Lonar Lake added to IUGS 'Third 100 Geological Heritage Sites' list

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News

Lonar Lake in Buldhana district, Maharashtra, has been included in the 'Third 100 IUGS Geological Heritage Sites', a list recognised by the International Union of Geological Sciences (IUGS), UNI (17 Nov) and PTI (18 Nov 2026) reported, citing a PIB release of the Ministry of Mines. The Geological Survey of India (GSI) submitted the nomination. The crater, about 1.88 km across, was formed by a meteorite impact and is one of the youngest and best-preserved bowl-shaped hypervelocity impact structures on Earth. The official release puts its age at about 12,000 years, but scientific estimates differ: earlier studies gave 12,000–62,000 years, while 2011 argon ($^{40}Ar/^{39}Ar$) radiometric dating gave about 570,000 years. It is one of only five known hypervelocity impact craters formed in basaltic rock, here the Deccan Traps. A saline-alkaline lake lies at the centre of the crater. The Third 100 list has 100 sites from 47 countries – 34 in Europe, 22 in the Americas, 22 in Asia-Pacific, 11 in Africa, 6 in the Middle East, 2 in Antarctica and 3 in the High Seas – including Mount Fuji (Japan), Norway's fjords, the San Andreas Fault (USA), Mount Aconcagua (Argentina) and the Chocolate Hills (Philippines).

Key facts for the exam

Point	Details
Site	Lonar crater lake, Buldhana district, Maharashtra
Recognition	IUGS 'Third 100 Geological Heritage Sites'

Point	Details
Nominated by	Geological Survey of India (GSI)
Origin	Meteorite impact; age ~12,000 yrs (official release); argon dating ~570,000 yrs
Diameter	About 1.88 km
Host rock	Deccan Traps basalt (about 65 million years old)
Water	Saline-alkaline (soda) lake
Ramsar site	From 22 July 2020 (announced Nov 2020); 427 ha
Third 100	100 sites, 47 countries
Earlier lists	First 100 – Zumaia, Spain (2022); Second 100 – Busan, South Korea (2024)

Background

- The IUGS, founded in 1961, is one of the world's largest scientific bodies. Its Geological Heritage Sites programme recognises outstanding geological features that have advanced our understanding of Earth's history. The First 100 were announced at Zumaia, Spain, in 2022 and the Second 100 at the 37th International Geological Congress in Busan, South Korea, in 2024. For the Third 100, IUGS received 144 proposals from 70 nations, evaluated by a panel of 104 experts (IUGS).
- Geology: the Lonar crater formed in the basaltic lava flows of the Deccan Traps. Because of this basalt setting some geologists first took it for a volcanic crater; the discovery of maskelynite, a glass formed only in very high-velocity impacts, established it as an impact crater (NASA). British officer C.J.E. Alexander identified it in 1823 (NASA). Lonar is also on the GSI's list of national geo-heritage sites (Lok Sabha reply, 2019).
- Ecology: with no outflow, minerals concentrate as the water evaporates, making the lake highly saline and alkaline (Ramsar information sheet). The area is protected as the Lonar Wildlife Sanctuary, and the 427-ha wetland has been a Ramsar site since 22 July 2020 (announced in November 2020). In 2020 the lake turned pink; a probe by the Agharkar Research Institute, Pune, attributed this to salt-loving 'Haloarchaea' microbes (PTI).
- The GSI, founded in 1851, works under the Union Ministry of Mines; identifying and protecting the country's geoheritage sites is one of its tasks. Listing is expected to boost education, research, geo-tourism and conservation.

Tamil Nadu link: Tamil Nadu also has notable geoheritage: charnockite – named after Job Charnock, founder of Calcutta, whose tombstone is made of it – was described by Sir Thomas Holland from St. Thomas Mount (Pallavaram), Chennai (TN Department of Geology and Mining). The petrified wood of Tiruvakkarai (Villupuram district) is protected by the GSI; petrified wood is also seen at Sattanur village, Kunnam taluk, Perambalur district.

Frequently asked questions

What is this news about?

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Nov) and PTI (18 Nov 2026) reported, citing a PIB release of the Ministry of Mines.

What are the key facts to remember for the exam?

Site: Lonar crater lake, Buldhana district, Maharashtra; Recognition: IUGS 'Third 100 Geological Heritage Sites'; Nominated by: Geological Survey of India (GSI); Origin: Meteorite impact; age ~12,000 yrs (official release); argon dating ~570,000 yrs.

What is the background to this news?

The IUGS, founded in 1961, is one of the world's largest scientific bodies. Its Geological Heritage Sites programme recognises outstanding geological features that have advanced our understanding of Earth's history.

Practice questions (with answers)

1. Lonar crater lake, now on the IUGS list, lies in which district of Maharashtra?

A) Buldhana

B) Jalgaon

C) Nashik

D) Satara

Answer: A – Explanation: Buldhana (Vidarbha region). The crater is about 1.88 km wide and entered the IUGS list on the GSI's nomination.

2. Which glass, formed only in very high-velocity impacts, confirmed Lonar as a meteorite impact crater?

A) Obsidian

B) Pumice

C) Perlite

D) Maskelynite

Answer: D – Explanation: Maskelynite – plagioclase turned to glass by shock pressure; it does not form by volcanic activity. Obsidian, pumice and perlite are volcanic glasses or rocks.

3. Charnockite, the rock named after Job Charnock, was first described from which locality of Chennai?

A) Guindy

B) Mylapore

C) Tambaram

D) St. Thomas Mount

Answer: D – Explanation: St. Thomas Mount–Pallavaram; Sir Thomas Holland described it. Its blue quartz gives it the name 'blue metal'.

4. Unlike most Indian lakes, the basin of Lonar Lake was created by what?

A) Volcanic caldera

B) Meteorite impact

C) Glacial erosion

D) Rift faulting

Answer: B – Explanation: A hypervelocity meteorite impact – one of five known impact craters formed in basalt; maskelynite glass confirmed it.

5. A probe attributed the pink colour of Lonar Lake's water in 2020 to what?

A) Iron oxide

B) Copper salts

C) Halophilic microbes

D) Industrial waste

Answer: C – Explanation: Pigment of 'Haloarchaea' microbes that multiplied as salinity and alkalinity rose (Agharkar Institute probe, PTI). Green algae returned as rain diluted the water.

Sources: PIB – Ministry of Mines (Nov 2026); IUGS Geoheritage – iugs-geoheritage.org; ThePrint (PTI), 18 Nov 2026; UNI, 17 Nov 2026; National Herald; NASA Earth Observatory; Jourdan et al., '40Ar/39Ar age of the Lonar crater', Geology 39 (2011); Ramsar RSIS (site 2441); The Tribune (PTI, pink colour), 22 Jul 2020; Lok Sabha USQ 858 (07.02.2019); TN Dept of Geology & Mining. © Shanmugam IAS Academy.