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# The Study on Sociological Environment in Manipur

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**Abstract**

Physic-chemical analyses of water samples from the lake clearly reveal degradation in the water quality due to over exploitation. Besides rise in the temperature and turbidity index of water, the water is found acidic in many areas. The concentration of dissolved carbon dioxide reveals very high values while lower values of dissolved oxygen clearly indicate oxygen deficiency in the water of the lake. These values indicate clearly the highly eutotrophic and deteriorated water quality in the lake. Some of the economic plants like T*rapa natans, Nymphoides, Nymphaea* and *Nelumbo* species have become endangered. It is noteworthy that people in the vicinity of the lake have started planting *Trapa* and *Nelumbo* in the various areas of the lake.

**Keywords:** Quality, Water, Lake, Border, Valley

The North-Eastern border between India and Myanmar, Manipur has a total geographical area of 22,327 sq. Km. of which 90% are hilly regions, largely, characterised by dense forests and inaccessible terrains. The valley (Plain area) at the centre surrounded by the hills claims 10% only. The valley area is cadastrally surveyed while only some parts of the hills are surveyed. As part of peculiarity of this physical feature of the area, 61.54 of the total population (2001) is in the valley while 38.45 per cent in the hill districts. Besides the state is surrounded by equally backward states on the north and west; Nagaland and Mizoram while on the south there is Myanmar, a very less developed country. The positive "spill-over" effects of development are visibly limited. The length of international border shared by the state is 352 kms accounting for 41.21% of the total length of the border. This peculiar location has been a visible handicap on the perceptible process of development of the state.

**Climate:** The impact of terrain diversity, altitudinal variation and river regime has become eloquent in the seasonal versatility of climate from one place of another. The Barak basin and lower foot hills of Manipur Western hills have a warmer climate than the central valley and surrounding hills.

## Geological Features

Geological, features of Manipur is said to belong to the young folded mountains of the Himalayan system. The rocks in the state vary from upper Cretaceous to the present alluvium. The oldest rocks found in the state are mainly confined in the eastern part of the state close to Indo-Myanmar border and the rocks are grouped as cretaceous rocks consisting of chromite (Epilates), serpentine etc. Availability of Asbestos, Chromite, Cooper ore, coal, Big iron,

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Lignite, Lime stone, Nickel ore and petroleum is reported in some parts of the state.

**Distribution and Classification of Soils**

The soil of Manipur belongs to 4 orders, 8 suborders, 13 great groups and 23 subgroups. It is observed that the Inceptisols are the dominant soils followed by Ultisols, Entisols and Alfisols and occupy 38.4%, 36.4%, 23.1% of the total geographical area of the State, respectively.

**Driving Forces:** Almost all the lakes are subject to a n umber of environmental stresses and threats which have been in vogue since the last four decades. Though natural aging is product of natural eutrophication processes, it is noteworthy that artificial eutrophication (also termed as cultural eutrophication) has been the most important cause for the fast and untimely degradation threatening the life of these lakes.

## DISCUSSION

**Case Studies:** The Loktak Lake, situated in Bishnupur district at a distance of about 30 km. from Imphal is the largest freshwater lake in the North-East. The Physiographical and morphometric features of the lake reveal degraded nature of the lake. The surface area measures about 180.4 sq.km. in the rainy seasons. The depth ranged from 0.90 to 5.20 m with the shoreline length of 55.8 km. Studies were carried out in different sites viz. *Kambong, Phabi, Takmu, Chinglakpat, Keibul Mamangpat* etc. The basin of the lake which is saucer shaped shows a gentle slope with silted bottom texture. The volume of the lake measures 0.55 cu km.

The vegetations in the lake can be catogorized into *Phumdi* (floating mat) species and non-*phumdi* (clear water) species. Altogether 86 plant species have been reported out of which 13 belong to the non-phumdi area while 73 to the *phumdi* areas of the lake. The *phumdi* (floating mat) makes its appearance in the lake 3 distinct vertical zones.

The Keibul Lamjao, the only native home of Sangai represents a unique vast expanse of flating mats (*phumdi*) located inside the lake. The *phumdi* has not its own unique species of plants and animals of endemic nature. A number of local fish species have comfortable breeding grounds under the *phumdi*. Thousands of people in and around the lake earn their living through economic activities connected with fishing, vegetables and other products. Analysis of a number of physico-chemical parameters like pH, dissolved carbon dioxide, dissolved oxygen content, turbidity etc. in the water samples from various sites in the lake reveals growing degradations in the quality of water.

**Impact**

Crops are destroyed and many poor people are made poorer by Ithai Barrage, which is principal instrument for regulation of water level of the Lake. A number of economic plants and animal species have been threatened to extinction. Major impacts are as follows:

1. Due to the depletion of the plant and fish production people are leading miserable life style.
2. The degradation of water due to reckless use of toxic chemicals, insecticides, pesticides etc. for cultivation and fishing have resulted in the outbreak of dreaded disease like skin diseases, typhoid, dysentery and other un-identified diseases in the district. Animals and cattle have also become victims of epidemics.
3. Vast encroachments due to fish-farming in about 20 region of the lakes have not only decreased the area of the lake but also has polluted the lake. Swallowing of the lake due to such malpractices is enhanced. Siltation is on the rise.
4. Increase in *Atha-phum* round the year has deteriorated the water quality of the lake.

**Pressure**

Physic-chemical analyses of water samples from the lake clearly reveal degradation in the water quality due to over exploitation. Besides rise in the temperature and turbidity index of water, the water is found acidic in many areas. The concentration of dissolved carbon dioxide reveals very high values while lower values of dissolved oxygen clearly indicate oxygen deficiency in the water of the lake. These values indicate clearly the highly eutotrophic and deteriorated water quality in the lake.

Some of the economic plants like *Trapa natans, Nymphoides, Nymphaea* and *Nelumbo* species have

become endangered. It is noteworthy that people in the vicinity of the lake have started planting *Trapa* and *Nelumbo* in the various areas of the lake.

**State**

1. Increasing encroachments have occurred in the lake in the last 10 years for paddy cultivation.
2. Most areas have been developed into fish farms by a number of fishing cooperative societies.
3. Due to the use of inorganic fertilizers in excess quantifies in the paddy fields, acidity has increased and as result water quality has decreased.
4. Overuse of insecticides and pesticides inside the lake is of concern.
5. Pumping water out of the lake takes place two times in a year for fish farming which is responsible for rapid swallowing of the lake.

**Impact**

1. Due to the heavy farming activity in the lake, the lake is shrinking rapidly and by bow the lake is almost dry.
2. The growth and production of the economic plants is degraded to a great extent which compels the local people to change their occupations.
3. As water becomes highly toxic, people around the lake have been suffering from a number of skin diseases and gastro-intestinal diseases.
4. As water is deficient in dissolved oxygen content, most of the precious indigenous fish species have vanished from the lake.
5. Due to high siltation rates, the sediments are found to be highly acidic. The organic carbon content increases rapidly which results in the decay and death of the plant species in the lake.

**Responses**

1. There are no significant efforts from the general public as well as from the Government for the conservation of this historical lake.
2. So far no measures have been taken to rectify and rejuvenate the highly toxic water.
3. In some areas plantations of Trapa (Heikak) have been initiated by enthusiastic public.

## CONCLUSION

Manipur is said to belong to the young folded mountains of the Himalayan system. The rocks in the state vary from upper Cretaceous to the present alluvium. The oldest rocks found in the state are mainly confined in the eastern part of the state close to Indo-Myanmar border and the rocks are grouped as cretaceous rocks consisting of chromite (Epilates), serpentine etc. Availability of Asbestos, Chromite, Cooper ore, coal, Big iron, Lignite, Lime stone, Nickel ore and petroleum is reported in some parts of the state.

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