

# A STUDY OF USING ICTS AND ENHANCING LIVELIHOOD OF FISHER FOLK AT NAGAPATTINAM DISTRICT

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**Abstract** - Information and communication technology (ICT) may be a set of advanced technological tools during the marine fisheries sector. It stimulates efficiency, income, productivity, and safety of fishermen. GPS, Echo-sounder, mobile phone, wireless sets, and beacon are ICT tools presently used by the fishermen communities living in Nagapattinam district. The main aim of this study is to find out increasing tendency of utilization ICT, mobile phone, GPS and its adoption in fishing. Adoption index has a positive relation with fishermen's income and also helps for improving their livelihoods of fishermen security, sea safety activities and to locate potential fishing zone's areas. Research design used quantitative survey and interview method. The sample is collected from fishermen in the select areas of Nagapattinam district. The study reveals that majority is much satisfied with the traditional indicators. However, use of the internet among fishermen practitioners is low as compared to other coastal region. Fisher folk mostly give high importance to their use traditional indicator's collection of information sources, daily news and conversation.

**Key Words:** Adoption, fishing practices, information needs, ICT, GPS

## 1. INTRODUCTION

India, with a fish production of 9.58 million MT per annum, is the second largest producer of fish worldwide and constitutes 5.68% of the world total fish production. Encircle by Indian Ocean, the Bay of Bengal and therefore the Arabian Sea rural coastal economy in 3202 villages across 8,118 km coastline. Fishery plays a predominant 39% of production; role in the economic activity of the country by its contribution contributes 0.83% to the national Gross Domestic Product (GDP) and ~4.6% to the agricultural GDP and also in foreign trade, food, and employment.

In accordance with census 2018, there are 3,288 marine fishing villages in Tamil Nadu. The total Marine fisher folk population was about 4 million comprising in 864,550 families in Tamilnadu. 85% of them having full time engagement in fishing activities. Global Positioning System (GPS), wireless set, mobile phone, radar, and beacon are the

main ICT tools in the marine sector. They are used across the fisheries sector from resource assessment and capture to processing and commercialization (FAO, 2007). Fisher folk use traditional indicators such as water color, wind speed and direction, tide, bird aggregation, smell and reflection of light to identify fishing areas at sea. Natural Information within the communities typically travels through word of mouth.

(Kingsbury, 2010) point out through his study that fishermen are moving farther the seas and into deeper waters for getting adequate fish catches. Fisher folk from Nagapattinam District immersed fishing activity at India-Sri Lanka maritime border. In our day-to-day life we hear the news about fishermen are arrested, or shot, by the Sri Lankan Navy, and they are died due to storm and cyclone. They are not able to communicate properly due to the lag of proper access tools and leads to loss in the both humans as well as their economic.

According M. J. Akbar is an Indian journalist and politician, who served as Minister of State for External Affairs stated in 2017, 215 Indian fishermen and 37 fishing vessels have been apprehended by Sri Lankan authorities. Government of India has taken several measures to encourage our fishermen to diversify into deep-sea fishing using tuna long-liners. An amount of Rupees 200 crore has been allocated by the Government during the current financial year 2017 as its share to support the fishermen under the "Assistance for Deep Sea Fishing" scheme.

Over the years, Sri Lanka has also been leaning more towards China which has made enormous investments within country, making it all the more a diplomatic challenge for the Indian government, roughly the livelihood concerns and traditional rights of the Indian fishermen to the back-burner.

Modern technological tools have made a significant contribution to changing the status of the marine fisheries sector in our economy into a vibrant one. Latest technological externalities like ICTs in the marine fisheries have brought about a great transformation in fisher folk

population both in their personal life styles as well as in their livelihood activities. In fact, expansion and development of marine fisheries sector through ICTs like GPS navigation, satellite communication and wireless connectivity etc., are quite significant. Application of ICTs in marine capture fisheries enhances the livelihood activity of marine fisher folk besides reduces people's vulnerability, paving the way for social equality and ultimately bringing the fisher folk into the mainstream society for overall development.

## 2. REVIEW OF LITERATURE

Thompson (1995) stated that means of communication create new ways of acting and interacting socially, new types of relationships, and new ways of presenting ourselves. He asserted that we are passing from face to face dialogue to asymmetrical mass media communication.

According to Husseini et al. (2009) fishermen were facing several economic problems in use of ICTs, and they were found to have less interest in utilizing the ICT. Nonetheless, if the government takes initial steps in strengthening ICT usage among the fisher folk community, ICT usage can be further developed among them. It is vividly believed that ICT as a basic resource for development, a number of ICT tools such as mobile phone, television, radio, GPS and sonar, can bring significant changes in the development, and reduction in the level of poverty of different communities including the fishermen (Kularatne, 1997).

Rubin (1998) emphasized that information systems cannot be well-designed without clear understanding of what the intended users want or need to know, how they seek information and how they evaluate information that they received. (Wilson, 2000) equally defined information seeking behaviour as "purposing seeking for information as a consequence of a requirement to satisfy a goal."

The book of Glantz talks about the Climate affairs clearly denotes that, there is an association between disaster and the climate. It includes climate science, impacts on ecosystems and society, politics, policy and law, economics, and ethics to deal with the complexity and gravity of impacts that our increasing vulnerability to climate portends. It is the first book to consider the full range of climate-related topics (October 2010).

The 2004 Tsunami natural disaster revealed the lack of access to fishing-related information which adversely affects the livelihoods of fisher folk, often putting them at great risks. The Fisher Friend Mobile Advisory (FFMA) project of the M.S. Swaminathan Research Foundation (MSSRF) in Tamil Nadu and Pondicherry was designed to integrate mobile technology for quicker and easier flow of

information. Fishermen access essential update on wave altitude, wind speed and direction, potential fishing zones, news alerts, government schemes, and latest market prices in their local language (Tamil).

Alexander (2002) observed that majorly concentrated on fear and fear management and it describes the importance of communicating with the public. According to OECD (2001) globally definition of a fishing community is substantially dependent on, or substantially engaged in, the harvest or processing of fishery resources to meet social and economic needs; and includes fishing vessel owners, operators, crew and fish processors that are based in such community.

Information seeking and utilization through a mobile phone technology which exists in infrastructure, services and applications provide opportunities for fisher folk in fishing communities to unlock their economic vulnerability in fisheries livelihood. FAO (2007) evaluates the role of ICTs in the fisher folk development. By analyzing the experiences of fish workers with the adoption of a wide range of ICT tools, the study takes the cases of fishing communities in different parts of the world. But a serious drawback of the study is that it lacks empirical data.

Mishra and Chandra (2010), study shows the positive implications of Information and Communication Technologies in making a commercial growth in the rural economy of India. By taking e-commerce as an ICT weapon the study analyze its overall impact in rural development. But the structural transformation of a rural economy with ICT devices has been neglected in the analysis.

Maddox and Overa (2009), take the case of fishing communities in Bangladesh and Ghana to demonstrate the use of mobile phone technology in creating new opportunities. The study also presents the demands for higher literacy rate and technical knowledge in imparting new the technological how to the fishing communities. But the study is not focusing on other communication and information devices in fishing applications.

Esakkias 2007, concluded that 61% of the respondents read newspapers and more than 80% of the respondents were exposed to radio programmes. Jeeva et al. 2011 reported that television 97% and newspaper 90% were regularly used by fisherfolk for gathering information related to their occupation.

Musa et al. 2008, states that the community exposed more to ICT training and curses will perceive ICT positively than those, who are less exposed. Arul Oli 2004, reported in his study that most of the fisherfolk had fishing alone as their only occupation.

### 3. OBJECTIVE OF THE STUDY

- To Study the information needs of the fisherfolk at Nagapattinam district.
- To Study the present status of application of ICT in marine capture fisheries.
- To identify the existing gap in ICTs for fisher folk at Nagapattinam district.

The study was conducted in coastal district of Nagapattinam, Tamil Nadu. Both quantitative and qualitative data were collected using Interview Schedule and Focus Group Discussion. A well-designed structured questionnaire that is used effectively can gather information on both the overall performance of the test system. This questionnaire method helps the researcher to find out the awareness of the people on environmental issues.

### 4. RESULTS AND DISCUSSION

A majority of the fishermen belonged too young to middle age group 72.5% and only 27.5% belonged to old age group. The educational status of fishermen is a critical factor considered to have a profound influence on the dependent variables.

Education status of fisher folks are still at low figures compared to other community people. The education status of fisher folks at Nagapattinam was clustered. Most of them (about 50%) primarily educated in Tamil Language. They know to read and write only in Tamil language. The second majorities (about 31%) of people are illiterates, and they don't know to read and write in any language. About 10% people learned up to secondary level and 9% people finished under graduate course.

Among the respondents, 65% are boat owners, 35% are labours. The profile indicates that 85% of the respondents fall between the age group of 21 and 50 yrs with the range of fishing experience between less than 5 years and above 30 years, which otherwise called as productive age group. The scenario of owning different types of technology among fishers reveals that 47% were with Global Positioning System (GPS), 5% with eco sounder 5%, 3% with Very High Frequency (VHF), 8% with all of these three technologies. However, the fishermen who don't have any technology are 32% among these respondents.

Kattamaram is one of the oldest fishing craft rarely used by the marine fisher folk of Nagapattinam area. This primitive type of fishing mode can be easily assembled by joining two or three wooden planks by steel ropes. If needed, it can be powered by propelling engine. Fiber boat is the maximum

used boat by fisher men at Nagapattinam. It is made up of hard plastic fiber material powered by a propelling engine. Ocean master boats range in size from 18 to 34 foot to fit the needs of the fisherman around the world.

The majority of the respondents 51.67% had more than 20 years of fishing experience and most of the respondents 91.67% had more than 10 years of experience in fishing. The study reveal that most of the respondents 81.66% did not undergo any training programme; only less than one-fifth of the respondents 18.34% had participated in training programmes.

**Table -1:** Occupational status of fisher folk

Sl.No.	Occupational status	Percentage
1.	Fishing as the only occupation	75.83
2.	Fishing as primary occupation	16.67
3.	Fishing as secondary occupation	7.50
	Total	100

Table 1 shows that (75.83%) of the respondents, fishing remained as the only occupation. Followed by (24.13%) respondents involved in additional occupations besides fishing, of which (16.67%) are primary occupation and (7.50%) are secondary occupation.

This study also confirms that kinds of information sought use their mobile phones (70.3%) fish market information sought was on fish demand, price, supply. followed by social gathering information (51.5%), respectively whereas the least sought information was on weather (33.7%) and security (18.8%). The finding exposes the diversity of information needs of fisherfolk community.

Accordingly, (86.16%), of respondents use Mobile phone for communication. However a majority of the respondents used in fishing, VHF (38.16%), echo sounder (49.16%), GPS (59.16%), radio (8.16%). All most all the respondents opined financial constraints for the purchase of high cost ICT instruments (97.50%), the language problem in understanding the application of ICT gadgets (89.67%), lack of knowledge on operation of ICT tools, non-availability of service centres.

### 5. CONCLUSION

The study provided empirical evidence that latest technological externalities like ICTs, in the marine fisheries have brought about a great transformation in fisherfolk communities to both support livelihood as well as in fishing activities. Change in their socio-economic characteristics is

needed to bring about change in their adoption behaviour. Some of the suggestions given below for their constraints,

1. Training program on use of communication tools for all crew members to overcome the constraint about ICT tools.
2. Provide training on advanced method of fishing and to organize awareness programs on advanced method of fishing.
3. Provide marketing facilities.

As a growth of, Information and Communication Technologies (ICTs) have come out as a boon for fisherfolk. Among these ICTs that are highly useful to the fishers are Echo sounder, Global Position System (GPS), Very High Frequency wireless sets (VHF), Sound Navigation and Ranging (SONAR), Radio Detection and Ranging (RADAR), Distress Alert Transponder (DAT), Search and Rescue Transponder (SART), Internet and Mobile. As a result, demonstrations, seminars/workshops, talk shows and so on should be more meaningful to this group. Therefore saving their lives and provide a good relationship with the neighbouring countries.

Mobile phone access in the fisherfolk at Nagapattinam district has improved information seeking behaviour of fisherfolk among peers but found to be low with extension and fisheries experts outside their domain. A suggestion for the future research has to be conducted sector wise (traditional/motorized/mechanized) detailed study on ICT application with the problems and prospects of ICT in fisheries to be conducted.

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