CENTRALLY SPONSORED SCHEMES ON MARINE FISHERIES AND ITS EFFECT ON DEVELOPMENT OF FISHERIES :

A STUDY ON MOTORIZATION OF TRADITIONAL CRAFTS AND HSD OIL SCHEMES

Sponsored by

Planning Commission
Government of India

S SURAPA RAJU




COUNCIL FOR SOCIAL DEVELOPMENT
HYDERABAD - 500 030

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Centrally Sponsored Schemes on Marine Fisheries and its Effect on Development of Fisheries : A Study on Motorization of Traditional Crafts and HSD Oil Schemes

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Socio-Economic Research Division
Planning Commission, Government of India
New Delhi

COUNCIL FOR SOCIAL DEVELOPMENT
Southern Regional Centre, Rajendranagar
HYDERABAD – 500 030
Telephone: 040 24016395, Fax: 040 24002714
Email: director@csdhyd.org
www.csdhyd.org

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S. Surapa Raju

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EXECUTIVE SUMMARY

The main objective of this present study is to know the impact of Centrally Sponsored Schemes on Marine Fisheries and its effect on development of Fisheries with special reference to motorization and HSD oil schemes.

Objectives of the study

The specific objectives framed for this study are: (i) To study the system, procedures and constraints faced by the implementing agencies as well as beneficiary households during the implementation of the schemes and suggestions to modify the same; (ii) To analyze the motorization and HSD oil schemes and its impact on catch and income; (iii) To work out the impact of the schemes on fish catch, income of the beneficiary households and improvement in their socio-economic status on account of introduction of the schemes; and (iv) To evaluate how far the schemes have been useful to the overall development of the fishing villages in general and quality of life of the fishing community in particular due to schemes.

Scope of the study

The ultimate goal of the study is to assess the impact of motorization and HSD oil schemes on catch and incomes of the fishing households' and also identifies further needs of the fishing communities. This study will give more recommendations for further development of fisheries sector by establishing processing plants and fishing inputs. This study will give us the real picture how for the motorization scheme and HSD oil schemes are reaching the poor and needy fishing households. The study will also give us how the schemes are benefited to the fishermen households and how the net income derived from the scheme is being utilized by the beneficiaries and find out the changes in their socio-economic conditions.

Sample Design and Methodology

Data was collected both from the primary as well as secondary sources. Primary data was collected from the beneficiary households by using the sample survey method. Nagapattinam district of Tamil Nadu and East Godavari district of Andhra Pradesh were selected for the study. In each sample district, two mandals / taluks namely Nagapattinam and Kilvelur from Nagapattinam district of Tamil Nadu and Kakinada and Uppada mandals from East Godavari district of Andhra Pradesh were selected on the basis of more number of units distributed. Each district, a total of 75 motorized craft beneficiaries and 25 non-beneficiary households, who are availed the motors and fishing with their traditional crafts, for motorized scheme and a total of 75 HSD oil schemes beneficiaries and 25 control group households were taken for HSD oil scheme. On the whole 300 beneficiary households of both the schemes and 100 control group households were selected for the study in both the states. To collect the information about the fishing units, socio-economic conditions of the households, a household schedule was prepared and administered on beneficiaries and non–beneficiaries. Information was also gathered from beneficiary households in the

selected villages through focus group discussions to get overall picture about the problems and prospects of motorization/HSD oil schemes. The costs and operational expenditure of the crafts are worked out for the fishing year 2010-11. Socio-economic conditions of the beneficiary and control group households are depicted at the time of the study.

Main Findings of the study

The major findings emerged out of the study are classified into two sections viz., (I) Main Findings on Motorization scheme and (II) Key findings on HSD oil scheme.

I. Main Findings on Motorization scheme

1. The beneficiaries informed that they obtained the scheme information mainly from two sources namely officials and non-officials. Eighty nine per cent of beneficiaries in Andhra Pradesh and 57 percent of beneficiaries in Tamil Nadu expressed that they got the information about the scheme from the officials. The beneficiaries mentioned that the fisheries department officials and community leaders have helped to get the scheme in both the sample districts.

2. Problems were elicited from the beneficiary households on getting the scheme through focus group discussions in the selected villages in both the sample states. The main problems are (i) influential people got the motors than the real poor households in Andhra Pradesh; (ii) they had incurred more expenditure for submitting the required documents along with the application such as photo, Xerox copies of license, bank account etc., and get more amounts for traveling charges for pursuing the status of application at the district fishery office. This was mentioned by the villagers at both the states;(iii) Since this scheme is linked to bank fiancé and most of the bankers are not willing to extend their credit facilities to the fishing households is a major problem in getting the scheme in Andhra Pradesh.

Impact of motorization on fishing operations

3. The beneficiary households of Andhra Pradesh and Tamil Nadu were invested Rs. 2.17 lakhs and Rs. 1.98 lakhs respectively on fixed capital investment. Altogether the beneficiary and non-beneficiary households invested an average of Rs. 2,07,645 and Rs, 1,61,068 respectively on fixed capital. The beneficiary households have spent more amounts on oil (44 %), which is the most important component in variable costs. Out of the total expenditure on variable cost of control group households' wages accounted for 70% of total operating cost.

Catch and incomes

4. Huge gap in value of catch was observed particularly between the beneficiary and control group households in both the states. Quality of fish catch of beneficiary households is more than the control group households. The beneficiary households in both the states have obtained more value for their kg of fish than the control group households as the motor helps them to go into deep sea and come back to

the shore quickly without spoil the catch fetches more price to their fish catch. Per kg rate difference between the beneficiary and control group households is Rs.13.0. The wide gap between the two categories in rate differential is mainly because of motorization scheme and this was expressed by most of the beneficiaries and community leaders in the focus group discussions.

5. The net income per year from the fishing unit was the highest of Rs. 74,525 for beneficiary households and the lowest (32,805) for control group households. The beneficiary households earned on an average Rs. 53.50 per kg. of fish catch by spending Rs. 40.12 (per kg) as total cost and got Rs. 13.40 as profit margin per kg of fish. Non beneficiary households with traditional craft got an average of Rs. 40.40 per kg of fish catch by spending Rs. 30.90 per kg as total cost and earned profit margin of Rs. 9.50 per kg of fish.

Motorization–Fishing days and Percentage of Profit

6. Beneficiary households have operated their crafts more number of days i.e 182 days than the control group households with 141 days. A positive relation observed between the fishing days and net incomes of the beneficiary households. It may be due to increase of more number of fishing days, leads to increase more attempts, which again leads to more value of catches and net incomes.

Distance covered and net incomes

7. The study revealed that most of the control group fishing households (58%) has covered only 16-20 km and 60% of the scheme beneficiaries have covered 45-61 Km distance for their fishing operations. Motorization helped the scheme beneficiary households to cover more area for fishing operations due to fitted motors to their crafts than the control group households. A positive relation is observed between the distance and profit of the craft. A positive trend seen in distance and per kg value of fish for beneficiary households.

8. A Matrix of Spearman's correlation coefficients was worked out for per kg value of fish with major variables such as total investment, number of fishing days , gear value, distance covered for fishing operations and expenditure on Ice/salt . The results showed that three variables such as number of fishing days, distance covered in the sea for fishing operations and gear value are significant in per kg value of fish catch.

Motorization and Spoilage of Fish Catches

9. Less spoilage of fish catch was observed for beneficiary households and more for control group households. The study showed that 1.9 and 3.2 per cent of total fish catches were discarded due to spoilage of fish by the beneficiary and control group households respectively in the study area. The value of the loss was

estimated and an average of Rs. 2,943 and Rs.4606 were incurred for beneficiary and control households respectively.

Financial viability of fishing units

10. The Internal Rate of Return (IRR) of Motorized sample units of East Godavari district and Sample units of Tamil Nadu and total sample motorized units are 68.5 cent, 70.88 per cent and 66.75 per cent respectively. The IRR for control group households of Andhra Tamil Nadu and total are 44.45, 10.75 and 25.78 respectively. This indicates that beneficiary household units are financially viable than the control group households.

Motorization and employment generation

11. The study pointed out that indirect employment opportunities have increased due to more catches and establishment of ancillary units like ice, workshops for engines, etc. It is also observed that more women got engaged in fish marketing activity, particularly in dry fish marketing. It is observed that the motorized craft can be employed 2503 persons in a year by producing 5561 kgs of fish. Traditional crafts generate employment to 1658 persons in a year. Due to motorization more employment opportunities have come up in the marine villages.

Socio-economic conditions

12. The age structure shows that the highest percentage (35%) of beneficiary households is in between 35-40 years old. In case of control group households 40 per cent are in the age group of 26-35. Most of the motorized scheme beneficiary households are married in both the states. Widowers are found as high in control group households than in the beneficiary households. It is found that beneficiary households are more Literates than the control group households. A majority (64%) of the control group households are illiterates. Among the literates most of them studied up to primary level in both beneficiary and non-beneficiary households. Very few scheme beneficiaries have studied up to high school level and no one studied high school in control group households. More illiterates are found in Andhra Pradesh than in Tamil Nadu State. Most of the beneficiary households have possessed more valuable assets than the control group households and the living standards of the beneficiary households are in better position than the control group households. Very poor standard of living observed in control group households in both the states.

Perceptions on usefulness of motorization

13. The study found that 88 percent of beneficiary households agreed that motorization has helped them in increase fishing area. Ninety three and 92 per cent of beneficiary households informed that motorization has facilitated in increasing fishing days and increase in incomes. On the whole, 83 per cent of

beneficiary households reported that due to motorization scheme their socio-economic conditions have been improved.

Field observations and SWOT

14. Delay in releasing the matching grant from the state government is a problem in grounding the schemes**.** States do not release their share in time, leading to uncertainty about the availability of funds at the field level.

15. The field notes revealed that district fisheries officials of Andhra Pradesh are not maintaining the list of beneficiaries by year wise and village wise properly. In Andhra Pradesh, even though the applicants have been selected through gram Sabha, the sarapanch plays key role in selection of beneficiaries. Few people, who have the influence in the villages were availed the schemes than the real poor people.

16. It is understood that motor aspirant should be in below poverty line. But it is very difficult to verify the poverty of the fisherman in marine villages. There is no uniform set procedure to verify whether an applicant is below poverty line or not, and therefore, different methodologies are adopted in the selected states. Sometimes, the applicants have to get such certificate from the local revenue officers. There is no proper verification of economic status of the fishing households in the marine villages. In Andhra Pradesh, the beneficiaries were identified as poor people on the basis of ration cards.

17. The SWOT analysis disclosed that motorization scheme has more strengths and opportunities than weaknesses and threats.

II. Key findings on HSD oil scheme

1. The study detected that Fisheries officials and community leaders have played a key role in dissemination of information on HSD oil scheme in both the states. Fifty seven percentage of beneficiaries expressed that they got the information from the fisheries officials about the scheme.

2. The study find out that nearly 81 percent of beneficiary households have been utilizing the scheme for the last 10 years and this may be because of no new craft owner has not been enrolled in recent years and to avail this facility.

Variable costs and profits earned from the fishing units

3. The beneficiary and non-beneficiary households have invested an average amount of Rs. Rs. 6.07 lakhs and Rs. 4.68 lakhs respectively on fixed capital. With regard to operational expenditure, beneficiary households have spent more money on oil (45 %), which is the most important component in variable costs. The control households have spend more percentage of amount on oil than the beneficiary

households may be due to (i) non availability of oil on subsidized rates; and (ii) due to increase in prices of the diesel rates. This leads to negative impact on their fishing operations such as they restricted their fishing operations only in peak season; restricted to less distance of fishing area. The study also observed that the control group households have spend more expenditure on oil may reduce the expenditure on ice/salt and as a result of less amount spent on ice may get spoil the fish catch.

4. The study noticed that the beneficiary households earned more profits (i.e Rs. 2,37,094) from their fishing units than the control group households (Rs.1,75,161) in the study area. This wide gap of incomes observed between the two is mainly because of two reasons (i) reducing their operational cost, and (ii) availability of oil on rebate encourage them to use more oil lead to more coverage fishing area and increasing their fishing days.

Oil usage and its Impact on Catch and Income

5. It is discovered that more quantity of oil used by the beneficiary households than the control group households. The analysis on oil usage and its impact on catch and incomes proved that a positive trend observed between the oil usage and quantity of fish catch, and oil usage and per kg value of fish catch. This indirectly implies that importance of oil usage in the fishing operations and it helps the beneficiary households to get more quality and value of fish catch.

Increase in fishing days and its impact on Incomes

6. Results of the study showed that due to rebate on HSD oil more percentage of beneficiary households in both the states have operated more number of fishing days than the control group households

Perceptions on HSD Oil scheme

7. The study observed that 85 per cent of the sample households have accessibility of bunk facility within a radius of 5 km. Twelve per cent of households have to go for bunk for 6-10 km distance and 2 per cent of them have to go 11+km. Eighty two per cent of beneficiary households have expressed that they obtained oil at the bunk whenever they visited.

8. Investigations of the study reveal that more percentage of beneficiaries of Andhra Pradesh and Tamil Nadu expressed that they have faced Heavy rush at bunk during peak season and peak hours as limited authorized bunks serves for more fishing households. The beneficiaries of Andhra Pradesh informed that the Bunk timings are not convenient for them. In most of the beneficiaries complied that the bunk supplied poor quality and less quality of oil.

9. Most of the beneficiaries opinioned that the HSD oil scheme has helped not only increasing their fishing operations but also helped in improvement in their socio-economic conditions. Ninety three per cent of total beneficiaries reported that their socio-economic conditions have been improved due to HSD oil scheme.

Socio-economic Conditions

10. It is noticed that more percentage of youth is seen in the control group than in beneficiary households as (i) No person was enrolled in recent years as the craft should be registered prior to 10th Five year Plan period. So the young people, who constructed their boats in recent years, are not eligible for getting the benefit from the scheme, and (ii) Supplied more motors by the government under motorization scheme and the non-governmental organizations supplied motors under tsunami rehabilitation programme to the youth. It is found that beneficiary households are more Literates than the control group households.

11. The study ascertained that the per capita the per capita income of the beneficiary and control group households are Rs. 38,303 and Rs. 27369 respectively. The beneficiary households live in pucca houses with electrified than the control group households. The beneficiary households have reported that they earned Rs. 54,202 after got the scheme and out of this income they have spent more on purchase of fishery related assets and for repaid their old debt.

Employment Generation

12. It is observed that due to increased catches from the mechanized and motorized fishing units has lead to generation of more employment opportunities in the marine villagers directly and indirectly. When comparing with the beneficiary and control group households, the scheme units provide more employment opportunities in the villages than the control group. On the whole, each fishing unit generates an additional employment to 1817 persons in the village.

SWOT Analysis

13. The major weaknesses in HSD oil scheme, as narrated by the beneficiaries are (i) poverty criteria in selection of beneficiary households as most of them possess more valuable assets; (ii) Mismatch of operational timings of the Bunks; (iii) more mechanized craft owners utilized this scheme in large scale than the motorized craft owners; and (iv) more expenditure incurred to get the Subsidy money. The SWOT analysis reveals that the scheme has more weaknesses which need to find out solutions for better implementation of the scheme for the development of the fishing households.

I. Recommendations on Motorization Scheme

1. Record maintenance and review of the scheme

As per the guidelines, the District Fisheries Officers should maintain a register with giving all the particulars of the beneficiaries for inspection of the superior officers on their visit to the office. But in practice, the departments have not properly maintained the lists of beneficiaries by year wise, district wise. Hence, strict instructions need to be issued to the implementing agency for maintaining separate register and it should be uniform for all the marine districts. There is a need to review the scheme by the fisheries departmental officers at frequent intervals and submit the same to the Commissioner of Fisheries.

2. Preparation of Traditional households list and priority to first registered households

More influential persons availed the scheme in Andhra Pradesh than in Tamil Nadu. There is a need to avoid the interference of influential persons at the grassroots level in the implementation of motorized scheme by conducting a foolproof survey in each and every village once in two years. This Survey should be based on date and year wise registration of the craft and economic status of the fishing households. The prepared list should be sent to district collector and to commissioner of fisheries to avoid the malpractice at the village level at the time of grounding the scheme. Suppose 5 units has to be distributed in a village, top ten first registered households in that particularly village drawn from the list will be given first priority in selection of households.

3. Minimize expenditure for getting the scheme by opening "guidance cell" at local fishery office

It seems that most of the applicants have to go for application forms to district fishery offices for getting application forms, submitting and to get the status of submitted applications etc and this involves expenditure. Due to illiteracy and ignorance most of them submitted applications without fulfilling the norms and it makes them to visit more number of times to the district offices and this can be avoided by opining guidance cell at local Fisheries Development Office (FDO). This will not only to reduce the cost of travel and loss of fishing days but also avoiding the role of middlemen at some extent.

4. Uniformity in implementation of the scheme

In Tamil Nadu state, after getting the beneficiaries contribution the subsidy amount has released directly to the authorized company for supply of motors. But in case of Andhra Pradesh, the scheme is linked to bank finance and most of the bankers have not shown interest in financing fishing community due to poor recovery rates of the

fishing community. The state governments have to extending help to the poor fishing households by providing margin money though state government agencies Andhra Pradesh Backward Classes Co-Operative Financial Limited by avoiding the banks' interference.

5. Orientation on oil saving techniques

The beneficiary households have spent more amounts on oil, which is the most important component in variable costs. To reduce variable costs and to make the activity more viable, the department may conduct more training camps on "oil saving" techniques to the fishing households. To avoid the unnecessary trips, the government should encourage the fishermen to use the fish finders in their fishing operations. Fish finders will facilitate the fishery households to cut their expenditure on fuel and get more catches.

6. Use of insulated containers and use of adequate ice to preserve the fish

Even though less spoilage of fish catch was observed for beneficiary households than the control group households, the estimated amount of loss was worked out around Rs. 3.000/- and this may be due to illiteracy and ignorance of the fishing households in using of ice boxes. So there is a need to create more awareness camps among the fishing households on proper utilization of ice boxes with adequate icing to get more money for their catch by reducing less spoilage.

7. Frequent repairs for motors

Due to more usage of motors in salty waters may get repairs. In some sample villages the beneficiaries have to go far off places, particularly for major repairs such as boring to their engines. It involves more expenditure on transportation and loss of fishing days. So the government should give encouragement to the local I.T.I holders to open more workshops and spare parts shops in the marine villages.

II. Recommendations on HSD oil Scheme

1. Need to identify the Real poor

The owners of the Mechanized and motorized fishing boats should be in BPL category, which is a non-implementable condition since the Mechanized and motorized boat owners do not come under the BPL category. Getting the poverty certificate from the concerned officials is a major problem for the fishing households. This observation is mainly observed in Tamil Nadu than in Andhra Pradesh. In the state of Andhra Pradesh, the fisheries officials treated the households with white card are below poverty people and they are eligible to get the benefit from the scheme. But in Tamil Nadu they have to approach the concerned officials to get the

poverty certificate. Uniform procedure has to be taken up to identify the poor fishermen households by the government in all the states.

2. Preference should be given to the motorized craft owners

Due to overfishing in near shore areas most of the motorized craft owners have to go long distances to catch fish. Due to rising oil costs most of them kept their boats at landing centre and it become a problem for their livelihoods. So encourage the motorized craft owners by enrolling them in more number than the mechanized craft owners.

3. Increase more number of outlets (Bunks) and frequent checks by the officials

At present most of the beneficiaries have faced Heavy rush at bunk during peak season and peak hours as limited authorized bunks catering more number of fishing households. To avoid this problem increase more number of outlets in the marine villages by operating the bunk round the clock. There is a need to check the quality and quantity oil supply by the concerned officials and make a note on their visits and submitted to the concerned district collectors.

4. Encourage the young entrepreneurs to establish bio-diesel plants from fish waste

Since oil is a key component in determining the profits of the craft owners and ever increasing oil prices is a major problem for the fishing households in the marine villages. So there is a need to produce bio-diesel by utilizing the abundance accessible of fish waste available at their villages. While establishing plants, encourage the young entrepreneurs by giving subsidies.

Undoubtedly both motorization and HSD oil schemes have benefited to the fishing households by improved the fish catches, incomes and living conditions. Large employment opportunities generated particularly for women in the marine villages due to getting more fish catches as the crafts increase the area of fishing operations and number of fishing days. Despite the fact that, the schemes have few negative impacts on fisheries and fishing households like overfishing and in some extent of polluting environment, there is a need to continue the schemes for some more time for poor fishing households as most of the near shore fisheries have already exploited and distance fishing is only alternative for their livelihoods. Distance fishing requires motorized craft and fuel for operating the craft as most of the poor households are not able to invest huge money to acquire the motor and for daily operational expenditure like oil. In future, there is a need to develop alternative energies like bio-diesel oil in marine districts by utilizing the locally available abundance of fish waste and this will help the fishing households to get the diesel with fewer prices in their future fishing operations.

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Chapter – I Introduction

Article 38 of the Constitution mentions that, State ***to secure a social order for the promotion of welfare of the people.*** *(1) The State shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which justice, social, economic and political, shall inform all the institutions of the national life. (2) The State shall, in particular, strive to minimize the inequalities in income, and endeavour to eliminate inequalities in status, facilities and opportunities, not only amongst individuals but also amongst groups of people residing in different areas or engaged in different vocations*". It is clear, therefore, that it is important for the national government to make policies to minimize inequalities not only amongst individuals or groups of people living in States but also amongst these people residing in different areas of the country (B.K. Chaturvedi: 2011, p. 2).

Generally, the state governments receive the funds from the centre in two ways: (i) Central Assistance to state's plan schemes, and (ii) centrally sponsored schemes (CSS). The Centrally Sponsored Schemes carry substantial amounts of grants transferred from the Government of India (GOI) to states to influence expenditure in areas that are Constitutional responsibilities of states and addressing national objectives of critical importance. Centrally Sponsored Schemes can be classified into four categories. They are: (i) Individual beneficiary oriented, (ii) Infrastructure Oriented, (iii) Issue specific, and (iv) end to end sector wide. The Schemes targeting specific target individuals/families or specific target populations like BPL, minority groups etc are termed as individual beneficiary oriented schemes. Some of the schemes under this group are: Schemes under National Social Assistance Programme, Indira Gandhi National Old Age Pension (IGNOAP); National Family Benefit Scheme (NFBS); Indira Gandhi National Widow Pension Scheme (IGNWPS); Indira Gandhi National Disabled Pension Scheme (IGNDPS), Motorization of traditional craft scheme, Rebate on High speed diesel oil, etc. The schemes that are focused on developing infrastructure can be termed as infrastructure oriented schemes. Some of the schemes under this category are: The Command Area Development Program of Major and Medium Irrigation, Economic Importance implemented by the Public Works Department, The Hospitals and Dispensaries Scheme and Development of Institutions of the AYUSH

Department, etc. The schemes designed and implemented to tackle certain issues of importance can be termed as specific issues response schemes. Some of the schemes under this category are: National Programme for Control of Blindness, National Anti Malaria Programme (Urban), etc. The end-to-end schemes focusing on the entire sector development and systems strengthening can be termed as sector wide schemes. Some of the schemes under this category are: the Rajiv Gandhi Grameen Vidyuthikaran Yojana (RGGVY); Jawaharlal Nehru National Urban Renewal Mission (JNNURM); The National Horticulture Mission.

Objectives of the Centrally Sponsored Schemes

The main objectives of these schemes are (i) to generate employment, (ii) increase the incomes, and (iii) reduce poverty & the income inequality among the various sections of people. This scheme is being operated by various Central Ministries based on scheme specific guidelines and are implemented by State Governments. The Central assistance to State Plans has two components, viz. normal Central Assistance that is based on modified Gadgil Formula; and Additional Central Assistance that consists of Assistance for Externally Aided Projects and Assistance for Special Programmes based on specific criteria and guidelines. Until the Fourth Five Year Plan, Central Assistance to States for implementation of plan programmes within the States' jurisdiction was given in the form of scheme-wise allocation of funds resulting in rigidities and inefficiencies in the system and inequitable distribution of Central Assistance. The quantum of such assistance depended on the financial position and requirements of both Centre and the States. It was only from the Fourth Plan onwards that a separate classification of schemes as CSS was introduced. These schemes had a national character, and dealt with areas/concerns like family planning, agricultural workers, research and training etc. Since then the number of schemes covered under the Centrally Sponsored category has multiplied.

Table 1.1: Centrally Sponsored Schemes			
Year	Centrally Sponsored Schemes		
	No.	Budget Estimates (Rs. Crores)	Central Assistance to State Plans (Rs. Crores)
2002-03	188	31,389	44,344
2003-04	213	32,141	49,814
2004-05	207	38,312	51,766
2005-06	204	55,924	34,901
2006-07	155	71,996	45,518
2007-08	99	81,620	61,614
2008-09	133	1,01,824	77,075
2009-10	138	1,37,137	84,490
2010-11	139	1,57,051	96,412*
2011-12	147	1,80,389	1,06,026#

* Revised Estimates # Budget Estimates

Source: B.K. Chaturvedi (2011): Report of the Committee on Restructuring of Centrally Sponsored Schemes (CSS), New Delhi, September, pp.18

It is quite clear that the process of zero-based budgeting has not succeeded in limiting the number of schemes. As new areas are taken up, additional schemes are approved. There is clearly a need to consider and restrict this. The total no. of CSS has been increasing over a period of years in successive Plans. Following Table indicates the position:

Table 1.2 : Plan-wise total number of schemes and allocated amount (Rs. Crores)						
Plan	Gross Budgetary Support (GBS)	No. of schemes	CSS	% of CSS to GBS	Central Assistance to States and UTs	% of Central Assistance to GBS
Ninth Plan* (1997–2002)	3,16,286	360	99,001.68	31.30	1,38,394	43.75
Tenth Plan* (2002–07)	594,649.00	155	229,763.14	38.64	2,03,117.00	34.15
Eleventh Plan (2007–12)	15,88,273.24	147	660,506.00	41.59	3,97,418.93	25.02

* At Constant Prices.

Source: B.K. Chaturvedi (2011): Report of the Committee on Restructuring of Centrally Sponsored Schemes (CSS), New Delhi, September, pp.19.

It is clear that while the number of schemes has reduced in recent years the share of CSS in the GBS has gone up progressively in the last few Plans, particularly in the Eleventh Plan. During the National Council Meetings almost all the Chief Ministers expressed their views (Annexure-1) on Centrally Sponsored Schemes (CSS). Many sectors and many sections of people have been benefited under Centrally Sponsored Schemes (CSS). Among many sectors Fisheries sector is one. The next Para deals with the importance of fisheries sector and its role in the Indian economy.

Fishing Sector in Indian economy

India has achieved significant progress in the development of the fisheries sector. With a total fish production of 7.13 million tonnes in 2008-09, India contributes 4.7 per cent towards the global production of 151.70 million tonnes. While production from Inland sector is 4.22 million tonnes, the production from the Marine sector stands at 2.91 million tonnes. The country stands third in the world in total fish production and second in inland aquaculture. Annual fish production reached a level of 7.13 million tonnes in 2008-09. The fisheries sector has registered an average annual growth rate of around 4 per cent during the last five years. As mentioned earlier, as many as 14.48 million persons in the country depend on fisheries sector for their livelihood. The sector contributes around 1 per cent to the GDP and 4.72 per cent to Agriculture GDP. Fish and fish products account for approximately Rs. 8200 crores towards country's exports which constitute 18 per cent of the national agriculture exports (Department of Animal Husbandry, Dairying and Fisheries: Government of India, 2009). It provides secure employment to 14.48 Million people in India in fishing and allied activities. In particular, fish is considered as a good food for heart patients. The demand for fish has increased in recent years for various reasons. One is that red meat can cause health problems. This aspect has improved awareness levels of the people on importance of fish consumption in the upkeep of for health. In recent times, Global demand for marine fish is increasing because many countries have come to realize that red meat causes health problems. At the same time, fish stocks in some areas have become unfit for human consumption due to increasing pollution of rivers and estuaries. The demand for fish also has been increasing as the health conscious people prefer to buy more fish than meat because of the low cholesterol levels. The World Health Organization (WHO) recommended the consumption of 40 to 50 kg of fish per annum per head. But at present the per capita consumption per annum is around 4.1 kg.

Marine Fishery Resources

India with a coastline of 8118 KM and an Exclusive Economic Zone (EEZ) of 2.02 million Sq.KM has a tremendous potential for marine sector growth (state wise Marine resources given in Appendix 1.1). Nearly 3.52 million fishing community members belonging to 756 21 households live in 3202 marine villages of India (Bay of Bengal News-September 2006). The average family size of fishermen households in India is 4.7. Fisheries sector in India is broadly categorized into capture and culture. Capture fisheries is intended for catching

fishes, prawns, lobsters, crabs, molluscs etc. The exploited area up to a depth of 60 Mts, hardly covers five per cent of the country's Exclusively Economic Zone (EEZ). The potential area is from the entire Exclusively Economic Zone (EEZ) is placed at nearby 44.5 lakh tones; of which 60 M depth zone's share is 22 lakh tones. The 60 - 200 M depth can yield 17 lakh tones and the oceanic waters beyond 200 M about 5 lake tones. The depth zone 60 - 200 M, practically unexploited is rich in perches, ribbon fishes, etc. Over 90 % of the marine fishery resources are concentrated in about 10 % water above the continental shelf area. Generally in the sea, there is much greater stock of smaller fish than larger fish and the small fish have tendency to live in water closer to the shore.

Structural changes in the fishing fleet:

There have been significant structural changes in the fishing fleet over the last few decades. Wide varieties of fishing gears and practices ranging from small-scale artisanal to advance mechanized systems are used for fish capture. Over the years, traditional fishing gears have been upgraded and more efficient fishing systems have been introduced. Most important among these fish harvesting systems are trawls, seines, lines, gillnets and entangling nets and traps. Among the most significant developments which affected the historical evolution of fishing gear and practices are (i) developments in craft technology and mechanization of propulsion, gear and catch handling, (ii) introduction of synthetic gear materials, (iii) developments in acoustic fish detection and satellite-based remote sensing techniques, (iv) advances in electronic navigation and position fixing equipment, and (v) awareness of the need for responsible fishing to ensure sustainability of the resources, protection of the biodiversity and environmental safety and energy efficiency. This finding gave a major fillip in commercial shrimp trawling in India and increasing demand for shrimps for the processing industry caused rapid development of the other trawling in Indian waters. This was soon followed by various technological developments including offshore expansion in the area of operation.

Fishing *gears and crafts*

Marine fishing fleet in India consists of (i) non-mechanized (artisanal) sector using country craft and traditional gears; (ii) motorized sector using traditional craft with outboard Motors (OBMs) (9.9-120 hp) and, more recently, inboard engines (IBM) (89-156 hp); (iii) mechanized sector (8.5-16.7 m LOA; 89-156 hp; and (iv) deep sea fishing sector

(>16.7m LOA; 156 hp and above). According to CMFRI (2006), there were about 2,40,000 fishing vessels in the sector, of which nearly 60,000 were large mechanized vessels (about 25%), 76,000 were smaller motorized (about 31 per cent), and the rest smaller non-motorized (about 44 per cent). This means that 75 per cent of the vessels are fishing largely in inshore waters. The non-motorized crafts are still the dominant fishing boats in the Indian waters although their contribution to overall landings is much less (The world Bank : 2010).

Table 1.3 : Fishing crafts, coastal states and union territories in India according to 2005 Marine Fishery Census

State/Union Territory	Mechanized Vessels	Motorized traditional boats	Non-motorized traditional boats	Total marine boats
Andhra Pradesh	2541	14112	24386	41039
Goa	1087	932	532	2551
Gujarat	13047	7376	3729	24152
Karnataka	4373	3705	7577	15665
Kerala	5504	14151	9522	29177
Maharashtra	13053	3382	7073	23508
Orissa	3577	4719	15444	23740
Tamil Nadu	7711	22478	24231	54420
West Bengal	6829	1776	10041	18646
A&N islands	230	160	1180	1570
Daman and Diu	562	654	211	1427
Lakshadweep	478	306	594	1378
Puducherry	627	2306	1524	4457
Total	59619	76057	106044	241720

Source: CMFRI (2005), Government of India quoted from The World Bank Report on India Marine Fisheries (2010), Table 3: p. 21

The largest number of mechanized boats is in Gujarat and Maharashtra, while Tamil Nadu tops the list of motorized boats with over 22000 boats. The largest number of non-motorized is in Andhra Pradesh and Tamil Nadu (over 24000 each). According to the provisional figures provided by Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture for National Marine Fisheries Census 2010, the number of fishing craft has come down to a total of 175381 fishing crafts comprising of 44206 mechanized vessels and 82642 motorized vessels and the remaining 48533 non-motorized vessels. As reported in 2005, in 2010 also traditional crafts and motorized crafts are concentrated more in east coast (69% and 56%) whereas the mechanized crafts are more along the west coast (58%) (CSO Report: 2011:p.17)[1].

[1] CSO Report (2011):" Manual on Fishery Statistics" CSO-MFS-2011, Ministry of Statistics and Programme Implementation, Central Statistics Office, www.mospi.gov.in

Variations in fishing crafts from 2005 to 2010 in Andhra Pradesh and Tamil Nadu

There is a wide difference seen in the various crafts between the Marine Craft Census 2005 and 2010. In Tamil Nadu more number of mechanized and motorized crafts have been increased and in Andhra Pradesh only mechanized crafts have increased. A decreased trend observed in Non-motorized crafts both in Tamil Nadu and Andhra Pradesh.

Table 1.4 : Variations in fishing crafts from 2005 to 2010 in Andhra Pradesh and Tamil Nadu

States	Type of Craft	2005 Census	2010 Census	Difference
Tamil Nadu	Mechanized	7711	10692	+2981
	Motorized	22478	24942	+2464
	Non-Motorized	24231	10436	-13795
	Total	54420	46070	-8350
Andhra Pradesh	Mechanized	2541	3167	+626
	Motorized	14112	10737	-3375
	Non-Motorized	24386	17837	-6549
	Total	41039	31741	-9298

Fish production from 1991-92 to 2010-11

As per the fisheries statistics, the marine fish production is 29.78 lakh tones during the year 2008-09, out of this about 90% of fish catch is coming from the traditional and Mechanized sector from the coastal waters which is sometimes reported as over fished area whereas the area of deep-sea beyond 24 nautical miles is under exploited so far.

Table 1.5 : Fish Production in India from 1991-92 to 2010-11 in India			
Year	Production (in lakh tonnes)		
	Marine	Inland	Total
1991-92	24.47	17.10	41.57
1992-93	25.76	17.89	43.65
1993-94	26.49	19.95	46.44
1994-95	26.92	20.97	47.89
1995-96	27.07	22.42	49.49
1996-97	29.67	23.81	53.48
1997-98	29.50	24.38	53.88
1998-99	26.96	26.02	52.98
1999-00	28.52	28.23	56.75
2000-01	28.11	28.45	56.56
2001-02	28.30	31.26	59.56
2002-03	29.90	32.10	62.00
2003-04	29.41	34.58	63.99
2004-05	27.78	35.26	63.04
2005-06	28.16	37.55	65.71
2006-07	30.24	38.45	68.69
2007-08	29.29	42.07	71.26
2008-09	29.78	46.38	76.16
2009-10(p)	26.89	48.62	78.51
2010-11(p)	32.20	50.68	82.88

Source: Planning commission (2012): Report of the working group on Development and Management of Fisheries and Aquaculture, XIIth Five Year Plan (2012-2017), p.31.

Export Potential of Marine Products

There has been steady growth in the export of fish Products. During 2009-10 the country exported 6.64 lakh tonnes of marine products, which resulted in export earnings of 9921.46 crores. Efforts are being made to boost the export potential through diversification of products for export. The country has now started exports of frozen squid, cuttle fish and variety of other fin-fishes.

Export trend of marine products

During 2009-10 for the first time in the history of Marine product exports, the export earnings have crossed 2 billion US dollars and Rs.10,000 crores mark. Export has crossed all previous records in quantity, rupee value and US $ terms. Exports aggregated to 678436 tonnes valued at Rs. 10048.53 crores and US $ 2132.84 million. Compared to the previous year, this recorded a growth of 12.54% in quantity, 16.74% in rupee earning and 11.75% growth in US $ earnings as shown below.

Table 1.6 : Export Trend of Marine Products from 2002-03 to 2009-10				
Year	**Particulars**	**Export**	**Variation**	**(%)**
2002-03	Quantity (MT)	467297	42827	10.09
	Value Rs. Crores	6881.31	924.26	15.52
	$: US Dollar in Million	1424.90	171.55	13.69
2003-04	Quantity(MT)	412017	-55280	-11.83
	Value Rs. Crores	6091.95	-789.36	-11.47
	$: US Dollar in Million	1330.76	-94.14	-6.61
2004-05	Quantity(MT)	461329	49312	11.97
	Value Rs. Crores	6646.69	554.74	9.11
	$: US Dollar in Million	1478.48	147.71	11.10
2005-06	Quantity(MT)	512164	50835	11.02
	Value Rs. Crores	7245.30	598.61	9.05
	$: US Dollar in Million	1644.21	165.74	11.21
2006-07	Quantity(MT)	612641	100478	19.62
	Value Rs. Crores	8363.53	1118.23	15.43
	$: US Dollar in Million	1852.93	208.72	12.69
2007-08	Quantity(MT)	541701	-70941	-11.58
	Value Rs. Crores	7620.92	-742.61	-8.88
	$: US Dollar in Million	1899.09	46.16	2.49
2008-09	Quantity(MT)	602835	61135	11.29
	Value Rs. Crores	8607.94	987.02	12.95
	$: US Dollar in Million	1908.63	9.53	0.50
2009-10	Quantity(MT)	678436	75601	12.54
	Value Rs. Crore	10048.53	1440.59	16.74
	$: US Dollar in Million	2132.84	224.21	11.75

Source: Marine Products Exports Development Agency (MPEDA)

Table 1.7 : Percentage of Growth Exports from 2008-09 to 2009-10			
Export details	**2009-10**	**2008-09**	**Growth %**
Quantity Tonnes	678436	602835	12.54
Value Rs. crores	10048.53	8607.94	16.74

Source: Marine Products Exports Development Agency (MPEDA)

Need to exploit the untapped marine resources

When compare to exports of the marine products from 2008-09 to 2009-10, there is 12.5 and 16.7 percent growth of quantity and value of exports has noticed. Huge foreign exchange earnings have been received from the fishing sector. However, the country has not fully exploited the marine resources and there is a need to exploit the resource in a sustainable manner. To achieve this, huge amounts are to be required for infrastructure

facilities and for productive assets such as crafts and gears. Due to poor conditions, the fishing households are not able to invest the money on these aspects.

Need for Government schemes to fishing households

To acquire technological inputs (out board engines) or to upgrade existing Engines credit is required. Inequalities in income distribution, uncertainty of earnings from fishing, poor economic conditions, indebtedness etc is preventing poor fishermen from adoption of these cost effective technologies. The capital investment on boat fitted with Out board engine is very high and it is beyond the reach of common fishermen to procure it without getting financial help from institutional agencies or private money lenders. In this background, there is a need to extend credit to these fishermen, who have inborn skills in fishing and unable to investment on fishing equipment like crafts and nets. So the government of India has been implemented many schemes for the development of the fishing communities and to increase the fish production.

Objectives of the Centrally Sponsored Schemes and physical achievement

Considering the importance of the development of marine sector and to improve the fish production and income from the fishing units thereby to improve the socio-economic conditions of the fishing households, the government of India has been implementing many centrally sponsored schemes in the fishing sector. The main objectives of these schemes are to development of the fishing industry as a whole in sustainable manner and to improve the socio-economic conditions of the fishing households by increasing their catch and incomes. These schemes are broadly classified into (i) schemes for development of fishing sector, and (ii) schemes for improving the living conditions of the fishing households. The central government has taken up schemes to development of marine fisheries sector. This scheme includes eight components: (i) motorization of traditional crafts; (ii) fishermen development rebate on HSD oil; (iii) Introduction of intermediate crafts of improved design; (iv) promoting resource; (v) safety of fishermen at sea; (vi) promoting resources specific deep sea fishing vessels; (vii) promoting fuel efficient and environment friendly fishing practices and (viii) management of marine fisheries. As against a target of 5,000 crafts to be motorized during the 11^{th} plan, until the end of the fourth year of the plan, 4908 crafts were motorized. The achievement of the fishermen development rebate on HSD oil was only 12.27 per cent.

Table 1.8 : Physical achievement of various components during the Eleventh plan period			
Components	Unit	Achievements during the first four years of the plan period	Physical targets for the entire plan
Motorization of traditional crafts	No.	4908(98.16)	5,000
Fishermen development rebate on HSD oil	kL	40,993(12.27)	3,34,000
Introduction of intermediate crafts of improved design;	No.	88(106%)	83
Promoting fuel efficient and environment friendly fishing practices	No.	3(6%)	50
Safety of fishermen at sea	No.	1154(256%)	450
Promoting resources specific deep sea fishing vessels;		-	5,000
Management of marine fisheries	-	-	-

***Source**: Report of the Working Group on Development and Management of Fisheries and Aquaculture, XII th Five Year Plan (2012-2017), p. 52.*

Need for the study

It is necessary to know what extent these schemes have been in a position to achieve its objectives by taking up a study. These studies will not only to help in identify the problems/short comings in implementing these schemes, but will also to help the policy makers and implementing agencies to introduce the necessary interventions to enhance the efficiency of the programme. Hence, the Council for Social Development, Hyderabad has taken up this study with the financial assistance of the Planning Commission, Government of India, New Delhi. The main objective of this present study is to know the impact of Centrally Sponsored Schemes on Marine Fisheries and its effect on development of Fisheries with special reference to motorization and HSD oil schemes. However, very few studies were conducted in this aspect and some of these studies have taken up for review of literature, which has précised in the next chapter.

Since there were no studies directly related to the Impact of Centrally Sponsored Schemes and its impact on marine fishing households, it is proposed to collect the review of literature on (i) studies on Centrally Sponsored schemes of various sectors and its impact on beneficiary households, (ii) studies related to bank finance and fishing households, (iii) Production related aspects of the small-scale fishing units, and (iv) studies related to socio-economic conditions of the small-scale fishing households. The survey of literature is helpful to cover the untouched aspects relating to fishermen community as well as fishing industry.

I. Studies on Centrally Sponsored Schemes and subsidies

Aswathy. N and Shyam. S. Salim (2012)[1] paper emphases the Subsidies to the fishing sector and its impact on trade and environment. Even though WTO member countries have been negotiating to clarify and improve the agreement on subsidies and countervailing measures, there has been little progress made in formulating an international regime for the regulation of fisheries subsidies. There are several issues which require clarifications and improvements like special and differential treatment for low income resource poor countries, bilateral fishing access agreements, migratory and straddling fish stocks, IUU fishing etc. There is an urgent need to regulate fisheries subsidies due to the negative impact that subsidies have on trade, environment and sustainable development.

Planning Evaluation Organization (2009)[2] study examines whether CSSs have generated the desired benefits, including specification of reasons for their tardy implementation, short-comings in implementation and steps required to tone up their implementation, including their monitoring, to achieve the desired results. The study aims at evaluating the impact assessment of the five Centrally Sponsored Schemes, viz.

[1] Aswathy. N and Shyam. S. Salim (2012), "Subsidies in Indian fisheries-Methodological issues and implications for the future" edited *Shyam S. Salim and R.Narayanakumar, Manual on World Trade Agreements and Indian Fisheries Paradigms: A Policy Outlook* , Central Marine Fisheries Research Institute, Kochi.

[2] Planning Evaluation Organization (2009), "Micro Analysis of Selected Centrally Sponsored Schemes in Jammu & Kashmir" conducted through Population Research Centre Department of Economics University of Kashmir Srinagar, February, 2009 pp.1-307.

(1) Employment Assurance Scheme (EAS)/Sampoorna Gram Rozgar Yojana (SGRY), (2) Indira Awaas Yojana (IAY), (3) Swaranjayanti Gram Swarozgar Yojana (SGSY), (4) Integrated Child Development Scheme (ICDS), and (5) National Old Age Pension Scheme (NOAPS) in the State of Jammu & Kashmir. The study observed that EAS/SGRY could neither provide 100 days generated employment nor sustained earnings each year to the beneficiaries. Consequently, the scheme has not been in a position to decrease the seasonal out-migration of laborers to other parts of the country during winter. Thus, it can be said that the scheme has not been in a position to achieve its objective of improving the economic status of the beneficiaries to the desired extent. With regard to the ICDS the system of maintaining of records at district ICDS offices was found to be very poor. The information was not readily available and survey team had to face a lot of problems in collecting information from these offices. Though AWCs were maintaining information on a number of registers, but information pertaining to the attendance of the children and immunization was found to be grossly inaccurate in all the AWCs visited by the team. For example, some of the AWCs had marked all the children present on the day of our visit, despite the fact that only a few were present. Hence, there is ample scope to improve the record keeping at all levels. Reporting formats need to be simplified and workers be given adequate stationery to maintain records. The study observed that under the National Old Age Pension (NOAP) scheme, all the beneficiaries expressed satisfaction with the implementation of the scheme. In general, the scheme has succeeded in giving them a sense of social and economic security and has improved their quality of life.

Latif Adam and Esta Lestari (2008)[3] examined the decision of the government to eliminate the fuel subsidy (and increase the price of fuel) from 2000. It also measured to what extent such a decision has affected the level of people's welfare in 2005. Using regression analysis, the paper indicated that the decision of the government to increase the price of oil, together with several other variables, correlates negatively with the level of people's welfare. The study also revealed how people respond to the increase in the price of oil. Fishermen in Central Java who once used diesel fuel adjusted to the increase in the price of oil by changing the composition of their fuel. They use a mixture of kerosene and diesel fuel instead of straight diesel fuel so the fuel costs are lower. According to them, it is more

[3] Latif Adam and Esta Lestari (2008), Ten Years of Reforms: The Impacts of an Increase in the Price of Oil on Welfare, *Journal of Indonesian Social Sciences and Humanities,* Vol. 1, 2008, pp. 121–139, URL: http://www.kitlv-journals.nl/index.php/jissh/index

economical to use a mixture of kerosene and diesel. Therefore, fishermen in Central Java modify their engines to make them suitable for mixed fuel. In Bengkulu, the study did not find fishermen who made similar adjustment to those made by fishermen in Central Java. In Bengkulu, fishermen used unadulterated diesel as the main fuel for their boat. Therefore, they had to buy fuel at current prices. This, in turn, forced them to buy less fuel because their income did not increase. Moreover, because they used less fuel, their available fishing areas became smaller over time and consequently the size of their catch decreased. The study also revealed that the increase in the price of oil is not the only variable in influencing fishermen's welfare. In fact, some fishermen interviewed mentioned that the increase in the price of oil could be accepted were their income to increase to compensate for the increase in the cost of oil. Unfortunately, the market price for fish has not been improving and this prevents incomes increasing in the fishing industry. Illegal practices and market failure because of imperfections in the market structure, strongly influence the welfare of fishermen. Collusion among traders at fish markets lowers the real price for fish. Fishermen must sell their fish as soon as possible because fish is a highly perishable commodity; its sale cannot be delayed and sellers must accept the price that is offered. Based on these findings, it is recommended that the government should be careful in responding to the current conditions in the oil market where the world oil price fluctuates and has increased sharply. Instead of increasing the domestic fuel price, there are several actions that the government can take to respond to the increasing world oil price. Among them are implementing a cross-subsidy policy to redistribute income from higher to lower income groups, making comprehensive plans to increase and achieve lifting oil target, and intensifying efforts to diversify sources of energy.

N.C. Saxena (2007)[4] paper discusses the evolving profile of poverty in India and reviews the national performance of selected anti-poverty programmes between 1997-1998 and 2005. For each programme, it outlines the budgetary allocation principle used for the States and districts and analyzes budgetary performance over the period. The main objective is to explore the extent to which the anti-poverty programmes are reaching their target groups effectively. The IRDP/SGSY appears suffers from numerous defects including sub-critical investment levels; non-viable projects; lack of technological and institutional capabilities in designing and executing projects utilizing local resources and expertise; illiterate and

[4] N.C. Saxena (2007), "Rural poverty reduction through centrally sponsored schemes", *Indian Journal of Medical Research*, October, pp 381-389.

unskilled beneficiaries with no experience in managing an enterprise; indifferent delivery of credit by banks (high transaction cost, complex procedure, corruption, onetime credit, poor recovery); overcrowding of lending in certain projects such as dairy; poor targeting with a high proportion of the non-poor included; absence of linkage between different components of the SGSY; rising indebtedness; poor access to markets, and the capacity of government and banks to implement the SGSY being outstripped by the increase in its scale7. A disturbing feature of the SGSY in several States has been the rising indebtedness of its beneficiaries. Finally, it identifies the specific factors responsible for under-performance and provides a set of recommendations for policy makers and programme implementers, who could help improve the outcomes of the schemes.

The World Bank (2005 p.34)[5] conducted a study on Financial Accountability Systems in Centrally Sponsored Schemes with the approval of the Department of Economic Affairs. The study was carried out through a process of review and analysis of publicly available material, reports and field visits covering certain Bank funded projects in three states which included the Tuberculosis Control Project (TB), Women and Child Development Project (WCD) and the Reproductive and Child Health Project (RCH) and discussions with various stakeholders both at the state and ministries involved in the implementation of the CSS. The report mentioned that Transfer of funds from States to District Blocks. Once funds are transferred to states, these need to be transferred to the district / blocks. Since CSS are implemented by the states the approval processes in the state plays an important role in funds flowing to the lower level implementing units. It has been found that these processes vary from state to state. One of the reasons for lower pace of utilization of funds is the rather cumbersome system of providing approvals. In the states/ project visited, it was observed that almost every proposal mooted by a project management required approval not only by the secretary of the concerned department, but often also by the concerned Minister. This is one of the main reasons for delay in the implementation of projects. While GOI has no control over this aspect under the treasury model, it is marginally better under the society model where some level of financial delegation have been provided to the project directors in some states.

[5] The world Bank Report (2005), *India Policy Note on Public Financial Management and accountability in Centrally Sponsored Schemes (CSS)*, pp. 1-74.

Salagrama (2004)[6] provides an overview of changes in subsidies and their impacts upon the fisheries sector in India. While some of the direct subsidies into the sector – for instance, those going to the export and processing sectors, have remained largely intact, the study also identifies some important areas where there have been changes to the existing subsidy regimes (both explicit and implicit), which have implications for the sector at large. Some of these include: Removal or reduction of subsidies. This included reducing subsidies on petroleum products (for e.g., HSD oil and Kerosene used for running fishing boats) and on electricity (with implications on the cost of chilling and processing activities). The cost of HSD increased from Rs. 11.43 per litre in 1998 to Rs. 32.83 in April 2005 in Mumbai, an increase of nearly300 percent (http://petroleum.nic.in/petstat.pdf). Records of a diesel outlet at the Kakinada fishing harbour show that HSD was being sold at Rs. 3.77 per litre in 1989, which has gone up to Rs. 33.33 in February 2006 – an increase of nine times in fifteen years (AFCCS, internal records). As a result, the cost of fishing operations increased manifold and its impact is best illustrated in Southern Indian state of Tamil Nadu, where a majority of boats provided under various post-tsunami rehabilitation programmes remained on shore for months because of the high cost of operations (Salagrama, 2006). The Government does provide an exemption on sales tax for HSD oil used by mechanized boats, but it barely keeps pace with the cost of operations and is not really a very meaningful way to use scarce resources.

II. Studies related to Bank Finance and fishing households

O.A. Adeokun et.al (2006)[7] study find out that 71.7 percent of the fishermen still used unmotorised hand operated canoes which they considered laborious and derived low income from fishing activities. The results also revealed that, most of the fishermen were aware of the extension agencies in their villages but not all the innovations disseminated were adopted. The use of outboard engine and preservation equipment like ice box, cold storage and refrigerator could not be adopted due to high cost (72.5%), lack of social infrastructural facilities like electricity (67.0%), lack of capital (72.5%) and lack of government incentives (60%). There was significant difference between the reasons for not adopting innovation

[6] Salagrama (2004), *Sustainability Impact Assessment of Proposed WTO Negotiations: Case Study of India*, Integrated Coastal Management, India.

[7] O.A. Adeokun et.al (2006), "Factors Influencing Adoption of Fisheries Innovations by Artisanal Fishermen in Coastal Areas of Ogun State, Nigeria", *Journal of Applied Sciences Research*, 2(11): 966-971.

and the constraints faced by the fishermen in the fishing operations. Based on these findings, it was recommended that fishermen should be linked with credit institutions particularly the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) for credit facility and essential basic infrastructure like accessible road and electricity be provided in rural fishing villages.

Saiehuddin Ahmed (1992)[8] paper examines the impact of new technology on the traditional fishing communities of coastal areas of Bangladesh based on case studies of two marine fishing villages - one village exposed to new technology and the other not. This allows us to analyze 'before' and 'after' situations of a village with respect to technology and also for a comparative analysis between two villages, Altogether 189 sample households have been covered. It is observed that access to new technologies has been very limited by the vast majority of fishermen. Policies and programmes to ensure access of the fishermen to water bodies, credit, boats, fishing gears and market facilities should be taken up and implemented through proper organizational set-up with beneficiaries' participation.

According to **Annamalai, et.al (1990)**[9], the rate of return on investment of small, medium and large crafts was 11.02 per cent, 18.06 per cent and 30.05 per cent for large size craft, small craft and medium crafts respectively. Sathiadhas and Panikar (1989) study deals with the economics of trawlers of different sizes operating at Tuticorin harbour in Tamil Nadu State. The capital output ratio and rate of returns to capital were better for smaller crafts. In another study carried out by Sathiadhas (1989) in Tamil Nadu State revealed that the rate of return to capital was found to be 70 per cent for 'Thalmmudi' units, 85 per cent for 'non-mechanized sail crafts' and 16 for 'mechanized sail crafts' operating with gillnets. When the fishing is free and accessible to all the fishermen, this result not only decreasing the stock of fish but also the productivity per boat is decline (Rao: 2002).

NABARD (1989)[10] in its ex-post evaluation study of four schemes, sanctioned by the Agricultural Refinance Development Corporation (ARDC) for financing the purchase of

[8] Saiehuddin Ahmed (1992), "Impact Of New Technology On Traditional Fishing Communities In Bangladesh" Paper presented at the 3rd Common Property Conference of the International Association for the Study of Common Property, Washington D.C., September 17-20, 1992.

[9] Annamalai, V et.al (1990), "Economics of Motorized Traditional Craft", *Fishery Technology*, Vol. 27, No.1, pp. 5-12.

[10] NABARD (1989), Marine Fisheries in Coastal Gujarat and Maharashtra : An Export Evaluation Study, Economic Analysis and Publication, NABARD, Bombay.

mechanized crafts in Gujarat during the years 1980-81 and 1983-84 found that all the borrowers were eligible to receive subsidy from the state Government. The average amount of subsidy received by the borrower was Rs. 21,388 and it formed nearly 11 per cent of the actual investment cost. The release of subsidy was generally effected after 6 to 12 months of disbursement of loan resulting not only in an additional interest burden of about Rs.1,700 on borrowers, but also requiring them to raise the entire margin money contribution of about Rs.0.46 lakh initially.

According to the **Planning and Evaluation Organisation (1981)**[11], in all the sample villages the institutional finance was available for the purchase of mechanized crafts and trawlers. The loans from the financial institutions for the purchase of mechanized crafts covered only 38 per cent of the cost of craft. The financial institutions had not played any role in the financing of mechanized crafts particularly in Visakhapatnam. The craft owners, therefore, had to raise finance from private source to the extent of 32 per cent of the cost of the craft besides mobilizing their own resources, which formed about 17 per cent of the average cost of the mechanized craft.

Chandra Prakash (1976)[12] studied on "Under My Mechanised Craft Scheme" to fishing households in Karnataka State. The Government started providing subsidy to acquire mechanized crafts from the year 1962-63. Till 1965-66, the subsidy used to be 50 per cent of the cost of the cheapest engine. Under **"My Mechanized Craft Scheme"**, fishermen were trained at the training centres and were allotted the subsidized crafts. Under this scheme 71 crafts were distributed to the fishermen. Under the loan-cum-subsidy scheme, trained fishermen were provided with 106 crafts only with diesel engines. Under the Agricultural Refinance Corporation (ARC Scheme), 240 crafts were distributed. South Kanara District Fish Marketing Federation had financed mechanized crafts in the district through ARC and SBM Schemes of Financing (State Bank of Mysore). Under the ARC Scheme, introduced in the year 1968-69, 4 to 5 fishermen were made partners for each craft and they were trained by the training centres before giving the possession of the crafts. Under the ARC Scheme, 240 mechanized crafts were financed and the funds were utilised for the purpose

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[11] Planning Evaluation Organization (1981), Evaluation Report on the Fishing Harbour Projects (March 1979 - April 1980), New Delhi.

[12] Prakash, R. Chandra (1976), Marine Fishery Industry of South Kanara, Institute of Development Studies, University of Mysore, Mysore.

of - (i) craft building and service station, (ii) craft financing, (iii) purchase of special vehicles to transport fish, e.g. refrigerated trucks, (iv) purchase of cold storage and canning machinery. As many as 1200 fishermen got benefited under the scheme. The State Bank of Mysore introduced two schemes for fishermen. The first scheme was implemented in the year 1969-70 and covered 93 crafts. The Second scheme was implemented in 1973 and covered 13 crafts. Under the scheme, the Federation acted as a guarantor for the performance of these 106 crafts. The bank had channelized the funds through the Federation. The rate of interest charged by the State Bank of Mysore was 9 1/4 per cent for its first scheme and 15 per cent for its second scheme. The balance of 25 per cent of the value of the craft was met by the Government by way of subsidy. Five leading Commercial Banks of the district namely Syndicate Bank, State Bank of Mysore, Vijaya Bank Ltd., Karnataka Bank Ltd., and Canara Bank financed 601 mechanized crafts worth Rs.244.49 lakhs. The Syndicate Bank is the lead bank of the district and lent Rs.107.84 lakhs for 334 crafts. Out of the 864 mechanized crafts in the district in 1975, as many as 601 were financed by five banks only.

III. Production related aspects of fishing units

A quite number of studies on craft technology and production were undertaken by various researchers of different universities and institutions across the globe. However, few selected studies were taken up for review.

Surapa Raju (2010)[13] assessed the impact of motorization of traditional crafts on marine fishing households in Andhra Pradesh. This study was sponsored by National Bank for Agriculture and Rural Development (NABARD). Multistage sampling method was used for selection of sample households. East Godavari belonging to north coastal and Nellore belonging to south coastal districts are proposed for this study. Beneficiary and control group households invested an average amount of Rs. 1.92 lakhs and Rs. 0.80 lakhs, respectively, on fixed capital. More value of prawn and fish catch was obtained to the scheme beneficiary households than the control households. Huge gap in value of catch was observed, particularly the motorized (scheme households) and traditional craft (control group) households. It indicates that the technology plays an important role in value of catch.

[13] Surapa Raju. S (2010), Motorization of Traditional Fishing Crafts and its Economic Impact - A Study of Bank Sponsored Units in Andhra Pradesh, Research study conducted by *Council for Social Development, Hyderabad.*

More quantity of prawns obtained to the scheme beneficiaries of East Godavari district than the beneficiaries of Nellore district. The net income per year was the highest for beneficiary households, i.e. Rs. 36,598 and the lowest observed was Rs. 12,635 for control households. The value of catch and per kg value of fish catches decrease when distance increases and this may be due to not carrying appropriate nets to catch particular variety of fish available in that particular fishing area and also not carry adequate ice in long distance travel. Undoubtedly more coverage of distance in fishing fetches more quantity of fish with less quality of fish. The per-capita income of the beneficiary households is the highest at Rs.8430 per year and the lowest observed was in case of control group households. The per capita income of the traditional craft owned households is low due to the large family size and lower household income. Before the scheme, most of the beneficiary households were in below poverty line and motorization scheme has pushed them above the poverty line. Thus, the scheme has succeeded in enhancing the income levels of the households.

Unal. V and R. Franquesa (2010)[14] focused on status of small-scale fishermen and fishing operations, using socio-economic indicators and economic viability estimates in six selected fishing areas of Turkey during the 2002–2003 fishing season. Fifty-six percent of all small-scale fishing boats investigated achieved a positive net profit, fully recovering their operational and investment costs. Considering the viability of the fishery, 56% can be considered as economically viable. Percentages of negative gross cash flow (GCF) for each of the vessels in the district was 56% in Foça, 57% in Karaburun, 15% in Mordoğan, 16% in Akyaka, 65% in Akçapınar, and 44% in Marmaris. On the other hand, when sustainability is defined with more than an economic performance ratio of 10%, only 41% of the small-scale fishing vessels seem to have shown favourable results. Criteria such as comparatively higher catch, smaller crew size and lower labour costs, structure of the fishery or misreporting might have had a slight role in affecting the overall results which indicate that livelihood and economic viability are threatened by irregular and relatively low income levels in the small-scale fisheries sector. Given the economic conditions of small-scale fishing communities, it is suggested that all persons concerned at the community, industry and government levels should take a fresh look at the problem of sustainability. As such, more attention needs to be paid to the fishery management option by looking at performance data and having long-term monitoring of the socio-economic indicators.

[14] Unal. V and R .Franquesa (2010), "Technical note: A comparative study on socio-economic indicators and viability in small scale fisheries of six districts along the Turkish coast", *Journal of Applied Ichthyology,* 26, pp 26-34.

Emmanuel, Babatunde Eniola (2010)[15] investigated fishing canoes was carried out in 25 villages of Nigeria The study analyzed the characteristics of fishing crafts and preservation techniques used in Lekki between March, 2006 and February, 2008. The fishing crafts in the lagoon were mainly the monohull (single hull) wooden dugout canoes, planked canoes and the planked dugout or half dugout canoes. The dugout canoes were carved out from a log of red iron wood (*Lophira alata*) which predetermines its size with length overall (LOA) which ranged between 3.10 and 6.76 m, the maximum breadth (moulded) ranged between 0.71 and 1.00m. The LOA of half dugout canoes ranged between 5.33 and 10.20 m, the maximum breadth (moulded) ranged between 0.86 and 1.49m and the depth moulded ranged between 0.42 and 0.77 m. The planked canoe had flat bottom hull completely built with planks fixed together with frames, u-shaped metal fasteners and nailing a strip of preservative used in the lagoon was by painting with bitumen, coating the back hull with cement and bitumen with ground pepper, although there has not been any scientific backing for the use of pepper against bio-fouling attack, the fisher folks guaranteed its success.

Sathiadhas. R (2009)[16] analyzed sectoral growth of fishing units and their capital investment over the years, change in ownership pattern of means of production, earnings, sectoral disparity, and inequity among marine fisher folk in India. Base material for the analysis includes primary data collected from selected centers of maritime states in India and secondary data on marine fisheries census of CMFRI and other relevant publications. There has been sizeable growth of 70% in the mechanized fishing units and about 200% growth in motorized sector that are technically efficient (over the last 12 years until 2005). However, there has been a downtrend of 43% in the non-mechanized units (traditional sector) denoting a gradual phasing out of less efficient units. The improved socio-economic status of fishers is reflected by increase in literacy level, reduction in dropouts, and improvement in housing type. The proportion of owner operators in marine fisheries declined over the years with the increasing capital requirement for possessing motorized and mechanized fishing units. The fishermen involved in active fishing is more than the absorbing capacity of the fisheries sector leading to disguised unemployment and has led to lower per capita production, increased pressure on fishing, which results in juvenile catch, large level

[15] Emmanuel, Babatunde Eniola (2010), Fishing crafts characteristics and preservation techniques in Lekki lagoon, Nigeria, *Journal of American Science,* 6(1) Marsland Press, pp.105-110

[16] Sathiadhas, R (2009), Inter-sectoral Disparity and Marginalization in Marine Fisheries in India, *Asian Fisheries Science,* 22, pp 773-786 Asian Fisheries Society, Selangor, Malaysia Available online at www.asianfisheriessociety.org

discards, and thus ultimately causing serious threats to resource sustainability and environmental stability. The non-mechanized sector is providing about 33% of the employment in active fishing, yet harvesting hardly 7% of the annual landings, whereas mechanized segment that employs 34% harvests 70% of total catch creating wide inter-sectoral income disparity. The annual per capita catch of fisher folk in mechanized segment is more than twice as those of the per capita catch of the motorized segment and nine times of the per capita catch of the no mechanized (traditional sector) segment clearly signifying growing inter-sectoral disparity in distribution of economic gains. Average annual per capita earnings of fishing laborer range from Rs.13,200 for a motorized *dingi* with bagnet to Rs. 1,27,200 for a mechanized purse seiner. Significant variation is also observed even within groups of crafts namely trawlers, gillnetters, purseseiners, motorized, and traditional crafts. The analysis indicate that there is high incidence of poverty in the coastal rural sector explicitly revealing that majority of these people still could not get much of the benefits of the economic development taken place in our country.

Adeogun,O.A et.al (2009)[17] study described on economic viability of small-scale marine capture fisheries in the Bonny area, Rivers State, Nigeria. A multi-stage sampling technique was used in selecting the study locations and respondents. Eight communities, namely: Fakpa, Sodieyenkiri, Oruma, Elem-Ifoko, Ferupakama, Oyorokoto, Oke-Eri, and Amariari were purposively selected according to the intensity of fishing operations in the area. Fifteen fishers were randomly selected from each community for interview. The study considered only 119 inshore and offshore fishers in eight communities in the Bonny area. The study findings revealed that high engine capacity does not automatically translate into large profits. Motorized plank canoes of 15 HP prove to be the best performers of the capacity groups sampled. This finding was supported by research obtained in France, which shows that the most profitable fishing boats are small-scale coastal fishing units. Other motorized capacity groups were also viable in terms of return on investment with the exception of the plank canoe 31-40 HP category. In spite of this, investment decisions for this capacity group need to be carefully considered, since the estimated earnings seem to be unsatisfactory *vis-à-vis* the required total investment. In the case of non-motorized capacity group, all craft showed positive return; however, plank canoes were the most viable and profitable.

[17] Adeogun,O.A, P.O. Abohweyere, H.K. Ogunbadejo, Alhaji Tanko,L. Jim-Saiki (2009), Thalassorama Economic Viability of Small-scale Marine Capture Fisheries in the Bonny Area, Rivers State, Nigeria, *Marine Resource Economics*, Volume 24, pp. 195-203.

Furthermore, the effect of loans on the ROI should be included when the performance efficiency of this vessel capacity group is examined in future studies. In addition to the impact of fuel prices, an external contributor to the rise in variable costs could have also caused profits to plunge. Although the identification of the factors influencing operational efficiency of fisheries could be established from the initial results of this study, there are other components causing a decrease in revenues or production that need further investigation. Among traditional fishing methods practised in Nigeria, purse seine was the most economically and financially beneficial. Drift gillnetting has only a marginal positive net cash flow and just breaks even, probably because of competition from trawling and heavy *Small-scale Capture Fisheries in Nigeria 203* exploitation of resources. Economic performance of marine capture fisheries should also be monitored to encourage sustainable use of fisheries resources and the introduction of responsible fisheries. Technical upgrading of artisanal preservation and processing methods should be improved in order to enhance the earnings of fishermen.

Andrew Warmbrunn (2009)[18] thesis investigates the livelihoods of fishermen in Cijulang, West Java, Indonesia, with special reference to the three villages of Batu Karas, Sanghyang Kalang and Nusa Gede. It addresses the perceived low income and standard of living of small-scale fishers in Indonesia and, by doing so, informs on the validity of these problems, factors that may be causing these problems, and possible fisheries management interventions that may be considered to improve the situation of fishers in one area of Indonesia. The thesis presents a comprehensive literature review of current and past fisheries and land resource management research, presents the methodology and results of seven months fieldwork conducted in the three fishing villages in 2004 and 2005, and provides four case studies of fishermen and the impact of fuel price rises on these fishermen. The thesis finds that there is a large disparity between the incomes of fishers from both an inter- and intra-village perspective and that the ownership and use of different types of fishing gears such as nets and engines has a strong impact on the earning power of fishermen. It concludes that fishermen are not necessarily the 'poorest of the poor' and, in fact, some fishermen are amongst the highest earners in the three villages investigated.

[18] Andrew Warmbrunn (2009), The livelihoods of Sundanese fishermen in Cijulang, West Java and their implications for fisheries management , A thesis submitted for the degree of Master of Science (Sustainable Resource Management, School of Environmental and Life Sciences, University of Newcastle, New South Wales, Australia

It notes that the livelihoods of fishermen vary greatly and fishermen are represented throughout all levels of the income strata of the three villages. The case studies conclude that fishers were negatively impacted by the fuel price increases of 2004 and 2005 and that the scale of the impact is related to fishing gear ownership and use. The thesis also investigates the impact of the environment on fishing frequency and challenges the assumption that research conducted in one part of Indonesia is valid for other areas. It does this through describing the concepts of an 'angry ocean' and 'calm sea', how these impact on fishing frequency, and the need to take meteorological and oceanic conditions into consideration when assessing managerial interventions and programs for small-scale fisheries in Indonesia.

Salagrama, Venkatesh and Thaddeus Koriya (2008)[19] study identified three phases in the development of fishing sector: (i) pre-Modernisation phase, (ii) Modernisation phase, and (iii) post-Modernisation phase. In the Modernization phase, the opportunities provided by the sector for livelihood support increased manifold. Many new livelihood categories began to emerge in the sector. Market demand allowed entry of investments and more efficient technologies into the sector; natural resources too responded favourably to increased levels of exploitation. The government played an important role in this by providing fishing inputs and setting up necessary infrastructure, and also by encouraging the idea of the sea as open access. The conservative social-oriented organisation of fishing was not conducive for the new capital-intensive, profit-maximising, individually-run commercial operations. The social assets may have become weaker during this period. The additional income generated from the sector added to the risk-bearing capacity of the people. This is reflected in the strategies for enhancement and diversification during this period emphasis was on maximising returns rather than on coping with seasonality and other vulnerability factors. The post-Modernisation phase is marked by a period of crisis, where the opportunities provided by the sector have come down while the vulnerability has gone up, especially in the form of long-term trends due largely to the uncertainties in access to the raw material – i.e. fish. This was exacerbated by reduced access to investments, which was a result of global trade fluctuations, mounting costs of operations and weakening government support.

[19] Salagrama, Venkatesh and Thaddeus Koriya (2008), *Assessing Opportunities for Livelihood Enhancement and Diversification in Coastal Fishing Communities of Southern India. Chennai*, United Nations Team for Tsunami Recovery Support, UN India.

Inoni O.E., Oyaide W.J (2007)[20] paper examined the effects of socio-economic factors on artisanal fish out in the South Agro-ecological zone of delta state, Nigeria. The results showed that average fixed costs and average variable cost were N 116,005.14 fisher/year and N181877/fisher/year respectively. Fishing crafts and gears accounted for 76.45% of total fixed costs of production; while labour, fuel and repair and maintenance made up 76.85% of total variable costs, while net margin/fisher/year was N111,677.62 for the study area, it was N140492.74 among motorized units N84,012.15 for fishers in the non-motorized segment. Net margin-to-cost ratio was 34% in the motorized sector, 45% in the non-motorized segment, 37% for the entire area studied. Regression results indicated that households size, gender of fisher, fishing experience, season, fishing craft, labour, capital depreciation, and non-fishing income had statistically significant effects ($P<0.05$)on fish catch. Output elasticity estimates showed that a percentage increase in labour utilization caused a 0.82% rise in fish catch, while a proportionate increase in non-fishing depressed fish catch by 0.1%.

Adeokun, O.A, et.al. (2006)[21] study the factors influencing adoption of innovations by artisanal fishermen in coastal areas of Ogun State, Nigeria. The study covered 25 percent of the villages. That is, six villages were selected based on their enhanced fishery activities. From each of the six villages selected for the study, 20 fishermen were randomly selected to constitute 120 respondents for the study. Structured interview schedule was used to collect information from the respondents. Data were obtained from one hundred and twenty fishermen using simple random sampling technique. The instrument used to obtain information from the fishermen was structured interview schedule. Data were analyzed with the use of descriptive statistics such as percentages and means. Chi-square was further used to test relationships between variables. The findings showed that 71.7 percent of the fishermen still used unmotorised hand operated canoes which they considered laborious and derived low income from fishing activities. The results also revealed that, most of the fishermen were aware of the extension agencies in their villages but not all the innovations disseminated were adopted. The use of outboard engine and preservation equipment like ice box, cold storage and refrigerator could not be adopted due to high cost (72.5%), lack of

[20] Inoni O.E.,Oyaide W.J (2007), "Socio-economic analysis of artisanal fishing in the south Agro-Ecological zone of Delta State, Nigeria", *Agricultura Tropica ET Subtropica,* Vol.40(4), pp.135-149

[21] Adeokun,O.A, et.al.(2006), "Factors Influencing Adoption of Fisheries Innovations by Artisanal Fishermen in Coastal Areas of Ogun State, Nigeria", *Journal of Applied Sciences Research*, Vol. 2(11), pp 966-971.

social infrastructural facilities like electricity (67.0%), lack of capital (72.5%) and lack of government incentives (60%). The test of hypotheses established significant relationship between age of the fishermen and adoption of fisheries innovations ($\chi 2 = 0.041$, $p<0.05$). Also there was significant difference between the reasons for not adopting innovation and the constraints faced by the fishermen in the fishing operations. Based on these findings, it was recommended that fishermen should be linked with credit institutions particularly the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) for credit facility and essential basic infrastructure like accessible road and electricity be provided in rural fishing villages.

Donald R. Leal (2005)[22] study indicated that as fishing technology improved, the ability of fishermen to deplete fish stocks to the brink of extinction increased. This study explains the reasoning behind rights-based fishing and explores various institutional arrangements along the property rights spectrum. As stocks declined, fishermen increased their effort, investing in larger and more efficient boats and in more sophisticated gear. As a result, stocks tended to go into an ever accelerating death spiral. To check this "tragedy of the commons", governments and international fishing regulators limited entry, restricted both the size and type of gear that could be used, and drastically curtailed the periods during which fishing was permitted. Yet, despite their best efforts, fish stocks continued to decline. Fishermen found ways to frustrate the regulators, often by expensive investment in larger boats and better gear. In the past few decades, however, governments and fishermen themselves have turned to a new method of regulating their fisheries: individual quota systems and other rights-based fishery management systems that allocate the global quota of fish to be caught among individual fishermen, who then choose the most efficient means to harvest their share. Allowing fishermen to fish at their most economic level has reduced wasteful overinvestment in boats and gear, and permitted fishermen to schedule their fishing when the market and weather conditions promised the greatest returns. To increase efficiency still further, some fisheries allow quotas to be traded and sold to the highest bidder, thus concentrating more quota in the hands of the most efficient fishermen. In the long run, although fishermen have declined in number, those still active are creating greater wealth with less effort. Productivity has increased greatly.

[22] Donald R. Leal (2005), *Fencing the Fishery : A Primer on Ending the Race for Fish* (Canadian Edition) Atlantic Institute for Market Studies, Halifax, Nova Scotia, September

Surapa Raju, S (2003)[23] compared the catches and incomes of technology adopted and non-adopted fishing crafts. Gilakaladindi landing centre of Krishna district in Andhra Pradesh was selected for this study and collected information form 114 households of both the technology adopted and non-adopted households. The main objective of this study is to compare and contrast between the technology adopted and non-adopted of fishing crafts on (i) Investment and Returns, and (ii) Economic, Capital, Labour and Profitability of the crafts. The technology adopted households were invested Rs. 2,05,722 and non-Technology fishing households were invested Rs, 25,036 on fixed capital investment. The technology-adopted households were spent more percentage of amounts (48%) on oil, which is the most important component in variable costs. Out of the total expenditure on variable cost for non-adopted technology households, wages for the crew is more percentage (78%). On the whole; the technology-adopted and non-adopted households spent Rs. 1.96,331 and Rs. 20,571 on variable costs respectively. Out of the total catch (quantity and value) obtained to the sample households, 90 percent and 93 percent of the total quantity and value respectively obtained to the technology adopting households. It indicates that the technology plays an important role in fish catch and value of catch. Due to non-adoption of technology, fishermen households of non-adopted technology got less value and quantity in various varieties of fish. Quality of fish catch obtained to technology adopters was more than the non-technology adopters. The percentage of net returns to investment was the highest for technology adopted craft (0.99) and the least obtained (0.32) to non-technology adopted craft. The more value of production per worker per day i.e. 341.00 was worked out for technology adopted crafts and it was only Rs. 23.60 for crafts without technology. Technology adopted crafts got more profit margins per kg of fish catch than the crafts without technology.

IV. Studies on socio-economic conditions

Many studies on socio-economic conditions of the fishing communities have taken up by various researchers of different universities and institutions across the globe. Among them a few studies were selected for review.

[23] Surapa Raju (2003): "Economics of Fishing Crafts: A Comparative Study in Andhra Pradesh"*, Journal of Fisheries Economics and Development,* Vol. V, No.1, pp. 1-14.

Surapa Raju (2010)[24] assessed the impact of motorization of traditional crafts financed by banks in Andhra Pradesh. Multistage sampling method was used for selection of sample households. East Godavari belonging to north coastal and Nellore belonging to south coastal districts are proposed for this study. The per-capita income of the beneficiary households is the highest at Rs.8430 per year and the lowest observed was in case of control group households. The per capita income of the traditional craft owned households is low due to the large family size and lower household income. Before the scheme, most of the beneficiary households were in below poverty line and motorization scheme has pushed them above the poverty line. Thus, the scheme has succeeded in enhancing the income levels of the households.

Abdur Razzag Joadder (2008)[25] conducted a study on socio-economic conditions of fishermen of Mail beel during the period of September 2005 to June 2006.The age structure showed that 31-40 years age groups were mainly engaged in fishing and the percentage was 28.57 in average of total population. The birth rate was higher than income structure and life standard was too low to maintain their whole family. It is necessary to reduce the role of middlemen to maximize the returns for fishermen. The socio-economic status of the fishermen could be developed through increasing education and giving technical support. Overall, the socio-economic status of the fishermen is very dull and fishermen community in the study area is poorer among the poor.

Surapa Raju, S (2008)[26] conducted a detailed census survey in Gilakaladindi village of Krishna district in Andhra Pradesh. The highest average number of earners is in the traditional craft owner households and the least in the Sona–I type craft owner households i.e. 1.62 earners. More dependents (3.15) are in the Sona–I type craft owner households and the least (2.38) in the traditional craft households. The family size of the traditional craft owner household is the highest (5.9) and the least family size is (4.8) found among the Sona–I type craft owners' households. On an average, the traditional craft owners get an

[24] Surapa Raju. S (2010), Motorization of Traditional Fishing Crafts and its Economic Impact - A Study of Bank Sponsored Units in Andhra Pradesh, Research study conducted by *Council for Social Development, Hyderabad with NABARD financial assistance.*

[25] Abdur Razzag Joadder(2008), "Socio-economic conditions of Fishermen of the "Mail Beel" under Mohanpur Upazila of Rajshahi District in Bangladesh", *Research Journal of Biological Sciences*, 3(10), pp. 1178-1181.

[26] Surapa Raju, S (2008): *Development of Fishermen Community through Technology,* The Associated Publishers, Ambala cantt. (India).

income of Rs. 15,883, and the Sona–I type craft owner households get Rs. 4,53,273. The per-capita income of the Sona–I type craft owner households is very high at Rs. 95,025 whereas the lowest is found in the case of traditional craft owner households at Rs. 2.695. The proportions of households owning assets are increasing with an increase in the technology status of the sample households. There is a positive relationship between the assets owned and the technology status.

Karmakar, K.G et.al, (2008)[27] paper reviewed the status of coastal small scale fisheries sector in South Asian countries including India, Bangladesh and Sri Lanka with special focus on women. Fisher folk have always been very poor and amongst the most marginalized communities, often exploited by middlemen and merchants. Middlemen have control over credit and fish marketing, which drains away the surplus generated and often make them indebted. Microfinance can make a difference in the life of coastal small scale fishermen and small scale aquaculturists. In the absence of adequate institutional credit, the fisher folk's only recourse is the informal credit system for which the fishermen have to pay a heavy price in terms of high interest outgo as well as selling the prime quality catch at a predetermined rate that may be half the market price. It is in this background the microfinance services extended by Bangladesh Grameen Bank in general and the integrated microfinance program extended by SIFFS to the sector appear to be noteworthy. The role of women and the difficulties faced, are analyzed. The success stories in micro finance have been given in the paper, indicating that if there is a will there is a way. The study also points out the need for financial inclusion of the fish workers in South Asia.

Reuben Abraham (2007)[28] examined the use of mobile phones by fishermen, and the effect on fishing Markets. I used a case study from India on the adoption of mobile phones by the Fishing community—among the poorest of the poor—to test my hypothesis. The case study includes an exhaustive literature review, secondary data, and interviews with more than 50 experts to set the stage for the field work and data analysis. The field work was conducted at 12 locations in the southwestern state of Kerala, over a 200-kilometer radius.

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[27] Karmakar, K.G. et.al. (2008), "*Review of the development of microfinance services for coastal small scale fisheries and aquaculture for South Asia countries (including India, Bangladesh & Sri Lanka) with special attention to women*," Paper presented in the Asia Pacific Fisheries Commission (APFIC) Regional Consultative Workshop on "Best Practices to Supporting and Improving Livelihoods Small Scale Fisheries and Aquaculture Households" 13-15 October, Manila, Philippines.

[28] Reuben Abraham (2007), "Mobile Phones and Economic Development: Evidence From the Fishing Industry in India", *Information Technologies and International Development* Volume 4, Number 1, pp 5–17.

It included focus groups and a purposive quota sample survey, which was conducted using a questionnaire of 20–25 questions, depending on fishing industry category being sampled. A total of 172 individuals, from across the fishing industry, were interviewed for the survey. Using mobile phones at sea, fishermen are able to respond quickly to market demand and prevent unnecessary wastage of catch fish being a highly perishable commodity a common occurrence before the adoption of phones. At the marketing end, mobile phones help coordinate supply and demand, and merchants and transporters are able to take advantage of the free how of price information by catering to demand in undersupplied markets. There is also far less wastage of time and resources in all segments of the fishing community. Fishermen spend less time idling on shore and at sea, whereas owners and agents go to the landing centers only when they receive information (via mobile phones) that their boats are about to dock. Study finds that with the widespread use of mobile phones, markets become more efficient as risk and uncertainty are reduced. There is greater market integration; there are gains in productivity and in the Marshallian surplus (sum of consumer and producer surplus); and price dispersion and price fluctuations are reduced. The potential efficiencies are, however, subject to easy access to capital, especially at the production end of the supply chain, without which the market remains less efficient than it could be. Finally, the quality of life of the fishermen improves as they feel less isolated and less at risk in emergencies.

Tietze, U., Siar, S., Upare, S. M. & Upare, M.A (2007)[29] study found that poverty has remained a serious problem in fishing communities in Orissa and Maharashtra, made even more severe by the widespread absence of rural infrastructure and services such as safe drinking water, electricity, waste and sewage disposal facilities, health care and educational services and facilities, all-weather link roads as well as a lack of adequate housing facilities. Over the last two decades, fishing effort and the cost of fishing have considerably increased. Over the same period, a diversification of livelihoods of fisher folk households has taken place, and many household members, particularly women, are now working part-time as unskilled agricultural labourers or construction workers. The findings of the studies suggest that through actively promoting self-help groups and cooperatives among women in coastal fishing communities and through linking these associations with financial institutions,

[29] Tietze, U., Siar, S., Upare, S. M. & Upare, M.A (2007). *Livelihood and micro-enterprise development opportunities for women in coastal fishing communities in India – Case studies of Orissa and Maharashtra*. FAO Fisheries Circular. No. 1021. Rome, FAO. 69 p.

investment and working capital needs of their members can be met. To make the best use of capital inputs, SHGs and their federations need vocational and enterprise development training from NGOs and from fisheries training and research institutions as well as assistance for establishing links to new market outlets for their products, both domestically and for export. The state-level workshops in Orissa and Maharashtra made specific recommendations as to what kind of assistance is needed so that poverty in coastal fishing communities can be reduced and livelihoods improved and diversified through micro-enterprise development and microfinance and training support.

Christophe Béné (2006)[30] study provided a critical overview of the contribution, role and importance of small-scale fisheries to the livelihoods of rural populations in developing countries. The review points out some preliminary conclusions. First, although some potential positive results can be identified which confirm that inland and coastal small-scale fisheries can play an important role with respect to key development issues such as poverty alleviation, food security and pro-poor growth, the analysis also shows that assessing the global contribution and importance of small-scale fisheries is not straightforward. At the macro-economic level, the review recognizes that the importance of small-scale fisheries is likely to be relatively modest in comparison to other sectors (such as agriculture) and only few countries may have their gross domestic product (GDP) significantly increased by the contribution of the small-scale fisheries sector. Those are essentially the small islands developing States (SIDSs) and few other developing countries such as Senegal or Bangladesh, which should be considered as exceptions rather than general cases. For the rest of the developing countries, the impact of the sector at the macro-economic level will remain small. In contrast, at lower (micro) level the potential contribution of small-scale fisheries may be much more tangible in terms of livelihoods support. In particular the role played by the sector in the household and local economies or even at the provincial level in geographic areas (coast, river, lake, floodplain) where fishing is important, can be substantial. The review showed that through direct and indirect food security mechanisms, income and employer multipliers effect, fisheries and related activities (processing and trade) play a significant role especially for the poorest households who depend more heavily on these activities. For the households with limited or not access to land and/or other factors of production (e.g. access to financial capital) small-scale fisheries, processing and trading play

[30] Christophe Béné (2006), *Small-Scale Fisheries : Assessing their contribution to Rural Livelihoods in Developing Countries,* Food and Agriculture Organization of the United Nations, Rome.

an extremely important role in supplementing alternative low per capita food production options and in providing one – or even the main – source of cash income. Small-scale fisheries play therefore extremely important economic and "welfare" functions at the local level (including safety-net and labour buffer mechanisms) in many rural areas of the developing world. Unfortunately these economic and welfare functions are still very rarely adequately documented and evaluated and the role that the sector is subsequently playing as an engine for rural development in many regions of the world is still not quantified. Similarly very little has been done on how small-scale fisheries institutions can indirectly impact positively upon rural (political) development by strengthening, for instance, local communities' empowerment and fostering gender equity (through women economic empowerment). On the basis of this analysis, the report concludes that there is an urgent need, not only to enhance our knowledge about the extent to which small-scale fisheries are important for poverty alleviation, food security and pro-poor growth, but also to improve our (conceptual and empirical) understanding of the various mechanisms through which those small-scale fisheries do participate to the general socioeconomic advancement of developing countries. Very little has been done on this question so far and in the absence of such information it will remain extremely difficult to attract the attention and support of the decision-makers and donors.

Mahesh, R (2006)[31] study attempted to understand the link between natural resource degradation and poverty among people dependent on these resources. This is done by examining the impact of depletion of marine resources on the livelihood and socio-economic condition of the small-scale marine fishery community in South Kerala. In Kerala, nearly ten lakh fisher folk depend on the marine fishery resources for their livelihood. The overall level of education of the small-scale fishing community is lower than that of the State's rural population. Almost all the households surveyed, is one way or other, depend on fishery resources for livelihood. Low levels per capita income and high levels of inequality imply the existence of a large proportion of poor people in the community who are vulnerable to external shocks. The study reveals that poverty was comparatively higher among households with no fishing assets, with only one earner, with more than two children, and depending entirely on pensions/remittances.

[31] *Mahesh, R (2006), Poverty, Inequality And Natural Resource Degradation: An Investigation Into The Small-Scale Fishery Sector of South Kerala, Ph.D Thesis,* Department of Applied Economics, Cochin University Of Science & Technology, Kochi Kerala, Http://Dyuthi.Cusat.Ac.In/Purl/99

Mohammad Jahangir Alam (2005)[32] study revealed that on the average, 50% of fishermen were not capable to meet their basic needs. Government and NGO should play major role to improve socioeconomic conditions of hoar fishermen and particularly to reduce the poverty level. Due to economic constraints fishermen were not capable to buy their main instruments (e.g. boat, net, etc.). Government and other agencies may take some necessary steps for buying main instruments for fishing, arranging training programs for applying haor fish culture, improving sanitation facilities and starting income generating activities to increase off-seasons income.

Rotti, S. B. and T. J. Jaisankar (2004)[33] Fishermen in the study area (Pondicherry) were the traditional type using catamaran or boat. They had lower socio-economic status. They lived in nuclear houses and had larger families. They smoked less but drank alcohol more. They were less prone for high blood pressure. Blindness in both eyes and either eye or low vision were higher. The services for cataract were poorly utilized. The morbidity load was higher. Majority of the causes were associated with their occupation and personal lifestyles, habits and lesser utilization of health facilities

Very few studies were taken up by the ICAR with regard to the production and productivity, input-output etc and these Studies were mostly confined to higher technology crafts. Based on this, a detailed study was undertaken with the view to know the impact of centrally sponsored schemes on beneficiary households in the states of Tamil Nadu and Andhra Pradesh. The present study will be focused only on motorization of country crafts and HSD oil Schemes under Central Sponsored schemes and its impact on the beneficiary households. The objectives and methodology and sample design was discussed in the next chapter.

[32] Mohammad Jahangir Alam (2005), Socio-Economic Conditions of Haor Fishermen A Field Level Study, *BRAC University Journal, Vol. II, No. 1, pp. 57-63*

[33] Rotti , S. B and T. J. Jaisankar (2004), Distribution of certain diseases among fishermen in Pondicherry – A comparative study, Jawaharlal Institute of Post-Graduate Medical Education and Research, Pondicherry.

Chapter –III Objectives, Methodology and Sample Design

The aim of the implementation of centrally sponsored schemes in fishery sector involves two broad aspects such as (i) to develop the fishing industry as a whole in sustainable manner, and (ii) to improve the socio-economic conditions of the fishing households by increasing their catch and incomes. The main aim of the present study is to investigate the Impact of Motorization and HSD oil schemes on beneficiary households in terms of production and incomes from their fishing units and socio-economic conditions. The following are the specific objectives framed for this study.

Objectives of the study

1. To study the system, procedures and constraints faced by the implementing agencies as well as beneficiary households during the implementation of the schemes and suggestions to modify the same.
2. To analyze the motorization and HSD oil schemes and its impact on catch and income
3. To work out the impact of the schemes on fish catch, income of the beneficiary households and improvement in their socio-economic status on account of introduction of the schemes.
4. To evaluate how far the schemes have been useful to the overall development of the fishing villages in general and quality of life of the fishing community in particular due to schemes.

Scope of the study

The ultimate goal of the study is to assess the impact of motorization and HSD oil schemes on catch and incomes of the fishing households' and also identifies further needs of the fishing communities. This study will give more recommendations for further development of fisheries sector by establishing processing plants and fishing inputs. This study will give us the real picture how for the motorization scheme and HSD oil schemes are reaching the poor and needy fishing households. The study will also give us how the schemes are benefited to the fishermen households and how the net income derived from the scheme is being utilized

by the beneficiaries and find out the changes in their socio-economic conditions. These studies will be helped to the bankers, planners and policy makers for further implementing the scheme/programmes. The results of this study will be very useful to the planning commission for streamlining the scheme further to the fishermen on fishing crafts/ equipment.

Sample Design

Data was collected both from the primary as well as secondary sources. Primary data was collected from the beneficiary households by using the sample survey method. Secondary data was collected from reports published by the government of India and state government. Collected data from the reports generated by various organizations such as Central Marine Fisheries Research Institute, FAO, World Bank etc.

Selection of States

The study was undertaken in both Tamil Nadu and Andhra Pradesh purposively and secondary information was collected from the Commissioners of Fisheries at Chennai and Hyderabad during the period from September-November to finalize the sample districts in both the states. Information such as number of units distributed and amount allocated under the motorization and HSD oil schemes was collected for the years 2005-2010. Data was collected for the year 2009-10 for working out the economics of the fishing crafts.

Selection of Districts

The survey was taken up in a district, where both the schemes have been implementing. One district from each state has to be selected for the study based on more units distributed for motorization scheme and more amounts allocated for HSD Oil Scheme (TOR). But no district was come under the more units distributed under motorization and more amount allocated for HSD Oil. So to select the one district where more number of units under motorization and more amounts allocated for HSD Oil the ranking method adopted. In this direction, as a first step, district wise number of units distributed (cumulative) and amount allocated for the HSD Oil were tabulated and ranks were given according to highest to lowest distributed and allocated amounts for both the schemes. First three ranks were taken for selected sample district. Nagapatnam district of Tamil Nadu and East Godavari district of Andhra Pradesh were selected as both the districts were emerged in

implementation of both the motorization and HSD Oil schemes. Whereas other two districts in both the states appeared only in one scheme. Hence, Nagapattinam in Tamil Nadu and East Godavari district in Andhra Pradesh were chosen for this study.

Table 3.1 : District-wise number of motorized units distributed and amount allocated for HSD oil during the period from 2005-06 to 2009-10

Name of the sample state	Name of the district	Number of motorized units distributed during the period from 2006-2010	Rank	Amount distributed under HSD Oil scheme In (Rs. crores)	Rank
Tamil Nadu	Chennai	110	13	0.58	4
	Thiruvallur	290 (3)*	3	0.52	5
	Kancheepuram	256	5	0.48	7
	Cuddalore	124	11	0.25	11
	Villupuram	141	9	NA	-
	Nagapattinam	2562 (1)*	1	1.04(2)	2
	Thanjavur	287	4	0.45	9
	Thiruvaram	147	8	0.25	11
	Pudukottai	360 (2)*	2	0.51	6
	Ramanathapuram	167	7	0.44	10
	Rameswaram	181	6	1.46 (1)*	1
	Thoothukudi	134	10	1.00	3
	Kanyakumari	115	12	0.47	8
Andhra Pradesh	Srikakualam	83	6	1.889	7
	Vizianagarm	102	5	1.408	8
	Visakhapatnam	161	4	127.0	1*
	East Godavari	196	3*	90.7	2*
	West Godavari	0	9	0.99	9
	Krishna	10	8	23.96	4
	Guntur	66	7	56.03	3*
	Prakasam	271	2*	12.03	6
	Nellore	356	1*	19.63	5

Source : *Commissioner of fisheries , Govt. of Tamil Nadu and Andhra Pradesh*
** Ranks*

Selection of sample districts			
Name of the state	Name of the scheme and ranked the first three districts in allocated amount and units distributed		District selected according to rank
Tamil Nadu	Motorization	HSD oil (CSS)	Nagapattinam
	Nagapattinam (1)	Rameswaram (1)	
	Pudukotai (2)	Nagapattinam (2)	
	Thiruvallur (3)	Thoothukudi (3)	
Andhra Pradesh	Nellore (1)	Visakhapatnam(1)	East Godavari
	Prakasam (2)	East Godavari (2)	
	East Godavari (3)	Guntur (3)	

Selection of Taluks/Mandals

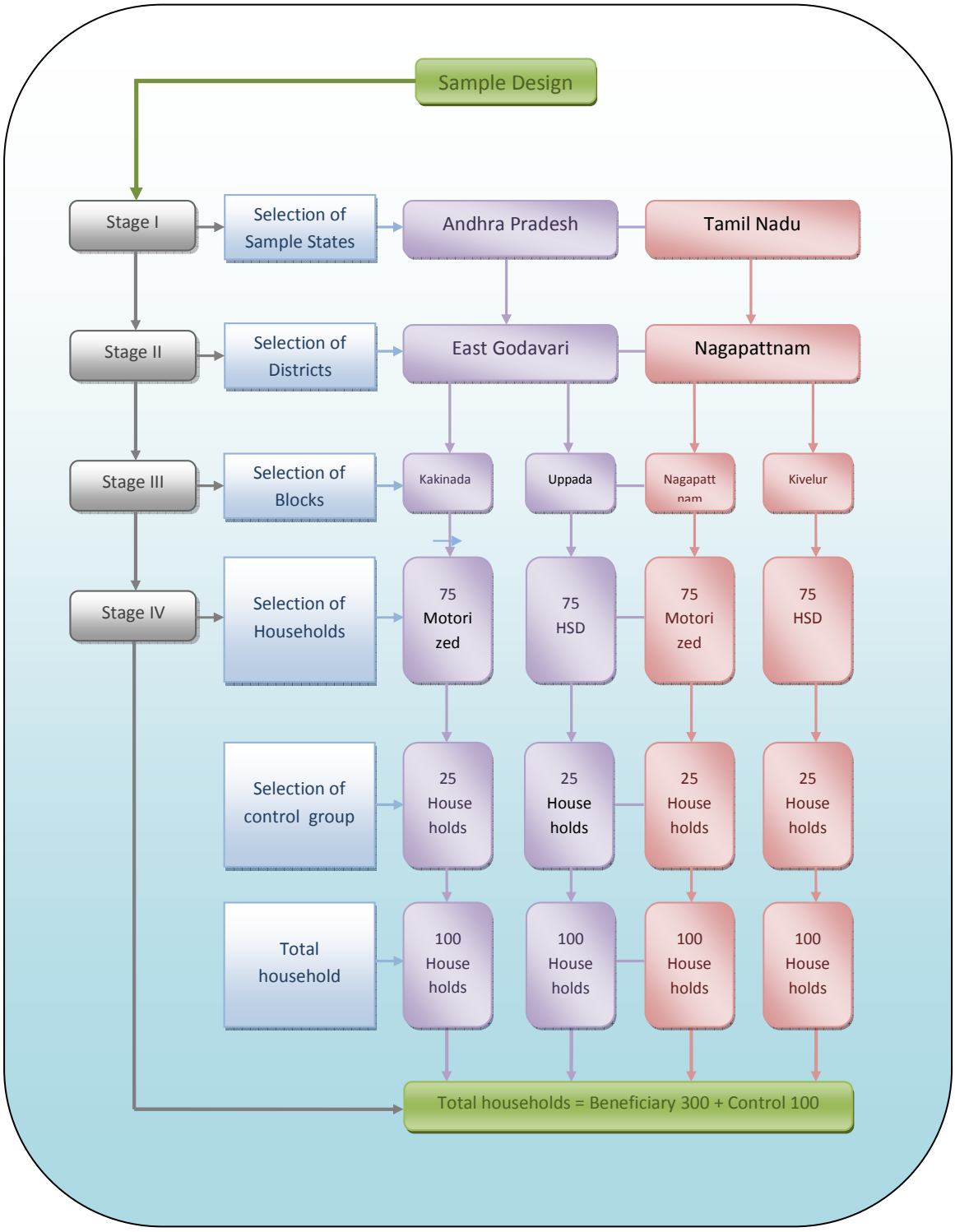
In each sample district, Two mandals/taluks were selected on the basis of more number of units distributed. Based on the units distributed the following mandals were selected for the study in both the sample districts.

Name of the district	Name of the selected mandal / block
Tamil Nadu	Nagapattinam
	kilvelur
Andhra Pradesh	Kakinada
	Uppada

Selection of villages

Name of the selected mandal / block	Name of the selected village for the study
Nagapattinam	Akkaripetai
	Samthanmettai
	Nambiyarnagar
	Nagorepattinachery
Kilvelur	Seuthur
Kakinada	Pralovpet
	Jaggnadhapuram
	Kumbhabhisekam
	Yetimoga
Uppada	Naicker colony
	Suradapeta
	Ravicheetti palem
	Dummulapeta

Figure 1 : Sample Design



Selection of Households

Name of the selected village for the study	Number of beneficiary households selected under the schemes		Non-beneficiary households	
	Motorized units	HSD oil beneficiaries	Traditional craft	HSD oil users without subsidy
Tamil Nadu				
Akkaripetai	26	25	10	8
Samthanmettai	18	18	5	5
Nambiyarnagar	15	12	5	2
Nagorepattinachery	16	15	5	5
Seuthur	-	5	-	5
Total	**75**	**75**	**25**	**25**
Name of the selected village for the study	Number of beneficiary households selected under the schemes		Non-beneficiary households	
	Motorized units	HSD oil beneficiaries	Traditional craft	HSD oil users without subsidy
Andhra Pradesh				
Pralovpet	4	17	1	-
Jaggnadhapuram	-	5	-	-
Kumbhabhisekam	5	25	1	15
Yetimoga	-	28	-	10
Naicker colony	18	-	5	-
Suradapeta	14	-	5	-
Ravicheetti palem	9	-	3	-
Dummulapeta and other small fishing villages	25		10	-
Total	**75**	**75**	**25**	**25**
Grand total	**150**	**150**	**50**	**50**

Control group

Information is also collected from the non-beneficiary households on catch, income, socio-economic conditions for comparing with the beneficiary households.

Schedule

To collect the information about the fishing units, socio-economic conditions of the households, a household schedule was prepared and administered on beneficiaries and non–beneficiaries.

Pilot study

Before finalizing the schedule, pre-test was undertaken in one of the marine villages in Andhra Pradesh. Some important modifications in the schedule were carried out after the pilot study. The modified schedules were carried out after the pilot study. The modified schedules were administered on beneficiary households by the local well qualified investigators. A two day orientation was given to the field investigators on schedule canvassing. The schedule was translated into local languages (Tamil and Telugu) as it will be easy for the investigators to collect the required information.

Focus Group Discussions

Information was also gathered from beneficiary households in the selected villages through focus group discussions to get overall picture about the problems and prospects of motorization/HSD oil schemes. Also, we interacted with the Non-governmental organizations, who are working for development of the fishing community, to get information on implementation of the motorization scheme.

Study Year

The costs and operational expenditure of the crafts are worked out for the fishing year 2010-11. Socio-economic conditions of the beneficiary and control group households are depicted at the time of the study.

Layout of the Study

Chapter I	Introduction
Chapter II	Review of literature
Chapter III	Objectives and Methodology
Chapter IV	Guidelines and Procedures of the Schemes
Chapter V	Motorization scheme and its impact
Chapter VI	High Speed Diesel (HSD) Oil Scheme and its Impact
Chapter VII	Summary and Conclusions

Chapter-IV Guidelines and Procedures of the Schemes

Objectives of the study, sample design and tools used in the study were discussed in the last chapter. This chapter focuses on system, guidelines and constraints in implementation of the motorization of traditional craft and HSD oil schemes in the sample districts. This chapter deals with two sections; (i) guidelines for implementation of motorized scheme; and (ii) Pattern of implementation of HSD oil Scheme.

Section- I
Motorization of Traditional Crafts Scheme

This section deals with the guide lines and procedures in implementation of the motorization scheme in the selected States of Tamil Nadu and Andhra Pradesh. It also focuses on amount Sectioned and number of Motors distributed in the selected states, unit cost, selection of beneficiaries, Source of information about the scheme, source of help to get the scheme, perceptions of the beneficiaries about the motors received, problems in getting the bank loan etc.

Motorization of traditional craft can be defined that "A motor fitted to the traditional fishing craft to reduce the manual effort to reach the fishing ground and coming back to the landing centre. Motorization of country craft scheme is one of the centrally sponsored schemes and it was introduced during 7^{th} Plan with the objective of (i) technological up gradation of traditional fishing sector, (ii) to help the fishermen to reduce their physical strain and (iii) to extend the range of their fishing operation primarily to increase the quantum of fish catch, income and thereby to uplift their socio-economic status. About 50,000 traditional craft have been motorized since inception of the scheme. The scheme has continued during the 11th Five Year Plan with modification that the subsidy benefit will be extended both for Out Board Motor (OBM) and In-Board Motor (IBM) of 8-10 HP. Under this component, 50 % of the unit cost is provided as subsidy subject to a maximum of 30,000/- per OBM/IBM, which is shared equally between the Centre and State Governments. In the case of UTs, the Central Government meets the entire subsidy. An amount of 271.78 lakh and 249.28 lakh were released to various States/UTs during 2009-10 and 2010-11 (till 31st December, 2010) respectively. As per the 2005 National marine Fisheries Census (2005), out of total of 107448 traditional crafts in the country, 76748 have been motorized so far. As against a

target of 5000 crafts to be motorized during the Eleventh Plan, until the end of the fourth year of the plan, 4908 crafts were motorized. The motorization has not been evenly distributed in the coastal states. While some states like Tamil Nadu and Kerala have used the assistance under the scheme to the full extent ,other states like Odisha, West Bengal and Andhra Pradesh have lagged behind.(Planning Commission:2012;p52&66).

Guidelines for implementation of the Motorized Scheme

Eligibility

1. The scheme is applicable for the supply of Inboard engines (IBMs) along with stern gear equipment / OBMs of 8-10 HP to the traditional fishing crafts conducting fishing on sea.

2. 50 % subsidy will be provided on the cost of IBM / OBM supplied under the scheme subject to maximum of Rs. 30,000/-. The remaining cost of 50 % to be borne by the beneficiary fishermen through the bank loan/ individual contribution/ support from cooperative society. In Andhra Pradesh, the scheme is being implemented through banks and the bank has extending credit to the eligible beneficiaries. But in Tamil Nadu, there is no bank involvement in implementation of the scheme and the beneficiary contribute the 50%of the unit cost.

3. The eligible fishermen have to be identified through Gram Sabhas conducted in Coastal marine villages of Andhra Pradesh. But in Tamil Nadu state, a village wise list of eligible traditional craft owners who seek the motors maintains by the district fisheries officers. According to that list they distribute the motors on priority basis.

4. The identified list has to be got approved afresh for every year by the District Collector by informing all the details of procedure undertaken for the identification of the beneficiaries concerned to the District Collector concerned. No previous year lists will be entertained.

5. The identified beneficiary should not be a defaulter of repaying the loan amounts under any of the Government schemes / A.P. State Fishermen Cooperative Societies Federation Schemes. But in Tamil Nadu no bank involvement in the scheme. The eligible beneficiaries, who selected for the scheme, have to pay their share to get the motors.

6. The fishermen should possess a traditional Fishing Craft suitable to be fitted with IBM / OBM and fully engaged in Marine Fishing and also to be registered under MFR Act and renewed his license for the current year.

7. The engine shall be supplied at the choice of the fishermen towards make, brand, etc.

8. No beneficiary will get second engine at any circumstances under any Government scheme and hence the District Officers shall take proper care while sanctioning subsidy.

9. The District Fishery Officer shall place supply order with the AFCOF along with details of IEM brand / make as per the choice of beneficiary against the price and supply conditions provided by the AFCOF for different brands / makes. In Tamil Nadu, the supplied agencies will be selected by the state fisheries department.

10. While taking delivery of IBMs, the District Fishery Officers shall verify the quality and other conditions stipulated in and take all necessary precautions in the interest of beneficiary.

11. The IBMs should be delivered to the beneficiaries in a public meeting and necessary certificate of distribution are to be furnished.

12. The District Fishery Officers should also check the price and supply conditions offered by the agencies with regard to the prevailing market prices before placing supply order with the agency.

13. The scheme is applicable for the supply of OBMs of 8-10 HP for Motorization of Traditional Fishing Crafts only. Subsidy will be available to only existing units and those constructed in replacement of existing crafts.

Procedure for Sanction

1. The District Level Committee constituted shall fix up the rates of OBMs duly calling for quotations / tenders.

2. After receipt of the representations from the beneficiaries and consent letter from the bank, the District Fisheries Officer shall place an indent on the suppliers duly prescribing specifications and terms of supply.

3. The OBMs should be delivered to the beneficiaries in a public meeting and necessary certificates of distribution are to be obtained.

4. After supply of the OBMs to the beneficiaries, the District Fisheries Officers shall draw the subsidy from the Fisheries Department Account and pay to the supplier along with bank loan portion. In Tamil Nadu the subsidy amount will be paid to the supplier.

5. Based on the proposals (physical and financial) received from the Coastal Districts and the allocation of funds will be made at the beginning of the year in order to draw the funds at the level of District Fisheries Officers (Drawing and Disbursing Officers) to implement the scheme strictly following the guidelines. The District Officer shall have to submit progress report with financial and physical achievement against the targets given by the Head Office by 5^{th} of every succeeding month. Utilization Certificate is to be furnished to the Head Office as soon as utilization of the funds allotted as per the guidelines.

6. The Accounts Officer at Head Office should ensure the release of funds to the districts without any delay on receipt of the utilization of the funds.

7. The District Fisheries Officers should maintain a register with all the particulars of beneficiary households and to be submitted for inspection of the superior officers on their visit to the office.

Documents submitted to get the scheme

The applicant has to fill the prescribed application form available at the assistant director of fisheries at the district head quarters or at the offices of the local fisheries officers with duly

attached two photographs of the applicant. In Andhra Pradesh the applicant has to submit the application with his xeroxed ration card to prove that he is in the below poverty line. In Tamil Nadu the applicant has to submit the poverty certificate from the revenue authorities along with the application. Along with the application the applicant has to submit the copy of the boat license issued by the assistant director of fisheries at the district head quarters. The applicant also submits the xerox copy of the bank pass book and also submits the membership details of co-operative society.

Table 4.1 : Implementation of Motorization Scheme under CSS in the selected states

Name of the state	Nature / scale of subsidy	Eligibility criteria for grant of subsidy	Disbursement procedure
Andhra Pradesh	Under Centrally Sponsored Scheme (GOI 50:GOAP 50). Under this scheme, the coastal fishermen having traditional crafts can be fitted with IBM/ OBM at their choice of make and capacity. 50% subsidy limited to Rs. 30,000/- only with the institutional finance.	Fishermen should be a member of the fishermen cooperative society and for claiming any subsidy scheme the beneficiary/ fishermen must fulfill all the governmental procedure for availing the schemes.	District fishery officers
Tamil Nadu	The Government is providing subsidy assistance towards the purchase of Out Board Motors (OBM) / In Board Engines (IBE), to be fitted in the traditional crafts of fishermen. The fishermen will be provided with 50% subsidy of the unit cost of the engine or Rs.30,000/- whichever is less which will be shared equally between Centre and State, under this scheme. An amount of Rs.7 crore has been sanctioned towards the release of subsidy for motorization of traditional crafts for the year 2011-12. This Scheme will be continued during 2012-13 as well.	The eligible fishermen have to be identified through Gram Sabhas conducted in Coastal marine villages duly involving all the concerned.	District fishery officers

Amount Sanctioned and number of Motors distributed in the selected states

Altogether 1205 traditional fishing crafts were motorized under motorization scheme by sanctioning of Rs. 262.68 lakhs from 2004-05 to 2010-11. On the whole, Nellore district stood first and West Godavari district least in implementation of the scheme.

Table 4.2 : Amount sanctioned and Number of motors (units) distributed during the period from 2004-05 to 2010-11 in Andhra Pradesh

(Amount In Lakhs)

Name of the district	2004-05		2005-06		2006-07		2007-08		2008-09		2009-10		2010-11		Total	
	No. of units	Total amount)	No. of units	Total amount	No. of units	Total amount	No. of units	Total amount)	No. of units	Total amount	No. of units	Total amount	No. of units	Total amount	No. of units	Total amount
Srikakulam	30	6.00	-	-	-	-	20	4.00	20	4.00	-	-	13	3.12	83	17.12
Vizianagaram	25	5.00	25	5.00	-	-	27	5.42	20	4.00	-	-	-	-	97	19.42
Visakhapatnam	20	4.00	25	5.00	-	-	49	9.82	50	10.00	-	-	12	2.88	156	31.70
East Godavari	50	10.0	40	8.00	-	-	53	10.60	-	-	-	-	45	13.50	188	42.10
West Godavari	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Krishna	-	-	-	-	-	-	-	-	10	2.00	-	-	-	-	10	2.0
Guntur	-	-	-	-	-	-	-	-	-	-	-	-	66	18.36	66	18.36
Prakasam	30	6.00	30	7.00	-	-	25	5.00	50	10.00	-	-	129	27.74	264	55.74
Nellore	95	19.00	50	15.00	-	-	70	14.00	50	10.00	-	-	76	18.24	341	76.24
Total	250	50.00	170	40.00	-	-	244	48.84	200	40.00	-	-	341	83.84	1205	262.68

Source: Commissioner of Fisheries, Government of Andhra Pradesh

Table 4.2A : Amount sanctioned and Number of motors (units) distributed during the period from 2005-06 to 2010-11in Tamil Nadu (Amount in Lakhs)

Name of the district	Total	
	Number of units	Amount in Rs.(lakhs)
Chennai	110	24.00
Thiruvallur	290	59.00
Kancheepuram	256	51.8
Cuddalore	124	25.2
Villupuram	141	28.3
Nagapattinam	2562 (1)	518.6 (1)
Thanjavur	287	58.1
Thiruvaram	147	30.1
Pudukottai	360 (2)	73.0 (2)
Ramanathapuram	167	**34.1**
Rameswaram	181	**36.3**
Thoothukudi	134	**27.2**
Kanyakumari	115	**23.5**
Total	**4874**	**989.2**

Source: Director of Fisheries, Government of Tamil Nadu

There is a lot of difference observed in the distribution of units among the districts and the reasons are: (i) Local requirements of the boats; (ii) Active part of the assistant director of fisheries; (iii) Active participation and involvement of local leaders; (iv) Active role of the bank managers etc. in 2006-07 and 2009-10 years no motors were not distributed as the state government has not contributed their share. According to state government sources , during the year 2009-10 fifty per cent of the state share of 42.00lakhs was not released and hence the scheme could not be implemented in 2009-10 and the same was released in 2010-11 and central share of Rs. 42.00 lakhs revalidated for 2010-11.

Section-II
High Speed Diesel Oil

This section highlights the guide lines and procedures in implementation of the scheme in the selected States. It also focus on amount Sectioned in the selected states, selection of beneficiaries, Source of information about the scheme, source of help to get the scheme, perceptions of the beneficiaries about the scheme, problems in getting the oil etc.

The scheme for reimbursement of Central Excise Duty on HSD oil used by fishing vessels below 20 meter length was introduced from 1990-91 onwards with a view to help the small mechanized fishing owners/operators to bring down the operational cost of these vessels and thereby to encourage them to increase the fishing days, fish catch and income. Under the restructured scheme for 11th Plan, Central rebate equivalent to 50 % of the Sales Tax relief granted by the States/UTs on HSD oil used for fishing purpose with central subsidy limited to `3/litre of HSD oil with a ceiling of 500 litres is provided per boat per month during active fishing months. Subsidy is provided to the vessels of size less than 20 meters, registered before 10th Five Year Plan, which are owned by fishers of Below Poverty Line (BPL) category. 749.00 lakh was released to various States/UTs during 2009-10 under this component. No proposals have been received from the coastal States/UTs during 2010-11 under this component.

Mode of Disbursement

1. The rebate will be reimbursed through the State/UT.

2. Fishing vessels violating fishing bans and MFRA provisions would be excluded from the scheme.

3. New boats added to the fleet after end of Ninth Plan will not be eligible for the subsidy.

4. The fishing boats should be registered with the concerned Government agency.

5. The diesel outlets should be approved by the concerned State Government/ Fisheries department.

6. Each beneficiary/group of fishermen in a locality should open a bank account with a nationalized bank.

7. Rebate should be for mechanised fishing vessels below 20m OAL only.

8. The beneficiary may have to purchase fully sales tax paid diesel for his boat and the original bills for the said purchase are to be presented to the concerned fisheries office.

9. After verification of said bills the authorized officer in the fisheries department should issue a reimbursement order for payment and forward it to the concerned treasury office. A cheque equal to the eligible subsidy amount paid by a beneficiary/group is issued for the said bills by treasury office is to be forwarded to the concerned nationalized bank where the beneficiary/group has opened an account.

10. The eligible subsidy amount for which a beneficiary is entitled is directly reimbursed in his bank account instead of giving it in cash.

11. Certain officer of the fisheries department should be authorized to check the HSD supply in eligible quantity to fishing boats to prevent misuse.

12. Proper maintenance of all records and registers should be done by the beneficiary

13. The State/UT should also maintain proper records, registers, etc. and cross check periodically that the amount due to the beneficiary has actually been disbursed.

14. The State/UT should review the HSD subsidy reimbursed to the beneficiary in every quarter with adequate checks and balances to ensure proper implementation.

15. The scheme should be given wide publicity by the State/UT Government so that all fishermen who are eligible could avail the benefit.

16. No subsidy should be released during fishing ban periods.

Implementation of HSD oil scheme in the selected states

Name of the state	Nature / scale of subsidy	Eligibility criteria for grant of subsidy	Disbursement procedure
Andhra Pradesh	The scheme is for providing rebate on Central Excise duty being levied on the cost of HSD oil (@14%). A rebate of Rs3/ liter was being given as 100% grant to the states, which are exempting the 100% sales tax on HSD oil. The subsidy will be limited to Rs.3 /- per litre of HSD oil with a ceiling of 500 litres per boat, per month during active fishing months.	Fishermen should be a member of the fishermen cooperative society and for claiming any subsidy scheme the beneficiary/ fishermen must fullfil all the governmental procedure for availing the schemes. He should be BPL category.	District fishery officers
Tamil Nadu	This Scheme is to be implemented as 100% centrally funded Scheme. The Government reimburses the Central Excise Duty by way of providing subsidy amount towards the purchase of HSD oil by the mechanized fishing boat operators so as to reduce the operational cost. The subsidy will be limited to Rs.3 /- per litre of HSD oil with a ceiling of 500 litres per boat, per month during active fishing months. The subsidy will be provided to the mechanized fishing vessels with overall length less than 20 metres and registered prior to 10th Five year Plan period. The owners of the Mechanized fishing boats should be in BPL category.	The subsidy will be provided to the mechanized fishing vessels with overall length less than 20 metres and registered prior to 10th Five year Plan period. The owners of the Mechanized fishing boats should be in BPL category, which is a non-implementable condition since the Mechanized boat owners do not come under the BPL category.	District fishery officers

To be concluded that there is a variation in distribution of motorized crafts among the districts in both the selected states. The next chapter focuses on Impact of Motorization on fishing households.

In the previous Chapter dealt with guidelines, procedures for implementation of the scheme, unit cost and disbursement of motors etc. An attempt has been made to know the objectives of the motorization scheme and how far the motorization scheme has fulfilling the scheme objectives and its impact on the beneficiary households. As mentioned earlier the main objectives of the motorization scheme are (i) technological up gradation of traditional fishing sector by fitting the motors to the traditional craft, (ii) to help the fishermen to reduce their physical strain in their fishing operations, and (iii) to extend the range of fishing operation primarily to increase the quantum of fish catch, income and thereby to uplift their socio-economic status. In this direction, this chapter deals with Five sections; (i) Implementation of Motorization scheme in study region includes source of information and Perceptions of beneficiary households on type and quality of Engines received etc; (ii) Impact of motorization schemes on advancement in fishing operations; (iii) Improvement in socio-economic conditions of the beneficiary households; (iv) Perceptions of the beneficiary households on usefulness of motorization scheme and (v) Field observations and SWOT Analysis.

Section 1
Implementation of the Scheme

Information gathered from the beneficiary households on scheme implementation details such as source of information about the scheme; require documents for the schemes and problems in getting the scheme etc.

Sources of Information about the Scheme

Beneficiaries were asked about the sources of information received about the motorization scheme. The beneficiaries informed that they have obtained the scheme information mainly from two sources namely officials and non-officials. Eighty nine per cent of beneficiaries in Andhra Pradesh and 57 per cent of the beneficiaries in Tamil Nadu expressed that they got the information about the scheme from the officials. Among the non-officials, community leaders were the main source of information about the scheme in both the states.

Table 5.1: Source of Information received by the Beneficiary households about the Scheme				
Source of Information		Andhra Pradesh	Tamil Nadu	Total sample
Officials	Fisheries department officials includes Field man, field officers etc	67	43	110
	Total Officials	**67 (89.3)**	**43 (57.3)**	**110 (73.3)**
Non-officials	Friends and relatives	-	11	11
	Political leaders/gram panchayat president	3	10	13
	Community leaders	5	11	16
	Non-officials	**8 (10.7)**	**32 (42.7)**	**40 (26.7)**
	Total	**75 (100.0)**	**75(100.0)**	**150(100.0)**

Sources of help for getting the scheme and subsidy

Information was collected from the beneficiary households about the help received to get the scheme. The beneficiaries mentioned that the fisheries department officials and community leaders helped them to get the scheme in both the sample states. On the whole, 43 per cent of beneficiaries felt that they have received help from the fisheries department officials in getting the scheme. Thirty three per cent beneficiaries' in Tamil Nadu and 20 percent of beneficiaries in Andhra Pradesh told that their community leaders have helped them in getting the scheme.

Table 5.2: Source of help received by the Beneficiaries in getting the scheme			
Help received from	Andhra Pradesh	Tamil Nadu	Total sample
Fisheries department officials includes Field man, field officers etc	31(41.3)	34(45.3)	65(43.3)
Bank officials	9(12.0)	-	9(6.0)
Friends and relatives	8(10.7)	11(14.7)	19(12.7)
Political leaders/gram panchayat president	12(16.0)	5(6.7)	17(11.3)
Community leaders	15(20.0)	25(33.3)	40(26.7)
Total	**75(100.0)**	**75(100.0)**	**150(100.0)**

Source: Primary data

Help in filling the application form

Once the application forms are obtained by potential beneficiaries, they have to get help from someone to fill the application, because most of them are illiterate. This help was rendered by various sources. The employees of the fisheries Department have played a crucial role in helping the applicants to fill up the application forms.

Unit cost of the scheme

The unit cost of the scheme is 43,095. Under this scheme out board type of engines are being supplied to eligible marine fishermen with 50 % subsidy limited to 20,000/- for fixing to their existing traditional fishing crafts. Nationalized banks provide credit facility to the extent of Rs. 22,227 in Andhra Pradesh. In Tamil Nadu the beneficiary contributed the Rs. 23,963 to get the motors with subsidy.

Table 5.3 : Average Unit Cost of Motorization Scheme (Amount in Rs.) and Sample area

Particulars	Andhra Pradesh	Tamil Nadu	Total Average
Self/ co-operative society	-	23,963	11,982
Bank Loan/	22,227	-	11,113
Subsidy	20,000	20,000	20,000
Total unit cost	42,227	43,963	43,095

Source: Primary data

Perceptions of beneficiary households on type and quality of Engines received

Two types of engines, i.e. Lambda and Kirloskar were distributed in the study area. In Andhra Pradesh most of the beneficiaries were chosen Kirloskar engines and in Tamil Nadu they were selected Lambda. On the whole, 59 per cent and 41 percent of beneficiaries were chosen Kirloskar and Lambda engines respectively in the study area.

Table 5.4 : Particulars of Engines received by the beneficiary Households			
Perceptions of the beneficiary households	**Sample Households and Study area**		
	Andhra Pradesh	Tamil Nadu	Total Sample
Type of Engines received			
Lambda	2(2.7)	59(78.7)	61(40.7)
Kirloskar	73(97.3)	16(21.3)	89(59.3)
Total	**75(100.0)**	**75(100.0)**	**150(100.0)**
Quality of engine			
Good	71(94.7)	64(85.3)	135(90.0)
Bad	4(5.3)	11(14.7)	15(10.0)
Total	**75(100.0)**	**75(100.0)**	**150(100.0)**
Adequacy of financial assistance			
Adequate Financial assistance	55(73.3)	46(61.3)	101(67.3)
Not adequate	20(26.7)	29(38.7)	49(32.7)
Total	**75(100.0)**	**75(100.0)**	**150(100.0)**

Source: Primary data

Overall 90 percent of beneficiaries expressed that they have received a good quality engines from the distributed agencies. With regard to adequacy of financial assistance, 73 per cent beneficiaries of Andhra Pradesh and 61 percent beneficiaries of Tamil Nadu expressed that they received adequate financial assistance from the department. After analyzed the data collected on scheme from the beneficiary households in the selected districts, an attempt has been made to know the impact of motorization scheme on advancement of fishing operations in the next section.

Problems expressed by the beneficiary households in getting the scheme

Problems were elicited from the beneficiary households on getting the scheme through focus group discussions in the selected villages in both the sample states. Focus Group Discussions were conducted in the selected villages during the field visits. All most all the sections of people attended and participated in the discussions actively. They not only gave their opinions on the implementation of the mechanization programme in their respective villages but also gave their views to strengthen in the programme in future. Many points were placed before the participants for discussion in the focus group but the following few important points were given here are: (i) who got the motors –rich or poor? (ii) What were the problems in getting scheme? (iii) Are beneficiary households received Quality of engines? (iv) Have you face any problems in operating the engines/motors? After elaborating discussions in focus group meetings the following points emerged.

- The fishing households who have influence at village level were got the motors than the real poor households particularly in Andhra Pradesh than in Tamil Nadu.

- Community leaders play important role in getting the scheme by lobbing at district fishery offices and in selection of beneficiary households at village level and this was expressed by the villagers of Andhra Pradesh.

- The villagers in both the sample states have pointed out that they had incurred more expenditure for submitting the required documents along with the application such as photo, Xerox copies of license, bank account etc., and get more amounts for traveling charges for pursuing the status of application at the district fishery office. This was mentioned by the villagers at both the states.

- The participants of the focus group in Andhra Pradesh have expressed that Since this scheme is linked to bank fiancé and most of the bankers are not willing to extend their credit facilities to the fishing households is a major problem in getting the scheme.

- In one or two villages the beneficiary households expressed that they have received less quality engines and this was raised in Tamil Nadu.

- With regard to operational problems of the engines/ motors the fishery households expressed that they are facing frequent engine problems due to (i) operation in salty water (ii) use of kerosene due to increase in diesel rates, (iii) more usage without proper maintenance.

- Particularly in case of Out Board Motors (OBM) the fishery households expressed that due to vibrations of engines cause health problems.

Section II
Impact of Motorization scheme on advancement in Fishing Operations

The advancement of fishing operations due to fitted the motor to the traditional craft can be assessed by comparing the beneficiary and control group households on various aspects such as (i) Characteristics of the Fishing Units in the study area; (ii) Fish catch and income from the fishing units; (iii) fishing days Vs value of catch and net income; (iv) distance covered in fishing operations versus value of catch and net income; and (v) Spoilage of fish catch. One of the commonly accepted notions about motorization is that it impacts an element of stability to returns in any process of production and hence influences the yield rates favorably. To understand this impact in a better way comparison is made with the non-beneficiary households (control group) who are using the traditional crafts in their fishing operations.

Characteristics of the fishing units studied

Nearly 10 characteristics are considered in this study to know the efficiency of the craft viz., (i) horse power, capacity of the craft, (ii) number of trips made, (iii) distance covered, (iv) gear value, (v) investment, (vi) each trip consists one day, (vii) Craft landing, (ix) type of fishing gear, and (x) type of fishing and type of engine. The beneficiary households have covered more fishing area by travelling more distance with the help of the motors and increase their number of fishing days than the traditional craft owners.

Table 5.5 : Characteristics of fishing units of beneficiary and Control Group

Characteristics of the Craft	Unit	Beneficiaries and Non-beneficiary				Overall	
		East Godavari district of Andhra Pradesh		Nagapattinam district of Tamil Nadu		Beneficiary households	Control group
		Beneficiary households	Control group	Beneficiary households	Control group		
Engine Horse power	HP	8-10	Nil	8-10	Nil	8-10	Nil
No. of trips	Days	190	147	175	135	182	141
Distance	Kms.	52.2	16.2	40.2	16.0	46.2	16.1
Gear Value	Rs.	48,968	77,520	46,803	1,12,740	47,885	95,130
Investment (includes gear)	Rs.	2,16,942	1,43,756	1,98,347	1,78,380	2,07,645	1,61,068
Each Trip	Days	One day	One day	One day	One day	One day	One day
Craft landing	Place	Seashore	Seashore	Seashore	Seashore	Seashore	Seashore
Fishing gear	Type	Nylon	Nylon	Nylon	Nylon	Nylon	Nylon
Fishing	Type	Passive	Passive	Passive	Passive	Passive	Passive
Engine	Type	Lambda Kirloskar	No engine	Lambda Kirloskar	No engine	Lambda Kirloskar	No engine

Source: *Primary data collection /Focus group discussions*

Motorized craft	Traditional craft
	

(a) Comparative catch and incomes of the beneficiary and control group households

The ultimate goal of the beneficiary and non-beneficiary households is to earn more incomes from their fishing units. Here the craft and engine play a significant role in determining the incomes of the boat owners. In this study an assessment is made to know the impact of the scheme on incomes of the beneficiaries by way of calculating the income earned from craft. Additional income earned by the beneficiary after fitting a motor to the craft can be worked out by two methods i.e. (i) comparing with before and after scheme incomes of the beneficiaries and (ii) comparing the incomes earned form the scheme to the beneficiaries with the incomes of the control group (non-beneficiary) household, who have not availed the scheme. It is very difficult to work out the before scheme incomes of the beneficiary households, as most of the beneficiaries cannot recollect the expenditure and income incurred to the fishing unit. So the second method was chosen to assess the additional income earned from the scheme by the beneficiary households by comparing the present incomes of the beneficiary with non-beneficiary households. The following variables are considered to work out the income.

Investment and Expenditure of fishing units

Fixed Capital Investment

The fishing nets along with the boat/craft, auxiliary equipment and crew constitutes a "fishing unit". The size of a fishing unit is determined by the distance of fishing grounds from the shore, handling and disposal of catch as well as geographical factors. Like in other sectors, fishing sector also requires fixed capital investment. Fixed capital investment in fisheries sector can be defined as the expenditure incurred for purchase of (or) procuring or making a craft (hull), nets, engine and other equipments such as ice boxes, chains, etc.,

which are the essential instruments to catch fish. The investment on Crafts consists of Hull, Fishing gear, engine and other investment includes baskets, wires etc. The may be varied from unit to unit and district to district. The beneficiary households of Andhra Pradesh and Tamil Nadu were invested Rs. 2.17 lakhs and Rs. 1.98 lakhs respectively on fixed capital investment. Altogether the beneficiary and non-beneficiary households invested an average of Rs. 2,07,645 and Rs, 1,61,068 respectively on fixed capital.

Motorized craft, Nets and Engine

Fixed Costs

Whether the craft is operating (or) not, the craft owners have to spend some amounts annually which is called as Fixed Costs. Fixed cost is almost in proportionate to the investments made in a particular craft. The amounts spent on fixed costs include the depreciation on hull, engine and gear, insurance, interest on loans, renewal of craft licenses, etc. The straight-line method (depreciation worked out on the basis of dividing its total cost with its expected life of the assets) is used for calculating the depreciation for hull, engine and fishing gear. Actual expenditure incurred for interest on loans and other expenditure such as insurance, renewal of craft license etc were taken into consideration. On the whole, the beneficiary and Control group households have spent Rs. **25,356 and** Rs. **14,152** on fixed cost respectively in the study area.

Table 5.6 : Average Investment, Fixed Cost and Variable Cost by Beneficiary and Control Group Households							
Items		Andhra Pradesh		Tamil Nadu		Total	
		Beneficiary (N=75)	Control group (N=25)	Beneficiary (N=75)	Control group (N=25)	Beneficiary (N=150)	Control group (N=50)
Investment	Hull	1,16,853	62,360	99,844	61,740	1,08,349	62,050
	Engine	42,227	-	44,527	-	43,377	-
	Fish gear	48,968	77,520	46,803	1,12,740	47,885	95,130
	Others (Wire, Baskets, etc.	8,893	3,876	7,174	3900	8,034	3,888
	Total	**2,16,942**	**1,43,756**	**1,98,347**	**1,78,380**	**2,07,645**	**1,61,068**
Fixed Cost	Depreciation	20,195	10,136	22,470	11,404	21,333	10,770
	Interest on loans	3,970	3,224	1,336	1,844	2,653	2,534
	Others (license, tax Etc)	1,659	636	1,082	1,060	1,370	848
	Total	**25,824**	**13,996**	**24,888**	**14,308**	**25,356**	**14,152**
variable costs	Oil	88,791	---	84062	---	86,428	---
	grease	1,266	---	2192	---	1,729	---
	Ice/salt	22,408	19869	20312	19961	21,360	19915
	Repairs /maintenance	5,894	4284	6973	5816	6,433	5050
	Food for crew	6688	2968	7388	3544	7,038	3256
	warfage	108	88	61	40	84	64
	Wages/sharing for crew	80,589	68391	68,757	60711	74,673	64551
	Total	**2,05,744**	**95600**	**1,89,745**	**90072**	**1,97,745**	**92836**

Source: Primary data

Operating Costs

Some expenditure is required for a boat owner to operate his craft. Generally, day to day expenses incurred for the operation of the craft to catch the fish is termed as 'operating cost'. The beneficiary households spent more amounts on oil (44 %), which is the most important component in variable costs. Nearly 38 per cent of the total operating cost is on wages for the total sample households in the study region. Consumption of the oil depends upon the coverage of area/distance, overloading with equipment (nets), age of boat, age of

engine, and maintenance of the craft. Out of the total expenditure on variable cost of control group households' wages accounted for 70% of total operating cost.

Variety wise Quantity and value of fish catch obtained

Data on Quantity and value of fish catch were collected from the beneficiary and control group households to analyze the differences in catches. Marine catch consists of multi-species. For this analysis, the entire catch is divided broadly into categories namely Prawns and fishes. Prawn catch can be categorized into two small and big prawns. Fish catch can be divided into 12 major varieties, viz., (1) Promfret, (2) Seer, (3) Shark, (4) Hilsa, (5) Rays, (6) Milk fish, (7) Anchores, (8) Sardine, (9) Mackerel, (10) Ribbon, (11) Crabs, and (12) Miscellaneous fishes. The analysis shows that beneficiary households captured more quantity and value of prawn and fishes than the control group households in both the sample states.

Table 5.7 : Average Quantity and value of fish catch by variety obtained to beneficiary and control group households							
Variety wise Quantity and value		**Andhra Pradesh**		**Tamil Nadu**		**Total Average**	
		Motorized craft	**Control group**	**Motorized craft**	**Control group**	**Motorized craft**	**Control group**
Quantity in Kgs							
Prawn catch in quantity in kgs	Small prawn	636	141	383	105	509	123
	Big prawn	430	117	414	118	422	117
	Total	**1066**	**258**	**797**	**223**	**931**	**240**
Fish catch in quantity in kgs	Promfret	911	324	625	292	768	308
	Seer	151	277	356	217	254	247
	Shark	329	298	270	184	299	241
	Hilsa	427	330	225	269	326	300
	Rays	110	444	399	392	254	418
	Milk fish	151	366	249	423	200	395
	Anchors	160	493	268	513	214	503
	Sardine	580	-	348	-	464	-
	Mackerel	450	-	564	-	507	-
	Ribbon	478	-	295	-	386	-
	Crabs	239	-	388	-	313	-
	others	607	855	686	764	646	810
	Total	**4593**	**3387**	**4673**	**3054**	**4630**	**3222**
Value in Rs.							
Prawn catch in value in Rs.	Small prawn	34280	6553	22303	5259	28292	5906
	Big prawn	35616	4784	27294	4789	31455	4787
	Total	**69896**	**11337**	**49597**	**10048**	**59747**	**10693**
Fish catch in quantity in kgs	Promfret	57307	16865	36373	15309	46840	16087
	Seer	8767	13600	21037	11518	14902	12559
	Shark	19098	13383	12561	9145	15830	11264
	Hilsa	24290	20751	13815	15401	19052	18076
	Rays	5710	17164	22091	15255	13901	16210
	Milk fish	6552	10838	11864	12859	9208	11848
	Anchors	7088	15617	13409	16328	10248	15972
	Sardine	24725	-	18852	-	21789	-
	Mackerel	20414	-	28981	-	24598	-
	Ribbon	26279	-	16280	-	21280	-
	Crabs	14910	-	18575	-	16742	-
	others	24258	28563	22519	25606	23389	27084
	Total	**239398**	**136781**	**236357**	**121421**	**237879**	**129100**
	Grand total in value	**309295**	**148119**	**285654**	**131469**	**297626**	**139793**

With regard to quantity and value of prawn and fish catch, more quantity and value of catch obtained to the beneficiary households. Huge gap in value of catch was observed particularly between the beneficiary and control group households in both the states. The difference in value of catch may be due to the beneficiaries who had fitted the engine to their craft. In focus group discussions, most of the fishing households revealed that due to coverage of more fishing area and more fishing days is the main reason behind this achievement. It indicates that the engine plays an important role in value of catch. Due to not fitting the engines to their crafts, control group households netted less quantity and value of fish catch.

Table 5.8 : Comparative Per Kg value of prawn and fish catch obtained to beneficiary and control group households in the sample districts

Variety wise Quantity and value		Andhra Pradesh		Tamil Nadu		Total Average	
		Motorized craft	Control group	Motorized craft	Control group	Motorized craft	Control group
Prawn	Small prawn	53.9	46.5	58.2	50.1	55.6	48.0
	Big prawn	82.8	40.9	65.9	40.6	74.5	40.9
	Total	**65.6**	**43.9**	**62.2**	**45.1**	**64.2**	**44.6**
Fish	Promfret	62.9	52.1	58.2	52.4	60.9	52.2
	Seer	58.0	49.1	59.1	53.1	58.7	50.8
	Shark	58.0	44.9	46.5	49.7	52.9	46.7
	Sardine	56.9	62.9	61.4	57.3	58.4	60.3
	Rays	51.9	38.6	55.4	38.9	54.7	38.8
	Milk fish	43.4	29.6	47.6	30.4	46.0	30.0
	Anchors	44.3	31.7	50.0	31.8	47.9	31.7
	Hilsa	42.6	-	54.2	-	47.3	-
	Mackerel	45.4	-	51.4	-	48.5	-
	Ribbon	54.9	-	51.8	-	55.1	-
	Crabs	62.4	-	47.8	-	53.5	-
	others	39.9	33.4	32.8	33.5	36.2	33.4
	Total	**52.1**	**40.4**	**50.5**	**39.7**	**51.4**	**40.0**
Total per kg (prawn and fish)		**54.7**	**40.6**	**52.2**	**40.1**	**53.5**	**40.4**

Source: Primary data

Quality of fish

One of the objectives of the motorization scheme is to get the quality of fish in fishing operations, as the motor helps the fishing households to go into deep sea and come back to the shore quickly without spoil the catch. In this analysis, the Quality of fish can be assessed by fish size, freshness of the fish and variety of fish etc. The unit value (per kg of

value of fish) indirectly give an idea about the freshness, size etc. The consumer pays more prices for each kg of fish when it is fresh, big size and good variety etc. An attempt was made to know the quality of fish by calculating per unit of fish price. Quality of fish catch of beneficiary households is more than the control group households. The beneficiary households in both the states have obtained more value for their kg of fish than the control group households. Per kg rate difference between the beneficiary and control group households is Rs.13.0. The wide gap between the two categories in rate differential is mainly because of motorization scheme and this was expressed by the most of the beneficiaries and community leaders in the focus group discussions.

Table 5.9 : Quality of Fish obtained to beneficiary and Control group

Variety	Andhra Pradesh		Tamil Nadu		Total	
	Motorized	Control group	Motorized	Control group	Motorized	Control group
Prawn	65.6	43.9	62.2	45.1	64.1	44.6
Fish	52.1	40.4	50.6	39.7	51.4	40.0
Both prawn & fish	54.7	40.6	52.2	40.1	53.5	40.4

Net Income and input output ratio

The net income and rate of return to investment of crafts realized by the beneficiary and non-beneficiary households are given in the below table. The net income was computed by deducting the fixed cost and variable costs from the value of catch obtained by beneficiary and control group households. The net income per year was the highest for crafts belong to beneficiary households i.e. Rs. 74,525 and the lowest (32,805) for control group households.

Table 5.10 : Comparative Total Investment, Costs and Returns between beneficiary and control group households

Particulars	Andhra Pradesh		Tamil Nadu		Total	
	Motorized	Control group	Motorized	Control group	Motorized	Control group
Investment	216942	143756	198347	178380	207645	161068
Fixed Cost	25824	13996	24888	14308	25356	14152
Variable Cost (operational costs)	205744	95600	189745	90072	197745	92836
Total Cost (Fixed Cost + Variable Cost)	231568	109596	214633	104380	223101	106988
Total Value of Catch (Prawn + Fish)	309295	148119	285954	131469	297626	139793
Net Income (profit)	77727	38523	71321	27089	74525	32805
Index (Value of catch/ total cost)	1.33	1.35	1.33	1.25	1.33	1.31

Capital efficiency and Profitability

Costs, returns and net income of the craft are not adequate to represent the efficiency of the craft operated by beneficiary and non-beneficiaries. Some of the key indicators like capital efficiency and profitability were taken to work out the efficiency of the motorized crafts.

Capital Efficiency

Capital turnover ratio indicates the rate at which income is generated for each rupee of investment. For one rupee of investment the beneficiary households get 0.36, control households get only 0.20. It indicated that motors used households earned more money than non-beneficiary households with traditional crafts.

Table 5.11: Comparative Capital Efficiency and Profitability of Crafts

Particulars	Andhra Pradesh		Tamil Nadu		Total	
	Motorized	Control group	Motorized	Control group	Motorized	Control group
Capital Efficiency						
Capital Turnover Ratio (profit/investment)	0.36	0.27	0.36	0.15	0.36	0.20
(Profit/ operational costs)	0.38	0.40	0.37	0.30	0.38	0.35
Profitability						
Total Catch (Kgs.) per day	29.8	24.8	31.0	24.3	30.6	24.5
Average No. of Trips/Days	190	147	175	135	182	141
Fuel Cost per (Rs.) kg. of Fish	15.7	--	15.4	--	15.5	--
Operating Cost (Rs.) per kg. of Fish	36.36	26.23	34.69	27.49	35.56	26.82
Total Cost per (Rs.) per kg. of Fish	40.92	30.07	39.24	31.85	40.12	30.90
Catch Value (Rs.) per kg. of Fish	54.65	40.64	52.30	40.12	53.50	40.40
Profit Margin (Rs.) per kg. of Fish	13.7	10.6	13.0	8.30	13.40	9.50
Break-even point at (Rs.)	231568	109596	214633	104380	223101	106988

Profitability

The beneficiary households earned on an average Rs. 53.50 per kg. of fish catch per day by spending Rs. 40.12(per kg) as total cost and got Rs. 13.40 as profit margin per kg of fish catch. Non beneficiary (control group) households with traditional craft got an average of Rs. 40.40 per kg of fish catch by spending Rs. 30.90 per kg as total cost and earned profit margin of Rs. 9.50 per kg of fish. Thus, beneficiary households earned more profit margins per kg of fish catch than the control group households. This may be due to increase in area of operations and come back from the sea quickly without much spoilage of their fish catches and dispose of them quickly.

(b) Motorization – Fishing days and Percentage of Profit

One of the main objectives of the motorization scheme is to increase the fishing days in a year as the motor helps the fishing households to go into the sea even in adverse weather conditions. An attempt has been made to know whether there is any increase in fishing days in a year due to motorization by comparing the number of fishing days of the control group. Increase in more fishing days means probability of getting more catches and thereby increase in incomes. So in this section an attempt is made to know whether the increase in fishing days leads to increase in profit of the fishing units. For this analysis, data analyzed for each craft with number of fishing days. Fishing trips are converted into days. Number of fishing days varies from craft to craft and depends upon various factors such as climatic conditions, seasonal variations, festivals, social customs, sickness of the crew, repairs of the craft and gear, number and type of gear owned etc. Actual fishing days in the year are taken into consideration for the study. Intervals of Fishing days are made into 5 starting from <120 >121-150, 151-180, 181-210, and 211-240 days. In each interval of fishing days analyzed and corresponding averages were worked out for variable cost, total costs & value of catch and percentage of profits to total costs.

Comparative fishing days of beneficiary and control group:

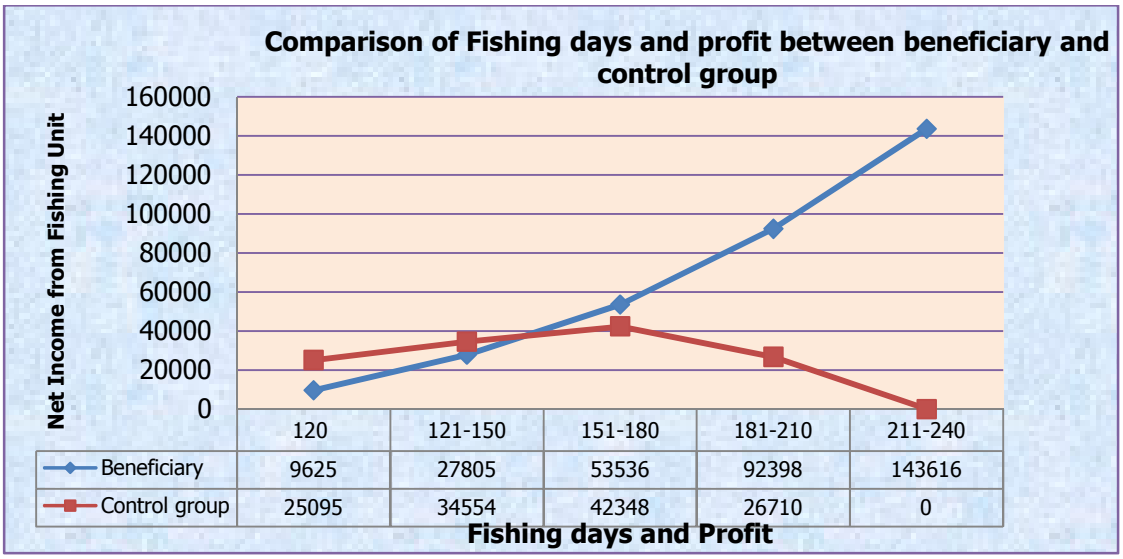
The Beneficiary households have operated their crafts more number of days than the control group households. The reasons mentioned by the beneficiary households are: (i) beneficiaries operate their crafts even in bad weather with the help of the engine (ii) due to reduction in physical strain they operate their crafts daily without taking any rest etc., (iii) to get more income by increasing their fishing days.

Table 5.12 : Comparative fishing days of beneficiary and control group households in the sample districts						
Number of fishing days	Beneficiary and control group households in the sample districts					
	Andhra Pradesh		Tamil Nadu		Total sample	
	Beneficiary households	Control group	Beneficiary households	Control group	Beneficiary households	Control group
Upto 120	1(1.3)	4(16.0)	3(3.9)	11(44.0)	13(8.7)	15(30.0)
121-150	2(2.6)	14(56.0)	16(21.4)	10(40.0)	17(11.3)	24(48.0)
151-180	20(26.7)	5(20.0)	29(38.7)	4(16.0)	49(32.7)	9(18.0)
181-210	47(62.7)	2(8.0)	18(24.0)	-	65(43.3)	2(4.0)
211-240	5(6.7)	-	9(12.0)	-	14(9.3)	-
Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Average fishing days	190	147	175	135	182	141

On the other hand the average number of fishing days for control group households is comparatively less than the beneficiary households. Field Enquiries revealed that the reasons for less number of fishing days for control group households are (i) non-availability of labour, particularly the youth are not willing to work on traditional crafts for two reasons; (ii) getting low sharing/ catch when comparing to motorized craft; and (iii) most of the labourers (young and old) are not willing to use their manual labour. At Present most of the traditional craft owners operate their crafts by engaging their family members only. It is observed that the beneficiary households have operated their crafts for more number of fishing days than the control group households due to motorization. Hence, motorization helps the beneficiary households to increase their fishing days in the sample districts. In the next lines an attempt has been made to know whether there is any impact of increase fishing days on profit of the beneficiary and control group households.

Fishing days and Net Income (Profit)

It is observed that there is a positive relationship between the fishing days and profit for beneficiary households. But in case of control group households, increase trend observed upto 180 days.



It indicates that up to 180 days control group households earn more profits and behind 180 days their profits have decline. But in case of beneficiary households, positive relation observed between the fishing days and profits. It may be due to increase of more number of fishing days, leads to increase more attempts, which again leads to more value of catches and net incomes. Whereas in case of control group households are going for fishing into sea in peak season and after that they may operate their crafts now and then. Naturally in peak season more value of fishes obtained to the fishing households. In case of beneficiary households, by increasing the fishing days their profits also increases as they may get profits by increasing their area of operation even in un-season. It is observed that Motorization helps the fishing households not only to increase in more number of fishing days but also increases the more net incomes. A huge income differential was observed between the beneficiary and control group households in the study area. A positive relation observed between the fishing days and net incomes of the beneficiary households.

Fishing days and percentage of profit

Economic feasibility depends on the returns, which, in turn, depend on the availability of adequate fish resources, use of diversified fishing gear & fishing skills and fishing days. Since availability of fish resources and fishing skills are almost all common for all the fishing households in the study area. An attempt is made to know the impact of fishing days on percentage of profit to the beneficiary households. The fishing days were classified into 5 categories 121-150, 151-180,181-210, 211-240. Total value of catch, total expenditure and net income and percentage of profit was worked out corresponding to the fishing days. The

percentage of profit on total expenditure is worked out for varying fishing days by the following equation.

$$\text{Percentage of Profit (P)} \quad \frac{Y-(FC + VC)}{(FC + VC)}$$

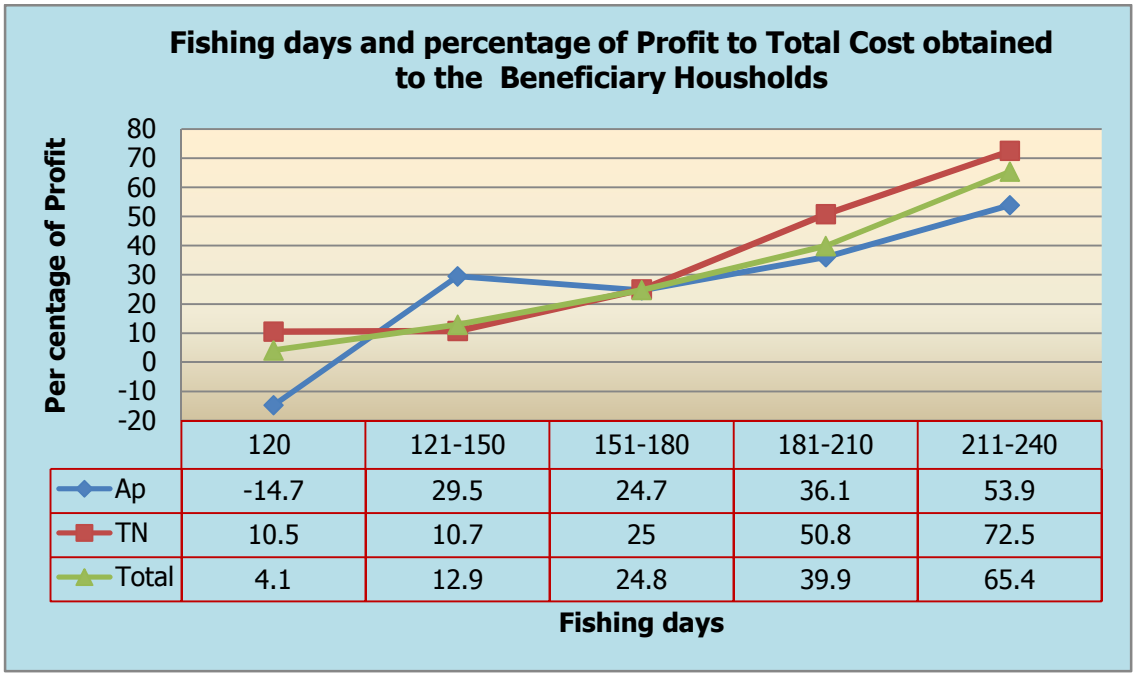
Where Y = Total Income from the catch or total value of fish catch
FC = Fixed cost
VC = Variable cost/ Operating Cost

Table shows that the Fishing days and percentage of profit to total cost for Motorized Crafts in the study area. It is observed that there is a positive relationship between the value of catch and the number of fishing days. It is observed that up to120days of fishing, the beneficiaries of Andhra Pradesh incur losses. After 121 fishing days onwards then only the beneficiaries have got profits. When the number of fishing days increases to 121-150, 151-180, 181-200, and 211-240 days the percentage of profit is 29.5 per cent, 24.7 per cent, 36.1 per cent, and 53.9 per cent respectively.

Table 5.13 : Fishing days and percentage of profit to total cost for Motorized Crafts in the study area																		
Number of days of fishing	**Fishing days and Percentage of Profit of the sample households in the study area**																	
	Andhra Pradesh						**Tamil Nadu**						**Total Sample**					
Class interval	Average Fishing days	Sample household s	Total value of fish catch (Rs.)	Total expendi-ture/total cost	Net come /profit	% of profit to total cost	Average Fishing days	Sample house-holds	Total value of fish catch (Rs.)	Total expendi-ture/total cost	Net Income / profit	% of profit to total cost	Aver-age Fishing days	Sample house holds	Total value of fish catch (Rs.)	Total expendi-ture/total cost	Net income / profit	% of profit to total cost
<120	109	1	179570	217460	31890	-14.7	114	3	267707	242243	25463	10.5	113	4	245673	236047	9625	4.1
121-150	150	2	296150	228722	67428	29.5	144	16	236516	213664	22853	10.7	145	18	243142	215337	27805	12.9
151-180	171	20	274702	220308	54393	24.7	170	29	264469	211526	52944	25.0	170	49	268646	215110	53536	24.8
181-210	198	47	321768	236418	85350	36.1	196	18	328588	217788	110800	50.8	197	65	323657	231259	92398	39.9
211-240	221	5	361620	234968	126652	53.9	223	9	368894	210853	153041	72.5	222	14	363082	219466	143616	65.4
Total Average	190	75	309295	231568	77727	31.6	175	75	285955	214633	71322	33.2	182	150	297625	223100	74525	32.4

Source: Primary data

But in Tamil Nadu a positive trend observed between the fishing days and percentage of profit. When the number of fishing days increases to 121-150, 151-180, 181-200, and 211-240 days, the percentage of profit increases to 10.5 per cent, 10.7 per cent, 25.1 per cent, and 50.8 per cent respectively. On the whole a positive trend was observed between the fishing days and percentage of profit in the sample districts.



	120	121-150	151-180	181-210	211-240
Ap	-14.7	29.5	24.7	36.1	53.9
TN	10.5	10.7	25	50.8	72.5
Total	4.1	12.9	24.8	39.9	65.4

(c) Motorization–Distance covered for fishing operations and Percentage of profit

The main objective of motorization scheme is to increase the area of fishing operations to get better catches and thereby incomes. In this section, an attempt has been made to know whether any impact of increase in fishing area on catches and incomes of the sample households.

So an attempt is made to know the difference in coverage of distance in fishing operations of scheme beneficiary households and control group. The study reveals that most of the control group fishing households (58%) have covered only 16-20 km and the 60 % of the scheme beneficiaries have covered 45-61 Km distance for their fishing operations. When comparing between the scheme beneficiary households and control group of fishing households, the scheme beneficiary households are covered more area for fishing operations due to fitted motors to their crafts than the control group households. The beneficiaries of East Godavari district of Andhra Pradesh have covered more

distance for their fishing operations than the beneficiary households of Tamil Nadu. According (Sarah Southwold-Llewellyn 2010:56)[1] study in East Godavari extract that " three sona boat owners told me that 17 years ago(1987) they fished at 20 meters depth; now they are fishing at 150 meters depth." On the whole, the beneficiary households and control group households have covered 46.2 km and 16.1 Km respectively for their fishing operations in the study area. Most of the beneficiary households have expressed that motorization has helped them to go long distances to capture fish in the sea. In this circumstance an attempt has been made to know whether distance covered in the sea would fetch more catches and incomes.

Table 5.14 : Comparative distance covered for fishing by beneficiary and Control Group Households

Distance covered per trip/day	Beneficiary and control group households in the sample districts					
	Andhra Pradesh		**Tamil Nadu**		**Total sample**	
	Beneficiary (N=75)	**Control Group (N=25)**	**Beneficiary (N=75)**	**Control Group (N=25)**	**Beneficiary (N=150)**	**Control Group (N=50)**
Upto 10	-	3(12.0)	-	3(12.0)	-	6(12.0)
11-15	-	7(28.0)	-	8(32.0)	-	15(30.0)
16-20	1(1.3)	15(60.0)	12(16.0)	14(56.0)	13(8.7)	29(58.0)
21-30	**1(1.3)**	**-**	**16(21.3)**	**-**	**17(11.3)**	**-**
31-40	16(21.3)	-	14(18.7)	-	30(20.0)	-
41-50	18(24.0)	-	22(29.3)	-	40(26.7)	-
51-60	14(18.7)	-	4(5.3)	-	18(12.0)	-
61+	25(33.4)	-	7(9.3)	-	32(21.3)	-
Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Average Distance covered	52.2	16.2	40.2	16.0	46.2	16.1

Source: Primary data

[1] Sarah Southwold-Llewellyn(2010): STATE AND NON-STATE MARINE FISHERIES MANAGEMENT: LEGAL PLURALISM IN EAST GODAVARI DISTRICT, ANDHRA PRADESH, INDIA pp.1-181

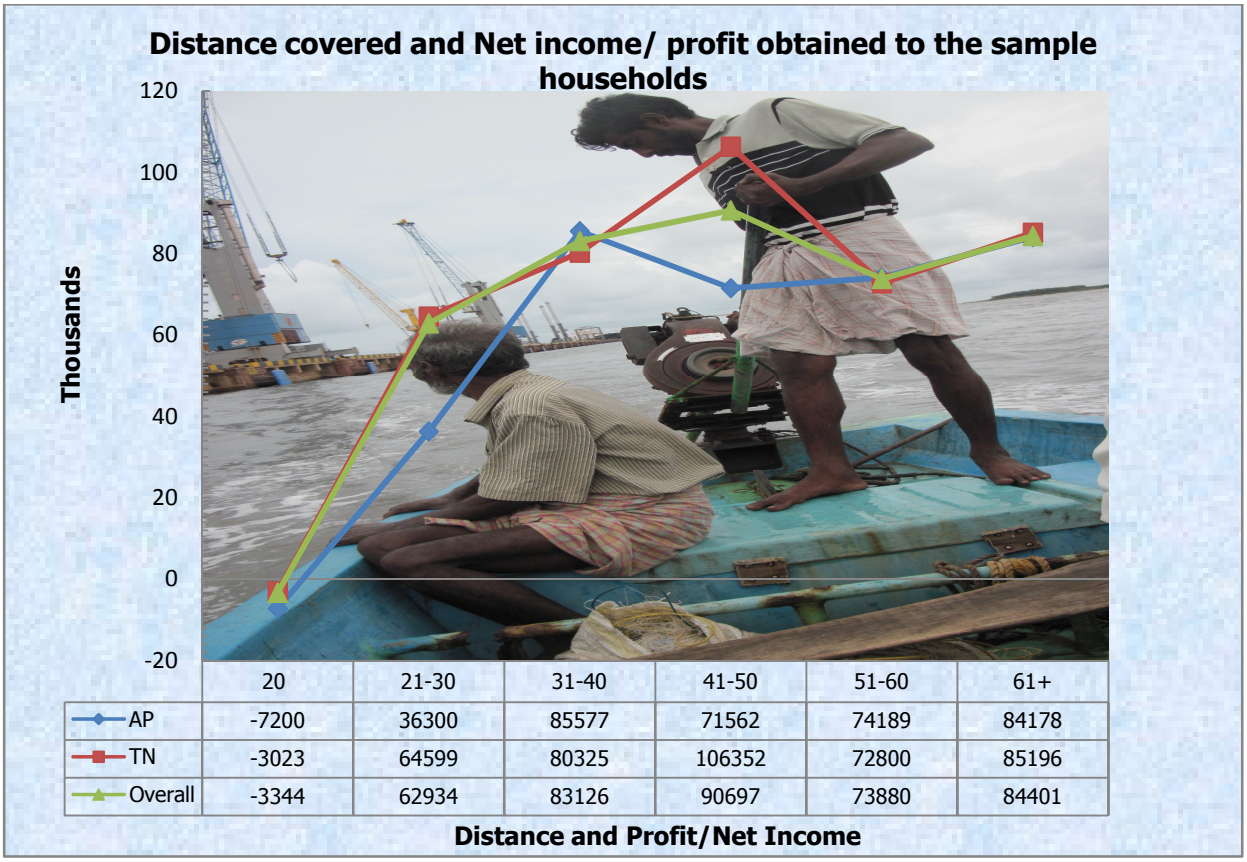
Table 5.15 : Distance covered and Net Profit and per kg value of fish obtained to the beneficiary households in the sample districts							
Type of Craft and value of catch and expenditure particulars by state	**Distance Covered in KM**						
Andhra Pradesh	**< 20**	**21-30**	**31-40**	**41-50**	**51-60**	**61+**	**Total / Average**
Sample households(N)	**1**	**1**	**16**	**18**	**14**	**25**	**75**
Total value of catch (Rs.)	209900	216400	303921	313264	307446	318603	309295
Total Expenditure (Rs.)	217100	180100	218344	241701	233258	234425	231568
Net income/profit	-7200	36300	85577	71562	74189	84178	77727
Per kg value of Fish	52.5	36.1	50.7	56.2	56.1	56.3	54.7
Tamil Nadu	**Distance Covered in KM**						
	< 20	**21-30**	**31-40**	**41-50**	**51-60**	**61+**	**Total / Average**
Sample households(N)	**12**	**16**	**14**	**22**	**4**	**7**	**75**
Total value of catch (Rs.)	206584	270981	298225	319624	287725	324879	285955
Total Expenditure (Rs.)	209607	206383	217900	213272	214925	239682	214633
Net income/profit	-3023	64599	80325	106352	72800	85196	71322
Per kg value of Fish	45.9	50.8	56.3	50.2	55.5	63.4	52.3
Total sample	**Distance Covered in KM**						
	< 20	**21-30**	**31-40**	**41-50**	**51-60**	**61+**	**Total / Average**
Sample households(N)	**13**	**17**	**30**	**40**	**18**	**32**	**150**
Total value of catch (Rs.)	206839	267771	301263	316762	303064	319976	297625
Total Expenditure (Rs.)	210183	204836	218137	226065	229184	235575	223100
Net income/profit	-3344	62934	83126	90697	73880	84401	74525
Per kg value of Fish	46.4	49.9	53.1	52.7	56.0	57.7	53.5

Source: Primary data

Distance and Net profit

As mentioned earlier the scheme beneficiary households have covered more distance in their fishing operation than the control group to get more profits. So an attempt is made to know whether they have obtained more profits due to coverage of more fishing areas by analyzing the distance covered and profits obtained. On the whole, a positive relation is observed between the distance and profit i.e the scheme households got more profits by covering more fishing area. However, in both the

sample districts more losses obtained to sample households who operated their crafts below 20 km and this may be due to non-availability of fish in this area and more expenditure incurred for oil and other inputs to operate their crafts get losses. Almost universally in the countries around the Bay of Bengal, there are widespread perceptions among those for whom fisheries forms part of their livelihoods those fisheries resources are in decline. In some areas numbers of fishers are actually declining (Tietze et al. 2000: 125)[2]. In others, numbers of fishers are still increasing but most perceive that catches are declining and the composition of their catches is changing under the impacts of increased fishing effort and habitat degradation.



	20	21-30	31-40	41-50	51-60	61+
AP	-7200	36300	85577	71562	74189	84178
TN	-3023	64599	80325	106352	72800	85196
Overall	-3344	62934	83126	90697	73880	84401

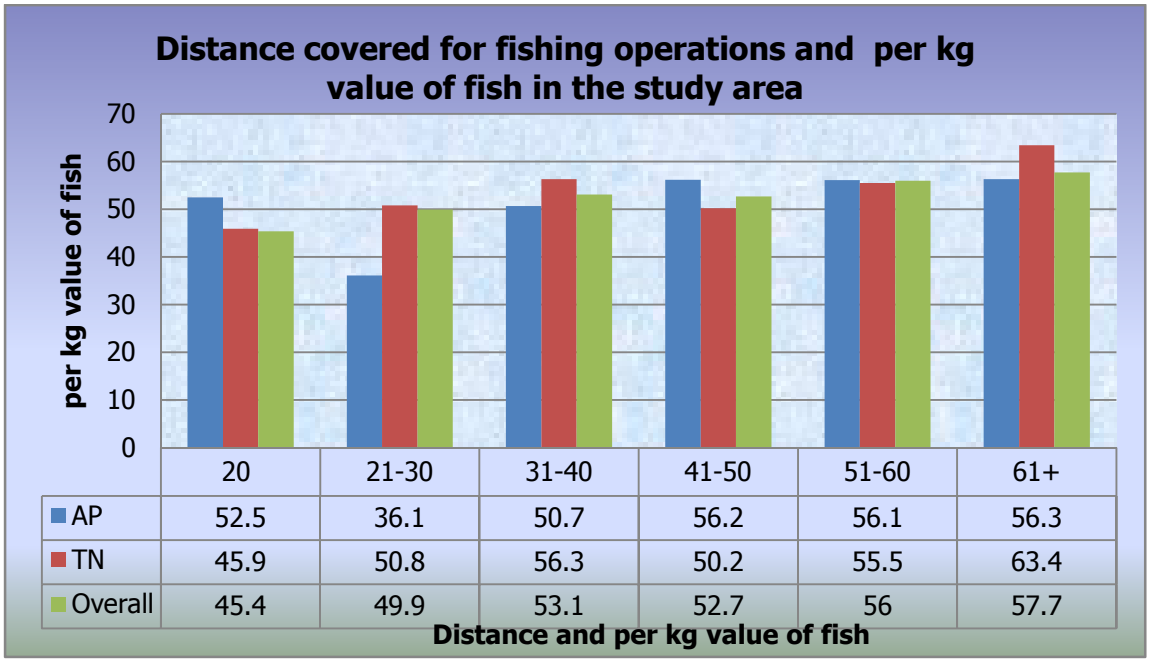
Competition in-shore fishing territory is one of the first core fishing problems mentioned by fishermen. Consequently, the small-scale fishing boats blame the mechanized boats for catching their fish. Similarly traditional boats blame the motorized boats for ruining their catches (Sarah

[2] *Fishing with beach seines.*FAO Fisheries and Aquaculture Technical Paper. No. 562. Rome, FAO. 2011.pp 1- 149p. www.fao.org/docrep/014/i2117e/i2117e.pdf

southwold-llewellyn 2010:53.)[3]. The annual per capita fish catch by artisanal fishers in the country dropped from 2,590 kilos in 1980 to 420 kilos in 1996-97. Surveys among several fishing communities across the four southern States of Andhra Pradesh, Tamil Nadu, Kerala and Karnataka by the Central Marine Fisheries Research institute(CMFRI)some years ago showed that a decline in fish catch was the major problem for the small-scale fishers(Institute for Community Organization Research 2011:1)[4]. This study also finds that upto 20 km range operated fishing households got losses in their fishing operations. There is a need to propagate the importance of conservation of fisheries by experts and local community leaders.

Distance and per kg value of fish

Distance covered and value of fish per kg is seen in the below. It is observed that as distance covered increased per kg value of fish also increased for the scheme beneficiaries. But in Andhra Pradesh the value of fish per kg decreased in 21-30 Km. It is interesting to note that the value of catch decreased when distance increased and this is due to lack of adequate preservative facilities such as ice/salt in that particular crafts. On the whole, distance increases with value per kg of fish also increases.



	20	21-30	31-40	41-50	51-60	61+
AP	52.5	36.1	50.7	56.2	56.1	56.3
TN	45.9	50.8	56.3	50.2	55.5	63.4
Overall	45.4	49.9	53.1	52.7	56	57.7

[3] Sarah Southwold-Llewellyn(2010): STATE AND NON-STATE MARINE FISHERIES MANAGEMENT: LEGAL PLURALISM IN EAST GODAVARI DISTRICT, ANDHRA PRADESH, INDIA pp.1-181

[4] "Vulnerabilities of Fishing communities to ecological and Climate changes –A pilot study in Dharvai Bet in Mumbai" by Institute for Community Organization Research, Mumbai .pp1-25.

In the focus group discussions the beneficiary households expressed that due to motorization helps the fisher households to carry more varieties of nets and operated in various distant fishing grounds and proper preservative techniques in the craft fetched more value per kg fish.

Influencing factors on per kg. Value of fish catch

A Matrix of Spearman's correlation coefficients was worked out for per kg value of fish with major variables such as total investment, number of fishing days , gear value, distance covered for fishing operations and expenditure on Ice/salt . The results showed that three variables such as number of fishing days, distance covered in the sea for fishing operations and gear value are significant in per kg value of fish catch.

Table 5.16 : Matrix of Inter-correlation coefficients per kg value of fish catch

Variables	Per kg value of fish	Capital Investment	No. of fishing days	Gear value	Distance covered	Ice/ salt
Per kg. value of fish	1.00	.016	.192*	-.164*	.287**	.122
Total Investment	.016	1.00	.058	.381**	.098	-.007
No. of fishing days	.192*	.058	1.00	-.098	.255**	.148
Gear value	-.164*	.381**	-.98	1.00	-.040	-.063
Distance covered	.287**	.098	.255**	-.040	1.00	.078
Expenditure on Ice/ Salt	.122	-.007	.148	-.063	.078	1.00

****correlation is significant at the 0.01 level (2-tailed)**
***Correlation is significant at the 0.05 level (2-tailed)**

Positive correlation between distance and per kg value of fish

As mentioned earlier, one of the main objectives of motorization is to increase the area of fishing operations by covering more distance and thereby to increase the fish catch. It is obvious that more coverage of distance help the fishermen to get more per kg value of fish. Rahul Goswami (2009; p1-2)[5] observed that many varieties of fishes have move away from the coast into deeper sea because of many reasons viz., Overfishing and dwindling fish catches, ecological degradation,

[5] Rahul Goswami(2009): **Coastal cities need to clean up their act,** *The Energy and Resources Institute (TERI); Indicators of coastal vulnerability. Higher rank indicates greater stress, Infochange India News and Features, September 2009.pp1-4*

climate change etc. So distance covered for fishing operations play significant role in fish catches and value of per kg fish.

Positive correlation between fishing days and per kg value of fish

As mentioned earlier, by increasing more fishing days may get more catches in their fishing operations. By increasing more fishing days may get more chances of hauls in their fishing operations and this again leads to get better catches.

Negative correlation between gear value and per kg value of fish catch

Negative correlation was observed between the value of gear and the per kg value of catch, as these fishing units invested huge money particularly on gears. Most of the beneficiaries revealed that due to price rise in the gear material restricted them to use the one or two varieties of gears by investing huge amounts on gears. The field observations reveal that most of the fishing units use one or two varieties of gears (nets) by spending huge money (on gears) to catch fishes and it is not adequate to catch varieties of fishes like prawns and fishes with limited gears lead to value per kg decreases even though value of gear increases. To be productive during the whole year a fisherman need several gear types each suited to the specific specie to be caught during a specific season (John Kurien: 1999)[6]. There is need to supply of varieties of gears to the fishing communities with subsidized rates through fishermen co-operatives to get better value of fish catch.

(d) Motorization and Spoilage of Fish Catches

One of the main aims of distributing motors to the small scale fishing households is to reduce the spoilage of fish catch by reaching the landing centre as quickly as possible. In this direction, an attempt has been made to know whether the motorization can be reduced the spoilage of fish catch by analyzing the collected data. Spoilage can be defined as "fish that is either discarded or sold at a relatively low price because of quantity deterioration". It is inevitable for a fisherman to discard some fishes (due to spoilage), which are not in a condition to consume by the people. The spoil of fish varies from fishing unit to fishing unit. The main reason for spoilage of fish may be due to lack of proper preserving facilities on the craft and availability of ice/salt at the landing centre and also to reaching the landing centre lately may cause damage to fish catch. Naturally fresh fish fetches better prices both for fishing units and marketers. Motorization has helped the beneficiary

[6] Kurien, John, (1999), Property Rights, Resources Management and Governance -Crafting and Institutional Frame Work the Global Marine, Working Paper, Centre for Development Studies.

households to reduce the spoilage of fish catches as the motor helps the craft owner to reach the landing centre as quickly as possible to retain the freshness of the fish. In this direction, an attempt has been made to know the percentage of spoilage of fish catch of the beneficiary households and also comparing with the control group households. It can be observed from the above table that 1.9 per cent of total fish catch was discarded by the beneficiary households' due to spoilage of fish in the study area. But in case of control group households, the percentage of spoilage of fish catch is 3.2. This indirectly indicates that motorization facilitate the beneficiary households to minimize the fish spoilage.

Table 5.17 : Comparative Average spoilage of fish catches in kgs per household per year of beneficiary and control group households

Particulars	Andhra Pradesh		Tamil Nadu		Total sample	
	Beneficiary (N=75)	**Control Group (N=25)**	**Beneficiary (N=75)**	**Control Group (N=25)**	**Beneficiary (N=150)**	**Control Group (N=50)**
Total marketable of catch	5659 (99.0)	3645 (96.7)	5470 (99.0)	3077 (96.8)	5561 (99.0)	3462 (96.8)
Spoilage of fish in a year	53 (1.0)	124 (3.3)	57 (1.0)	103 (3.2)	55 (1.0)	114 (3.2)
Total Fish Netted	**5712 (100.0)**	**3769 (100.0)**	**5527 (100.0)**	**3180 (100.0)**	**5616 (100.0)**	**3576 (100.0)**

Source: *Primary data/ Focus Group Discussions*

Loss of spoilage of fish in monetary terms

An index is worked out to assess the amount of loss for beneficiary fishing units on the basis of the total amount of loss incurred due to spoilage of fish catch with respect to net real income. The amount of loss incurred is more in case of control fishing units than the beneficiaries' units**.**

The beneficiary households incurred more amount of loss due to spoilage of fish catch than the control group households. On average Rs. 2,943 and Rs. 4,606 were incurred by the beneficiary and control households due to spoilage of fish catch. There is a need to take steps to minimize this loss by organizing training programs on fish preservation techniques among the fishing households and also to organize training programs on availability of credit facilities for traditional households for purchase of motors.

Table 5.18 : Spoilage of fish catch and amount of loss						
Particulars	Andhra Pradesh		Tamil Nadu		Total sample	
	Beneficiary (N=75)	Control Group (N=25)	Beneficiary (N=75)	Control Group (N=25)	Beneficiary (N=150)	Control Group (N=50)
Spoilage of fish in kgs	53	124	57	103	55	114
Obtained price per kg of fish	54.65	40.64	52.30	40.12	53.50	40.40
Total amount loss per year	2896	5039	2981	4132	2943	4606
Present net income obtained in the year	77727	38523	71321	27089	74525	32805
Total net income if not spoiled (net real income)	80623	43513	74302	31221	77468	37411
Percentage of monetary loss	3.6	11.5	4.0	13.2	3.8	12.3

Source: Primary data

Financial viability

As the benefit is accrued to the fishing community who are not bearing the cost of the investment fully, it was thought appropriate to attempt economic viability of the investment. Economic viability was assessed in terms of Internal Rate of Return (IRR) using Discounted Cash Flow technique. Benefit Cost Ratio (BCR), Net Present Worth (NPW) of net benefit of the investment were also worked out using the discounting factor at 15 per cent. The financial analysis of the investment of motorized craft has been attempted in the below table. Once in every two years the beneficiary households have to replace the entire nets (gears) due to damage for more utilization. Most of the control group households have utilized their gears by mending and repairing. So in the analysis capital cost of gears has shown in every two years and in every five years they have to invest 50% of their initial investment.

Table 5.19 : Statement showing Calculation of Internal rate of return (IRR) for beneficiary crafts in East Godavari district of Andhra Pradesh (Rs. in Lakhs)

Fishing units of Beneficiary households in Andhra Pradesh										
Year	1	2	3	4	5	6	7	8	9	10
Capital Cost	2.170	0.000	0.500	0.000	1.090	0.000	0.500	0.000	1.090	0.000
Recurring Cost	2.060	2.060	2.060	2.060	2.060	2.060	2.060	2.060	2.060	2.060
Total Cost	4.230	2.060	2.560	2.060	3.150	2.060	2.560	2.060	3.150	2.060
Gross Benefit	3.090	3.090	3.090	3.090	3.090	3.090	3.090	3.090	3.090	3.090
Net Benefit (B-C)	-1.140	1.030	0.530	1.030	-0.060	1.030	0.530	1.030	-0.060	1.030
Present Worth of Costs at 15% DF			13.594							
Present Worth of Benefit at 15% DF			15.508							
Net Present Worth (PW Benefit - PW Cost)			1.914							
Benefit Cost Ratio (PW of Benefit / PW of Costs)			1.141:1							
Internal Rate of Return =			68.50%							

Fishing units of control group households in Andhra Pradesh										
Year	1	2	3	4	5	6	7	8	9	10
Capital Cost	1.437	0.000	0.000	0.000	0.800	0.000	0.000	0.000	0.800	0.000
Recurring Cost	0.956	0.956	0.956	0.956	0.956	0.956	0.956	0.956	0.956	0.956
Total Cost	2.393	0.956	0.956	0.956	1.756	0.956	0.956	0.956	1.756	0.956
Gross Benefit	1.481	1.481	1.481	1.481	1.481	1.481	1.481	1.481	1.481	1.481
Net Benefit (B-C)	-0.912	0.525	0.525	0.525	-0.275	0.525	0.525	0.525	-0.275	0.525
Present Worth of Costs at 15% DF			6.673							
Present Worth of Benefit at 15% DF			7.433							
Net Present Worth (PW Benefit - PW Cost)			0.760							
Benefit Cost Ratio (PW of Benefit / PW of Costs)			1.11 4:1							
Internal Rate of Return =			44.45%							

Calculation of IRR for motorized crafts in Tamil Nadu										
Year	1	2	3	4	5	6	7	8	9	10
Capital Cost	1.980	0.000	0.500	0.000	0.990	0.000	0.500	0.000	0.990	0.000
Recurring Cost	1.897	1.897	1.897	1.897	1.897	1.897	1.897	1.897	1.897	1.897
Total Cost	3.877	1.897	2.397	1.897	2.887	1.897	2.397	1.897	2.887	1.897
Gross Benefit	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856
Net Benefit (B-C)	-1.021	0.959	0.459	0.959	-0.031	0.959	0.459	0.959	-0.031	0.959
Present Worth of Costs at 15% DF			12.533							
Present Worth of Benefit at 15% DF			14.334							
Net Present Worth (PW Benefit - PW Cost)			1.801							
Benefit Cost Ratio (PW of Benefit / PW of Costs)			1.144	:1						
Internal Rate of Return =			70.88%							

Calculation of IRR for control group in Tamil Nadu (Rs. lakhs)										
Year	1	2	3	4	5	6	7	8	9	10
Capital Cost	1.780	0.000	0.000	0.000	0.892	0.000	0.000	0.000	0.892	0.000
Recurring Cost	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900
Total Cost	2.680	0.900	0.900	0.900	1.792	0.900	0.900	0.900	1.792	0.900
Gross Benefit	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320
Net Benefit (B-C)	-1.360	0.420	0.420	0.420	-0.472	0.420	0.420	0.420	-0.472	0.420
Present Worth of Costs at 15% DF			6.762							
Present Worth of Benefit at 15% DF			6.625							
Net Present Worth (PW Benefit–PW Cost)			0.137							
Benefit Cost Ratio (PW of Benefit/PW of Costs			0.980	: 1						
Internal Rate of Return =			10.78							

Calculation of IRR for total sample beneficiary households Analysis. (Rs. lakhs)										
Year	1	2	3	4	5	6	7	8	9	10
Capital Cost	2.076	0.000	0.500	0.000	1.380	0.000	0.500	0.000	1.380	0.000
Recurring Cost	1.977	1.977	1.977	1.977	1.977	1.977	1.977	1.977	1.977	1.977
Total Cost	4.053	1.977	2.477	1.977	3.357	1.977	2.477	1.977	3.357	1.977
Gross Benefit	2.976	2.976	2.976	2.976	2.976	2.976	2.976	2.976	2.976	2.976
Net Benefit (B-C)	-1.077	0.999	0.499	0.999	-0.381	0.999	0.499	0.999	-0.381	0.999
Present Worth of Costs at 15% DF			13.322							
Present Worth of Benefit at 15% DF			14.936							
Net Present Worth (PW Benefit - PW Cost)			1.613							
Benefit Cost Ratio (PW of Benefit / PW of Costs)			1.121	:1						
Internal Rate of Return =			66.75%							

Calculation of IRR for total control group households Analysis. (Rs. Lakhs)										
Year	1	2	3	4	5	6	7	8	9	10
Capital Cost	1.610	0.000	0.000	0.000	0.800	0.000	0.000	0.000	0.800	0.000
Recur ring Cost	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928
Total Cost	2.538	0.928	0.928	0.928	1.728	0.928	0.928	0.928	1.728	0.928
Gross Benefit	1.397	1.397	1.397	1.397	1.397	1.397	1.397	1.397	1.397	1.397
Net Benefit (B-C)	-1.141	0.469	0.469	0.469	-0.331	0.469	0.469	0.469	-0.331	0.469
Present Worth of Costs at 15% DF			6.683							
Present Worth of Benefit at 15% DF			7.011							
Net Present Worth (PW Benefit - PW Cost)			0.329							
Benefit Cost Ratio (PW of Benefit / PW of Costs)			1.049	:1						
Internal Rate of Return =			25.78%							

Financial analysis of the investment of fishing units of beneficiary households in the study region was worked. The IRR of Motorized sample units of East Godavari district and Sample units of Tamil Nadu and total sample motorized units are 68.5 cent, 70.88 per cent and 66.75 per cent respectively. The IRR for control group households of Andhra Tamil Nadu and total are 44.45, 10.75 and 25.78 respectively. This indicates that beneficiary household units are financially viable than the control group households.

(e) Motorization and employment generation

Motorized fishing units can be created employment opportunities in the marine villages to people directly and indirectly. It is pointed out that indirect employment opportunities increase due to more catches and establishment of ancillary units like ice, workshops for engines, etc. It is also observed that more women got engaged in fish marketing activity, particularly in dry fish marketing. Every 100kgs of fish produced from marine fisheries provide full-time employment for 20 persons in the harvesting sector and another 24 persons in the postharvest sector and one person in the tertiary sector. (R. Sathiadhas : 2009)[7]. Based on this, an attempt has been made to know the employment generation from various fishing units in the study area.

Table 5.20 : Generation of employment opportunities for motorized and control group

Employment generation Per 100 kg of fish in		**Generation of employment (persons)**	
Employment in	Employment generation per year (in persons)	Motorized	Traditional
	Per 100Kgs	**5561***	**3462***
Harvesting	20	1112	692
Post-harvest	24	1335	831
Tertiary	1	56	35
Total	45	2503	1658

*Field data on Fish Production per average catch per fishing unit

It is observed that the motorized craft can be employed 2503 persons in a year by producing 5561 kgs of fish. Traditional crafts generate employment to 1658 persons in a year. When comparing with the beneficiary and control group households, motorized sector provides more employment opportunities to the fishing households than the traditional sectors. Due to motorization more employment opportunities have come up in the marine villages.

[7] R.Sathiadhas :2009: "Inter-sectoral Disparity and Marginalization in Marine Fisheries in India " Asian Fisheries Science 22920090 PP 773-786 . Available on line at www.asianfihseriessociety.org.

Section III

Motorization and Improvement in Socio-economic Conditions

As noted in the previous sections motorization has led to increase in the quantity and value of fish production and thereby increases in the incomes of the beneficiary households. This will have profound impact on the living conditions of the beneficiary households. An attempt is made in this section to make an overall assessment of this change by examining the socio-economic conditions of the scheme beneficiaries and control group households. The results are presented in three sub-sections. First one deal with personal details of the beneficiary, the second sub-section give attention to family particulars of the beneficiary and control group, and the third focuses on the benefits of motorization to beneficiary households.

(a) Personal details of the sample households

Age, marital status, literacy levels, etc. are collected from the sample households and tabulated in the below table.

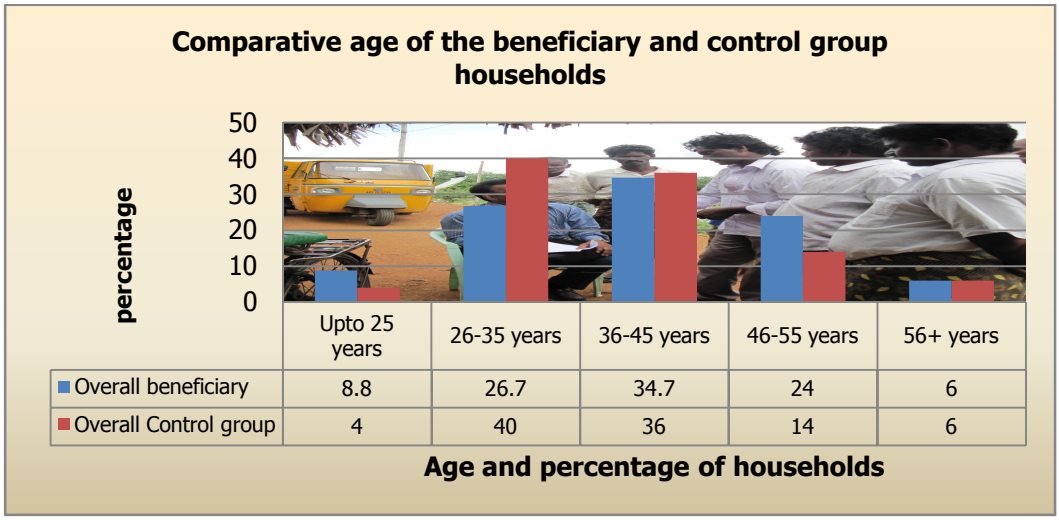
Table 5.21: Personal details of the Beneficiary and Control Group Households

Socio-economic Conditions		Particulars of Beneficiary and Control Group Households					
		East Godavari district of Andhra Pradesh		Nagapattinam district of Tamil Nadu		Overall	
		Beneficiary	**Control group**	**Beneficiary**	**Control group**	**Beneficiary**	**Control group**
Personal data							
Age	Upto 25	1(1.3)	-	12(16.00)	2(8.0)	13(8.8)	2(4.0)
	26-35	13(17.3)	10(40.0)	27(36.0)	10(40.0	40(26.7)	20(40.0)
	36-45	32(42.7)	10(40.0)	20(26.7)	8(32.0)	52(34.7)	18(36.0)
	46-55	24(32.0)	5(20.00	12(16.0)	2(8.0)	36(24.0)	7(14.0)
	56+	5(6.7)	-	4(5.3)	3(12.0)	9(6.0)	3(6.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Marital status	Married	74(98.7)	19(76.0)	61(81.3)	20(80.0)	135(90.0)	39(78.0)
	Un-married	-	4(16.0)	14(18.7)	3(12.0)	14(9.3)	7(14.0)
	Widower	1(1.3)	2(8.0)	-	2(8.0)	1(0.7)	4(8.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Literacy	illiterate	52(69.3)	19(76.0)	12(16.0)	13(52.0)	64(42.7)	32(64.0)
	Literate	13(17.3)	6(24.0)	4(5.3)	5(20.0)	17(11.3)	11(22.0)
	Primary	5(6.7)	-	31(41.3)	3(12.0)	36(24.0)	3(6.0)
	Secondary	3(4.0)	-	17(22.7)	3(12.0)	20(13.3)	3(6.0)
	High	1(1.3)	-	9(12.0)	-	10(6.7)	-
	Others	1(1.3)	-	2(2.7)	1(4.0)	3(2.0)	1(2.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)

Source: Primary data

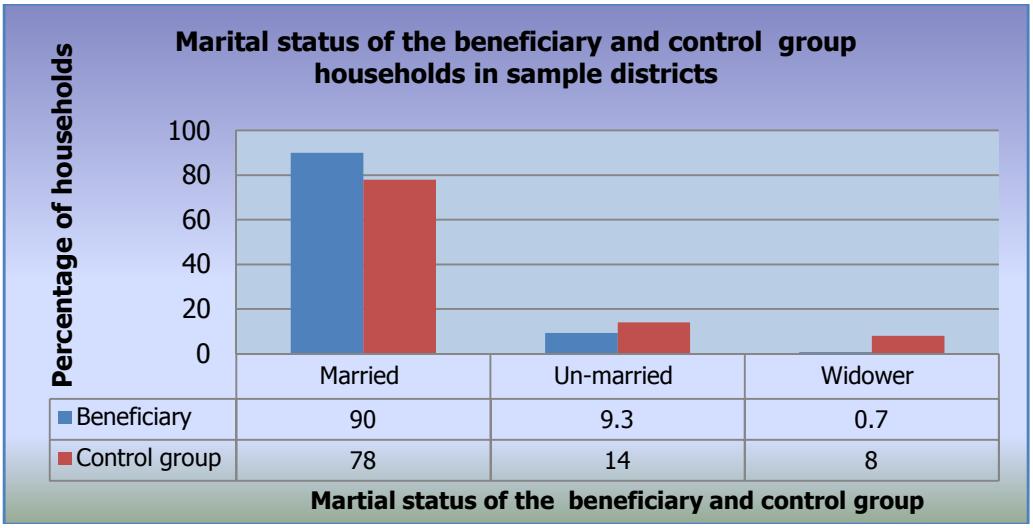
Age of the beneficiary and control group

The age structure shows that the highest percentage (35%) of beneficiary households are in between 35-40 years old. In case of control group households 40 per cent are in the age group of 26-35. It indicates that more young persons are in control group and this may be due to traditional sector require more physical strength to operate their fishing craft. It is interesting to note that 9 percent of the youngster got the motorization scheme. Age increases the percentage of control group households' decreases and this indicates that due to decrease their physical abilities most of them are not willing to operate their traditional crafts. When comparing between the states, the more percentage of youngsters (16%) of Tamil Nadu got motors than Andhra Pradesh.



Marital status

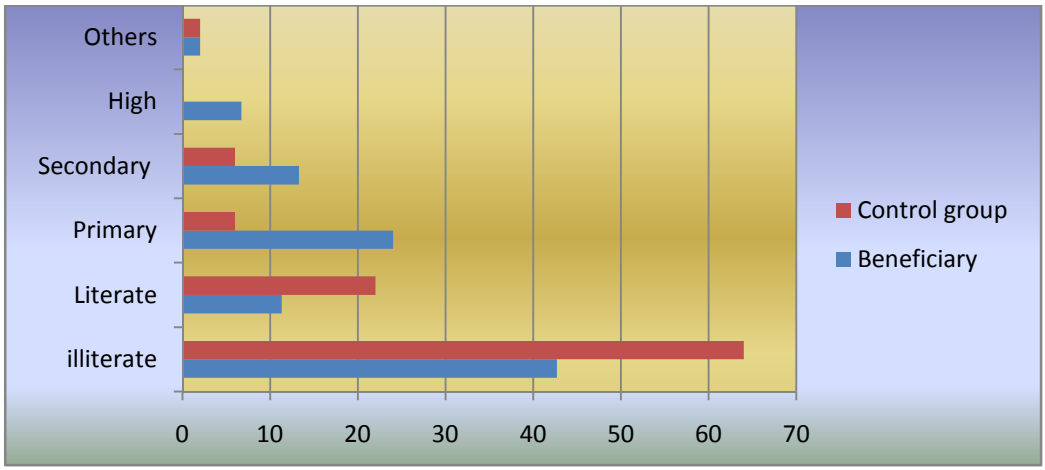
Most of the motorized scheme beneficiary households are married in both the states. Widowers are found as high in control group households than in the beneficiary households. The inference is that there is higher female mortality among the control category due to their low income levels and non-availability of credit facilities because of which many are not able to afford health care facilities. This has been mentioned by respondents in the field.



Literacy levels

Literacy is one of the main channels to learn new technologies, which improve peoples' occupational skills to be more productive and earn more incomes. The basic literacy helps the individual to strengthen the competencies, develop commitment and also improves the rational thinking which in turn moulds them into responsible citizens. Basic literary also helps the individual to receive the communication properly and communicate the things to others efficiently, which is a must for the development of an individual (Suraparaju:2010:P465)[8]. Here an attempt is made to know the literacy levels of the scheme beneficiaries and control group. It is found that beneficiary households are more Literates than the control group households. A majority (64%) of the control group households are illiterates. Among the literates most of them studied up to primary level in both beneficiary and non-beneficiary households. Very few scheme beneficiaries have studied up to high school level and no one studied high school in control group households. More illiterates are found in Andhra Pradesh than in Tamil Nadu State. The field observations revealed that literacy helped the beneficiary households in getting the information about the scheme than illiterate households.

[8] Suraparaju (2010): "Development Through Literacy: A Study of Fishing Community in Andhra Pradesh" in Journal of Rural Development Vol. 29 No 4, October –December, pp 465-480.



(b) Household particulars of the Respondents

Information with regard to family particulars, such as religion, caste, type of family, type of house, source of lighting, cooking etc., was collected from the respondents of both scheme beneficiary and control groups. The following table gives us the household particulars in detail.

Table 5.22 : Household Particulars of Beneficiary and Control Group Households

Socio-economic Conditions		Particulars of Beneficiary and Control Group Households					
		East Godavari district of Andhra Pradesh		Nagapattinam district of Tamil Nadu		Overall	
		Beneficiary	Control group	Beneficiary	Control group	Beneficiary	Control group
Household data							
Religion	Hindu	47(62.7)	17(68.0)	51(68.0)	20(80.0)	98(65.3)	37(74.0)
	Christian	28(37.3)	8(32.0)	24(32.0)	5(20.0)	52(34.7)	13(26.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Caste	Vadabalija	70((93.3)	25(100.0)	-	-	70(46.7)	25(50.0)
	Pattinavar	-	-	45(60.0)	18(72.0)	45(30.0)	18(36.0)
	Jalari	3(4.0)	-	-	-	3(2.0)	-
	Agnikula Kshetriya	2(2.7)	-	-	-	2(1.3)	-
	Others	-	-	30(40.0)	7(28.0)	30(20.0)	7(14.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Type of Family	Nuclear	37(49.3)	9(36.0)	68(90.7)	15(60.0)	105(70.0)	24(48.0)
	Joint	38(50.7)	16(64.0)	7(9.3)	10(40.0)	45(30.0)	26(52.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Type of House	Pucca	43(57.3)	5 (20.0)	45(60.0)	14(56.0)	88(58.7)	19(36.0)
	Semi-pucca	23(30.7)	15(60.0)	20(26.7)	9(36.0)	43(28.7)	24(48.0)
	Kutcha	9(12.0)	5(20.0)	10(13.3)	2(8.0)	19(12.6)	7(14.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)

Table 5.22A : Household Particulars of Beneficiary and Control Group Households							
Socio-economic Conditions		Particulars of Beneficiary and Control Group Households					
		East Godavari district of Andhra Pradesh		Nagapattinam district of Tamil Nadu		Overall	
		Beneficiary	Control group	Beneficiary	Control group	Beneficiary	Control group
Source of lighting	Kerosene	4(5.3)	1(4.0)	4(5.3)	2(8.0)	8(5.3)	3(6.0)
	Electricity	71(94.7)	24(96.0)	71(94.7)	23(92.0)	142(94.7)	47(94.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Cooking	Gas stove	54(72.0)	11(44.0)	48(64.0)	11(44.0)	102(68.0)	22(44.0)
	Kerosene	6(8.0)	5(20.0)	1(1.3)	4(16.0)	7(4.7)	9(18.0)
	Firewood	15(20.0)	9(36.0)	26(34.7)	10(40.0)	41(27.3)	19(36.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Family size	Average numbers in family	6.19	7.12	6.21	6.64	6.20	6.88
Per capita income	Per year in RS	12557	5411	11485	4080	12020	4768

Source: Primary data

Religion

Religion undoubtedly plays a key role in shaping people's values and influencing their decisions. When trying to manage a natural resource, it is important to try to figure out how and to what degree religion influences people's actions. In many situations, where religious beliefs are widely varied, or peoples religious beliefs have little sway over their decisions, attempting to understand how religion influences people's actions might be pointless (Stuart Brown et.al:2008 p. 6)[9]. With regard to present analysis on religion in the study area shows that most of the beneficiary households belong to Hindus in both beneficiary and control group households in both sample districts. In focus group discussions most of the fishing households reveal that religion plays either active or pro-active role in getting the scheme.

Caste and sub-sects

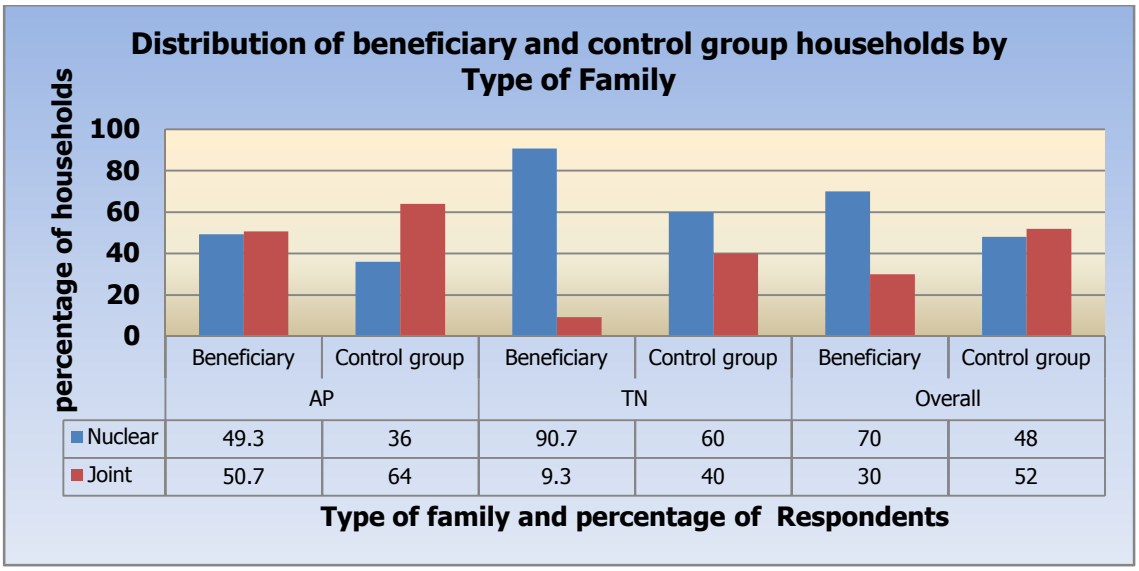
Caste gives us the indication about the social status of the households. In Andhra Pradesh, fishing communities are come under Backward Caste (BC) and in Tamil Nadu they come under most

[9] Stuart Brown et.al:2008: Religion and Fisheries Management in Coastal North Carolina, Nicholas School of the Environment and Earth Sciences of Duke University. 2008 pp 1-33. **www.***ukespace.lib.duke.edu/dspace/handle/10161/539*

backward Castes (MBC). Among the total sample beneficiary households in Andhra Pradesh, vadabalija fishing households' formed 60 percent. Pattinavar sub-sect is dominant in Tamil Nadu State.

Type of Family

On the whole, nuclear types of families are predominant both in beneficiary and Control group households. More Nuclear families are found in in Nagapattinam district of Tamil Nadu than East Godavari district of Andhra Pradesh and the main reason observed for this is construction of number houses to fishing households under the Tsunami rehabilitated Programmes by government and several Non-governmental organizations. When compared with beneficiary and control group, more Joint families are seen in control group. This may be due to many reasons, such as - (i) they are unable to construct houses separately for their sons due to poor conditions that made them to live jointly, (ii) they require more manual labour in their fishing operations, like sailing the boat and catching the fish, and (iii) uncertainty of availability of crew members for operating fishing equipment is perhaps the main reason for maintaining large families.



Type of House

The economic status of the fishing households get reflected in the type of houses they own. It is found that nearly 59 per cent beneficiaries have pucca houses and most of the control group households have semi-pucca houses. Fourteen percent of the control group households reside in kutcha houses may be due to low income levels. Most of the beneficiaries reside in pucca houses

and very few non-beneficiaries (traditional craft owned) live in pucca houses and this indirectly indicates better living conditions of the scheme beneficiaries. When comparing between the states, more percentage of households in Tamil Nadu have pucca houses as most of them got the pucca houses from the government/ NGO under the Tsunami rehabilitation programme.

Distribution of percentage of households by Type of House and State

	Andhra Pradesh		Tamil Nadu		Overall	
	Beneficiary	Control group	Beneficiary	Control group	Beneficiary	Control group
Pucca	57.3	20	60	56	58.7	36
Semi-pucca	30.7	60	26.7	36	28.7	48
Kutcha	12	20	13.3	8	12.6	14

Source of lighting and source of cooking

Ninety five per cent of respondents in both the categories and in both the states have electricity facility for lighting. The remaining 5 percent have not utilizing the electricity facility due to fear of getting short-circuit to their kutcha houses made with grass and palm trees.

More percentage of beneficiary households in both the states have using the Gas stoves for their cooking purpose. When comparing within the states, more percentage of gas stove users are in

Andhra Pradesh than Tamil Nadu. On the whole, 27 percentage of beneficiary and 36 percentage of control group households have still using the firewood for their cooking purpose. This indicates the beneficiary households' living conditions are better than the control group households.

To sum up, most of the beneficiary households have possessed more valuable assets than the control group households and the living standards of the beneficiary households are in better position than the control group households. Very poor standard of living observed in control group households in both the states. There is a need to improve the standard of living of the traditional craft owned households in all aspects.

Section IV

Perceptions of Beneficiary Households on usefulness of Motorization and overall development

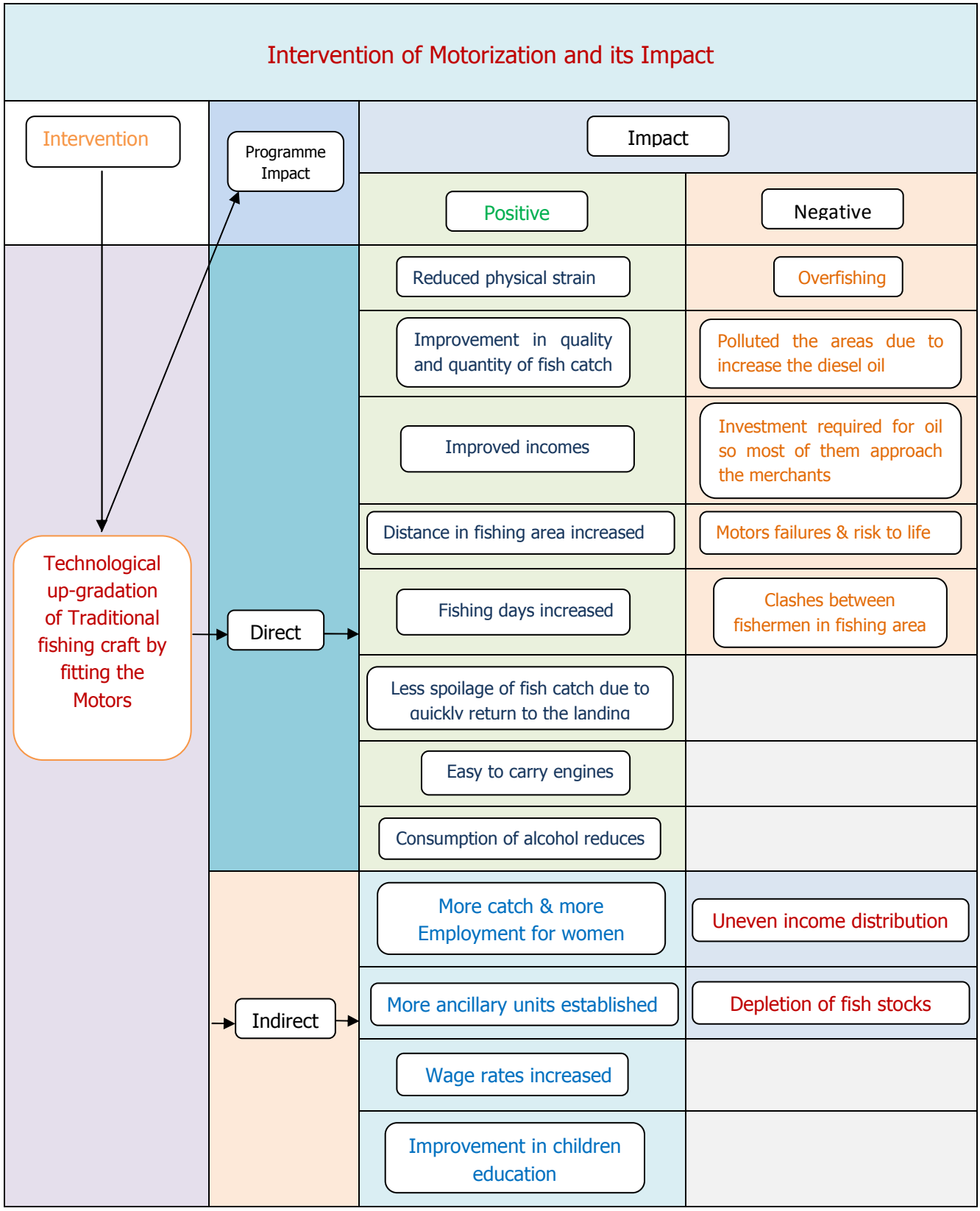
It is very essential to find out the perceptions of the beneficiary households about the usefulness of the motorization scheme to evaluate the implementation of the scheme and how far it is being benefited to the beneficiary households in their fishing operations and in improvement in their living standards. So this context, an attempt has been made to know the perceptions of the beneficiary households by gathering information from the beneficiary households was analyzed in the below table.

Table 5.23 : Perceptions of the beneficiaries on usefulness of the Motorized scheme

Particulars on Usefulness of motorization	State wise beneficiaries perceptions on usefulness of the motorization					
	Andhra Pradesh (N=75)		Tamil Nadu (N=75)		Total (N=150)	
	Yes	No	Yes	No	Yes	No
Reduced physical strain in operation of the craft	75 (100.0)	-	75 (100.0)	-	150 (100.0)	-
Covered more area in their fishing operations	68 (90.7)	7 (9.3)	64 (83.3)	11 (14.7)	132 (88.0)	18 (24.0)
Fishing days increased	70 (93.3)	5 (6.7)	70 (93.3)	5 (6.7)	140 (93.3)	10 (6.7)
Increase in Incomes from fishing operations	70 (93.3)	5 (6.7)	68 (90.7)	7 (9.3)	138 (92.0)	13 (8.7)
Improved socio-economic conditions	65 (86.7)	10 (13.3)	60 (80.0)	15 (20.0)	125 (83.3)	25 (16.7)

Source: Primary data

Every beneficiary expressed that motorization has helped them in reducing their physical strain in fishing operations. Ninety one and 83 percent of beneficiaries of Andhra Pradesh and Tamil Nadu revealed that more fishing area has increased due to motorization. On the whole, 88 percent of beneficiary households told that their fishing area has been increased because of motorization. Ninety three and 92 per cent of beneficiary households informed that motorization has helped them in increasing their fishing days and increase in incomes from the fishing operations respectively in the study area. On the whole, 83 per cent of beneficiary households reported that due to motorization scheme their socio-economic conditions have been improved.


Intervention of Motorization and its Impact
Intervention
Programme Impact
Impact
Positive
Negative
Technological up-gradation of Traditional fishing craft by fitting the Motors
Direct
Indirect
Reduced physical strain
Overfishing
Improvement in quality and quantity of fish catch
Polluted the areas due to increase the diesel oil
Improved incomes
Investment required for oil so most of them approach the merchants
Distance in fishing area increased
Motors failures & risk to life
Fishing days increased
Clashes between fishermen in fishing area
Less spoilage of fish catch due to quickly return to the landing
Easy to carry engines
Consumption of alcohol reduces
More catch & more Employment for women
Uneven income distribution
More ancillary units established
Depletion of fish stocks
Wage rates increased
Improvement in children education

Section V

Field Observations and SWOT Analysis on Motorization

It is not only possible for the researcher to evaluate the entire universe but also impossible for him to go deep into the selected study units due to lack of time and monitory related issues. In addition to the sample study, through alternate way gather more information within the stipulated period by adopting field observation technique and SWOT analysis. This section contains two aspects viz., (a) Field observations and (b) Motorization and SWOT analysis.

(a) Field observations

Problems in releasing the subsidy from the state government

The motorization scheme is shared equally by the state and the Central governments. It is observed that delay in releasing the matching grant from the state government is a problem in grounding the schemes**.** States do not release their share in time, leading to uncertainty about the availability of funds at the field level. While interacting with the government officials at state level at both the sample states some important points emerged are: (i) the states have to get legislative approval for GOI schemes, which take time, (ii) States do not attach importance to spending on CSSs, and thus are in no hurry to sanction expenditure, and (iii) Possibilities in diversion of Government of India funds for other purpose like paying salaries.

Poor Maintenance of records at district level fisheries departments

As per the guidelines, the District Fisheries Officers should maintain a register with giving all the particulars of the beneficiaries for inspection of the superior officers on their visit to the office. But in Andhra Pradesh the list of beneficiaries' year wise and village wise was not properly maintained. Schemes should be reviewed frequently and if any shortfalls in the schemes should be rectified. The collector has to be reviewed the schemes and report has to be submitted to the central government once in a month.

Influenced households got motors in some of the villages

The beneficiaries were selected though the grama sabha in Andhra Pradesh and in Tamil Nadu, the seniority list of households were prepared by the district fishery officials and beneficiaries will be selected from the list. After preparing the list, selected the beneficiaries based on seniority and that list should be approved in the grama sabha. In Andhra Pradesh, even though the applicants have

been selected through grama Sabha, the sarapanch plays key role in grama sabha. Few people, who have the influence in the villages were availed the schemes than the real poor people. The poor people who are badly needed of motors are not getting in the scheme.

Measuring the poverty/economic status

The motor aspirant should be in below poverty line. But it is very difficult to verify the poverty of the fisherman in marine villages. There is no uniform set procedure to verify whether an applicant is below poverty line or not, and therefore, different methodologies are adopted in the selected states. Sometimes, the applicants have to get such certificate from the local revenue officers. There is no proper verification of economic status of the fishing households in the marine villages. In Andhra Pradesh, the beneficiaries were identified as poor people on the basis of ration cards. The people who possess the white card treated as poor people in Andhra Pradesh. In some of the fishing households who own higher economic productive assets like crafts, gears and living in pucca houses with all amenities and possess the motor bikes are also come under the category of below poverty line based on the ration card criteria. There should be a clear-cut and uniform procedure to be formulated to identify the poor people.

Bankers are not come forward to extend the loans

Two different methods have been adopted for grounding the schemes in Andhra Pradesh and Tamil Nadu. In Andhra Pradesh this scheme has been grounding through banks and in Tamil Nadu the beneficiary has to contribute his share. Most of the non- beneficiaries expressed that banks have not come forward to give loans and some of the beneficiaries expressed that they have to visit many times to get the loans. Since motorization programme is a government sponsored programme, the bankers had not insisted the surety or security from the beneficiaries at the time of disbursement of loan to the fishing households. But in field situation, bankers are insisting for security and surety. The main reason for this is recovery of loan from the beneficiary household is very much difficult without security and surety. So bankers are not willing to extend their helping hand. Uniform methods have to be implementing all the states.

Utilization of poor quality of wood for craft construction

Due to rise in boat construction material, the fishing households prefer to least quality material to reduce the cost. It reflects on the life span of the craft/boat. Previously they used to construct their crafts with teak, vegisa wood etc. but now they used to construct with local wood like Neem etc.

The life span of the craft has reduced from 10 years to 5 years. The craft incurs frequent damages due to low quality wood and it also reduces the fishing days in a year.

Life span for the motors is only for two to three years

According to the manufactures, the life span for the engine is about 5- 8 years. But in actual situation it is different. The field observations reveal that the life span for the motor is only for two to three years. The reasons revealed by the beneficiaries are: engine spoils due to salt water and this is particularly observed in case of out-board motors, rough usage in the sea.

Engine Vibration causes health problems

Some of the beneficiary households have expressed that they face health problems due to vibration of engines particularly in case of out-board motors. The fishing households have expressed that in-board engines are more useful than the out-board engines.

(b) Motorization and SWOT Analysis

There is a growing demand for monitoring and evaluation based on critical performance indicators of development programmes all over the world. There is a broad based expectation that evaluation and information analysis will increasingly provide the necessary input for improvement programmes. It is an attempt to know whether this Motorization Programme is useful to beneficiary households or not by testing with the SWOT analysis. The SWOT analysis is meant for analyzing the Strengths (S), Weaknesses (W) Opportunities (O) and Threats (T) of motorized scheme. Strengths and weaknesses are internal factors of the Programme. They are within the Programme/ scheme in the form of abilities and inabilities. Opportunities and threats are external elements, which are operating outside the Programme (or) beneficiary. Thus, opportunities are favorable and threats are unfavorable for the programme.

More strengths and opportunities in the Programme imply that the Programme has been useful to the fishermen community and if there are many weaknesses and threats in the scheme and imply that programme has not been useful to the beneficiaries properly. So it requires more attention to rectify the weaknesses of the Programme/scheme by finding solutions and to avoid threats for effective implementation of the Programme/scheme.

STRENGTHS (S)

Not require physical labour

To operate the traditional boat from one point to another it requires the physical strength of the fishermen. But in the case of motorized craft, no need of using their manual labour in operation of craft as the motor fitted to the craft. It facilitates them to spend more time on sea as no need of use their physical strength. Unanimously fishing households in the study area have expressed that motorization has helped them in reducing their physical strain in fishing operations.

Get more catch by covering more distance

It is very difficult for the traditional boat owners to go long distance into sea and difficult to change the direction of their boats on sea. But in the case of motorized crafts, the fishermen can go far off places into the sea for fishing and if necessary, they can easily change the direction of the boat. It is observed that more varieties of catches, more value of catch obtained to the beneficiary households due to coverage of more area in their fishing.

Increase in more fishing days and more incomes

The study find out that motorization helped the fishing households not only increased their fishing days (as the boat can be operated even in rough sea) but also increased their net incomes. A positive trend observed between the fishing days and percentage of profit in the study area.

Spent more time for fishing and less spoilage of catch

Not only less time taken to reach the fishing ground, but also comeback quickly to the shore is possible for these crafts. It facilitates these operators to spend more time for fishing. This may be lead to get more catch to the fishermen. These crafts carry the iceboxes for preserve the catch. So the spoilage of catches can be minimized. Minimum spoilage of catch leads to more income for the fishermen.

Come back to the landing centre quickly and safely

The motors help the fishing households in safe return to the landing centre after completing their fishing operations than the traditional craft. It also helps the fishing households to come back to the landing centre safely particularly at the time of cyclones.

Easy to carry the engine after fishing operations

The motors can be removed from the craft as soon as it returns to the landing centre after completing the fishing operations and the fishermen carry the motor to their homes where the engine can be washed.

WEAKNESSES (W)

Influenced households got motors

The beneficiaries were selected though the grama sabha in Andhra Pradesh and in Tamil Nadu, the seniority list of households were prepared by the district fishery officials and beneficiaries will be selected from the list. After preparing the list, selected the beneficiaries based on seniority and that list should be approved in the gram sabha. In Andhra Pradesh, even though the applicants have been selected through gram Sabha, the sarapanch plays key role in gram sabha. Few people, who have the influence in the villages were availed the schemes than the real poor people. The poor people who are badly needed of motors are not getting in the scheme in Andhra Pradesh.

Motor requires fuel which is cost effective

The traditional boat owners (control group) need not spend any amount on fuel, but they have to use their physical labour. Whereas the motorized craft requires diesel to operate and this involves more cost. Cost of the diesel increasing day by day and the beneficiary households are not able to spend more amounts on diesel. So they have to go for moneylenders to get money for day-to-day operations like expenditure on diesel, ice, etc. It is observed that nearly 45 percent of total cost incurs oil expenditure.

Failure of motors at sea

If any breakdowns occur to these engines/motors, while they operated at far off places from the landing centre, they have to face lot of problems to take the craft to the landing centre.

Frequent Repairs to motors

Due to more usage of motors in salty waters they may get repairs. It is observed that most of the spare parts are not available to their reach and to get it repaired also they have to go for long distance. It involves loss of fishing days and income to the operators.

OPPORTUNITIES (O)

Easy to get the motors on subsidy

Due to poor economic conditions, the fishermen are not able to invest on large amount on motors. By giving encouragement in form of subsidies and margin money, poor fishermen can able to get the motors under motorization.

Improves their socio-economic conditions

By getting more catches and thereby increasing their income from the fishing and improvement in their socio-economic conditions.

Not lead to the induction of non-fishermen community into fishing activity

Due to more supply of number of motors leads to wide employment opportunities for fishing households. Again it leads to scarcity of labour in the village. Due to high wage rates, high bargaining power of fishing households, the non-fishing communities are not in a position to enter into the fishing activity as less profitability in this industry due to increase of variable costs.

Increase more employment opportunities in the marine villages

Motorized fishing units can be created employment opportunities in the marine villages to people directly and indirectly. It is pointed out that pointed out that indirect employment opportunities increase due to more catches and establishment of ancillary units like ice, workshops for engines, etc. It is also observed that more women got engaged in fish marketing activity, particularly in dry fish marketing. . When comparing with the beneficiary and control group households, motorized sector provides more employment opportunities to the fishing households than the traditional sectors.

THREATS (T)

Engine Vibration causes health problems

Some of the beneficiary households have expressed that they face health problems due to vibration of engines particularly in case of out-board motors. The fishing households have expressed that in-board engines are more useful than the out-board engines.

Clashes between the fishing households for the fishing ground

Increase the more number of motors leads to more competition among the fishing households leads to clashes for fishing ground. There is also possibility of decrease the fish catches due to more motors supplied in a particular area and operate the motors in a particular area. It is also leads to overexploitation of inshore resources cause many problems in future.

Uneven Income distribution

Huge income differential was observed between the beneficiary and control group households in the study region. It causes tensions in the community.

Increases more motorized boats leads to overfishing

Due to subsidies on motors attracted many fishing households to avail the scheme. Due to concentration large number of motorized crafts lead to overfishing in the coastal areas. Overfishing has an effect on low catches and incomes and severe impact on livelihoods of the fishing households.

It can be concluded that the scheme has more strengths and opportunities than weaknesses and threats. It can be further strengthen the scheme to implement more effectively by finding solutions to overcome the weaknesses and threats. The next chapter finds out the impact of HSD oil scheme on beneficiary households in detail.

Chapter –VI High Speed Diesel (HSD) Oil Scheme and its Impact

Scheme for reimbursement of Central Excise Duty on HSD oil used by fishing vessels below 20 meter length has been implemented since 1991 with a view to help the small mechanized fishing owners/operators to bring down the operational cost of these vessels and thereby to encourage them to increase the fishing days, fish catch and income. The increasing operational cost of mechanized fishing vessel coupled with reduced fish catch per unit has led to poor income to the fishermen. To alleviate the suffering of the mechanized and motorized boat operators and to reduce the operational cost, the Government reimburses the central excise duty by way of subsidy towards the purchase of HSD oil. The subsidy will be limited to Rs. 3.00 per litre of HSD oil with a ceiling of 500 litres per boat, per month during active fishing months. The subsidy will be provided to the mechanized/motorized vessels with overall length lesser than 20 metre and registered prior to X Five year Plan period. The owners of the Mechanised fishing boats should be below BPL category. During 2009- 10, Government of India have sanctioned Rs. 300.00 lakhs as subsidy (100% assistance).

Under the restructured scheme for 11th Plan, Central rebate equivalent to 50 % of the Sales Tax relief granted by the States/UTs on HSD oil used for fishing purpose with central subsidy limited to Rs.3/litre of HSD oil with a ceiling of 500 litres is provided per boat per month during active fishing months. Subsidy is provided to the vessels of size less than 20 meters, registered before 10th Five Year Plan, which are owned by fishers of Below Poverty Line (BPL) category. In this direction, this chapter deals with Four sections: (i) Implementation of the HSD oil scheme in study region includes source of information and Problems in getting the scheme, (ii) Impact of HSD oil schemes on fishing operations; (iii) Perceptions of Beneficiary Households on usefulness of HSD Oil scheme; and (iv) Improvement in socio-economic conditions of the beneficiary households; and (iv) Field observations and SWOT Analysis.

Section I
Implementation of the Scheme

Information was collected from the beneficiary households on scheme implementation details such as source of information about the scheme; require documents to be submitted for getting the scheme and problems in getting the scheme etc.

Sources of Information about the Scheme

Beneficiaries were asked about the sources of information received about the HSD oil scheme. The beneficiaries informed that they have obtained the scheme information mainly from two sources namely officials and non-officials.

Table 6.1 : Source of Information received by the Beneficiary households about the Scheme

Source of Information		Andhra Pradesh	Tamil Nadu	Total sample
Officials	Fisheries department officials includes Field man, field officers etc	42	44	86
	Total Officials	42(56.0)	44(53.3)	86(57.3)
Non-officials	Friends and relatives	-	13	13
	Political leaders/gram panchayat president	11		11
	Community leaders	22	18	40
	Non-officials	33(44.0)	31(41.3)	64(42.7)
	Total	75(100.0)	75(100.0)	150(100.0)

Fisheries officials and community leaders played a key role in dissemination of information on HSD oil scheme in both the selected states. Fifty seven percentage of beneficiaries expressed that they got the information from the fisheries officials.

Received help for getting the scheme and subsidy

Information was collected from the beneficiary households about the help received to get the scheme. The beneficiaries mentioned that the fisheries department officials and community leaders helped them to get the scheme in both the sample districts.

Table 6.2 : Source of help received by the Beneficiaries in getting the scheme

Help received from	Andhra Pradesh	Tamil Nadu	Total sample
Fisheries Officials	45	58	103
Community leaders	18	16	34
Village president/gram panchayat president	12	1	13
Total	**75**	**75**	**150**

Help in filling the application form

Since most of the fishing households in the marine villages are illiterates and they have to approach literate persons for filling the application form. This help was rendered by various sources. The employees of the fisheries Department have played a crucial role in helping the applicants to fill up the application forms.

Type of craft owned

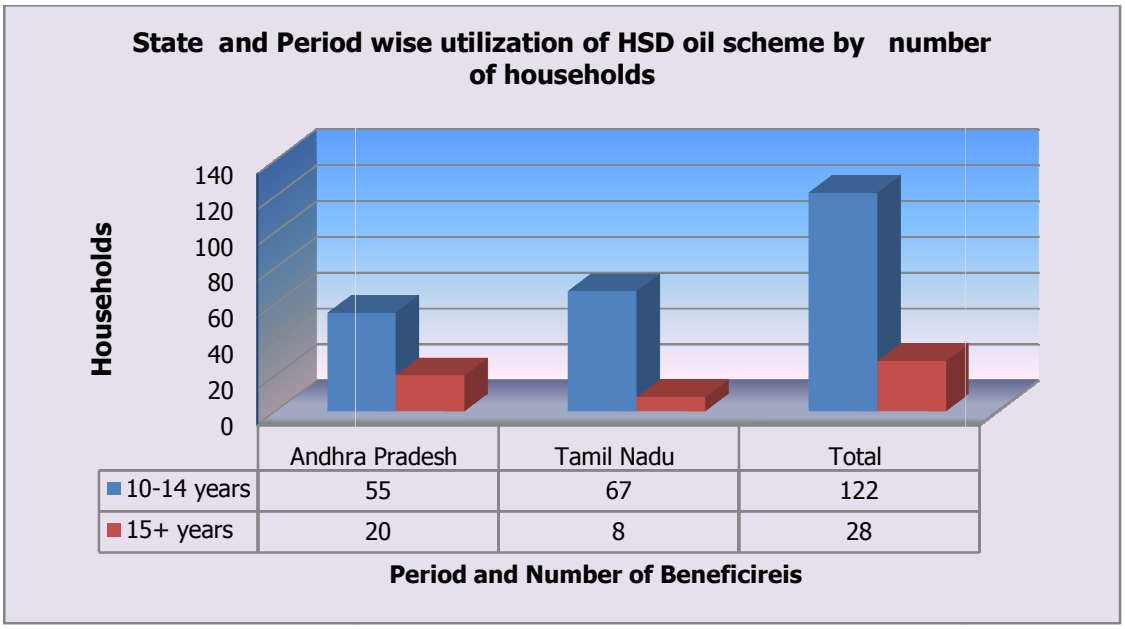
There are two types of crafts owned by the beneficiaries of HSD oil scheme in the study areas Viz., mechanized and motorized. Among the HSD oil scheme beneficiaries of Andhra Pradesh, most of them are motorized craft owners and in Tamil Nadu most of them are mechanized craft owners. On the whole, 56 percentage of beneficiaries owned the mechanized crafts and rest of them have motorized crafts. In the focus group discussions conducted in the marine villages most of the fishing households expressed that more number of mechanized craft owners has enrolled as beneficiaries than the motorized craft owners.

Table 6.3 : Type of boat operated

Name of the district	Mechanized	Motorized	Total sample
Andhra Pradesh	43(43.9)	32(61.5)	75(50.0)
Tamil Nadu	45(56.1)	30(38.5)	75(50.0)
Total	**88(100.0) (65.3)**	**62(100.0) (34.7)**	**150(100.0) (100.0)**

Period of Utilization of scheme by the beneficiaries

Most of the beneficiaries have been utilizing the HSD oil scheme for the last 10-14 years. Nearly 81 percent of beneficiary households have been utilizing the scheme for the last 10 years and this may be because of no new craft owner has not been enrolled in recent years. Most of the beneficiaries are used to repair their old crafts to avail this facility.



Custody and entries in pass book

With regard to possession of pass books, nearly 94 per cent of beneficiary households have the pass books. Sixty five per cent of beneficiaries informed that they have updated their pass books regularly and 28 percent of total households said that their pass books are irregular entries. Only 6 per cent of them reported that they have not been enter the oil consumption details due to lack of pass books. Bunk manger has entered the oil disbursement details in both the states. Most of the beneficiaries have expressed that entries in the pass book has done by the bunk manger at the time of filling the oil before going to the sea.

Table 6.4 : State wise responses of beneficiary households on details of pass book				
Responses of beneficiaries on details of pass book		State wise responses of beneficiaries		
		Andhra Pradesh	Tamil Nadu	Total
Possession of pass book	Yes	70	71	141(94.0)
	No	5	4	9(6.0)
	Total	75	75	150(100.0)
Details of Regularity in pass book entry	Regular Entry	50	48	98(65.3)
	Irregular	20	23	43(28.7)
	No entry	5	4	9(6.0)
	Total	75	75	150(100.0)
Who entered the details?	Bunk Manger	60	66	126(84.0)
	Fisheries development officer	8	3	11(7.3)
	District Fisheries Officials	2	2	4(2.7)
	No entry	5	4	9(6.0)
	Total	75	75	150(100.0)

Problems in getting the scheme

Problems were elicited from the beneficiary households on getting the scheme through focus group discussions in the selected villages in both the sample states. Focus Group Discussions were conducted in the selected villages during the field visits. All most all the sections of people attended and participated in the discussions actively. They not only gave their opinions on implementation of HSD oil scheme in their respective villages but also gave their views to strengthen in the programme in future. Many points were placed before the participants for discussion in the focus group but the following few important points were given here are: (i) what problems have faced by the fishing households in getting the scheme? (ii) Are beneficiary households received Quality of oil? After elaborating discussions in focus group meetings the following points emerged.

- The fishing households who have registered their boats before 9th plan are being utilized the scheme. The fishing households who have constructed their boats recently have not able to avail the scheme. Among the exiting beneficiaries, most of them are mechanized craft owners.

- The owners of the Mechanized and motorized fishing boats should be in BPL category, which is a non-implementable condition since the Mechanized and motorized boat owners do not come under the BPL category. Getting the poverty certificate from the concerned officials is a major problem for the fishing households. This observation is mainly examined in Tamil Nadu than in Andhra Pradesh. In the state of Andhra Pradesh, the fisheries officials treated the households with white cards (ration cardholders) are below poverty people and are eligible to get the schemes. But in Tamil Nadu they have to approach the concerned officials to get the poverty certificate.

- Community leaders play key role in getting the scheme by lobbing at district fishery offices and in selection of beneficiary households at village level.

- The villagers in both the sample states have pointed out that they had incurred more expenditure for submitting the required documents along with the application such as photo, Xerox copies of license, bank account etc., and have to spend more amounts for traveling charges for pursuing the status of application at the district fishery office.

- In one or two villages the beneficiary households expressed that they have received less quality and quantity of oil.

Section II
Impact of HSD Oil on Catch and Income

The improvement in fishing operations due to supply of High Speed Diesel oil (HSD oil) on subsidy may be assessed by comparing the beneficiary and control group households on various aspects such as (i) comparative investment, operational expenditure, catch and incomes; (ii) Oil consumption and its Impact on catch and income; and (iii) Increase in fishing days and its impact on Incomes from the fishing units. One of the commonly accepted notions about HSD oil is to reduce the operational costs and thereby increase in more fishing days and increase incomes. To understand this impact in a better way comparison is made with the non-beneficiary households (control group) who are purchasing the oil without subsidy in fishing operations.

(a) Comparative investment, operational expenditure, catch and incomes

The main purpose of operating fishing units by the fishery households is to get maximum profits from their fishing units by spending fewer amounts on operational expenditure and operating their crafts for more days. Per litre diesel oil play a significant role in determining the fishing days and profits of the fishing unit. In this study an assessment is made to know the impact of the HSD oil scheme on incomes of the beneficiaries by way of calculating the income earned from craft. Additional income earned by the beneficiary households after availing the scheme can be worked out by two methods i.e (i) comparing with before and after scheme incomes of the beneficiaries and (ii) comparing the incomes earned form the scheme to the beneficiaries with the incomes of the control group (non-beneficiary) household, who have not availed the scheme. It is very difficult to work out the before scheme incomes of the beneficiary households, as most of the beneficiaries cannot recollect the expenditure and income incurred to the fishing unit. So the second method was chosen to assess the additional income earned from the scheme by the beneficiary households by comparing the present incomes of the beneficiary with control group households. The following variables are considered to work out the income.

Capital Investment

Capital investment of the fishing unit consists of expenditure incurred for purchase of Hull, Fishing gear, engine and other accessories like baskets, wires etc. It varies from unit to unit and district to district. The beneficiary households of Andhra Pradesh and Tamil Nadu were invested Rs. 6.35 lakhs and Rs. 7.06 lakhs respectively on capital investment. Altogether the

beneficiary and non-beneficiary households invested an average of Rs. 6.07 lakhs and Rs. 4.68 lakhs respectively on fixed capital.

Fixed Costs

The amounts spent on fixed costs include the depreciation on hull, engine and gear, insurance, interest on loans, renewal of craft licenses, etc. The straight-line method (depreciation worked out on the basis of dividing its total cost with its expected life of the assets) is used for calculating the depreciation for hull, engine and fishing gear. Actual expenditure incurred for interest on loans and other expenditure such as insurance, renewal of craft license etc were taken into consideration. On the whole, the beneficiary and Control group households have spent Rs. **63,846 and** Rs. **29,457** on fixed cost respectively in the study area.

Table 6.5 : Comparative Investment, Fixed Cost and Operational Cost of Fishing Units belong to HSD Oil Beneficiary and Control Group Households

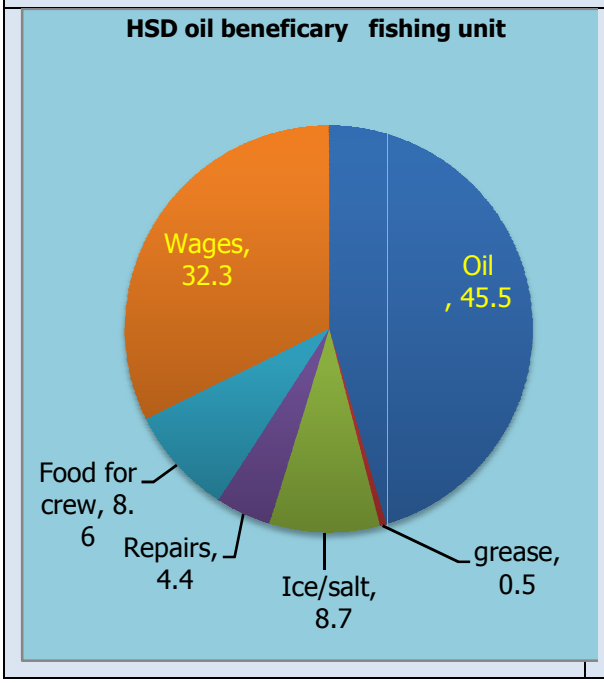
Items		Andhra Pradesh		Tamil Nadu		Total	
		Beneficiary* (N=75)	Control group* (N=25)	Beneficiary* (N=75)	Control group* (N=25)	Beneficiary* (N=150)	Control group * (N=50)
Investment	Hull	365800	241600	442466	245200	404133	243400
	Engine	115480	92000	143043	84640	129261	88320
	Fish gear	141393	124580	107567	125700	124480	125140
	Others(Wire, Baskets, etc.	5401	5040	5907	5980	5654	5510
	others	7620	5880	6597	5712	7109	5796
	Total	**635694**	**469100**	**705580**	**467232**	**670637**	**468166**
Fixed Cost	Depreciation	61036	31667	59619	21666	60328	26667
	Interest on loans	3,814	2880	1748	2140	2781	2510
	Others (license, Tax, etc.)	675	160	800	400	737	280
	Total	**65525**	**34707**	**62167**	**24206**	**63846**	**29457**
variable costs	Oil	232770 (46. 0)	145348(51.3)	241401(45.0)	174085(52.7)	237085(45.5)	159717(51.6)
	Grease	2468	2096	2547	2115	2507(0.50)	2106(0.68)
	Ice/salt	34859 (6.90)	15076 (5.4)	55976	17838	45417(8.7)	16457(5.32)
	Repairs	30454	10414	15760	10288	23107(4.4)	10351(3.34)
	Food for crew	34461	18488	51367	32160	42915(8.6)	25324(8.17)
	Wages	170886(33.1)	92048	169693(31.6)	99924	170290(32.3)	95986(30.98)
	Total	**505898**	**283470**	**536746**	**336410**	**521320**	**309941**

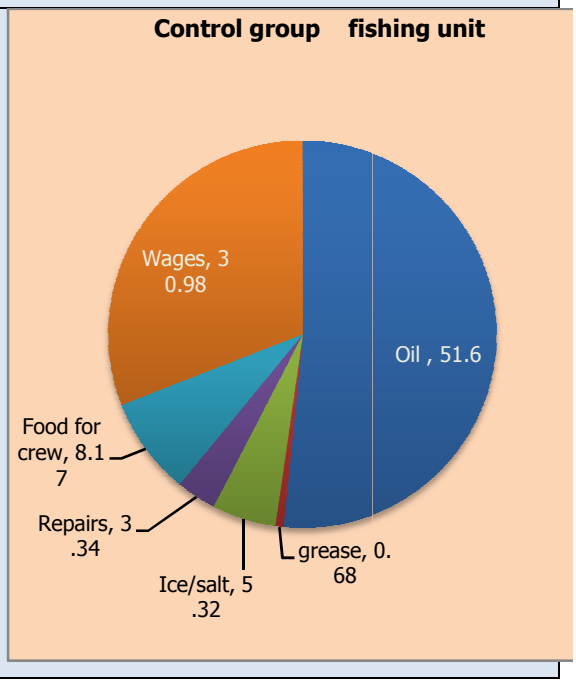
Source: Primary data; *includes Mechanized and Motorized Crafts

Operating Costs

Day to day expenses incurred to operate a fishing unit is called as 'operating cost'. The beneficiary households spent more amounts on oil (45 %), which is the most important component in variable costs. Next to oil expenditure, wages which constitutes 32 per cent of the total operating cost for the total sample households in the study region. Oil consumption depends upon the coverage of area/distance, overloading with equipment (nets), age of boat, age of engine, and maintenance of the craft. The expenditure on oil depends upon per litre oil rate and number of liters used for operation of the craft. Due to increase in oil prices most of the boat owners in the study area purchased the kerosene mixed diesel oil to reduce the expenditure on oil. But it gives more problems to the engines. When comparing between the beneficiary and control group households the usage of adulterated diesel is more found in control group households. Out of the total expenditure on variable cost of control group households' wages accounted for 32% for beneficiary and 31 % for control group to their total operating cost.

Pie Diagram of operational expenditure of Beneficiary and Control Group Fishing units





Percentage share of oil expenditure to total operational expenditure--comparison

When comparing the Percentage share of oil expenditure to total operational expenditure between the beneficiary and control group households, more percentage of oil expenditure was found in control group households. Keen observation of the pie diagram shows that control group households spend nearly 6 percent more oil than the beneficiary households and the main reason found in the field is rise of oil expenditure. In focus group discussions most of the fishing households reveal that (i) they are not getting the subsidy oil from the government, (ii) Due to rise in oil cost most of the fishing households are reducing other operational costs such as ice/salt etc., the above diagram shows that inverse relationship observed between the percentage of oil expenditure and percentage expenditure on ice/salt. The field observation reveals that most of the control group households reduce their expenditure on ice due to increase in oil costs and this may be spoiled fish and get less price for per kg of fish catch.

Quantity and value of catch

Fish catch consists of multi-species and entire catch is divided broadly into two categories namely Prawns and fishes. Prawn catch can be categorized into two small and big prawns. Fish catch can be divided into 12 major varieties, viz., (1) Promfret, (2) Seer, (3) shark, (4) Hilsa, (5) Rays, (6) Milk fish, (7) Anchores, (8) Sardine, (9) Mackerel, (10) Ribbon, (11) Crabs, (12) Miscellaneous fishes. The analysis shows that beneficiary households captured more quantity and value of prawn and fishes than the control group households in both the sample states.

Table 6.6 : Comparative catch and Income of fishing units belong to HSD oil Beneficiary and Control Group							
Variety wise Quantity and value		**Andhra Pradesh**		**Tamil Nadu**		**Total Average**	
		Beneficiary	**Control group**	**Beneficiary**	**Control group**	**Beneficiary**	**Control group**
Quantity in Kgs							
Prawn catch in quantity in kgs	Small prawn	697	213	740	117	719	165
	Big prawn	691	244	790	76	741	160
	Total	**1388**	**457**	**1530**	**193**	**1460**	**325**
Fish catch in quantity in kgs	Promfret	1293	1963	983	1476	1138	1720
	Seer	769	681	947	990	858	836
	Shark	1061	1977	751	490	905	1234
	Hilsa	700	1522	891	1002	795	1262
	Rays	636	99	754	1459	695	779
	Milk fish	600	176	948	701	774	438
	Anchors	435	544	557	919	496	732
	Sardine	535	-	760	-	648	-
	Mackerel	564	-	724	-	644	-
	Ribbon	1484	-	538	-	1011	-
	Crabs	1091	-	1403	-	1247	-
	Others	2124	1370	1556	936	1840	1153
	Total	**11292**	**8331**	**10813**	**7973**	**11053**	**8152**
Value in Rs.							
Prawn catch in value in Rs.	Small prawn	46376	11666	51217	6470	48797	9068
	Big prawn	57380	18608	65348	6188	61364	12398
	Total	**103756**	**30274**	**116565**	**12658**	**110161**	**21466**
Fish catch in quantity in kgs	Promfret	72533	116152	58016	82930	65274	99541
	Seer	37745	22992	55426	73711	46585	48351
	Shark	51010	88303	48959	32560	49985	60431
	Hilsa	34758	75535	69354	74128	52056	74931
	Rays	31144	4576	46962	83260	39053	43918
	Milk fish	35867	11136	51706	39360	43786	25248
	Anchors	26245	32480	48548	79256	37397	55868
	Sardine	32120	-	67002	-	49561	-
	Mackerel	34832	-	48386	-	41609	-
	Ribbon	92888	-	43127	-	68008	-
	Crabs	76527	-	88453	-	82490	-
	others	152170	93312	120418	78496	136294	85904
	Total	**677841**	**444486**	**746357**	**543701**	**712099**	**494093**
	Grand total in value	**781597**	**474760**	**862922**	**556358**	**822260**	**515559**

With regard to value of prawn and fish catch more value of catch obtained to the beneficiary households. Huge gap in value of catch was observed particularly between the beneficiary and control group households in both the states. The difference in value of catch may be due to coverage of more fishing area and more fishing days, the beneficiary households got more varieties of fish and prawn and back to landing centre without spoil the catch fetches more value. It indicates that the HSD oil play key role in value of catch.

Per kg value of catch

The value Per kg value of fish depends up its fish size, freshness of the fish and variety of fish etc. The consumer pays more prices for each kg of fish when it is fresh, big size and good variety etc. An attempt was made to know the per unit of fish price. The beneficiary households in both the states have obtained more value for their kg of fish than the control group households. On the whole, per kg rate difference between the beneficiary and control group households is Rs. 4.9.

Table 6.7 : Comparison of Per kg fish value obtained to beneficiary and Control group

State	Category	Variety and per kg value in Rs
Andhra Pradesh	Beneficiary	61.6
	Control group	54.0
	Difference	7.6
Tamil Nadu	Beneficiary	69.9
	Control group	68.1
	Difference	1.8
Total	Beneficiary	65.7
	Control group	60.8
	Difference	4.9

Net Income

The net income of the fishing unit can be computed by deducting the fixed cost and variable costs from the value of catch obtained to that particular fishing unit. The net income of craft gives us a clue about the viability of the fishing unit. So an attempt has been made to know

the viability of the crafts of the beneficiary and control group households. The net income per year was the highest for crafts belong to beneficiary households i.e. Rs. 2,37,094 and the lowest (Rs. 1,75,161) for control group households.

Table 6.8 : Comparative Investment, Costs and Returns between beneficiary and control group

Particulars	Andhra Pradesh		Tamil Nadu		Total	
	Beneficiary	Control group	Beneficiary	Control group	Beneficiary	Control group
Investment	635694	469100	705580	467232	670637	468166
Fixed Cost	65525	34707	62167	24206	63846	29457
Variable Cost (operational costs)	505898	283470	536746	336410	521320	309941
Total Cost (Fixed Cost + Variable Cost)	571423	318177	598913	360616	585166	339398
Total Value of Catch (Prawn + Fish)	781597	474760	862922	556358	822260	515559
Net Income (Profit)	210174	156583	264009	195742	237094	175161

(b) Oil usage and its Impact on Catch and Income

Fisherman, who fitted engine to his craft, has to spend money on oil and grease to sail craft in the sea. Generally, fuel expenditure varies from craft to craft and district to district and day to day. This expenditure depends upon consumption of the fuel (includes diesel and engine oil) by the craft owned household. The oil consumption depends upon various factors such as horse power of engine, distance travel, direction of the wind, age of the engine, length of craft, number of crew engaged, experience of the craft driver etc. It is noticed that there is an impact of escalation in diesel oil prices on fishing operations in the marine villages. Many of the mechanized craft owners have not ventured into the long distance for fishing due to escalation of diesel prices and many of them operate their crafts nearer to the shore and this may lead more pressure on fishing area, which may lead to less availability of catches to the craft owners. In this situation, the government of India has supplied the oil to reduce the operational expenditure by extending rebate on HSD oil under centrally sponsored schemes. This scheme has helped the fishing communities to increase more fishing days and getting more catches with not as much of operational expenditure due to rebate on HSD oil. In this direction an attempt has been made to know whether the HSD oil scheme beneficiaries are getting more catches, more incomes and per kg value of fish catch with using more quantity of liters of oil by comparing with the control group households.

Comparison of oil Utilization between the beneficiary and Control group

Due to similarity of the units operating by the fishing households in the same period with same horse power, same crew engaged etc an attempt has been made to know the difference in oil use by the beneficiary and control group households. This comparative analysis is worked out on the basis of collecting the primary data from the beneficiary and control group households by probing the average number of litres of oil used in their fishing operations in a year. Nearly 41 percent of beneficiary households burn 5500+litres of oil in their fishing operations in the sample districts. Where as in case of control group households, 40 percent of them use 4000 litres oil in their fishing operations. During the field visits most of the beneficiary households expressed that HSD oil scheme is more beneficial to increase their fishing days and incomes by spending more quantity of liters due to availability of rebate extending by the government. On the other hand, control group households reveal that they incur more expenditure on oil restricted them to use of less quantity of oil.

Table 6.9 : Comparison of oil Utilization between the beneficiary and Control group households in the study region

Average number of liters utilized in a year	Distribution of sample beneficiary and Control Households					
	Andhra Pradesh		Tamil Nadu		Total	
	*Beneficiary households**	Control group*	*Beneficiary households**	Control group*	*Beneficiary households**	Control group*
Upto 3000	1(1.3)	9(36.0)	-	1(4.0)	1(0.70)	10(20.0)
3001-3500	9(12.0)	7(28.0)	-	5(20.0)	9(6.0)	12(24.0)
3501-4000	17(22.7)	8(32.0)	8(10.7)	12(48.0)	25(16.7)	20(40.0)
4001-4500	12(16.0)	1(4.0)	22(29.3)	7(28.0)	34(22.7)	8(16.0)
4501-5000	3(4.0)	-	11(14.7)	-	14(9.3)	-
5001-5500	-	-	6(8.0)	-	6(4.0)	-
5501-6000	8(10.7)		7(9.3)		15(10.0)	
6001+	25(33.3)	-	21(28.0)	-	46(30.6)	-
Total	**75(100.0)**	**25(100.0)**	**75(100.0)**	**25(100.0)**	**150(100.0)**	**50(100.0)**

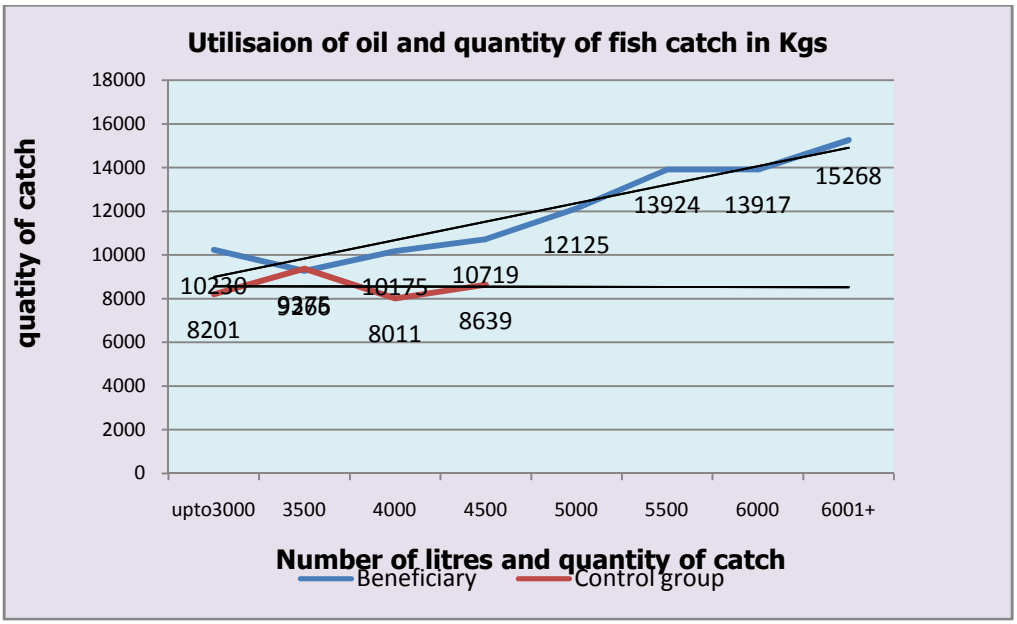
Source: Field data ;* consists of both machined and mortised craft operators

Oil Utilization and its impact on quantity of catch in kgs

The below gives us clue about the relationship between the use of oil and quantity of fish catch for beneficiary and control group households in the study area. Upward trend observed between the oil use and fish catch for the beneficiary households in the sample districts. In case of control group households this trend is somewhat fixed. Huge difference in quantity of catch observed between the beneficiary and control group households. The possible reasons for this difference may be (i) more distance and more area of fishing operations may help them to get more catches but in case of control group households restricted their fishing area in near shore due to high cost of diesel; (ii) regular fishing without breaks may get more catches to the beneficiaries where as in case of control group if the craft get less quantity and experienced losses in one day restricted them for few trips in year.

Table 6.10 : Distribution of average quantity of catch to beneficiary and Control group by oil utilization

Average number of liters utilized in a year	Distribution of average quantity of catch (in Kgs) obtained to sample beneficiary and Control Households					
	Andhra Pradesh		Tamil Nadu		Total	
	Beneficiary households	Control group	*Beneficiary households*	Control group	*Beneficiary households*	Control group
Upto 3000	10230	8317	-	7160	10230	8201
3001-3500	9266	9406	-	9331	9266	9375
3501-4000	10088	9031	10360	7331	10175	8011
4001-4500	10193	6760	11006	8907	10719	8639
4501-5000	10223	-	12644	-	12125	-
5001-5500	-	-	13924	-	13924	-
5501-6000	14445		13313		13917	
6001+	16695	-	13570	-	15268	-
Average	**12680**	**8788**	**12344**	**8165**	**12512**	**8477**

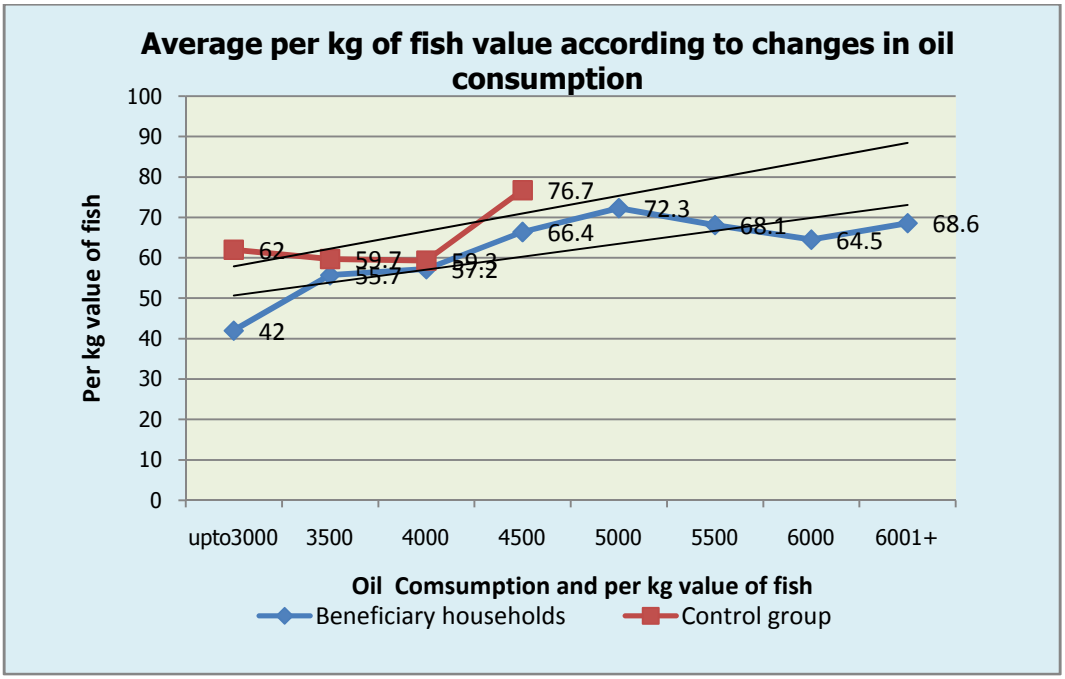


Oil use and per kg value of fish

As mentioned earlier, price per kg of fish depends up on many factors such as fish size, freshness of the fish and variety of fish etc. The consumer pays more prices for each kg of fish when it is fresh, big size and good variety etc. In this analysis an attempt has made to know the relationship between the use of oil and per kg value of fish. A positive trend seen between the use of oil and per kg value of fish catch for both the beneficiary and control group households. This may be due to (i) Due to use of oil the craft owners may come back to the shore as quickly as possible to get more price for their catches; and (ii) by spending more oil they may travel for more area to get more varieties of fish.

Table 6.11: Distribution of average per Kg of catch to beneficiary and Control Group

Average number of liters utilized in a year	Distribution of average per Kg of catch to beneficiary and Control group					
	Andhra Pradesh		Tamil Nadu		Total	
	Beneficiary households	Control group	*Beneficiary households*	Control group	*Beneficiary households*	Control group
Upto 3000	42.1	62.1	-	69.5	42.0	62.0
3001-3500	55.7	55.9	-	65.1	55.7	59.7
3501-4000	54.5	48.9	62.3	66.2	57.2	59.3
4001-4500	59.8	70.8	70.0	77.6	66.4	76.7
4501-5000	75.8	-	71.3	-	72.3	-
5001-5500	-	-	68.1	-	68.1	-
5501-6000	62.3		67.1		64.5	
6001+	65.5	-	72.3	-	68.6	-
Average	**61.6**	**54.0**	**69.7**	**68.1**	**65.7**	**60.8**



(c) Increase in fishing days and its impact on Incomes from the fishing units

Most of the near shore fisheries are over exploited and many of the fishermen have to go for distance and deep sea fishing for their livelihood. Due to rise in operational costs particularly on oil expenditure most of them are not able to go into fishing every day. But HSD oil scheme helped the beneficiary households to go into sea for more number of days due to rebate on oil expenditure. One of the Possibilities of increase in number of fishing days is decrease in oil expenditure as oil is the main component in operational cost. Oil expenditure is influential factor in deciding the profit/loss of the unit. Higher operating cost could be leading to lower fishing fays and lower operational cost may be leading to higher fishing days. The study reveal that more number of fishing days observed in case of beneficiary households than the control group households and this is due to reduction in oil expenditure, the beneficiaries may take more fishing trips. One of the beneficiaries in the study area disclosed that due to reeducation in oil price has helped him to go for more fishing days in a year. He further said that it will not be possible for him if the prices of oil increase day by day. Generally, increase in more fishing days may get more catches and thereby increase in incomes. So in this section an attempt is made to know whether there is any (a) Comparative fishing days of beneficiary and control group households; and (b) increase in fishing days and its impact on catch and incomes.

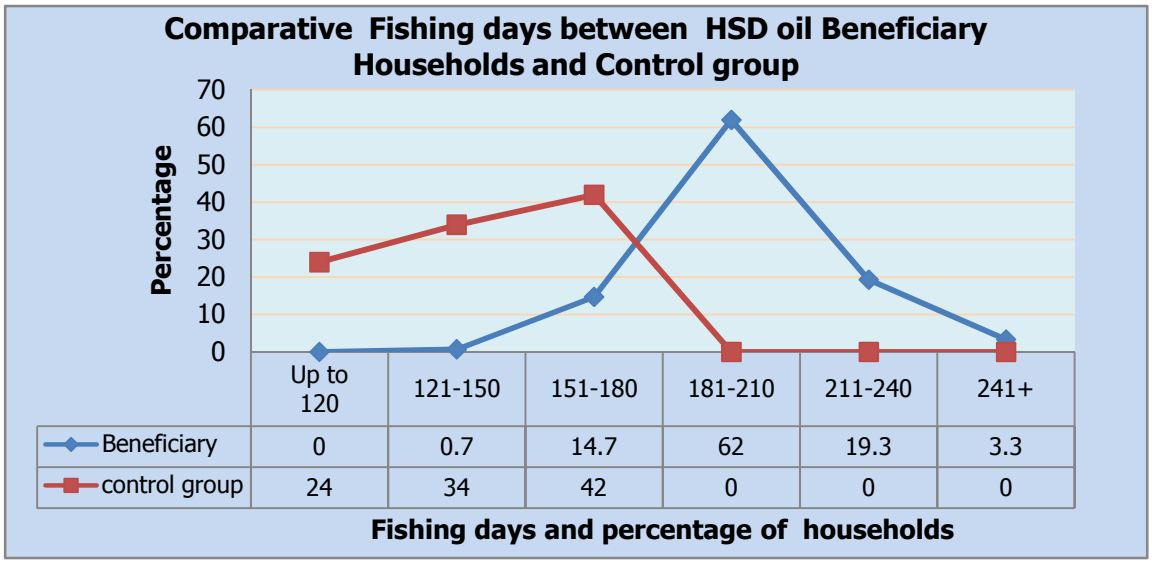
Comparative fishing days of beneficiary and control group households

For this analysis, data analyzed for each craft with number of fishing days. Fishing trips are converted into days. Actual fishing days in the year are taken into consideration for the study. Intervals of Fishing days are made into 6 starting from <120 >121-150, 151-180, 181-210, and 211-240 and 241+ days.

Table 6.12 : Comparative Fishing Days between Beneficiary and Control Group Households

Fishing days	Distribution of beneficiary and control group households					
	Andhra Pradesh		Tamil Nadu		Total	
	Beneficiary	Control group	Beneficiary	Control group	Beneficiary	Control group
Up to 120	-	5(20.0)	-	7(28.0)	-	12(24.0)
121-150	-	10(40.0)	1(1.3)	7(28.0)	1(0.7)	17(34.0)
151-180	13(17.3)	10(40.0)	9(12.0)	11(44.0)	22(14.7)	21(42.0)
181-210	44(58.7)	-	49(65.4)	-	93(62.0)	-
211-240	17(22.7)	-	12(16.0)	-	29(19.3)	-
241+	1(1.3)	-	4(5.3)	-	5(3.3)	-
Total	**75(100.0)**	**25(100.0)**	**75(100.0)**	**25(100.0)**	**150(100.0)**	**50(100.0)**

It is interesting to note that the maximum percentage of beneficiary households both the states have operated between 181- 210 days. Huge difference in fishing days observed between the total beneficiary and control group households in the study area. The main reason attributed for this difference is escalating oil prices most of the control group households are operating their crafts only in peak season. But in case of beneficiary households, they go to fishing for more number of days due to availability of subsidy on HSD oil. By utilizing the scheme, the beneficiary households have operated their crafts even in un-season also as rebate on oil expenditure.



Increase in fishing days and its impact on Profits

It is observed that there is a positive relationship between the fishing days and profit for both beneficiary and control group households. Positive relation observed between the fishing days and profits for beneficiary households. It may be due to increase of more number of fishing days, leads to increase more attempts, which again leads to more value of catches and net incomes. Whereas in case of control group households are going for fishing into sea in peak season and after that they may operate their crafts now and then. Naturally in peak season more value of fishes obtained to the fishing households. In case of beneficiary households, by increasing the fishing days their profits also increases as they may get profits by increasing their area of operation even in un-season. It is observed that HSD oil helps the fishing households not only to increase in more number of fishing days but also increases the profits. A huge income differential was observed between the beneficiary and control group households in the study area.

Table 6.13 : Distribution of net income (Rs.) for beneficiary and control group households

Fishing days	Andhra Pradesh		Tamil Nadu		Total	
	Beneficiary	Control group	Beneficiary	Control group	Beneficiary	Control group
Up to 120	-	144502	-	177320	-	163646
121-150	-	183527	116408	152457	116408	170857
151-180	134318	135641	226140	234820	171882	187592
181-210	227566	-	278523	-	254414	-
211-240	233020	-	257369	-	243095	-
241+	42627	-	228267	-	191139	-
Average	**210174**	**156583**	**264010**	**195742**	**237094**	**175161**

Source: Field data

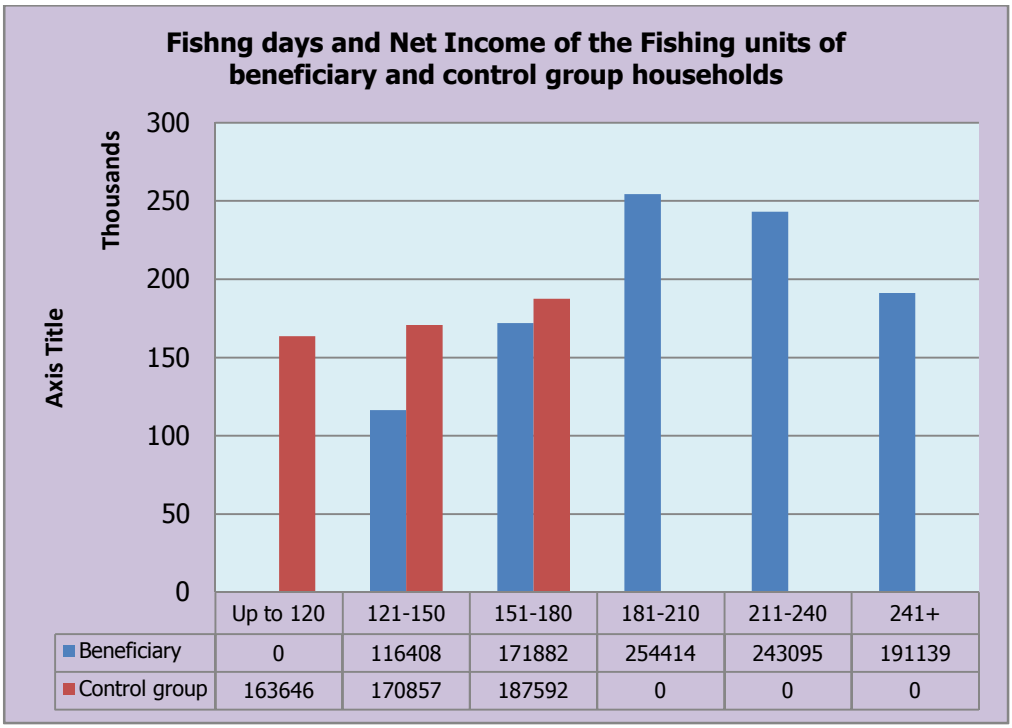


Table 6.14 : Net income differentials between the beneficiary and control group			
Name of the State	**Average Net income differential between the beneficiary and control group (in Rs.)**		
	Beneficiary net income per year (In Rs)	**Control group net income per year (In Rs)**	**Difference (Col 3-4)**
1	3	4	5
Andhra Pradesh	210174	156583	53591
Tamil Nadu	264010	195742	68268
Overall	237094	175161	61933

The beneficiary households have earned more net incomes than the control group households. When comparing the income differentials, more amount of difference was observed in Tamil and than in Andhra Pradesh. On the whole, the beneficiaries have earned an additional income of Rs. 61,000. The field observations reveal that due to more fishing trips fetches more incomes for the beneficiary households by utilizing the rebate on HSD oil scheme.

Section III

Perceptions of Beneficiary Households on HSD Oil scheme

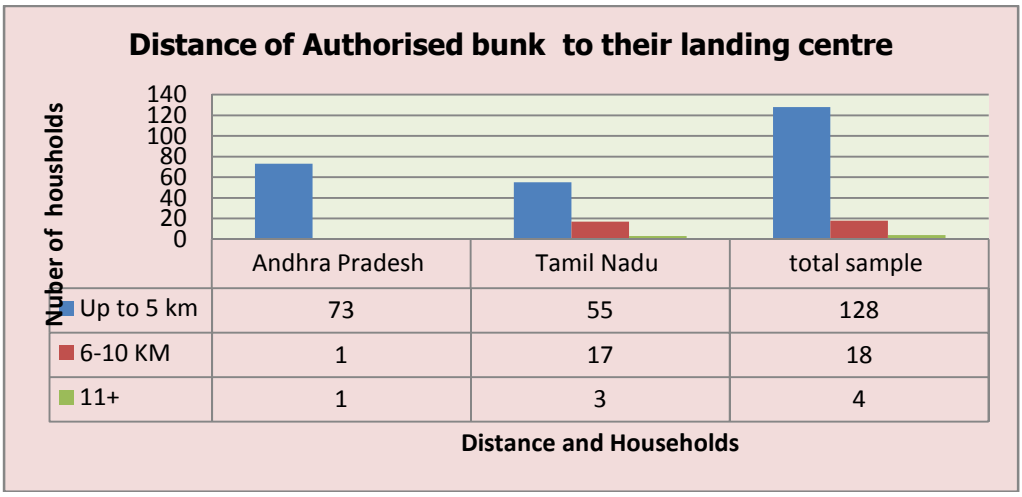
First hand information was collected from the beneficiary households on problems of HSD oil scheme and its usefulness, which helps us to strengthen the scheme in future implementation. So in this background, an attempt was made to know the perceptions of the beneficiary households in both the selected districts. Collected information was analyzed below.

(a) Problems in HSD oil scheme in distribution

Information was collected from the beneficiary households on problems faced in getting the oil from the bunk such as accessibility of bunk, availability of oil at the time of their visit, quality of oil, problems in bunk timings, etc. Collected information was analyzed and tabulated below.

Accessibility of authorized bunk

Accessibility of oil bunk is a vital aspect in daily life of a beneficiary household in the marine villages. It is interlinked with many factors such time, quantity of usage, cost of transportation etc. If the bunk is far away from their place of residence or their landing centre, fishing households has to incurred loss of time to reach the bunk and transportation costs. So in this direction it is trying to know the distance of authorized bunk to their landing centre. On the whole, 85 per cent of the sample households have accessibility of bunk facility within a radius of 5 km. Twelve per cent of households have to go for bunk for 6-10 km distance and 2 per cent of them have to go 11+km.



Availability of oil at the time of visit

Eighty two per cent of beneficiary households have expressed that they obtained oil at the bunk whenever they visited. The remaining 18 per cent of beneficiaries have uttered that they were not received oil at the time of visit to the bunk. By probing the reasons for not getting oil the reasons they stated were no stock and due to heavy rush at the time of their vast. With regard to state wise analysis, no stock was the main reason for Tamil Nadu and heavy rush was the main cause for not getting oil at the time of visit.

Table 6.15 : Distribution of responses according to not getting oil at the time of visit to bunk

Are you getting the oil whenever you need/visit	Andhra Pradesh	Tamil Nadu	Total sample
Yes	60(80.0)	63(84.0)	123(82.0)
No	15(20.0)	12(16.0)	27(18.0)
Total	**75(100.0)**	**75(100.0)**	**150(100.00**
If no , reasons	**Andhra Pradesh**	**Tamil Nadu**	**Total sample**
No stock / not available	6(40.0)	8(66.7)	14(51.8)
Due to heavy rush at bunk	9(60.0)	4(33.3)	13(48.2)
Total	**15(100.0)**	**12(100.0)**	**27(100.0)**

Problems at bunk

Opinions were collected from the beneficiaries on problems they encountered at the time of filling their oil tanks at the authorized bunks. When comparing between the sample states, more number of beneficiaries of Andhra Pradesh expressed that they are facing more problems than the beneficiaries of Tamil Nadu. On the whole, 40 percent of them have expressed the problems in getting the oil from the bunk. Among the listed problems, few of the them are: (i) Heavy rush during the beginning of peak season and peak hours; (ii) Less quantity of oil distributed; (iii) Time is not convenient for the boat owners; (iv) No stock board at bunk; (v) Poor quality of oil supplied; and (vi) bunk located in long distance, etc. More percentage of beneficiaries of Andhra Pradesh and Tamil Nadu expressed that they have faced Heavy rush at bunk during peak season and peak hours as limited authorized bunks serves for more number of fishing households. Beneficiaries of Andhra Pradesh disclosed that bunk timings are not convenient for them. Field observations revealed that the bunk opens from 10 AM to 5 PM every day. But it is not suitable for the beneficiaries, who have to leave for fishing early in the morning are not able to utilizing the facilities of bunk and they have to go for alternatives and forgo the subsidy. More beneficiaries of Tamil Nadu articulated that they receive poor quantity and less quality of oil from the bunk.

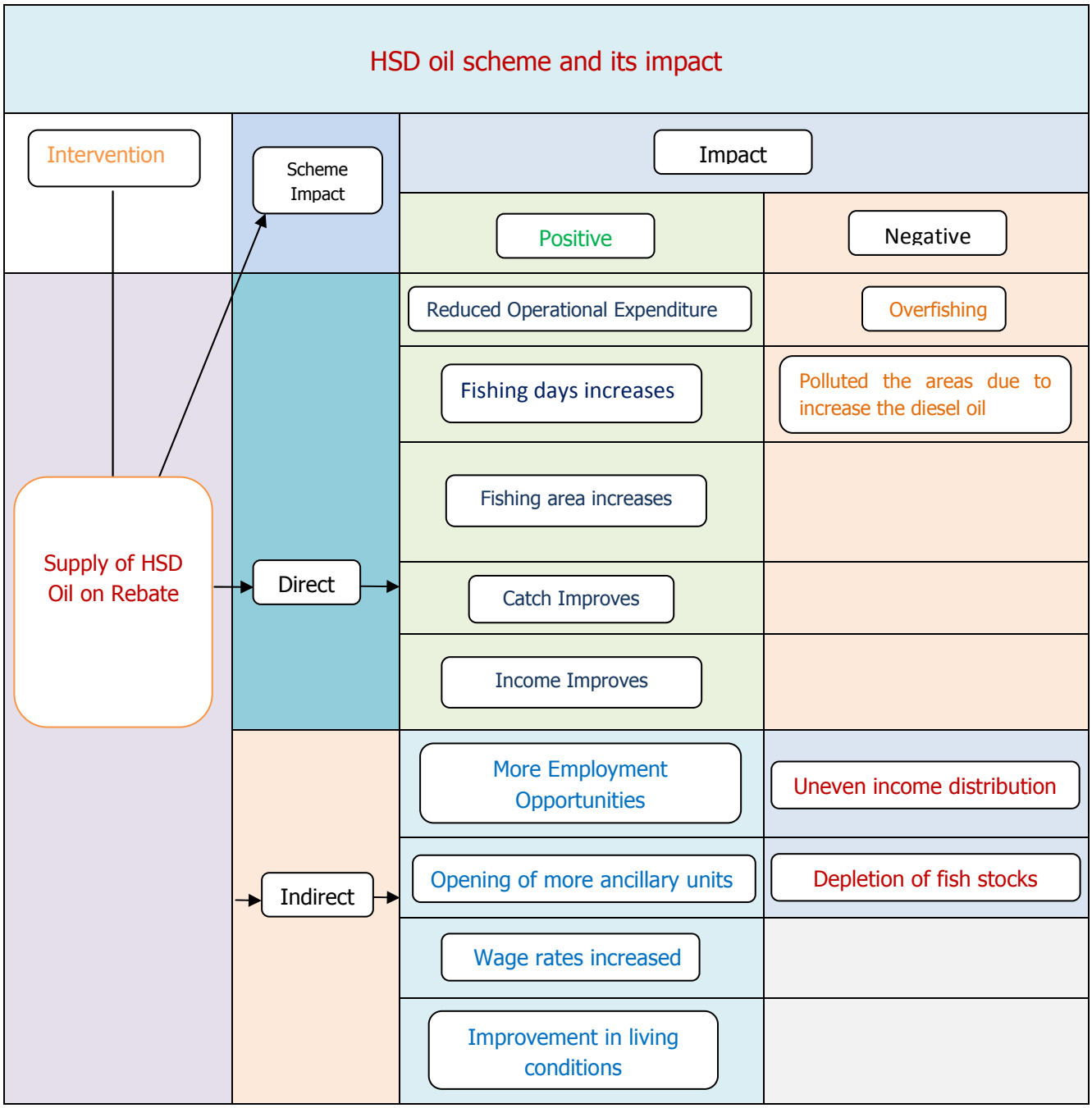
Table 6.16 : State wise distribution of bunk Problems mentioned by the Respondents			
Opinions of beneficiaries	**Andhra Pradesh**	**Tamil Nadu**	**Overall**
Problems	32(53.3) (42.7)	28(46.7) (37.3)	60(40.0)
NO problems	43(57.3)	47(62.7)	90(60.0)
Total	**75(100.0)**	**75(100.0)**	**150(100.0)**
Problems mentioned by the Respondents	**Andhra Pradesh**	**Tamil Nadu**	**Overall**
Heavy rush during the beginning of peak season and peak hours due to catering the services to more beneficiaries in nearby villages	12	3	15 (25.0)
Less quantity of oil distributed	4	7	11(18.3)
Time is not convenient for the boat owners	10	-	10 (16.7)
No stock board/ non availability of oil	3	7	10 (16.7)
Poor quality of oil supplied	-	9	9(15.0)
For away from their villages (long distance)	3	2	5(8.3)
Total	**32**	**28**	**60(100.0)**

Usefulness of the scheme

An attempt has been made to know the usefulness of HSD oil scheme by collecting the first hand information from beneficiaries. Positive responses observed both the sample districts with regard to usefulness of scheme. Most of the beneficiaries expressed that HSD oil scheme has helped them in increase in catches and quality of fish catches in both the states. Ninety six beneficiary households informed that HSD scheme has helped them in increasing their incomes from the fishing operations. On the whole, 83 per cent of beneficiary households reported that their socio-economic conditions have been improved due this scheme.

Table 6.17: Perceptions of beneficiaries on usefulness of HSD oil scheme						
Particulars on Usefulness of scheme	**State wise beneficiaries' perceptions on usefulness of HSD oil scheme**					
	Andhra Pradesh (N=75)		**Tamil Nadu (N=75)**		**Total (N=150)**	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**
Increase in catches due to use of oil	74 (90.7)	1 (9.3)	70 (93.3)	5 (6.7)	144 (96.0)	6 (4.0)
Quality of catches	74 (90.7)	1 (9.3)	69	6	143 (95.3)	7 (4.7)
Getting more incomes	74 (90.7)	1 (9.3)	70 (83.3)	5 (14.7)	144 (96.0)	6 (4.0)
Improved socio-economic conditions	65 (86.7)	10 (13.3)	60 (80.0)	15 (20.0)	125 (83.3)	25 (16.7)

Source: Primary data


HSD oil scheme and its impact
Intervention
Scheme Impact
Impact
Positive
Negative
Supply of HSD Oil on Rebate
Direct
Reduced Operational Expenditure
Overfishing
Fishing days increases
Polluted the areas due to increase the diesel oil
Fishing area increases
Catch Improves
Income Improves
Indirect
More Employment Opportunities
Uneven income distribution
Opening of more ancillary units
Depletion of fish stocks
Wage rates increased
Improvement in living conditions

Section IV

Socio-economic Conditions

In the last section provided the improvement in incomes as a result of rebate on HSD oil which helps the beneficiary households to increase the number of fishing days. It also noted that HSD oil scheme has led to increase in the quantity and value of fish production and thereby increases in the incomes of the beneficiary households. Generally increased incomes help the beneficiary households to improve their living conditions. An attempt is made in this section to make an overall assessment of this change by examining the socio-economic conditions of the scheme beneficiaries and control group households. The results are presented in two sub-sections. First one deal with personal information of the beneficiary and the second sub-section gives attention to family particulars of the beneficiary and control group households.

(a) Particulars of Personal information

Personal details of the beneficiary and control group households such as Age, marital status, literacy levels, etc. are collected and tabulated in the below table.

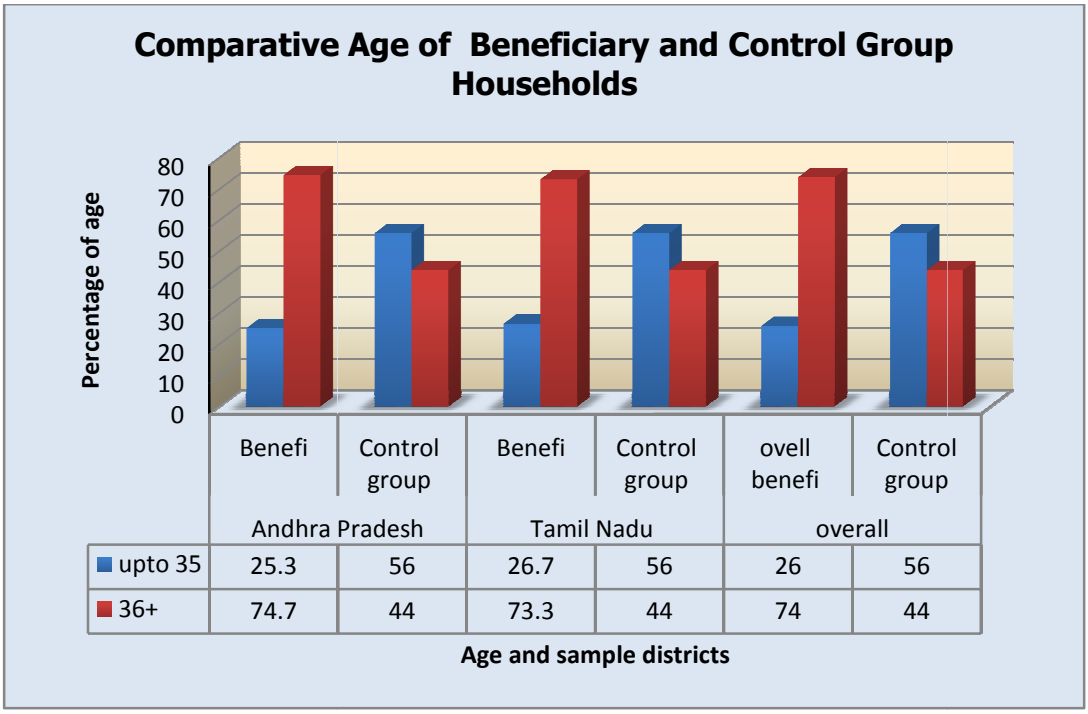
Table 6.18 : Comparison between HSD oil beneficiary and control group households on Personal information

Socio-economic Conditions		Particulars of Beneficiary and Control Group Households					
		Andhra Pradesh		Tamil Nadu		Total	
		Beneficiary	Control group	Beneficiary	Control group	Beneficiary	Control group
Personal data							
Age	Upto 25	2(2.7)	5(20.0)	-	7(28.0)	2(1.3)	12(24.0)
	26-35	17(22.6)	9(36.0)	20(26.7)	7(28.0)	37(24.7)	16(32.0)
	36-45	41(54.7)	10(40.0)	27(36.0)	5(20.0)	68(45.3)	15(30.0)
	46-55	12(16.0)	1(4.0)	15(20.0)	5(20.0)	27(18.0)	6(12.0)
	56+	3(4.0)	-	13(17.3)	1(4.0)	16(10.7)	1(2.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Marital status	Married	73(97.3)	25(100.0)	72(96.0)	22(88.0)	145(96.7)	47(94.0)
	Un-married	2(2.7)	-	2(2.7)	3(12.0)	4(2.6)	3(6.0)
	Widower	-	-	1(1.3)	-	1(0.7)	-
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Literacy	Illiterate	32(42.7)	20(80.0)	9(12.0)	5(20.0)	41(27.3)	25(50.0)
	Literate	10(13.3)	5(20.0)	-	3(12.0)	10(6.7)	8(16.0)
	Primary	13(17.3)	-	39(52.0)	12(48.0)	52(34.7)	12(24.0)
	Secondary	6(8.0)	-	18(24.0)	4(16.0)	24(16.0)	4(8.0)
	High	6(8.0)	-	4(5.3)	1(4.0)	10(6.7)	1(2.0)
	Others	8(10.7)	-	5(6.7)	-	13(8.7)	-
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)

Source: Primary data

Age of the beneficiary

The age structure shows that the highest percentage of sample households is in the age group 36-45 in both the beneficiary and control group households. But by careful observation of the data, it reveals that 36+ age old persons are more in beneficiary households in both the selected states. But in case of control group respondents, less than 35 years old persons are more in both selected states. In other terms, more percentage of youth is seen in the control group than in beneficiary households and this may be due to (i) No person was enrolled in recent years as the craft should be registered prior to 10th Five year Plan period. So the young people, who constructed their boats in recent years, are not eligible for getting the benefit from the scheme, and (ii) Supplied more motors by the government under motorization scheme and the non-governmental organizations supplied motors under tsunami rehabilitation programme to the youth. On the whole the young people are not getting the scheme.



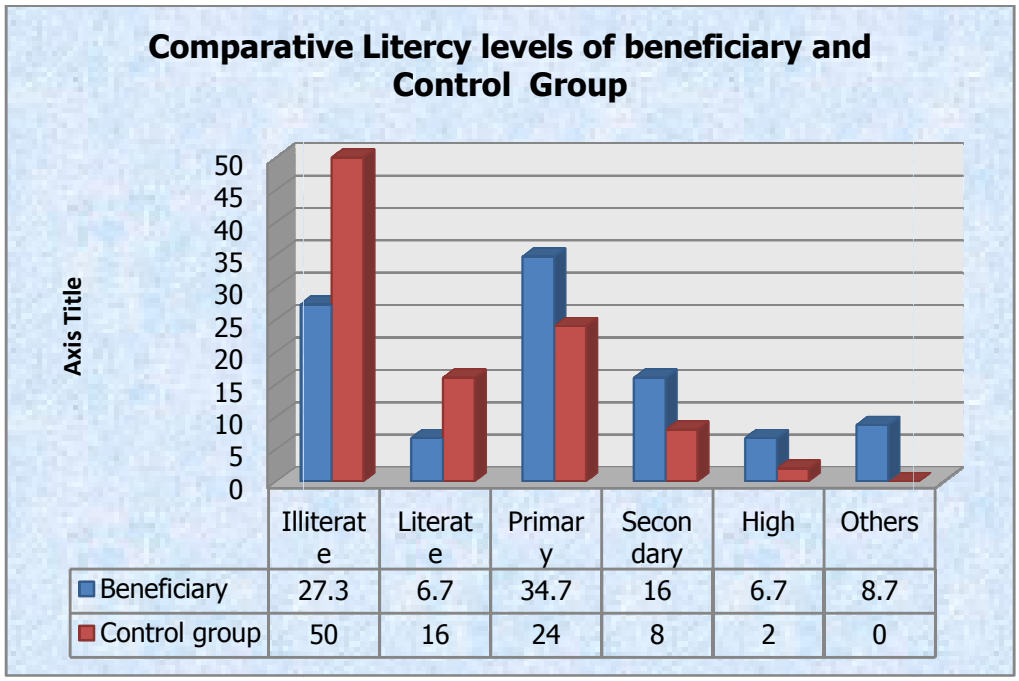
Marital Status

Most of the beneficiaries are married in both the sample districts and in both control groups. More un-married persons are found in control group households in the state of Tamil Nadu. Only one Widower is seen in beneficiary group in Tamil Nadu. On the whole, six per cent of

respondents are unmarried and remaining 94 per cent of them are married in the control group.

Literacy Status

Literacy is a key aspect of human development with important benefits for people's livelihoods and capabilities, influencing their ability to access information and resources and to manage change (Maddox. B. 2001)[1]. It also acts as a catalyst for development of the nation. Here an attempt is made to know the literacy levels of the scheme beneficiaries and control group. It is found that beneficiary households are more Literates than the control group households. Half of the control group households are illiterates. Within the states, more percentage of illiterate persons is found both in beneficiary and control groups in Andhra Pradesh. Among the literates most of them studied up to primary level in both beneficiary and control group households in both the states. Very few beneficiary households have studied up to high school in both the states. This indicates that literacy levels of the control group households are very low comparing to beneficiary households.



	Illiterate	Literate	Primary	Secondary	High	Others
Beneficiary	27.3	6.7	34.7	16	6.7	8.7
Control group	50	16	24	8	2	0

[1]*Maddox,B (2001) : Literacy and the market: the economic uses of literacy among the peasantry in northwest Bangladesh Street, Maddox. B (ed.) Literacy and Development : Ethnographic Perspectives. Routledge, London*

Caste

Caste plays key role in analyzing all the available historical evidences relating to a person. Hence, caste is taken into consideration for this study. Fishermen come under backward class category. There are many sub-sects within the fishing communities and it varies from state to state and district to district. Vadabalija, Agnikula Kshetriya, Jalari are dominant sub-sect in Andhra Pradesh. According to subbarao (1988)[2] literally `vada' means a craftman and `balija' means business denote a section of people working with crafts or ships. Meenvar fishing community is leading fishing community in the selected area of Tamil Nadu. The subsects of Meenavars are - Chinna Pattinavar Paravar, Parvatharajakulam Pattinavar Periya, Pattinavar Sembadava Agnikula kshetriyas, etc.,

Table 6.19 : Household Particulars of Beneficiary and Control Group Households

Socio-economic Conditions		Particulars of Beneficiary and Control Group Households					
		East Godavari district of Andhra Pradesh		Nagapattinam district of Tamil Nadu		Overall	
		Benefi-ciary	Control group	Benefi-ciary	Control group	Benefi-ciary	Control group
Household data							
Caste	Vadabalija	70((93.3)	25(100.0)	-	-	70(46.7)	25(50.0)
	Meenavars (Pattinavar)	-	-	35(46.7)	18(72.0)	35(23.3)	18(36.0)
	Parvar	-	-	10(13.3)	-	10(6.7)	-
	Jalari	3(4.0)	-	-	-	3(2.0)	-
	Agnikula Kshetriya	2(2.7)	-	-	-	2(1.3)	-
	Others (periya, sembadavar)	-	-	30(40.0)	7(28.0)	30(20.0)	7(14.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Type of Family	Nuclear	37(49.3)	9(36.0)	68(90.7)	15(60.0)	105(70.0)	24(48.0)
	Joint	38(50.7)	16(64.0)	7(9.3)	10(40.0)	45(30.0)	26(52.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Family size	Average	6.36	6.8	6.01	6.0	6.19	6.4
Per capita income	In Rs. per year	33046	23027	43928	32624	38303	27369
Type of House	Pucca	70 (57.3)	12 (48.0)	53(60.0)	19(76.0)	123(82.0)	31(62.0)
	Semi-pucca	2(30.7)	12(48.0)	19(26.7)	5(6.0)	21(14.0)	17(34.0)
	Kutcha	3(12.0)	1(4.0)	3(13.3)	1(8.0)	6(4.0)	2(4.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)
Source of lighting	Kerosene	3(5.3)	1(4.0)	3(5.3)	1(4.0)	6(4.0)	2(4.0)
	Electricity	72(94.7)	24(96.0)	72(94.7)	24(96.0)	144(96.0)	48(96.0)
	Total	75(100.0)	25(100.0)	75(100.0)	25(100.0)	150(100.0)	50(100.0)

[2] Subba Rao, N., (1988), Mechanisation and Marine Fishermen : A Case Study of Visakhapatnam (Northern Book Centre, New Delhi).

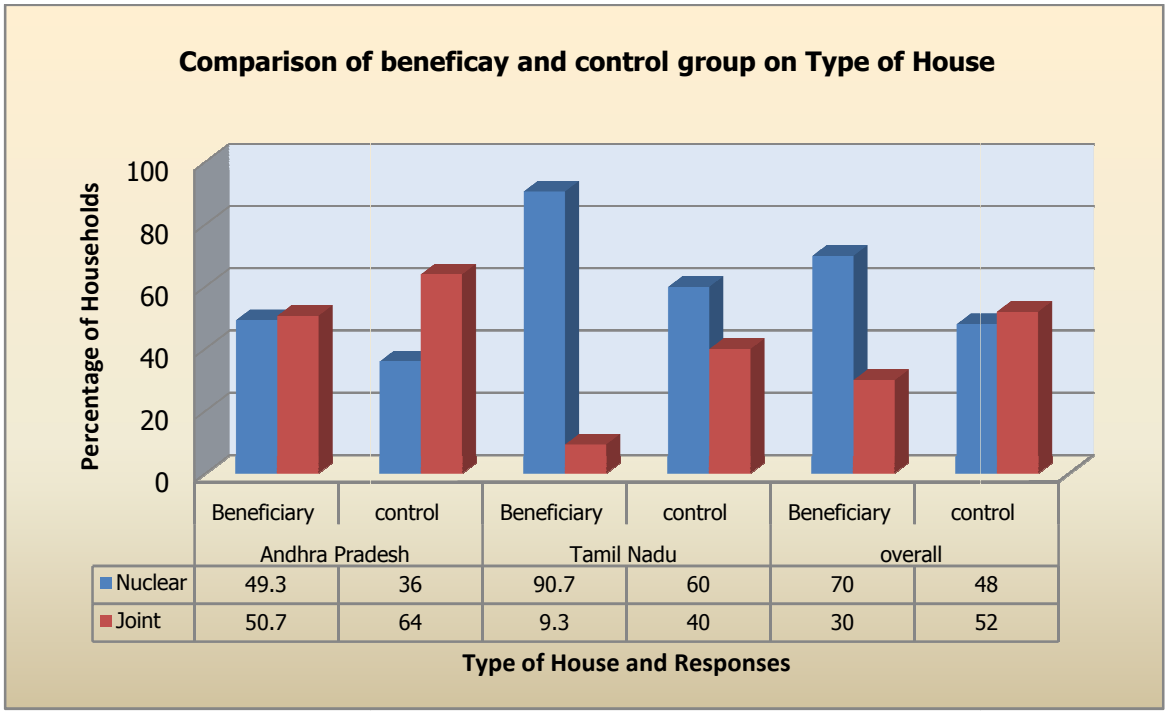
Ninety three per cent of beneficiary households are vadablija and rest of them are jalari and agnikula kshetriya in Andhra Pradesh. Pattinavar and Periya are represented 87 percent to total sample households in Tamil Nadu.

Type of Family

Joint families are predominant both in beneficiary and control group households in Andhra Pradesh and more nuclear families are seen in Tamil Nadu. On the whole more nuclear families found in beneficiary households than in control group households. The control group households have expressed that they maintains large families due to uncertainty of available of crew members for operating craft and also unable to construct houses separately for their sons due to poor conditions.

Per capita income

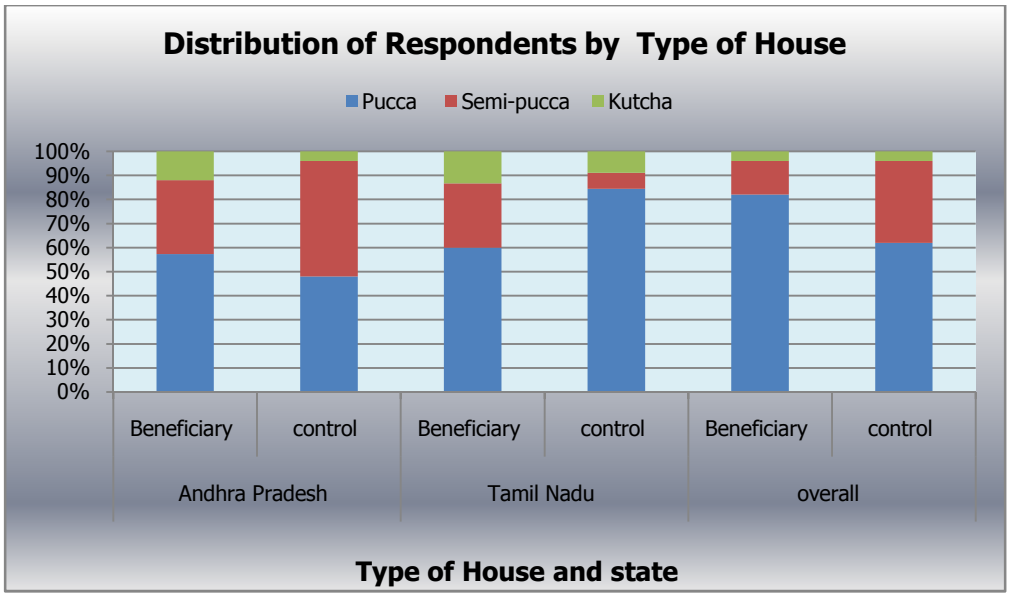
The per-capita income of the scheme beneficiary households in Tamil Nadu is the highest at Rs. 43,928 per year. On the whole, the per capita income of the beneficiary and control group households are Rs. 38,303 and Rs. 27369 respectively. The main reason for the low per capita income of the control group household may be due to large family size with low incomes.



When comparing between the states, more nuclear families found in Tamil Nadu may be due to construction of houses for fishing households in the marine village under tsunami rehabilitation programme by government and Non-governmental organizations (NGOs) made them to live separately.

Type of House

Entire houses in the study area owned by sample respondents are classified into three categories namely pucca, semi-pucca and Kutcha. Generally the economic status of the fishing households get reflected in the type of houses they own. It is observed that more percentage of beneficiary households has pucca houses in both the states. In Andhra Pradesh more percentage of control group respondents owned the semi-pucca and kucha houses. This indicates that beneficiary households live in pucca houses and this indirectly indicates better living conditions of the scheme beneficiaries. When comparing between the states, more percentage of households in Tamil Nadu have pucca houses as most of them got the pucca houses from the government/ NGO under the Tsunami rehabilitation programme.



Source of lighting

Ninety six per cent of respondents in both the categories and in both the states have electricity facility for lighting. The remaining 4 percent have not utilizing the electricity facility due to fear of getting short-circuit to their kutcha houses made with grass and palm trees.

On the whole, most of the beneficiaries in both the states have better living conditions than the control group households.

(b) Responses of Beneficiaries on additional income Utilization

In this section an attempt is made to know the perceptions of beneficiary households on how much amount of additional income generated from HSD oil scheme. Eighty nine and 95 per cent of beneficiaries have reported that have earned additional Income after getting the HSD oil scheme. With regard to component wise analysis most of the scheme beneficiaries of Andhra Pradesh have spent their additional income on gold and silver and in Tamil Nadu most of them spent on other category such as Marriages, recreation and on festivals etc.

Table 6.20 : Number of beneficiaries reporting of Average additional Income earned after getting the HSD oil scheme and its Utilization Pattern on various Components

Utilization Particulars	Andhra Pradesh			Tamil Nadu			Overall		
	Yes	No	Total	Yes	No	Total	Yes	No	Total
Additional assets purchased	16	59	75	29	46	75	45	105	150
Spent on household items	6	69	75	5	70	75	11	139	150
Purchased gold / silver	57	18	75	36	39	75	93	57	150
Expenditure on Health	8	67	75	11	64	75	19	131	150
Educational Expenditure	40	30	75	19	56	75	59	91	150
Repayment of old debt	7	70	75	18	57	75	25	125	150
Others (Marriages, recreation and on festivals, etc)	52	23	75	43	32	75	95	55	150
Average	**67 (89.3)**	**8 (10.7)**	**75 (100.0)**	**71 (94.7)**	**4 (5.3)**	**75 (100.0)**	**138 (92.0)**	**12 (8.0)**	**150 (100.0)**

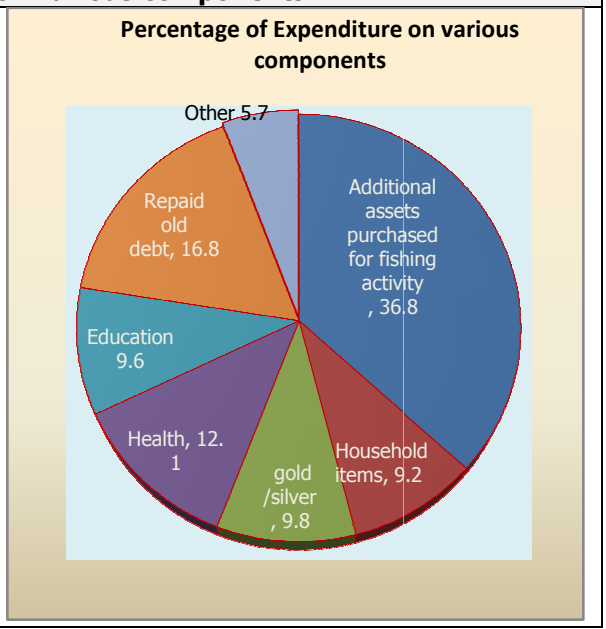
On the whole, most of them told that they have spent on purchase of gold and silver as it will be helpful to mortgage them to get money at the time of badly need of money. It will not give a clear picture without knowing the amount spent on these components. So component wise analysis on expenditure was taken in the next table.

Average additional income and its expenditure pattern

Perceptions of the beneficiary households were collected in both the selected districts on average additional amount earned and spent on various components. Primary data was collected from the beneficiary households on how much additional income earned due to use of HSD oil and utilization pattern of the additional income. Beneficiaries stated that they

Table 6.21 : Average additional Income earned after getting the HSD oil scheme and its Utilization Pattern on various components

Utilization Particulars	Percentage of additional income and its Utilization		
	Andhra Pradesh	Tamil Nadu	Overall
Fishery assets purchased	35.3	38.0	36.8
On household items	11.2	7.7	9.2
On gold /silver	10.4	9.7	9.8
On Health	17.3	9.1	12.1)
Educational	10.2	9.9	9.6
Repaid old debt	10.6	18.9	16.8
Others	5.1	6.7	5.7
Average amount	48904 (100.0)	59201 (100.0)	54202 (100.0)



have spent their additional income earned due to HSD oil scheme on various components such as additional assets purchased (nets), spent on households items, purchased gold and silver, expenditure on health and education etc. It is interesting to note that among the various components the highest amount spent on purchase of additional nets and accessories for fishing operations. Generally most of the fisheries households have spend their incomes on gears due to short life span. Seventeen per cent of beneficiary households have spend their additional income on repayment of their old debts. When comparing between the States, the lion's share goes for purchase of additional nets and accessories in both the states. Next to purchase of fishery related assets, seventeen per cent of beneficiaries in Andhra Pradesh have spent on health and in seventeen per cent of beneficiaries in Tamil Nadu have spent for repaid their old debts. The overall average additional income earned from the scheme in both the sample states was Rs.54,202. When comparing within the states, more additional income earned by the scheme beneficiary households of Tamil Nadu than in Andhra Pradesh households.

(c) Overall development of the villages and generation of employment

Due to increased catches and incomes from the mechanized and motorized fishing units has lead to generation of more employment opportunities in the marine villagers directly and indirectly. It is pointed out that pointed out that indirect employment opportunities increase due to more catches and establishment of ancillary units like ice, workshops for engines, etc. It is also observed that more women got engaged in fish marketing activity, particularly in dry fish marketing. As stated earlier, every 100kgs of fish produced from marine fisheries provide full-time employment for 20 persons in the harvesting sector and another 24 persons in the postharvest sector and one person in the tertiary sector. (R. Sathiadhas : 2009)[3]. Based on this, an attempt has been made to know the employment generation from various fishing units in the study area.

Table 6.22 : Generation of employment opportunities for motorized and control group

Employment generation Per 100 kg of fish in		Generation of employment (Persons)		
Employment in	Employment generation per year (in persons)	Beneficiary units	Control group units	Difference
	Per 100Kgs	**12513 kgs**	8477kgs	4036kgs
Harvesting	20	2503	1695	808
Post-harvest	24	3003	2034	969
Tertiary	1	125	85	40
Total	45	5631	3814	1817

*Field data on Fish Production per average catch per fishing unit

It is observed that the beneficiary craft can be employed 5631 persons in a year by producing 12513 kgs of fish. But in case of control group crafts generate employment to 3814 persons in a year. When comparing with the beneficiary and control group households, the scheme units provide more employment opportunities in the villages than the control group. Due to supply of HSD oil lead to more caches and it again facilitate to generation of more employment opportunities in the marine villages. In other words, each fishing unit generate an additional employment to 1817 persons in the village.

[3] R.Sathiadhas :2009: "Inter-sectoral Disparity and Marginalization in Marine Fisheries in India " Asian Fisheries Science 22920090 PP 773-786 . Available on line at www.asianfihseriessociety.org.

Section V

Focus Group Discussions and SWOT analysis on HSD oil Scheme

During the field visits, Project Director and the core staff of council for Social Development has made some observations and conducted Focus group discussions in the sample villages of Andhra Pradesh and Tamil Nadu. All most all categories of people such as mechanized, motorized and traditional craft owners, community leaders attended and participated in the discussions actively. They not only provided their opinions on the implementation of the HSD oil scheme in their respective marine villages but also gave their views to strengthen the scheme for future implementation. The following points were emerged after elaborating discussions in focus group meetings and field observations.

Problems in poverty issue

The owners of the Mechanized and motorized fishing boats should be in BPL category, which is a non-implementable condition since the Mechanized and motorized boat owners do not come under the BPL category. Getting the poverty certificate from the concerned officials is a major problem for the fishing households. This observation is mainly examined in Tamil Nadu than in Andhra Pradesh. In the state of Andhra Pradesh, the fisheries officials treated the households with white cards (ration cardholders) are below poverty people and are eligible to get the schemes. But in Tamil Nadu they have to approach the concerned officials to get the poverty certificate.

Mismatch of operational timings of the Bunks

The beneficiary has to go to the bunk authorized by the fisheries department to get the subsided oil. The bunk opens from 10 AM to 5 PM every day. But it is not suitable for the beneficiaries, who have to leave for fishing early in the morning are not able to utilize the bunk and they have to go for alternatives and looses the subsidy. This was noticed in marine sample villages of Andhra Pradesh than in sample villages of Tamil Nadu.

Delay in release of the subsidy amount

Most of the beneficiaries are unhappy about the delay in release the HSD oil subsidy. It is observed that they have to get last two years subsidy and it is pending the 1 -2 year's subsidy and it is a problematic for them.

More mechanized boat owners utilized this scheme

The field observations reveal that most of the mechanized boat owners utilized this scheme than the motorized boat owners. It may be because of (i) more awareness levels about the schemes to the mechanized than the motorized craft owners. The reasons observed are: (i) Literary levels are more for mechanized craft owners; (ii) mechanized craft owners get time to pursue the application status by visiting to the departments as most of them employ the workers to operate their crafts but in case of motorized craft owners they themselves involves in the fishing operations.

Linkage with Insurance

In Tamil Nadu, Boat insurance is compulsory for availing the HSD oil scheme. The beneficiary has to be submitted the Insurance number to the concern fisheries officials for getting the subsidized oil. But in Andhra Pradesh this criteria is not an obligatory. Most of the insurance companies are not interested to do their business in Andhra Pradesh due to bad experience faced by them in some of the villages as few fishing households has claimed their insurance by intentionally submerged their old boats.

More expenditure incurred to get the subsidized money

The beneficiaries have to submit the various documents like Xerox copies of pass book, Xerox copies of oil receipts, photos etc to the concerned officers to get the subsided amounts. After one or two years it will be reimbursed the amounts to beneficiary households. It incurs more money for fulfilling these requirements. Sometimes they have to make more trips to the district officers by wasting their time and money for transportations.

SWOT Analysis

The SWOT analysis is meant for analyzing the Strengths (S), Weaknesses (W) Opportunities (O) and Threats (T) of HSD oil scheme. Strengths and weaknesses are internal factors of the HSD oil Scheme. They are within the scheme in the form of abilities and inabilities. Opportunities and threats are external elements, which are operating outside the Programme (or) beneficiary. Thus, opportunities are positive aspects and threats negative aspects. More strengths and opportunities in the scheme imply that the scheme has been beneficial to the fishermen community and if there are many weaknesses and threats in the scheme and imply that scheme has not been beneficial to the beneficiaries properly.

So it requires more attention to rectify the weaknesses of the scheme by finding solutions and to avoid threats for effective implementation of the scheme.

Strengths (S)

- ❖ Reduce the operational expenditure and earn more profits
- ❖ Poor fishermen can get the benefit from the scheme and it will increase their living standards
- ❖ More profits from the fishing units may lead to improve the socioeconomic conditions of the fishing households
- ❖ The fisherman operates more number of fishing days due to viability of craft.
- ❖ This scheme is not only to generate more employment opportunities in the marine villages but also Increase the wage rates due to operation of more boats in the villages. Standard of living conditions of the workers will also improve due to rise in wage rates as a result of demand for labour increases.
- ❖ Small motorized craft owners will also get this benefit and it is very much essential as most of the near shore fishing grounds is overexploited and they can go for long distance for fishing.
- ❖ Due to rebate on oil most of the beneficiaries have spent more on ice/salt as cost of the oil decrease. As a result of more quantity of ice usage may not spoiled the fish catch and get more price per kg of fish.

Weaknesses (W)

- The conditions imposed for the scheme is impractical for mechanized craft owned households. With regard to poverty criteria, no Fishing household may get the scheme as most of them are living above the poverty line as they possess more value of assets. (The value of the fishing unit is around 6 lakhs and above).
- No concrete procedures adopting by the fisheries department to identify the poor fisherman to enroll as beneficiaries for the scheme. According to guidelines ,the owners of the Mechanized and motorized fishing boats should be in BPL category,

which is a non-implementable condition since the Mechanized and motorized boat owners do not come under the BPL category.

- Getting the poverty certificate from the concerned officials is a major problem for the fishing households. This observation is mainly examined in Tamil Nadu than in Andhra Pradesh. In the state of Andhra Pradesh, the fisheries officials treated the households with white cards (ration cardholders) are below poverty people and are eligible to get the schemes. But in Tamil Nadu they have to approach the concerned officials to get the poverty certificate. Getting the poverty certificate from the concerned officials is a major problem for the fishing households as most of them posses more value of assets. The fishing unit cost itself contains 2-8 Lkhs. So the scheme is not being implementing in some villages.

- Once in two years the state government has released money and distributed among the beneficiaries. Some of them are not interested to take the HSD oil from the bunk.

- Bunk timings are not suitable for the beneficiaries, who have to leave for fishing early in the morning are not able to utilize the bunk and they have to go for alternatives and miss the subsidy

- Fishing households who registered before the 9^{th} plan period only getting the scheme benefits. Newly constructed boat owners are not getting the benefits.

- To get the scheme the beneficiary has to get the craft insurance from the insurance companies. In Andhra Pradesh most of the insurance companies are not coming forward to do their business for many reasons

- Beneficiaries have to go for long distances for HSD oil due to limited number of diesel outlets in marine villages.

- They have to submit the Xerox copies of oil bills to the concerned officials to get the rebate amount. It is cumbersome process for a illiterate fisherman.

Opportunities (O)

- Improved catches from the scheme by reducing the operational cost.
- Increase the employment opportunities due to increase in fish catches in the fishing villages. More ancillary units like ice factories, repair sheds etc will come up in the marine villages.

Threats (T)

- Due to use of less quality oil may get frequent repairs to the engine causes problems to the fishing households. It not only to incur more expenditure to get it repaired and loss of fishing days but also threat to the lives of the fish workers if the motors failure at the mid sea.
- More mechanized crafts owners got this scheme indicated that only one section of people are getting benefited. This leads to uneven income distribution among the fishing households may create social tensions with the community.
- Due to encourage this schemes more number of boats will operate in the same location lead to more pressure on fishing area and it will lead to overfishing .
- Diesel is not only polluting the air but also slowly deteriorate the environment. Due to increase of more number of crafts means more deteriorate the environment further.
- Due to increase in fishing efforts, most of the fishing households use of stronger and more powerful engines or refrigerating systems in their crafts lead to negative impact of environment.

Chapter–VII Conclusions and Recommendations

Introduction

Considering the importance of the development of marine sector and to improve the fish production and income from the fishing units thereby to improve the socio-economic conditions of the fishing households, the government of India has been implementing many centrally sponsored schemes in the fishing sector. The main objectives of these schemes are to development of the fishing industry as a whole in sustainable manner and to improve the socio-economic conditions of the fishing households by increasing their catch and incomes. These schemes are broadly classified into (i) schemes for development of fishing sector, and (ii) schemes for improving the living conditions of the fishing households. The central government has taken up schemes to development of marine fisheries sector. This scheme includes eight components : (i) motorization of traditional crafts; (ii) fishermen development rebate on HSD oil; (iii) Introduction of intermediate crafts of improved design; (iv) promoting resource; (v) safety of fishermen at sea; (vi) promoting resources specific deep sea fishing vessels; (vii) Promoting fuel efficient and environment friendly fishing practices; and (viii) management of marine fisheries. As against a target of 5,000 crafts to be motorized during the 11^{th} plan, until the end of the fourth year of the plan, 4908 crafts were motorized. The achievement of the fishermen development rebate on HSD oil was only 12.27 per cent. It is necessary to know what extent these schemes have been in a position to achieve its objectives by taking up a study. These studies will not only to help in identifying the problems/short comings in implementing the schemes, but will also to help the policy makers and implementing agencies to introduce the necessary interventions to enhance the efficiency of the programme. Hence, the Council for Social Development, Hyderabad has taken up this study with the financial assistance of the Planning Commission, Government of India, New Delhi.

Objectives of the study

The main objective of this present study is to know the impact of Centrally Sponsored Schemes on Marine Fisheries and its effect on development of Fisheries with special

reference to motorization and HSD oil schemes. The specific objectives framed for this study are:

1) To study the system, procedures and constraints faced by the implementing agencies as well as beneficiary households during the implementation of the schemes and suggestions to modify the same.

2) To analyze the motorization and HSD oil schemes and its impact on catch and income

3) To work out the impact of the schemes on fish catch, income of the beneficiary households and improvement in their socio-economic status on account of introduction of the schemes.

4) To evaluate how far the schemes have been useful to the overall development of the fishing villages in general and quality of life of the fishing community in particular due to schemes

Scope of the study

The ultimate goal of the study is to assess the impact of motorization and HSD oil schemes on catch and incomes of the fishing households' and also identifies further needs of the fishing communities. This study will give more recommendations for further development of fisheries sector by establishing processing plants and fishing inputs. This study will give us the real picture how for the motorization scheme and HSD oil schemes are reaching the poor and needy fishing households. The study will also give us how the schemes are benefited to the fishermen households and how the net income derived from the scheme is being utilized by the beneficiaries and find out the changes in their socio-economic conditions.

Sample Design and Methodology

Data was collected both from the primary as well as secondary sources. Primary data was collected from the beneficiary households by using the sample survey method. Secondary data was collected from reports published by the government of India and state government. Collected data from the reports generated by various organizations such as Central Marine Fisheries Research Institute, FAO, World Bank etc. Nagapattinam district of Tamil Nadu and East Godavari district of Andhra Pradesh were selected based on ranking

method. In each sample district, Two mandals / taluks namely Nagapattinam and Kilvelur from Nagapattinam district of Tamil Nadu and Kakinada and Uppada mandals from East Godavari district of Andhra Pradesh were selected on the basis of more number of units distributed. Each district, a total of 75 motorized craft beneficiaries and 25 non-beneficiary households, who are availed the motors and fishing with their traditional crafts, for motorized scheme and a total of 75 HSD oil schemes beneficiaries and 25 control group households were taken for HSD oil scheme. On the whole 300 beneficiary households of both the schemes and 100 control group households were selected for the study in both the states. To collect the information about the fishing units, socio-economic conditions of the households, a household schedule was prepared and administered on beneficiaries and non–beneficiaries. Information was also gathered from beneficiary households in the selected villages through focus group discussions to get overall picture about the problems and prospects of motorization/HSD oil schemes. The costs and operational expenditure of the crafts are worked out for the fishing year 2010-11. Socio-economic conditions of the beneficiary and control group households are depicted at the time of the study.

Main Findings of the study

The major findings emerged out of the study are classified into two sections viz., (I) Main Findings on Motorization scheme and (II) Key findings on HSD oil scheme.

(a) Main Findings on Motorization scheme

The main findings of the motorization scheme is given in five headings: (i) Implementation of Motorization scheme; (ii) Impact of motorization schemes on advancement in fishing operations; (iii) Improvement in socio-economic conditions of the beneficiary households; (iv) Perceptions of the beneficiary households on usefulness of motorization scheme; and (v) Field observations and SWOT Analysis.

Implementation of Motorization scheme

1. The beneficiaries informed that they obtained the scheme information mainly from two sources namely officials and non-officials. Eighty nine per cent of beneficiaries in Andhra Pradesh and 57 percent of beneficiaries in Tamil Nadu expressed that they got the information about the scheme from the officials. The beneficiaries mentioned

that the fisheries department officials and community leaders have helped to get the scheme in both the sample districts.

2. In Andhra Pradesh most of the beneficiaries were chosen Kirloskar engines and in Tamil Nadu most of the beneficiaries were selected Lambda engines. On the whole, 59 per cent and 41 percent of beneficiaries were chosen Kirloskar and Lambda engines respectively in the study area.

3. Overall 90 percent of beneficiaries expressed that they have received a good quality engines from the distributed agencies. With regard to adequacy of financial assistance, 73 per cent beneficiaries of Andhra Pradesh and 61 percent beneficiaries of Tamil Nadu expressed that they received adequate financial assistance from the department.

4. Problems were elicited from the beneficiary households on getting the scheme through focus group discussions in the selected villages in both the sample states. The main problems are (i) influential people got the motors than the real poor households in Andhra Pradesh; (ii) they had incurred more expenditure for submitting the required documents along with the application such as photo, Xerox copies of license, bank account etc., and get more amounts for traveling charges for pursuing the status of application at the district fishery office. This was mentioned by the villagers at both the states; (iii) Since this scheme is linked to bank fiancé and most of the bankers are not willing to extend their credit facilities to the fishing households is a major problem in getting the scheme in Andhra Pradesh.

Impact of motorization on fishing operations

5. The beneficiary households of Andhra Pradesh and Tamil Nadu were invested Rs. 2.17 lakhs and Rs. 1.98 lakhs respectively on fixed capital investment. Altogether the beneficiary and non-beneficiary households invested an average of Rs. 2,07,645 and Rs, 1,61,068 respectively on fixed capital. The beneficiary households have spent more amounts on oil (44 %), which is the most important component in variable costs. Out of the total expenditure on variable cost of control group households' wages accounted for 70% of total operating cost.

Catch and incomes

6. Huge gap in value of catch was observed particularly between the beneficiary and control group households in both the states. The difference in value of catch may be due to fitted engines to their crafts and the engines helped them in their fishing operations by covering more fishing area and operate more fishing days.

7. Quality of fish catch of beneficiary households is more than the control group households. The beneficiary households in both the states have obtained more value for their kg of fish than the control group households as the motor helps them to go into deep sea and come back to the shore quickly without spoil the catch fetches more price to their fish catch. Per kg rate difference between the beneficiary and control group households is Rs.13.0. The wide gap between the two categories in rate differential is mainly because of motorization scheme and this was expressed by most of the beneficiaries and community leaders in the focus group discussions.

8. The net income per year from the fishing unit was the highest of Rs. 74,525 for beneficiary households and the lowest (32,805) for control group households. The beneficiary households earned on an average Rs. 53.50 per kg. of fish catch by spending Rs. 40.12 (per kg) as total cost and got Rs. 13.40 as profit margin per kg of fish. Non beneficiary households with traditional craft got an average of Rs. 40.40 per kg of fish catch by spending Rs. 30.90 per kg as total cost and earned profit margin of Rs. 9.50 per kg of fish.

Motorization–Fishing days and Percentage of Profit

9. Beneficiary households have operated their crafts more number of days i.e 182 days than the control group households with 141 days and the main reasons are: (i) beneficiaries operate their crafts even in bad weather with the help of the engine, (ii) due to reduction in physical strain they operate their crafts daily without taking any rest etc., and (iii) to get more income by increasing their fishing days. The reasons observed for less number of fishing days for control group households are (i) non-availability of labour, particularly the youth are not willing to work on traditional crafts for two reasons; (ii) getting low sharing/ catch when comparing to motorized craft; (iii) most of the labourers (young and old) are not willing to use

their manual labour. Motorization helps the beneficiary households to increase their fishing days.

10. Motorization helps the fishing households not only to increase in more number of fishing days but also increases the more net incomes. A positive relation observed between the fishing days and net incomes of the beneficiary households. It may be due to increase of more number of fishing days, leads to increase more attempts, which again leads to more value of catches and net incomes. Whereas in case of control group households are going for fishing into sea in peak season and after that they may operate their crafts now and then. A positive trend also observed between the fishing days and percentage of profit for beneficiary households in the sample districts.

Distance covered and net incomes

11. The study revealed that most of the control group fishing households (58%) has covered only 16-20 km and 60% of the scheme beneficiaries have covered 45-61 Km distance for their fishing operations. Motorization helped the scheme beneficiary households to cover more area for fishing operations due to fitted motors to their crafts than the control group households. A positive relation is observed between the distance and profit of the craft. A positive trend seen in distance and per kg value of fish for beneficiary households.

12. A Matrix of Spearman's correlation coefficients was worked out for per kg value of fish with major variables such as total investment, number of fishing days , gear value, distance covered for fishing operations and expenditure on Ice/salt . The results showed that three variables such as number of fishing days, distance covered in the sea for fishing operations and gear value are significant in per kg value of fish catch.

Motorization and Spoilage of Fish Catches

13. Less spoilage of fish catch was observed for beneficiary households and more for control group households. The study showed that 1.9 and 3.2 per cent of total fish catches were discarded due to spoilage of fish by the beneficiary and control group households respectively in the study area. The value of the loss was

estimated and an average of Rs. 2,943 and Rs.4606 were incurred for beneficiary and control households respectively.

Financial viability of fishing units

14. The Internal Rate of Return (IRR) of Motorized sample units of East Godavari district and Sample units of Tamil Nadu and total sample motorized units are 68.5 cent, 70.88 per cent and 66.75 per cent respectively. The IRR for control group households of Andhra Tamil Nadu and total are 44.45, 10.75 and 25.78 respectively. This indicates that beneficiary household units are financially viable than the control group households.

Motorization and employment generation

15. The study pointed out that indirect employment opportunities have increased due to more catches and establishment of ancillary units like ice, workshops for engines, etc. It is also observed that more women got engaged in fish marketing activity, particularly in dry fish marketing. It is observed that the motorized craft can be employed 2503 persons in a year by producing 5561 kgs of fish. Traditional crafts generate employment to 1658 persons in a year. Due to motorization more employment opportunities have come up in the marine villages.

Socio-economic conditions

16. The age structure shows that the highest percentage (35%) of beneficiary households is in between 35-40 years old. In case of control group households 40 per cent are in the age group of 26-35. Age increases the percentage of control group households' decreases and this indicates that due to decrease their physical abilities most of them are not willing to operate their traditional crafts. When comparing between the states, the more percentage of youngsters (16%) of Tamil Nadu got motors than Andhra Pradesh.

17. Most of the motorized scheme beneficiary households are married in both the states. Widowers are found as high in control group households than in the beneficiary households. The inference is that there is higher female mortality among the control

category due to their low income levels and non-availability of credit facilities because of which many are not able to afford health care facilities.

18. It is found that beneficiary households are more Literates than the control group households. A majority (64%) of the control group households are illiterates. Among the literates most of them studied up to primary level in both beneficiary and non-beneficiary households. Very few scheme beneficiaries have studied up to high school level and no one studied high school in control group households. More illiterates are found in Andhra Pradesh than in Tamil Nadu State.

19. Most of the beneficiary households have possessed more valuable assets than the control group households and the living standards of the beneficiary households are in better position than the control group households. Very poor standard of living observed in control group households in both the states.

Perceptions on usefulness of motorization

20. The study found that 88 percent of beneficiary households agreed that motorization has helped them in increase fishing area. Ninety three and 92% of beneficiary households informed that motorization has facilitated in increasing fishing days and increase in incomes. On the whole, 83 per cent of beneficiary households reported that due to motorization scheme their socio-economic conditions have been improved.

Field observations and SWOT

21. Delay in releasing the matching grant from the state government is a problem in grounding the schemes**.** States do not release their share in time, leading to uncertainty about the availability of funds at the field level.

22. The field notes revealed that district fisheries officials of Andhra Pradesh are not maintaining the list of beneficiaries by year wise and village wise properly. In Andhra Pradesh, even though the applicants have been selected through gram sabha, the sarpanch plays key role in selection of beneficiaries. Few people, who have the influence in the villages were availed the schemes than the real poor people.

23. It is understood that motor aspirant should be in below poverty line. But it is very difficult to verify the poverty of the fisherman in marine villages. There is no uniform set procedure to verify whether an applicant is below poverty line or not, and therefore, different methodologies are adopted in the selected states. Sometimes, the applicants have to get such certificate from the local revenue officers. There is no proper verification of economic status of the fishing households in the marine villages. In Andhra Pradesh, the beneficiaries were identified as poor people on the basis of ration cards.

24. It is found that two different methods have been adopted for grounding the schemes in Andhra Pradesh and Tamil Nadu. In Andhra Pradesh this scheme has been grounding through banks and in Tamil Nadu the beneficiary has to contribute his share. Most of the non- beneficiaries expressed that banks have not come forward to give loans and some of the beneficiaries expressed that they have to visit many times to get the loans.

25. The field observations reveal that the life span for the motor is only for two to three years. The reasons revealed by the beneficiaries are: engine spoils due to salt water and this is particularly observed in case of out-board motors, rough usage in the sea.

26. The SWOT analysis disclosed that motorization scheme has more strengths and opportunities than weaknesses and threats.

(b) Key findings on HSD oil scheme

Scheme for reimbursement of Central Excise Duty on HSD oil used by fishing vessels below 20 meter length has been implemented since 1991 with a view to help the small mechanized fishing owners/operators to bring down the operational cost of these vessels and thereby to encourage them to increase the fishing days, fish catch and income. The increasing operational cost of mechanized fishing vessel coupled with reduced fish catch per unit has led to poor income to the fishermen. To alleviate the suffering of the mechanized and motorized boat operators and to reduce the operational cost, the Government reimburses the central excise duty by way of subsidy towards the purchase of HSD oil. The subsidy will be limited to Rs. 3.00/ litre of HSD oil with a ceiling of 500

litres per boat, per month during active fishing months. The subsidy will be provided to the mechanized/motorized vessels with overall length lesser than 20 metre and registered prior to X Five year Plan period. The owners of the Mechanized fishing boats should be below BPL category. The following key findings are given in Four sections; (i) Implementation of the HSD oil scheme and Problems; (ii) Impact of HSD oil schemes on fishing operations; (iii) Perceptions of Beneficiary Households on usefulness of HSD Oil scheme; (iv) Improvement in socio-economic conditions of the beneficiary households; and (v) Field observations and SWOT Analysis.

Implementation of HSD oil scheme and Problems

1. The study detected that Fisheries officials and community leaders have played a key role in dissemination of information on HSD oil scheme in both the states. Fifty seven percentage of beneficiaries expressed that they got the information from the fisheries officials about the scheme.

2. It is observed that both the fishery officials and community leaders helped the beneficiaries to get the scheme. The employees of the fisheries Department have played a crucial role in helping the applicants to fill up the application forms.

3. Among the beneficiaries, most of them are mechanized craft owners in Tamil Nadu and in Andhra Pradesh most of them are motored craft owners. On the whole, 56 per cent of beneficiaries owned the mechanized crafts and rest of them possessed motorized crafts.

4. The study find out that nearly 81 percent of beneficiary households have been utilizing the scheme for the last 10 years and this may be because of no new craft owner has not been enrolled in recent years and to avail this facility Most of the beneficiaries are used to repair their old crafts.

5. The study evaluated the Problems of the beneficiary households on getting the scheme through focus group discussions. Some of them are: (i) the fishing households who have registered their boats before 9th plan are being utilized the scheme. The fishing households who have constructed their boats recently have not able to avail the scheme. Among the exiting beneficiaries, most of them are mechanized craft owners; (ii) the owners of the Mechanized and motorized fishing

boats should be in BPL category, which is a non-implementable condition since the Mechanized and motorized boat owners do not come under the BPL category. Getting the poverty certificate from the concerned officials is a major problem for the fishing households; (iii) The beneficiaries have incurred more expenditure for submitting the required documents along with the application such as photo, Xerox copies of license, bank account etc., and get more expenditure for traveling charges for pursuing the status of application at the district fishery office; and (iv) Some of the beneficiaries expressed that they are getting less quality and quantity of oil from the authorized bunks.

Variable costs and profits earned from the fishing units

6. The beneficiary and non-beneficiary households have invested an average amount of Rs. 6.07 lakhs and Rs. 4.68 lakhs respectively on fixed capital. When compared with the motorized craft the average fixed capital for crafts of the sample households of HSD Oil are high due to the HSD Oil scheme is meant for mechanized and motorized crafts and naturally they have to invest more on capital investment. With regard to operational expenditure, beneficiary households have spent more money on oil (45 %), which is the most important component in variable costs.

7. The control group households have spend more percentage of amount on oil than the beneficiary households may be due to (i) non availability of oil on subsidized rates; and (ii) due to increase in prices of the diesel rates. This leads to negative impact on their fishing operations such as they restricted their fishing operations only in peak season; restricted to less distance of fishing area. The study also observed that the control group households have spend more expenditure on oil may reduce the expenditure on ice/salt and as a result of less amount spent on ice may get spoil the fish catch.

8. The study analyzed the inverse relationship between the percentage of oil expenditure and percentage of expenditure on ice/salt as most of the control group households have reduced their expenditure on ice due to increase in oil costs and this reflects on per kg value of fish. The study observed that the usage of adulterated diesel is more found in control group households due to increase in

oil prices day by day. This may incurs more break downs to the engines and as a result of this lessen the fishing days.

9. The analysis of the study showed that huge gap in value of catch was observed between the beneficiary and control group households in both the states. The inference of this gap is due to use of HSD oil schemes, the beneficiary households have extending their area of fishing operations got more varieties of fish and prawn and back to the landing centre without spoil the catch fetch more value for their kg fish.

10. The study noticed that the beneficiary households earned more profits (i.e Rs. 2,37,094) from their fishing units than the control group households (Rs.1,75,161) in the study area. This wide gap of incomes observed between the two is mainly because of two reasons (i) reducing their operational cost, and (ii) availability of oil on rebate encourage them to use more oil lead to more coverage fishing area and increasing their fishing days.

Oil usage and its Impact on Catch and Income

11. It is discovered that more quantity of oil used by the beneficiary households than the control group households. The analysis on oil usage and its impact on catch and incomes proved that a positive trend observed between the oil usage and quantity of fish catch, and oil usage and per kg value of fish catch. This indirectly implies that importance of oil usage in the fishing operations and it helps the beneficiary households to get more quality and value of fish catch.

Increase in fishing days and its impact on Incomes

12. Results of the study showed that due to rebate on HSD oil more percentage of beneficiary households in both the states have operated more number of fishing days than the control group households. While 84 per cent of beneficiary households have operated their crafts between 180-241 days and no control group household has crossed 180 days. The reason attributed for this difference is due to escalating oil prices most of the control group households are operated their crafts only in peak season and the beneficiary households go for more days due to availability of subsidy on HSD oil. By utilizing the scheme, the beneficiary

households have operated their crafts even in un-season also as rebate on oil expenditure.

13. It is examined a positive trend between the fishing days and incomes of the beneficiary households as increasing more number of fishing days has helped them to increasing more attempts, which gains more value of catches and net incomes.

Perceptions on HSD Oil scheme

14. The study observed that 85 per cent of the sample households have accessibility of bunk facility within a radius of 5 km. Twelve per cent of households have to go for bunk for 6-10 km distance and 2 per cent of them have to go 11+km. Eighty two per cent of beneficiary households have expressed that they obtained oil at the bunk whenever they visited.

15. Investigations of the study reveal that more percentage of beneficiaries of Andhra Pradesh and Tamil Nadu expressed that they have faced Heavy rush at bunk during peak season and peak hours as limited authorized bunks serves for more fishing households. The beneficiaries of Andhra Pradesh informed that the Bunk timings are not convenient for them. In most of the beneficiaries complied that the bunk supplied poor quality and less quality of oil.

16. Most of the beneficiaries opinioned that the HSD oil scheme has helped not only increasing their fishing operations but also helped in improvement in their socio-economic conditions. Ninety three per cent of total beneficiaries reported that their socio-economic conditions have been improved due to HSD oil scheme.

Socio-economic Conditions

17. It is noticed that more percentage of youth is seen in the control group than in beneficiary households as (i) No person was enrolled in recent years as the craft should be registered prior to 10th Five year Plan period. So the young people, who constructed their boats in recent years, are not eligible for getting the benefit from the scheme, and (ii) Supplied more motors by the government under motorization scheme and the non-governmental organizations supplied motors

under tsunami rehabilitation programme to the youth. It is found that beneficiary households are more Literates than the control group households

18. Ninety three per cent of beneficiary households are vadablija subsect in Andhra Pradesh and in Tamil Nadu, 87 percent of Pattinavar and Periya got the schemes. Most the control group households maintain joint families than the beneficiary households.

19. The study ascertained that the per capita the per capita income of the beneficiary and control group households are Rs. 38,303 and Rs. 27369 respectively. The beneficiary households live in pucca houses with electrified than the control group households.

20. The beneficiary households have reported that they earned Rs. 54,202 after got the scheme and out of this income they have spent more on purchase of fishery related assets and for repaid their old debt.

Generation of employment

21. It is observed that due to increased catches from the mechanized and motorized fishing units has lead to generation of more employment opportunities in the marine villagers directly and indirectly. When comparing with the beneficiary and control group households, the scheme units provide more employment opportunities in the villages than the control group. On the whole, each fishing unit generates an additional employment to 1817 persons in the village.

SWOT Analysis

22. The major problems in HSD oil scheme, as narrated by the beneficiaries are (i) poverty criteria in selection of beneficiary households as most of them possess more valuable assets; (ii) Mismatch of operational timings of the Bunks; (iii) more mechanized craft owners utilized this scheme in large scale than the motorized craft owners; and (iv) more expenditure incurred to get the Subsidy money.

23. The SWOT analysis reveals that the scheme has more weaknesses which need to find out solutions for better implementation of the scheme for the development of the fishing households.

Recommendations

Based on the major findings emerged from the study the following recommendations are given below to strengthen the motorization schemes and HSD oil schemes. These recommendations are given in two components (i) on Motorization scheme; and (ii) on HSD oil scheme.

I. Recommendations on Motorization Scheme

1. Record maintenance and review of the scheme

As per the guidelines, the District Fisheries Officers should maintain a register with giving all the particulars of the beneficiaries for inspection of the superior officers on their visit to the office. But in practice, the departments have not properly maintained the lists of beneficiaries by year wise, district wise. Hence, strict instructions need to be issued to the implementing agency for maintaining separate register and it should be uniform for all the marine districts. There is a need to review the scheme by the fisheries departmental officers at frequent intervals and submit the same to the Commissioner of Fisheries.

2. Preparation of Traditional households list and priority to first registered households

More influential persons availed the scheme in Andhra Pradesh than in Tamil Nadu. There is a need to avoid the interference of influential persons at the grassroots level in the implementation of motorized scheme by conducting a foolproof survey in each and every village once in two years. This Survey should be based on date and year wise registration of the craft and economic status of the fishing households. The prepared list should be sent to district collector and to commissioner of fisheries to avoid the malpractice at the village level at the time of grounding the scheme. Suppose 5 units has to be distributed in a village, top ten first registered households in that particularly village drawn from the list will be given first priority in selection of households.

3. Minimize expenditure for getting the scheme by opening "guidance cell" at local fishery office

It seems that most of the applicants have to go for application forms to district fishery offices for getting application forms, submitting and to get the status of submitted applications etc and this involves expenditure. Due to illiteracy and ignorance most of them submitted applications without fulfilling the norms and it makes them to visit more number of times to the district offices and this can be avoided by opining guidance cell at local Fisheries Development Office (FDO). This will not only to reduce the cost of travel and loss of fishing days but also avoiding the role of middlemen at some extent.

4. Uniformity in implementation of the scheme

In Tamil Nadu state, after getting the beneficiaries contribution the subsidy amount has released directly to the authorized company for supply of motors. But in case of Andhra Pradesh, the scheme is linked to bank finance and most of the bankers have not shown interest in financing fishing community due to poor recovery rates of the fishing community. The state governments have to extending help to the poor fishing households by providing margin money though state government agencies Andhra Pradesh Backward Classes Co-Operative Financial Limited by avoiding the banks' interference.

5. Orientation on oil saving techniques

The beneficiary households have spent more amounts on oil, which is the most important component in variable costs. To reduce variable costs and to make the activity more viable, the department may conduct more training camps on "oil saving" techniques to the fishing households. To avoid the unnecessary trips, the government should encourage the fishermen to use the fish finders in their fishing operations. Fish finders will facilitate the fishery households to cut their expenditure on fuel and get more catches.

6. Use of insulated containers and use of adequate ice to preserve the fish

Even though less spoilage of fish catch was observed for beneficiary households than the control group households, the estimated amount of loss was worked out

around Rs. 3.000/- and this may be due to illiteracy and ignorance of the fishing households in using of ice boxes. So there is a need to create more awareness camps among the fishing households on proper utilization of ice boxes with adequate icing to get more money for their catch by reducing less spoilage.

7. Frequent repairs for motors

Due to more usage of motors in salty waters may get repairs. In some sample villages the beneficiaries have to go far off places, particularly for major repairs such as boring to their engines. It involves more expenditure on transportation and loss of fishing days. So the government should give encouragement to the local I.T.I holders to open more workshops and spare parts shops in the marine villages.

II. Recommendations on HSD oil Scheme

1. Need to identify the Real poor

The owners of the Mechanized and motorized fishing boats should be in BPL category, which is a non-implementable condition since the Mechanized and motorized boat owners do not come under the BPL category. Getting the poverty certificate from the concerned officials is a major problem for the fishing households. This observation is mainly observed in Tamil Nadu than in Andhra Pradesh. In the state of Andhra Pradesh, the fisheries officials treated the households with white card are below poverty people and they are eligible to get the benefit from the scheme. But in Tamil Nadu they have to approach the concerned officials to get the poverty certificate. Uniform procedure has to be taken up to identify the poor fishermen households by the government in all the states.

2. Preference should be given to the motorized craft owners

Due to overfishing in near shore areas most of the motorized craft owners have to go long distances to catch fish. Due to rising oil costs most of them kept their boats at landing centre and it become a problem for their livelihoods. So encourage the motorized craft owners by enrolling them in more number than the mechanized craft owners.

3. Increase more number of outlets (Bunks) and frequent checks by the officials

At present there are four tankers in each bunk in the study regions and the capacity of the each tank is 20,000 liters and altogether the bunk has a capacity to store 80,000 liters. The optimum fleet size of the bunk is 80 mechanized crafts and 50 motorized crafts per day if the bunk has downloaded daily 80,000 liters. But at present most of the beneficiaries have faced Heavy rush at bunk during peak season and peak hours as limited authorized bunks catering more number of fishing households. To avoid this problem increase more number of outlets in the marine villages by operating the bunk round the clock. There is a need to check the quality and quantity of oil supply by the concerned officials and make a note on their visits and submitted to the concerned district collectors.

4. Encourage the young entrepreneurs to establish bio-diesel plants from fish waste

Since oil is a key component in determining the profits of the craft owners and ever increasing oil prices is a major problem for the fishing households in the marine villages. So there is a need to produce bio-diesel by utilizing the abundance accessible of fish waste available at their villages. While establishing plants, encourage the young entrepreneurs by giving subsidies.

5. Need to Review the scheme once in six months

There is a need to review the scheme once in six months by the district officers and if there is any problems in implementation of the scheme can be sorted out at the gross root level and the minutes of the meeting is to be sent to the implementing agencies for strengthening the programme.

Undoubtedly both motorization and HSD oil schemes have benefited to the fishing households by improved the fish catches, incomes and living conditions. Large employment opportunities generated particularly for women in the marine villages due to getting more fish catches as the crafts increase the area of fishing operations and number of fishing days. Despite the fact that, the schemes have few negative impacts on fisheries and fishing households like overfishing and in some extent of

polluting environment, there is a need to continue the schemes for some more time for poor fishing households as most of the near shore fisheries have already exploited and distance fishing is only alternative for their livelihoods. Distance fishing requires motorized craft and fuel for operating the craft as most of the poor households are not able to invest huge money to acquire the motor and for daily operational expenditure like oil. In future, there is a need to develop alternative energies like bio-diesel oil in marine districts by utilizing the locally available abundance of fish waste and this will help the fishing households to get the diesel with fewer prices in their future fishing operations.

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Annexure 1

Views of Chief Ministers at NDC on CSS

Views of Chief Ministers at NDC on CSS

Shri M. Karunanidhi, Former Chief Minister, Tamil Nadu - 29th NDC Meeting, January 19&20, 1973	A number of new schemes costing an equally large amount were introduced on an ad-hoc basis by various Ministries either as Central schemes or as Centrally sponsored schemes. In his view, growth of Central and Centrally sponsored scheme in areas such as education, health and agriculture should be stopped and the amounts available for these schemes should be placed at the disposal of the Planning Commission and the Finance Commission for disbursement as Central aid
Dr. M. Channa Reddy, Former Chief Minister of Andhra Pradesh - 33rd NDC Meeting, February 24&25, 1979	He suggested that the Centrally Sponsored Schemes should be financed by the Centre fully. The Chief Minister maintained that the criteria evolved at the time of the Fourth Plan for inclusion of schemes in the list of Centrally Sponsored Schemes still held good and there was no objection to leaving the discretion to the Planning Commission to add to the list of Centrally Sponsored Schemes whenever that was considered necessary so long as the prescribed financial limit did not exceed.
Shri M. Karunanidhi, Former Chief Minister of Tamil Nadu - 53rd NDC Meeting, 29th May, 2007	There is a need for simplifying the Centrally Sponsored Schemes, which are subject to too many conditions and restrictions and do not recognize the local variations. He urged the Planning Commission to provide a lumpsum Central assistance based on an agreed strategy appropriate for each State.
Shri M. Karunanidhi, Former Chief Minister of Tamil Nadu - 54th NDC Meeting, 19th December. 2007	He urged to simplify the procedure of allocations to the States under various centrally sponsored schemes

Source: Source: B.K. Chaturvedi (2011): Report of the Committee on Restructuring of Centrally Sponsored Schemes (CSS), New Delhi, September.

Annexure 2

Schedules

COUNCIL FOR SOCIAL DEVELOPMENT

Southern Regional Centre, Hyderabad – 500 030

CENTRALLY SPONSORED SCHEMES ON MARINE FISHERIES AND ITS EFFECT ON DEVELOPMENT OF FISHERIES: A STUDY ON MOTORIZATION OF TRADITIONAL CRAFTS AND HSD OIL SCHEMES

Household Schedule for Motorised Scheme Beneficiaries

I.0 Identification Particulars

1. S.No. ☐☐☐
2. Type of Scheme 1. Motorization of Traditional craft 2. HSD oil ☐
3. Name of the state (1) Andhra Pradesh (2) Tamilnadu ☐
4. Name of the District ☐
5. Mandal…….. ☐☐
6. Village……. ☐☐
7. Landing Centre (1) Big (2) Small ☐
8. Name of the Landing Centre …… ☐
9. Name of the Beneficiary)…….

   Father's Name……
10. Gender (1) Male (2) Female ☐
11. Age ☐☐
12. Marital Status ☐

    (1) Married (2) Unmarried (3) Divorced (4) Widow/Widower
13. Literacy Levels ☐

    (1) Non-literate (2) Literate (3) Primary (4) Secondary
    (5) High School (6) Junior Inter (7) Others

14. Caste

(1) OC (2) BC (3) SC (4) ST

15. Sub-sect

(a) OC : specify …….

(b) BC (1) Pattapu (2) Pallikari (3) Jalari
(4) Agnikula Kshetriya (5) Vada Balija (6) Others

(c) SC (1) Mala (2) Madiga (3) Others Specify

(d) ST: specify ……..

16. Religion

(1) Hindu (2) Christian (3) Muslim (4) Others

17. What type of ration card you have? 1. White card 2. Pink card

18. Family details

		Male	Female	Total
A.	Total Family			
B.	Children >15 years			
C.	Total workers/Earners			

19. Type of family (1) Nuclear (2) Joint

20. Type of House (1) Pucca (2) Semi-pucca (3) Kutcha

21. Source of Lighting (1) Kerosene (2) Electricity (3) Others

22. Cooking (1) Gas stove (2) Kerosene (3) Firewood

23. What was your activity before the scheme?

24. *Fishing Equipment*

	Before scheme	After scheme
Type of boat	----------	----------
Type of engine	----nil--------	----------
Nets owned (in number)		

II. Scheme details

25. Source of information about the Scheme

1. Friends and relatives 2. Bank Officials
3. Political leader 4. Gram Panchayat president
5. Community leader 6. Fisheries Officials
7. Others (specify)

26. Who helped you to get the scheme

1. Middlemen 2. Political leader
3. Gram Panchayat President 4. Community leader
5. Others (specify)

27. Time taken for application to sanction and sanction to disbursement

(i) Date of Submission of Application
(ii) Date of Sanction
(iii) Date of disbursement

28. Do you know the reasons for delay?

29. What types of documents were submitted for motorization scheme?

(1) Yes (2) No

(a) Application

(b) Photos

(c) Ration Card Xerox

(d) Boat License

(e) Size of the Boat

(f) Bank Account

(g) Others

30. Which Bank financed for the purchase of Motor?

1. Andhra Bank 2. State Bank of India
3. Canara Bank 4. Regional Rural Bank
5. Others (specify)

30. Which Bank financed for the purchase of Motor? ☐

1. Andhra Bank 2. State Bank of India
3. Canara Bank 4. Regional Rural Bank
5. Others (specify)

31. Loan details

	Total	For craft	Engine	For nets
Sanctioned (Rs.)	☐☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐
Disbursement (Rs.)	☐☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐

Rate of interest for bank loan ☐☐

III. Investment Particulars

32. Investment

Fixed Capital

(a)	Hull	☐☐☐☐☐☐
(b)	Engine	☐☐☐☐☐
(c)	Fish gear	☐☐☐☐
(d)	Wire	☐☐☐☐
(e)	Others	☐☐☐☐
	Total	☐☐☐☐☐☐

33. Fixed Cost

(a)	Depreciation (on Hull, Engine and gear)	☐☐☐☐
(b)	Interest on Loans	☐☐☐☐
(c)	Others (Craft license, etc.)	☐☐☐☐
	Total	☐☐☐☐☐

34. Do you feel that the financial assistance is adequate to get the motors? 1. Yes 2. No ☐

35. If No, how much additional amount is required ☐☐☐☐☐

36. How do you meet the additional finance? ☐

1. Friends and Relatives
2. Additional Loan by hypothecating the assets
3. Own amount (Savings)
4. Moneylenders
5. Merchants / Fish & Prawn
6. Others (specify)

37. Particulars of engine (motors) received ☐

(1) Lambada (2) Kirloskar (3) Others

38. Are you receive in ☐

(1) Kind (Motors) (2) Cash

39. If in kind, mention the agency

40. Where is the agency located? (Distance from your village) ☐

(1) Less than 5 Kms (2) 6 to 10 Kms
(2) 10 to 20 Kms. (4) Above 20 Kms.

41. Did you face any problems with regard to transportation of motors? ☐

(1) Yes (2) No

42. Did you satisfy with the Quality of equipment (motors) given under the scheme? ☐

(1) Yes (2) No

43. If No, mention reasons?

44. Did you face any problems in getting the bank loan? ☐

(1) Yes (2) No

45. If Yes, please mention the problems

IV. Craft Economics

		Income from Scheme per day	Per year
46.	Year of purchase	----------	----------
47.	No. of days of fishing in a year		
48.	Expected number of years of fishing Boat		
49.	Nets		
50.	Operational Expenditure (Annual)		
	(a) Oil (from Scheme)		
	(b) Oil purchased		
	(c) Grease		
	(d) Ice / Salt		
	(e) Repairs / Maintenance		
	(f) Bata and food for crew		
	(g) Warfage		
	(h) Wages / Sharing for crew		
	Total		

V. Catch Particulars

		Per day		Per Year	
		Quantity in Kgs.	Value in Rs.	Quantity in Kgs.	Value in Rs.
51.	Prawns				
	1. Big				
	2. Small				

52. Fish Variety

(a)	Pomfret				
(b)	Seer				
(c)	Shark				
(d)	Hilsa				
(e)	Rays				
(f)	Milk fish				
(g)	Anchores				
(h)	Sardine				
(i)	Mackerel				
(j)	Ribbon				
(k)	Crab				
(h)	Others				
	Total				

53. Gross Income from value of fish catch (Rs.)

54. Net Income from boat

55. What was the catch and Incomes of your craft before getting the scheme ?

	Variety	Quantity	Value of Catch
1.	Fish		
2.	Prawn		
3.	Total		

56. How did you market the

(1) Fish ☐ (2) Prawn ☐

(i) Sell by family members (ii) Merchants (iii) Others

V.	**Employment**	**Persons per trip/per day**	**per year**
57.	No. of workers engaged in a boat (per day)		
	Family labour		
	Hired labour		
58.	Wages/ sharing system 1. Wages 2. Sharing		
59.	If wages, how much amount		
60.	If sharing, what is the percentage?		
61.	Additional income earned after motorization		

VI. Repayment details

62. Number of total installments

63. Total number of installments to be paid

64. Amount for each installment

65. Have you paid the installments regularly?

    1. Yes 2. No

66. If No, specify reasons

    1.

    2.

67. Were you paid installments regularly? 1. Yes 2. No

68. If No, are you a

    1. Chronic defaulter
    2. Willful defaulter
    3. Others

69. Total amount taken

70. Total amount paid (as on date of survey)

71. Are you facing any difficulty in repayment loan amount to bank? ☐

1. Yes 2. No.

72. If yes, what are the difficulties? ☐

1. Concerned bank officials not there
2. Due to illiteracy
3. Amount given to the educated persons

73. Did you insure the boat? 1. Yes 2. No. ☐

74. If Yes, how much amount ☐☐☐☐☐

75. Did you face any difficulty with the Insurance Company 1. Yes 2. No ☐

76. If yes, what are the difficulties you have experienced?

VII. Impact on Socio-Economic Conditions (with the improved income)

76. Do you get additional income 1. Yes 2. No ☐

77. If yes, size of additional income ☐☐☐☐

78. If Yes, how do you utilize it Amount in Rs.

1. Purchased household assets ☐☐☐☐
2. Additional assets purchased ☐☐☐☐
3. Purchased gold / silver ☐☐☐☐
4. Expenditure on health ☐☐☐☐
5. Educational expenditure ☐☐☐☐
6. Expenditure for Marriage performed ☐☐☐☐
7. Repayment of debt ☐☐☐☐
8. Others (specify) cell phone ☐☐☐☐

79. If No, why (specify reasons)

1. ☐

2. ☐

VIII. Do you think any benefits from the motorization scheme ?

	Benefits of motorization	**Before scheme**	**After scheme**
80.	Distance covered in the sea (kms)	☐☐	☐☐
81.	Do you think that reduction in alcohol consumption due to reduction in physical strain? 1. Yes 2. No	☐	☐
82.	Impact on children's education due to increase in income? 1.Yes 2. No	☐	☐
83.	Do you get fresh fish due to motorization 1.Yes 2. No	☐	☐
84.	Increase in fishing hours	☐	☐
85.	Increase in fishing days 1..Yes 2. No	☐	☐

Observations of the Investigator

COUNCIL FOR SOCIAL DEVELOPMENT

Southern Regional Centre, Hyderabad – 500 030

CENTRALLY SPONSORED SCHEMES ON MARINE FISHERIES AND ITS EFFECT ON DEVELOPMENT OF FISHERIES: A STUDY ON MOTORIZATION OF TRADITIONAL CRAFTS AND HSD OIL SCHEMES

Non-beneficiary Household Schedule

I.0 Identification Particulars

1. S. No. ☐☐☐

2. Type of Scheme : (1) Motorization of Traditional craft (2). HSD oil ☐

3. Name of the State (1) Andhra Pradesh (2) Tamil Nadu ☐

4. Name of the District ☐

5. Mandal…….. ☐☐

6. Village……. ☐☐

7. Landing Centre 1. Big 2. Small ☐

8. Name of the Landing Centre …… ☐

9. Name of the Beneficiary)……..

10. Father's Name……

11. Gender : 1. Male 2. Female ☐

12. Age ☐☐

13. Marital Status ☐

(1) Married (2) Unmarried (3) Divorced (4) Widow/Widower

14. Literacy Levels ☐

(1) Non-literate (2) Literate (3) Primary (4) Secondary
(5) High School (6) Junior Inter (7) Others

15. Caste

(1) OC (2) BC (3) SC (4) ST ☐

16. Sub-set

OC : specify …….

BC : (1) Pattapu (2) Pallikari (3) Jalari (4) Others ☐

SC: (1) Mala (2). Madiga (3) Others (Specify) ☐

ST: Specify …….. ☐

17. Family details

	Children	Adults	Total
A. Total Family Members	☐☐	☐☐	☐☐
B. Children >15 years	☐☐	☐☐	☐☐
C. Total workers/Earners	☐☐	☐☐	☐☐

18. Type of family 1. Nuclear 2. Joint ☐

19. Type of House 1. Pucca 2. Semi-pucca 3. Kutcha ☐

20. Source of Lighting 1. Kerosene 2. Electricity 3. Others ☐

21. Are you aware of the motorization/HSD oil scheme 1. Yes 2. No ☐

22. If yes, are you got the scheme 1. Yes 2. No ☐

23. If not, why (specify reasons)

24. Did you tried about the Schemes ? 1. Yes 2. No ☐

25. If tried, what was the result?

II. Fishing Equipment

Particulars of Equipment and Characteristics		Particulars		
Boat	**Characteristics**			
	Type (catamaran, Nava)			
	Type of wood used			
	Length			
	Width			
	Value (in Rs.)			
	Year of purchase			
	Life span in years			
	Source of finance			
Nets	Type of Net	Year of Purchase	Present value of the net	Life span in years
	Disco net			
	Kondivala			
	Sanduvala			
	Kavvalu			
	Jokavala			
	Ring vala			
	Any other net (specify)			
Operational particulars	Distance travel			
	Traveling time to reach the fishing ground			
	Actual hours of fishing			
	Number of fishing days in a month			
	Number of workers			

III. Craft Economics

26. No. of days of fishing

27. Reasons for less number of fishing days

1. Lack of equipment 2. Illness 3. Rough sea
4. Breakdown to boat 5. Others (specify**)**

28. Investment

Fixed Capital

(a) Hull

(b) Engine (if you purchased on your own)

(c) Fish gear

(d) Wire

(e) Others

Total

29. Fixed Cost

(a) Depreciation (on Hull, Engine and gear)

(b) Interest on Loans

(c) Others (Craft license, etc.)

Total

30. Operational Expenditure (Annual)

(a) Oil

(b) Grease

(c) Ice / Salt

(d) Repairs / Maintenance

(e) Bata and food for crew

(f) Warfage

(g) Wages / Sharing for crew

Total

Catch Particulars (Per day)

Traditional craft

		Quantity in Kgs.	Value in Rs.
31.	Prawn catch		
	Small prawn (Sanku)		
	Big prawn (Brown)		
32.	Fish Variety		
	(a) Pomfret		
	(b) Seer		
	(c) Shark		
	(d) Hilsa		
	(e) Rays		
	(f) Milk fish		
	(g) Anchores		
	(h) Others (specify)		
	Total		

33. Gross Income from value of fish catch (Rs.) (per Year)

34. Net Income from boat (per Year)

35. How did you market the

(1) Fish ☐ (2) Prawn ☐

(i) Sell by family members (ii) Merchants (iii) Others

36. Are you migrating to any other landing centres for fishing? 1. Yes 2. No ☐

37. If so, how many days

In season

In unseason

38. Places of migration (specify)

39. Distance

IV. Employment

Traditional craft

40. No. of workers engaged in a boat (per day)

    Family labour

    Hired labour

41. Wages/ sharing system 1. Wages 2. Sharing

42. If wages, how much amount

43. If sharing, what is the percentage?

44. Which one is beneficial for you?

45. Assets owned 1. Yes 2. No

    1. Gold
    2. Cycle
    3. Motor cycle
    4. Radio
    5. Tape Recorder
    6. T.V.

46. Income and expenditure pattern (per year)

    Income

    Income from the fisheries (per year)

    Income from other sources (per year)

    Expenditure

    Food items (per year)

    Non-food items (per year)

Indebtedness

47. How much amount you have in debted ? (Rs.) | | | | | |

48. Do you feel that the bank loan has been lessen the burden the indebt |

1. Yes 2. No.

If Yes, how (specify)

Suggestions

In identification of beneficiaries

Loan amount

Subsidy

Others

COUNCIL FOR SOCIAL DEVELOPMENT

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Household Schedule for HSD Oil Scheme Beneficiaries

I.0 Identification Particulars

1. S.No. ☐☐☐

2. Type of Scheme 1. Motorization of Traditional craft 2. HSD oil ☐

3. Name of the state (1) Andhra Pradesh (2) Tamilnadu ☐

4. Name of the District ☐

5. Mandal…….. ☐☐

6. Village……. ☐☐

7. Landing Centre (1) Big (2) Small ☐

8. Name of the Landing Centre …… ☐

9. Name of the Beneficiary)…….

   Father's Name……

10. Gender (1) Male (2) Female ☐

11. Age ☐☐

12. Marital Status ☐

    (1) Married (2) Unmarried (3) Divorced (4) Widow/Widower

13. Literacy Levels ☐

    (1) Non-literate (2) Literate (3) Primary (4) Secondary
    (5) High School (6) Junior Inter (7) Others

14. Caste

(1) OC (2) BC (3) SC (4) ST

15. Sub-sect

(a) OC : specify …….

(b) BC (1) Pattapu (2) Pallikari (3) Jalari
(4) Agnikula Kshetriya (5) Vada Balija (6) Others

(c) SC (1) Mala (2) Madiga (3) Others Specify

(d) ST: specify ……..

16. Religion

(1) Hindu (2) Christian (3) Muslim (4) Others

17. What type of ration card you have? 1. White card 2. Pink card

18. Family details

		Male	Female	Total
A.	Total Family			
B.	Children >15 years			
C.	Total workers/Earners			

19. Type of family (1) Nuclear (2) Joint

20. Type of House (1) Pucca (2) Semi-pucca (3) Kutcha

21. Source of Lighting (1) Kerosene (2) Electricity (3) Others

22. Cooking (1) Gas stove (2) Kerosene (3) Firewood

23. What was your activity before the scheme?

24. *Fishing Equipment*

	Before scheme	After scheme
Type of boat	----------	---- ----------
Type of engine	----nil--------	----------
Nets owned (in number)		

II. Investment Particulars

25. Investment

Fixed Capital

(a) Hull

(b) Engine

(c) Fish gear

(d) Wire

(e) Others

Total

26. Fixed Cost

(a) Depreciation (on Hull, Engine and gear)

(b) Interest on Loans

(c) Others (Craft license, etc.)

Total

III. Craft Economics

		Income from Scheme per day	Per year
27.	Year of purchase	----------	.....
28.	No. of days of fishing in a year		
29.	Expected number of years of fishing Boat		
30.	Nets		
31.	Operational Expenditure (Annual)		
	(a) Oil (from Scheme)		
	(b) Oil purchased		
	(c) Grease		

(d)	Ice / Salt		
(e)	Repairs / Maintenance		
(f)	Bata and food for crew		
(g)	Warfage		
(h)	Wages / Sharing for crew		
	Total		

IV. Catch Particulars

		Per day		Per Year	
		Quantity in Kgs.	Value in Rs.	Quantity in Kgs.	Value in Rs.
32.	Prawns				
1.	Big				
2.	Small				
33.	Fish Variety				
(a)	Pomfret				
(b)	Seer				
(c)	Shark				
(d)	Hilsa				
(e)	Rays				
(f)	Milk fish				
(g)	Anchores				
(h)	Sardine				
(i)	Mackerel				
(j)	Ribbon				
(k)	Crab				
(h)	Others				
	Total				

34. Gross Income from value of fish catch (Rs.) ☐☐☐☐ ☐☐☐☐

35. Net Income from boat ☐☐☐☐ ☐☐☐☐

36. What was the catch and Incomes of your craft before getting the scheme ?

	Variety	Quantity	Value of Catch
1.	Fish	☐☐☐	☐☐☐☐☐
2.	Prawn	☐☐☐	☐☐☐☐☐
3.	Total	☐☐☐	☐☐☐☐☐

37. How did you market the

(1) Fish ☐ (2) Prawn ☐

(i) Sell by family members (ii) Merchants (iii) Others

V. Employment **Persons per trip/per day** **per year**

38. No. of workers engaged in a boat (per day) ☐☐ ☐☐☐

Family labour ☐☐ ☐☐☐

Hired labour ☐☐ ☐☐☐

39. Wages/ sharing system 1. Wages 2. Sharing ☐ ☐

40. If wages, how much amount ☐☐☐

41. If sharing, what is the percentage? ☐☐ ☐☐

42. Additional income earned after HSD Oil Scheme ☐☐ ☐☐☐

VI. Scheme details

43. Source of information about the Scheme ☐

1. Friends and relatives 2. Bank Officials
3. Political leader 4. Gram Panchayat president
5. Community leader 6. Fisheries Officials
7. Fish merchants 8. Others (specify)

44. Who helped you to get the scheme ☐
1. Middlemen 2. Political leader
3. Gram Panchayat President 4. Community leader
5. Fish merchants 6thers (specify)

45. Time taken for application to sanction and sanction to disbursement

(i) Date of Submission of Application
(ii) Date of Sanction
(iii) Date of disbursement

46. Do you know the reasons for delay? ☐

(1) Yes (2) No

47. What types of documents were submitted for HSD Oil Scheme?

(1) Yes (2) No

(a) Application ☐

(b) Photos ☐

(c) Ration Card Xerox ☐

(d) Boat License ☐

(e) Size of the Boat ☐

(f) Bank Account ☐

(g) Others ☐

48. Which Bank financed for the purchase of Motor? ☐

1. Andhra Bank 2. State Bank of India
3. Canara Bank 4. Regional Rural Bank
5. Others (specify)

49. Type of Boat being operated by you ☐

1. Mechanized 2. Motorized

50. For how many years you have been benefitted from the scheme [ ][ ]

51. Capacity of the Oil Tank of the Boat (in Ltrs) [ ][ ][ ][ ]

52. Do you have pass book (oil) issued by AFCOF / Department [ ]

1. Yes 2. No

[ ]

53. Are you entered the details regularly

1. Yes 2. No

54. If Yes, who enter the details in pass book [ ]

1. FDO 2. District Fisheries Officer
2. Bunk Manager 4. Others (specify)

55. Are you submitting the details of oil consumption to the concerned officials [ ]

1. Yes 2. No

56. How much oil you are getting

Month	Liters allotted	Liters disbursed
January	[ ][ ][ ]	[ ][ ][ ]
February	[ ][ ][ ]	[ ][ ][ ]
March	[ ][ ][ ]	[ ][ ][ ]
April	[ ][ ][ ]	[ ][ ][ ]
May	0 0 0	0 0 0
June	0 0 0	0 0 0
July	[ ][ ][ ]	[ ][ ][ ]
August	[ ][ ][ ]	[ ][ ][ ]
September	[ ][ ][ ]	[ ][ ][ ]
October	[ ][ ][ ]	[ ][ ][ ]
November	[ ][ ][ ]	[ ][ ][ ]
December	[ ][ ][ ]	[ ][ ][ ]

57. What are the problems you are facing at bunk

58. Are you getting oil whenever you needed

1. Yes 2. No

59. If No, mention the reasons

60. Do you face any no stock board at any time

1. Yes 2. No

61. Is the timings of the bunk are convenient to you

1. Yes 2. No

62. If No, what are the problems

63. Are you getting the HSD oil regularly?

1. Yes 2. No

64. If No, mention the agency

65. Where is the agency located? (Distance from your village)

(1) Less than 5 Kms (2) 6 to 10 Kms
(1) 10 to 20 Kms. (4) Above 20 Kms.

66. Did you face any problems with regard to transportation of oil ?

1. Yes 2. No

67. Did you satisfy with the Quality of oil given under the scheme? ☐

1. Yes 2. No

68. If No, mention reasons?

69. What are the problems in getting the HSD oil?

VII. Impact on Socio-Economic Conditions (with the improved income)

70. Do you get additional income 1. Yes 2. No ☐

71. If yes, size of additional income ☐☐☐☐

72. If Yes, how do you utilize it Amount in Rs.

1. Purchased household assets ☐☐☐☐
2. Additional assets purchased ☐☐☐☐
3. Purchased gold / silver ☐☐☐☐
4. Expenditure on health ☐☐☐☐
5. Educational expenditure ☐☐☐☐
6. Expenditure for Marriage performed ☐☐☐☐
7. Repayment of debt ☐☐☐☐
8. Others (specify) cell phone ☐☐☐☐

73. If No, why (specify reasons)

1. ☐
2. ☐

VIII. Impact of HSD oil in on catch and incomes

74. Increase in catch due to more oil (more distance cover) ☐

1. Yes 2. No

75. Getting quality of catches than before ☐

1. Yes 2. No

76. Getting more incomes than before ☐

1. Yes 2. No

77. Any other (specify)

78. If the HSD oil scheme is stopped are you operating the boat ? ☐

1. Yes 2. No

79. Yes (how to manage)

80. If No, what are the implications?

81. Are you getting subsidized amount (Rebate) yearly ☐

1. Yes 2. No

82. If Yes, how frequently

83. If No, why

Observations of the Investigator

Annexure 3

Selected Field Photographs

Selected Field Photographs-1



Motorised crafts in the selected districts of Andhra Pradesh and Tamil Nadu



Project Director with fishery staff and craft owners (beneficiaries) during the field visits



Interaction with craft owners and community leaders by the Project Director

Selected Field Photographs-2



Different varieties of Fish Catches obtained to Motorized crafts



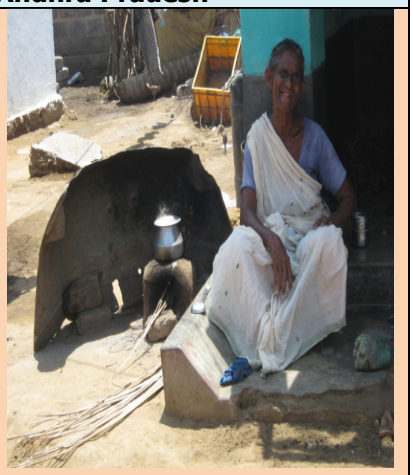
Employment generation in net repair, sorting of fish and dry fish marketing



Photographs of Sample Villages during the Transit visit

Selected Field Photographs-3

Landing crafts belong to control group and benficieries in Andhra Pradesh



Photographs of Sample Villages during the Transit visit

Interaction with theDistict officials and field workers