

Community participation in conservation of Loktak Lake of Manipur

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Written specially for Vikalp Sangam *Background* The natural resources of the freshwater Loktak Lake provide the backbone of economy for families settled within the lake and around its peripheral areas. It provides habitat and feeding ground for wide variety of avifauna, migratory water birds, faunal and vegetation population. The implementation of the 105 megawatt capacity Loktak Multipurpose Hydroelectric Power Project, which was initiated by the Ministry of Irrigation and Power way back in 1971 and commissioned in 1983, disturbed the entire lake ecosystem, resulting in loss to biodiversity and displacing human population. Although there are efforts by the Government to work for the conservation of the lake, things have not worked out as planned. In the absence of an effective conservation and management plan for the lake, this water body is in the process of 'ageing' due to different factors. For the fishers thriving off the lake's resources for their living, it has become a dire necessity to think of ways for conservation of the lake in their own way so that their livelihoods and survival is secured in the best way possible. [Introduction](#) Manipur, having land mass of 22,327 sq.km, falls within the Assam Hills Province of the North East India Bio-Geographical Zone I. Strategically, Manipur lies at the crossroads of the Burmese, Chinese, and Indian faunal and floral ranges. The ecosystem in Manipur consists of two interrelated biomes, wetlands and forests. The wetland Loktak Pat, located towards the southern portion of the central Manipur valley, constitute an important asset of Manipur's natural heritage. Manipur also falls under the Indo-Burma Biodiversity Hotspot zone, indicating presence of wide variety of biological life – some of which are endemic and rare to the world. Loktak is one of the largest freshwater lakes in India. With a water spread of around 289 sq.km. (which, however, on paper has been revised to around 236.21 sq.km. only as per the Loktak Development Authority's 2016 report), is rich in biological diversity and plays an important role in the ecological and economic security of the region. Loktak and its related wetlands provide habitat for wide variety of biological life forms ranging from the smallest micro-plants to larger vertebrates including human kind. The lake was recognized as a Ramsar site of international importance in 1990. The lake is also an Important Bird Area (IBA) site considering the wide diversity of local resident avifauna and migratory water birds population, some species arriving here for their winter rest from as far as Europe and China. However, during the past few decades, Loktak ecosystem had degraded considerably as direct consequence of the commissioning of Ithai Barrage of the Loktak Project. Many interventions in the lake in the past decades including the coffer-dam at Ithai, dredging activities to de-silt the lake's bed, weeding, encroachments, and physical modification of water body had contributed to degradation of the lake's ecosystem. Habitat changes which have been caused by changes in hydrological regime of Loktak and its associated river systems, primarily caused by the Loktak Project, are noted as significant reason for migratory water bird and fish population decline in the lake. The Loktak Development Authority and Wetlands International-South Asia also agree that "the populations of migratory and resident waterfowl has declined during the last few decades due to poaching and changes in ecological character of the wetland. The habitat of Sangai deer in Keibul Lamjao National Park (KLNP) is also threatened due to habitat degradation" (Newsletter 'Loktak'; Vol.1, October 1999). Impacts on Human and Natural Environment The fishery in Loktak Lake and its associated wetlands accounts for 60 percent of the total fish produce in Manipur. Migratory fish species coming upstream from the Chindwin-Irrawaddy river system in Myanmar contribute about 40 percent of the capture fishery in the lake and adjoining wetlands. With the commissioning of Ithai Barrage, there has been sharp decline in fish yield, impacting traditional fishery and produce. Migratory fishes no longer reach the lake today, being obstructed by the barrage at Ithai village. The State's Fishery Department had since been trying to compensate the loss by introducing exotic carp species. More than one lakh people depend directly on the fish produce of Loktak for their livelihoods and sustenance. The changes brought about by the Loktak Project had greatly disturbed the traditional lifestyle as well as in reducing the earning capability of the local fishers. The commissioning of Ithai Barrage had serious consequence on the natural environment and the biodiversity of the lake. According to Prof. Hijam Tombi Singh (retired professor, Department of Life Sciences, University of Manipur) and R.K.Shyamananda (former Director, Manipur Science and Technology Council, Govt of Manipur), it caused the disappearance of over 20 species of aquatic plants of economic and commercial value. It caused the disappearance of several species of indigenous fishes that traditionally migrated upstream from the Chindwin-Irrawaddy river system through Manipur River which is a main tributary of the former. It caused accumulation of *phumdi* (floating biomass) and conversion of floating hutments on them into permanent dwellings, increasing the domestic wastes draining into the lake and accelerating eutrophication.[1] It caused sharp decline in population of migratory water birds. It caused the thinning of *phumdi* and deterioration in habitat of the endangered Manipur Brow-antlered deer and other wildlife in Keibul Lamjao National Park (Ramsar Sites of India: Loktak Lake, WWF-India, 1994, p.32). [Some initiatives to conserve Loktak](#) The Government of Manipur passed a new legislation on 5th April, 2006 titled as 'The Manipur Loktak (Protection) Act, 2006', whereby the State sought to control and administer the management of Loktak Lake, primarily with the objective of halting the process of degradation of the lake's ecosystem and to rejuvenate its health. The Act empowers the State, represented by the Loktak Development Authority (LDA), to act for the protection, preservation and conservation of the lake. The State had sought funds from the Central Government to a tune of Rs.378 crore under the Special Plan Assistance to clear most of the floating biomass crowding the lake's water surface within a time span of three years beginning January 2010. LDA had also been working on conservation of micro-watersheds on the lake's western catchment to mitigate soil erosion and halt the process of deposition of massive volume of silt load into the lake each year. There have been few initiatives at the community level, too, towards the conservation of the lake. One such initiative was launched by the Manipur Nature Society in association with villagers of Tokpa Kabui village which is located on the eastern face of the Thangjing-Loiching range that forms the western catchment of the lake. The Society worked in around 500 hectares of forest lands belonging to the village community, with a projected total area of 1000 hectares in later times. The emphasis was on the natural and aided regeneration of forest to check loss of top soil and revitalize the micro-watersheds, ensure healthy growth of the vegetation cover and to induce the return of the wildlife in the area. Micro vegetative check dams were constructed along the course of the hill streams, and few water bodies were created to slow down the process of silt load deposition downhill. These water bodies also provided for fishery for the village. A nature club named as Tokpa Nature Club with around 80 volunteers consisting of both boys and girls, belonging to the Rongmei tribe, was formed and much of the work of community-based management of their forest lands was taken up by the Club volunteers. Other than the Tokpa Kabui initiative, there has been some effort at conservation of wildlife in few pockets in the peripheral areas of the lake. The Sangai Protection Forum, based at Keibul Lamjao village, had worked on protection and conservation of the Sangai and other wildlife in the Keibul Lamjao National Park area, addressing issues like checking poaching and rescue of stranded animals during floods. Other organizations like the Nongmaikhong Youth Club; Khoijuman Students' Club; Ningthoukhong based Generation de New Image Manipur (GENIM); and Centre for Conservation of Nature & Cultivation of Science (CCNCS), Ningthoukhong had worked towards protection and conservation of the wintering migratory water birds in their respective areas. In 2019, CCNCS in collaboration with State's Forest Department declared a portion of the lake near Thinunggei village in Bishnupur District as "Bird Sanctuary" to protect roosting migratory birds in the winter months, in addition to protecting the resident avifauna population in that area. In 2011, fishers living in Champu

Khangpok floating village within the Loktak Lake formed an association styled as All Loktak Lake Areas Fishermen's Union, Manipur (ALLAFUM) to address several issues pending with the lake. The primary focus was on addressing livelihoods issues with specific concerns on the current status of the lake, namely, the degrading ecosystem leading to decline in fish and vegetation population that threaten their livelihoods and means of sustenance. In tune with this objective, the fishers took the help of concerned individuals and civil society organizations based in Imphal and Bishnupur to take up awareness campaigns and field related activities to address these issues. Since 2012 onwards, ALLAFUM has been continuously organizing observations of various events to raise awareness amongst the fishers' population living within and in the peripheral areas of the lake. Some of these events are the World Wetlands Day, World Water Day, International Rivers Day, International Day for Ecological Diversity, and World Environmental Day. As part of the awareness and motivation campaigns to create proactive participation of local community towards conservation of the lake, ALLAFUM organizes various activities within their capacity. Mass rally in dugout canoe across the water body, clean-up of weed infested parts of water body and public consultations form part of their strategy to raise awareness amongst the locals as part of their World Wetlands Day and World Environment Day observations. ALLAFUM recently declared a portion of Birahari Pat within the lake as protected "Fish Sanctuary" within the ambit of the Union with the primary objective of (i) banning of catching fish fingerlings during spawning season, (ii) to maintain closed season during May, June, July, (iii) and to control excessive or uncontrolled fishing of fingerlings and immature fish. The other objective of declaring the fish sanctuary is also to control and administer a portion of the lake within their control to raise awareness and to protect the migratory water birds during the winter months – starting from October up to February. ALLAFUM volunteers keep a lookout for violators who may lay traps to catch the water birds. In addition to this, ALLAFUM also started an initiative to sow seeds of aquatic plants like water chestnut which they consume as food and for sale in local markets. Many varieties of aquatic and semi-aquatic plants, that are consumed as food and are of economic value, have been gradually disappearing from the lake during these past few decades as direct fallout of the impact of Ithai Barrage. ALLAFUM seeks to re-introduce the plants for achieving multiple benefits, including for food, for earning, and for revitalizing the ecosystem of the lake. The other important aspect that ALLAFUM seeks to address is the issue of rampant encroachments in the lake's peripheral areas. Nearly 53 sq.km. area of the lake in its northern portion had been encroached upon by locals during these past two decades, whereby people have reclaimed lake areas for agriculture and extending fish culture farms. ALLAFUM has drawn the attention of the State Government and other concerned departments to have a policy that would restrict the encroachments and other physical modifications in the lake area including construction of causeways across the water body. This latter activity had considerably contributed in degrading the lake's ecosystem.

Observation of World Wetlands Day at Langolsabi locality of Champu Khangpok floating village in February 2019. Photo: Deepak Shijagurumayum **Observation of International Rivers Day 2018 at Liklai Karong area of Loktak. Photo: Salam Rajesh** **Observation of World Wetlands Day at Langolsabi locality of Champu Khangpok floating village in February 2020. Photo: Oinam Deben** ALLAFUM volunteers clearing up weeds chocking passageway of Yangoi Maril (Nambul River) at the point where the river flows into Loktak Lake, 2020. Photo: Oinam Deben

[1] Eutrophication is the process by which a body of water becomes enriched in dissolved nutrients (such as phosphates) that stimulate the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen. This can be a *problem* in marine habitats such as lakes as it can cause algal blooms. ... Some algae even produce toxins that are harmful to higher forms of life. This can cause *problems* along the food chain and affect any animal that feeds on them.

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