

# SOCIO –ECONOMIC VALUES, THREATS AND LEGAL PROTECTION ASPECTS OF THE WETLAND ECOSYSTEM: A CASE STUDY OF *JHAGRA BEEL*, DHUBRI, ASSAM

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## **ABSTRACT**

*The present study is related to the wetland conservation in context of the Jhagra Beel, Dhubri, Assam, India. It is a survey based study where qualitative and quantitative data were collected and analysed. The local community is found to frequently engage in wetland activities but lacks the awareness about the negative impacts of their actions. Despite evidence of wetland shrinkage due to factors like reduced vegetation, urban expansion, and increased water usage, many households perceive no changes. This highlights the necessity for government and non-governmental organizations to launch awareness initiatives. The study also identifies key factors of wetland degradation like over- exploitation, insufficient awareness and ineffective policy implementation. It is urgent to halt the urban expansion into wetland areas. The study also finds the socio-economic importance of wetland resources and the imminent threats it is facing. The significance of community engagement, awareness programs, and sustainable management strategies emerges as crucial to protect the wetland ecosystems and local livelihoods.*

**KEYWORDS :** *Jhagra Beel, Wetland, Livelihood, Dhubri, socio-economy*

## INTRODUCTION

Wetland areas play a crucial role by offering a wide range of benefits to people and supporting their livelihood. These are rich in both natural and biological resources, which are utilized for various purposes by the native people. However, rapid population growth, urbanization, and agricultural activities are causing significant changes to these ecosystems, especially freshwater lakes. Negative impacts on wetland ecosystems stem from human activities like irrigation, pollution with harmful chemicals, and acidification, leading to disruptions in these environments (UNEP 2006). Despite the importance of freshwater bodies and wetlands and their sensitivity, they are often mistreated and overused (UNEP 2006). The consequences of such interference can include the permanent loss and extinction of wetlands and water bodies, posing a serious threat to both humans and animals. Effective management of natural resources requires the involvement of local communities, but this depends on how people perceive and value these resources.

India boasts abundant open water fisheries resources, including flood plains, rivers, *beels*, and estuaries. "*Beel*" is a Bengali and Assamese term referring to water bodies that collect surface runoff and internal drainage. The *Jhagra Beel*, located near Dhubri town, is a registered wetland spanning 153 bighas of water area under Dhubri revenue circle.

The socio-economic context significantly shapes livelihoods, influencing factors like knowledge, skills, and income levels. Socio-economic status is a comprehensive measure that considers elements like income, education, land ownership, food habits, caloric intake, occupation, and basic amenities. These characteristics are instrumental in gauging human development. Socio-economic status is a composite concept encompassing economic standing, educational attainment, and work role, as outlined by Dutton and Levis (1989). It reflects where individuals, families, or groups stand in terms of income, education, prestige, wealth, and other dimensions of stratification. There's a consensus that income, education, and occupation combined provide a more accurate picture of socio-economic status than any one of these factors alone.

For successful environmental conservation projects in rural areas, local involvement in project formulation and execution is essential. This study focuses on *Jhagra beel* and presents insights from surveys and direct observations. Its objective is to establish a baseline understanding of the socio-economic value of wetland resources, the environmental threats they face, the local community's awareness of environmental changes and their impacts. The study aims to assess: (a) the community's understanding of ecosystem services and uses, (b) economic activities and their potential environmental consequences in *Jhagra beel*, and (c) community awareness about local wildlife. The findings can serve as foundational knowledge for conserving the ecosystem of *Jhagra beel*.

## MATERIALS AND METHOD

### Study Area:

*Jhagra beel* rests on the outskirts of Dhubri town (Figure 1) and stands as a registered water body under the jurisdiction of the State Government. Spanning an expanse of 153 bighas, this beel falls within the ambit of the Dhubri revenue circle. The village known as "Jhagrapar part –I" embodies the quintessential characteristics of a Dhubri district village in Assam. It is home to two distinct religious communities – Muslims and Hindus. Positioned 3 km to the west of the Dhubri district's Deputy Commissioner's office, the village occupies a total land area of 118.17 hectares. While the village lacks a prominent marketplace, a few modest shops can be found scattered throughout. The economic landscape of the village is predominantly rooted in agriculture.

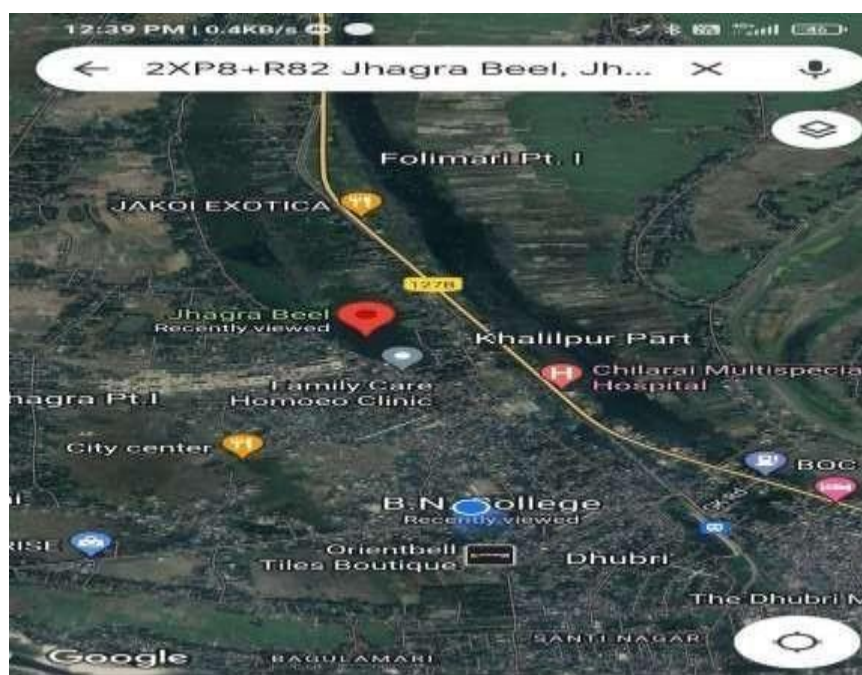


Figure 1: Googlemap photo of *Jhagra Beel*

### Data Collection:

Sociological data was collected through a mix of quantitative and qualitative methods. Primary data was obtained using standardized questionnaires containing structured and semi-structured questions. These questionnaires were administered through face-to-face interviews with one participant chosen from each selected household. The participants were usually the heads of the households (parents), or in their absence, other adults living in those households who were over 18 years old. The questionnaire was prepared in English, then translated into Assamese and Bengali languages, which were commonly understood by most respondents in the study area.

Before the main survey, a preliminary study involving 10 participants was conducted to test the clarity and sequence of the questions. The information collected included various socio-demographic details of the respondents, such as their location of residence, gender, age, occupation, education, duration of residence in the village, and whether they were native to the area or migrants. The study also aimed to gauge the local community's awareness of the significance of the *Jhagra beel* (a wetland area), its resources, uses, values, and their perceptions of environmental changes.

The study investigated and observed the activities and practices of the local community in relation to the environment around the *Jhagra beel*. For livestock keepers, information about the species of animals, their numbers, grazing systems, and water availability for the animals was recorded. Similarly, for crop producers, data was gathered about farm sizes, distances from the beel, irrigation practices, and water availability. The study also explored any activities that might contribute to environmental degradation.

During the interviews, direct observations were made regarding environmental destruction, resource overexploitation, and deforestation. The community's awareness of wildlife mortality and its causes were investigated. In-depth interviews with key informants were conducted alongside the questionnaire-based approach to enhance the findings.

The study also encompassed various aspects related to the environment, such as climatic conditions, water resources, waste disposal, sewage management, and environmental conservation. To assess the relative importance of different wetland services, a monetary approach was adopted, considering money as a common measure. This approach was based on Wilson and Howarth's framework (2002), which involves direct market valuation, indirect market valuation, and survey-based valuation.

In order to thoroughly understand the management, utilization, and threats facing the *Jhagra beel*, direct observation was considered a vital component of the study.

### Data Analysis:

For the data analysis, descriptive statistics were applied to analysed percentage, arithmetic mean and graphic presentations. Qualitative analyses were applied to analysed information obtained from the field.

## OBSERVATION AND DISCUSSION

A large proportion of household were found to be dependent on the *Jhagra beel* directly and indirectly. The wetland serves the needs of people in many ways. This is because the overwhelming majority of the households (98%) covered by the questionnaire survey stated that they had livelihood directly linked to the beel. There are 52% people were engaged in fishing, 26% were engaged in agricultural activity related to the wetland, 10% for daily collection for their household demand, 4% were dependent on grass selling for their livelihood (Figure 2).

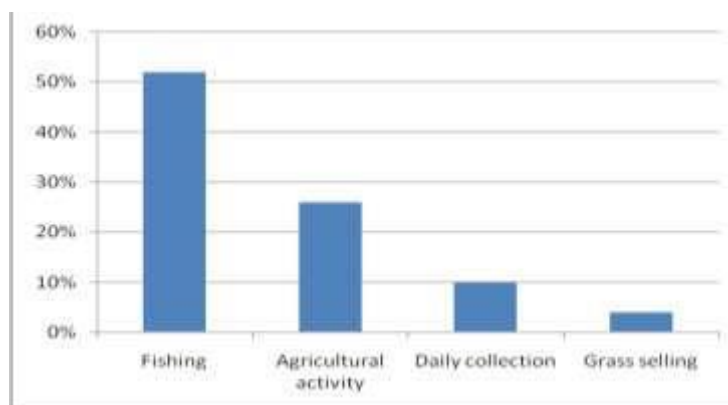


Figure 2: Sources of Livelihood

The grazing value of the wetland was also investigated. When asked how frequently they took the livestock to the surrounding wetlands for grazing, 100% of the households reported that they take them every day. This showed that livestock rearing is entirely dependent on the wetlands under study as they are the main source of grasses and water. Furthermore, when asked how close they live from the wetlands concerned, 90% of the households surveyed answered that they are living very close (within 5-8 minutes walk) from the wetlands. In terms of economic characteristics, the majority of them (80%) belongs to very low income group (below Rs. 10,000/month), followed by 10% households belongs to monthly income of Rs. 10,000 – Rs. 20,000, 6.7% of total sample households belongs to Rs. 20,000 – Rs. 30,000 monthly income group and compose only 3.3% households of total sample households come under the monthly income of Rs. above 30,000. From the data of income clearly be observed that most of the people are comes under bellow poverty line. All the livestock of the people are entirely dependent on the wetland for grazing and drinking water.

### The Challenges Faced by *Jhagra Beel*:

The recent survey conducted to assess the threats facing *Jhagra Beel* and the extent of human activities impacting the wetlands. The survey gathered responses from heads of households about their interaction with the wetlands. Astonishingly, 92% of these households reported that their family members visited the wetlands daily for various reasons. This suggests that each household member is engaged in activities around the wetlands to some degree. However, these activities have resulted in an alarming increase in waste being directly dumped into the wetland. Even the previously protected portions of the wetland, historically shielded from waste during the rainy season, are now facing a growing influx of waste and harmful discharges due to the rising activities near the wetland.

This surge in human activity around the wetland has led to a higher demand for waste disposal, resulting in various types of waste, some toxic and chemically hazardous, finding their way into the wetland. This reckless dumping of untreated waste, if not curbed, will significantly reduce the wetland's value. Moreover, this pollution has negative implications for fishery development, jeopardizing the livelihoods of local fishermen. Fishing activities have become increasingly challenging due to the deteriorating condition of the wetland, which now contains higher levels of silt and waste, much of it originating from the town and the Medical College Hospital Dhubri.

The pollution, whether from urban activities like car washing or settlement, has severe repercussions not only for the livelihoods of the local populace but for the entire region. The wetland's polluted state might render it unsuitable for various uses, including supporting a thriving fish population.

Interestingly, when households were questioned about human impacts on the wetlands, an overwhelming 92% believed that their activities had no undesirable effects on the wetlands. However, when evaluating the wetlands' condition over their lifetimes, 76% of the households noted a reduction in wetland size, 8% thought it was expanding, 6% observed no change, and 10% saw fluctuations. As for the causes of this shrinkage, 80% attributed it to reduced vegetation cover, urban expansion, and increased water usage, while 20% were unsure.

A deeper analysis of the survey results showed that 77% of the households noticed a decline in vegetation cover on the wetlands, 9% saw an increase, and 14% couldn't detect any change. When asked whether they feared the eventual disappearance of the wetlands, 89% expressed concern, while the rest did not. Notably, 92% of the households had a limited educational background, which might exacerbate the unwise use of wetlands and influence their understanding of the current situation due to human activities.

Respondents were also asked to identify the causes of wetland degradation. The majority (70%) cited over-exploitation of wetland resources, followed by a lack of awareness, information, and research (60%), and inadequate government policy implementation (35%) as key factors contributing to wetland loss.

The study revealed a lack of local conservation mechanisms in place to protect natural resources, particularly wetlands. Despite existing legislation by the Assam government for biodiversity and wetland conservation, effective implementation remains absent. When asked about responsible parties for managing the wetlands, 64% of households believed the government should be primarily responsible, 21% favoured local communities, and 15% thought both the local community and government should share responsibilities.

### Conclusion and Recommendations:

The study highlighted a significant dependency of households (96%) on the Wetland, with 93% of respondents reporting daily visits by family members for various purposes. Livelihood activities centered around selling mattresses and reeds, followed by wood collection for energy, construction, and furniture-making. Household earnings from wetland-related economic pursuits averaged below 60000 annually. Alarming, 92% of households lacked formal education, potentially exacerbating unwise wetland use and hampering their comprehension of its deteriorating condition due to human impact. To ensure sustainable economic and societal benefits from the Wetland and overall environmental protection, awareness initiatives should be developed for local communities by relevant government bodies (GOS) and non-governmental organizations (NGOs). Mounting waste disposal directly into the wetland, particularly from nearby activities, poses an escalating threat even to previously protected areas during rainy seasons. Historical recollections of local fishermen indicate the wetland was once clear even in rain; now, it's burdened with silt and waste. Pollution from activities like car washing and urban expansion bodes ill for regional livelihoods.

Survey results revealed that 76% of households perceived wetland shrinkage, while 8% saw expansion, 6% detected no change, and 10% noted fluctuations. Main causes of shrinkage, cited by 80% of respondents, included dwindling vegetation cover, urban sprawl, and heightened water usage. Regarding vegetation cover over time, 77% reported decline, 9% noted growth, and 14% observed no change.

The study identified significant factors contributing to wetland degradation and loss: over-exploitation of resources (70%), lack of awareness and research (60%), and inadequate policy implementation (35%). The absence of local conservation mechanisms underscored a lack of emphasis on natural resource protection in the area, exacerbated by encroaching urbanization.

Urgent action is necessary to curb urban expansion into wetland areas, requiring the intervention of local community leaders to halt residential construction there. The findings underscore the critical need for sustainable management strategies and collaborative efforts among stakeholders to safeguard the Wetland's vitality and the well-being of the community.

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