Migrant labourers in the Primary Sector of Marine Fisheries: A Case study in Karnataka

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Migration is perceived as a way of life, a coping mechanism often providing a means of alternate livelihood to the human population ever since the dawn of civilisation. Migration is a worldwide phenomenon and perceived as the movement of people/ animals/ birds and insects from less endowed areas to greener pastures in search of better income, food, work or even more suitable socio-economic/geographic milieu. One of the popular forms of migration namely the economic migration has resulted from unequal development trajectories (McDowell and De Haan, 1997; Kothari, 2002). This supposedly led to one-way population movements from less endowed areas to well-endowed prosperous areas through the 'push' created by poverty and a lack of work and the 'pull' created by better wages in the destination (Lee, 1966). Theories of urban expansion were in agreement with this analysis of migration. Ideas of seasonal and circular labour migration were first articulated in the 1970s (Nelson, 1976; Rao, 1994) and defined as 'characteristically short term, repetitive or cyclical in nature, and adjusted to the annual agricultural cycle'. Migration occurs at a variety of scales. Intercontinental (between continents), intracontinental (between countries on a given continent), and inter regional (within countries). One of the most significant migration patterns has been rural to urban migration, the movement of people from the countryside to cities in search of opportunities. Migratory behaviour is of two types, outward migration and inward migration. Outward migration is defined as the movement of labourers outside their revenue villages to seek employment opportunities available elsewhere and inward migration is the movement of labourers in to the native villages from any other place, in search of any feasible work according to their capacity/ potential (Lekshmi *et.al,* 2011). The Indian Marine Fisheries Sector is no exception to this. This sector has been witnessing a steady inflow of migrants from less endowed regions to areas of more prosperity and greenery than the native lands. From the status of a subsistence economy using artisanal gears during the pre-independence era, it has attained a colossal status due to its gradual metamorphosis in to an industrial economy by virtue of the rapid technological innovations, changing consumption pattern and emerging market forces.

In India, Coastal Karnataka has been a witness to the steady influx of migrant labourers from two specific districts of Tamil Nadu namely Villupuram and Ramanathapuram. Villupuram district has primarily an agrarian economy with only 19 fishing villages (coastal length of 30 Km) and is having the second least number of fisher folk population (18,124) among the coastal districts of Tamil Nadu. 99.91% of these fisher families are BPL (Below Poverty line) families (Marine Fisheries Census, 2010, Tamil Nadu). Uneven rainfall, fragmented land holdings, heavy downpour in coastal areas than interior areas and occurrence of seasonal rivers are some of the drawbacks of this district. Poor wages of agricultural labourers, frequent droughts leading to crop failure and consequently leading to unemployment have compelled them to migrate to other places outside their native soil in search of better prospects. This case of outward migration wherein, the agricultural labourers from Villupuram district and both agricultural and fishermen from Ramanathapuram district of Tamil Nadu who have migrated to DK in search of employment in the fisheries sector of Karnataka was documented for the present study. The pattern of migration of agricultural labourers from Villupuram to DK can be termed as inter-sectoral migration (*ie*

from agrarian to fisheries) and from fisheries sector of Ramanathapuram to DK district can be termed as intra-sectoral migration (within the sector). However, a small percentage of inter-sectoral migration was observed in Ramanthapuram district since this district had a predominantly coastal economy with very few villages having farming. Inter-sectoral migration has probably many a rationale attributed, as is evinced by the following research studies.

(Deshingkar *et.al* 2008) observed that, in India, the growth in non-agricultural wages was higher than that of agricultural wages. The studies conducted by Tietze et al (2000) reveal that, contrary to the popular belief that fisher folk are the poorest group of the rural population in coastal areas, in five out of the six countries studied namely, India, Tanzania, Senegal, Bangladesh, Malaysia and the Philippines in spite of declining catches, the average annual household income of fisher folk households is significantly higher than that of households in neighbouring agricultural villages. The savings rate and the amounts saved were generally higher in fishing villages than in neighbouring agricultural villages. In most of the countries studied, finally, households in agricultural villages were as indebted as or more indebted than households in fishing villages. Overtime, the most frequently heard explanation for migration has been the so called "push-pull theory", which depicts that some people move because they are pushed out of their former location, whereas others move because they have been pulled or attracted to some place elsewhere. This concept was first given by Revenstoein in 1989 (cited by Rafique, 2003). According to him the living conditions are "push factors" and attractions of better living conditions are "pull factors". The migration from farming to fisheries sector causes labour displacement in the agrarian sector and on the other, it leads to labour gain in the fisheries sector. This steady inflow of migrants has taken place not only in the primary sector (sector that consists of the active fisher folk) but also in the secondary sector (harbour workers and processing sector). Improvements in technologies in the fisheries sector has led to unbridled capital investment in this sector and has attracted more and more people from the adjacent coastal transects who necessarily do not belong to the fishing community (Sathiadhas et al., 2009).

Ramanathapuram district has a coastal length of 260 Km and has the largest number of fishing villages (178) and largest number of fishermen families (41,048) among the coastal districts of Tamil Nadu. (Figure 5) This district incidentally has one of the largest number of families (33,429 families) under BPL (Marine Fisheries Census, 2010, Tamil Nadu). Ramanathapuram is predominantly a coastal district and its main economy is based on its rich and diverse coastal resources. Inboard "*Vallams*" (Herleser-14hp, 22hp, 24hp, 26hp, 28hp-double cylinder, 20-32 feet length and travelling 40-45 nautical miles) form 54.73% of the mechanised crafts in the district. There are 950 multi-day trawlers in DK district. With an average crew of eight per multi-day trawler, there are a total of 7,600 multi-day trawl labourers in this district. Out of this 70% of labourers are from Tamil Nadu, 20% from Andhra Pradesh and the rest 10% are from Karnataka. Hence it can be deduced that there are approximately 5,320 multi-day trawl labourers who have migrated from Tamil Nadu. Since the major chunk of the migrants were from Tamil Nadu this study was aimed to identify the factors for migration and the push and pull factors for migration in the primary sector. The migration from farming to fisheries sector causes labour displacement in the agrarian sector and on the other, it leads to labour gain in the fisheries sector.

Map of the study area

Methodology:

The migrants in the primary sector of the marine fisheries of DK were found to come from two important districts of Tamil Nadu namely Villupuram and Ramanathapuram. 50 migrants each from Villupuram and Ramanathapuram working in the Multi-day trawlers of Mangalore Fisheries Harbour were randomly selected to form a total sample size of 100 respondents for the study. A well-structured interview schedule was constructed keeping in view the diaspora of the migrants in mind namely those respondents from Villupuram where the main occupation was agriculture and the latter Ramanathapuram district, where the main occupation was fishing. Data was collected using freewheeling interviews and focus group discussions. Apart from 50 sample respondents from each category, 5 Key informants (KI) representing the local leaders of each district were interviewed to form a total of 10 key informants. The key informants were asked to enumerate the factors responsible for migration. They were further asked to name 50 migrants each from Villupuram and Ramanthapuram districts. The farmers identified through the KI of the respective districts of Villupuram and Ramanthapuram were also asked to list out the factors which had caused them to migrate from their native locations. Besides the Push factors and Pull factors in migration pertaining to these two districts were studied. The data collected was tabulated and analysed. The number of respondents who attributed a particular factor for migration was found out. The factors for migration were ranked using the Rank Based Quotient (RBQ) (Sabarathnam, 2002) This was calculated using the formula:

$$R.B.Q = \frac{\sum_{i=1}^{n} (Fi)\,(n+1) - i)}{(N_{*}n)} \times 100$$

Wherein Fi = Number of Key informants/ fishermen for the i^{th} rank of the factor for migration, i= i^{th} rank, N=Total no. of Key informants/ Fisherfolk and $n_{=}$no. of ranks/ factors.

Computation of the Spearman's Rank Correlation Coefficient (R)

In order to know the degree off association between the key informants and the fishermen in attributing the main factors for migration, the Spearman's rank correlation was worked out using the formula

$$R = \frac{1 - 6\sum di^2}{n^3 - n}$$

Where R is the Spearman's Rank Correlation Coefficient, n is the total number of factors for migration di^2 is the difference in the ranks between the Key informants and the fishermen for a particular factor (i). A significant value of R is indicative of a high degree of association for the factors for migration attributed by the key informants and the fishermen.

Results:

Preferential ranking technique was used for the present study in order to identify the factors for migration by the key informants as well as fishermen belonging to the respective districts from where they had migrated. Four main factors of migration were identified namely lack of employment, less wages in the agricultural sector, drought incidence and lack of own land for cultivation. Thus the reliability of the data was established.

The ranking for these factors were given by the key informants and the fishermen, which are presented in Table 1 and Table 2 respectively. A perusal of these tables revealed that the calculated R.B.Q values ranged from 45 to 90 in the case of key informants and 51 to 96 in the case of migrants for Villupuram district. In both cases of key informants and fishermen the highest value of R.B.Q corresponded to the factor namely, lack of employment in their native district. The Spearman's rank correlation was worked out to find out the degree of association between key informants and the fishermen in identifying the key factors for migration (Table 3). The rank correlation value worked out to be 0.80 which was highly

significant. In order to arrive at a single value of R.B.Q and preferential ranking, the mean R.B.Q Values were worked out and based on this preferential ranking for the factors was done. (Table 4) Accordingly, lack of employment followed by drought incidence, less wages in the agricultural sector and lack of own land for cultivation were ranked as first, second, third and fourth most important factors for migration. Villupuram has primarily an agrarian economy. The major crops grown in the district are paddy, maize, pearl millet, groundnut, cotton, gingerly, and sugarcane. For most part of the year, the district is ravaged by droughts and failing monsoons. This has led to displacement of thousands of agricultural labourers who depend on farming for a living. This has led to the migration of a substantial section of these labourers to neighbouring States like Karnataka in search of employment. Fewer wages in the agricultural sector was ranked as the third important factor for migration. The wages for men agricultural labourers was found to be Rs. 300/day and for women it was Rs. 100/day for 8 hours of work in a day. The agricultural season in Villupuram district is supposed to last only roughly around 250 days and unskilled workers have no alternative source of income in the remaining parts of the year. (Jacob, 2008) Lack of own land for initiating cultivation was ranked as the fourth important factor for migration.

Table 1: Ranking of factors for migration by key informants Villupuram District

Factors for migration (n=5)	Rank (I)	Rank (II)	Rank (III)	Rank (IV)	Rank Based Quotient (R.B.Q)
Lack of employment	3	2	-	-	90
Less wages in the agricultural sector	2	2	1	-	70
Drought incidence	2	3	-	-	75
Lack of own land for cultivation	-	-	4	1	45

Table 2: Ranking of factors for migration by Fishermen, Villupuram district

Factors for migration (n=50)	Rank (I)	Rank (II)	Rank (III)	Rank (IV)	Rank Based Quotient (R.B.Q)
Lack of employment	45	3	1	1	96
Less wages in the agricultural sector	2	44	2	2	51
Drought incidence	44	3	3	0	95
Lack of own land for cultivation	10	8	7	25	51.5

Table 3: Computation of Spearman's Rank Correlation Co-efficient

Sl.No	Factors for migration	RBQ values (KI)	Rank	RBQ values (Fishermen)	Rank	d	di^2
1.	Lack of employment	90	1	96	1	0	0
2.	Less wages in the agricultural sector	70	3	51	4	-1	1
3.	Drought incidence	75	2	95	2	0	0
4.	Lack of own land for cultivation	45	4	51.5	3	1	1
R=0.80							$\sum 2$

Table 4: Preferential Ranking based on mean value of R.B.Q

Sl.No	Factors for migration	RBQ values (KI)	RBQ values (Fishermen)	Mean R.B.Q	Preferential Ranking
1.	Lack of employment	90	96	93	I
2.	Less wages in the agricultural sector	70	51	60.5	III
3.	Drought incidence	75	95	85	II
4.	Lack of own land for cultivation	45	51.50	48.25	IV

The push and pull factors for migration are depicted in Fig.1 and Fig. 2. It could be observed that the push factors for migration were the same as the main factors for migration. Under pull factors, it could be observed that, sustained income from fisheries sector, higher wages in fisheries sector, ability to maintain families and ability to save for the families scored high among the migrants from Villupuram district.

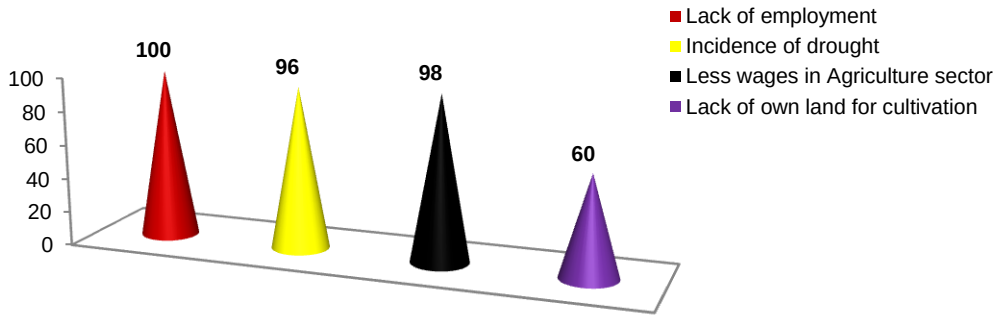

Fig 1. Push factors for migration (%) Villupuram district (n=50)

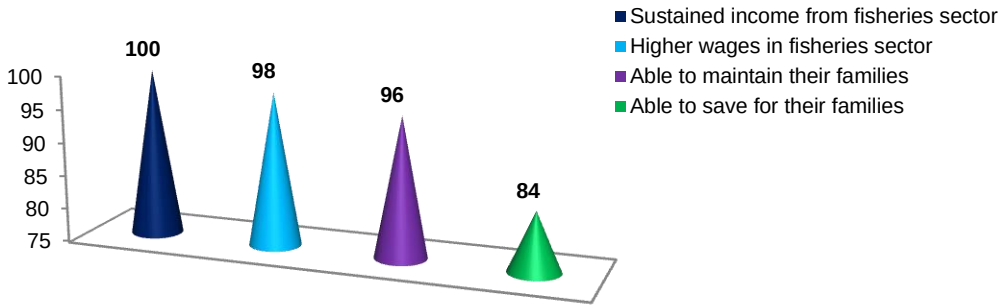

Fig 2. Pull factors for migration (%) Villupuram district (n=50)

The major factors for migration (Ramanthapuram district) as enumerated and ranked by the key informants and fishermen are presented in Table 5 and Table 6. A high degree of association between the key informants and fishermen with respect to ranking of the factors for migration was observed as indicated by the spearman's rank correlation coefficient value of 0.85 (Table 7)

The mean value of R.B.Q was worked out and the results presented in Table 8 revealed that, lack of employment was ranked as the foremost important factor for migration (Rank I) followed by relatively large family size of the migrants from Ramanathapuram (Rank II). Less income from the primary sector of

marine fisheries in Ramanathapuram district was ranked as third in order. Fewer wages in the agricultural sector of Ramanthapuram was ranked as fourth in order of importance. This district is predominantly a coastal district with agriculture being practiced in very few tracts. Agricultural production in these areas is very poor due to irregular rainfall distribution which in turn affected the cropping pattern, income, employment and standard of living of people. In this district, paddy is the main food crop cultivated in more than 63% of the net area sown. Here paddy is raised as a rainfed crop. Apart from this, coconut is the other main crop cultivated. Most of the cultivable lands are kept fallow due to scarcity of inputs and scanty rainfall and majority of the population were living under poverty condition. Majority of the farmers raised crops under rain fed condition, which resulted in economic loss and financial risks to farmers (Nandhini, *et.al*, 2006).

Results of primary data analysis revealed that, in this district, men agricultural labourers are paid Rs. 150-200/day and for women the wages were very less to the tune of Rs. 50-80/day. The push factors for migration are depicted in Fig. 3. All the respondents perceived less employment opportunities in their native district to be the major push factor. A problem caused by crossing the Indo-Srilankan maritime boundary was perceived by 98% of the migrants as yet another major push factor.

A perusal in to the geographical location of this region throws more light on this particular push factor for migration. The Palk Bay separates the coastal regions of Nagapattinam, Thanjavur, Pudukottai and Ramanathapuram from Jaffna and Mannar districts of Srilanka. The rich fishing grounds especially on the Sri Lankan side of the maritime boundary line became a bone of contention between Tamil Nadu fishermen and the Srilankan navy. Tamil Nadu fishermen were intimidated and harassed, their catch was dumped in to sea, some were detained and others fired at. (Suryanarayan, 2005) The Palk Strait is just 22 miles of water and separates the northern coast of Sri Lanka from the South east Coast of India. The International boundary line is close to the shores of both countries. The boundary line is only 6.9 nautical miles from Dhanushkodi and 11.5 nautical miles from Rameswaram.

The maritime agreements between India and Srilanka signed in 1976 which does not permit fishermen from India and Sri Lanka to fish outside their respective maritime boundaries have adversely affected the livelihoods of thousands of Indian fishermen especially from Ramanathapuram district. The Sri Lankan side of the maritime boundary is attractive to the Indian fishermen due to the easy availability and abundant supply of prawns. The ban on fishing imposed by the Srilankan Government has further enriched the marine resources on the Srilankan side. The Rameswaram fishermen say that the prawns in the Sri Lankan waters across the maritime boundaries exert a magnetic pull on them (Suryanarayan, 2005). All these attractions of marine resources lure the Indian fishermen to the Srilankan boundaries and these further results in Indian fishermen being caught by the Sri Lankan coast guard following which they are jailed or shot at. The migrant labourers from Ramanathapuram district quote this as one of the main push factors for migration. The migrants further say that fishery resources have become less in the inshore waters and for getting a good catch they have to fish beyond the Indo-Sri Lankan maritime boundary which itself poses a huge risk. Single Day trawlers are in operation in Ramanathapuram district and there is no multi-day trawl fishing here. The average monthly wages of a single day trawl fishermen in this district amounted to Rs.1191.50. On the other hand the average monthly wages of these migrants employed in a single day trawler and multi-day trawler were Rs.2500 and Rs.9500 respectively, in DK district of Karnataka (Fig. 8). The average monthly earnings from a inboard mechanised "*Vallam"* (the dominant craft in Ramanathapuram district (Fig. 6) was Rs. 702). High levels of unschooled population and fewer wages in the agricultural sector were perceived as the push factors by 98% of the respondents.

It is interesting to observe from figure 7 that among the coastal districts of Tamil Nadu, Ramanathapuram district has the highest number of unschooled population. A virtual lack of formal education leaves these people with very few choices other than migration in search of better prospects. The pull factors for migration (figure 4) as perceived by 98% of migrants were, more employment opportunities and higher wages in the fisheries sector of DK district. Higher wages in the fisheries sector, followed by ability to

maintain their families in native districts and ability to save for their families were other pull factors enumerated by 97, 96 and 92% of the migrants respectively. During the 45 days mechanised ban period in Karnataka *ie* from June 15th to August 3rd, they go back to their native districts where they undertake works in carpentry, masonry and farming. Once the ban period is over in Karnataka they return back in the month of August, to work in the boats.

Recommendations

From the forgoing study, it was deduced that there are approximately 5,320 multi-day trawl labourers (primary sector) in DK district who have migrated from Tamil Nadu. The contribution of the migrants to the marine economy of Karnataka is commendable. However, the living conditions of these migrants are deplorable. Almost all the migrants in the primary sector of multi-day trawl fisheries of DK in particular, work on board the fishing vessel, leaving their families in the native districts. They do not have either temporary/permanent shelters/houses in the place of work. They work, rest, eat and sleep on-board the fishing vessels. Only the Tamil migrants who work in the secondary sector (harbour work) have temporary shelters since they bring their families along with them. In such instances, the family labour is utilised in the secondary sector.

The problems encountered by the migrants are numerous and are often not effectively addressed by the government and policy makers. They do not have ration cards or identity cards at the place of work, suffer from lack of hygienic working conditions, long working hours, lack of insurance facilities in instances of physical injuries endured during work, inadequate wage structure and are not eligible for benefits of welfare programmes of the State Fisheries Department.

Social safety nets such as targeted poverty alleviation programmes for migrants, issue of temporary identity cards at place of work, provision of insurance policies and ensuring remunerative wage policy for migrant labourers will give an integrated, multidimensional and holistic approach to enhance their livelihoods and mitigate the negative effects of distress migration.

1. Better monitoring of the movement of migrants is warranted, since it forms a pre-requisite for understanding the issues faced by migrants.

2. The Marine Fisheries Census should undertake documentation of the extent of inward and outward migration taking place in the respective States. Questions on the origin of the migrants, their mobility patterns, period of stay, occupational experience as migrants in a particular State/District, and future migratory plans need to be collected.

3. The invisibility of fishers' mobility in policy decisions reflects that institutions developed to deal with coastal management at the community level may not have sufficient support from legal and policy documents, and may not be developed or equipped to handle the possible conflicts and difficult trade-offs that need to be addressed as a result of fishers' mobility. This happens in the light of migrant fishers from one State illegally encroaching upon the resources or territorial limits of another State.

4. Migration must be perceived in the context of socio-economic and ecological dynamics occurring in sending and receiving communities. The management of migratory flows therefore must target both origin and destination of migrants and should be linked to broader policies about poverty reduction.

5. Any policy decision needs to consider the trade-offs between both benefits and negative effects as perceived by members of communities hosting migrant fishers.

Table 5. Ranking of factors for migration by key informants, Ramanathapuram District

Sl.No (n=5)	Rank (I)	Rank (II)	Rank (III)	Rank (IV)	Rank Based Quotient (R.B.Q)
Lack of employment	4	1	-	-	95
Less income from primary sector of marine fisheries	3	2	-	-	90
Less wages in the agricultural sector	-	2	3	-	60
Relatively large family size	4	-	1	-	90

Table 6. Ranking of factors for migration by Fishermen Ramanathapuram District

Sl.No (n=50)	Rank (I)	Rank (II)	Rank (III)	Rank (IV)	Rank Based Quotient (R.B.Q)
Lack of employment	48	1	1	-	98
Less income from primary sector of marine fisheries	40	8	2	2	94
Less wages in the agricultural sector	5	40	5	0	75
Relatively large family size	47	3	0	0	98

Table 7. Computation of Spearman's Rank Correlation Co-efficient

Sl.No		RBQ values (KI)	Rank	RBQ values (Fishermen)	Rank	d	di^2
1.	Lack of employment	95	1	98	1.5	-0.5	0.25
2.	Less income from primary sector of marine fisheries	90	2.5	94	3	-0.5	0.25
3.	Less wages in the agricultural sector	60	4	75	4	0	0
4.	Relatively large family size	90	2.5	98	1.5	1	1
R=0.85							$\sum$ 1.5

Table 8. Preferential Ranking based on mean value of R.B.Q

Sl.No		RBQ values (KI)	RBQ values (Fishermen)	Mean R.B.Q	Preferential Ranking
1.	Lack of employment	95	98	96.5	I
2.	Less income from primary sector of marine fisheries	90	94	92.0	III
3.	Less wages in the agricultural sector	60	75	67.5	IV
4.	Relatively large family size	90	98	94.0	II

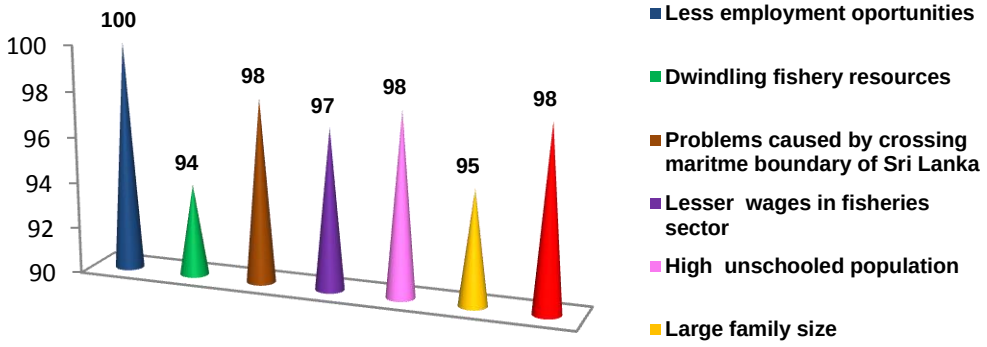

Fig 3. Push factors for migration (%) Ramanathapuram district (n=50)

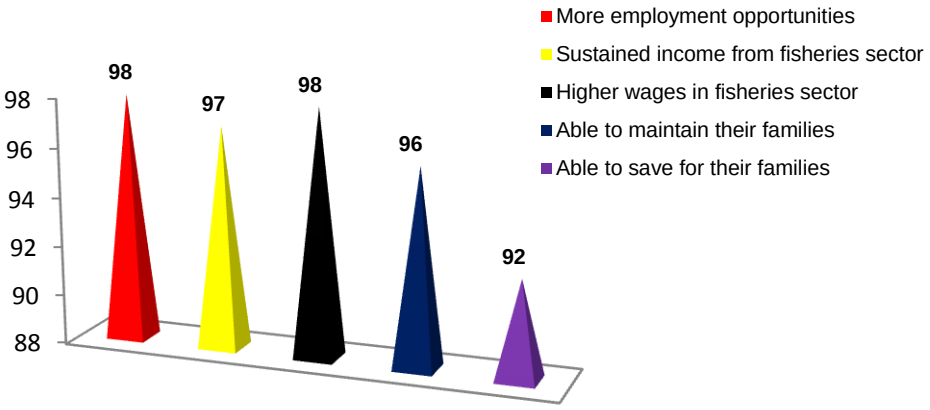

Fig. 4. Pull factors for migration (%) Ramanthapuram district (n=50)

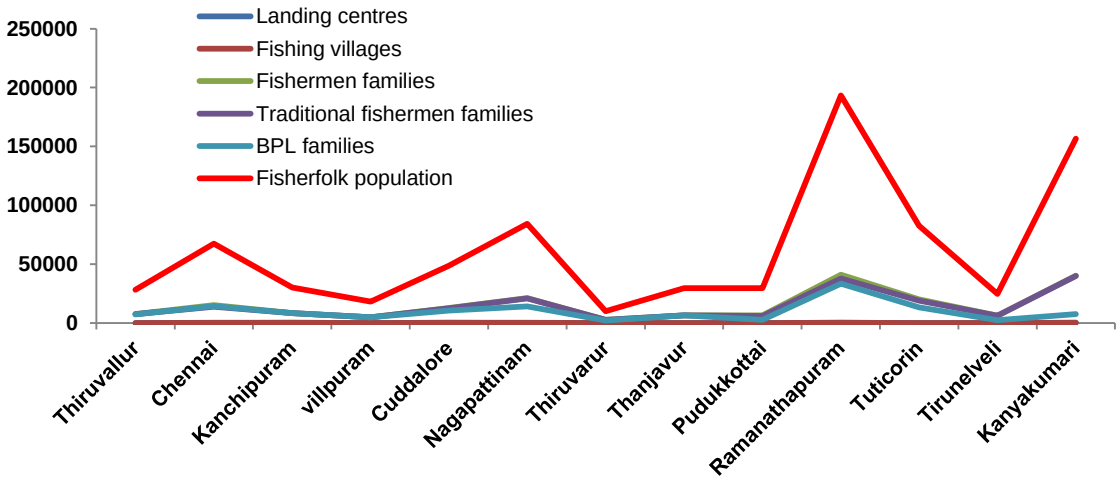

Fig. 5. District Profile, Tamil Nadu Source: Marine Fisheries Census, 2010

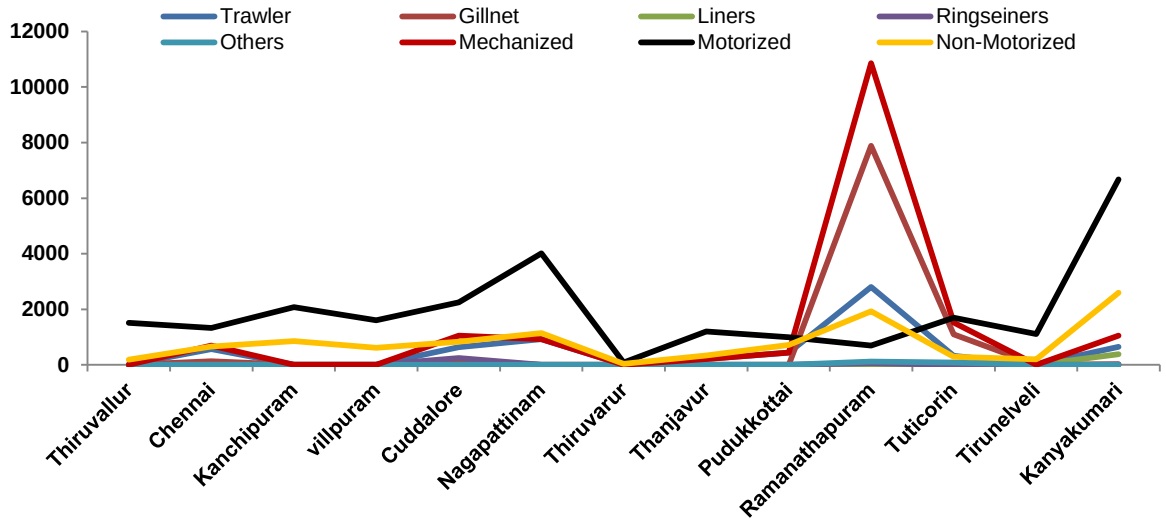

Fig. 6. Fishing Craft in the Fishery, Tamil Nadu. *Source: Marine Fisheries Census, 2010*

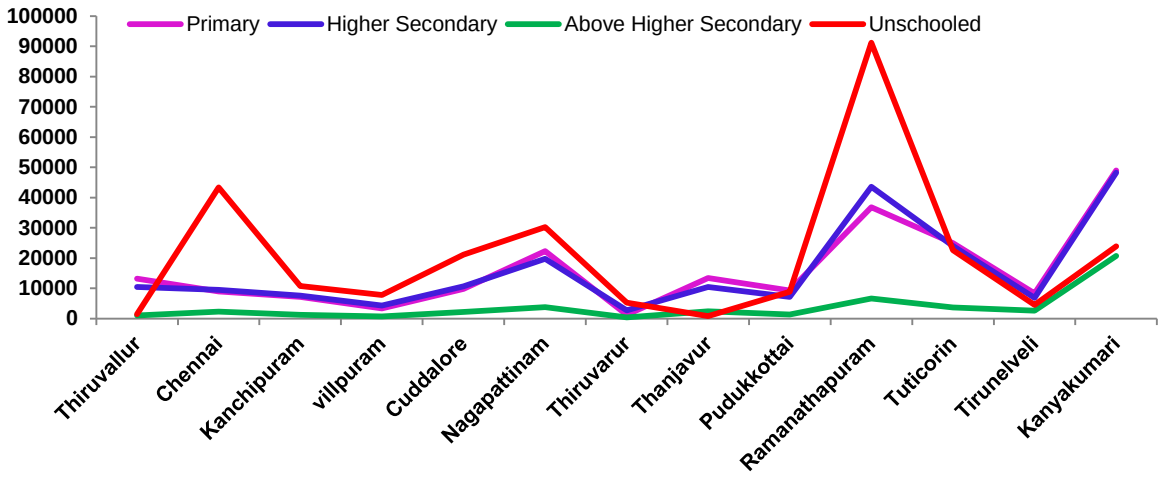

Fig. 7. Educational status of fisher folk, Tamil Nadu *Source: Marine Fisheries Census, 2010*

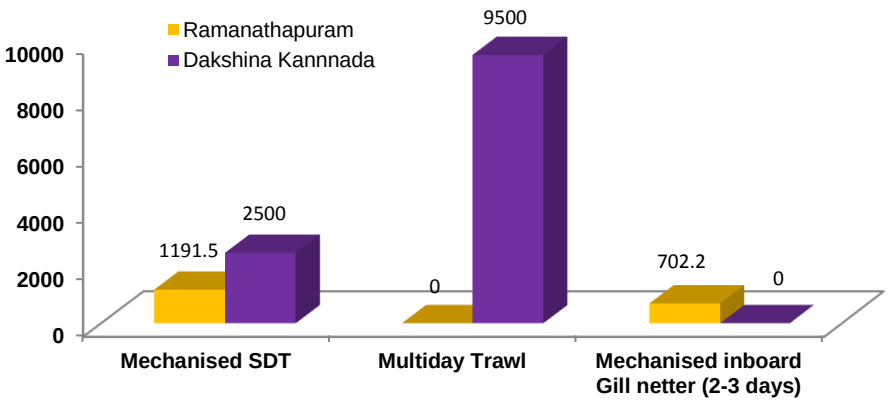

Fig. 8. Average monthly crew wages per fisherman (Rs.)

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