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Fisher Friend Mobile Application – An Innovative and Promising ICT tool in Fisheries e-Extension

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Abstract

Among the new e-Extension initiatives in the fisheries sector, the advisory services through mobile phone occupy an important place in disseminating information and knowledge to fisherfolk. This study was conducted in Akkarapettai, Samanthanpettai and Chinnangudi villages of Nagapattinam district in Tamil Nadu where information dissemination through mobile phones is being actively practiced by M.S.Swaminathan Research Foundation. A sample of 56 fisherfolk was drawn using simple random sampling procedure. Structured questionnaire was used for data collection. The study focused on two aspects namely, demographic characteristics of the respondents and the type of information disseminated and its preferences through mobile phone. The information disseminated were: daily weather and wave height forecast, potential fishing zones, GPS based navigation solutions, details of Government schemes in operation, Government subsidies, market/landing centre information, clips of the day and audio clips based on need assessment of the respondents. The constraints such as small size of the mobile screen, too many scrolls to read the full content, slow scrolling speed, small font size and time constraints were expressed. GPS technology integrated, water-resistant model, voice enabled messages, flat models instead of folding types, high capacity charge batteries and GPS software with novel features were preferred by the fisherfolk.

Key words: Fisheries, e-Extension, mobile advisory, ICT

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Introduction

New paradigm of e-Extension in fisheries development is fast emerging across the globe. The overall development of communication and dissemination of technologies in the rural areas is expanding in new directions. Conventional modes of delivering technologies to fish farmers/fisherfolk are being challenged and traditional societies are also being transformed into knowledge societies all over the world. The Government of India report of 'Task Force on India as Knowledge Superpower' (Anon, 2001) has emphasized the necessity of developing the capacity to generate, absorb, disseminate and protect knowledge and exploit it as a powerful tool to derive societal transformation. At this juncture, Information and Communication Technology (ICT) is seen as an important means of achieving such a transformation. ICT is an agenda for development in every nation because it brings innovation into information seeking and knowledge acquisition process. The information quest by farmers is observed to be related to various factors like educational level or the availability of information (Kilpatrick et al ., 1999), risk preference, material possession and extent of social interaction (Kadian et al., 2000). Today in India, a number of ICT initiatives have been taken up for socio-economic developments. Most of them are based on subsidy schemes with national/international funding. Case studies of ICT initiatives include 'Aqua choupal' (ITC, Andhra Pradesh), Information Village Research Project and Mobile telephone *Fisher Friend* Model (M.S. Swaminathan's Research Foundation (MSSRF), Tamil Nadu and Puducherry), MOBI AQUA (A.A.Biotech, Chennai), e-Sagu Aqua (IIIT, Hyderabad), V-Aqua Model (West Godavari, Andhra Pradesh), Agricultural Technology Information Centre in Central Institute of Freshwater Aquaculture (Bhubaneswar), Central Marine Fisheries Research Institute (Kochi) and Central Institute of Fisheries Technology (Kochi), Help Line in CIFA, Kisan Call

Centre from the Department of Agriculture & Cooperation (DAC), Ministry of Agriculture, Govt. of India (De et al., 2008) and **South Indian Federation of Fishermen Societies,** Trivandrum (www.siffs.org).

Among these initiatives in the fisheries sector, the mobile phone ranks first in disseminating information and knowledge to fisherfolk. Mobile phones are used to coordinate the fishing efforts (Adogla, 2009), marketing, safety (Anon, 2008) and also, linking the fishermen with the wholesalers for business activities (Scheen, 2008). Mobile phone technology was observed to be a vital tool in an isolated place like the Kainji Lake Basin in Nigeria where distance and lack of communication pose a threat to the livelihood of 6,613 fishing entrepreneurs in 314 fishing communities. In this context, it was felt appropriate to conduct a study on mobile phone applications as a communication channel among the fisherfolk in Tamil Nadu. The study was conducted with the primary objective of identifying the use and importance of mobile phones among the fisherfolk in Tamil Nadu.

Materials and Methods

The study was conducted in Akkarapettai, Samanthanpettai and Chinnangudi villages of Nagapattinam district in Tamil Nadu in 2010, where information dissemination through mobile phones was being actively practiced. A sample of 56 fisherfolk was drawn using simple random sampling procedure. A structured questionnaire was used for data collection focusing on two aspects *viz.*, demographic characteristics of the respondents and type of information disseminated and its preferences through mobile phone. With regard to the demographic characteristics of fisherfolk, age, education, occupation, farming experience, knowledge of computer, and access to village knowledge centres were studied.

The *Fisher Friend* project is a multi-disciplinary venture. M.S. Swaminathan Research Foundation (MSSRF) is a non-profit, non governmental organization which disseminates fishing-related information through the *Fisher Friend* mobile application. Tata Teleservices, the CDMA 2000 (Code Division Multiple Access) network operator provides free connectivity to 100 mobile handsets. Astute Systems Technology is the company that developed and created the BREW (Binary Runtime Environment for Wireless) application and Qualcomm through its Wireless Reach™ initiatives primarily funds this project which not only developed the *Fisher Friend* mobile application but also provided 100 mobile handsets. *Fisher Friend* is commercially available on Tata's CDMA network at an affordable subscription of about Rs 25-30 (or a maximum of US $0.60) per month. Fishermen in Tamil Nadu and Puducherry can download the application from Tata Zone on all 58 CDMA handsets offered by Tata.

This project was launched in December 2007. Phase I of the project was developed in Puducherry and Tamil Nadu in 2009. The project directly involves members of the project team who visit the participating fishermen on a regular basis for training and research purposes. The flexible nature of the technology platform allows *Fisher Friend* to be customized through a user-friendly control panel. The information is received early morning before 9 AM. The package also allows the fishermen to make any number of calls in case of emergency to the coast guard or the Commissioner of Fisheries.

Initially, the project was implemented in villages where Village Knowledge Centres (VKC) have already been established and an MOU was signed with the boundary partners (village heads and volunteers) which made them also the stakeholders in the project. The next step was identification and selection of fishermen on whom the application would be tested for a period of 15 days. The identified fishermen were given an orientation on the mobile application, responsible use of the handset and the need to share this information with other fisherfolk. The feedback obtained from this selection of fishermen was used as the pilot test.

This application had reached 226 users covering 10 – 12 villages in the four districts of Tamil Nadu *viz.*, Cuddalore, Nagapattinam, Ramanathapuram and Kanyakumari, and Union Territory of Puducherry. The feedback was collected from the fishermen using structured interview schedule. The data were then collectively analyzed and incorporated in the technology package in a phased manner.

Results and Discussion

With regard to the demographic characteristics of fisherfolk, age, education, occupation, fishing experience, awareness and access to VKC and awareness and utilization of ICT models used in VKC were studied. Simple percentage was used to analyze the demographic data.

Table 1. Demographic characteristics of fisherfolk

Variables	Category	% (N= 56)
Age	Young (Up to 35 yrs)	3.57
	Middle (36 to 45 yrs)	5.35
	Old (> 45 Yrs)	91.07
Education	Primary (Up to V)	94.64
	High school (VI to VIII)	3.57
	Secondary (IX & X)	1.78
Occupation	Fishing	100.00
	Others	-
Fishing experience	0-10 years	8.92
	11-20 years	30.35
	> 20 years	60.71
Awareness about VKC	Aware	100.00
	Unaware	-
Access to VKCs	Access	100.00
	No access	-
Awareness about ICT models	VKC	100.00
	Mobile phones	100.00
Utilization of ICT models	VKC	100.00
	Mobile phones	100.00
Source of utilization	Dept. of Fisheries	100.00
	VKC	100.00

Majority of the respondents (91.07%) were more than 45 years of age. Gender specific differences regarding age do not seem to be significant. Primary education was the most common education level of both female and male fisherfolk. When both the genders were compared, the educational level of the female fisherfolk was lower than the male counterparts. Their main occupation was fishing and their experience ranged from 3 to 23 years. All were able to manage their fishing enterprises with their reading, writing and basic arithmetic skills. All were aware of the Village Knowledge Centres of MSSRF and had contact with them. All were aware of the ICT models developed by MSSRF and the fisherfolk were benefited by the same with regard to the life saving and general information regarding their welfare. The sources utilized by the fisherfolk were Department of Fisheries with regard to subsidies and other beneficiary schemes, VKC, Nagapattinam which facilitates fishermen to know about the weather forecast and fisherwomen to learn about computer, nutrition and health aspects. A newspaper called *Namma ooru seithi* is circulated among the fisherfolk which gives information about fishing and other general aspects.

Through the *Fisher Friend* project, the following information were regularly disseminated to the fisherfolk *viz.*,

- Weather -wave height, forecast information
- Potential fishing zone as influenced by seasons, shoaling patterns, and weather
- Alerts during rough weather: Global Positioning System (GPS) based navigation solutions and information to alert fishermen during rough weather
- Government schemes relevant to the fisherfolk: Government subsidies, schemes for social development and other general announcements by Government
- Market information
- Information on landing centres
- Clips of the day and audio clips based on need assessment of the respondents

From the study, it could be inferred that in using this technology package, the fisherfolk were benefited in several ways. Almost all the respondents opined that receipt of prompt alerts on weather and weather forecasts made them less vulnerable to risks. They also received immediate assistance in times of trouble which allowed them to be more proactive at work. The wave height and weather forecasts equipped them with weather data for not just the day alone but for a period of four days, which was highly beneficial to them. They were particularly benefited on receiving information on wind direction, bearing angle and distance which helped them to identify the potential fishing zones. Further, GPS alerts also helped them to identify the potential fishing zones with accuracy which helped in reducing fishing time and fuel costs.

About 91% of the respondents opined that the recent Government schemes (Fig. 1.), relevant to fishermen were disseminated through this application which included schemes such as government subsidies, schemes for social development and other general announcements by government that are important to the fishing community. Only 16% was attracted

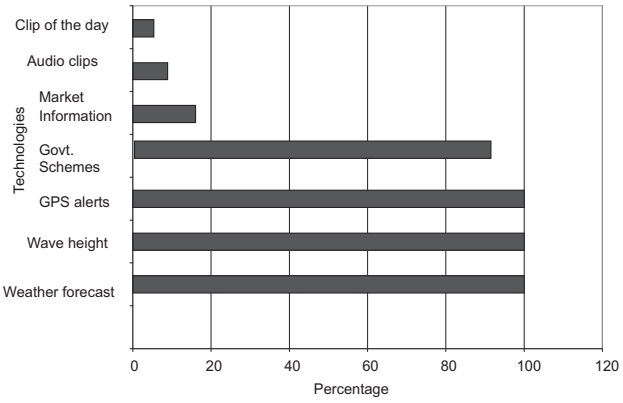

Fig. 1. Preference of information actually disseminated by the Fisher Friend Mobile Application

by market information on the current market situations across different landing centres which may be due to pre-harvest credit linked with marketing which made them bound to sell their catch to the money lenders. Increased access to market information raised the opportunities and income. The market information included the details such as price per unit (kilogram, basket, single fish) at various landing centres for important commercial fishes. This enabled the fishermen to become aware of current market trends and plan their sale accordingly so that they could gain maximum profit. Audio clips (8.92%) and clips of the day (5.35%) were given least preference by the respondents. The fisher mobile technology was also used by the fisherwomen to convey the alerts or information received by way of this system to their spouses who were on the high seas. The reason for the dissemination to woman was to promote sustainable rural livelihoods through digital empowerment based on a pro-poor and pro -women orientation to technology choice and dissemination and human resource development.

Out of the total respondents, 87.50% reported that the size of the mobile screen was small and could display a maximum of only two lines. They also felt that too many scrolls (automatic) which were required to read the full content. Other constraints reported were slow scrolling speed, small font size and time-constraints, as it took nearly 8-10 seconds for them to make out the details of each menu and each step.

The preferences of respondents about various factors of mobile advisory operations were also analyzed. The three major points of preferences (Fig. 2.) were, about 100% of fishermen wanted the GPS technology to be integrated into the handset and wanted a water-resistant model. About 98% sought voice-enabled messages. SMS alerts were favoured by 96.42%. Flat models instead of the folding types were preferred by 89.28% who desired information on cyclone warning based on harbour cyclone signals (stage 1, stage 2, etc.). Nearly three-fourth of them wanted to have high-capacity charged batteries. They wanted the GPS software to incorporate novel features such as "rock points" that can be viewed on a simple map which would aid the fishermen in navigation.

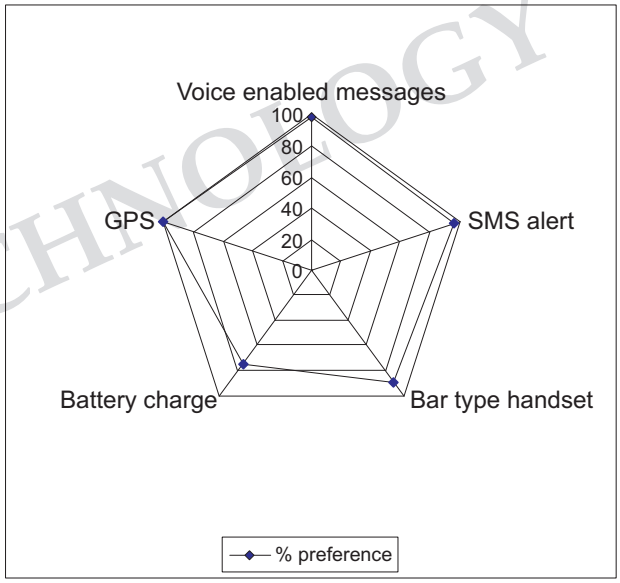

Fig. 2. Radar diagram showing the preferences of fishermen

This new technology *fisher friend* mobile phone has brought out radical changes among the Nagapattinam fisherfolk. It has enabled them to communicate and helped in decision-making. Before the advent of the *fisher friend* mobile, fishermen had extremely limited possibilities to communicate with others while out at sea. This technology has empowered fisherfolk to have greater access to critical information in fishing, renders them less vulnerable to natural calamities and has improved their prospects of earning.

References

Adogla, E. C. (2009) Mobile telecommunications in Africa: Past, present and future of the continent-wide technological phenomenon. Stanford J. African Studies, http://stanford.edu/group/sauti/html/vol2/article3.html (Accessed 20 June 2009)

Anon (2001) Report of Prime Minister's Task Force on India as Knowledge Superpower. Planning Commission, Government of India, New Delhi

Anon (2008) ICT: upwardly mobile. Publication of Technical Centre for Agricultural and Rural Cooperation (CTA). Spore Magazine. 134: 8-10

De, H.K., Saha, G., Srichandan, R. and Vipinkumar, V P. (2008) New initiatives in fisheries extension. Aquaculture Asia, 13(3):16-19

Kadian, K. S., Kumar, R. and Kumar, R. (2000) Agril. Extension. Indian J. Dairy Sci. 53(5): 375-380

Kilpatrick, S., Johns, S., Murray-Prior, R. and Hart, D. (1999) Managing farming - how farmers learn. Rural Industries Research and Development Corporation, Canberra. Publication No, 99/74

Scheen, T. (2008) Mobile telecommunication: bridging the urban/rural divide. Int. J. Rural Develop. 13(1): 26-27

SIFFS (2011) Fish Market Intelligence System. South Indian Federation of Fishermen Societies. www.siffs.org (Accessed 03 January, 2011)