Characteristics of Fish Farmers in Tapi District, Gujarat, India

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Abstract:

The present study analysed the socio-economic characteristics and human-capital attributes of fish farmers in the Tapi district of Gujarat State, India. Primary data were collected from 34 fish farmers using a structured questionnaire administered through face-to-face interviews. Results showed that fish farming in the region is male-dominated (91.17%), with considerable educational attainment-38.23% had secondary education, 23.52% higher secondary, and 26.47% graduate qualifications. A substantial proportion of 82.35% had received formal training from the Department of Fisheries, and 79.41% had 2-10 years of experience. Farmers were distributed across four talukas, and Songadh had the highest representation. This paper concludes that fish farmers in the Tapi district possess strong human capital to facilitate sustainable aquaculture development. The findings presented the baseline for policymakers, extension agencies, and aquaculture development planners.

1. Introduction:

Human capital, encompassing education, experience, training, and skills, plays a critical role in agricultural productivity and the ability of farmers to adopt improved aquaculture practices. Numerous studies have established that the socio-economic profile of farmers directly influences management decisions, adoption of innovations, and farm performance [1–3]. Education enhances farmers' capacity to interpret technical information and adopt modern practices, while training strengthens practical competencies and awareness of innovations [4,5].

In India, aquaculture development varied widely across regions due to differences in resource availability, extension outreach, and socio-economic characteristics of farmers [6–8]. Although national and state-level studies exist, district-level analyses remain limited, particularly in Gujarat. The present study addressed this gap by examining the socio-economic and human-capital profile of fish farmers in Tapi district. Understanding these attributes is essential for designing targeted training programs, capacity-building initiatives, and development interventions.

2. Materials and Methods

2.1 Study Area and Sampling

The study was conducted in Tapi district, located in South Gujarat, a region witnessing increasing adoption of freshwater aquaculture [9]. A list of 50 fish farms was obtained from the Department of Fisheries, Government of Gujarat, and 34 consenting farmers were selected through purposive sampling, consistent with earlier socio-economic aquaculture studies [10].

2.2 Data Collection

A structured questionnaire was used to collect data on age, gender, education, training, farming experience, and geographic distribution. Similar survey-based approaches have been widely used in aquaculture socio-economic studies to ensure uniformity and reliability [11,12]. Interviews were conducted face-to-face to ensure clarity and accuracy of responses.

2.3 Data Analysis

Data were analysed using descriptive statistics, including percentages and frequency distributions, following established methodologies used in aquaculture livelihood and socioeconomic assessments [13,14]. Results were organized into demographic characteristics, training, experience, and geographic distribution.

3. Results and Discussion

3.1 Demographic Characteristics

Fish farming in Tapi district was predominantly male-dominated (91.17%), with limited female participation (8.82%), Fig.1. Similar gender patterns were reported in aquaculture studies across India, Bangladesh, and Nigeria, where cultural and labour factors limit women's participation [15–17].

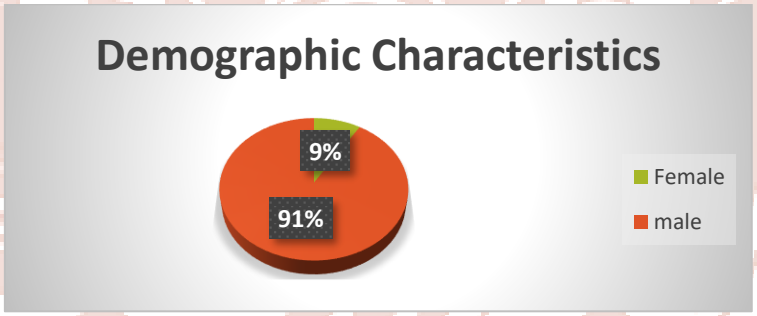

Fig.1 Demographic Characteristics

Educational attainment has been plotted in Fig.2.Higher educational attainment among fish farmers was consistently associated with improved decision-making, better farm management, and faster technology adoption [1,3,18].

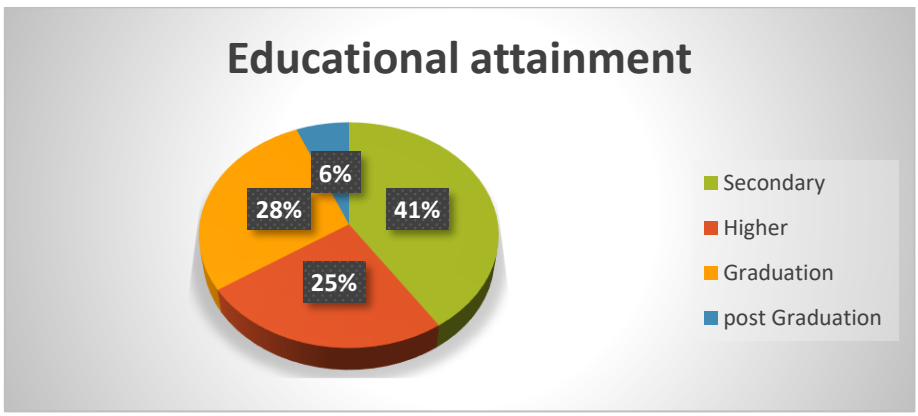

Fig.2 Educational attainment

3.2 Human-Capital Development

A majority of the farmers (82.35%) had received formal training from the Department of Fisheries, while only 17.64% lacked formal training. This training exposure is considerably higher than that reported in earlier studies from other regions, where training coverage ranged between 40–65% [7,19,20]. Training plays a crucial role in improving farmers' technical skills, feed management, disease control, and water-quality management [4,5].

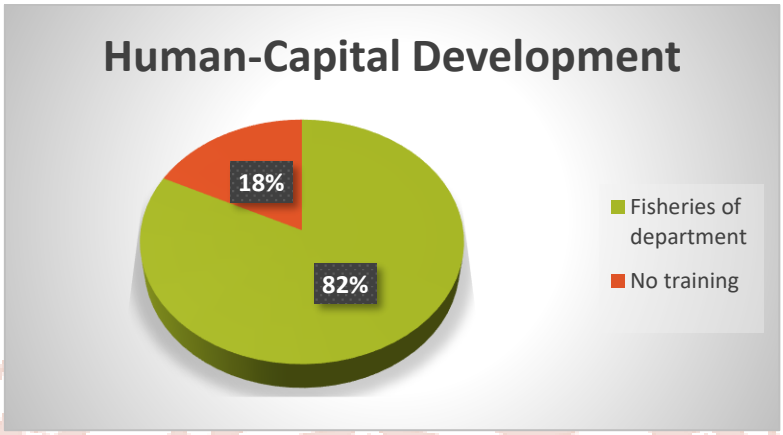

Fig.3 Human-Capital Development

3.3 Aquaculture Experience

Aquaculture Experience is depicted in Fig.4. The dominance of farmers with 2–10 years of experience reflects the relatively recent expansion of aquaculture in the district and indicates growing interest in fish farming as a livelihood option. Similar trends have been documented in inland aquaculture regions of India and Bangladesh [8,21].

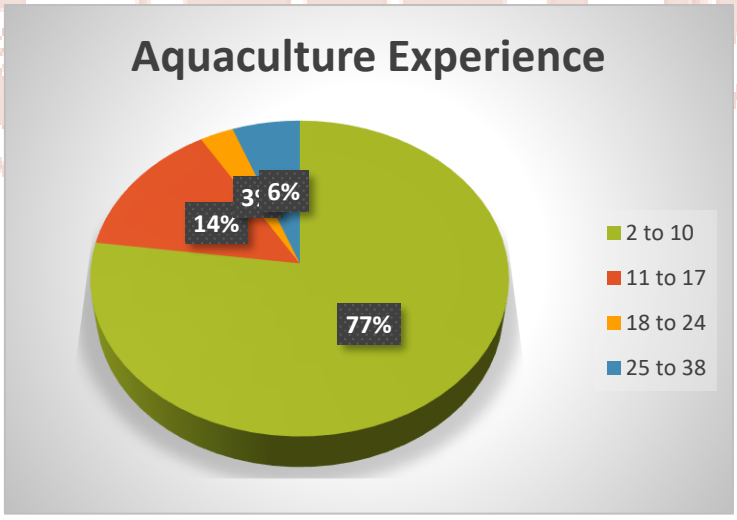

Fig.4 Aquaculture Experience

3.4 Geographic Distribution

Farmers were distributed across four talukas—Songadh, Vyara, Dolavan, and Uchchhal—with the highest concentration in Songadh (Fig.4). Spatial clustering of fish farms has been reported as a function of water availability, extension access, and infrastructure support [9,22].

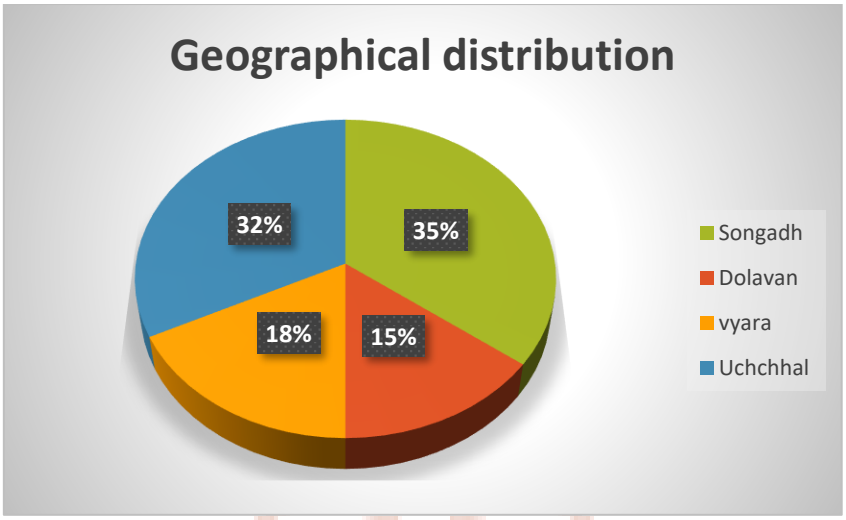

Fig.5 Geographic Distribution

The socio-economic characteristics of fish farmers in Tapi district demonstrate a strong human-capital foundation for aquaculture development. The observed levels of education and training are superior to those reported in earlier studies from other regions of India, where training exposure and formal education were comparatively lower [6,7]. This suggests effective outreach and extension services in the district.

The predominance of farmers with moderate experience aligns with national trends towards diversification and commercialization of aquaculture [8,23]. These findings reinforce previous research indicating that education, training, and experience significantly enhance farmers' adoption of modern aquaculture practices and improve farm performance [1,3,5].

4. Conclusion

Fish farmers in Tapi district possess strong human capital attributes, including formal education, practical experience, and extensive training exposure. These factors create a favourable environment for scaling up modern aquaculture practices. . Policymakers should strengthen extension and training programs, promote youth involvement, and expand skill-development initiatives to ensure sustainable aquaculture development in the region, in line with national aquaculture growth strategies

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