A Systematic Review of Fish Trade and Its Impact on Economic Progress at Ambala Lake of Ramtek Tehsil of Nagpur District, Maharashtra

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Abstract:
The study of inland aquatic ecosystems like lakes, rivers, reservoirs, wetlands are significant because these freshwater resources provide direct and indirect value to economies across various sectors in the society. Economic growth has both economical and political dimensions. Increase in goods and services produced will lead to increased economic growth. Ambala Lake is located in Ramtek Tehsil of Nagpur District, Maharashtra, India. In spite of having enormous economic developmental potential, this lake has been subsided. In this study the author tries to draw focus of various private & governmental bodies towards the various economic aspects available at this Lake.

Keyword: Fish-trade, Limnology, Ambala Lake, Economics

Introduction:
Total value of goods and services produced during a given financial year, within the geographical boundaries of a country, are the driving parameters for evaluating the economic growth of a country and comparing the same with the preceding financial year (Romer, 2006). The estimated figure can be denoted either as Gross Domestic Product or Gross Value Addition happened during that financial period. This is a broadly established process of measuring economic growth of the country.
Fish trades proved to be a critical and important contribution in the economic development and sustainable advancement of the developing countries. Apart from the food source, fish is globally recognized as sustainable nutrition source (Duggan and Kochen, 2016). It also known as a natural superfood (Obiero et al., 2019). This further enhances the economic landscaping and potential growth opportunities.
The growing global recognition of fish as a sustainable nutrition source (Duggan and Kochen, 2016) and its status as a natural superfood (Obiero et al., 2019) underscore the importance of understanding the current economic landscape and identifying potential growth opportunities within the fisheries sector. Various other factors like evolving dietary preferences, keen health consciousness, growing incomes, and rapid urbanization increases the fish demand (Tran et al., 2023). It further supported by the technological advancements (FAO, 2020). Consequently, developing nations like, India, South Asia, etc. are the proving to the backbone of this expanding market (Kumar et al., 2019). Beyond their nutritional significance, fish trade is most widely accepted commodities worldwide (Asche et al., 2015) and contributing around 10% of all agricultural product exports (UNCTAD, 2017).
The international fish export market is largely controlled by developing countries like China and India due to their consistent growth in both capture and aquaculture fish production. In-spite of having enormous potential, China's trade value is more impressive than that of India representing nearly 9% of global fish imports and 14% of fish exports by value (FAO, 2020). This paves the way for India for the pivotal role in the global fish trade, largely attributed to their comparative advantage in possessing abundant water resources capable of supporting a diverse range of fish species (Golub and Verma, 2014).
For many developing nations and small states therein, fish trades have turn out to be an epicenter for economic development and sustainability (Asche et al., 2015; Kumar et al., 2020). These trades contribute significantly to local economies and human welfare by generating employment opportunities throughout the value chain, from production to trade and marketing of both farmed and wild fish (Kumar et al., 2019; Cai et al., 2019). The value of fish exports often surpasses that of other merchandise and agricultural exports, playing a pivotal role in shaping the growth trajectories of these countries and contributing to food security through import capabilities (Asche et al., 2015).
Despite its potential, the fish trade sector faces numerous challenges due to economic expansion and environmental sustainability. The rapid growth of the aquaculture sector has brought its own set of environmental issues, including toxicological effects, eutrophication, bacterial resistance, and soil degradation (Ahmad et al., 2022). These are mainly due to discharge of pollutants into water bodies from aquaculture operations (Liu et al., 2024). Alsaleh (2024a) highlights the widespread nature of water contamination issues in both developed and developing EU countries, emphasizing the global scale of this environmental challenge.
As per the literature available it is understood that only limited numbers of studies carried on the potential impacts of

fish trade in developing countries. This academic efforts aim to shed light on the current state of this sector within the economies of these nations and highlight both challenges and opportunities that could offer valuable insights for future growth. Notable research includes works by Akbari et al. (2023), Gambelli et al. (2019), and N'Souvi et al. (2024). However, these studies focuses on specific sectors or the global context, rather than providing a comprehensive analysis of the fish trade or exports in developing countries. Hence, it is crucial to view the fish trade sector holistically, rather than focusing on specific fish types or countries, to accurately depict the fisheries sector in developing nations and its associated cities.

As a result, author identified Ambala Lake water body located at Ramtek Tehsil of Nagpur district in the state of Maharashtra in India for the analyzing the exiting fish trades. This study also focuses on identifying all the possible means to enhance the fish trade which is directly contributing to the Indian economics. proposed study initiates a systematic analysis of the fish culture without considering specific fish types, to present a holistic view.

Material and methods

Description of the study area

The study site, Ambala Lake [21° 23′ 32.68″ N, 79° 20′ 41.9″ E] is located in Ramtek Tehsil of Nagpur district, Maharashtra, India. It has Latitude 21° 23′ 32.68″ N and Longitude 79° 20′ 41.9″ E with a surface area of 101171.42 m^2. It has religious and historical importance and is also a tourist attraction. This lake is impacted by anthropogenic activities such as fishing, boating, swimming, immersion of idols, flowers, and garlands. The climate in the study area is tropical, with winter months being mildly cold, and the summer months hot and dry. Four locations, i.e. East, West, North and South are identified for sampling at Ambala lake. Fig. 1 shows the satellite image of Ambala lake.

Fig. 1: Satellite Image of Ambala lake

Exhaustive study is conducted at this site for more than 3 years. The fish samples present in water body were collected at these four locations during summer, winter & monsoon season.

Results and Discussion:

The fish samples thus collected are categorized as per their family. The family wise distribution of the samples thus collected is presented in the Fig. 2.

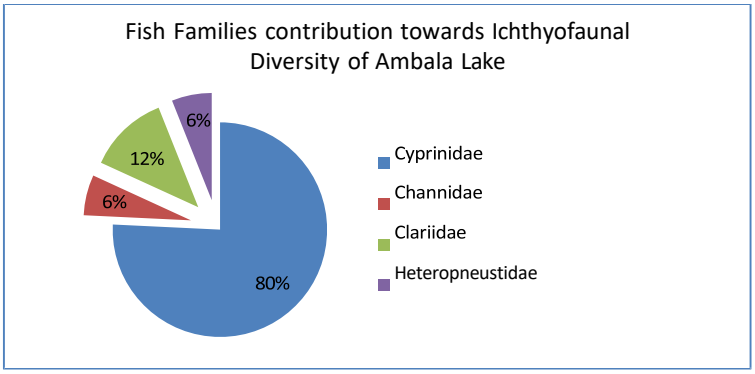

Fig. 2: Percent distribution of Fish Families towards Ichthyofaunal Diversity of Ambala Lake

From the above analysis it is very clear that the availability of Cyprinidae family is very high than the other families. It

contributes about 80% of the total population. It comprises of majorly Cyprinus Carpio, Labeo Rohita, Cirrhinus Mrigala, Catla Catla & Ctenopharyngodon Idella. Presence of high percentage of this family indicates that the present water body provides high nurturing ambience for this family. Clarius Batrachus in the family of Clariidae is observed about 12% of the total population. The percentage availability of Channidae and Heteropneustidae family is 6. Channa Marulius and Heteropneustes fossilis are the scientific name of the fishes which is observed in these families respectively.

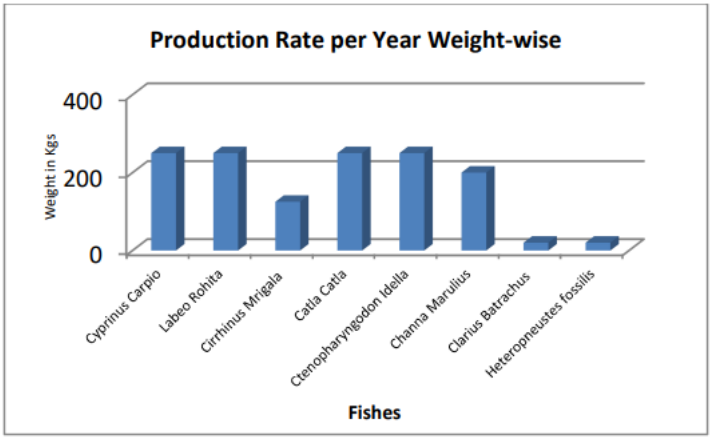

Fig. 3: Fish-wise production rate at Ambala Lake

During this study, the Fish-wise production rate at Ambala Lake is recorded and presented in above figure 3. The common names of Cyprinus Carpio, Labeo Rohita, Cirrhinus Mrigala, Catla Catla, Ctenopharyngodon Idella, Channa Marulius, Clarius Batrachus, Heteropneustes fossilis are Common Carp, Rohu, Mrigal, Catla, Grass Carp, Maral, Wagur, Singul respectively. From the above figure 3, The yearly production of Common Carp, Rohu, Catla, & Grass Carp is about 250kgs. Maral has the capacity of about 200kgs. Mrigal has the production rate of about 125kg per year. However Wagur & Singul has the least production rate of only 20kgs.

In spite of having very high demands of all these types of fishes in the market, the production rate could not be enhancing further. This is mainly due to the pollution present in the water body. Secondly in spite of capacity of three to four times more than the existing capacity, proper attention could not be given to this water body.

CONCLUSION

The economic growth of a country can be affected by numerous factors. One among them is fish trade. As discussed in result and discussion section above, the fish production capacity at the water body under consideration can be increased further if proper attention is given. This water body has a great capacity of multiplying the fish trade 3 to 4 times more than the existing capacity. To achieve this control mechanism is to be introduced on the pollution factors like anthropogenic activities, measure, monitor and control of physicochemical parameter of this water body. Through this study an attempt has been made to bring forward the economic importance of the Ambala Lake water body.

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