

UPSC Preparation

Sambhar Lake

Sambhar Lake is popularly known all over the world as Sambhar Salt Lake, and it is situated in the state of Rajasthan. Sambhar Lake was designated as a **Ramsar site** in March **1990** due to its biological and biotic importance and in particular because of a wintering area for tens of thousands of flamingos, pelicans, and other migratory birds from northern Asia.

Sambhar Lake is India's largest inland saline wetland.

About Sambhar Lake

- Sambhar Lake has been recognised by the Government of India as a wetland of international importance and has been accordingly designated as a Ramsar Site.
- The vegetation present in the catchment area is mostly **xerophytic** type.
- The Sambhar lake basin is spread, at the confluence of three districts of Rajasthan namely **Jaipur, Nagaur and Ajmer** close to the desert fringe line.



Source - Zoological Survey of India

- The lake area is surrounded by Jaipur district on the south, southeast and east, and Nagaur district on its north and northwest and Ajmer district on its southwest.
- To the northwest and west of the basin, the Aravalli Ranges rise abruptly to a height exceeding 700 m in the form of hillocks, scattered along the northern and southern periphery of the lake.
- Sambhar Lake is an ideal habitat for waterbirds, inviting a large number of wetland avian species over winter every year.

Physiography of Sambhar Lake

The climatic and physiographic features of Sambhar lake are discussed below:

Climate

- The area covered by the lake is spread over a transitional climatic zone, with an arid climate at the west and a semiarid climatic zone towards the east.
- The climate of the area is influenced mainly by the monsoon and the physiography of the area, i.e., the Aravalli range.
- The Sambhar Lake is situated on the eastern flank of the Aravalli Mountains, which is in turn is dissected by a number of wind gaps.
- The climate of the region is tropical monsoonal characterised by summer, monsoon (rainy season) and winter seasons.
- Annual average rainfall ranges from **550 to 600 mm**.
- The area experiences rain mainly during the months of July to September.
- The average annual temperature of the area is 23°C, with a minimum temperature of 8-10°C in winter and a maximum temperature of 40-45°C in summer.

Topography of the Lake

- The vast body of Sambhar Lake is somewhat **elliptical** in shape.
- The lake bed is almost flat. The lake basin is divided into two unequal parts by a long stone dam between the settlements of Jhapok in the south and Gudha in the north.
- The western part is a natural, undisturbed water spread.
- The eastern part of the lake contains two large reservoirs for salt extraction, canals and salt pans.



Source - Zoological Survey of India

Major soils

- Mainly four types of soils can be found in the Sambhar Lake area, namely
 - Clay,
 - Clay loam,
 - Sandy loam and
 - Sandy soil.
- The general texture of the soil in the area is sandy loam to clayey loam, which is further classified into “Barani” or unirrigated and “Chahi” or irrigated soil.

Drainage

- The Sambhar is an elliptical and shallow lake.
- The catchment area of Sambhar Lake spreads over the four districts, i.e., Jaipur, Ajmer, Sikar and Nagaur of the Rajasthan state in India.
- The Sambhar basin has centripetal drainage pattern as streams drain towards the lake.
- The Salt Lake is mainly fed by four fugacious streams namely **Mendha, Rupangarh, Kharain and Khandel**, and numerous streamlets debouched from the Aravalli hills and surface run-off.

- Mendha river, the largest feeder stream, originates in the northeast of the lake (in Sikar district).

Protection Status of Sambhar Lake

Sambhar Lake was designated as a Ramsar site in 1990 due to the following reasons/ importance of the place. They are detailed below:

- **International and National importance**
 - Sambhar Lake is famous for harbouring flamingos in large numbers, next only to Rann of Kutch in the country.
 - The lake along with Phulera and Didwana salt lake forms a vast saline wetland, which constitutes the most important area for the flamingos outside Rann of Kutch. This has made Sambhar wetland a place of tourist interest.
 - The waders congregate here in appreciable numbers, besides migratory ducks; especially pochards, coots and other aquatic birds.
 - The terrestrial fauna confined to the catchment area includes rare/threatened species like Uromastix, saw-scaled viper, desert cat, desert fox etc.
- **Changes in ecological character**
 - Siltation, soil salinisation and discharge of sewage from the town are some major problems confronting the wetland.

Threats related to Sambhar Lake

The major issues that could attribute to the threatening of wetland ecosystem of Sambhar lake are as follows:

- Landscape degradation
- Loss of agricultural land
- Groundwater exploitation
- Indiscriminate extraction of water, diversion of surface water inflows in the lake's catchment and construction of rainwater harvesting structures in the flow path of the rivers and drains feeding the lake for existing irrigation practices compounding with climate change results in inadequate recharge of the aquifer and change in the hydrological pattern of the area.
- The dependency of the local population on lake resources has increased due to the demand for salt, and more and more people are relying on salt-making businesses for their livelihood,

leading to desertification. The salt-making activities around the lake have increased, and such activities are mostly carried out within one kilometre from the lake boundary.

- Declining water levels
- Degradation of waterfowl habitat
- Overgrazing by domestic livestock
- Pollution from surrounding towns, villages and watershed
- Vehicular transportation
- Lack of ecosystem management
- The birds foraging in the Sambhar marshlands had died due to avian botulism
- 30% of Sambhar Lake's area had been lost to mining and other activities, including the illegal salt pan encroachments.
- Degradation of soil and water quality and a decline in the population of migratory birds.