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Impact of Ranganadi Dam on Socio- Economic Condition of Fisher Community In The Downstream of Ranganadi River Dam, N.E. India

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Abstract: *The study relates to the socio–economic condition of the fisher community in the downstream of Ranganadi River Dam, North-east India. The Population comprised of ST, OBC, SC and General Caste. The maximum population was of ST people followed by OBC. The fisher's depended on river for firewood, drinking water and livelihood before the commissioning of the 405MW RHEP Dam at Yazali in Arunachal Pradesh. The fisher's were found to do alternate jobs besides fishing to earn livelihood after the commissioning of the RHEP Dam. The literacy among the respondents is very poor where some of them were found to be illiterate. The monthly income ranged from Rupees 1000 -10,000. The House type comprised of both Katcha and Pucca type and also Chang Ghar. The Electricity connection was found to be in all the respondents' house except a few. Various kinds of fishing gear were used in the Ranganadi River for fishing, viz., Cast nets, Lift nets, Gill nets, Fishing lines and Traditional Bamboo Traps.*

Keywords: *Socio-economic, Fishermen and Ranganadi River.*

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I. Introduction

Ranganadi River (27°11′11″ N, 094°03′54″ E at its entry into the state of Assam), a northern tributary of the River Subansiri, originates from Himalayan Foothills of Arunachal Pradesh at an altitude of 3,400 m, flows through the Lesser Himalaya, Outer Himalaya and the valley of the River Brahmaputra. The Ranganadi River enters Assam near Johing (27°20′38.96″ N, 094°01′56.23″ E), traverses another 60 km and joins Subansiri River in Pokoniaghat (27°01′27.72″ N 94°03′05″ E), in Lakhimpur district of Assam. The Ranganadi River experiences the effects of having a Dam namely "Ranganadi Hydroelectric Project" under North Eastern Electric Power Corporation (NEEPCO) with a capacity of 405 MW (27°20′03″ N, 093°49′00″ E) at Yazali in Lower Subansiri district of Arunachal Pradesh, India. The maximum and minimum discharge of the Ranganadi River ranges between 900 to 130 m3/s (unpublished data, Water Resource Department, Lakhimpur District, Government of Assam, 2014). The modified river flow downstream of the dam have a variety of negative effects on the fish fauna, including loss of stimuli for migration, loss of routes for migration and spawning grounds, decrease in the survival of eggs and juveniles, and diminished food production (Kansal & Arora, 2012). Besides these known impacts, the presence of high species diversity reduces disease problems and encourages recovery from disturbances (Kar et al. 2006). The NEEPCO dam might have affected the fishes and eventually the diversity.

Reservoirs created by hydroelectric schemes often provide facilities for water sports and become tourist attraction themselves. Hydroelectric power project if not used with cautions can produce adverse impacts on fish, wildlife and other natural resources (Erlanger *et al*., 2008). Damage to this complex system and livelihoods are fundamentally affected causing immense hardship to inhabitants and loss of income to households. From human point of view, a large population is replaced, and the original land use pattern, socio-economic systems, agro-socio-forestry systems, and traditional ecological practices lead to an end. Traditional crops of the area, forests, vegetation, and fauna including micro-organisms show sudden disappearance. People displaced from a site adjust to new habitats, where their religion-cultural traditions, socio-economic web and occupation especially agriculture crumbles (Gaur, 2007).

In India 65% of the people are still dependent on agriculture as their livelihood and employment source which includes fisheries as one of its components. Fisheries also serve as the valuable and cheap source of protein of the country. According to 2001 census India's total population is 1,027,015,247of which 5959144 people are fishermen ((FAO, 2011). The construction of dams for hydroelectric power results in widespread

socio-economic impacts on communities. Keeping in view, this paper is a thorough investigation on the state of various socioeconomic factors of the fishers in the downstream of Ranganadi River Dam, N.E. India.

II. Materials And Methods

The study was done to assess the socio–economic condition of the fisher community in the downstream of Ranganadi River Dam, North-east India. The study was conducted between February 2016 - January 2017. The data were collected from five villages of the 2nd study site comprising about 200 fisher families. From each village 20 families were randomly selected and considered for collection of the data through questionnaire during the study period. The data were collected directly from the fishermen families through personal discussions and interviews regarding the various aspects of the socio-economic conditions like population type, age composition, employment and occupational structure, literacy, house type, electricity, income distribution, sanitation and type of fishing gear used by them. Simple percentages were calculated and tabular analysis was made for arriving at the results. From the data collected, simple percentages were calculated and tabular analysis was done. Further, the data collected are statistically analyzed using statistical package like M.S. Excel and SPSS.

III. Results And Discussion

Age: The primary factor considered was the age group of the fisher. Among 100 households, 56 were found to be in the age group of 20-40years, 28 belonged to age group 41-60 and 16 fishers were found to belong above 60 years age group. Devi *et al*., 2012(a) had analyzed fishers' socioeconomic and cultural profile around the Loktak lake of Manipur, India and had reported that 44% of the fishermen were more than 46 years old belonging to the old age group.

Population Type: The study revealed that population was a mixed one comprised of ST, OBC, SC and General Caste. The maximum population was of ST people followed by OBC, SC and General.

Education: From the respondents sampled a total of 64% fishers were found literate. However, most (42%) of the respondents educational qualification was M.E Level and 22% of the sampled population had studied upto high school. Shankar (2010) had found out that 46.66 percent of the fisher folk had primary level of education followed by middle level of school education (26%), illiterates (13.33%), higher secondary (2.6 %) and collegiate (2%) level of education. Devi *et al*., 2012(a) had found out that (34%) of the fishers pursue middle school and (34%) pursue high school.

Family type: The study shows 57% of respondents' family is joint type, while 43% is nuclear type. Here Nuclear family means family with or without dependants and Extended family includes lineally/ collaterally/ lineally and collaterally joint family with dependants. In the joint type most of the families were found to be with a family size of more than four members. The family size/type factor is an important socio economic indicator as it has much effect on family savings, education of children, health, nutrition, households and standard of living etc. The result states that the family planning concept is not followed by the community. Anon (2005) in his study on the socio economic analysis of Nuvvulrevu village in Srikakulam district of Andhra Pradesh had found that majority (87%) had nuclear family and 13 percent of the respondents had joint family. Shankar (2010) found out that nearly 57.33 percent of the fisherfolk had joint family and 42.66 percent of the fisher folk had nuclear family.

Occupation: Fishermen are operationally defined as the persons who, irrespective of their castes, pursue fishing as their chief occupation. The primary occupation of the respondents under study was obviously fishing. A significant difference was found between the occupations of fishers in the study area. As per information through questionnaire and personal interviews, the fisher's do not had to search for alternate jobs to fulfill their daily needs before the commissioning of the Dam. The fisher got adequate fish, firewood and drinking water from the river prior to dam. But at present the fish catch has decreased also its diversity and as a result the fisher's has to do alternate jobs to support livelihood. The fishers were found doing agriculture, daily wage works and others in addition to Fishing to meet the daily needs. They were also found doing Piggery or poultry culture too.

Income: Income is a very important factor for determining the living standard of any community or region. The economic conditions of respondents in the present study revealed that most of the people belong to below poverty line or lower class of the society. The monthly income of 56 respondents was in between Rupees 2000-5000, 34 respondents income was between Rupees 5000-10000 and 10 respondents income was found above 10000 Rupees.

Dwelling house types and sanitation: The different house types found were Pucca type, Katcha type and also Chang Ghar. The Chang Ghar was found as 40 respondent's house type, Katcha Ghar was of 44 respondents and 16 respondents house was Pucca type. Very few of the respondents is having sanitary latrine in their house. Many of them are without latrine in their house and they use open field in the bank of the river for the purpose. Many awareness programmes for sanitation under rural development scheme and provision of

subsidized installation of sanitary latrine are being implemented by the government but still proper sanitation is found to be seldom realized by the fisher community.

Electricity: It was observed that electricity connection was in 86% respondent's house and 14% respondents were living without electricity. Many respondents are enjoying the household electricity connection under the BPL (Below Poverty Line) subsidized connection scheme.

Fishing vessel and gear: The fishers used various kinds of fishing gear for fishing, viz., Cast nets, Lift nets, Gill nets, Fishing lines and Traditional Bamboo Traps like Hogora, Dingora, Seppa, Khaloi, Jakoi etc. Different types of fishing nets of various mesh sizes are used by the fishers as fishing gears and small sized country boats are used as fishing vessel. Few of the fishers are having their own boat for fishing and maximum are having no boat of their own. Most of the fishers have their own fishing gear which they use for catching the fish.

IV. Conclusion

The present study highlights some factors for their poor socio economic condition and low standard of living. The prime factor is the lack of social infrastructure. The same is reported by Bhaumik and Pandit, 1991; Goswami *et al*., 1994. Secondly, educational development is also not satisfactory which is very essential for the all-round development to fight against social injustice and economical information about their occupation (Sheikh and Goswami, 2013). Moreover low fish catch and scarcity of alternate employment opportunities are the prime cause for poverty of fishermen. In these days of global economic changes, the fishers are found not having the basic necessities to elevate their living conditions. Instead they are facing a lot in their struggle for existence. They are still in the primitive stage with limited or no scientific and technical guidance to use the riverine resources more economically and sustainably. Moreover low fish catch and scarcity of alternate employment opportunities are the prime cause for poverty of fishermen. Fishes such as *Tor, Labeo dyocheilus, Anguila, Glossogobius spp*. can migrate long distances in Trans-Himalayan Rivers (Talwar and Jhingran, 1991 & Das and Bordoloi, 1997). Fish ladders are generally believed to re-establish connectivity between critical habitats for migratory species and reduce the anthropogenic stress on the fish fauna. It is imperative to maintain a minimum water flow, especially during the winter, when the contribution of the rainfall greatly decreases (Agostinho *et al*.2007).

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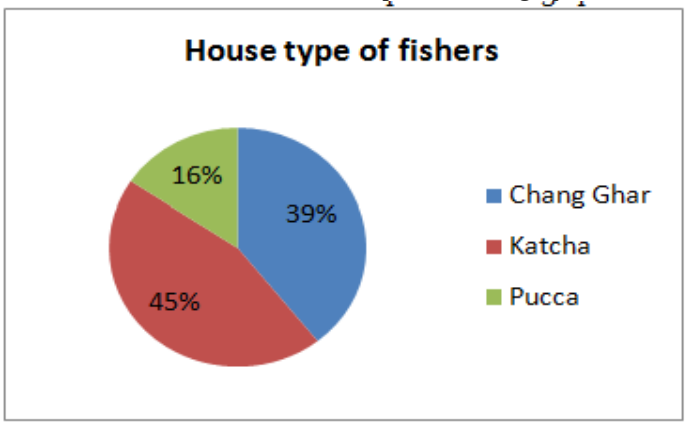
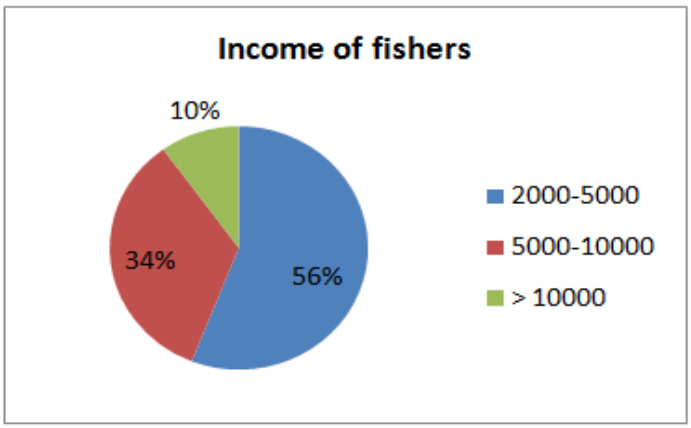
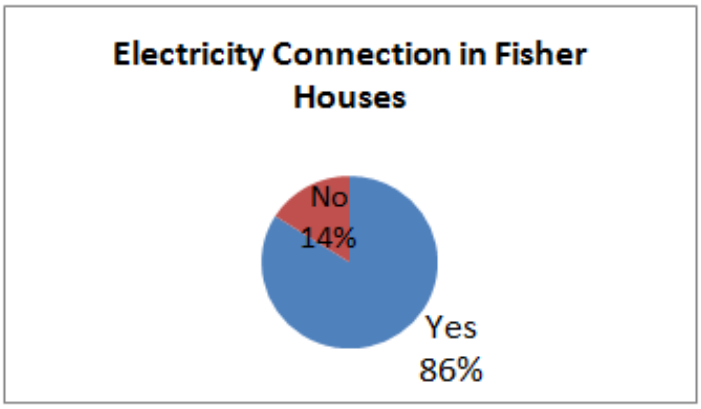
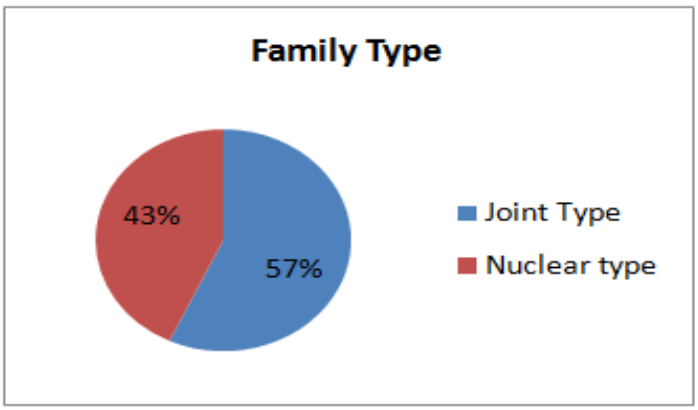
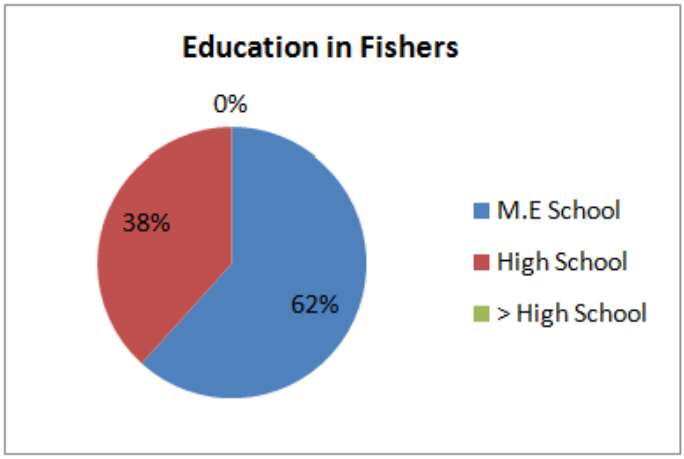
Different aspects of Socio-economic condition of fisher are presented in graphical form below.

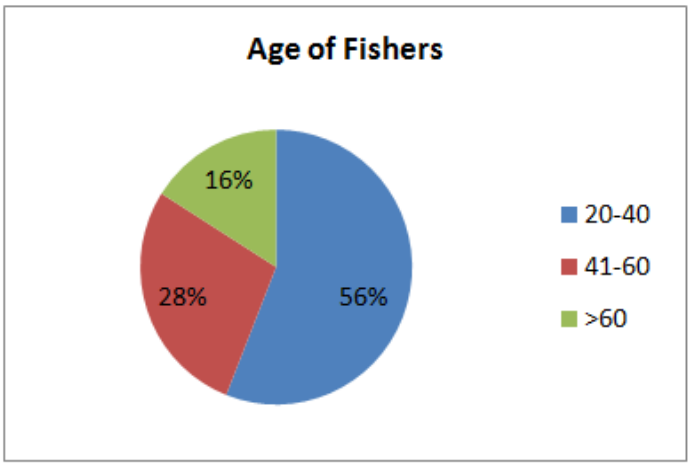












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