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Oral Interaction with the Womenfolk of Karang Village on Water Resources and Climate Change, Manipur

Ashem Rahul Singh, Salam Rita Devi & Bharati Brahmacharimayum

Directorate of Environment and Climate Change, Government of Manipur, Imphal East

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***Corresponding Author:** Ashem Rahul Singh

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Abstract **Original Research Article**

The team of State Climate Change Cell (SCCC), Directorate of Environment and Climate change, Manipur, organized an oral interaction with the womenfolk of Karang on water resources and climate change. The team first identifies the number of households (297,) total populations (1859), children below years of age (243), number of males (940), number of females (919) and sex ratio (977) respectively through census data. The literacy rate of the village is 53% as recorded. We make a group of young people (21-29 years); middle (30-39 years) and older group (40 years and above) to hear their stories on water resources and climate change.

Keywords: Team, Interaction, Womenfolk, Water Resources, Climate Change, Census.

INTRODUCTION

Water is the source of life and a reminder of nature's generosity **[1].** It is believed that one third of the people living in cities depends on forests for water source and supply **[2].** Basically, forests play an important role in water holding capacity and recreational values to the streams and lakes **[3].** The goals 6 of Sustainable Development Goals (SDCs) acknowledges the linkages between forests and water. The 1992 Convention on Biological Diversity mentions, 'the vital role that women play in the conservation and sustainable use of biological diversity and affirming the need for the full participation of women at all levels of policy making and implementation for biological diversity conservation. Agenda 21 calls for the development of public participatory techniques and their implementation in decision-making, particularly the enhancement of women in water resource planning and management, and urges, equality in all aspects of society particularly as pertains to access to resources, credit, property rights and agricultural input and implements. But, at this era, the pressure on water resources with the changing climate have been recognized within major policy frameworks **[4].** The conditions of water availability, water management and societal expectations are changing very rapidly **[5].** we are like new normal in this ongoing change **[6].** Moreover, more rains or no rains sometimes destroys the agricultural crops, livestock and wildlife populations, increases wildfire events, and affects disease transmission and migrates human. Environmental stresses resulting from biophysical changes to biodiversity, ecosystem services, and long-term climate patterns have also influenced local vulnerability **[7,8].** Studies suggests that the ongoing climate shock sometimes affect a vulnerable community, maybe the shock is different because of the geographical features and the capacity to cope with the shocks **[9].** To achieve a sustainable livelihood, it is vital to cope with and recover from all kinds of shocks, continue, or enhance the abilities, and enrich assets in the long term **[10].** As we know, the main culprit for such a situation is the change in climate and variability in these decades. Many scientists confirm the case of a water crisis coming in the next few decades for sure. But these do not mean that there is no other option for solving the water issues and problems. The local level planning process for improving the rain water harvesting techniques and recharge of ground water can be taken up in every lane of Manipur. Meanwhile, the Loktak and other water bodies present in the valley are supporting the basic needs of life to and far the villagers **[11].** The freshwater lake, Loktak is considered as a wetland of International Importance (Ramsar site no 463, declared on 16th June, 1993). Presently, at this decades, we show the signs of loktak degradation by different activities and natural factors. The lake is also gradually silting and the pollution of its water is increasing day by day due to those activities which lead to shrinkage of the lake **[12].** Direct discharge of urban waste from Imphal city into the Loktak Lake through Nambul River has become one of the main causes for polluting the Lake. The water quality of the Loktak lake, in

general, falls within class C to E as per the CPCB's designated best use criteria and the lake water is not fit for direct drinking without treatment but can be used for irrigation purposes **[13].** The Keibul Lamjao National Park is home to the Sangai deer (*Rucervus eldi eldi*), the State animal of Manipur. The present of many macrophytes, the local edible floras, the migratory birds and the people living in and around makes the lakes a perfect ecosystem and services.

MATERIALS AND METHOD

Study area: Karang village

Means of small *Hee* or *Hinao* (boats) is the only way to reach the Karang Island. The island is bordered by Phoubakchao village towards the east, to the west is Ningthoukhong village, Liklai Karong (Hao Saban) to the north and Thanga village in the south. The latitude and Longitude of the island is 24 32 40.5 and 93 49 46.5 respectively. The mean sea level is above 780m and topographically, it is an irregular hillock island. There are two government schools viz. Khoidum Leihao Junior High School and Karang Upper Primary School; and also, a private school, Muhindro English School. Since for higher studies, they have to go either to Thanga or Moirang, most of the students left their studies before reaching high school. On the other hand, the socio-economic condition of the village is basically low. Joint families are common in the village with a relatively big size of family. The total land owned by individual households is limited mainly to the homestead areas with no extra land for any form of farming. The houses in the village are built without proper planning and they are just scattered around the foothill. The path that connects the houses is not maintained. The practice of vegetable gardening is not seen anywhere in the village. The community land constitutes those areas of temples, public playground and community halls. The village is characterized with poor socio-economic features such as low educational level, poor housing facility and backward transportation and communication. On the environmental front, every person interviewed agreed that the temperature has increased in the last few years but whether it is affecting the fish productivity is not known. Though their apprehension was that as the water began to pollute as a result of the expansion of the cities, coupled with increasing population and human greed, the number of fish in the lake began to decrease. When there is not much fish in the lake, there are not many options for them to cling to for their livelihood. Being close to the water body, the humidity is high, as a result, many semiaquatic plants species become vulnerable and sometimes change their habitat from the lake.

Method

The study is based on the oral interaction and random household sampling inside the Karang village. Personal interview was organised through a socio-economic questionnaire. Review literature is done through journals, published and unpublished articles on the island, books, collection and suggestion note etc. for comparing the past and present status of the Karang Island.

RESULT AND DISCUSSION

In order to understand the village physically, the SCCC divides the womenfolk into three generation gaps, the younger (21-29 years), middle (30-39) and older groups (40 and above). Such division would clearly define the scenario of climate change in the island. The following table is the answers from the womenfolk about the Loktak Lake during their time. Younger generation responses the change in Loktak in comparison to middle and older group. The younger group also wants to monitor the water quality on regular interval of time for effective conservation and management practices for the entire Loktak Lake ecosystem. One common answer is the need of proper waste management practices in which water quality of rivers need to be focused.

Sl No	Younger Group	Middle Group	Older Group
	Sign of low water capacity in the Lake	Sign of low water capacity in the Lake	The size is the same, different edible species existed and high-water capacity during the time.
	More or less, we show extinction of different varieties of floral	Introduction of new fish varieties make the lake more vulnerable; there is sign of losing local floral edible species	We, the Karang island and Thanga depend on Loktak lake for their survival. Different fish species were found in the Lake, sometimes, we even caught pengba (fish) at that time.
	Temperature rise, little rainfall and water shortage	Temperature rise, little rainfall and water shortage	No changes in weather pattern, water level is up to the mark, normal weather pattern at all at the time
	Extinction of local fishes	Different species of local fishes are on the verge of extinction	Different varieties of local fishes are found all over the Loktak lake
	Migratory birds are losing their habitats	Migratory birds are less number as compare to older days	Different species of migratory birds are seen all over the Lake
	Phumdis are becoming thinner, the survival of	Chances of state animal, the Sangai can get stuck in the phumdis as water level	As the lake continue to decline, the chances of Sangai survival are at risk

	Sangai deer becomes unpredictable nowadays.	show decline in the lake	
	Temperature rise, erratic rainfall and other natural factors is altering the ecological behaviour of Loktak lake	Weather pattern, temperature fluctuation result in the altering of Loktak Lake	No such term like climate change, weather pattern or temperature is heard during the time

CONCLUSION

Water scarcity is on the rise at present **[15].** While water pollution worsens the major rivers in the State, become depleted and becomes vulnerable of some major rives **[16].** During the last five years, the World Economic Forum has drawn attention to the global water crisis, both in terms of livelihoods and impact has become one of the societal risks. As water is the only life support system for living beings, water crisis is an issue and problems for all of us **[17].** in this case, biophysical and social processes are highly linked to each other **[18].** for hydrological change, we the humans as well as natural factors are responsible. The changes in hydrological systems changes the ecosystem and services, socio economic livelihoods and sometimes, climate change on several scales. we, the humans are an integrated component of the earth system, the presence of water availability is connected to the dynamics changes in the earths biophysical systems **[19].** More importantly, water is an important component in the structure function and stability of biophysical systems **[20]**. water regulates the weather pattern, an important role for the all-biomass growth and living species present on the planet **[17],** for a global carbon, nitrogen and phosphors cycles **[21];** an important solvent and agent for transporting of chemical compounds **[22,23]** and also delivers wellbeing for ecosystems functions and services from the terrestrial as well as aquatic ecosystems **[24].** Therefore, most of the conservative efforts must address the socio-economic livelihoods of the local people and preservation of wetlands and water bodies on the other. successful programme on wetlands depends on local people and awareness programme by developing sustainable livelihoods of the people. Initiative steps were taken to conserve the Loktak Lake ecological systems and services by Wetland International, Indo Canadian Environmental facilities and IFAD etc. The Loktak Development Authority (LDA) removed Phumdis and silt from the feeder channel to the lake system. The Lake system receives about 1517 million cubic meters of water annually, with a surplus in water during May to November and deficit during five months. The channel and stream carry over 657000 MT of sediments into the Lake system of which only about 62000 Mton flow out **[25].** The government should take up steps to spread awareness about the Lake so that the local people can continue to use the services provided by the Lake without harming the Lake in the process. In fact, the interaction programme has given valuable information about the use of Lake, and its environment, culture, and most important of all, the extent of dependence of the local people on the Lake and the impact of their dependence on the Lake. Even though maximum income comes from the services provided by the Lake ecosystem, monthly income for the maximum of the household is very low. This low-income generation may be the main reason behind the low literacy rate of the local people. Overall, tourism industry is one of the golden opportunities to generate employment facilities and bring a reversal to the deteriorating socio-economic conditions of Manipur.

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