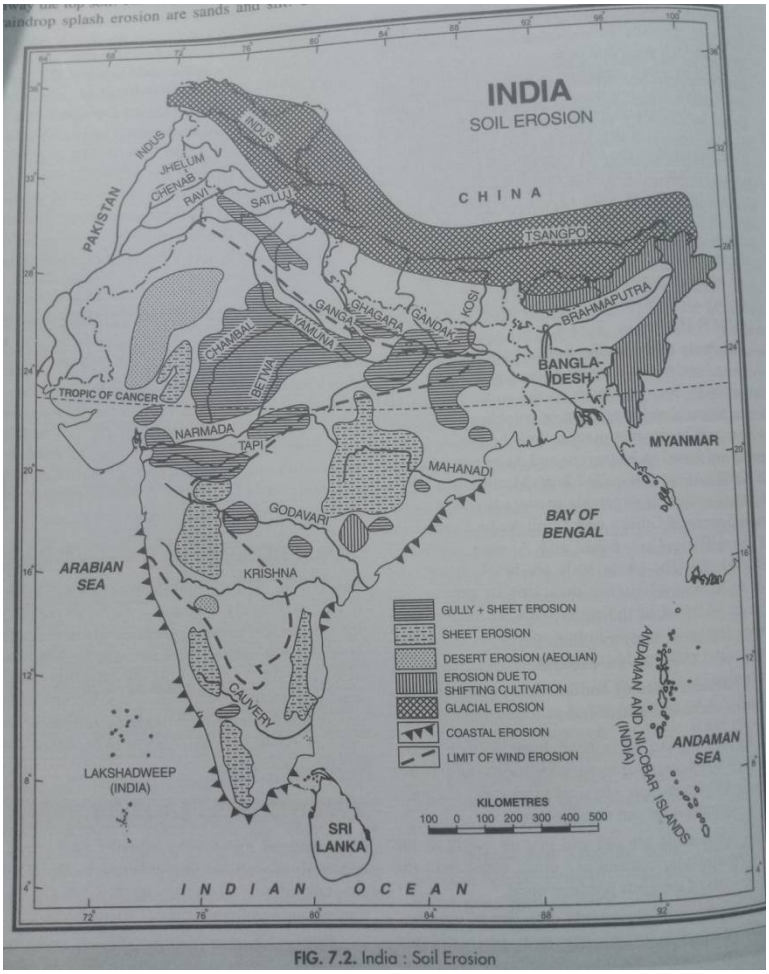

FIG. 7.2. India : Soil Erosion

- **Madhya Pradesh**-4-8 lakh hectares are affected by deep gullies and ravines along the banks of rivers Chambal and Kali sindh.
- **Uttar Pradesh**:- Ravines of Chambal, Yamuna, Gomati, Son and their tributeries. Worst affected

district: Agra, Etawah and Jalaun. Chambal-Yamuna badlands covering a total area of about 32 lakh hectares are the result of 1000 years of soil erosion whering 0.25 tonnes of soil is being removed every day.

- In **Timil Nadu**, ravines are common in South, Arcot, North Arcot, Kanniyakumari, Tiruchchirapalli, Chingleput, Salem and Coimbatore districts.
- In **West Bengal** numerous gullies and ravines exist in the upper catchment areas of the Kangsabati river in Purulia district.
- In **Bihar**, river courses of the Ganga, the Gandak, the Kosi and the Son are affected by ravines. The flood plains of the Ganga and its tributaries.
- In **Uttar Pradesh** and **Bihar** also suffer from the problem of soil erosion caused by water. These rivers are carving deep furrows and removing fertile top soil. According to one estimate the Ganga river is transporting about 30 million tonnes of eroded material per year from the Ganga plain to the Bay of Bengal.
- Similarly the **Brahmaputra** is transporting about 10 million tonnes annually from the Brahmaputra valley to the Bay of Bengal.

- The **Shiwalik range** has also been badly affected by gully erosion. Rivulets descending from the Shiwalik hills and flowing into Punjab are locally called Chos. Erosion by chos is most marked in Hoshiarpur district of Punjab. In the 130 km belt of the Shiwalik, nearly a hundred streams debouch onto the plains.

TABLE 7.1. Area Under Ravines in India (lakh hectares)

State	Area
Uttar Pradesh	12.30
Madhya Pradesh	6.83
Rajasthan	4.52
Gujarat	4.00
Punjab	1.20
West Bengal	1.04
Bihar	0.60
Tamil Nadu	0.60
Maharashtra	0.20

loss of soil due to shifting agriculture:

- It has been estimated that more than 15 lakh hectares of forest land is cleared for shifting agriculture every year. The total area affected by shifting cultivation is estimated to be 45 lakh hectares. Some portion of this land is permanently lost to agriculture. Shifting agriculture has caused maximum soil erosion in tribal areas of Assam, Meghalaya, Tripura, Nagaland, Mizoram, Kerala, Andhra Pradesh, Odisha, Madhya

Pradesh, Chhattisgarh etc. It is reported that about 207,287 hectares in Assam, 41,963 hectares in Tripura and 21,862 hectares in Manipur are under shifting cultivation. In Odisha about 33,08,502 hectares of land are subjected to shifting cultivation.

- In **Tamil Nadu** the bad effects of misuse of land are illustrated in the Nilgiri Hills where potato is one of the main crops. Here potato cultivation is done on steep slopes, sometimes exceeding 60 per cent. This has led to intense erosion of soil and the yields of potato have gone down by about 50 per cent in spite of heavy application of fertilisers. Land steeper than 1 in 4 should not be open for cultivation but put under grasses and trees.

Coastal erosion:

- Waves and currents strike the coast with great force and break the hanging cliff rocks. The broken material is carried away by the retreating waves. Coastal erosion is quite pronounced in the season of monsoon winds and during storms and cyclones. Several coastal areas in Gujarat, Maharasthra, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and Odisha have suffered heavily at the hands of sea erosion. Of the 560 km long coast of Kerala, about 32 km stretch

consisting of sandy beaches is subject to severe sea erosion. Erosion of beaches along the Kerala coast is evidenced by uprooting of coconut trees.

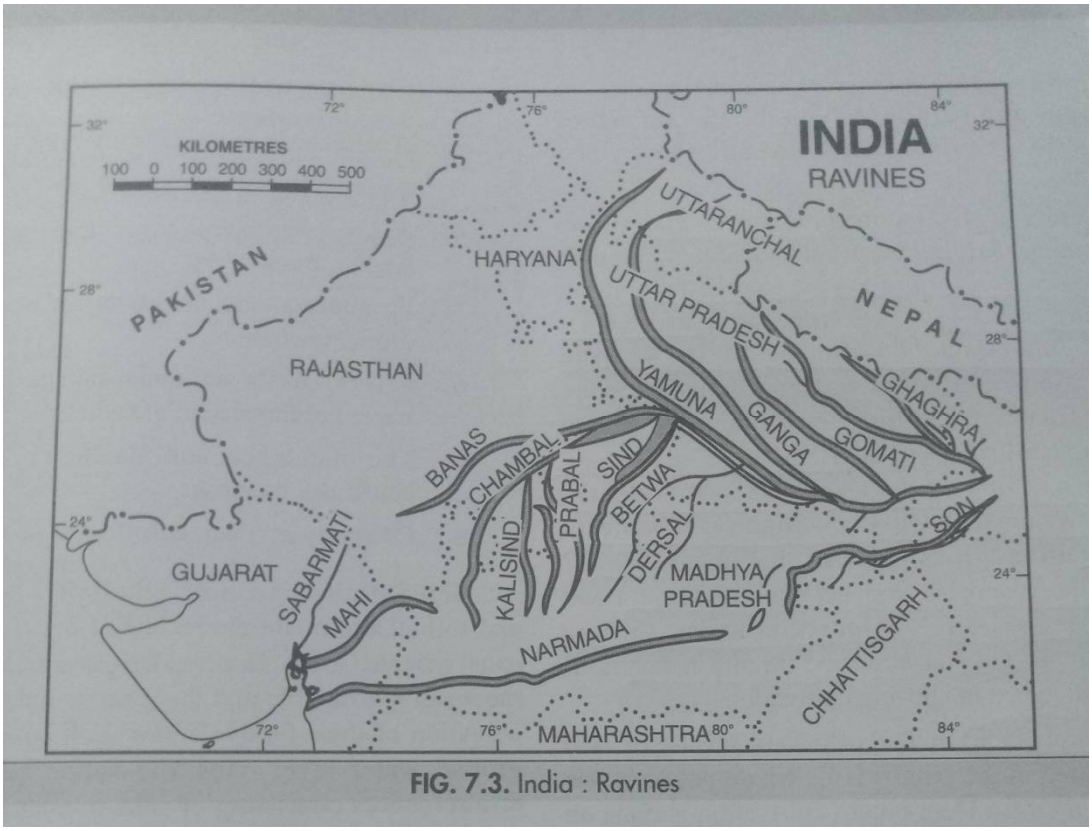

FIG. 7.3. India : Ravines

Reference:

Khullar, D.R. (2018) India: A Comprehensive Geography, Kalyani Publishers.