

## Phumdis: The Floating Islands

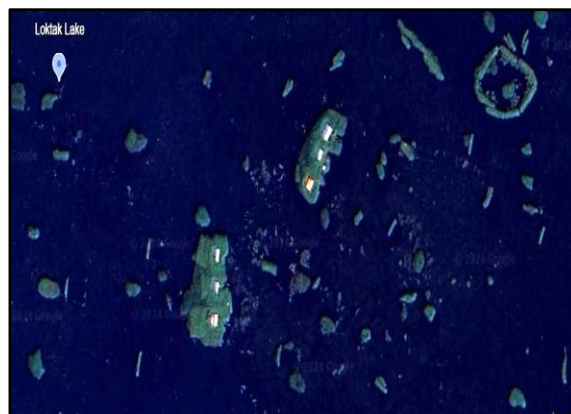


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Loktak Lake is the largest freshwater lake in the North Eastern part of India and is located in the southern part of the Bishnupur district of Manipur. It is famous for its ethereal beauty and pristine waters and is part of the Indo-Burma biodiversity hotspot. However, the most iconic thing about Loktak Lake is a series of floating swamps known as "phumdis" in the native language.

Phumdis are landmasses that are formed by the accumulation of vegetation, organic matter, and soil at different stages of decomposition which come together in a solid form. They vary in thickness ranging from a few centimeters to 2 meters and float on the surface of the lake, like islands.



Source: Google Earth (4/20/2023)

Phumdis are integral to the identity of the local communities as they depend on them for their livelihoods which include fishing, agriculture and other activities. They are rich in diversity and support many species of plants and animals. It is also the only remaining natural refuge of the Sangai deer or Indian Eld's deer (*Rucervus eldi*) which are endangered with only 260 remaining according to a 2016 report.

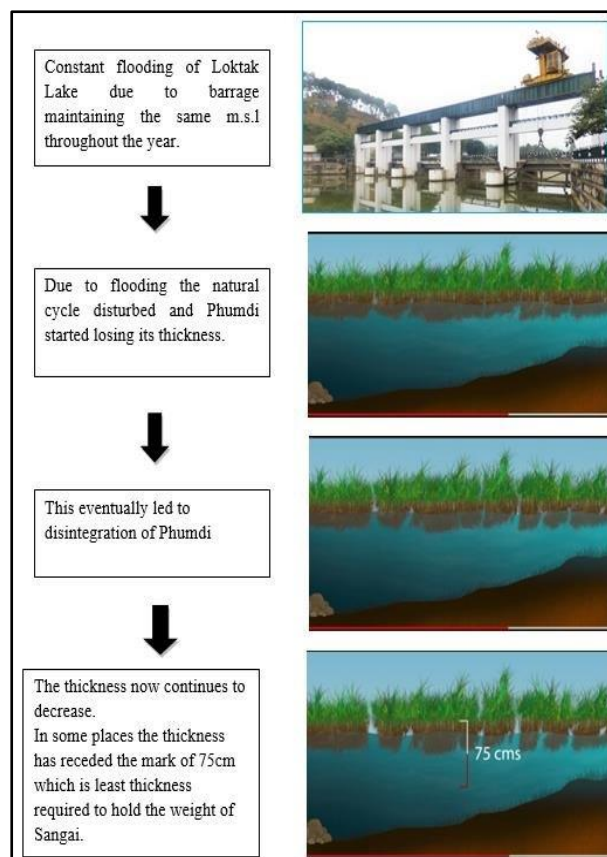
On the southern part of the lake, many phumdis have solidified together over centuries to form a marshy grassland of approximately 40 square kilometers which is now established as the KeibulLamjao National Park and is the only floating reserve in the world and is the only sanctuary for the wild population of the Sangai deer.



A plethora of problems arose when the Ithai Barrage started operations without proper planning in 1983 for hydroelectric power generation resulting in a gradual decay of the phumdis as well as phumdi proliferation. Before the construction of the Ithai Barrage, the phumdis had a unique swim and sink cycle which was of utmost importance to their maintenance. During the monsoons with an increase in the water level, the phumdis would be afloat and in the dry season due to a decrease in water level they would sink where they would take in nutrients from the lake bed; then they would

swim again in the monsoons and this cycle would go on thus allowing the phumdis to get enriched with nutrients during the dry seasons.

After the construction of the Ithai Barrage the lake has been flooded with water thus restricting the drying of the lake during the dry season. As the water levels are not decreasing in the dry seasons, the phumdis are constantly floating and are unable to sponge off nutrients from the lake bed and this in turn is resulting in a reduction of the thickness thereby posing a major risk to their sustenance.



Source:- Singh, M. & Khare, Neelam. (2018)

The excess of sediments and organic matter are not being taken up by the phumdis any more due to the constant storage of water and they are getting accumulated in the lake bed. This is contributing to phumdi proliferation which refers to the rapid and uncontrolled growth of the phumdis along with other factors like rapid growth of human settlements on the phumdis, athaphum fishing technique.

Earlier phumdi proliferation was not a concern as during rainy seasons excess phumdis were flushed out from the lake to the Manipur river however after the construction of the Ithai barrage this passage has been blocked thereby breathing the menace of phumdi proliferation.

The uncontrolled expansion is creating health hazards in the form of water pollution

and water borne diseases affecting the local villagers living near the fringe of the lake as they depend on this water for day to day activities.

In conclusion, while phumdis are a natural and valuable feature of Loktak Lake, their uncontrolled proliferation mostly in the central part of the lake and degradation in the northern and southern parts has led to ecological, social, and economic challenges as well as the loss of biodiversity and can also lead to the extinction of the endangered Sangaideers. Adopting sustainable management practices, engaging local communities, conducting research, and promoting collaboration are essential for addressing these challenges and ensuring the long-term health of these unique floating islands.

## References

1. Singh, M. & Khare, Neelam. (2018). Distribution, status and conservation of Sangai deer (*Rucervus eldii*) in Manipur, India. 6. 732-737

