Adoption of Information Communication Technology tools Among Fishermen

Barkatullah Qureshi[1] Mubina Pathan[1] Farman Ali Chandio[1] Ayaz Keerio[2], Riaz Ali Buriro[1] and Abdul Razaque Chhachhar[3]

Sindh Agriculture University Tandojam, Sindh, Pakistan [1]
University of Sindh, Jamshoro, Sindh, Pakistan [2]
[3]Department of Communication Faculty of Modern Languages and Communication, Universiti Putra Malaysia, Serdang, 43400, Selangor, Malaysia
Email: archhachhar@gmail.com

Abstract: The main purpose of this paper is to identify the adoption of communication technologies tools among fishermen for getting information about weather, market, price fluctuation of price and communicating the with family, friends and customers for selling their produce by using mobile phones. Furthermore, it was try to find out that how the fishermen use of GPS system for obtaining the information of location and sonar for see the school of fish at sea. However, it was also explored that how the fishermen community watch the television and listen radio and what kind of the programs they prefer to watch on television and listen on the radio. Finally it was attempted to indicate that what kind of ICT tool fishermen prefer to use in their working places and face the problems in use mobile Phones GPS, sonar, radio and television among fishermen community.
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Introduction

Information and communication technologies created lot of opportunities for different communities to improve their lives similarly communication technologies tools are powerful instrument for increasing the production, generating the economic opportunities as well as providing trade, transport and other facilities for different communities (Wielicki and Arendt, 2010). However, information and communication technologies can play important role in reduce the poverty and different opportunities for communities (Sharifah Mariam, 2004). Nowadays different people are using these technologies in remote areas and directly communicate with urban areas people similarly fishermen directly can communicate with customers for sell their produce in good price.

Pattern and adoption of mobile phones among fishermen

Mobile phones for information were effective among fishermen which enhanced their income. In this context, mobile phones played vital role in increasing market efficiencies, it was indicated that before the mobile phones the fishermen were sold their fish at home market and near their working places without getting good price. Whereas using mobile phones, fishermen were able to find out good prices of fish in surrounding markets and were able to sell their fish with the highest price. Therefore it was showed that mobile phone improved the lively hood of fishermen and customers (Jensen, 2007).

The study was conducted in Nigeria the result revealed that 55% of the fishermen have their own mobile set. It proved that mostly fishermen have directly access to market. Furthermore it was indicated that 53% of the fishermen mostly use mobile phones to contact with suppliers while 48% of the fishermen contact directly with customers. However, 20%of fishermen used mobile phones for monitor prices. These findings indicated that by using communication technology fishermen income was good than the fishermen do not use mobile phones as well as other communication devices (Ifejika, et al., 2009).

Shepherd (2000) showed that use of mobile phone among fishermen and other fishing related communities in South India has dramatically reduced in the price of distribution and near perfect adherence to the law of one price. Several studies conducted in some particular countries which showed that mobile or m-commerce facilitated cost reduction for farmers and fishermen, and offered them opportunities for deepening internal and external business relationships. However, wireless and mobile phone could play very important role for fishermen to communicate with their friends and related agencies to get information about weather in sea. These tools also provided pitch to fishermen to talk with agents and dealer for getting the good prices from market. Through the use of ICT fishermen can get related information from all over the world. ICT used in a wide range of applications in the fishing world. Boat

crews can cut deals on mobile phones for the day's catch while still at sea. Boat captains know their locations using GPS technology. Sonar helps find the big schools of fish, leading to more productive catches. Weather conditions are more accurately predicted and shared among boats, and large-scale resource assessments monitor scarcities (Boadi et al. 2008, Hayrol et al. 2012).

According to report of FAO (2007) fishermen use mobile phone for business, trade, exchange the information regarding market and for emergency purpose. The ICT could reduce the poverty of fishermen if this technology were used in fishing sector properly. Through ICT important information and knowledge could contribute among fishing communities in making decisions on a different of matters from whether to involve in specific fishing operations for trading at a local market that could help to reduce their weakness and improve their chances. Many fishermen use mobile phone and other communication technologies for the purpose to know about market, weather, flood or tsunami. Such kind of technology not only have saved the time of fishermen as well as increased their income. According to the report before mobile phones both purchaser and producer welfare increased waste 6% of the fish were unsold has been eliminated fishermen profits were up to 10% and consumer prices were down 3 % directly driving a 20 rupees per month consumer surplus, the equivalent of a 3% increase in per-capita GDP from this one market alone. Furthermore the 32 % of fishermen responded that the used of mobile phones to arrange purchase of inputs were further broken down by the types of inputs they used the mobile phone to purchase Premix fuel, hooks, bait, food, ice blocks and nets were also frequently purchased over the phone. However 20% of the fishermen have used mobile phones to develop access to new customers. This frequent interaction helps to constructs trust and confidence in their businesses. However, further it was showed that 22% of the fishermen used the phone specifically to access price information from the different markets sites and the indication a significant increase in the number of landing sites visited monthly after the advent of mobile phones. Such technology has brought good changes in fishermen life (Salia, et al., 2011).

According to Mudhai et al. (2009) the use of mobile phone enables fishermen to negotiate with market traders thus could get the good price of fish. Meanwhile, by short message service (SMS) fishermen contact to their community and get the information about upcoming events and weather. The attitude of the fishermen community about culture and social activities were tested by measuring there level of interest to read the newspaper, listen the radio and watching the television programs. The use of mobile phone among fishermen community is beneficial similarly fishing extension officer also share different information and distribute learning content to the mobile phones and share the audio files among fishermen by Bluetooth. Fishermen community use information communication technology tools in sea and contact with dealers and sell their product to enhance their income and same time rural communities and agricultural organizations could get good benefit to improve their life. Fishermen could improve communication between the non-Governmental organizations. Mobile phones played a very vital role in the development and efficiencies of fishermen? Many other studies showed that mobile phones reduced the distance among fishermen community.

1.2 trends in listen and watching Radio and television among fishermen

According to Philip & Udoh, (2011) the study indicated that more than half of the fishermen have their own radio set and source of information. The average time of listening radio among fishermen were early morning and in evening and some of the fishermen have listen radio about fishing related programmes it was showed that fishermen are interesting to get information regarding fishing on radio. Furthermore showed that about 54% of the respondents were interested to listen fishing and agricultural related news on radio. However 56% of the respondents would want information by television and other source of information. The survey conducted by Basavakumar, et al. (2011) revealed that 69% of the fishermen listen radio programs regularly while 26% occasionally and only 5% of the fishermen were not interested to listen the radio. However it was revealed that 38% of the respondents listen fishing related program krishiranga 45% occasionally17% of the respondent never listen this program. In another study conducted by Beegum (2006), in India, showed that 16% of the population of fishermen community listen radio, however 8% watch television programs.

According to Ibeun and Mdaihli (1994) the study was conducted in Kainji area Nigeria about the utilization of the communication media which showed that 56% of the fishermen had their own radio and half of them listen radio at fishing area sites. While 11% fishermen listen radio about fishing related programs. According to the fishermen such kind of program have increased their knowledge and learnt something new. Furthermore, it was indicated that 45% of the fishermen listen radio in morning 22% in afternoon and other fishermen listen radio from 8.00pm to 10pm frequently. Furthermore study revealed that radio is the mostly used ICTs tools for

getting the informing and knowledge about fish farming.

According to Srinath & Rajeev (1995) mostly fishermen obtained information about weather forecast by the radio and newspaper. The decision were made regarding fishing voyage was based on the weather report get at the time of departure. To facilitate fishermen regarding their access to ICT a village knowledge centre (VKC) was established in India. The study showed that in Bangladesh 23% of males and 21% of females has radio while 71% of males and 44% of females' fishermen have regular listener of radio. The technologies of different choices among fishermen community in terms of reducing the gap between rich and poor was the mobile phones. The mobile phone demand is increasing day by day among fishermen in Bangladesh. Mobile Phones have provided good access the fishermen to check rates in different markets for selling their fish. The mobile phones have made it easier for people to find work and shared information to villagers (Rashid, et al., 2010).

The survey conducted in Uganda the result showed that 39% fishermen listen radio and get the information regarding fisheries development. While the most important to source of obtaining the information was television where 46% fishermen watch the television and get the information about weather and fishing business in their country. The further study indicated that 21% of the fishermen use the social media network to contact with their friends. However the newspapers books and magazine reading habit was very low among fishermen it was clearly showed that only 12% fishermen read the newspaper books and magazines (Ikoja & Ocholla, 2003).

Another study indicated that 63% of fishermen listen and watch the weather report include there on board by radio, television and internet. However, most of the fishermen obtained weather updates from the National Oceanic and Atmospheric Administration (OAA) National Weather Service and the USCG. Feedback on how to improve weather information and reporting mostly yielded responses about increasing the frequency of updates (Camp, & Suttotong, P. 2007).

1.3 Pattern of use of GPS and Sonar system among fishermen.

The use of communication technology has impact on different communities and groups and these communities were getting good benefit from it. For instance fishermen community use GPS in sea during fishing and identify their location easily. However GPS information was vital to make data and the optimal zones at a distance from shore that could access through larger boats. Furthermore, fishermen with smaller boats were able to benefit from this information as well (Mittal & Tripathi, 2009). Another study was conducted in Pulau Banggi Sabah Malaysia indicated that 15% of the respondents used GPS for identified locations between 10 to 20 km away during fishing being safe while only 8% use for location to their villages . However 33% of the respondents used GPS for reach at safe place and most of the fishermen used the sonar in sea for location the fish (Teh, Teh, & Meitner, 2012).

FAO (2007) reported that use of ICT among fishermen is being a resource assessment, capture or culture to processing and commercialization. Fishermen could significantly raise output with access to information on refining fisheries inputs, weather, markets, new production techniques, and farming technologies. ICT tools such as sonar, GPS and Fisheries remote sensing informed exactly information such as site, quantity and kind of the tracked fish and save cost, time and energy of the fishermen.

According to Srinath and Rajeev (1995) the center was established and fishermen were provided mobile phones and GPS systems for getting information about weather and able to choose appropriate point for fishing. By using of this technology fishermen could easily obtain information regarding height of the wave's, weather updates and market information about fish. The new innovations from different technologies such as sonar system and GPS were found very helpful for the fishermen community in India

The use of GSP system and sonar have given better benefits to fishermen communities in Asian countries fishermen have increased their income as well as living standard it was showed that through use of GPS system fishermen have saved their time in finding their location similarly use of sonar have increased their product. These technologies succeed in developing countries (Walsham, 2010).

The fishermen taken online information about weather and temperatures from reliable agencies and sell their fish in reasonable cost in coastal areas. The fishermen who could not have enough money for these technologies have also now access to up-to-date information on the best fishing grounds and have improved the revenue. Fishermen and other different communities in developing countries usually have no proper access of information and almost they depend on other people and ask about market, trade and fishing rates from other people. This leads to disparity of rule during negotiations and allow traders to extract the maximum economic surplus from the trade with very little wealth go to the fishermen (Afanuh, et al., 2008). The GPS and satellite system have provided the good facilities to fishermen for

monitor fishing vessels and fishing activity in low cost (Diederen et al. 2004). However, sonar were used for finding fish and GPS also used for position and judgement. Fishermen nowadays frequently use and adopt widespread variety of technologies in remote areas this technology have positive impacts on their live hood (Cespedes, 2011).

1.4 Problems and obstacles faced by fishermen in adoption of mobile phone.

According to Abraham (2006) the lack of proper use of mobile phone among fishermen has lost their business and proper market price of their produce. Fishermen spent more time in sea therefore no use of communication tools have created many problems and uncertainty in community. Fishermen have faced many problems in use of mobile phones in their work place. Fishermen were mostly uneducated and have no proper knowledge about use of mobile phones and other new technologies such as GPS and Sonar in sea. By providing training as well as formal education could enhance the capacity, reduce transaction costs, facilitate communication with relatives, and extend market effectiveness to rural sectors. Most of the fishermen live in rural areas and their condition is not good to purchase and use mobile phones, which provide access to new opportunities, medical care, and commodity prices for fishermen and increasingly financial services.

Roman & Colle, 2003, Chakraborthy et al. (2005) indicated that due to lack of knowledge on proper usage of communication tools of technology such as mobile phone use were also big issue for fishermen especially old fishermen totally unaware about mobile phones. However it was observed that young fishermen were little bit aware about mobile phones and their use.

Bono et al. (2010) indicated that the lack of knowledge of fishermen in use of ICT instrument such as mobile phone were also big problem, there is need to develop new software for the development of fishermen community such as hardware components and software to carefully utilize where the fishermen could get advantage from this technology. The fishermen could connect directly with market and metrological office for getting information about weather and price.

According to Levy & Banerjee, (2008) in the context of the third world countries the ICT infrastructure is not good to utilize for the development of poor people such as internet and satellite mobile phone system in remote area were very expensive especially for fishermen community. The smallholder fishermen shares similar atmospheres and challenges. The fishermen spent more time away from their relatives and from markets. The research findings showed that more than 80% Nigerian live in rural part of the country most of them are farmers and fishermen who are very poor and their almost 90% are illiterate.

These fishermen have not knowledge of communication and technologies even some of them have no idea about how to operate computer. Fishermen have faced many problems in use of mobile phones in their work place. Fishermen were mostly uneducated and have no proper knowledge about use of mobile phones and other new technologies such as GPS and Sonar in sea. The formal education could enhance the capacity, reduce transaction costs, facilitate communication with relatives, and extend market effectiveness to rural sectors. The one main problem among fishermen to use communication technology in their work place and in sea was they cannot afford to purchase mobile phones. While others have no accessibility of charging the mobile in their work places especially in sea. Therefore many fishermen have no proper information regarding market weather and their friends during time of fishing (Antony, 2011).

1.5 Problems in use of radio and television among fishermen

According to Rahim and Padhy (1994) the fishermen have faced many problems in use of communication technology there have no proper access of communication technologies such as no coverage of radio transmission and its frequencies in sea. In this context there is need of capacity building of fishermen community to provide mobile phone and radio and other communication facilities that fishermen could improve their condition and living standard. Mobile phones greatly could increase the performance of markets and get information about high or low prices. Through using this technology fishermen community have get good profit in their business. Such kind of technologies should introduce in rural and remote areas for fishermen community and encourage this community for the use of technology which could make their lives better.

According to Omwega (2006) in lake Victoria Kenya fishermen have no access of radio it was indicated that 40% of fishermen suggested that there is need of access of radio in lake side while 30% of fishermen said that the news should broadcast about fish prices on the radio and other rest of them were agree on availability and accessibility of the radio on surround. Furthermore it was also observed that fishermen need more communication technologies facilities to connect with market as well as with their customers to sell their produce.

One another study indicated that 44% of fishermen were unaware about obtain information on modern fishing. This is not surprising, given that most were illiterate and depend on friends, relatives.

Mostly in remote areas radio was also not playing important role in disseminate information about weather and fishing related information. Only 20% of respondents listen radio and their home while radio waves not reach in sea (Njoku, 2004).

6. Problems in use of GPS, Sonar and other technology among fishermen

According to Rahim and Padhy (1994) the illiteracy were also main cause for not use communication technology among fishermen community they felt very difficulties problems and hindrances to use computer internet GPS radar and other technology for increase their knowledge and skills. The fishermen faced many problems in use of this technology therefore they could not contact with their own family and friends in sea.

Yonah and Cons (2005) mentioned that there are many constraints particular in finance which hinders the dissemination of the ICT information among different communities such as farmers and fishermen. In India fishermen nowadays still use traditional sources and do not depend on information communication technology tools for instance, fishermen have no idea about sonar GPS and radar system.

According to Joshi et al. (2010) in India the education levels of fishermen were very low and the system of social barring based on caste and class were major problem against impact of ICT. Ideally ICTs such as mobile phones radio television radar wireless and GPS could bring revolutionary changes in this community. There were need to create awareness among fishermen and access of infrastructure to provide related and appropriate information and training to fishermen. Furthermore knowledge about ICT could ensure success and sustainability among fishermen. There were also observed the need for a general approach in terms of social acceptance, technical feasibility, economic viability and organizational effectiveness to the use of ICTs as enablers of development. International Development Cooperation (IDC) provided training to fishermen about use of ICT that how this community able to get information on fish market rates in different ports and weather prediction on all current fishes species in area.

Qureshi & Davis (2007) indicated that the digital divide could overcome by access to electronic commerce. These tools offered for e-commerce activities to boost development as well as empowered the local communities to access the services which are required by communities. For instance, the local fishermen were able to contact through cooperative societies which was available on the net. Mori & Assumpção, (2007) indicated that community Internet access centres provided good opportunities to people. This approach could focuses on the major number of decentralized initiatives where in different rural areas the fishermen are getting benefits. This was proved the successful local government initiatives and international experiences served as examples and encouragement for the dissemination of internet centres through the country. Fishermen were also facing problems in sell of their product in market even fishermen do not have information about cost and price.

The lack of basic information and non-availability of infrastructure is very big problems in these rural areas there is no internet, electronic media libraries, information centres, and electricity facilities are available. In this context fishermen have no idea about selling their produce in market. There is need of such application which could enhance the capacity of rural fishermen by use of communication technologies in these areas of Nigeria. Non-availability of technologies fishermen has low income. However, it could possible if the government and other organization take step that their income could increase by use this technology.

ICT application preferred among fisherman:

Mobile phone holds the application of modern information communication technologies (ICT) to spread the information and knowledge among fishermen and farmers specially fishermen prefer to use the mobile phone to connect with their friends, community and market for sell their product. Adogla (2009) revealed that fishermen prefer mobile phone because it is easy to connect with market and easily can get information about price. The applications of mobile phones through fishermen mostly more than 55% have their own mobiles phones. FAO (2007) stated that fishermen community use information communication technologies and fishermen community mostly prefer communication technologies such as sonar for tracing fish. Other application such as GPS used for route and location findings. However, mobile phones for trading, and exchanging the information about weather danger and location among each other's. Furthermore, radio programs for fishing communities, web based information and other related technologies can be introduced and adapted in remote areas. By using new communication technologies their lives can be improved. Furthermore mobile phones can provide opportunities to fishermen and merchants to communicate with each other by calls short message services or can use Wireless Application Protocol (WAP) even fishermen can sell their product while at sea.

Roldan and Wong (2008) showed that internet and mobile applications can be used to help micro-enterprises to handle and apprehensions regarding the

information and communication which could deliver locations for bringing micro-entrepreneurs and sellers and customers to meet their requirements online. In this circumstances there seems to be little awareness and interest among fishermen, and other small entrepreneurs in availing of internet services. The online and e-participation is also low and if ICT is introduced, programs which are able to increase financial and income will be welcomed by the islanders which is the majority of them is fishermen. However, it was also indicated that fishermen does not use internet and other new communication technologies. Furthermore, few of the islanders have a personal computer having Internet access in their homes. Satellites system has made very easy way to communicate on any place in globe (Ernberg, 2007).

Several studies have been conducted for fishermen community with different purposes and goals. Joshi et al. (2010) Pather and Mitrovic, (2008) it was indicated through different experiences that modern fishermen require accurate and reliable information on weather and oceanographic. Communication either in the form of sharing of information or warning of any disaster is one of the important needs especially when they are into deep sea. Mobile phones are good source of communication. No any fishermen had knowledge in rural fishing villages of southern Africa regarding use of the computer at the local library of ICD project the fishermen community access computers in the library which provides information about fishing licenses. Use of this technology improved fishermen basic livelihoods in indirect ways. In this case it has been observed that ICT empowered the life of the fishermen community. The information Village Research Project was implemented in India the computer centre was established in fisher village where the fishermen connected to the internet regularly and updated with weather reports of the Indian metrological office.

Conclusion

It was showed from different studies that information and communication technologies have played a good role in the development of the fishermen community. However, still there are many problems and challenges are with this community. Most of the fishermen have no access of electricity some of them have no mobile phones and many fishermen have no proper guidance regarding the use of communication tools at sea. In this circumstance different sectors of government in different countries should take efforts for the development of fishermen in their countries. Though different studies indicated that mobile phones were the best source of the communication among fishermen but still there is gap among fishermen and customers and that gap have wastages the fish of fishermen. Furthermore, the fishermen still facing electricity and signals problems in their areas where fishermen cannot watch the television and listen the areas in their working places and similarly could not get right signals of mobile phone. The mobile phones are almost good source of communication with family, friends and customers among fishermen were observed.

Corresponding Author:
Abdul Razaque Chhachhar Department of Communication Universiti Putra Malaysia.
Email: archhachhar@gmail.com

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