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PROBLEMS ENCOUNTERED BY THE TRADITIONAL MARINE FISHERMEN PRACTICING MECHANIZATION IN FISHING IN KANNIYAKUMARI DISTRICT OF TAMIL NADU

Dr. Lourdes Poobala Rayen[1]
[1]Head and Associate Professor, Department of Commerce, St. Xavier's College (Autonomous), Palayamkottai, Tirunelveli, Tamil Nadu, India
Miruse Amaladas[2]
[2]Research Scholar in Commerce, St. Xavier's College (Autonomous), Palayamkottai, Tirunelveli, Tamil Nadu, India

ABSTRACT

Earth is distinguished from all other known planets by the presence of a warm, salty ocean that covers more than two-thirds of its surface. Its value to our planet is incalculable, but has been brought into sharp focus by the fact that the future of humanity is dependent on the health of the ocean, and the goods and services it provides. Fisheries sector and fisher folk in Kanniyakumari district have drawn attention of many especially the academic community, fishing remained like most other productive activities, undeveloped. The mechanized mode of fishing had invited many problems in marine fishing and its socio-economic impact on fisher folk of Kanniyakumari district. This paper made an attempt to analyse the problems faced by the traditional fishermen practicing the mechanized mode of fishing in Kanniyakumari district with specific emphasis on the technological, socio-cultural and economic problems.

KEYWORDS: *Fisher folk, Problems, Mechanized fishing, marine fishing, Socio-cultural, Economic and Technological problem.*

INTRODUCTION

The technology introduced into the fishing economy of south India since 1950s has brought distinguishable changes in the patterns of ownership and work. The fishing community has been exposed to new forces for change. The new forms of investment in the production process of fishing have brought about an overwhelming transformation in the most intimate facets of life of traditional fishermen practicing mechanized mode of fishing. The Kanniyakumari district mechanized fishermen are not an exemption from the above changes in the technology, socio-cultural, economic and environment (coastal ecosystem). Fishery sector occupies an important place in the socio-economic development of the fishermen in Kanniyakumari district. The continued changes and up-gradation of existing fishing technologies and modernization helped to increase the efficiency of crafts and gears. It also an important sector in Kanniyakumari district from the standpoint of income and employment generation (Das Kennady 2015[3]). The experiences indicate that the growth of the fishing sector

stimulates the development and employment in related industries which contribute significantly to the total economic growth of the district. However, the current operating environment in marine fisheries in Kanniyakumari district is focused on short-term profits and livelihood instead of long-term sustainability and profitability. This 'business' environment is harmful to the oceans, fishermen, traders, consumers, and the coastal communities **(Gopalakrishnan 2016[4])**. Fishermen need predictable and stable access to fisheries and a flexible management regime that allows them to improve their financial security while safeguarding the invaluable marine ecosystems. The contribution of fisheries to nutritional security, economic growth and livelihoods is often ignored. In this regard the paper makes modest attempt to study problems encountered by the traditional fishermen practicing the mechanized mode of fishing in Kanniyakumari district of Tamil Nadu in respect of technological, socio-cultural and economic problems.

REVIEW OF LITERATURE

Christopher K. Pham et al. (2014[5]) Bottom trawl fishing threatens deep-sea ecosystems, modifying the seafloor morphology and its physical properties, with dramatic consequences on benthic communities. Therefore, the future of deep-sea fishing relies on alternative techniques that maintain the health of deep-sea ecosystems and tolerate appropriate human uses of the marine environment. In this study, the author demonstrates that deep-sea bottom long line fishing has little impact on vulnerable marine ecosystems, reducing by catch of cold-water corals and limiting additional damage to benthic communities.

Sivanesan. R (2014[6]) says that the socio economic conditions of the fishermen of southern coastal areas of Kanyakumari district are very poor. The standard of living of the fisher folk in Kanniyakumari district needs to be improved. In this situation it is highly essential to take steps to improve their income and reduces their expenditure to obtain a socio-economic balanced society. The fishier folk should be encouraged to get proper education in order to plan their budget and to flourish in their life. The fisher folk of this district have affected with anti-social elements like alcohol, drugs and pan masalas and exploitation from the middlemen is another problem faced by this district fishermen.

Hoegh-Guldberg O. et al. (2015[7]) With 61.3 per cent of the world's fisheries now fully exploited, and 28.8 per cent over-exploited, depleted or recovering from depletion, there is an urgent need to revise policies to ensure that the over-exploitation and destruction of fisheries does not continue, and to deal with the problem of illegal fishing. Habitat protection and fisheries management must go hand in hand, with the goal being ecologically sustainable fisheries. Goal 14 of the SDGs (Sustainable Development Goals) focuses specifically on the ocean, namely to "conserve and sustainably use the oceans, seas and marine resources for sustainable development."

Das Kennady J (2015[8]) says that the introduction of mechanized fishing had perceptibly improved the levels of living of boat owner households in the Kanniyakumari district but it has invited problems as well. There are two sects of income group emerged such as owners and workers, the former have more financial backup than the later. The education, health and savings needs to be improved. Other problems identified were lack of capital, ignorance, lack of knowledge of potential resources, organizational weakness among the fishermen.

MECHANIZATION IN KANYAKUMARI DISTRICT

In Kanyakumari, fisheries mechanization was launched as part of the Second Five Year Plan (1956–61) under the leadership of Congress chief minister, Shri. K. Kamaraj and coincided with the district's merger with Tamil Nadu **(AjanthaSubramanian[11])**. Mrs. Lourdammal Simon, Minster of Fisheries (1957-1962), Government of Tamil Nadu initiated fisheries development in 1958 and set about implementing the mechanization programme across Tamil Nadu with particular attention to her home district of Kanyakumari. The subsidized gill-netters were channeled mainly to the village of Colachel, a natural harbour in an otherwise turbulent coastline that made it a good test case for the technology. In the first five years of the distribution scheme, over seventy percent of crafts went to Colachel. In tune with the Community Development agenda, membership in the Fisheries Cooperative Societieswas limited to "active fishermen" for whom fishing was a subsistence occupation to helpthem increase their levels of productivity.

STATEMENT OF THE PROBLEM

The increase in number of mechanized and modern crafts and gears leads to increase in fish production, increase in the fisheries population the prosperity, welfare and development of the fisher folk in Kanyakumari District. But still the fishermen in this district are having lack of modern technology, poor socio-economic conditions, lack of safety measures and social security. However, there are few studies have been conducted to analyse the above. There is no detailed study has been conducted for the technological, socio-cultural and

economic problems encountered by the traditional fishermen practicing mechanized mode of fishing in this district. Fishing at sea has been recognized as the most dangerous occupation in the world. These developments throw an insight to the researcher to conduct an empirical study on the technological, socio-cultural and economic problems encountered by the traditional fishermen practicing mechanized mode of fishing in Kanniyakumari district.

OBJECTIVES OF THE STUDY

Following are the objectives of the study.

1. To study the socio-economic background of traditional marine fishermen in Kanyakumari district.
2. To analyze the technical, socio-cultural and economic problems encountered by the traditional marine fishermen who are practicing mechanization in fishing.

METHODOLOGY OF THE STUDY

The researcher selected 484 mechanized fishermen crafts owners from the population of 4839 of the Kanniyakumari district with help of random sampling technique. The primary data were collected with the help of interview schedule. This study covers a period of one year from November 2014 to October 2015. Statistical tools such as ANOVA, t- test and correlation were used for the analysis of data.

SOCIO-ECONOMIC BACK GROUND OF THE TRADITIONAL MARINE FISHERMEN

The researcher has analysed the socio economic back ground of the traditional marine fishermen of Kanniyakumari district such as population, caste, language, habitation pattern, employment, education, religion and community.

Population:-The district itself has on the highest population densities in India-726 per square kilometer. In coastal villages the density is as high as 1000 per square kilometer. The 71.5 km long coast has a heavy concentration of fisher-folk, almost one village per 1.7 km. According to census of 2010, children 0-17 years old are 44,046 (0-5years old are 14009, 6-10 old years are 12046, 11-17 years old are 17991) adults 18 years and above are 99,342 (18-40 years old are 62939, 41-65 years old are 31775, above 65 years old are 4628) , total male population is 73,471, total female population is 69,917 and total 1, 43,388 fisher-folks (total families are 34779 and average family size is 4 persons per house) are distributed in the 42 villages of Kanyakumari coast and constitute about 18.21 percent of the total fishermen of Tamil Nadu.**(Tamil Nadu Fisher Folks Census[12])**

Caste:-The fisher folk of coastal belt belong to two main castes: the Paravar and the Mukkuvar (98.95 per cent) and very minor castes are Nozhyar Hindu (.09 per cent) and Thuluker Muslim (.96 per cent). Most live in communities that are scattered along coastlines and most of their fishing activities take place near their home communities. They generally live very close to the seashore. This nearness to the sea has the advantage of convenient beach landing for their catch.

Habitation Pattern:-The fishermen's habitation is almost at the fringe of the sea. The closely packed dwellings of the community and the poverty of much of the housing give the coastal strip an appearance more like a slum than a series of rural villages. However, there are 2,066 thatched houses, 2,546 lite roofed houses, 8,530 tiled houses, 18,901 concrete houses, and 359 other type of houses out of the total of 32,402 houses. **(Tamil Nadu Fisher Folks Census[13])**

Employment:-The fishing community- as people whose traditional occupation of fishing identify themselves with the sea. However, there are 37133 fishermen are directly involving in fishing, 4912 and 655 are involving in fish trade and net making respectively, 1830 are in allied activities, 4618 are employed in government and private sectors and 2113 are in self-employed in this district.**(Tamil Nadu Fisher Folks Census[14])**

Education:-Education is one of the most indicators of socio-economic status of the coastal communities. Over the last half century, educational level of the coastal communities has risen gradually. In 1960 only 10 percent coastal population had have elementary education. In 1970s, 80s and 90s it has just swelled up to 55 per cent with higher education. According to Tamil Nadu Fisher Folk Census 2010, there 44690 are primary school educated , 29983 are middle school educated, 20302 are high school educated, 12172 are higher secondary educated, 11567 are under graduates, 3738 are other education and 6927 illiterates are in Kanyakumari district.**(Tamil Nadu Fisher Folks Census[15])**

Religion and Community:- Kanyakumari district has a heterogeneous fishing community constituting all the three religions. In Kanyakumari district, among the fishers, the Christian community is dominated in the district. The census reveals that of the total 34779 families, 98.95 per cent are Christians. The Muslims and Hindus constitute .09 per cent and .96 per cent respectively. In Kanyakumari district the fisher folk are belongs to the most backward community

which constitutes 99.59 per cent, backward community is 0.25 per cent, forward community is 0.15 per cent and SC/ SC community is 0.01 per cent. (Tamil Nadu Fisher Folks Census[16])

PROBLEMS ENCOUNTERED BY THE TRADITIONAL MARINE FISHERMAN PRACTICING THE MECHANIZED MODE OF FISHING

The primary data collected were analysed with the help of the statistical tools such as ANOVA, t-test and correlation. The results of the data analysis are discussed and presented in this paper. The analysis of technological, socio-cultural and economic problems encountered by the traditional marine fishermen practicing mechanized mode of fishing in Kanniyakumari district are presented below.

TECHNOLOGICAL PROBLEMS ENCOUNTERED BY THE MECHANIZED FISHERMEN

Fishermen encountered different type of technological problems in the mechanized mode of fishing. Ten technological problems are identified and given in Table 1. In order to find out the significant difference in technological problems encountered in the mechanized mode of fishing among the fishermen of mechanized boats, motorized vallam and motorized catamaran in Kanyakumari district, 'ANOVA' is attempted with the null hypothesis, "there is no significant difference in technological problems encountered in the mechanized mode of fishing among the fishermen of mechanized boats, motorized vallam and motorized catamaran in Kanyakumari district". The results are presented in Table 1.

Table 1
Technological problems encountered by the fisherman in the mechanized mode of fishing

Sl. No	Technological Problems	Type of Respondents				F Statistics
		Mechanized Boats	Motorized vallam	Motorized catamaran	Total	
1.	Need more technical knowledge to operate crafts, nets, fish finder and GPS	3.9194	4.3481	4.6698	4.3636	26.264*
2.	Lack of technical knowledge to set right the repairs in GPS affects fishing and operation of craft while fishing in deep sea	3.9516	4.2532	4.6981	4.3120	43.186*
3.	Lack of technical knowledge to repair the machine at fault during fishing in deep sea affects fishing and operation of craft	4.0806	4.1930	4.6604	4.2810	48.755*
4.	Lack of technical knowledge to set right the repairs of cold stores affects the storing fish catch which led to decay of the fish catch while fishing in deep sea	3.2581	3.3987	4.4528	3.6116	94.185*
5.	Mechanisation increases the repairs and maintenance expenses	4.0645	4.0854	4.5849	4.1921	39.952*
6.	Lack of technical knowledge to set right repair in fish finder create problem for fishing while in deep sea	3.2258	3.4589	4.4340	3.6426	76.156*
7.	Non availability of timely weather forecast information endangered fishermen's life, crafts and nets while fishing in the deep sea	4.7903	4.7595	4.9717	4.8099	9.126*
8.	Highly sophisticated lighting devices used in deep sea fishing reduces the fish catches in near the seashore	4.1129	4.1361	4.2830	4.1653	5.166*
9.	Operation of more mechanized crafts in the sea increases the pollution through leakage of fuel and throwing plastic waste in the sea	4.0484	4.1329	4.3280	4.1550	10.272*
10.	Usage of solar powered LED lights attracts small fishes and other marine lives endanger its survival which affects coastal bio- diversity and marine eco system	4.2911	4.0886	4.3019	4.1384	8.617*

Source: Primary Data *-Significant at 5 per cent level*

Table 1shows the mean score of technological problems encountered by the fisherman in the mechanized mode of fishing along with its respective 'F' statistics. The important technological problems encountered by fishermen of mechanized boats are non-availability of timely weather forecast information endangered fishermen's life, crafts and nets while fishing in the deep sea and usage of solar powered LED lights attracts small fishes and other marine lives endanger its survival which affects coastal bio- diversity and marine eco system and their respective mean scores are 4.7903 and 4.2911.

Among the fishermen of motorized vallam, the important technological problems are non-availability of timely weather forecast information endangered fishermen's life, crafts and nets while fishing in the deep sea and need more technical knowledge to operate crafts, nets, fish finder and GPS and their respective mean scores are 4.7595 and 4.3481.

Among the fishermen of motorized catamaran, the important technological problems are non-availability of timely weather forecast information endangered fishermen's life, crafts and nets while fishing in the deep sea and lack of technical knowledge to set right the repairs in GPS affects fishing and operation of craft while fishing in deep sea and their respective mean scores are 4.9717 and 4.6981.

Regarding the technological problems, the significant difference among the fishermen of mechanized boats, motorized vallam and motorized catamaran, are identified in the case of all the variables since the respective 'F' statistics are significant at 5 per cent level.

SOCIO-CULTURAL PROBLEMS ENCOUNTERED BY THE FISHERMAN IN THE MECHANIZED MODE OF FISHING

Fishermen encountered different type of socio-cultural problems in the mechanized mode of fishing. Thirteen socio-cultural problems are identified and given in Table 2. In order to find out the significant difference in socio-cultural problems encountered in the mechanized mode of fishing among the fishermen of mechanized boats, motorized vallam and motorized catamaran in Kanyakumari district, 'ANOVA' is attempted with the null hypothesis, "there is no significant difference in socio-cultural problems encountered in the mechanized mode of fishing among the fishermen of mechanized boats, motorized vallam and motorized catamaran in Kanyakumari district". The results are presented in the Table 2.

Table 2
Socio-Cultural problems faced by the Fishermen in the Mechanized Mode of Fishing

Sl. No	Socio-Cultural problems	Type of Respondents				F Statistics
		Mechanized Boats	Motorizedvallam	Motorized catamaran	Total	
1.	The deep sea fishing reduces the fish wealth and in turn it creates unemployment among fisherman	4.4355	4.7247	4.8208	4.7087	14.840*
2.	Due to mechanization, the fishermen who are in old age are not getting employment	4.5000	3.9304	4.1038	4.0413	17.690*
3.	Due to the lack of administrative and management skills on the part of the owners of the fishing crafts, they are unable to keep the efficient fishermen with them	4.0968	4.3544	4.3113	4.3120	6.065*
4.	Catching fish beyond the sea boundary creates problem to the fishermen and affect the relationship between the countries	3.9516	4.1867	4.1792	4.1550	9.777*
5.	Attack from terrorists and pirates endanger the life of the fishermen and their crafts during deep sea fishing	3.9355	4.1424	4.1226	4.1116	6.578*
6.	Lack of body exercise because of the mechanization creates health related problems and obesity among the fishermen	4.7581	4.8291	4.8491	4.8244	0.865
7.	Staying more days in the sea continuously creates mental fatigue among fishermen cause more consumption of alcohol and tobacco	4.6604	3.5791	3.0000	3.7417	89.820*
8.	Staying more days in the sea continuously affects the family relationship due to their separation from the family	4.5566	3.6076	3.1500	3.7376	104.780*
9.	Children's discipline gets affected due to the long stay by the head of the family during deep sea fishing	3.2604	3.6076	4.5566	3.7376	76.249*
10.	Shortage of fishing workers causes inability to operate fishing crafts and nets	4.6129	4.4051	4.7547	4.5083	12.702*
11.	Invasion of foreign vessels and non-co-operation of systematic fishing affects the Indian territorial marine ecological system. For that reason the fish production decreases	3.7419	4.0665	4.1887	4.0517	18.218*
12.	Long storage of fish during deep sea fishing reduces the quality and nutritious value of fish which affects the health of fish consuming community	4.7170	3.6519	3.1290	3.8182	86.515*
13.	In this fishing work, no care about the traditional fishermen because of capitalist influence. For that reason there are riots between traditional and mechanized fishermen	3.6129	3.9525	4.1132	3.9442	10.144*

Source: Primary Data **-Significant at 5 per cent level*

Table 2 shows the mean score of socio-cultural problems encountered by the fisherman in the mechanized mode of fishing along with its respective 'F' statistics. The important socio-cultural problems encountered by fishermen of mechanized boats are 'lack of body exercise because of the mechanization creates health related problems and obesity among the fishermen' and 'long storage of fish during deep sea fishing reduces the quality and nutritious value of fish which affects the health of fish consuming community' since their respective mean scores are 4.7581 and 4.7170.

Among the fishermen of motorized vallam, the important socio-cultural problems are 'lack of body exercise because of the mechanization creates health related problems and obesity among the fishermen' and 'the deep sea fishing reduces the fish wealth and in turn it creates unemployment among fisherman' since their respective mean scores are 4.8291 and 4.7247.

Among the fishermen of motorized catamaran, the important socio-cultural problems are 'lack of body exercise because of the mechanization creates health related problems and obesity among the fishermen' and 'the deep sea fishing reduces the fish wealth and in turn it creates unemployment among fisherman' since their respective mean scores are 4.8491 and 4.8208.

Regarding the socio-cultural problems, the significant difference among the fishermen of mechanized boats, motorized vallam and motorized catamaran are identified in the case of the all the variables excepting the variable 'lack of body exercise because of the mechanization creates health related problems and obesity among the fishermen' since the respective 'F' statistics are significant at 5 per cent level.

ECONOMIC PROBLEMS ENCOUNTERED BY THE FISHERMEN IN THE MECHANIZED MODE OF FISHING

Fishermen encountered different type of economic problems in the mechanized mode of fishing. Ten economic problems are identified and given in Table 3. In order to find out the significant difference in economic problems encountered in the mechanized mode of fishing among the fishermen of mechanized boats, motorized vallam and motorized catamaran in Kanyakumari district, 'ANOVA' is attempted with the null hypothesis, "there is no significant difference in economic problems encountered in the mechanized mode of fishing among the fishermen of mechanized boats, motorized vallam and motorized catamaran in Kanyakumari district". The results are presented in the Table 3.

Table 3
Economic Problems Encountered by the Fisherman in the Mechanized Mode of Fishing

Sl. No	Economic problems	Type of Respondents				F Statistics
		Mechanized Boats	Motorized vallam	Motorized catamaran	Total	
1.	The high operational expenses reduce their income when fish catch is not adequate to meet the cost. This leads to borrowing from local money lenders	4.2925	4.1614	4.1774	4.1921	3.463*
2.	Unable to provide good education for the children due to lack of savings from fishing	4.0806	4.2373	4.5755	4.2913	30.740*
3.	Increased debts lead to disposing of the residential house, property and fishing crafts	4.0323	4.2247	4.4151	4.2417	11.950*
4.	Unable to pay the insurance premium for fishing crafts and nets because of the high annual premium. Moreover, the low claim settlement for the damage of crafts and nets during the natural calamities increases their loss	4.3868	4.2120	4.0806	4.2335	8.431*
5.	During the monsoon season the fishermen were banned to catch fish for 45 days which leads to no income and makes them to meet their daily life difficult	4.9194	4.8829	4.9528	4.9029	2.040
6.	Usages of banned fishing nets and instruments in the sea, reduces the fish wealth	3.7742	4.0791	4.1226	4.0496	14.294*
7.	Lack of demand in overseas market reduces the income of the fishermen	3.7097	4.1171	4.1509	4.0723	14.280*
8.	Lack of awareness about savings and investments among the fishermen affects their future plan	4.9839	4.9430	4.9717	4.9545	0.782
9.	Lack of fish markets and landing centers reduces the demand and sale of fish	4.8993	4.9462	4.9434	4.9504	0.849
10.	Lack of price fixation by the government for the fish like agricultural products	4.7839	4.9304	4.9677	4.9463	1.869

Source: Primary Data **-Significant at 5 per cent level*

Table 3 shows the mean score of economic problems encountered by the fisherman in the mechanized mode of fishing along with its respective 'F' statistics. The important economic problems encountered by fishermen of mechanized boats are 'lack of awareness about savings and investments among the fishermen affects their future plan' and 'during the monsoon season the fishermen were banned to catch fish for 45 days which leads to no income and makes them to meet their daily life difficult' since their respective mean scores are 4.9839 and 4.9194.

Among the fishermen of motorized vallam, the important economic problems are 'lack of fish markets and landing centers reduces the demand and sale of fish' and 'lack of awareness about savings and investments among the fishermen affects their future plan' since their respective mean scores are 4.9462 and 4.9430.

Among the fishermen of motorized catamaran, the important economic problems are 'lack of awareness about savings and investments among the fishermen affects their future plan' and 'lack of price fixation by the government for the fish like agricultural products' since their respective mean scores are 4.9717 and 4.9677.

Regarding the economic problems, the significant difference among the fishermen of mechanized boats, motorized vallam and motorized catamaran, are

identified in the case of six out of ten variables since the respective 'F' statistics are significant at 5 per cent level, the null hypothesis is rejected.

Relationship between technological factors influencing the traditional marine fishermen to practice mechanized mode of fishing and technological problems faced by them:-

Traditional marine fishermen influenced by different technological factors to go for practicing mechanized mode of fishing but they face technological problems in the mechanized mode of fishing. Traditional marine fishermen do not influenced by different technological factors to practice mechanized mode of fishing but they do not face technological problems in the mechanized mode of fishing. Hence there is a direct relationship between technological factors influencing the traditional marine fishermen to practice mechanized mode of fishing and technological problems faced by the traditional marine fishermen. The inter-relationship between technological factors influencing the traditional marine fishermen to practice mechanized mode of fishing and technological problems faced by the traditional marine fishermen in the study area is analysed through correlation co-efficient. The null hypothesis as "There is no relationship between technological factors influencing the traditional marine fishermen to practice mechanized mode of fishing and technological problems faced by the traditional marine fishermen in Kanyakumari district". The computed correlation co-efficient between technological factors influencing the traditional marine fishermen to practice mechanized mode of fishing and technological problems faced by the traditional marine fishermen in the study area is presented in Table 4.

Table 4
Relationship between Technological Factors influencing the Traditional Marine Fishermen to practice Mechanized Mode of Fishing and Technological problems faced by them

Particulars	Technological Factors	Technological Problems
Pearson Correlation	1.000	0.744**
Sig. (2-tailed)	.	0.000
N	484	484

Source: Primary data

** Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows the relationship between technological factors influencing the traditional marine fishermen to practice mechanized mode of fishing and technological problems faced by the traditional marine fishermen in Kanyakumari district. The table reveals that technological factors influencing the traditional marine fishermen to practice mechanized mode of fishing is positively related to the technological problems faced by the traditional marine fishermen with a co-efficient correlation of 0.744.It is identified that there is a relationship between technological factors influencing the traditional marine fishermen to practice mechanized mode of fishing and technological problems faced by the traditional marine fishermen in Kanyakumari district.

Relationship between Social Factors influencing the Traditional Marine Fishermen to practice Mechanized mode of Fishing and Social Problems faced by them:-

Traditional marine fishermen influenced by different social factors to practice mechanized mode of fishing but they face social problems in the mechanized mode of fishing. Traditional marine fishermen do not influenced by different social factors to practice mechanized mode of fishing but they do not face social problems in the mechanized mode of fishing. Hence there is a direct relationship between social factors influencing the traditional marine fishermen to practice mechanized mode of fishingand social problems faced by the traditional marine fishermen. The relationship between social factors influencing the traditional marine fishermen to practice mechanized mode of fishing and social problems faced by the traditional marine fishermen in the study area is analysed through correlation co-efficient. The null hypothesis as "There is no relationship between social factors influencing the traditional marine fishermen to practice mechanized mode of fishing and social problems faced by the traditional marine fishermen in Kanyakumari district". The computed correlation co-efficient between social factors influencing the traditional marine fishermen to practice mechanized mode of fishing and social problems faced by the traditional marine fishermen in the study area is presented in Table 5.

Table 5
Relationship between Social Factors influencing the Traditional Marine Fishermen to practice Mechanized mode of Fishing and Social problems faced by them

Particulars	Social Factors	Social Problems
Pearson Correlation	1.000	0.404**
Sig. (2-tailed)	.	0.000
N	484	484

Source: Primary data

** Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows the relationship between social factors influencing the traditional marine fishermen to practice mechanized mode of fishing and social problems faced by them. Table 5 reveals that social factors influencing the traditional marine fishermen to practice mechanized mode of fishing is positively related to the social problems faced by them with a co-efficient correlation of 0.404.It is identified that there is a relationship between social factors influencing the traditional marine fishermen to practice mechanized mode of fishing and social problems faced by them.

Relationship between Economic Factors influencing the Traditional Marine Fishermen to practice Mechanized mode of Fishing and Economic problems faced by them:-

Traditional marine fishermen influenced by different economic factors to practice mechanized mode of fishing but they face economic problems in the mechanized mode of fishing. Traditional marine fishermen do not influenced by different economic factors to practice mechanized mode of fishing but they do not face economic problems in the mechanized mode of fishing. Hence there is a direct relationship between economic factors influencing the traditional marine fishermen to practice mechanized mode of fishing and economic problems faced by them. The relationship between economic factors influencing the traditional marine fishermen to practice mechanized mode of fishing and economic problems faced by them in the study area is analysed through correlation co-efficient. The null hypothesis as "There is no relationship between economic factors influencing the traditional marine fishermen to practice mechanized mode of fishing and economic problems faced by them". The computed correlation co-efficient between economic factors influencing the traditional marine fishermen to practice mechanized mode of fishing and economic problems faced by them in the study area is presented in Table 6.

Table 6
Relationship between Economic factors influencing the Traditional Marine Fishermen to practice Mechanized mode of Fishing and Economic problems faced by them

Particulars	Economic Factors	Economic Problems
Pearson Correlation	1.000	0.331**
Sig. (2-tailed)	.	0.000
N	484	484

Source: Primary data

**-Correlation is significant at the 0.01 level (2-tailed).

Table 6 shows the relationship between economic factors influencing the traditional marine fishermen to practice mechanized mode of fishing and economic problems faced by them. Table 6 reveals that economic factors influencing the traditional marine fishermen to practice mechanized mode of fishing is positively related to the economic problems faced by them with a co-efficient correlation of 0.331. It is identified that there is a relationship between economic factors influencing the traditional marine fishermen to practice mechanized mode of fishing and economic problems faced by them.

FINDINGS OF THE STUDY

1. Major technical problems faced by the mechanized fishermen are 'non-availability of timely weather forecast information endangered fishermen's life, crafts and nets while fishing in the deep sea' and the 'usage of solar powered LED lights attracts small fishes and other marine lives endanger its survival which affects coastal bio- diversity and marine eco-system and lack of technical knowledge to set right the repairs in GPS, machine and fish finder affects fishing and operation of craft while fishing in deep sea'.

2. Socio-cultural problems encountered by the mechanized fishermen are 'lack of body exercise and obesity among the fishermen', 'staying more days in the sea continuously creates mental fatigue among fishermen cause more consumption of alcohol and tobacco', 'the deep sea fishing reduces the fish wealth and in turn it creates unemployment among fisherman', 'children's discipline gets affected due to the long stay by the head of the family during deep sea fishing and 'shortage of fishing workers causes inability to operate fishing crafts and nets' and 'long storage of fish during deep sea fishing reduces the quality and nutritious value of fish which affects the health of fish consuming community'.
3. The important economic problems encountered by the mechanized fishermen are 'lack of awareness about savings and investments among the fishermen affects their future plan', 'lack of price fixation by the government for the fish like agricultural products', 'during the monsoon season the fishermen were banned to catch fish for 45 days which leads to no income and makes them to meet their daily life difficult', 'lack of fish markets and landing centers reduces the demand and sale of fish' and 'unable to pay the insurance premium for fishing crafts and nets because of the high annual premium', moreover, the low claim settlement for the damage of crafts and nets during the natural calamities increases their loss.

RECOMMENDATIONS

1. To avoid the 'Non-availability of timely weather forecast information while in deep sea fishing endangered fishermen's life, crafts and gears' the government should provide sophisticated devices like NAVTEC or Satellite mobile to know the weather information while in deep sea fishing to alert the fishermen to reach the sore safely and to take precautions.
2. The use of electrical powered LED lights endangers the marine eco-system, therefore the government should create awareness among the fishermen about the dangers of such fishing. NGOs could be used for giving awareness among the fishermen.
3. Lack of physical exercise due to mechanization creates health related problems and obesity among the fishermen, therefore fishermen must keep their body fit by maintaining their body properly. The government should arrange medical camp at the regular interval to educate the fishermen the importance of physical exercise and to provide proper guidance to maintain the health.
4. Staying more days in the sea continuously creates mental fatigue among fishermen because of this fishermen consume more alcohol and tobacco. The government should educate the fishermen about the dangers of these habits through proper counseling and guidance.
5. Lack of technical knowledge to operate and repair the GPS, fish finder, crafts while in fishing in deep sea endangers life of the fishermen, therefore the government should arrange training for the fishermen who operates these machines and devices by the technical experts from the particular field during the fishing ban period of 45 days and to provide toll free number to speak with technical experts to repair the devices while in deep sea like farmers toll free support.
6. The fishermen lack participation in the active politics. Politics gives power and authority to get their rights from the government. The government should take initiative to constitute reserved constituency in the assembly and the parliament for fishermen like forest tribe.
7. Long storage of fish during deep sea fishing reduces the quality and nutritious value of fish which affects the health of fish consuming community therefore the government should buy the fish in the sea itself and bring the same to the land for selling immediately, by this way, the quality as well as the nutritious value of fish will be maintained and save the fuel and maintenance expenses.

CONCLUSION

Mechanization brought changes causing structural shift, creating new employment and income generating opportunities and fishing. Fishing has become commercial venture which results in increasing GDP of India. In spite of all the changes, the mechanized fishermen from the district of Kanniyakumari are living very poor in technology, socio-cultural, politics, economic and marine eco system. Therefore, it is essential to look in to the problems of mechanized fishermen in Kanniyakumari district and to take necessary steps to enhance the mechanized fishermen to improve their livelihood.

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