DR. MCR HUMAN RESOURCE DEVELOPMENT INSTITUTE OF ANDHRA PRADESH HYDERABAD

FISHERIES

Dear Reader,

As part of its endeavour to provide a SMART (Simple, Moral, Accountable, Responsive and Transparent) administration, the State Government of Andhra Pradesh has launched a major Human Resource Development and Training initiative aimed at developing a large human resource base of well informed and responsive functionaries and officials.

The successful and effective implementation of any initiative or programmed in government is largely the result of the involvement and efforts put in by its functionaries at all levels. Obviously, the most fruitful way in which to bring this about is to make individual functionaries aware of their role functions and responsibilities. To achieve this, the Human Resource Development Institute of AP, as the apex training institution of the State Government responsible for the overall implementation and co-ordination of the state training initiative, has proposed to bring out department wise Manuals two parts, namely

1. Departmental Manual
2. Functionary Manual

The Departmental Manual would indicate the role, responsibilities and functions of the department. The Functionary Manual will detail, as the nomenclature indicates, the functions and responsibilities of the functionaries within the department, at all levels. While doing so, the evolving role of governmental functionaries in being effective managers of change in a welfare state has been delineated. The Departmental Manual also details the department's organizational chart, the rules, regulations, legislations and enactments which govern its functioning and direct its activities and the various interdepartmental interactions it has to perform. The Manual also facilitates a definition of the Department's role in serving the general public as customer while drawing up a vision for its future development in the coming decades in line with the vision 2020 of the state.

The manuals developed by the Fisheries department are in two parts. As is evident these publications are the out come of thorough study and analysis of the Departments role, functions and procedures. They are intended to serve as useful aid to each and every employee of the Department in the effective discharge of his / her functions. It may be noted, however that these two manuals do not replace the codes and orders of Government on the subject but are at best, meant to provide guidance and assistance to functionaries in the effective discharge of their duties.

Any suggestions for the improvement of these Manuals may be sent directly to the Director General, Dr. MCR HRD Institute of Andhra Pradesh, Road No. 25, Jubilee Hills, Hyderabad - 500 033, for consideration and incorporation in subsequent updations and revisions of the manuals.

P V R K PRASAD IAS
Director General
Dr. .MCR Human Resource Development
Institute of Andhra Pradesh
&
Ex Officio Spl. Chief Secretary to Government (HRD)

NADAKUDITI NARASIMHA RAO
Minister for B.C. Welfare and Fisheries

HYDERABAD

MESSAGE

I am happy to note that under the Chairmanship of Principal Secretary, Animal Husbandry, Diary Development and Fisheries in consultation with the members of Dr. M.C.R. Human Resource Development Institute, Jubilee Hills, Hyderabad, the Departmental and functionary Manual prepared by Sri T. Radhakrishna Murthy, Additional Director of Fisheries (Retired) who was appointed as Consultant was approved by the Committee.

Perhaps, the said Manual may be more useful to the Officers, Staff members and to all those who are concerned with the Fisheries Department at large.

I wish one and all for the success achieved.

Hearty Wishes,

N. Narasimha Rao

(N. NARASIMHA RAO)

P. RAMAKANTH REDDY, I.A.S.
Principal Secretary to Government

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MESSAGE

Departmental Manuals will serve as useful tools and reference books to every employee in discharging their duties effectively and to serve the common public more efficiently.

I wish the Department all the very best.

P. Ramakanth Reddy

(P. RAMAKANTH REDDY)

FISH FOR HEALTH AND WEALTH

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FORE WORD

The Department has been following the Madras Fisheries Manual printed by the Madras Government in 1929. After the formation of the Andhra Pradesh in 1950, the revision of manual has been completed which is under use till now.

The Functional Manual details about the duties and responsibilities of the Departmental officers and staff at all levels.

These manuals are updated as per the guidelines and suggestions given by the Dr. MCR HRD Institute and two separate Vols. of Departmental & Functionary manuals have been prepared. The Department has already started publishing training manuals on different aspects of fisheries development. Sri Radha krishna Murthy, additional Director of Fisheries (Retd) has taken pains and sincere efforts to update these volumes.

I hope that these manuals will provide useful information to the planners, Administrators, Departmental officers and will help the general public to have better understanding of the role of the department and thus facilitate the department to serve the common man more effectively. All these will help to elevate the status of the department in the society in forthcoming years.

I welcome any constructive comments, suggestions, and modifications for incorporating them in revision of these manuals.

COMMISSIONER OF FISHERIES.

DEPARTMENTAL MANUAL

OF

FISHERIES DEPARTMENT

GOVT. OF ANDHRA PRADESH

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CONTENTS

ORIGIN OF THE DEPARTMENT
OF
FISHERIES DEPARTMENT

I. ORIGIN OF THE DEPARTMENT

I. ORIGIN OF THE DEPARTMENT

The development of the fishing industry started long ago. In 1907, the Bureau of fisheries was established with an Honorary Director as its Head in the Madras State. The Department of fisheries was reorganized in 1918 with a Director of Fisheries, as the Head of the Department in the Madras State. The first Director was Sir Frederick Nicholson, to whose single minded devotion the development of Fisheries all over India owes a great deal. After the separation of Andhra from Composite Madras state on 01.10.1953, the Department was attached to the Agriculture Department under the Director of Agriculture. After the formation of Andhra Pradesh in 1956 (1.11.1956), the Fisheries wing was attached to the Director of Animal Husbandry with effect from 02.12.1959. Due to no separate entity the development of fisheries did not receive adequate attention. Later on the Government of Andhra Pradesh constituted a separate Directorate for Fisheries, and created the post of Director of Fisheries vide G.O.Ms.No. 2414, Agriculture Department dated 4.11.1959 (Appendix I) and Sri V. John was appointed as Director of Fisheries and assumed charge on 2.12.1959. The Government have constituted a separate Directorate for Fisheries to initiate schemes and exploit vast potentialities of the Andhra Pradesh State Both in Inland and Marine Fisheries properly in the G.O. mentioned above.

II. EVOLUTION OF THE DEPARTMENT OVER A TIME

II. EVOLUTION OF THE DEPARTMENT OVER A TIME

II.1. INTRODUCTION :

Fish attracted the attention of mankind from very ancient times. The reason for this is not for to seek. Apart from their delicious and nutritive value, they occurred in vast numbers in natural water areas. Without sowing a crop of fish was always ready year after year and season after season and men utilized the fisheries to the extent they could. Though man learnt the methods of Agriculture by experience very soon after civilization dawned, no such progress in fish culture was made, evidently because the ancients found a crop readily available with out sowing and also because they could not know the habits and other activities of fishes which live in water. As fisheries began to dwindle in seas and rivers, and as the need to culture fish in inland region arose, man began to bestow attention on the fisheries and thus the beginning of fisheries science was made, considerably later to the organisation of Agriculture. Though the development of fish culture in ancient times was not on par with Agriculture, its history is more or less, is as old as civilization itself. There are records in China, about fish culture from very ancient times, as early as 3,000 B.C. Apart from China, other eastern countries like Philippines, Java, India and Japan also practiced fish culture in some form or the other. The Romans came next to the Chinese in the story of the antiquity of Aquaculture, but most of the ponds they maintained were only of fresh water ponds. They stocked a mixture of several varieties of fish, and the stronger once which remained after feeding on one another were fished out periodically. Japan, an important fish producing country in the East has been a prominent center for estuarine fish farming for several decades. The Philippines and Java are the two important countries, where culture of a fish known as Chanos has been in existence from a very long period.

II.2. Pond culture had been in existence in India from olden times, especially in Bengal, Orissa and Assam. Apart from these, pond culture had been in existence in Andhra, Madras and Kerala also, though on a smaller scale. In Bengal, Orissa and Assam, the methods had been to collect fish spawn and fry in large members and sell them in mud pots to ponds owners for stocking in the ponds.

II.3. In Andhra Pradesh, pond culture has improved considerably during the last 4 1/2 decades largely due to the extension work made by the fisheries administration of the State. During the monsoon months i.e.., July to October, a large member of people used to get busy collecting young ones of fish, from channels leading to paddy fields by devices known as basket traps. They sold

them to pond owners who took them by bicycles, head loads, kavidi's, boats etc., to their ponds for stocking. As the fish seed is purchased at a recognizable stage, mixture with predators used to be avoided. The same procedure was being followed till improved methods consequent to the propaganda made by the State Fisheries Department were adopted as seed obtained was a mix of different varieties and collected from rivers at great risk.

II.4. ACTS & RULES GOVERNING THE DEVELOPMENT IN FISHERIES SECTOR :

The Acts and rules provided for the Department of Fisheries in respect of development activities are (1) the Indian Fisheries Act of 1897 (Central Act IV of 1897) (2) A.P. Marine Regulation Act of 9 of 1995 as per G.O.Ms.No. 105 A.H. & Fisheries Department dated 8.8.1995 and (3) A.P. Co-operative Societies Act 1964 (A.P. Act 7 of 1964) as per G.O.Ms.No. 1982 F & A (Fisheries) Department, dated 15.6.1966.

II.5. SCHEMES IMPLEMENTED :

The various schemes implemented since inception of the Department, Government orders and technical staff originally created are as given below :

1. Conservancy Schemes
2. Fish Seed Collection, production and Distribution.
3. Agency development scheme
4. Deep Water Fishing
5. Prawn Fishery Schemes at Macherla and Kovvali
6. Paddy-cum-Pisciculture Scheme.
7. Development of fisheries with U.N.I.C.E.F. aid
8. Setting up of Fish Farmers Development Agency
9. Research Station at Nagarjunasagar.
10. Pochampadu Project reservoir Research Unit
11. Inland Fisheries Training Centers
12. Kolleru Development scheme
13. Schemes Under Marine Fisheries
14. Schemes under Brackish Water Fisheries.

II.5.1. CONSERVANCY SCHEMES :

The Introduction of Conservancy schemes is to regulate the method of fishing by imposing various conditions to avoid depletion of fishery in a particular water source. The Indian Fisheries Act of 1897 (Central Act IV of 1897) empowers the Government to make rules for the introduction of conservancy measures and licensing system in any water.

Since inception of the Department close season and licensing scheme, are in operation in the following waters.

Sl No.	District	Name of the Scheme	Authority for implementation of the Scheme	Technical Staff sanctioned by Govt.
1	West Godavari	a) Kolleru & Upputeru licensing Scheme	G.O.Ms.No. 2534 Development and made permanent in G.O.Ms.No. 2162 dt 19.8.52 G.O.Ms.No. 1216	Insector of Fisheries - 1 at Eluru A.I.F. 4 at Sriparru, Akividu, Kaikaluru, Mogultur AIF-1 at Polavaram
		b) Agency licensing scheme	Development dt. 18.3.1953.	
2	Guntur	a. Nallamada and perali Drains licensing scheme	a) G.O.Ms.No.4 319 Dev. Dept. dt 28.9.1951 G.O.Ms.No. 1997 Industries Coop.& Labour	AIF-1 Nizampatnam Feildman-1 AIF-1 at Repalle Fishery observer - 1
		b. Kothapalem licensing scheme	Dept., dt.4.10.1955 G.O.Ms.No. 113 Agri Dept., dt. 23.1.1957	
3.	Krishna	a. Machilipatnam back-water Bandar port licensing scheme	G.O.Ms. No. 2280 Industries Coop.2 & Labour Dept.,	AIF-1 at Avanigadda Fishery Guard-1
		b. Inter group licensing scheme	G.O.Ms. No. 674 I.C&L dt 26/3/1956	Supervisor-1 AIF-1 at Kalleswaram Fieldman - 1.

4.	Nellore	a. Manneru river licensing scheme	G.O.Ms.No.5846 Dev. Dt. 12.12.1949	AIF-1 at Nellore Fieldman - 1
		b. Kandaleru licensing scheme	G.O.Ms. No. 257 Agri dt. 7.2.58	AIF-1 Nellore fishery Guard - 1
		c. Surveyapalle reservoir licensing scheme	G.O.Ms. No. 538 Agri dt. 20.3.59	IF - 1 Fieldman - 2
		d. Swarnamukhi licensing scheme	G.O.Ms.No. 2337 Agri dt. 6.10.59	Fieldman - 1 Boatman - 1 Watcher - 1
5.	East Godavari	a. Godavari licensing scheme	G.O.Ms. No. 2529 Industries & Co-Op. and Labour dt. 20.12.55	AIF - 1 Badrachalam
6.	Nizamabad	a. Nizamasagar reservoir licensing scheme	G.O.Ms.No. 2493 Agri dt 16.11.59	Pisciculturist - 1at Manneru I.F.4 at Nizamsagar, Din D1 Nirmal, Adilabad
7.	Hyderabad	Conservancy measures and licensing scheme in Hussainsagar, Himayatsagar, Osmansagar and Miralam	G.O.Ms.No. 2547 Agri dt. 21.11.60	Asst. Inspector-2 Fieldman-1 fishermen-16
8.	Karimnagar	Licensing scheme in Godavari at Mantheni	G.O.Ms.No. 2204 Agri dt. 5.10.60	No. staff sanctioned Regional Inspector was entrusted to this work
9.	Nellore now in Prakasham	Licensing scheme in Cumbam reservoir	G.O.Ms.No. 2386 Agri dt. 28.10.59	AIF - 1

II.5.2 FISH SEED COLLECTION PRODUCTION AND DISTRIBUTION :

In initial periods of 1950s, the fish seed used to be collected from Godavari and Krishna rivers, rice fields and irrigation canals in delta areas. There were 25 fish seed collection centers in East Godavari District, 20 in Krishna, 16 in West Godavari, 24 in Mahaboobnagar, 27 in Nalgonda, 18 in Warangal, 13 in Karimnagar and 12 in Guntur District. Over all there were 285 centres in 20 Districts. The important seed collected were Catla, Rohu, Mrigala, Chanoes, Murrel & Mullets etc.,

During the year 1959-60, there were four fish farms in Andhra Area and Nine in Telangana. The details are as given below.

Sl No.	Name of the fish farm	District	G.O. in which sanctioned	Staff sanctioned originally
1.	Andhra / Ippur	Nellore	G.O.Ms.No. 2997 development dt. 14.10.1914	A.I.F-1 fishery overseer-1
2.	Mypad	Nellore	G.O.Ms.No. 3762 Dev.Dt. 26.11.1918	A.I.F - 1
3.	Sunkesula	Kurnool	Very old-fish farm	A.I.F - 1
4.	Patha Cuddapah	Cuddapah	G.O.Ms.No. 4786 Dev. Dept, dt. 20.3.1950	Inspector of fisheries - 1
5.	Telangana Hussainsagar	Hyderabad city	G.O.Ms.No. 3643 dt. 21.7.1352F of the R.R. Department	Pisciculturist-1 Inspector of Fisheries - 1fieldman, Fishermen
6.	Rajendranagar	Hyderabad	Old fish farm (Now with ANGR Agr. University)	Asst.Inspector of Fisheries - 1 fieldman - 1

7.	Dindi	Nalgonda	Old Fish Farm	Inspector of fisheries - 1
8.	Maneru	Karimnagar	Old Fish Farm	Inspector of fisheries - 1
9.	Koilasagar	Mahaboob nagar	G.O.Ms. No. 1098 Agril dt. 16.4.59	Inspector of Fisheries - 1
10.	Nizamasagar	Nizamabad	G.O.Ms. No. 1695 Agril dt. 26.7.1960	Operator - 1 Fishermen - 1
11.	Shanigaram	Karimnagar	G.O.Ms. No. 1123 Agril. dt. 23.7.57	AIF - 1 Fieldman - 1
12.	Wyra	Khammam	G.O.Ms. No. 866 Agri. dt. 23.4.58	AIF - 1 Fieldman - 1
13.	Hanumakonda	Warangal	G.O.Ms. No. 1123 Agri dt. 23.7.57	IF - 1 Fieldman - 1

Subsequently over a period of 4 1/2 decades, all together 80 fish seed farms were established in a phased manner in the state. The list of fish seed farms existing now in the state and authority for their establishment, are given in Appendix. 2.

S.No.	Name of the District	Location of the Farm
1.	Srikakulam	Srikakulam, Ichapuram
2.	Vizianagaram	Vizianagaram, Dumangi, Revada, Thatipudi
3.	Visakhapatnam	Thandava, Dykes Tank, Narsipatnam, Paderu

4.	East Godavari	Vetapalem, Dwarapudi, Yeleshwaram, Rajavommangi, Amalapuram, Mamidikuduru, Kothapeta, Rajole, Mummidivaram, Kadium
5.	West Godavari	Tanuku, Narsapur, Badampudi, Kovvali
6.	Krishna	Moturu, Poranki, Penamalur
7.	Guntur	Nagarjunasagar, Nidubrolu, Kuchipudi, (Nandivelugu Not in Operation)
8.	Prakasam	Darsi, Karamchedu, Chakrayapalem
9.	Nellore	Kavali, Pedamatipalem, Ippur, Ipalem, Somasila, Padugupadu
10.	Chittoor	Chittoor, Tirupathi, Palamaneru, Araniyar, Krishnapuram, Kalyani Dam, Bahuda
11.	Ananathapur	B.T. Project, P.A. BR. Farm
12.	Cuddapah	Patha Cuddapah, Rajampet, Mylavaram, B. Mattam
13.	Kurnool	Kurnool, Sunkesula, Nandyal, Gajuladinne
14.	Khammam	Kinnerasani Project, Wyra, Khammam
15.	Warangal	Hanumakonda, Bheemaram (Ashok Nagar, Palampet & Jangam are not in operation)
16.	Karimnagar	Upper Manair Dam, Dharmapuri, Shanigaram, Lower Manair Dam, Keshavapatnam
17.	Adilabad	Pochampadu, Kadam, Satnala
18.	Medak	Manjira, Medak
19.	Mahaboobnagar	Chandrasagar, Mutcheralapally, Pillalamarri, Koilasagar, Jemmichedu, Saralasagar.

20.	Nalgonda	Dindi, Thummadam, Musi.
21.	Nizamabad	Kisannagar, Atchampeta, Pochampadu, Arsapally
22.	Hyderabad	Hussain Sagar (Miralam filter beds are now taken over by Zoo Authorities)
23.	Ranga Reddy	Medchal, Sheriguda, Nandivagu

During the year 1999, Government have issued orders for leasing out the following fish seed farms to the District F.C.S. or other interested local bodies or individuals for improving the fish seed production vide G.O.Rt.No. 395 AH & Fisheries Dept., dated 2.7.1999.

S.No.	District	Name of the fish seed farm
1.	Srikakulam	Itchapuram
2.	Visakhapatnam	Thandava
3.	Krishna	Chinnaiah Farm at Moturu
4.	Guntur	Nandivelugu
5.	Prakasam	Chakrayapalem
6.	Nelloor	Padatmatipalem, Gandipalem
7.	Warangal	Ashoknagar, Palempet & Janagam
8.	Nizambad	Kissannagar
9.	Mahboobnagar	Mucherlapalli

The various techniques evolved for production of quality fish seed are discussed under head Inland Fisheries.

II 5.3 AGENCY DEVELOPMENT SCHEME :

This Scheme was originally sanctioned in G.O.Ms.No. 1216 Development department dt 18.3.1953. It is operation in agency areas in East Godavari and West Godavari Districts to grow fish in Agency areas and provided fish to tribal people.

Sl. No.	Name of the District	Place of the Scheme	Staff Sanctioned
1.	East Godavari	Yeleswaram, Rampachodavaram	AIF - 1
2.	West Godavari	Polavaram, Kotha - Ramachandrapuram	AIF - 1
3.	Visakhapatnam	Araku, Chinthapalli Paderu	No separate staff is sanctioned. The Assistant Inspector of Fisheries at Vizianagaram is incharge of the scheme.
4.	Vizianagaram	Dummangi Gumalakshmipuram Parvathipuram	Anakapalli and Palakonda FDO/AIF are attending to these agency areas vide G.O.Ms.No. 1046 Education Dept. Dt.3.4.1959.
5.	Srikakulam	Seethampeta	

The scheme extended and continued implementation at Palavancha of Khammam District, Eturunagaram of Warangal District and Utnur of Adilabad District each with one Inspector of Fisheries and two skilled fishermen vide G.O.Ms.No. 222 AH&Fisheries (Fish-II) Dept., dated 24.12.1993.

II.5.4 DEEP WATER FISHING :

There are number of Deep Water tanks and Reservoirs in both the regions of Andhra and Telangana. Since exploitation of Deep Water tanks require specific types of tackle and skilled man power, the fishermen in most of the places were not able to fully exploit the fishery. In order to demonstrate Deep water fishing, deep water netting units were established at few places for conducting deep water netting operations and demonstrating the same to fishermen. The units were first started in the year 1954 in the State. The details of schemes are given below :

Sl. No.	Location of scheme	Head Quarters	Authority for creation of the scheme	Staff sanctioned
1.	Osmansagar Himayatsagar Hussainsagar in and around Hyderabad	Hyderabad		Asst. Director - 1
2.	Nizamsagar Reservoir	Nizamsagar		IF - 1, Fieldman -2 Fishermen - 4
3.	Mopad Reservoir	Nellore now in Prakasham Dist		Asst. Inspector - 1 Fieldman - 2
4.	Mulug in Warangal Dist	Warangal	G.O.Ms.No. 1518 Agri dt. 6.7.60	IF - 1, AIF - 1
5.	Deep Water netting Unit at Kurnool	Kurnool	G.O.Ms.No. 1551 Agri dt. 11.7.60	IF - 1, AIF - 1
6.	Nagarjunasagar Reservoir	Nagarjunasagar	G.O.Ms.No. 1692 F&A Dept., dt. 26.7.1963	IF - 1 Hydrologist - 1 Fieldman - 2
7.	Mid Pennar Reservoir	Penakacherla Ananthapur Dist	G.O.Ms.No. 108 F&A Dept. dt. 22.1.71	IF - 2

This scheme was disbanded in G.O.Ms.No. 798 F&RD (Fish.II) Dept., dated 9.11.1975.

II.5.5 PRAWN FISHERY SCHEME AT MACHERLA :

To study the feeding and breeding habits of prawns in chandravanka tributory and river Krishna, a scheme was sanctioned in G.O.Ms.No. 255, Agriculture

dated 5-2-1958. The staff sanctioned are one Assistant Inspector of Fisheries and one fieldman. At Kovvali in West Godavari District, a scheme for fresh water prawn culture was taken up vide G.O.Rt.No. 1407 F&A Dept., dated 25.8.1973. The staff sanctioned are Assistant Director (One), Inspector of Fisheries (Two), Fishery Overseer (One) and Fishermen (five) subsequently the scheme was transferred to A.P.A.U. for conducting research on Prawn culture.

II.5.6 PADDY-CUM-PISICULTURE SCHEME :

The Research scheme for the promotion of paddy-cum,-pisiculture was sanctioned in G.O.Ms.No. 1054, Agriculture, dated 20-5-1958. This scheme was sponsored by the Indian Council of Agriculture Research. The project was taken up at Peddapatnam in Krishna District. The Staff sanctioned are on Asst. Research Chemist one fieldman and one laboratory attender. The Assistant Director of Fisheries, Vijayawada was supervising this scheme. After conducting experiments on culture the scheme was disbanded subsequently.

II.5.7 DEVELOPMENT OF FISHERIES WITH UNICEF AID :

The aim of the scheme was to distribute the fish inter alias free to the school going children and nursing and expectant mothers. It was sanctioned in G.O.Ms.No. 5 (P&LA) Department dated 4.1.1961. The Government have sanctioned a scheme with UNICEF aid to develop Fishery in ten villages of each of the twenty blocks selected from each of the twenty districts of Andhra Pradesh, to be completed within a period of 3 years commencing from the year 1960-61. As per schedule, the scheme was implemented in 20 selected Blocks in 20 Districts of the State and after three years this scheme was disbanded.

II.5.8 SETTING UP OF FISH FARMERS DEVELOPMENT AGENCY :

The main purpose of the scheme was linking up of institutional finance with inland fish production with view to intensify fish culture. The first Fish Farmers Development Agency was started in Karimanagar District in the State Vide G.O.Ms.No. 3 Forest and R.D (Fish II) Dept., dated 1.1.1979 in the fifth five year plan,followed by Kurnool, Sangareddy. The technical staff sanctioned were Chief Executive officer - 1 F.D.Os - 2 Fishermen - 2 who were taken on deputation from Fisheries Department. In a phased manner, 22 Fish Farmers Development Agencies in 22 Districts were functioning in the State and each FFDA was aimed to develop 100 ha and impart training to the beneficiaries. The beneficiaries were given subsidy @ 25% subsidy construction of ponds and supply of inputs and 75% of loan was obtained from financial Institutes. The

scheme was discontinued in the State with effect from 1.3.1997 vide G.O.Ms.No. 20 AH&F Dept., dated 25.2.1997.

II.5.9 RESEARCH STATION AT NAGARJUNASAGAR :

The Government have sanctioned in the G.O.Ms.No. 69 dt 11.1.1960, the scheme for the establishment of a Research unit at Nagarjunasagar with a view to collect the data of the species of fishes available in the river, the Hydrological conditions before and after the dam is constructed and also to find the effect of the dam on the migration of fishes, etc., The staff sanctioned were Assistant Director of Fisheries - 1 Research Assistant - 1, Lab - technician - 1, Asst. Inspector and Fieldman - 1.

In third Five Year Plan - Annual Plan 1963-64 scheme for development of fisheries in Nagarjunasagar was sanctioned vide G.O.Ms.No. 1692 Food and Agriculture Department dated 26.7.1963 with a view to develop and increase fish production in Nagarjunasagar. The technical staff created Hydrologist one, Alogologist one, Fieldman two, and Inspector of Fisheries one. The post of Asst. Director of Fisheries, Nagarjunasagar was discontinued in December, 1995.

II.5.10 POCHAMPADU PROJECT RESERVOIR UNIT :

The detailed Survey in the reservoir to be formed by the construction of Pochampadu Project across the river Godavari and also for collection of data on Hydrological conditions of the river before and after the dam is constructed, its effects on the migration of fish etc., the unit is sanctioned in G.O.Ms.No. 2956 F & A Department, dated 26.12.1964. The staff sanctioned for the work are Research Assistant - 1, Laboratory Assistant - 1, Fieldman - 2. The staff are working in the Fish Seed Farm.

II.5.11 INLAND FISHERIES TRAINING CENTRES :

There are 3 Inland Fisheries Training Centres at Warangal, Kurnool and Badampudi. The Training is imparted to fishermen and fish farmers for a period of 3 months in fish seed production and nursery management. 4 Batches are conducted in a year. The intake capacity is 20 stipendiars and 20 Non-stipendiars per batch at each center. The stipendiar are being paid Rs. 200/- P.M. per trainee. The details of sanction of training centers are given below :

Sl. No.	Name of the Centre	Districts	Authority for creation	Staff sanctioned
1.	Warangal	Warangal	G.O.Ms.No. 1268 Food and Agri (F.II) Dept., dt. 18.6.1970	Demonstrators - 2 Clerk cum typist - 1
2.	Kurnool	Kurnool	G.O.Ms.No. 426 Forests and R.D. (F.II) Dept. dt. 20.5.1977	Inspector of Fisheries - 2
3.	Badampudi	W.Godavari	G.O.Ms.No. 365 F&RD (F-I) Dept. dt. 17.7.1980	Inspector of Fisheries - 2, Gear Technician - 1

II.5.12 KOLLERU DEVELOPMENT SCHEME :

Scheme for providing long term credit for development of fisheries in Kolleru lake area, which envisaged the construction of 70 tanks of 40 acres each of water spread area in Krishna and West Godavari Districts with a total outlay of Rs. 209.26 lakhs was sanctioned by the Agriculture Refinance Development Corporation along with qualified technical staff necessary to supervise and render technical guidance for implementation of the project. The scheme was sanctioned in G.O.Ms.No. 105 Forests and Rural Development (Fish - I) Department, dated 1.2.1978. The staff sanctioned are, Deputy Director one, Asst. Director One, and Inspectors-seven. The post of Deputy Director was discontinued in March, 1997.

II.5.13 TANK DEVELOPMENT SCHEME :

For survey and development of fisheries in West Godavari, the tank development scheme was sanctioned in G.O.Ms.No. 828 Food and Agriculture Department, dated 23.6.1969. The technical staff sanctioned are Asst. Director of Fisheries One, Inspector of Fisheries Two, Asst., Inspector of Fisheries - Six, and Fieldman - Eight.

II.5.14 SCHEMES UNDER MARINE FISHERIES :

Sl. No.	Name of the Scheme	G.O. in which sanctioned	Staff Sanctioned Originally
1.	Evolving of suitable craft and tackle for exploiting	G.O.Ms.No. 2001 Dev Dt. 23.11.54	ADF - 1
	a) Construction and mechanisation of boats (construction of 10 boats and 2 boats of new design)	G.O.Ms.No. 864 dt. 25.4.58	
	b) Construction of 20 Hulls	G.O.Ms.No. 754 dt. 10.4.58	
	c) Purchase of 21 Bukh 10 HP Marine Diesel Engines and construction of 16 boats	G.O.Ms.No. 448 Agri dt. 14.3.59	
	d) Construction of 20 boats	G.O.Ms.No. 846 dt. 18.12.1958	
2.	Boat Building yard	G.O.Ms.No. 846 dt. 18.12.1958.	IF - 1
3.	Workshop establishment for Boat Yard	G.O.Ms.No. 864 Agri dt. 23.4.1959	Foreman - 1 Asst Foreman -1 Mechanic - 1
4.	Mechanised boat fishing centers a) Calingapatnam Srikakulam Dist. b) Kakinada, E.G. Dist. c) Peddapatnam Krishna Dist. d) Nizampatnam, Guntur Dist. e) Muthukuru Krishnapatnam in Nellore Dist.	G.O.Ms.No. 2062 I.C.L. dt 15.10.1956	Asst. Ins - 1 Driver - 1 Luscars - 2 for each station
5.	School Fisheries Window Pan in Koringa Bay, E.G.Dist.	G.O.Ms.No. 877 dt. 24.4.1959	Fishery overseer - 1

II.5.15 PRESERVATION OF CATCHES :

Fish is a highly perishable commodity especially in a tropical Country like India. It cannot be kept in good condition for more than 8 hours after catch. The Fishermen preserve their surplus catches by salting and drying them for selling them in the interior markets salt is the cheapest preservative for fish. Salt is applied in appropriate proportions and the fish cured for a period not less than 24 hours and then dried in the sun. With a view to induce the poor fishermen to cure their surplus catches properly, salt was being issued to fishermen in the Fish Curing Yards at subsidised rates but Government issued orders for supply of salt on free of cost (in G.O.Ms.No. 1391 Agriculture Dept., dated 21.6.1960) who bring their fish to Government Fish Curing Yards.

14 Fish Curing Yards were functioning by 1959-60 at following places.

1. Pundi
2. Manchenelapeta
3. Pedakarivanipalem
4. Althada
5. Guppidipeta
6. Battigallam
7. Mukkam
8. Mangamaripet
9. Bhimilipatnam
10. Uppada
11. Konappapeta
12. Chinagollapalem
13. Kondurupalem
14. Pulingerikuppam

In G.O.Ms.No. 486 Agriculture dated 18.3.1961 Government have sanctioned two more fish curing yards at Danvaipeta and Yellaipet in East Godavari District. Subsequently the fish curing method is not being practiced by the fishermen with increased availability of Ice. These stations are now working for Marine fisheries developmental schemes.

II.5.16 INTEGRATED MARINE FISHERIES PROJECT :

The International Development Association has sanctioned a Project for the Integrated Marine Fisheries Project, covering the fishing harbours at

Visakhapatnam, Kakinada and Nizampatnam vide G.O.Ms.No. 700 F&R.D (Fish-1) Department, dated 20-10-1978. Under the Project the Fisheries Department has set up a monitoring and evaluation unit, to monitor and report the project problems and progress. The Fisheries Terminal Organisation were created in the G.O. above with the technical staff as given below :

Name of the Post	Visakhapatnam	Kakinada in E.G.Dist.	Nizampatnam in Guntur Dist.
Deputy Director of Fisheries	1	1	--
Assistant Director	--	--	1
Inspector of Fisheries	4	5	2

II.5.17 BHAVANAPADU FISHING HARBOUR :

Under centrally sponsored scheme, Fishing harbour at Bhavanapadu in Sreekakulam District was taken up wide G.O.Ms.No. 540 F&R (Fish I) Dept. Dt. 27.8.1980 for providing berthing facilities to 250 members of mechanised boats for and 200 Tradition at Crafts.

The Bhavanapadu fishing harbour is completed in the year 1988 to accommodate 200 nos. of mechanised boats. But at that stage certain technical problems like sand piling, sea erosion have become obstacle to make the fishing harbour operational. The Central Power & Research Station, Pune (CWPRO) and Water & Power Consultancy Services (WAPCOS) have conducted the model studies. The Dredging Corporation of India has mobilised the Mini trailing suction hopper dredger, MS Sindhuraj and dredging was continued for about a month in Nov'99. On technical evaluation, it was found that the sand piling is continuing. In the meantime M/s Baird Association Canada have approached for rectifying the problems and to keep the Fishing Harbour operational with an investment of Rs. 7.50 Crores. The detailed proposals in this matter have been submitted to Govt. for giving approval to utilize the services of M/s Baird Associates. The orders of the Govt., are awaited on issuing letter of indent.

II.5.18 FISHING HARBOUR AT MACHILIPATNAM :

During the year 1995-96 under centrally sponsored schemes the Fishing Harbour at Machilipatnam was taken up wide G.O.Ms.No. 105 AH & Fisheries (Fish II Dept.) Dt. 8.10.96. It is designed to provide birthing facilities to 300 mechanised Fishing Vessels.

The Government of Andhra Pradesh have accorded administrative approval for Rs. 640.00 lakhs for construction of fishing harbour at Machilipatnam during the year 1998 for providing birthing facilities to 350 nos. of MF Vessels. The Port Department is executing the construction works from November, 1999. The Govt. of India have released Rs. 200 lakhs sofar. Out of this G.O.I. share released was Rs. 121.23 lakhs and G.O.A.P. share work 1.23 lakhs out of the total value of Rs. 221 lakhs work. 48% work were completed.

II.5.19 FISHERIES SCHOOLS :

The fishing villages are scattered all along the Coast and are cut off from main land by large backwaters and sandy tracks. As the fishermen are illiterate they are averse to learn modern methods of fishing. Unless they are educated, it is difficult to improve their condition economically or socially. With a view to increase literacy among fishermen the department has established nine fishing elementary schools in the State in the Fishing villages where there are no schools to impart education to fisher children.

S.No.	Name of Fishery Elementary School	District	No. of teachers
1.	Pullingenikuppam	Nellore	1
2.	Nellaturupalem	Nellore	1
3.	Chennayapalem	Nellore	1
4.	Thummalapenta	Nellore	1
5.	Kalakurru	W.Godavari	1
6.	Kenappapeta	E.Godavari	1
7.	Lawson's Bay	Visakhapatnam	2
8.	Gangavaram	Visakhapatnam	2
9.	Manchineelapeta	Srikakulam	2

All the Schools were transferred to the Panchayat Samithies in accordance with the schedule to Rule (18) of the Panchayat Samithies and Zillaparishad Act, 1959 except the school at Lawson's Bay in Visakhapatnam.

II.5.20 SHORE STATIONS :

During the VIII and IX Five year plan period, the Department of Ocean development, Government of India have commissioned this scheme with an aim to supply Shore Communication equipment for fishing vessels and installation of Shore Stations. Two Shore Stations, ie., One at Kalingapatnam in Srikakulam District and another at Machilipatnam in Krishna District were established. The Shore Stations were Installed with errection of Antenna and MTR - 67 radio telephone and 6 Nos of Walkies Takies.

II.5.21 BRACKISH WATER FISHERIES SCHEMES :

1. The Estuarine Fish farm was constructed at Kakinada in East Godavari District in the year 1960 vide G.O.Ms.No. 1562 Agri. Dated 11.7.1960 with an objective to study th culture of Brackish water fish and prawn in Brackish waters of Kakinada Bay. The technical staff sanctioned are Research Assistant - 1, Fieldman -1.

   Later on the farm was transferred to CIFE for conducting training and Research on Brackish Water Fish Culture.

2. Establishment of experimental farm for Shrimp Culture at Polekurru was sanctioned in East Godavari Dist. Vide G.O.Ms.No. 153 F&RD (Fish II) Dept., dt. 27.3.1982. The Staff sanctioned are Asst. Director - 1, Biologist - 1, Hydrologist - 1.

3. Polekurru Phase I and II Brackish Water Fish Farming Project was sanctioned under U.N.D.P. development as per G.O.Ms.No. 100 A.H & Fisheries Department, dated 14.3.1986.

4. Establishment of Brackish water Fish Farmers Development Agency in Krishna, Srikakulam, Nellore, Prakasam and East Godavari Districts. The scheme was started in the year 1988 in Krishna District Vide G.O.Ms.No. 452 F&A (Fish-II) Dept., dated 10.6.1988 and Srikakulam, Nellore & E.G. vide G.O.Ms.No. 101 F&A (Fish - II) Department, dated 16.2.1991. The scheme was discontinued from 1-3-1997 vide G.O.Ms.No. 20 AH & Fisheries (Fish-II) Dept., dated 25.2.1997.

5. The World Bank Assisted Shrimp & Fish Culture Project was sanctioned vide G.O.Ms.No. 677 F&A (Fish - II) Department dated 23.9.1991. The technical staff originally sanctioned are Project Director (1) Aquaculturist (1) Asst. Project Director (1), Asst. Aquaculturist (1), Executive Engineer (1) and P.A. to Project Director (1). The Project is under implementation.

   The schemes relating to Welfare of Fishermen are given under 11.21 Welfare Schemes along with State Government Authority.

II.6 FIVE YEAR PLAN - FISHERIES DEVELOPMENT :

THE FISHERIES DEVELOPMENT DURING THE LAST 9 FIVE YEAR PLANS HAS TAKEN PLACE FROM CAPTURE-ORIENTED EFFORT TO CULTURE-ORIENTED EFFORT (IST YEAR PLAN PERIOD) (1951 - 56).

During the first five year plan period, in Andhra 97.67 lakhs of seed were collected and stocked in departmental waters and also distributed to the private pisciculturists with a new to rear the fish in their own tanks. About 10,000 tons of fish were produced. As the marine fish caught get spoiled quickly in a tropical country like India, (8) Nos. of fish curing yards were started during the first plan period. They were meant for issue of salt at subsidised rates for curing (processing) of fish. More than 2,500 tons of fish was cured in these yards in the first plan period. To enable the fishermen to transport fish from the landing centres quickly, 2 vans were maintained by the Department and transported about 288 tons of fish. The department distributed nylon yarn at subsidised rates to fishermen to enable them mend their nets and catch more fish with a view to exploit fisheries of deep seas, 8 mechanised fishing vessels were purchased in the composite State of Madras and one of them was stationed at Kakinada. Two local fishing Navas were motorised with 10 H.P. Marine Diesel engines which were provided to be quite suitable for fishing in the sea. In the Telangana area, the fisheries in Mahaboobnagar and Karimnagar were developed by collecting fish seed and stocking them in various waters in the districts. As a result of which over 80 lakhs pounds of fish were produced during the First Plan period. What was accomplished during the First Plan is not much comparable to the vast potential resources of the State. It is, therefore, proposed to make up the lost ground during the second plan period.

II.7 SECOND FIVE YEAR PLAN 1956 - 61 (A.P.) :

The diet of an average Indian lacks in the much needed proteins which are essential building body tissues. Fish is a better and cheaper source of proteins when compared to other sources such as meat, pork, poultry etc. The state has got a Coastline of 600 miles and fishable areas of the sea was estimated as 12,000 Sq.miles or 7,680,00 acres.

The following items fall under each of the Major heads.

1. Direction & Administration : Administration & Salaries of staff at Head Quarters and District offices.
2. Marine Fisheries : The consequence methods were given emphasis. Establishment of Fishing harbours for providing berthing Facilities for mechanised vessels. Exploitation of

			fishing grounds and Fish preservation and transport were other areas of important.
3.	Inland Fisheries	:	Conservancy measures Fisheries Development by proper stocking, judicious exploitation and Introduction of new varieties of fish were given emphasis.
4.	Research	:	a. Marine Fisheries research (b) Inland Fisheries research. Technological Research
5.	Socio-economics	:	1. Education facilities 2. Connecting Fishing villages with roads 3. Proper marketing places

The important achievements during the second plan were the collection of 397 lakhs of fish seed and stocking in Inland waters, curing of 5,668 tons of fish by issue of salt at subsidised rates, purchase of 70 engines for modulating boats, distribution of 30,024 pounds of nylon nets to fishermen at subsidised rates, establishment of one cold storage at Hyderabad and one ice-cum cold storage at Nizamsagar for preserving fish and purchase of three vans for transporting fish from landing centre to consuming centre. The programme for the development of Fisheries (1959 - 60) included 25 schemes at an outlay of Rs. 23.00 lakhs. Subsequently, one new scheme viz : "Fisheries development" in the selected Blocks has been included.

EXTENSION FISHERIES DEVELOMENT IN SELECTED BLOCKS :

Intensive development of Inland Fishery was taken up in two blocks viz., Peddapuram and Vayalpad at an estimated cost of Rs. 0.03 lakhs.

INLAND FISHERIES

DISTRIBUTION OF FRY AND FINGERLINGS :

A sum of Rs. 0.52 lakhs was spent and 0.85 lakhs fingerlings were collected and stocked in Inland waters.

TRANSPORT FACILITIES :

With a view to providing quick transport facilities from fish farms and from the landing places to the important marketing centres, 5 vans were purchased.

INCREASING FISH PRODUCTION :

It was proposed to increase fish production in 12 selected tanks in each of the five zones in the districts of Nizamabad, Medak, Warangal, Karimnagar and Mahaboobnagar.

Special staff was appointed for adoption of scientific pisciculture and production of fish for sale to consumers. In the plan of 1959-60, a sum of Rs. 0.41 lakhs was spent for the continuance of the staff and for addl production of 26 tons of fish.

FISH DEVELOPMENT IN NALGONDA DISTRICT :

One separate unit was established in Nalgonda District, Rs. 0.43 lakhs was spent during 1959-60 and 7.11 lakhs pounds of fish was produced.

FISHERIES DEVELOPMENT IN KHAMMAM DISTRICT :

A separate unit was established in Khammam District during 1957-58, Rs. 0.40 lakhs was sent and 9.36 lakh pounds of additional fish was produced.

FISHERIES DEVELOPMENT IN ADILABAD DISTRICT :

A separate unit in Adilabad District started during 1957 - 58, Rs. 0.37 lakh was sent and 4.30 lakh pounds of additional fish was produced.

FISHERIES DEVELOPMENT IN HYDERABAD DISTRICT :

A separate unit was set up in 1957-58 Rs. 0.42 lakhs was spent (1959-60).

CONSTRUCTION AND MAINTENANCE OF FISH FARMS :

A sum of Rs. 0.62 lakhs was spent in 1959-60 for the establishment of 4 fish Farms where the fry collected from their natural breeding grounds was to be reared to the size of fingerlings and ultimately stocking in the selected tanks.

INTENSIVE SEED COLLECTION AND DISTRIBUTION :

An amount of Rs. 2.21 lakhs was spent in (1959-60) for collection of 250 lakhs of fingerlings of the quick growing varieties, stocking them in Inland waters and increasing the fish production in Andhra area.

MARINE FISHERIES

SALT SUBSIDY SCHEME :

For curing 12.83 tons of fish, a sum of Rs. 0.52 lakhs was spent in 1959-60.

IMPROVEMENT OF INDIGENOUS CRAFT AND TACKLE :

Rs. 3.05 lakhs was spent for motorisation of 40 engines.

PROVISION OF QUICK TRANSPORT FACILITIES :

14 vans and 2 carrier boats were purchased for quick transport facility (1957-59). Recurring expenditure of Rs. 2.18 lakhs was spent. The quantity of fish transported by these vehicles was 600 tons.

TANK DEVELOPMENT SCHEME :

This scheme aims at fish culture in public tanks on scientific lines after survey. During the first three years of the plan, 3 vans were purchased and 200 tanks were surveyed.

Rs. 2.93 lakhs was spent in 1959-60 to develop the nurseries and surveyed 572 more tanks.

SUPPLY OF CATAMARAN LONGS TO FISHERMEN :

An amount of Rs. 0.19 lakhs was spent (1960-61) for purchase and distribution of 51 catamaran logs to fishermen at subsided rates.

DEEP WATER FISHING EXPERIMENTS :

With a view to conducting deep water experiments with Nylon Rangoon nets and teaching the fishermen in the methods of deep water fishing, a deep water fishing unit was established during the year 1958-59. Rs. 0.34 lakhs was spent to meet the recurring expenditure in 1959-60. There was an additional production of 7 1/2 tons of fish.

INTRODUCTION OF NEW TYPES OF FISHING NETS :

Under this scheme 8865 pounds of nylon nets were supplied at subsidised rates to fishermen during 1959-60 at a cost of Rs. 0.74 lakhs.

BOAT BUILDING YARD :

With a view to meet the requirements of more hulls consequent on the intensification of the programme of mechanisation of boats, a boat building yard was established during 1958-59. A sum of Rs. 0.29 lakhs was spent in 1959-60 for construction of boats. 4 boats were constructed.

II.8. III. FIVE YEAR PLAN (1961-66)

In a bid to further intensify the development schemes under Fisheries during the Third Plan period for exploiting the various resources and achieving comprehensive and systematic development. The important scheme taken up during third five year plan included Inland, Marine fisheries schemes training, research survey, marketing and transport facilities etc. The original provision for fisheries for the third plan was Rs. 115.00 lakhs. The plan provision has increased to Rs. 131.22 lakhs in III five year plan period and Rs. 141.53 lakhs was spent.

EXPANDED NUTRITION PROGRAMME :

Under this scheme, 17 blocks were taken up for production and free distribution of fish to the selected beneficiaries (school children and expectant mothers) and Rs. 7.02 lakhs was incurred.

APPLIED NUTRITION PROGRAMME :

The scheme was sanctioned in July 1965. Two lakhs of fingerlings of Cyprinus carpio was produced in Hussainsagar fish farm and Rs. 0.54 lakh was spent.

FISH SEED PRODUCTION AND DISTRIBUTION :

The scheme aimed at the collection of selected varieties of fish, rearing them in nurseries for stocking in tanks by the pisciculturists. 432.19 lakhs of fingerlings were produced and stocked in various waters of the State both Departmental and Private Rs. 14.56 lakhs was spent.

SUPPLY OF FISHERY REQUISITES :

Synthetic fish net twine and other requisites are distributed to the fishermen at subsidised rates. 1,87,914 pounds of synthetic fibre was distributed to the fishermen through Co-operative Societies by giving them loans. An amount of Rs. 17.70 lakhs was utilised.

TRAINING IN FISHERIES :

209 Fisher boys were trained in mechanised fishing for a period of six months and 79 Departmental officers were given training at Fisheries Training Institute, Kakinada, 18 candidates were also admitted in 1965 to two year post graduate Diploma course. Rs. 5.01 lakhs was spent for the scheme.

MECHANISATION OF FISHING :

Construction of Mechanised boats was taken up and distributed them at subsidised rates to fishermen trained at F.T.I. Kakinada to enable them to catch more Marine fish. During the Third plan period, 146 small boats (upto 32') and one 50'boat were constructed and mechanised in Boat Building Yard at Kakinada at a cost of Rs. 50.66 lakhs.

ICE-CUM-COLD STORAGE :

One 7 ton semi trailer Refrigerated Van was purchased. One 2 ton ice cum 4 ton cold storage plant at Nizamsagar which was commenced during second plan period was completed and commissioned. Another 5 tons ice cum 10 ton cold storage plant at Tadepalligudem was taken up. During the Third plan, an amount of Rs. 5.93 lakhs was spent. Construction of the first fishing harbour at Kakinada was also taken up. Exploitation of lakes and reservoirs was intensified and 400.2 tons of fish was caught by deep water netting units. Implementation of master plan for Nagarjunasagar was taken up and Deep water Fishing operation have commenced. A Fish farm was also established at Nagarjunasagar.

ANNUAL PLANS (1966 - 67, 1967 - 68 & 1968 - 69) :

The Schemes taken up during 3rd five year plan were continued.

IV FIVE YEAR PLAN (1969 - 74) :

During the fourth Five year plan was Rs. 223.40 lakhs against which an amount of Rs. 181.30 lakhs was spent.

DEVELOPMENT OF MARINE FISHERIES CENTRE AT KAKINADA :

Construction of mechanised boats was taken up at the Boat building yard, Kakinada to meet the requirements of Fishermen Co-operative Societies and Diploma holders in fisheries. Rs. 117.23 lakhs was incurred and 115 boats were constructed.

IMPROVEMENT OF FISH FARM, NURSERIES AND PRODUCTION OF SEED :

This scheme is meant for increasing Fish Seed production through the establishment of Fish farms and nurseries. The expenditure includes Induced breeding operations, purchase of seed,and purchase of vehicles for transport of fish seed. The target fixed for the production of fingerlings for the 4th plan period was 322.13 lakhs. The actual production exceeded the target and a produced 404.59 lakhs fingerlings. Rs. 11.35 lakhs was spent for the scheme.

DEVELOPMENT OF FISHERIES THROUGH MASTER PLAN :

The scheme for construction of 45 boats during a period of 3 years was entrusted to Andhra Fishermen Central Cooperative Societies Limited, Kakinada. The State Government has provided subsidy and the balance was to be obtained as loan from the Agricultural Refinance Corporation. Rs. 4.63 lakhs was spent towards subsidy on the cost of 15 boats supplied in 1973-74.

GRANT OF SUBSIDY OF SMALL FISHERMEN FOR PURCHASE OF INDIGENOUS CRAFT AND TACKLE:

Subsidy was given to fishermen for the purchase of indigenous craft and nylon and Rs. 5.07 lakhs was spent.

LOANS AND ADVANCES :

Rs. 5.63 lakhs was given as loans & advances during the fourth plan period construction and completion of fish farms, repairs to boats and consumer co-operative societies. One institution at Visakhapatnam, One at Hyderabad, 3 Institutions in Nadyal and 3 institutions in Kakinada were covered.

TRAINING IN FISHERIES :

Departmental officers were trained. 2 Training Centres in Ananthapur and Warangal Districts were established for imparting training in Inland Fisheries 375 candidates were trained during the period Rs. 4.65 lakhs was incurred.

STRENGTHENING OF MARKETING & STATISTICS :

Rs. 3.68 lakhs was incurred for this staff scheme.

DEVELOPMENT OF THE RESERVOIR FISHERY OF NAGARJUNASAGAR :

This is a research scheme for the survey and stocking of Certain reservoirs. Two units, one at Nagarjunasagar and the other at Pochampad were established. Construction

and improvement of nurseries at Ananthapur was also taken up and Rs. 3.45 lakhs was spent during 1973-74. One unit under All India Co-ordinated Research Project to take up research on fish culture in Inland waters was established at Nagarjunasagar.

AMELIORATIVE MEASURES FOR FISHERMEN :

In fishing village where drinking water wells etc., were lacking an amount of Rs. 4.25 lakhs was spent to make the necessary amenities available.

STRENGTHENING AND SUPERVISION OF CO-OPERATIVES :

The scheme was intended to develop marine fishing under which it was proposed to sanction every year share capital loan of Rs. 1.50 lakh and Rs. 25,000 towards Managerial assistance to the A.F.C.C.S. Ltd., Kakinada to implement the scheme with the assistance of the Agriculture Refinance Corporation and Rs. 1.57 lakhs was spent.

CONSTRUCTION OF FEEDER ROADS :

Rs. 2.30 lakhs was incurred during the fourth plan period for laying feeder roads to fishermen villages.

SPECIAL SCHEME FOR BACKWARD AREAS OF COASTAL ANDHRA :

Rs. 9.05 lakhs was spent out of which Rs. 5.00 lakhs was released as a grant-in-aid to Zilla Parishads to provide drinking water facilities and other amenities. Rs. 1.30 lakhs was spent on construction of bridge in Srikakulam district, Rs. 1.35 lakhs on improvement of existing 9 fish curing yards, Rs. 1.34 lakhs for distribution of nylon yard to fishermen on 25% subsidy and Rs. 0.06 lakh on research work on Fresh water prawn culture at Kovvali (West Godavari District).

SPECIAL DEVELOPMENT SCHEME FOR RAYALASEEMA :

Rs. 8.49 lakhs was spent towards improvement and construction of nurseries at Cuddapah, Kurnool, Ananthapur, Chitoor, during the fourth plan period.

The work on Landing and Berthing facilities, a Centrally Sponsored schemes has commenced at a cost of Rs. 0.28 lakhs.

PILOT SURVEY FOR ESTIMATION OF INLAND WATER IN KARIMNAGAR DISTRICT :

Rs. 0.87 lakhs was spent for undertaking survey of various tanks in Karimnagar District.

II.9 V. FIVE YEAR PLAN (1974 - 79) :

Rs. 300.05 lakhs was incurred during the 5th plan period towards the implementation of various schemes. 67 additional Mechanised boats were introduced and thus increasing the total number to 344.

INLAND FISHERIES :

The fish seed production has increased to the level of 100 millions of fry and 50 millions of fingerlings. The Inland fish production was reached to 1,14,000 metric tonnes.

Research schemes for fresh water prawn culture at Kovvali, I.C.A.R. scheme involving Research on B.W. Farming at Kakinada and culture of Air Breathing fishes at Palair were taken up and subsequently transferred to A.P. Agricultural University. The survey on pulicat lake was completed. Inland training centre was shifted from Ananthapur to Kurnool. The intake capacity of the Marine Fisheries Training Institute, Kakinada was increased from 20 to 75. 40 private candidates were trained in Fishing for corredon. Construction of 4 new fish farms was taken up and two fish farms were taken over from Zillaparishads. The I.C.A.R. unit continued to take up research on fisheries and fauna of the Nagarjunasagar Reservoir.

MARINE FISHERIES :

The Marine fish production has reached to 1,15,000 M.Tonnes. The mechanised boats were distributed to scheduled castes and scheduled tribes involving total cost of Rs. 4.00 lakhs. The survey of Nizampatnam Bay as recommended by U.N.D.P. Team was completed and survey at Narsapur (W.G.Dist) was also taken up.

The resources survey conducted by the exploratory fisheries project of Government of India indicates considerable fish potential of Andhra coast. Inadequancy of fishing harbours, credit for purchase of inputs for undertaking commercial fisheries, processing and preservation facilities, access roads to fishing villages were identified as constraints for improving the productivity and livelihood of large number of professional fishermen and a scheme for World Bank Assistance was proposed covering these aspects.

1979 - 80 ANNUAL PLAN :

The schemes of 5th five year plan continued.

II.10. VI FIVE YEAR PLAN (1980 - 85) REVIEW OF PROGRESS:

The important programmes taken up by the fisheries department during the VIth plan period were mainly aimed at the development of pisciculture in Marine, Inland sources in the State. Brackish Water was identified as a potential resource for development of Shrimp culture.

During the VI plan period an amount of Rs. 1,336.05 lakhs was spent.

MARINE FISHERIES :

The Integrated Marine Fisheries Project was sanctioned with World Bank assistance at a cost of Rs. 21 crores, was implemented during the VI plan period. The three fishing harbours at Vizag, Kakinada and Nizampatnam were established. Formation of 21 village access roads in the districts of Vizag, East Godavari and Guntur were also taken up. By the end of VI plan period, 138 mechanised boats were launched and the Marine fish production from traditional and mechanised sectors reached a level of 1.33 lakh tons by 1984 - 85.

INLAND FISHERIES :

It was emphasised that systematic fish seed stocked with quick growing varieties of fish seed has to be done. By the end of sixth plan, there were 83 departmental fish seed farms located in different districts. As against requirement of 800 millions of fish seed, 228.60 millions could be supplied (1984 - 85) from Departmental farms and other sources. Inland fish production reached a level of 1.05 lakh tonnes by 1984 - 85. Three Fish Farmers Development Agencies at Kurnool, Karimanagar and Medak were functioning with the aim of training personnel in Fish Farming to increase fish production.

BRACKISH WATER :

A beginning was made for utilisation of extensive brackish water shrimp fish culture during sixth plan period at a cost of Rs. 26.64 lakhs. A Demonstration farm was established at Kakinada by the Central Institute of Fisheries Education., Assisted by the Bay of Bengal programme (FAO), one brackish water farm was established at Polekurru in East Godavari district on an experimental basis. Two marine fisheries training institutes, one at Kakinada (E.G.Dist) and another at Machilipatnam (Krishna District) with 75 and 20 trainees respectively were functioning. In addition 3, Inland fisheries training centre at Kurnool, Warangal and Badampudi were also functioning for imparting training in Inland Fish culture to 20 stipendiary trainees with a stipend @ Rs. 75/- p.m. and 20 non-stipendiary trainees in each of the Institutions.

II.11 VII. FIVE YEAR PLAN (1985 - 90) AND ANNUAL PLANS OF 1990 - 91 AND 1991 - 92 :

The Integrated Marine Fisheries Development Project Phase I with NCDC assistance was taken up under this programme 450 catamarans, 34 Beach landing crafts were introduced.

242 traditional crafts were motorised under the Centrally Sponsored Scheme.

II. 12 VIII. FIVE YEAR PLAN (1992 - 97) :

TWO WORLD BANK PROJECTS VIZ :

Cyclone Emergency Reconstruction Project and A.P. Aquaculture Project were taken up.

The strategies and objectives adopted for implementation of VIII five year plan were as follows :

a. Completion of fishing harbours which are in progress.

b. The traditional fishing crafts made of non-patent construction materials like FRP (Fibre Reinforced Plastic) were introduced to increase marine fish landings.

c. The thrust of Brackish Water Fisheries would be to develop Brackish Water lands to take up Coastal aquaculture in a big way with the World Bank assistance.

d. To increase the fresh water fish production by adopting scientific methods of fish seed stocking, rearing and exploitation etc.

e. Implementation of various welfare measures to fishermen like Group Accident Insurance, Relief-cum-Savings, laying of village access roads.

f. Implementation of special component plan for scheduled castes and tribal sub-plan for the benefit of scheduled tribes.

II.13. FISHING HARBOURS AND LANDING CENTRES :

The Major fishing harbour at Visakhapatnam has become operational since VI plan. The harbour has 6 fishing jetties. 170 large size trawlers, 82 mini-trawlers, 100 sona type boats. 155 mechanised fishing vessels are under operation. The harbour is provided with high frequency shore signal station. There are 16 HSD Oil outlets, dry docking facility, work shops and auction halls etc.,, It is managed by the Visakhapatnam Port Trust and catch monitoring by the Department of Fisheries. The minor fishing harbour at Kakinada was designed to provide berthing facility for 15 nos. of 23 meter length trawlers and 410 mechanised fishing vessels. The harbour is operational. The works of Nizampatnam fishing harbour in Guntur district have been completed and was operational. The harbour was designed to provide berthing facility to 60 mechanised and 60 non-mechanised fishing vessels. The fishing harbour at Bhavanapadu in Srikakulam district was designed to operate 250 no.s of 9.8 mt. Mechanised fishing vessels. Though the works of this harbour were completed, the harbour could not be made operational due to technical problems of sand drifting into bar. The Govt. of India has accorded administrative approval establishment of Machilipatnam fishing harbour at an estimated cost of Rs. 470.88 lakhs in March, 1996. The harbour is designed to provide landing and berthing facilities to 250 existing 100 new mechanised fishing vessels. 2 landing centres at Calingapatnam, Manginapudi taken up in earlier plan period were completed. The civil works of Fishery industrial Estate at Muthayapalem Guntur Dist. taken up in VII plan were completed. The total expenditure on this component is Rs. 61.03 lakhs state share and Rs. 40.47 lakhs under central share.

II.14 TRADITIONAL FISHING CRAFTS MADE OF NON-PATENT MATERIALS :

There are 54,000 traditional crafts and 3269 crafts were motorised. The type of light wood, Albizzia wood required for fabrication of Catamarans has become scarcity even in the neighbouring states of Kerala and Tamilnadu. The Fibre Reinforced Plastic (FRP) was as an ideal replacement for the wood and is also

more durable and maintenance-free. The Boat Yard, A.P. Fisheries Corporation has introduced this fibre crafts like Navas and Catamarans and extended to private sector also. The scheme Integrated Marine Fisheries Project Phase II taken up with the financial assistance from National Cooperative Development Corporation was the main scheme under which FRP crats were introduced 375 nos. of FRP navas were supplied in Machilipatnam, Krishna Dist and Repalle, Guntur Dist. project areas at a cost of Rs. 513.35 lakhs. 34 crafts were supplied during the year 1994-95 at a cost of Rs. 26.54 lakhs. 120 nos. of FRP catamarans at a cost of Rs. 550 lakhs in the project areas of Srikakulam, Vizianagaram, Visakhapatnam and Guntur, in 1995 - 96.

MOTORISATION :

The fishermen were not well aware of the benefits of the motorisation of their crafts specially the Out Board Motors. An amount of Rs. 25.00 lakhs was sanctioned under the scheme "Assistance to small and marginal farmers in the year 1993-94 and another amount of Rs. 25.00 lakhs under the state share and Rs. 30.00 lakhs under the central share were released during the years 1994-95 and 1995-96 and Motors were supplied.

EXEMPTION OF CENTRAL EXCISE DUTY ON HSD OIL (80:20):

The scheme was implemented through the A.P. Fisheries Corporation Limited. An amount of Rs. 11.25 lakhs was sanctioned as state share and Rs. 30.00 lakhs was sanctioned as Central share upto 1995-96. The mechanised fishing vessels of below 20 mt were getting benefit under this scheme.

II.15 BRACKISH WATER FISHERIES DEVELOPMENT :

BRACKISH WATER FISH FARMERS DEVELOPMENT AGENCIES :

It was envisaged to develop 400 Ha. of B.W. area per annum through the extension work of the 5 existing and 3 more proposed Brackish Water Farmers Development Agencies The main constrants in this scheme were unplanned and haphazard development in the absence of a regulatory Act and Rules. The Hon'ble Supreme Court has given certain directions in the matter of Coastal Aquaculture and the final orders were awaited. The achievements of BFDAs was as follows :

Year	No. of Agencies	Construction of ponds Ha	Training to BF farmers (Nos)
1992-93	5	123	180
1993-94	5	163	562
1994-95	5	179	529

1996-96	6	59	245
Total		524	1516

The B.W. land allotments were given emphasis under the policy of the State Govt. to allot 60% to fishermen cooperatives 20% to technocrafts and 20% to the entrepreneurs. 622 Ha. of Brackish Water area was handed over in phase. I of the land allotments. The allotments made under Phase. III of land allotments during the VIII plan period were as follows :

Fishermen Cooperatives	27 Nos. 840.50 Ha.land
Fishermen	2141 Nos. 1171.62 Ha. land
Technocrafts	145 Nos. 218.94 Ha. land
Entrepreneurs	40 Nos. 1482.37 Ha.land
Total	**2553 Nos 371.43 Ha.land**

WORLD BANK ASSISTED SHRIMP AND FISH CULTURE PROJECT :

The Externally aided project of Shrimp and Fish culture project was sanctioned at a cost of Rs. 8180.00 lakhs to be implemented during the period of 1992-2000. Under the Brackish Water component, the development of 76 Ha. of B.W. area (46.85 Ha. W.S. area) was taken up at Bhyravapalem in East Godavari Dist. and 2 Shrimp hatcheries were taken up.

ENVIRONMENTAL MONITORING PLAN :

On Environmental monitoring plan Rs. 10.00 lakhs was spent.

AREA DEVELOPMENT PROGRAMME :

Rs. 8.43 lakhs were sanctioned for construction of boat leading channels and warf sheds in 2 kuppams of pulicat lake.

II. 16 FRESH WATER FISH PRODUCTION :

FISH SPEED PRODUCTION :

4 staff schemes were continued as plan schemes for fish seed production at somasila Keshavapatnam, Pennohobilam balancing reservoir and Sriram Sagar Project with an expenditure of Rs. 25.26 lakhs. At part of the seed of quick growing variety, Catla was imported from the joint sector fish seed farm of Govt. of Andhra Pradesh and Govt. of Karnataka, located at Tungabhadra dam and an amount of Rs. 11.85 lakhs was incurred.

The achievements of fish seed production in the state is as follows :

Year	Production from		Import from out side the State	Total
	Public Sector	Private Sector		
1991 - 92	1150	3500	250	4900
1992 - 93	1150	3700	550	5400
1993 - 94	1133	5100	20	6253
1994 - 95	1100	5500	400	7000
1995 - 96	1100	5550	440	7090

FISH FARMERS DEVELOPMENT AGENCIES (CSS SCHEME) :

The objective was to enhance the rate of fish production from the 1000 Kgs per hectare to 1500 kgs per hectare by the extension activities of these 22 Agencies. The programme of SC component and tribal sub-plan were also taken up under FFDA and BFDA schemes which are the centrally sponsored schemes. The Agencies could improve the rate of fish production from 1000kg.s per hectare to 1900 kgs per ha. but has to increase it further on par with the national average of 2135 Kgs/Ha. The training was limited to the actual beneficiaries from 1995 - 96. The achievements are as follows :

Year	No. of Agencies	Constn. Ponds (Ha)	Training
1990 - 91	11+11 new		
1991 - 92	22	524 Ha.	1576
1992 - 93	22	394 Ha	698
1993 - 94	22	362 Ha	1385
1994 - 95	22	306 Ha	1898
1995 - 96	22	229 Ha	709

II.17 WELFARE SCHEMES FOR FISHERMEN :

GROUP ACCIDENT INSURANCE SCHEME :

The coverage of fishermen under Group Accident scheme was raised from 1,11,111 to 1.30 lakhs from the year 1992-93. The coverage has been enhanced to Rs. 21,000/- with effect from November 1992 and Rs. 25,000/- with effect from November, 1993 and

further to Rs. 35,000/- with effect from April, 1994 for the first time in the country. The fishermen partially affected are given Rs. 17,500/-.

II. 18 HOUSING :

Sanction was accorded for construction of 5000 houses exclusively for fishermen. An amount of Rs. 225.00 was sanctioned during the first 4 years under the central share and the state share is being met from the JRY funds. 4200 houses were completed. Another 2000 houses were also sanctioned by Govt. of India during the year 1995 - 96.

II. 19 RELIEF CUM SAVINGS SCHEMES :

The scheme was converted as a Centrally Sponsored Scheme from the year 1992 - 93. Under the new scheme, the active marine fisherman has to save Rs. 45/- per month for 8 months and a matching grant of Rs. 360/- from the Govt. of India share and Rs. 360/- from the State Govt. share will be released. The total amount of Rs. 1080/- will be utilised by the fisherman during the lean season. The scheme was not implemented in 1996 - 97.

II.20 VILLAGE ACCESS ROADS :

An amount of Rs. 10.00 lakhs was sanctioned for construction of a bridge in Srikakulam Dist. During the year 1994 - 95.

The Spl.Component plan for scheduled castes and tribals is being implemented through the Fish Farmers Develoment Agencies Brackish Water FFDAs.

II.21 NINTH FIVE YEAR PLAN (1997 - 2000):

The approach for formulation of plan schemes was to have the vertical segmentaion of the disciplines such as Inland, Brackish Water and Welfare schemes. Here the matrix approach of increase in production, creating the required infrastructure and to improve human resources by under taking the welfare and training schemes was attempted. These primary, secondary and territory activities are planned in the vertical segments of Inland, Marine and Brackish Water sectors i.e., schemes for creating the infrastructure in Inland, Marine and Brackish water sectors etc.

II. 22 THE OBJECTIVES FOR THE IX PLAN IN FISHERIES SECTOR ARE PROPOSED AS FOLLOWS

a. Enhancement of fish production and rate of production per hectare

b. Creating, of Fisheries and by encouraging the private sector.

c. Improving the socio-economic condition of the fishermen by rendering the fishermen welfare schemes.

d. Regulation and conservancy of fishery resources for their optimum utilisation and sustained production.

A. PHYSICAL TARGETS AND ACHIEVEMENT (IN LAKH TONNES) IN THE NINTH FIVE YEAR PLAN

S.No.		Fish production	1997 - 98		1998 - 99		1999 - 2000		2000 - 01		2001 - 02 Target
			T	A	T	A	T	A	T	A	
1	a	Marine fish	1.68	1.29		1.30	1.60	1.42	1.55	1.57	1.95
	b	Marine shrimp		0.18	1.70	0.20		0.24	0.25	0.25	0.25
		Sub-total		**1.47**		**1.50**		**1.66**	**1.80**	**1.82**	**2.10**
2	a	Inland fish	2.40	2.06	2.50	2.38	4.00	3.45	3.60	3.65	4.05
	b	Inland prawn		0.20		0.23		0.35	0.40	0.42	0.45
		Sub-total		**2.26**		**2.61**		**3.80**	**4.00**	**4.07**	**4.50**
		TOTAL	**4.08**	**3.73**	**4.20**	**4.11**	**5.60**	**5.46**	**5.80**	**5.89**	**6.60**

This is exclusive of Shrimp production from Coastal Aquaculture, which is 0.37 lakh tons

3 Fish seed production (in lakh no.s)

		1997-98		98-99		99-2000		2000-2001		2001-2002
		T	A	T	A	T	A	T	A	T
a	Deptl.farms	1423	988	1423	1374	2964	3100	3530	3400	3600
b	Private Sector and imports	No	6012	No	6150	No	5800	No	5800	No
	Total		**7000**		**7524**		**8990**		**9200**	

The plan and Non-plan outlays during the IX FYP and the expenditure incurred are as follows;

A. TOTAL OUTLAY : Rs. in Lakhs

	Allocation			Expenditure		
Year	Plan	Non-Plan	Total	Plan	Non-plan	Total
1997 - 98	1181.57	1671.84	2853.41	451.75	*1575.46	2027.21
1998 - 99	999.70	1207.97	2207.67	630.43	949.03	1579.46
1999 - 2000	881.92	1525.09	2407.01	390.58	977.17	1367.75
2000 - 2001	968.57	1477.12	2445.69	706.54	1368.18	2074.72
2001 - 2002	1272.34	898.12	2170.46			

● includes VRS payments to APFC employees

Year	DETAILS OF PLAN SCHEMES - Allocation					Expenditure (Rs.in.Lakhs)				
	State Share	Central Share	EAP Shrimp Project	EAP AHRD	Total Share	State Share	Central Shrimp	EAP AHRD Project	EAP	Total
1997-98	100.00	599.57	375.00	107.00	1181.57	35.23	322.33	29.02	65.17	451.75
1998-99	154.00	474.70	276.00	95.00	999.70	149.06	331.50	88.51	61.36	630.43
1999-2000	211.00	563.92	48.02	159.98	881.92	147.88	7.98	183.00	59.41	398.27
2000-2001	242.92	415.61	177.00	133.00	968.57	108.92	312.08	193.81	91.73	706.54
2001-2002	97.96	1030.38	--	68.00	1272.34					

II.23 CENTRALLY SPONSORED SCHEMES :

1. ENFORCEMENT OF MARINE FISHERIES ACT :

The Government of India has provided 100% assistance for construction of (2) Patrolling vessels at a cost of Rs. 200.00 lakhs and released Rs. 180 lakhs to Government of Andhra Pradesh and the same was released during 1998 - 99. Rs. 130 lakhs was released by GOI earlier to 1997 - 98 and Rs. 50 lakhs in 1997 - 98. Thus total releases is Rs. 180 lakhs. The GOI have informed that no further amounts will be released for oper. costs and State Govt. has to bear the oper.costs. The work on construction of 2 patrol boats was awarded to M/s Dempo Ship Building & Engineering Works Ltd, Goa on 15.7.99. The State share utilised for operational costs like printing stationery & for enforcement of the Act during 1998 - 99. The patrol boas were delivered in May, 2000. The State Govt. is not having the expertise to operate these boats and was proposed to run them on contract basis under the direct supervision of the Dept. of Fisheries.

2. ARTIFICIAL REEFS : (100% by GOI) :

The Government of India have released Rs. 20.00 lakhs. The amount was released in 1998 - 99. The tenders were called for and sites for erecting artificial reefs at 5 places have been selected. The survey was conducted with the help of Central institutes. The structures include HDPE pipes in hut shaped structure, RCC modules, to be kept at a distance of 3 Kms from the shore at a depth of 20 Mts in the sea. The training programme for the local traditional fishermen for better utilisation of this modern technology was included. The GOI have informed that the assistance for this scheme is not being continued now.

3. INLAND FISHERIES STATISTICS - 100% ASSISTANCE FROM GOI : Staff Scheme) :

The Scheme is for building the inland fisheries data bank and to evolve suitable methodologies and survey of Inland Fisheries resources to estimate fish production as per the guidelines given by Central Inland Capture Fisheries Research Institute, Barrackpore (CICFRI). The scheme is now being implemented to Medak, Guntur & Adilabad Districts. Dr. R.A. Gupta from this institute has reviewed the scheme during March, 2000 and have been adopted. This is a staff scheme consisting of Asst. Director - (St) - 1; Dy Statistical Officers - 3 and Asst. Statistical Officer - 1.

4. INLAND FISH MARKETING (100% ASSISTANCE FROM GOI :

The Government of India have sanctioned Inland Fish Marketing scheme with Ice Plant, Landing sheds, Retail outlets at a cost of Rs. 89.00 lakhs. The Civil works of Ice Plant are completed, machinery erected and plant started functioning from March, 2000. In addition to 2 retail units at Hyderabad, 2 more units were started at Warangal.Transport vehicles were purchased and are being utilised for mobile fish sales. The mobile fish sales being operated by AFCOF have become popular in Hyderabad. The utilisation certificate for Rs. 44.50 lakhs has been given and GOI have released the balance amount of Rs. 44.50 lakhs in March, 2000 to complete the works. The Utilisation Certificate will be submitted shortly.

5. FISHERIES TRAINING & EXTENSION (100% ASSISTANCE FROM GOI) (NOW REVISED AS (80:20 FOR GOI : GOAP shares):

The Government of India have sanctioned Rs. 4.43 lakhs upto 1997-98 for improvement of Inland Fisheries Training Centres at Warangal and Badampudi (W.G Dist) The Civil works at Warangal and at Badampudi are completed and the Utilisation certificates for Rs. 4.43 lakhs was

submitted to Govt. The sanction orders for Rs. 5.00 lakhs for Improvement to Inland Fisheries Training Centre at Kurnool was issued by Govt. of Andhra Pradesh. The Government of India have released Rs. 4.57 Lakhs and have given the administrative approval for Rs. 5.73 Lakhs (Rs. 4.584 Lakhs as GOI share and Rs. 1.146 Lakhs as GOAP share). The civil works are completed and the new training centre will be opened shortly.

6. **NCDC SPONSORED SCHEME FOR COOPERATIVES : (NCDC reimbursement Scheme):**

The scheme of Integrated Marine Fisheries Development Project Phase II with NCDC assistance was sanctioned at a cost Rs. 2195.65 lakhs. The State Government has to bear the managerial & operational costs. An amount of Rs. 1767.119 lakhs was released upto 1998-99 and Rs. 1767.92 lakhs was spent. The State Govt. have released Rs. 100 lakhs in March, 2001. The NCDC has reimbursed Rs. 1611.55 Lakhs upto Dec, 2000.. 400 Wooden Catamarans, 126 Masula Stiched boats, 749 FRP Catamarans with Outboard motors, nets and 424 FRP motorised navas with nets have been supplied to the beneficiaries in 92 Marine FCSs in the districts of Srikakulam, Vizianagaram, Visakhapatnam, West Godavari, Krishna & Guntur Districts. 145 Ice boxes and 78 mopeds have also been supplied. The NCDC has approved to extend the project to all coastal districts under IMPP Ph.III at an outlay of Rs. 2786.72 lakhs. The NCDC has also approved Integrated Inland Fisheries Projects Project in Warangal district as a pilot project at an outlay of Rs. 132.176 lakhs as a pilot project and will be extended other districts in a phased manner. The NCDC has released Rs. 439.94 lakhs under IMFP Ph.II along with Rs. 620.26 lakhs for IMFP Phase.III and Rs 3.044 lakhs for Integrated Inland Fisheries Project at Warangal., totalling to Rs. 1093.244 lakhs.

7. **MOTORISATION OF TRADITIONAL FISHING CRAFTS (GOL:GOAP 50:50) RS. IN LAKHS) :**

(*The amount of Rs. 60.00 lakhs as Central Share during 1997-98 was the unspent balance of GOI releases)

The fixing of motors to Marine traditional Fishing Crafts will help to reach fishing grounds of off-shore areas, reduce human effort in rowing and to come back quickly to shore. The unit cost on release of subsidy for out board motor is Rs. 10,000/- and in case of inboard motor it is Rs. 12,000/-. A total of 1199 motors have been supplied (97-98:413), 1998-99:786) This scheme is quite popular among the fishermen and they are bearing the balance amount themselves. The cost of OBM - 10 Hp is Rs. 43.000/-

7.5 HP is Rs. 37,000/- 6.5 HP is Rs. 33,000/-; Inboard motor 16.6 Hp is Rs. 62,500/- and the subsidy rates are not revised since long.

8. GROUP ACCIDENT INSURANCE SCHEME : (GOI : GOAP 50:50) :

The National Federation of Fishermen Cooperatives (FISHCOPFED) New Delhi has taken a national wide Group Accident Insurance Policy to cover lives of fishermen in accidents. An un-named group of 1.30 lakh fishermen/ fisher women are covered. An amount of Rs. 35,000/- in the case of death will be paid to legal heir has been enhanced to Rs. 50,000/- from 2000-01. Similarly Rs. 35,000/- in case of total disability and Rs. 17,500/- in case of partial disability are also enhanced to Rs. 50,000/- and Rs. 25,000/- respectively. The premium amount per head has been enhanced from Rs. 12 to Rs. 15. The GOI has been releasing the amounts directly to FISHCOPFED, New Delhi. The premium amount was paid to FISHCOPFED, New Delhi which is paying it to the Insurance Company.

9. RELIEF SCHEME (GOL : GOAP 50:50) :

Under the old pattern, marine Fisherman have to save Rs. 45/- p.m. for 8 months which will become Rs. 380/- and matching amount of Rs. 380/- as GOAP share and Rs. 380/- as GOI share are being released. The scheme could not be implemented from 1997 - 98. GOI released Rs. 14.40 lakhs in 2000 to the Govt. of A.P. Under the revised pattern the marine fishermen have to save Rs. 75/- p.m. for 8 months totalling to Rs. 600/- and the State and Central Govts together will release an amount of Rs. 600/-. The total amount of Rs. 1200/- will be distributed to the marine fishermen during 4 months period, Of Non-fishing months. The scheme is extended to inland fishermen and they have to save Rs. 50 p.m for 9 months, totalling to Rs. 450/-. The State and Central Govt.s together will release an amount of Rs. 450/- The total amount of Rs. 900/- will be distributed to the inland fishermen during three months of non-fishing season. In new pattern, 4000 marine fishermen and 333 inland fishermen will be covered.

10. HOUSING FOR FISHERMEN GOL : GOAP SHARE IN SUBSIDY 50:50 (Rs. IN LAKHS) :

The Government of India have sanctioned construction of 2000 and 800 houses during 1995 - 96 & 1996 - 97 and funds were released in 1996 - 97 and 97 - 98, The Administrative approval for those houses has been accorded duly revising the unit cost as Rs. 20,000/- and 790 houses have been constructed. The Government of India have sanctioned 1460 houses (1997 - 98) and released Rs. 102.20 lakhs. The Government of India have released Rs. 50 lakhs for sanction of 3000 houses and Rs. 25 lakhs for

amenities like 250 no.s of tube wells and 15 community halls in March, 2000. The State share is being met from the provision under Housing Department, Government of Andhra Pradesh. During the year 1998-99, The Govt. of Andhra Pradesh have sanctioned 25,000 houses as spl. Scheme for fishermen and 9434 houses were constructed.

11. LANDING & BERTHING FACILITIES :

CONSTRUCTION OF FISHING HARBOUR AT MACHILIPATNAM (GOL : GOAP 50:50) :

The Government of India have sanctioned the construction of Fishing Harbour at Machilipatnam at a cost of Rs. 4770.88 lakhs. The State Government has accorded Administrative approval for Rs. 640.00 lakhs during 1998-99. The GOI have released Rs. 50 lakhs, Rs. 21.23 lakhs and Rs. 28.77 lakhs and Rs. 100.00 lakhs, totaling to Rs. 200 Lakhs so far. The State Govt. have released Rs. 1321.23 lakhs as Central share and Rs. 81.23 lakhs as State Share. The works are in good progress and are scheduled to be the World Fisheries Day. The foundation stone for the harbour was laid in 21.11.1999, the World Fisheries Day. The works are in good progress and are scheduled to be completed by November, 2001. The State Govt. is also taking action to revive Bhavanapadu fishing harbour as a joint venture project with M/s Baird Associates, Canada.

12. INTERMEDIATE FISHING CRAFTS (GOL : GOAP 75:25) :

The scheme is for introduction of intermediate fishing crafts and GOI have released Rs. 3.00 Lakhs to the State Govt. The existing Fishing Trawlers are being converted to conduct gill netting and 9 crafts are proposed to be converted with the amount. The scheme is proposed during 2001-02.

13. EXEMPTION OF CED ON SUPPLY OF HSD OIL : GOI : GOAP 80:20:

There is an amount of Rs. 34.00 lakhs is the unspent balance out of the amount released by GOL The scheme is for providing subsidy to the Mechanised Fishing Vessels (below 20 Mts length) to compensate the levy of Central Excise Duty on HSD Oil being supplied to them @ Rs. 0.35 ps per litre... The pattern of assistance by GOI : GOAP is 80:20. The State Govt. have not exempted Sales tax on HSD oil. The scheme was not implemented since 1997-98. An amount of Rs. 5.00 lakhs as State share and Rs. 68.00 lakhs as Central Share are provided during the year 2001-02.

14. INTEGRATED COSTAL AQUACULTURE DEVELOPMENT AGENCIES (GOI : GOAP 50:50) :

This scheme was not in operation since March, 1997. The State Govt. have sanctioned Rs. 3.91 lakhs in March, 2001 and will be utilised for supply of inputs and training under Coastal Aqua culture.

II.24.1 EXTERNALLY AIDED PROJECTS :

1. WORLD BANK ASSISTED SHRIMP & FISH CULTURE PROJECT

The total cost of the project was Rs. 11.88 crores with the following allocations and the project period was from May 1992 to December 2000. The project is completed.

	Allocation	Expenditure
1 Shrimp component	721.71	504.11
2. Inland fisheries component	285.22	82.50
3. Project management	180.76	251.64
Total	1187.69	838.25

SHRIMP COMPONENT :

An amount of Rs. 504.11 lakhs was incurred. Rs. in lakhs

a) Development of Shrimp Farm (46.85 ha)	=	331.73
b) Loans to the entrepreneurs	=	134.34
c) Training	=	5.55
d) NGO involvement	=	6.00
e) Working capital for shrimp beneficiaries	=	25.49
Total		504.11

This is exclusive of Rs. 52.10 lakhs given by GOI as grant for establishment of Disease Diagnostic laboratories.

The grow out ponds at Bhyravapalem farm were leased out to 94 selected beneficiaries of Bhyravapalem village at the rate of 0.5 ha each. It is envisaged in the project that as per the norms adopted for the farm, each beneficiary would get a net income of about Rs. 50,000/- per year for two crops after repayment of pond lease. But due to the attack of white spot severely effected during the year 2000. However, it is expected that, the losses would be made good by more cautious culture operations during the year 2001. Beneficiaries are being motivated and trained to achieve good

returns this year. The civil works at Bhyravapalem site are completed. Two shrimp seed hatcheries funded by the project established in East Godavari Dt. will supply the required seed for the project far, under training item of Brackish water component, 29 officers have undergone training in shrimp culture technology and management. One non-government organisation is involved in the implementation of Bhyravapalem shrimp project.

INLAND FISHERIES COMPONENT :

Rs. 82.50 lakhs was disbursed so far out of Rs. 285.22 lakhs for the following items.

			Rs. in lakhs
a)	Working capital loan to the FCSs (42 nos)	-	71.30
b)	Loan to the Ice Factory Entrepreneurs	-	9.09
c)	Training	-	0.59
d)	Landing sheds	-	1.52

Credit assistance has been provided to the 42 FCSs in 6 districts towards the development of reservoirs to increase the fish production. Societies have procured inputs like seed and feed, infrastructure for rearing of fish seed like pens and rearing ponds and boats and nets. Introduction of the scheme has increased the average per ha production of the reservoirs to 125 - 150 kgs / ha / yr from 20 to 30 kg/ha/yr. The per capita income of the individual was increased to about Rs. 5500/- to 6000/- from Rs. 1000/- to 1500/-. Credit has been provided to the entrepreneur for establishment of ice factory at Medak to meet the demand in fish preservation. Landing sheds have been constructed for 4 reservoirs, which are having water spread area of more than 300 ha. 6 more additional reservoirs have been taken up for develoment during the year 1999 - 2000 and credit assistance of Rs. 7.20 lakhs was provided to the FCS for seed, boats etc. The implementation of Inland fisheries component in Andhra Pradesh state was well appreciated by World Bank mission and expressed the same in final report of ICR.

C. PROJECT MANAGEMENT :

Rs. 251.64 Lakhs was incurred towards incremental staff, purchase of vehicles, equipment and office management.

2. WORLD BANK ASSISTED AGRICULTURAL HUMAN RESOURCES DEVELOPMENT PROJECT :

The Government of A.P. has sanctioned the AHRD scheme under fisheries sector during 1995. The project period is 5 years (1995 - 96 to 1999 - 2000) with an outlay of Rs. 487.072 lakhs. So far an amount of Rs. 445.59 lakhs was

incurred on this project. The objectives of AHRD are to identify the skill gaps in the Department, train master trainers, to conduct refresher courses to improve management and technical skills for in-service personnel of the department. The Master trainers will impart training to the departmental personnel for in service human resources development. The institute is furnished with required equipment, accommodation and other facilities for conducting the practical of fishing in the sea, culture operations in the farms etc.,.

CIVIL WORKS :

As the building of the Training Institute at Kakinada was not having adequate accommodation and was in bad condition, a new building with a cost of Rs. 210.89 lakhs was constructed with all facilities Two Fish Farms at Polekurru and Kadium are attached to the institute for practical training at a cost of 20.49 lakhs.

EQUIPMENT :

An amount of Rs. 137.40 lakhs was spent for purchase of Computers, Laptop Computer, Xerox machines, LCD Projector and other teaching equipment, Boats, vehicles & furniture.

TRAININGS :

458 staff members were given refresher trainings in 68 courses at State Institute of Fisheries Technology, Kakinada. 359 staff were trained at National Institutes Rs. 33.47 lakhs was spent Rs. 43.33 lakhs was spent on project management.

An amount of Rs. 68.00 lakhs is allocated during the year 2001 - 2002 for this project.

II.25 INLAND FISHERIES

II.25.1 1.Natural Resources of Inland waters can be broadly divided into six kinds. They are (a) Rivers (b) Hill streams (c) Lakes and Reservoirs (d) Swamps (e) Tanks (F) Ponds and (g) other waters. The characteristics of the above inland water sources and the lines in which they have to be developed are as follows :

Rivers :

India is blessed with a large number of perennial rivers, most of which flow from West to East across the country. Rivers and other flowing waters are known as lotic waters. The rivers are the natural home of a number of quick growing and important fishes like the carps and cat fishes. These fishes breed in the rivers during the monsoon periods and young ones form a source for stocking of tanks. They contain fishes of both quick and slow growing, predacious and non-predacious types. They harbour various types of aquatic plants and animals. Most of the larger plant life will be seasonal as during floods they generally get washed away. The weeds like Hydrilla, Valisneria,

Certotophyllum, Najas, Typha, Railway creeper, etc., are common types of aquatic plants. Among animals other than fishes, prawns, crocodiles and tortoises are fairly common and aqualic insects occur abundantly. Of these, prawns form a good fishery while the others are enemies of fishes. Fishes like Hilsa, mullets, prawns, etc., migrate into rivers from the sea for either spawning or feeding for temporary periods. During this brief change in quarters, they form a prominent fishery in rivers.

HILL STREAMS :

Hill streams flow through hilly regions. They may be perennial or seasonal. The important fish generally that occur in hill streams are Orienus, scaphiodon, minnows or small carplings such as Rasbora, Chela, Danio, Barilius etc.,

LAKES AND RESERVOIRS :

These are large water bodies of enclosed waters having a very extensive surface area. The water in them is generally stationery without any flow. They are known as "lentic" waters. They may receive water supply from small streams, etc., which flow into them by gravity. They have depths extending even beyond 5 meters. The lakes are natural water bodies and Reservoirs are impounded water bodies by constructing dams / anicuts across the rivers / streams. They contain typical fauna and flora. The macro fauna or large animals consists of fishes which include Carps, Cat fishes, and murrels etc., and other fresh water animals such as tortoises, water snakes, Frogs, insects, etc., live in it. The macroflora or large aquatic vegetation consists of rooted plants such as Valisneria, Hydrilla and potomogeton, floating plants such as lotus and lily and emergent plants like tyha, etc. In reservoirs, there is a tendency for fish to concentrate near the dams. The currents and cross currents, etc., are set up during the flood season an account of the obstruction caused by the dam and accumulation of silt and irregular depth formation are natural. In reservoirs, carps do not normally breed. They contain fauna and flora as in rivers but plankton production will be more.

D. SWAMPS :

Swamps are generally very extensive, shallow water bodies having an irregular shape and a slushy bottom. Swamps may be fed by natural springs from river or stream or an estuary or back waters. They contain fishes such as Murrels, climbing perches, gobies etc. The Swamps fed by back waters and estuaries contain gobies, prawns, perches, mullets., etc., swamps contain lot of vegetation, part of which may be in a rotting condition.

E. TANKS :

The tanks are small enclosed water bodies fed by a stream or canals. Tanks are confined water bodies. They may be perennial or long seasonal or seasonal. Tanks have moderate

depth, generally not exceeding 2 meters in rainy season and one meter in summer. The water is stagnant. The tank contains natural fishery such as murrels, cat Fishes, climbing perches, minnows etc. Other large animals or macrofauna consists of tortoises, water snakes, frogs and aquatic insects and molluscan shells. The macro flora or larger aquatic vegetation composed of Nelubium, Nymphaea, Hydrilla, Vallisnaria, etc.,

PONDS :

The term ponds is now being used for compounded water in dug out areas pond is defined as a small body of water usually earthern, though masonary dykes are also common. They are shallow made through excavations which represents a restricted environment. These ponds are fed by rain, canal, or by pumping the water from available source. The Ponds have a depth of 1.5 to 3 meters. They are clear of any macro flora and are rich in plankton.

OTHER WATERS :

They include canals, drains from reservoirs and Tanks, inundated paddy fields, and trenches along the railway lines and roads. These sources offer a good potential for fish culture.

II.25.2 FISHERIES LEGISLATION :

The main aim of introduction of conservancy and licensing system is to save the fishery wealth of the waters from destruction of fish seed and breeders by imposing closed season and mesh regulations. The long range objective of fishery legislation is to obtain an optimum sustainable yield so as to secure maximum supply of fish. The introduction of licensing system provides means of livelihood to the individual fishermen by way of obtaining licenses for reasonable amounts. Besides, the licensing system regulates the method of fishing by imposing various conditions to avoid depletion of fishery in a particular water source. The Indian Fisheries Act of 1897 (Central Act IV of 1897) empowers the Government to make rules for the introduction of conservancy measure and licensing system in any waters. This Act extends to the whole of India. Formerly the Hyderabad Fisheries Act No. XXIII of 1356 Fasli was applicable to all Telengana Districts. Consequent on the formation of A.P. State, the Act was extended to the State by Indian Fisheries (Andhra Pradesh Extension and amendment) Act 1961 (A.P Act V of 1961) The Hyderabad Fisheries Act was repealed and the Indian Fisheries Act of 1897 was extended to whole of Andhra Pradesh with effect from 1.2.1961. The Indian Fisheries Act 1897 and its subsequent amendments are given in Appendix - 3.

II.25.3 CONSERVANCY MEASURES & LICENSING SCHEME :

The conservancy measures can be introduced in lakes, reservoirs, big tanks, canals, channels, drains etc., to prohibit indiscriminate killing of fish seed & breeders etc., The conservancy measures under licensing scheme are introduced specifically to a particular water body by Government notification. The Licences are issued to fishermen for catching of fish by specified craft & tackle. The Department of Fisheries or the licence-holder do not have any right on the water or on the structure of bunds. The source should be a river, tank, lake or a swamp or any other water body which should be of perennial nature having diverse & abundandent stock of fishery which cannot be disposed of by lease as they fall under the area of operation of multiple nos of fishermen coop. Societies (or) there is a need to conserve the fishery wealth for substainable fishery yields in the source. The proposals for introduction of licensing scheme have to be formulated in consultation with local fishermen and irrigation Department officials. The details of the proposals shall include the following items.

a. The preamble of the draft rules should always indicate the Indian Fisheries Act conferring the power to introduce rules of particular water body.

b. Observing the closed season during fish breeding season (from 1st June to 30th September).

c. No fishing is permissible within a belt of 100' from the Dam or Reservoir or near the flood gates or close to any structures of the Dam.

MESH REGULATION :

Mesh size of the net to be used should be below 1" knot to knot (bar when it is wet or any basket trap or any other fixed appliances whose adjacent solvers are less than 1" apart should not be used so that fingerlings & fish seed can be conserved.

The fish measuring less than 8" in length should not be caught during fishing of such species which are listed out for that water body by the Department and if caught, should be returned alive into the water.

Net to be operated should not be more than 150 Fts. in length and should be clarified that two or more nets each of 150 length should not be combined together and operated.

The draft rules for introduction of conservancy and licensing system are given in Appendix-4.

ISSUE OF PERMITS :

No officer in the department should issue permits to the private parties for fishing in the waters, without proper sanction of the Government.

POWERS OF THE OFFICER :

The following officers are empowered to exercise the powers conferred by sub-section(1) of section 7 of the Indian Fisheries Act 1897 in respect of any offence punishable under section 4 or 5 or under any rule made under section 6 of the said Act.

a. Asst. Director

b. Inspector of Fisheries (now redesignated as Fisheries Development Officers)

c. Research Assistant

d. Asst. Inspector of Fisheries

(Govt.Memo No. 4041 Fish/61-3, Agril Dept., dt. 23.5.1962) and (Govt Memo No. 4300 - Fish/63-2 dt. 15.11.63).

FINES AND CERTIFICATION OF NETS :

The fines imposed by the magistrate for breach of the rules issued under the Indian Fisheries Act, 1897 as subsequently amended, will not be credited to the revenues of the Fisheries Department. The nets and other appliances confiscated should be handed over to the Fisheries Department. (G.O.No. 2157, Development dated 3.12.1959.) A register has to be maintained for issue of Licenses. The licensing Register is to be maintained in the following proforma (for each scheme separately)

S.No.	Name of the District/ Sub-Office	Name of the licensing scheme	Particulars of Licenses Issued			
			No	Date	Address of License	Amount (Rs)
1	2	3	4	5	6	7
Target fixed	Target achieved	Cases charge	Disposal of	How disposed	Cases pending	Remarks
8	9	10	11	12	13	14

A list of reservoirs and tanks under licensing scheme is given in Appendix - 5.

II.25.4 SOURCES OF FISH SEED AND THEIR COLLECTION :

Reivers are very important sources for the collection of major carp Spawn & try which, after being reared in nursery (and in rearing ponds also in some cases Ponds,) is used for stocking the tanks and ponds. The other important source for obtaining major carp fry is to breed in confined water artificially by inducing these major carps during the South West mansoon period. This method has

the advantage of obtaining pure seed belonging to a particular species which is not possible in Natural seed collection from rivers. Induced breeding of carp is being done in the State since 1958.

The procedures followed in Induced breeding technique are as follows :

MAINTENANCE OF BREEDERS :

An adequate stock of properly maintained breeders is an essential pre-requisite for successful induced breeding experiments potential fish breeders, each weighing about 2-4 kgs are to be stocked in ponds, five to six months before the breeding season, at the rate of 1000 to 2000 Kg/hectare. The ponds should be cleared of weeds and fertilized in advance of stocking for production of plankton to serve as natural fish food. To further ensure attainment of proper growth and maturity, supplementary feeding has to be given which is usually prepared by mixing the rice bran and oil cake (1:1) at the rate of one percent of the total body weight of the fish stocked daily till proper sexual maturity is attained. Supplementary feeding may be discontinued in case densealgal bloom develops in the pond. The breeders may be periodically examined to check their health and maturity.

SELECTION OF MATURE FISH FOR BREEDING :

With advent of monsoon, breeders are netted out and selected for induced breeding. A male breeder is easily distinguished by roughness on the dorsal surface of the pectoral fins. A ripe male, milt oozes out freely by gently pressing the belly near the vent. A good mature female breeder has soft, round and bulging belly and swollen, pinkish genital opening. One set (one female and two males) of selected breeders is released in a breeding hapa/tub after recording the weight of each breeder.

COLLECTION AND PRESERVATION OF PITUITARY GLAND :

Pituitary glands are collected from fresh as well as ice-preserved ripe fishes in the month of April to June. Since mature specimens of common carp (Cyprinus carpio) are available almost throughout the year, the same may serve as a good source of gland material. For collection of gland, a portion of the scalp from the head of a donor fish is first removed and the brain is exposed. The pituitary gland, which is situated under the brain is then carefully removed with the forceps and the collected glands are put in absolute alcohol. Later, the glands are weighed in a chemical balance, labelled and stored in a refrigerator.

PREPARATION OF PITUITARY EXTRACT :

For preparation of pituitary extract, the required quantity of glands is taken out and kept on a filter paper for the alchohol to evaporate. The glands are macerated in a tissue homogenizer by adding measured quantity of distilled water. The concentration of the extract prepared may be 1 to 4 mg of gland per 0.1 ml of distilled water. The gland suspension is then centrifuged. The supernatant fluid contains the pituitary hormones

and is ready for injection. The extract can also be prepared in bulk and preserved in glycerine (1 part of extract : 2 parts of glycerine) before the fish breeding season so that preparation of extract every time before injection is avoided. The stock extract should always be kept in refrigerator or ice.

DOSE OF INJECTION :

The dose of injection is calculated in terms of milligrams of pituitary gland per kilogram body weight of the recipient fish. For Indian major carps, female breeders are given two injections at an interval of six hours. The first dose is at the rate of 2-3 mg/kg body weight of the female breeded and the second at 5-8 mg/kg body weight of the female Fish to be bred. Higher doses may be administered if breeding time lies late in the breeding season. The male is given a single injection of 2-3 mg/kg body weight at the time of the second injection to the female.

INJECTION OF BREEDERS :

Intramuscular injections are given near the tail region keeping the breeder inside a hand net. The volume of gland extract to be injected is 0.5 ml to 2.00 ml for each breeder weighing upto 10 kgs and beyond that, the volume should be increased by 0.2 ml/kg increase of body weight. After injection, the breeders are released in a closed breeding hapa fixed in a pond/canal or in breeding tub. Breeding takes place inside the hapa usually within 3 to 6 hours of the second injection. The female fish releases the ova and the male fish releases the milt and the fertilisation of ovam & sperm takes place externally. Fertilized eggs measuring 3.5 to 5.00mm in diameter are transparent and unfertilized eggs appear opaque and whitish to the naked eye.

HATCHING :

Properly water hardened eggs are usually collected from breeding hapa 6 to 8 hours after spawning. The total quantity of eggs are measured with a one litre capacity mug. The percentage of fertilized eggs is assessed by sampling. The eggs are then transferred to a hatching hapa which is double hapa, one fitted inside the other. The outer hapa, made of thick meshed marking cloth/nylon, measures 1.8X1X1 m the inner hapa, made of round meshed mosquito netting is 1.5X0.8X0.5 m in dimensions fixed in a pond free from any algal bloom and crabs. About 50,000 to 1,00,000 eggs are uniformly spread inside the inner hapa. The eggs hatch out in 15 to 18 hours at a temperature 26 to 31°c. The hatchlings break open the egg shell & escape in to the outer hapa through the meshes of the inner one. Egg shells and dead eggs are left behind in the inner happy which is removed when hatching is complete. The hatchlings are left undisturbed in the outer hapa till the third day after hatching. For about three days, the hatchlings subsist on the food stored up in their yolk sac. When the yolk is used up, the young fish are ready for stocking in prepared nursery ponds.

WATER AND CLIMATIC CONDITIONS CONDUCIVE TO BREEDING :

The carps breed within a wide range of water temperature about 24 to 33°c Rain water is conductive to spawning and higher rate of fertilization of eggs. Temperature between 27 to 31°c ensures good hatching. Better success in breeding is obtained when the whether is cool and there is a slight drizzling.

HATCHERIES :

To increase the survival of hatchlings from the fertilized egg by controlling the physical parameters like temperature and dissolved oxygen etc, by water circulation and to produce the hatchlings in a large scale hatcheries have been established in fish seed production farms. The percentage of survival in hatcheries will be 90 to 95% as against 45 to 50% in traditional method of inner and outer happas kept in open ponds for hatching of eggs. The various types of hatching systems are described below.

A. HATCHING TUBS :

The hatching tubs can be of any convenient size of 3'X3'X1/2'.5 to 6 such tubs are arranged in a row at gradual slope. At the top of the slope on a raised platform is placed a 44 gallon barrel filled with water and having 1/2" tap to draw water for these hatching tubs. Inside each tub is placed either a mosquito netting hapa of 2 1/2' X 2 1/2' X 3/4' simply it is stretched in the tube immersing to about 6" below surface. Fertilised eggs are spread in a single layer in the pit of the mosquito netting. The flow of water from one tap to the next are made by a rubber tubing of 1/2" dia meter, which is placed below the mosquito netting about 6 to 8" from the surface of the water. By siphon action water flows from tub to tub. The siphons from tub to tub must alternate in position say if the 1st is on the extreme right, the next on the extreme left. Some times 2 siphons can also be used in each tub, one on the right and the other on the left side, then the dia meter of such siphons will be half of the 1st said arrangements. Just before eggs start hatching out, the water drawing ends of these rubber siphons are covered with pieces of muslincloth, so that the hatchlings may not pass through them. In such tub about 10,000 to 20,000 eggs can be placed for hatching. But this system works very well where small number of eggs are to be hatched.

B. CEMENT HATCHERIES :

The hatchery in it is a series of Cement cisterns of 8'X4'X1' size in a row with a provision of regulated flow of water from one end with the perforated pipe line of 3/4" to 1/2" dia meter and an outlet on the flesh level for collection of spawn in the continuous flow of water. An inner hatching trough made of round meshed mosquito netting cloth tied to a frame is kept in the cement cistern. The cisterns are filled with water and regular flow is maintained. The outlet of each cistern is protected with a piece of round meshed mosquito netting cloth. After hatching

the inner hapas are removed and the hatchlings from all the cisterns are collected in a collection tank. The advantages of cement hatchery are over double walled happa are enumerated. (1) cement cisterns costs more but will go for many spawing seasons (2) observations indicate that the percentage of hatching is more in cement hatchery than in double walled hapa. (3) Due to better aeration in the hatchery, the number of eggs for hatching is more when compared to double walled hapa. (4) It has been observed that the incubation period in double walled hapa ranged from 20 to 22 hours, as compared to 15 to 18 hours in the flowing water of hatcheries under the same temperature conditions (5) Due to hatcheries being a permanent structure the requirement of man power is reduced considerably.

C. JAR HATCHERY :

The existing practice of hatching carp eggs makes use of hapas of cloth or nylon enclosures which are fixed in stagnant or running water. The hapa hatchery entails heavy loss of fish eggs and spawn due to several causes which are beyond human control in the field. It also requires the use of a large number of hapas every year involving heavy recurring expenditure. With a view to achieving a high survival and curtailing the heavy recurring expenditure jar type hatcheries are designed, installed and operated successfully.

LOCATION :

A jar type hatchery is installed by the side of a perennial water source i.e., where continuous quality water supply is ensured. It is installed in a well ventilated room with adequate light. The room need not be a pucca building as even a shed will serve the purpose. It needs adequate drainage facility in the room. The hatchery complex comprises water supply, Breeding tanks, Incubation and hatching jars and the spawnery.

WATER SUPPLY SYSTEM :

While drawing the water, a fine meshed wirenetting in the pump system is necessary to prevent the entry of organisms and other waste materials present in the water.

BREEDING TANKS :

The Hatchery being a self contained unit, breeding tanks with arrangements for over head shower are provided for spawning the fish. An outlet is provided in each tank for drawing the excess water. A tank should not be less than 1.8 X 0.9 X 0.9 m in dimensions. Two to five large sized tanks where 2 to 5 breeding hapas could be fixed at a time will be better. The number of breeding tanks in a hatchery would depend on its spawn production target. In the absence of a provision of breeding tanks in the hatchery operations have to be undertaken in hapas fixed in ponds/canals and the developing eggs collected from there and released in Jars for incubation and hatching.

INCUBATION AND HATCHING JARS :

The jars are set up vertically, placed through circular holes made in a wooden table. Three clamps are fitted around the hole for each jar so as to keep the latter in a vertical position. The jars are fitted in two rows at intervals of 20 to 25 cms. The jars are conical in shape being open at the top and gradually taping towards the bottom. The maximum inner diameter of the jar is 13 cms and the minimum inner diameter at the tapering end is one cms. The outer diameter of the tapering end is 1.27 cms. The top of the jar is fitted with a galvanised iron ring having a beak which serves as an outlet for water coming out of the jar. The jars are connected with rubber tubings at the bottom with respective taps. Each jar can accommodate at a time about 50,000 developing carp eggs. A long, open galvanised iron container is fitted in such a way that the over-flowing water from each jar pours into it and flows down to the spawnery. Normally it takes 12 to 15 hours for the developing eggs to hatch out in the jar hatchery.

THE SPAWNERY :

The hatchlings are carried over from the jars along with the flowing water to the spawnery. The spawnery is a hapa of synthetic material which is fitted on a frame placed inside a cement cistern. However, the height of the hapa is slightly more than that of the cement cistern to prevent the hatchlings being carried away along with the over flowing water from the cistern. An over head shower is provided to spray water over the developing hatchlings in the hapa.

OPERATIONAL TECHNIQUE :

About 50,000 water hardened eggs are liberated very gently in each jar. The flow of water in the jars is so regulated during incubation that the eggs are stirred gently without being split. A flow of 600 to 800 ml/minute of water is sufficient to keep the carp eggs in circulation inside the jar. The rate of flow may be slightly increased after the completion of hatching so as to help to speedy escape of hatchlings. Since the newly hatched larvae have the habit of vertical movement, they come upto the surface and pass through the outlet, along with the over flowing water into the open container leading to the spawnery. Rotten and dead eggs, egg shells, abnormal and dead hatchlings are left behind in the jars which are subsequently removed by disconnecting the latter from the top. In the spawnery water is sprayed continuously for about three days until the fry are ready for stocking.

D. CHINESE HATCHERY :

Success of Chinese hatchery depends on the selection of suitable site and continuous flow of quality water. Site at a high and steep ground for the construction of chinese hatchery will be economical making use of height for gravity flow of water.

PLANNING AND DESIGNING THE HATCHERY :

To set up a chinese hatchery for the production of spawn only by arranging the brood stock from other places, a plot measuring 25 X 25 metres is required. The Chinese hatchery consists of (1) spawning / breeding pond, (ii) Incubation / hatching pond and (iii) hatching receiving pond. This system is designed for production of spawn only. The water supply to this hatchery is controlled through pipe from overhead tank. The duration of one operation for hatching is 4 days. The design and size of the hatchery varies but described below gives one crore of spawn.

OVER HEAD WATER STORAGE TANK :

The water supply of hatchery is regulated through pipes from overhead tank. Water supply to over head tank is to be arranged by pumping water from well/other source. The bottom of the over head tank is to be fixed at a high of 2.60 meters above from the floor level at the center of breeding pond. The inside size of the tank should be 5.50 X 2.70 X 2.20 mts. (including 0.20 meters free board) and having a capacity of 30,000 liters.

BREEDING POND :

Breeding pond is a circular pond having inside dimension 8 meters dia, with 1.20 mts inside depth at the periphery and slopes towards center. The depth at center is 1.50 mts. The construction of pond is carried out in Brick masonry / cement concrete with cement concrete flooring. Water supply to this pond is through 7.5 cm dia pipe from over head tank. The water supply line is fixed along the outside of the wall and inlet to the pond is fixed at 14 to 16 places equally spaced at an angle of 45^0 to the radius of the tank using 20 mm dia pipe with nozzle mouth in one direction. The nozzle mouth is fixed near the bottom along the periphery of the pond should be flushed with cement plaster face. Outlet pipe 10 cms dia is fitted in t he center through which fertilised eggs with water flow to hatching pond for hatching on opening the valve. Water is also sprinkled over the fish in the tank through perforated 12 mm dia G.I. pipes fixed on the top of the wall of the tank.

HATCHING POND :

In this system two circular brick masonary/concrete wall hatching ponds each having 3.60 mts inside dia with two chambers. The outer dimension is 4 mts. Another circular wall with fixed M.S. screen is constructed at 0.74 mts clear distance from the inside of the outer wall. The inner chamber is provided with 10 cm. dia vertical outlet with holes at different height to drain out excess water / de-watering of the hatching pond. The spawn along with water are shifted from these ponds is provided from over head tank through 7.5 cm dia pipeline which is reduced to 5 cm. Dia pipe line and then to 1.20 cm dia pipe line, and inlet to the pond is provided at 8 places equally spaced fitted in the

floor having duck mouth opening fixed at the angle of 45^0, towards inner wall in one direction. 10 cms dia water supply pipe fitted from the breeding pond is bifurcated into 2 Nos. 5 cms. dia pipe line for each hatching pond which are further connected to duck-mouths fitted in the floor of hatching ponds. The required water movement is about 0.2-0.3 mts/sec. Out let pipe of 7.5 cms dia is fitted in each hatching pond through which hatching along with water passes to hatchling receiving pond. This opening is also used for dewatering of outer chamber of the hatching pond.

ADVANTAGES OF CHINESE HATCHERY :

The advantages of this hatchery are (1) cost of construction and operation of circular chinese hatchery is less than any other type of hatchery for the same production capacity (2) the system is very much suitable for the production of quality fish seed for fish farming. (3) Handling all the parameters required for hatchery is easier.

BREEDING OF THE COMMON CARP :

The Common carp (cyprinus carpio) is a fast growing fish and is now widely cultured in India. The fish has three varieties (1) scale carp having scales regularly arranged all over the body (2) mirror carp having a few large shining scales arranged irregularly over the body and (3) Leather carp almost without scales. All these varieties thrive well at high attitudes. However, the Bangkok strain of scale carp is more extensively cultured along with the Indian major carps (Catla, rohu and Mrigal). The main qualities of the common carp are its fast growth rate, readiness with which it takes artificial feed, highly domesticated nature and above all its pond breeding habit. Common carp breeds more than once in a year and thus, its seed can be obtained in adequate quantities for stocking Inland waters. The breeding habits of all the three varieties of common carp are the same. The females deposit their sticky eggs on leaf vegetation in the pond or hapa which are immediately fertilized by the miltshed by the males. The natural breeding is also called wild spawning. In natural breeding survival is poor. It is, therefore, necessary to breed the fish under controlled conditions to get better survival. A proper breeding technique for large scale production of seed of common carp has been evolved. The important steps involved in the breeding are given below.

SEGREGATION AND FEEDING OF MATURE FISH :

In order to prevent wild spawning, it is essential to segregate healthy male and female fish each weighing 0.5 to 2 kgs or above in weight. Usually by April and October and stock them in separate ponds preferably free from other fishes. The male is recognised by milt which oozes from its deep pit like genital pore when the abdomen is gently pressed. The female has a bulging abdomen without any pointed edge below having a median slit in the vent region and when the abdomen is gently pressed some eggs may come out. The segregated male and female fish are daily fed with a mixture of rice bran and oil cake in 1:1 ratio by weight at about 2 to 3 percent of the body weight of the fish.

SPAWNING AND SELECTION OF RIPE BREEDERS :

These fishes may breed almost throughout the year but the best results can be obtained during monsoon and end of winter season. Fully mature female and male fish are to be selected for breeding. Good female breeders are identified by soft and bulging abdomen and good male breeders by free oozing of milt on gently pressed abdomen.

BREEDING TECHNIQUES :

With each female, two or three males weighing together nearly the same as the female, are kept inside a breeding hapa/pond. Depending on the size 4 to 5 females with 8 to 10 male can also be put together inside a breeding pond. Fresh, washed, aquatic weeds are uniformly distributed inside the hapa/pond for deposition of eggs, the quantity of weeds is roughly double the weight of the female introduced. The females and males are usually put together in the evening and by the next morning spawning is over. The released eggs are seen sticking to the weeds or any other egg collector provided. The size of eggs is 1.0 to 2.0 mm in dia meter. The fertilised eggs are dirty pale yellow in colour and unfertilised eggs are opaque and whitish in colour. After spawning, the fish are carefully removed and released in a pond. The weeds with attached eggs are removed from the breeding hapa and uniformly distributed inside hatching hapa. If the spawning is good and percentage of fertilization is 80% which can be determined by finding out the percentage of good and bad eggs from sampling. One kg of good female lays about 0.90 to 1.00 lakh of eggs. Eggs hatchout in about 48 hours at temperature varying from 28-31^{0}c. The spawn are ready for stocking in ponds within 2 to 3 days of hatching when the weeds are carefully removed from the hapa and the spawn collected be taken to rear in nursery ponds.

COLLECTION OF EGGS :

The eggs can be collected from the breeding situation at any time when the eggs are sufficiently water hardened. Generally the eggs are collected from the hapas when the embryo is comma shaped. Some times the eggs may be removed even at twitching movement stage. For collection of eggs, the bottom corners of the hapa are 1st united from the bamboo poles, then slowly lifted in order to bring all the eggs towards the open end. Then the upper part of the hapa is united and the eggs are collected in one side of the hapa and then transferred to buckets after drawing the water. The eggs are measured with a known volume of cup, tray or beaker and poured into the inner hatching hapa. The eggs are counted by taking a sample of known volume from the eggs. Thus the percentage of fertilization also estimated by counting bad eggs and good eggs separately. The difference in weight of breeders before and after spawning also give an idea of the quantity of eggs laid. The number of eggs laid also can be roughly estimated by taking into consideration the absolute fecundity of that fish.

QUANTITATIVE AND QUALITATIVE ESTIMATION OF EGGS :

As mentioned above, the eggs in the bucket are measured with the help of a known volume of container. The total volume and the number of eggs laid can easily be calculated from the known volume and number of eggs of the sample beaker. For more accurate results 2 or more samples of eggs are taken and counted repeatedly and the average is taken as the number per sample. Now it is easy to find out the eggs per liter. The approximate total number of eggs laid can be worked out by multiplying number per litre with total liters of eggs laid. Normally the fertilised eggs per liter ranges as follows : Catla - 20,000 to 22,000; Rohu, 18000 to 20000; Mrigala 12000 to 15000. In case of common carp per gram loss of body weight 500 eggs. While counting the number of eggs in each sample with the help of watch glass/petre dish, the number of developing good eggs and bad and unfertilized eggs is counted to determine the percentage of fertilisation. The Fertilised eggs will be clear full swollen and round without any wrinkles in the outer layer whereas unfertilised eggs or bad eggs will be small, whitish with the outer, membrane wrinkled. The percentage of fertilisation is determined as follows.

$$= \frac{\text{No. of fertilised eggs X 100}}{\text{Total number of eggs}}$$

HATCHING AND HATCHLING :

The period of incubation of fertilised eggs varies from 1 1/2 to 3 days depending on the prevailing water temperature. The newly hatched young ones are 3.5 to 8mm long with dark eyes and a conspicuous yolk mass. The absorption of yolk will be almost complete towards the end of 2nd day after hatching when the fry start swimming about in water. By this time they commence feeding from the environment and have therefore to be released in nursery ponds. For 1 ml = 480 to 500 hatchlings be counted. The sampling of hatchlings be handled in a clean beaker with clear water.

II.25.5 COMPONENTS OF FISH SEED FARM :

A. HATCHERY :

The hatchery is one of the components of fish seed farm or may be a separate one. The hatchery is separately constructed when the suitable facilities are not available in the fish seed farm. Different types of hatcheries already explained above are in operation in our State, such as (1) hatching tubs at Nandyal (ii) Cement hatcheries at Kurnool, Sunkesula, Gajuladinne Project, Ananthapur (iii) Jar chatchery at Nidubrolu, Pochampadu, M.P.Dam (iv) Chines hatchery at Nandyal, Penamalur, Nidubrolu, Kuchipudi, L.M. Dam Kub.

B. DIFFERENT TYPES OF PONDS AND THEIR USE IN THE FISH FARM :

1. NURSERY PONDS :

The spawn / fry collected from rivers or obtained from induced breeding units are reared for 20 to 25 days. The nursery ponds are to be prepared for rearing grows to fry size of 22 to 25 mm of spawn. Usually in the last week of May, the ponds are drained and allowed to dry. Silt that has accumulated at the bottom is removed. Raw cattle dung at the rate of 5000 kgs per acre is spread at the bottom and water is let into a depth of 2 foot first and upto full depth after a few days. If the entire quantity of cattle dung is not available in one instalment, water can be let in first and cattle dung mixed in water can be sprayed on the surface of water daily about a week. To counteract tendency towards acidity due to the addition of cattle dung, 50 kgs of lime per acre also should be added. In about 12 to 15 days, a bloom of Zoo-plankton develops. 12 gallons of water be seived in a plankton net and sediment obtained be 2.5 cc in volume. A day or two before the introduction of fry, an emulsion made of soap and oil (25 kgs of oil and 8 kgs of soap made into thick solution with water) may sprayed at the surface of water to kill insects. In a nursery so prepared, spawn/fry be released at the rate of 3 to 5 lakhs per acre. The nursery ponds are of 3 types. They are (1) cement nurseries which are constructed with brick masonary / cement concrete with cement concrete flooring (2) Revetted nurseries are those all the sides are revetted with hard stone boulders with cement mortar in between them and the bottom is kutcha and (3) kutcha nurseries are earth excavated. Usually the nursery is rectangular with levelled bottom and sloped towards out let for easy drainage. The size of nursery vary from 0.01 to 0.05 ha area and 0.5 to 1.20 metres depth provided with a pit near the outlet side of the pond for collection of fry. Each nursery pond is having a separate inlet and outlet.

2. REARING PONDS :

These ponds are to rear the young ones from the nurseries to a stage when they can be stocked in stocking ponds. These ponds are kutcha / cemented rectangular in shape, drainable with levelled bottom and sloped towards outlet side to collect the fingerlings. In some cases sides revetted with hard stones in between the stones with cement mortar. The area of rearing pond is 0.1 to 0.3 ha and 0.8 to 2 meters depth with separate inlet and outlet for feeding and drainage of the pond. These ponds are used for rearing fry to fingerlings of sizes 40-50 mm.

3. STOCK/BREEDER PONDS :

They are rectangular in shape, drainable with levelled bottom and sloped towards outlet side wall to collect the fish. Each pond size varies from 0.25 to 2.00

hectares area and 1.50-2.00 meters depth with separate inlet and outlet for feeding and drainage of the pond. The stock ponds attain high production of table size fish in the shortest possible time or to keep a stock of breeders for breeding experiments.

4. SEGREGATION PONDS :

Sufficiently well in advance of the breeding season commences, the matured male and female fish are segregated to different ponds species wise and well balanced food is given to make them fit for I.B. experiments. These ponds are kutcha with an area of 0.25 to 0.50 acres.

II.25.6 FISH SEED FARMS :

The objectives of fish seed farm are to conduct demonstration and to take up seed production. The farm should be maintained clean & tidy. The list of fish seed farms are given in appendix. The farms are under the control of Fisheries Development officer or Asst. Inspector of Fisheries. The Asst. Directors of Fisheries are responsible for their proper up keep. The technical work is also controlled by Asst. Directors. The Regional Deputy Directors are responsible for the proper upkeep and running as they are supervising officers. They should also check the stock of fish in the farm ponds thoroughly once in a year. The registers maintained should be scrutinised. The registers to be maintained in the fish farm are

1. Induced Breeding register
2. Common carp Breeding register
3. Breeders register
4. Nursery Management register
5. Import of seed register
6. Seed disposal register
7. Feeding register
8. Cash book
9. C.F 106
10. Inspection book

The proforma for maintenance of the registers are given (in Functionary Manual)

II.25.7 DEVELOPMENT AND DISPOSAL OF FISHERIES IN TANKS/RESERVOIRS :

All public waters in the State (in the Andhra Region) from the point of view of fisheries administration, fall under three different categories

a. Those under the control of the Fisheries Department.

b) Those controlled by the Revenue Department and

c) Those vested in local bodies. Under the first category they are provincialised waters, Demonstration tanks and Departmental waters.

The disposal of fishery of the tanks in Andhra region of the State was governed by B.S.O. or B.O.S. 211 and other Government orders while Hyderabad Government Notification No. 604 dated 28.10.1954 governed the dispossal of fisheries in the Telangana region. In order to over come the practical difficulties and with a view to secure uniformity of lease procedure in both the regions Government have retended the lease procedure contemplated in B.S.O. 211 to the Telangana region with a provision for long term lease. The tanks taken over by the Fisheries department were disposed of by the Department itself. The provincialised tanks were disposed of by the Revenue department in consultation with the Fisheries Department. The non-provincialised tanks vested with the Revenue and other Department were disposed of by the concerned Department themselves as per the procedure laid down in B.S.O. 211 and other connected government orders. Government have ordered to re-transfer all the irrigation tanks, which were under the control of Fisheries Department prior to 1987 from Pachayat Raj Department (Zilla Parishads) to Fisheries Department. The Hussainsagar lake which was transferred to Tourism Development Corporation and is re-transferred to Fisheries Department. (G.O.Ms.No. 776 Food & Agriculture (Fish II) Department dated 31.12.1990.

II.25.8 INSTRUCTIONS WITH REGARD THE DISPOSAL OF FISHERIES IN DEPARTMENTAL AND DEMONSTRATION TANKS :

Large number of Fishermen families are living in Inland Areas and they are living in the fishery wealth of tanks. Therefore for the benefit of these fishermen Government have adopted a soft policy of leasing / licensing for the fishermen who are formed into Fishermen Cooperative society and individual professional fishermen to a nominal amount. Some of the instructions with regard to the dispossal of Fisheries in Departmental tanks are given below :

1. Generally the fishery of tanks disposed of sufficiently in advance just before or after the expiry of the current year lease.

2. Before 15th July of each year, the concerned fisheries development officer/ Asst. Inspector of Fisheries should furnish to the Assistant Director concerned the particulars of proposed stocking for each tank, the past five years rentals, the average rental fixed and take into consideration the productivity of the water sources as per the guidelines given in Memo.No.

9181/C2/99-1, dated 24.6.99 of the Director of Fisheries based on G.O.Ms.No. 63, A.H & F (Fish.II) dated 7-6-1999. The guide lines given in Appendix 14.

3. The assessment received from the Fisheries Development Officer / A.I.F will be scrutinised by the Assistant Director thoroughly and send to Regional Deputy Director concerned for further scritiny and approval. On getting the approval of Regional Deputy Director, the rentals be got approved by the District Collector as per G.O.Ms.No. 776 Food & Agri (fish II) Dept, dated 31.12.1990.
4. On receipt of the approved copy of the assessments, they shall write to the F.C.S or Panchayat Board concerned having jurisdiction over the tanks, to inform its willingness or otherwise in writing accompanied by the resolution of the body for taking the lease of fishery of the tank for the amount assessed by the department.
5. Before recommending the lease in favour of the fishermen co-operative society, the Fisheries Development Officer / A.I.F should get the economic position of the society, certified by the officer concerned and the members of the F.C.S should be certified by Mandal Revenue Officer and their residence should necessarily be in the area of the operation of the society.
6. A date should be fixed for the receipt of the willingness and the institution should be informed definitely. If the reply is not received on or before the date fixed, it will be construed that it has no interest in the lease.
7. On receipt of the replies from all the institutions for all the tanks in their respective jurisdiction, the Fisheries Development Officers / A.I.Fs should submit a consolidated proposal as far as possible for the disposal of fishery either on lease basis or on Public auction as the case may be.
8. On receipt of the proposals from the Fisheries Development Officers, the date of sale will be published in the concerned District Gazette and the fact informed to the Fisheries Development Officers to enable them to give wide publicity and propaganda about the date of sale and fishery wealth in the tanks.
9. No sale should be held without gazette notification of the date of sale. A resale of the fishery may however, be conducted without gazette notification, duly announcing the date of sale by beat of tom-tom through the village officer concerned and a certificate to the effect that the date of sale is announced by beat of tom-tom should be obtained from the village officer and enclosed to the sale list.

10. Either for original sale or resale, sale list should be maintained in duplicate and submitted to the Assistant Director within the recommendation of the Fisheries Development Officer / A.I.F.
11. While conducting the sale, the conditions of the sale notice should be strictly followed, and in the report to be submitted on the result of the sale, the Fisheries Development Officers / A.I.F should certify that they have observed all formalities according to the rules.
12. In their proposals submitted after the sale, they should also state in particular whether there is no possibility of getting better rental if resale is held.
13. On receipt of the orders of confirmation the fisheries Development Officers/ A.I.Fs should immediately contact the local Registration Department and ascertain the value of the stamped paper for the execution of the agreement as per the conditions and submitted within the time limit fixed in the sale notice.
14. The sale of tanks should be conducted only by the Fisheries Development Officer / A.I.Fs concerned unless otherwise directed.
15. It is necessary to see that the village officers concerned are also present at the sale and the sale list is attested by them.
16. The Fisheries Development Officers / A.I.Fs may also contact the concerned Mandal Officer of the Revenue Department and see that all facilities and assistance are given to them by the village officer in conducting the sale of fishery right. They should bring to the notice of the Assistant Director if any inconvenience is felt by them to enable the Assistant Director to address the officers of the other departments concerned.
17. The Fisheries Development Officer / A.I.Fs concerned will be held personally responsible for any deviation from the instructions or irregular precedence followed by them.

II.25.9 RULES RELATING TO THE DISPOSAL OF FISHERY :

G.O.Ms.No. 776 F&A (Fish II) Department dt. 31.12.1990 and G.O.Ms.No. 63 A.H. DD Fisheries Fish.II) Department dt. 7.6.99, G.O.Ms.No. 125 AH. DD & Fisheries (Fish II) Dept. dt. 16.12.1999, G.O.Ms.No. 7 AH,DD & F (Fish II) Dept., dt. 17.2.2000, G.O.Ms.No. 70 AH DD & Fisheries (Fish II) dt. 16.10.2000 (G.Os are given in appendixes - 6)

The important points of these orders are as follows :

The period of lease is for three years, at a time fixing the rentals from 1410 fasli onwards at the rate of 10% in every year except on grounds of 'drought' declared in those mandals in the State as per G.O.Ms.No. 70, A.H.DD & Fisheries (Fish II) Dept., dt 16.10.2000. The payment of rentals are exempted for the tanks subject to production of a certificate from the revenue authorities to the effect that the tank has not received water and the drought conditions are prevailing. The levy rentals by increasing reveals by 5% on the rentals fixed for fasli. 1408 where the tanks received water and retaining for more than 3 months (vide G.O.Ms.No. 7 A.H.DD & Fisheries (Fish II) Dept., dt. 17.2.2000.

b. While leasing, first preference should be given to the genuine & local fishermen cooperative societies.

c. If no society is coming forward, the next preference has to be given to the concerned Panchayat / Municipality.

d. If no Gram Panchayat / Municipality is willing, the tank should be disposed by on open auction.

e. In case where the tank could not be disposed by open auction or reasonal rentals are not received, the departmental fishing has to be conducted.

f. In fixing the rentals, the authority shall take into consideration the productivity of the water sources. The guidelines given for estimation of the productivity of the water sources is enclosed in Appendix - 7.

The lease agreement should include the following conditions :-

a. The lessee shall stock every year such quantity of fish seed as may be determined by the Fisheries Department.

b. The lessee shall purchase the seed for such stocking from the Fisheries dept on billing of cost.

c. The lessee shall pay the lease amount every year at the commencement of the Fasli year.

d) Local bodies shall be responsible for developing the fisheries of the tanks leased to them.

POWER OF CONFIRMATION :

The lease of all the tanks / reservoirs which are under the control of the department shall be by the following authorities.

AMOUNT OF LEASE :

Authority to confirm the lease

Rs. 3000/- and less - Assistant Director of Fisheries

Rs. 3000/- to Rs. 6000/- Revenue Divisional Officer of the Area concerned.

Rs. 6000/- and above District Collector

(G.O.Ms.No. 776, F & A (Fish. II) Department, dated 31.12.1990.)

DEPARTMENTAL FISHING :

Departmental Fishing should not be resorted to the possible extent. In case the source could not be disposed by any means i.e., Lease to FCS or G.P. / Public auction of reasonable bid are not received or where there are disputes among the members of the local FCS having jurisdiction over the said tank, the departmental fishing shall be conducted as detailed below :

1. Departmental fishing should be ordered by the competent Authority ie., Commissioner of Fisheries or any other officer who is authorised by the Commissioner of Fisheries.
2. As soon as orders are received, concerned subordinate officer should conduct meeting with his officials and chalk out proper planning for proper exploitation including dispossal of fish exploited from the said tank.
3. Normally the FDO concerned should supervise the departmental exploitation of the said tank. In extra-ordinary cases (where there are factions or local disputes, tank is very large and very difficult to control owing to geographical position and there are law and order problem while exploiting departmentally) the ADF of the concerned District may depute some more staff to assist the FDO to conduct departmental exploitation in smooth manner.
4. The FDO should make wide publicity about the departmental exploitation by means of TOM TOM in that local area. He should also call for sealed tenders or quotations to get maximum price for the fish exploited. In case if no quotations are received, the fish exploited should be sold out in open auction to the local traders / fishermen.
5. Local FDO should utilise the services of the members of the local FCS or nearby FCS provided there is no FCS at local place or the members of the local FCS refuse to participate in departmental exploitation.
6. Out of the total catch, 50% of the catch shall be distributed as wages to fishermen who actually participated in the fish operation. In case fishermen insist for wages in cash the wages shall be fixed at 50% of the catch by the concerned individual or group multiplied by maximum selling price decided.

7. The amount realised shall be deposited into the Treasury on the very next day or within two days under proper revenue head.
8. A register showing the daily catch, date and number of fishermen engaged, wages paid either in cash or kind shall be maintained.
9. Signature of the person who participated in exploitation shall be obtained in register as token of receipt of his wages for having exploited fish in Departmental Fishing.
10. The rate at which the fish was sold must be recorded with proper support to show that fish was at maximum price.
11. The ADF should be informed about the progress of exploitation every day.
12. The ADF concerned should supervise once in two days and the RDDF should supervise once in a week. If any lapse is noticed, it should be brought to the notice of the next higher authority.
13. The ADFs should impose condition to surrender required breeders and allow Departmental staff to collect pituitary glands.
14. If any lapses are noticed the concerned FDO/ADF/RDDF will be held responsible.

CREDITING OF FISHERY REVENUE :

The revenue realised by the disposal of fisheries of the tanks which are under the control of the department are to be credited to the Department except wherever water users Association maintaining the minor Irrigation tank is existing. Wherever water users Association is there, the lease amount or auctioned amount of that tank shall be remitted to concerned water users Association by the Fisheries Department

1. G.O.Ms.No. 70, AH&F (Fish.II) Deptt., dt. 27.7.98.
2. G.O.Ms.No. 71, AH&F (Fish.II) Deptt., dt 23.7.98.
3. G.O.Ms.No. 63, AH&F (Fish.II) Deptt., dt 7.6.99

FASLI YEAR :

A fasli year means a year beginning from 1st July and ending with the following 30th June.

REGISTERS TO BE MAINTAINED :

A register of disposal of fisheries (tank wise) either on lease or auction shall be maintained specifying therein the particulars of amounts for which the fishery of tanks are disposed of. The proforma for the Register to be maintained is given below.

S.No.	District /Sub office	No.of tanks under the control of Dept.	No. of FCS	Tanks Amount realised	Disposed Panchayats/Municialities	During Amount realised	Open Auction
1	2	3	4	5	6	7	8
Amount realised (Rs.)	Total no. of tanks disposed till end of 31.3 and the amount realised No of tanks	Amount	Rentals realised during previous year (Rs.)	For reasons rentals realised low	No.of Tanks remaining to be disposed & reasons	No.of tanks ear marked for Deptl fishing	Remarks
9	10	11	12	13	14	15	16

II.25.10 PROCEDURE OF LEASE FOR TANKS DRIED UP/BREACHED ETC :

After the lease of tanks to lease if any tank is reported dried up and breached tanks, the Fisheries Development Officer / Assistant Inspector of Fisheries should obtain the dry up/breached tank certificate from Revenue Authorities and rain fall report from the authorities concerned and submit a proposal to Regional Deputy Director of Fisheries through the Assistant Director of Fisheries. The Regional Deputy Director of Fisheries after examinng the proposal send to Director of Fisheries. The Director of Fisheries will send the proposal to Government to write off the rental of that fasli.

II.25.11 DEEP WATER NETTING :

In Deep water tanks and reservoirs, it is not possible to obtain optium catches with the traditional methods of fishing. To demonstrate the technique of fishing D.W.N.units were started in the State in the year 1954. Now they are not in operation as the FCS concerned were imparted training and are now aware of the fishing methods.

II.25.12 KOLLERU DEVELOPMENT SCHEMES IN WEST GODAVARI AND KRISHNA DISTRICTS :

Kolleru lake is the biggest lake in Andhra Pradesh with a water spread area of 90,132 hectars situated between West Godavari and Krishna Districts. The lake abounds in rich variety of aquatic vegetation belonging to flowing, submerged and emergent groups. Carps and Black fish constitute major fishery wealth of the lake. Various financial agencies like State Government, Nationalised Banks, etc., have provided with necessary financial assistance to help the fishermen through Cooperative societies in the construction of 134

tanks in West Godavari and 55 tanks in Krishna Districts at a cost of 180 lakhs during the Vth five year plan period of 1974-79.

II.25.13 INLAND FISHERIES TRAINING CENTRES :

There are 3 Inland Fisheries Training Centers at Warangal (Started in 1970) Kurnool (Started in 1977) and at Badampudi (in West Godavari District) (Started in 1980). The Training is imparted to fishermen & fish farmers for a period of 3 months & 4 batches are conducted per year. The intake capacity is 20 stipendiaries & 20 Non-stipendiaries/batch at each center. The stipendiaries are being paid Rs. 200/- p.m.

II.25.14 INTENSIVE FISH CULTURE FISH FARMERS DEVELOPMENT AGENCIES:

2 FFDAs in Kurnool & Karimanagar were started in 1978, followed by FFDA at Sangareddy (1981). In a phased manner, 22 FFDAs were functioning in the State and they were discontinued w.e.f. 1-3-97. Each FFDA was aimed to develop 100 ha and impart training to the beneficiaries. The beneficiaries were given subsidy for construction of ponds & supply of inputs etc.

II.25.15 CRAFT & TACKLE:

The Craft & Tackle used for exploitation of fishery in Inland water is given in Appendix - 8

II.25.16 INLAND FISH PRODUCTION :

Andhra Pradesh stands second in Inland fish production in the Country. The details for the 8 years is as follows (with neighbouring States)

(000 Tonnes)

State	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
A.P	136.25	138.88	151.48	167.05	195.13	202.97	207.32	226.31
West Bengal	555.00	592.00	612.00	653.00	669.22	740.00	765.00	786.02
Bihar	159.93	184.97	164.07	200.71	195.37	239.58	249.78	202.54
Neighbouring State								
Karnataka	53.00	64.34	65.70	74.13	17.29	87.35	101.65	95.27
Tamilnadu	82.00	84.00	96.00	107.20	108.00	108.00	109.00	109.50
Maharastra	64.00	64.53	77.19	83.22	89.88	77.00	109.00	127.00
Orissa	83.29	95.03	95.76	128.36	134.77	134.85	143.50	153.43

The Fish production from Inland water sources is given in appendix - 9

II.26 MARINE FISHERIES :

II.26.1 NTRODUCTION :

In India only 9 States and 4 UTS have the marine wealth with a total coast line of 8041 kms. Andhra Pradesh is endowed with a Coast line of 974 kms with a continental shelf area of 33,227 Square Kilometers up to 200 mts depth. There are 508 Marine Fishing villages abutting the sea coast in all the 9 Coastal Districts of the State.

Demarcation of fishing grounds of the Coastal seas is as follows :

a. Inshore Fisheries : The Fisheries of the Coastal waters extending from 1 to 20 fathoms.

b. Off-Shore Fisheries : The fisheries of seas from 21 to 100 fathoms.

c. Deep Sea Fishing : The fisheries of seas beyond 100 fathoms

d. Territorial waters : The Sea up to 12 nautical miles from the coast.

e. Exclusive Economic Zone as per the proclamation of the President of India the right to enact legislation, to regulate fishing up to 200 nautical miles from the coast to safeguard the interests of communities living by fishing in the sea in the country.

II.26.2 CRAFT :

Craft is the means of taking personnel, tackle and other equipment to fishing grounds and to return back with fish catches. Tackle is the means used for actual restraining of fish. The main types of existing craft and tackle used in the sea in the State are furnished in Appendix - 8 with detailed description and mode of operation.

II.26.3 TRADITIONAL FISHING CRAFTS :

The Marine Fishermen in Srikakulam, Vizianagaram, Visakhapatnam, Prakasam and Nellore districts prefer teppas while the fishermen in pulicat lake use sailing boats for fishing. The life of these Crafts is up to 5 to 6 years and needs to be replaced by new crafts. The catamarans used in Visakhapatnam area are longer in size and are called as Boat Catamarans with two to three logs of bigger girth. The Catamarans used in Bapatla area, Ongole & Nellore are having 5 to 6 logs of smaller girths and tied together to form a boat shape which are called raft catamarans. The cost of the boats and logs should be recovered when they are supplied under schemes with Government Assistance with in six years and necessary agreement bonds have to be executed by the fishermen before their actual distribution. Other important issues involved are

a. Continues villages In the Coastal districts should be taken up for distribution and not in scattered area.

b. The fishermen cooperative societies should be involved in the purchase and distribution of all fishing inputs. c) The prices of logs will have to be approved by the Assistant Director of Fisheries concerned and he should satisfy himself that there is no collusion. d) The letter or symbol representing the Department of Fisheries should be inscribed at least one inch deep by notches cut in the logs, before actual distribution to the beneficiaries. e) The payment should be effected to the firm after delivery and inspection by the Fisheries Development Officer and orders issued by the Asst. Director of Fisheries. After.. the formation of A.P.F.C.Ltd., at Kakinada in the year 1974 the supply of logs was entrusted to Fisheries Corporation. The supply of logs/Teppas are also taken up by A.P. State Fishermen Cooperative Societies Federation Limited (AFCOF) under Integrated Marine Fisheries Project with assistance from officials of Fisheries Department, under the schemes funded by District Level agencies / Banks. The concerned agencies the Department of Fisheries & the beneficiaries will form a committee for purchase of suitable craft. This activity continued up to 1992 and was replaced by the modern version of FRP Catamaran. The reasons for introduction of FRP Catamarans are

   a. Scarcity of suitable wood like Albizzia Sp within the State and even in the neighbouring States.

   b. Life of the Wooden catamarans is only 5 to 6 years while FRP crafts lasts for more than 10 years.

   c. Loss of Fishing days will be minimised as wooden catamarans require drying after few months.

   d. The no. of fishermen that can be employed will be 5 in FRP crafts as against 2 to 3 in wooden catamarans. The catch will be more than 2 to 3 times.

II.26.4. MOTORISATION OF TRADITIONAL CRAFTS :

Traditionally fishermen are used to move their fishing crafts with flat based logs & rowing. This is consuming lot of their energies & making them tired for actual fishing. Therefore, Govt have come up with motorisation of traditional crafts. The main objectives of motorisation of traditional crafts are to minimise the time to go to the fishing ground in the offshore areas and to return to the shore with fish catch. It reduces the human effort to cruise the craft and for quick change from a fishing ground to the other. The scheme was initially taken up during 1st five year plan by fixing the out board motors to the traditional craft which were

imported out board models. But this was not successful. In the year 1986, under the Centrally Sponsored Scheme, motorisation of traditional crafts was taken up on a large scale with emphasis on Inboard motors and it was a success. During 1988-90, Andhra Pradesh Fishermen Cooperative Societies Federation Limited conducted demonstration of Diesel run out board motors in Prakasam and Nellore districts and these OBMs were introduced by the Department during 1988-90. There is a great demand now for out board engines in most of the Coastal districts. The engine manufactures are catering to the needs of service facility and supply of spare parts. There are 3269 motorised traditional crafts in the State.

II.26.5 BEACH LANDING CRAFTS :

The Beach Landing Crafts can land any where on the shore without requiring any harbour facility. They were designed by Bay of Bengal programme (BOBP), and were constructed at the Boat Building Yard, Kakinada (APFC) Number of Beach Landing crafts were constructed and supplied to fishermen cooperative societies in the State under different schemes. The Beach Landing crafts are made up of Fibre Reinforced Plastic fixed with inboard engine of 8 to 12 HP. (Air cooled/water cooled). The Craft is of liftable propulsion type and has a deck with fish hold and net hold. The BLCs also have provision to use the sail. The advantages of these Beach landing crafts were later incorporated in the design of FRP navas developed by A.P. Fisheries Corporation in 1992 with 2 models called Skeg type navas (fixed in board engine) and Bellow type (liftable propulsion). In all schemes, where the assistance is provided as loan, the fisheries Development officer / the Asst. Director of Fisheries should maintain proper accounts of the amount sanctioned, details of inputs given, agreement bonds executed and recovery of dues in the prescribed D.C.B., registers and furnish reports to Regional Dy. Director of Fisheries / Director of Fisheries. The boat will become the property of the Fishermen Cooperative Society after the final settlement of all amounts due towards principle and interest. The boats and nets valued Rs. 1 to 2 lakhs are being distributed among the fishermen, without insisting for any security but only after completion of the agreement bond on repayment of loans. They should conduct fishing as per the rules prescribed. In case of default of any provisions contained in the agreement, the boats can be seized by the Departmental officers. The action should be taken in all such cases of confiscation owing to failure to pay the instalments, misuse, neglect and damage, by the hirers of the boats etc.

SUPPLY OF FISHING INPUTS BY FEDERATION :

The Federation was registered in the year 1987 as an Apex Coop-Society. The Federation has supplied 500 wooden catamarans, 594 fibre glass motorised catamarans and 398

fibre glass motorised navas, 126 masula stitched boats along with nets under the scheme "Integrated Marine Fisheries Project". Earlier under IMFP Phase - 1, 450 catamarans along with tackle, 34 Beach landing crafts were supplied to 12 Marine FCSs in Prakasam and Nellore Districts.

II.26.6 MECHANISATION OF FISHING CRAFTS :

Fishing boats of different designs fitted with Marine Diesel Engines of various Horse power are constructed for exploiting the fisheries of the coastal waters of the State. The Government of Andhra Pradesh has invited Sri Paul Jeiner, FAO expert during the year 1954 with a request to suggest mechanisation of fishing crafts along with modification to the existing craft. He has selected Kakinada Nava as suitable craft formechanisation and suggested certain modifications. In 1955 five navas were mechanised with Marine diesel engines, imported under T.C.M. scheme and demonstration centers were started at Kalingapatnam, Kakinada, Machilipatnam, Nizampatnam, and Krishnapatnam. This has later resulted in the establishment of Boat Building Yard at Kakinada during the year 1959. At the end of the training in the Fisheries Training Institute mechanised boats and synthetic fish net twine were distributed at subsidized rates to the successful candidates through the Fishermen Cooperative Society. The Fishermen Cooperative Society have to execute an agreement bond as per G.O.Ms.No. 337 Agriculture, dated 2.3.1962 before actual distribution of boat & nets. The recoveries were effected in instalments spread over a period of 5 years excluding non-fishing months. Later on the scheme was extended to those who have passed L.F.T.N. course and have opted for fishing in the sea and not to be employed by the Government. Since inception of Boat Building Yard mechanised boats of various types viz Pablo., Royya, Sorrah were constructed under the control of Sri V.S. Devara the then Superintendent of Boat Yard who was instrumental in developing several designs of fishing craft. The Boat yard was transferred during 1974 to the A.P. Fisheries Corporation and it has constructed various designs of mechanised boats and supplied not only to State Fisheries Departments but also other State coastal fisheries departments. The boats constructed in the Boat Building Yard were also supplied to Tourism Department. The Boat Yard created history in construction of 2 Nos of 23 Mts size of Wooden Hull Fishing Voyage boats under World Bank Assisted Integrated Marine Fisheries Project.

II.26.7 CREATION OF INFRASTRUCTURAL FACILITIES UNDER INTEGRATED MARINE FISHERIES PROJECT :

The resources survey conducted by the exploratory fisheries project of Government of India indicated the considerable fish potential in Andhra Pradesh Coast. It is estimated as 4.0 lakhs. But there is under utilisation of the available

potential in fisheries sector due to certain constrains such as in adeqency of fishing harbours, credit for purchase of inputs for under taking commercial fisheries, Processing and preservation facilities, access roads to fishing villages which play a vital role in improving the productivity and livelihood of large number of professional fishermen. The Integrated Marine Fisheries project was implemented with World Bank Assistance in the year 1978 for construction of fishing harbours at Visakhapatnam, Kakinada and Nizampatnam in Guntur District. (Visakhapatnam harbour was completed by the Visakhapatnam Port Trust in the year 1982). The harbour is provided with high frequency shore signal station, 16 HSD oil outlets, dry docking facility, work shops and auction halls. This harbour is providing berthing facilities for 300 mechanised boats, and 45 trawlers. Kakinada fishing harbour in East Godavari District was opened for traffic in December 1988. This harbour has been providing berthing facilities for 410 mechanised fishing boats and 15 nos of 23 meters length trawlers Nizampatnam Fishing Harbour (in Guntur District) was completed in the year 1994 and opened for traffic in the year 1996 - 97. It is providing berthing facilities to 60 mechanised boats and 60 non-mechanised boats. Under Centrally sponsored scheme, fishing harbour at Bhavanapadu in Srikakulam District was taken up. The Bhavanapadu harbour construction has been completed but due to technical problems like sand piling, at the opening of the mouth, it is not in operation. This harbour is designed to provide berthing facilities for 250 numbers of 10 meters length of mechanised boats and 200 for traditional crafts. Another harbour at Machilipatnam in Krishna district is sanctioned during the year 1995 - 96 which is designed for providing berthing facilities to 300 mechanised fishing vessels. The total mechanised craft in the State are 1222. The work relating to fish catch monitoring units is being attended by the Fisheries Department in the harbours. There were 2 FTO offices at Vizag & Kakinada with Deputy Director of Fisheries as the unit officer. They were are now continued under Regional Dy. Director concerned. The other FTO with ADF as the Unit officer is working at Nizampatnam. The Fisheries Development Officers are responsible to collect the data regularly and maintain the registers. The data is being used to forecast the fishery potential of different fishing grounds, availability of species etc. The data on fish movements in different areas of sea received from satellite imageries prescribed by Agency National Remote Sensing through Fax messages is being passed on by these units to the mechanised boat operators.

II.26.8 LEGISLATION : ANDHRA PRADESH MARINE FISHING REGULATION ACT :

An Act No. 9 of 1995 dated 8.2.1995 was Legislated to provided for the Regulation of Fishing vessels in the Territorial waters in the Sea along the Coast line of the State of Andhra Pradesh. As per Act 9 of 1995 (1) the non-mechanised traditional fishing crafts shall be allowed to operate freely without any restrictions.

Water upto 8 Kms from the shore be reserved exclusively for such fishing crafts and in no case any other type of mechanised fishing vessel shall be allowed to operate in that area (2) Mechanised Fishing Vessels below 15 metres OAL shall be allowed to operate from 8 Kms and above from the Coast. (3) Mechanised Fishing vessels of twenty five gross tonnes and above or 15 metres and above of length shall be allowed to operate under sub-rule (1), (2) and (3) above shall operate beyond twenty four K.M. from shore. The Government have issued orders for implementing the Act by appointing Adjudicating officers and Authorised officers Vide G.O.Ms.No. 56 of A.H & Fisheries Department dated 15.9.98 (given in Appendix 10). The Government have revised the registration and licence fee rates vide G.O.Ms.No. 35 of A.H & Fisheries department dated 13.4.99 (given in Appendix II) A uniform seasonal ban on fishing in the sea for regulating the fishing on experimental basis adopted as per G.O.Ms.No. 51 of A.H&Fisheries Department dated 16.4.2001 (given in Appendix 12)

II.26.9 REGISTRATION OF FISHING VESSELS :

The owner of every vessel not being a fishing vessel registered under section 11 of the Marine Products Exports Development Authority Act, 1972, shall register such vessel under the act mentioned in the above para. The application for registration of fishing vessels is done under section 9 of APMFR Act by the owner in Form - 1 with relevant documents and fee to the Authorised officer. Failure to register the craft entails the seizure of the craft under section 9 of the Act by the Government. The Authorised Officer shall issue the certificate of Registration under sub section (3) of section 9 of APMFR Act in Form - II. The Annual licenses for fishing are issued by the Authorised Officer under subsection (6) of section (6) of the Act. A.P. Marine Fishing Regulation Act and Rules are given in Appendix - 13 A&B.

II.26.10 TACKLE / GEAR :

Tackle or gear represents those means which are used for actual restraining of fish. All nets consists of Webbing (knotted/knotness) fastened to appropriate lines and ropes which gives the net its form and strength. The Buoyant material used as floats on Head rope and weights used as sinker on the foot rope to keep the net in desired from under water during fishing. The materials used for the fabricating fishing gear comes from three sources. They are (1) Vegetable sources such as Fruit (eg. Coir for ropes); Seed (Cotten for twine for net webbing); leaf start (eg manila and sisal) (for ropes) and stalk)eg. Hemp, linen and Rein (twine for webbing) (2) Minerals : such as Iron, Zinc, Aluminum for hooks, floats, wire etc., and (3) Chemicals such as synthetics and plastics (Twine for webbings, ropes and floats).

II.26.11 PRESERVATION OF FISHING GEAR :

All fiber, yearn, twines and ropes etc., are perishable whether braided into nets or not. The time at which they wear out depends on the kind of fiber from which they are made and the use they are put to. But their life can be lengthened by appropriate treatment with preservatives designed to reduce deterioration. The causes for deterioration are rotting, mechanical wear and tear & heating. The various methods of preserving net and ropes made of natural fisheries is grouped into three categories (a) Sterilisation : To destroy putrefactive bacteria either by sunlight, drying land or chemical treatment with copper salts.

b. Protection : From bacterial infection by coating the natural fibers with a film of either tanin, or coal products or both.

c. Combination : of the above two methods.

II.26.12 MARINE TRAINING :

With a view of to impart training in modern fishing methods, maintenance of mechanised crafts and navigation to fishermen; a fishermen training center was established at Kakinada during 1957 vide G.O.Ms.No. 1409 Agriculture dated 3.9.1957. The successful candidates were given mechanised boats and synthetic yearn at subsidised rates, on easy instalments to enable them to utilise the training given to them and thereby increase the catches. The Center was upgraded as Fisheries Training Institute vide G.O.Ms.No. 1539 - Agriculture, dated 8.7.1960 to impart training to the departmental officers in the category of Inspectors (now redesignated as Fisheries Development Officers) and Assistant Inspectors of Fisheries. The Training Institute was again upgraded to that of a State Institute of Fisheries Technology in G.O.Ms.No. 150 AH & F (F.II) Department dated 6.2.95 to conduct refresher courses regularly for upgrading the Human Resources.

II.26.13 NAVIGATION :

All the officers of the department who are employed or incharge of sea fishing vessels should observe the following rules and regulations. They are (1) Internal Regulations for preventing, collisions at sea-31 articles (2) uniform system of Buoyage and (3) laws of storms. The rules and regulations framed under these items are given in Appendix - 14

II.26.14 INSHORE SURVEY :

The object of the Inshore Survey is to locate new fishing grounds for trawling and gill netting all along inshore waters of the Coast, and to conduct

experiments to find out the suitable tackle for trawling in different grounds. These units are operating at Kakinada and Visakhapatnam. The FDO and mechanic attached these units will be under the administrative control of the Regional Deputy Director of Fisheries where they are working. They shall be responsible for proper maintenance of craft and gear. The reports are compiled, consolidated and report submitted to the higher authorities. All observations should be recorded in the registers in the prescribed proforma.

II.26.15 WHALE FISHERY :

Whale Fishery is very important one in view of the valuable products available from it. The fisheries officers of that area should deal with a stranded whale as soon as the information is received from the field. The instructions for dealing with a stranded whale is given in appendix - 15. The Commercial products of different whale should receive departmental attention and a special report sent immediately to the Director of Fisheries, A.P. Hyderabad.

II.26.16 SHORE STATIONS :

The Department of Ocean Development, Government of India have commissioned 2 shore Stations with an aim to send communications from Shore to fishing vessels. The Shore Stations are established during 1991 at Kalingapatnam (Srikakulam District) and at Manginapudi (near Machilipatnam). The Shore Stations were installed with erection of Antenna and MTR - 67 radio telephone and 6 Nos of walkies takies. The Fisheries Development Officers have to observe the functioning of these stations having a close touch with the sea going fishermen. If there are problems, he has to report to Asst.Director of Fisheries to report the matter to Director of Fisheries and Department of Ocean Development.

II.26.17 PRESERVATION AND PROCESSING FACILITIES :

Fish & Prawn are highly perishable commodities especially in a tropical country like India. It cannot be kept in good condition for more than 8 hours after catch. The local fishermen preserve their surplus catches by salting and drying them for selling in the interior markets. The Department of Fisheries has earlier opened 25 fish curing yards, and issued salt on subsidised rates. When the preservative techniques have improved, this activity is not continued. The preservation and processing units started providing services since 2nd five year plan period under public sector. Later these facilities are attended by A.P.F.C and Corporate sector. In all the Coastal districts, there are 38 freezing plants with a capacity of 847 tonnes per day, 305 ice plants with a production capacity of 2740 tonnes per day and 44 cold storages with a storage capacity of 528 tonnes per day.

II.26.18 Andhra pradesh stands 6th in the country in marine fish Production. A comparative production for last 10 years with neighbouring States is given below :

(000'tones)

State	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
A.P.	120.35	125.79	113.07	154.32	150.26	151.99	152.05	146.55	160.00	166.48
Kerala	514.24	524.76	496.24	559.20	548.37	537.55	222.78	526.34	583.36	575.50
Gujarat	500.00	516.85	588.00	618.84	645.76	600.00	660.07	754.71	550.00	670.95
Maharastra	325.00	390.86	387.55	3550.40	357.00	387.00	481.00	453.00	394.88	397.90
Tamilnadu	288.95	301.00	308.00	317.72	330.50	340.00	350.79	355.10	359.55	363.00
Karnataka	183.83	181.41	174.19	174.52	173.75	217.51	222.78	189.86	160.61	165.65
W.Bengal	125.00	142.00	145.00	153.00	151.20	153.00	172.00	164.00	171.50	180.00
Orissa	78.00	87.88	119.93	103.93	122.89	123.20	133.46	156.08	124.33	125.93

The year wise Marine fish Landings are given in Appendix - 9.

II.27 BRACKISH WATER FISHERIES :

II.27 INTRODUCTION :

The Brackish Waters are at the confluence of sea with fresh water. The Brackish water resources of State are enstuaries, creeks, canals, tidal flats and salt marshes. An estuary is a semi enclosed Coastal body of water which has fee connection with the Sea and within which the Sea water is measurably diluted by fresh water derived from land drainage. This ecotone is a buffer zone between fresh water and saline water of the Sea. The river discharge interacts with the Sea water and river water and the Sea water are mixed by the action of the tidal motion, wind stress on the surface and the river discharge facing its way in to the Sea. Salinity pattern is a good indicator of the estuarine mixing and a pattern of water circulation in any estuary. This resource mainly comprises of the Godavari and Krishna rivers system in Andhra Pradesh. The backwaters are the extension of sea water into low lying areas, old water courses, through a number of naturally formed creeks and canals. The tidal flats and salt marshes are those lands which gets inundated or gets emptied twice a day due to tidal action. These lands are unproductive or marginally productive lying waste. The food fishes like Chanos (milk fish) Mullets, Hilsa, Jew fish, Pearl spot, Shrimp (Brackish Water Prawn) etc., occur in large number.

II.27.2 :

The first estuarine fish farm was constructed by the department at Kakinada in East Godavari district vide G.O.Ms.No. 1562 Agriculture dated 11.7.1960 and of Government Memo No. 4153/Fish/59 dt. 9.11.60 in the year 1962. Subsequently this farm was transferred to Central Institute of Fisheries Education, Bombay (I.C.A.R) for conducting cultural experiments on Brackish Water fish and prawn training. Dr. D.V. Reddy was the scientist in charge of the farm who has made pioneering work in B.W. Culture. The A.P. Fisheries Corporation Limited, Kakinada has constructed B.W. Farm in a total area of 76 hecatares with a water area of 45 hectares containing 23 ponds in the year 1979-80. This farm praved way to many entrepreneurs and farmers to enter into the field of B.W. Shrimp culture. A.P. Agriculture University at Kakinada also constructed on experimental farm during 1980. A beginning was made for utilisation of Brackish Water prawn culture during sixth plan period (1980-85). To identify the suitable brackish water areas, the department of fisheries has conducted a preliminary survey in September 1980 in all the Coastal districts & the total area estimated was 64,000 hectares. Out of which, 17000 hectares area was found suitable for B.W.Culture by tide-fed waters to the ponds. The estimate of Brackish Water Potential area as per the modern techniques by pump-fed ponds etc., is 1.50 lakh Ha (Mpeda). The State is next to West Bengal (4.05 lakh ha) followed by Maharastra (0.82 lakhs ha) Kerala (0.65 lakh ha). The total B.W. potential area in the country is 11.90 lakhs hectares.

II.27.3 BRACKISHWATER LAND ALLOTMENTS :

The Brackishwater land allotments were also given emphasis under the policy of the State Government to allot 60% to Fishermen Cooperative Societies, 20% to Technocrats and 20% to the Entrepreneurs.

The details of lands handed over are as follows :

Phase 1 : 3 Districts (1987), Nellore, Krishna and East Godavari.

Land Allotment :

Fishermen Cooperative Societies (4)	...	86.06 Hectares
Technocrafts (43 Nos)	...	171.86 Hectares
Entrepreneurs (10 Nos)	..	382.40 Hectares

Phase - II (1994)

Land Allotment

Fishermen Cooperative Societies (11)	..	664.69 Hectares
Farmers (50)	..	20.0 Hectares

The G.O.s issued on Brackish water land lease policy are given in Appendix - 16

The TCDC (Technical Cooperation among Developing Countries) Mission, 1981 has suggested for taking up demonstration farm to findout suitability of the design of the brackish water ponds which are tide-fed.

Accordingly the Department of Fisheries has constructed Shrimp culture demonstration project with the financial and technical assistance of Bay of Bengal Programme at Polekurru in East Godavari District during the year 1982. The Polekurru Phase I & II projects with an Water Spread area of 53 & 24 ha respectively were taken up during VII FYP with UNDP assistance. The District level funding agencies like DRDA and SC Corporation also contributed in establishment B.W pond estates for the benefit of weaker sections.

II.27.4 BRAKISH WATER FISH FARMERS DEVELOPMENT AGENCIES :

Under Centrally Sponsored Scheme, a production oriented programme on 50:50 funding basis by Government of India and Government of Andhra Pradesh in the name of Brackish Water Fish Farmers Development Agencies were started in 5 districts namely Krishna, (1988-89, Srikakulam, Nellore 1990-91) Prakasam and East Godavari (1991-92) with Chief Executive officer in the cadre of Assistant Director and District Collector as the Chairman. The main objectives of the agency is to develop 50 Hectares of Brackish water areas every year by adopting latest technique in prawn culture and imparting training to the beneficiaries. Till 1996-97, 616 hectares of Brackish water area was developed and imparted training to 1838 beneficiaries. The BFDAs were discontinued by the State Government and the activities were entrusted to Asst. Director of Fisheries w.e.f. 1.3.1997.

II.27.5 SHRIMP SEED HATCHERIES : / FEED MILLS/ PROCESSING PLANTS :

Prior to establishment of hatchery at Visakhapatnam, farmers used to get shrimp seed from natural collections in tidal, backwater, mangrove brackishwater swamp areas by sorting the required species of shrimp seed. A hatchery with American technology with a production capacity of 40 million per year was established at Mangammeripeta in Visakhapatnam District during the year 1988. The funds for the hatchery were provided by Marine Products Exports Development Authority and the State Government has provided land on free of cost and a society by name the A.P. Shrimp Production and Research Center (TASPARC) was registered. Under private sector, there are 142 shrimp seed hatcheries with a production capacity of 820 millions, 28 shrimp feed mills with a production capacity of 1,48,740 tonnes and 36 processing plants with a capacity of 1,09,351 tonnes.

II.27.6 BRAKISH WATER AREA DEVELOPMENT :

By the end of 8th Five Year Plan, 69,736 small and marginal farmers have taken up the brackishwater shrimp farming who are culturing shrimp in ponds of less than 2 hectares of brackishwater area. 2190 farmers with land between 2 to 5 Ha and 574 farmers Cooperative bodies with land of more than 5 Ha. The total area brought under the shrimp culture was 79512.93 hectares and the total number of persons who have taken up the brackishwater culture was 72,500 by 1997-98. In Krishna District 26,115 Ha has been developed followed by West Godavari (11,065 ha) East Godavari (71900 ha), Guntur (7057 ha) Nellore (5619 ha) & Prakasam (1382 ha) and Srikakulam (920ha). The Brackish water shrimp production during the year 1993-94 to 1999 - 2k was as follows :

Year	Area cultivated (Hectares)	Production (tonnes)
1993 - 94	19,500	
1994 - 95	34,500	26,000
1995 - 96	50,000	27,140
1996 - 97	60,249	30,577
1997 - 98	66,290	34,075
1988 - 99	66,240	44,856
1999 - 2000	77,420	41,660

II.27.7 WORLD BANK ASSISTED SHRIMP CULTURE PROJECT :

Ponds in 76 hectares of Brackishwater area with water spread area of 46.85 hectares were constructed and allotted to 95 fishermen beneficiaries at Bhyravapalem in East Godavari District and 2 Prawn Seed hatcheries in East Godavari District each with a production capacity of 30 million per annum were established under World Bank Assisted Shrimp and Fish Culture Project during the Eighth/Ninth five year plan.

II.27.8 SUPREME COURT ORDERS - AQUACULTURE AUTHORITY OF INDIA :

In pursuance of the directions of the Supreme Court Judgement dated 11.12.1996 an Aquaculture Authority was set up by Government of India under the relevant provisions of the Environment (Production) Act 1986. As per the Government of India Lr.No. 33035/2/97-FY(2), dt. 1.10.1997, State Government have constituted State Level and District Level committees for the purpose of processing applications for setting up of Shrimp Aquaculture farms and forwarding to the Aquaculture authority with due recommendations vide G.O.Ms.No. 124 A.H & Fisheries (Fish.II) Department dated 5.11.1997. The

Authority has prescribed 3 application formats for giving authorisation and regulate the farms that are already in existence and also to permit the new farms. As per the CRZ Notification, 19.2.1991, the Central Government declared the coastal stretches of Seas, Bays, Estuaries, Creeks, Riers, Canals and Backwaters which are influenced in the tidal action up to 500 meters from the HTL and the land between LT is and HT is as CRZ and imposed restrictions in the area. While approving the Coastal Zone Management Plans of Andhra Pradesh, the Government of India have agreed for 600 meters Coastal Regulation Zone along Rivers, Creeks and other water bodies vide Lr.No. 317011/40/95, dated 27.9.1996. The slab systems for demarcating CRZ along the Banks of Rivers, Creeks and Backwaters dated 13.3.1997 envisaged is as follows :

a. 150 meters in case the width of River, Creek, Backwater is more than 350 meters.

b. 100 meters in case the width of River, Creek, backwater is between 100 meters and 350 meters.

c. Less than 100 meters depending on the width of River, Creek, Backwater is than 100 meters.

A public interest petition was filed in High Court of Andhra Pradesh by PREPARE, a Voluntary Organisation challenging the slab system (April 1998) and interim orders were issued to process the applications of all cases of aquaculture effected due to non-adoption of slab system. The Government of India CRZ-Notification is given in appendix -17.

II.27.9 OUT BREAK OF DISEASES :

The Shrimp culture activity was badly effected in 1994 due to out break of diseases. The Shrimp farmers who have made huge investments on land cost, lease, inputs etc., faced a natural calamity situation due to out break of disease. The area effected due to diseases/cyclone for 2 crops was 23,170 hectares in 1994-95, 15,954 hectares in 1995-96, 9,480 hectares in 1996-97 and 41,282 hectares in 1997-98, which accounts to 30% to 60% of the area under cultivation in 2 crops. In financial terms the loss was estimated around Rs. 300 crores per annum in 1994-95 and 1997-98. The Department of Fisheries has introduced Coastal Aquaculture Regulation Scheme in 1997-98 for rendering effective extension work. Under the scheme Pamphlets and Posters are Printed and camps are conducted to create awareness among the farmers on culture practices and on shrimp health management.

II.27.10 DIAGNOSIS OF DISEASES :

The important major diseases that have occurred in the State are White spot diseases (Systemic Ectodermal, Mesodermal Baculo Virus). During November to January Red Disease during September to November Melanosis or Black spot disease and minor diseases are soft shell disease and Tail not disease were noticed. The main reasons for occurrence of diseases are improper water management practices, use of polluted water for culture without any treatment, excess dosage of feeding, viral infection during floods and water logging, stress due to sudden fluctuation in different paramets of water and now the diseases are also coming from the infected seed received from hatcheries. The field staff of Department of Fisheries are giving guidance to farmers on use of chemicals, antibiotic in feed to control the spread of diseases. The Department of Fisheries has advised the farmers to observe crop holiday for prawn farming during 1996. For identification of diseases of shrimp the Department of Fisheries has proposed to introduce PCR machine to identify the condition of health of seed and also Dot Blot Hydridisation technique for identifying the White Spot Syndrome disease of shrimp with the participation of the Marine Products Exports Development Authority, Central Institute of Backishwater Aquaculture, Government of India.

II.27.11 POLLUTION ASPECTS OF AQUAFIELDS - CONTROL MEASURES :

In coastal Aquaculture it is observed that there is adverse impact on environment both in biological and physical aspects owing to (a) salinity b) contamination and c) pollution. Pollution is caused due to extraneous intervention of substances or energy on ecosystem, leading to (1) deteriorative effects flora and fauna (2) hazards to human health (3) hindrance in fishing (4) contamination is caused owing to elevated concentration of substances in back waters leading occurrence of diseases in Aqua fields. Some times high salinity is causing adverse impact on biological phenomena.

In view of problems mentioned supra, GOI&GOAP have introduced regulation methods such a) registration of Aqua farms b) treatment of farm discharge Aqua resources c) biological treatment by introduction of new types of species and feed etc. Declaration of buffer zone to prevent salinisation of neighbouring agriculture lands, action to prevent conversion of Agriculture land to aqua farms, reduced stocking rate in Aqua ponds. Further, the Aquaculture Authority of India and the committees formed at Dist Level, State level and Govt. of India Level to look into all the above aspects to regulate indiscriminate activity of Aqua farming. Fisheries Department has also taken steps to establish "Aqua clubs" with Shrimp Farmers and Fresh Water Fish Farmers. Recently, Department has introduced culture of alternative species viz, Scami, Crab

and Fresh Water Pearl so on. Efforts are also being taken to introduce "Sea bass" (Lates calcarifer) culture, magur (clarias batracus) culture as an alternatives to shrimp culture to reduce adverse impact on the environment.

II.28 FISHERMEN COOPERATIVE SOCIETIES :

II.28.1 At the inception of the department, its chief object was the development of fisheries a source of food. Very soon it became obvious that in developing the fishing industry for the benefit of the consumer, an essential consideration was the producer, i.e., the professional fishermen and his welfare. The professional Fishermen of India are very poor, illiterate, ignorant and superstitious. They form an easy prey for exploitation by middlemen who are very often the richer people of their own caste. The middemen who lend money to the fishermen for the domestic and professional needs charge exorbitant rates of interest. The fishermen have to surrender their catches at cheaper rates to these middlemen as they generally trade in fish. They in turn sell the fish to public at higher rates, there by making good profits. As the earning of the fishermen is hardly enough to make both ends meet, they are always indebted to them. It is even said that this indebtedness is inherited from generation to generation. with a view to improve the economic condition of the fishermen and eliminate the influence of middlemen on them, the Fishermen Cooperatives have been organised in the State for the fishermen. They owe their origin to Sir Frederic Nicholson, father of fisheries and the cooperative movement. (1904). The Fishermen Co-operative Societies are organised in the department as per the powers conferred by section 3 of the A.P. Co-operative Societies, Act 1964 (A.P. Act 7 of 1964) vide G.O.Ms.No. 1982 F&A (Fisheries) Dept., dated 15.6.1966.

II.28.2 The objects of fishermen cooperative society are (a) to acquire and hold water courses such as rivers and tanks either by purchase or lease or otherwise from Government for catching fish by members either jointly or individually. (b) The Society may also borrow funds from members or other to be utilised for giving loans to members and also to enable the society to pay the lease amounts to Government on behalf of the society. (c) It may also carryout functions for (i) sub-lease the fishing right over the water courses to individual members or group of members and levy commission on the sub-lease (ii) act as an agent for the joint purchase of the fishing products (iii) Purchase and own implements or machinery for hire to its members and to collect funds for the purchase of these articles (iv) disseminate knowledge of the latest improvement in fish culture/fishing implements and methods and encourage its members to adopt them and (v) encourage thrift, self help and cooperation among its members.

II.28.3 The handicap to the successful working of these societies is the lack of suitable office bearers. most fishermen are illiterate and many of them are still depending for the active assistance render by officials of fisheries and cooperative department.

II.28.4 ORGANISATION OF FISHERMEN COOPERATIVE SOCIETY :

If the Fishermen of a village wish to have fishermen Cooperative society for their common economic benefit, they have to put in an application to the Assistant Director of Fisheries for organisation and registering a society signed by not less than 10 persons which is the statutory minimum over 18 years of age. The Asst. Director of Fisheries will forward the application to the Fishery Development officer / for investigation and report. A preliminary meeting of the signatories to the application should be conducted at a convenient public place. The time must be convenient for the fishermen to attend.

II.28.5 POINTS TO BE EXPLAINED :

The organiser shall explain to the fishermen, the intentions of Government and general principles of cooperation. He should encourage the fishermen to ask questions and answer them patiently. The organiser shall explain the bye-laws of the proposed society and ascertain if any amendments are necessary to suit local conditions. The proposed area of operation should be decided in the meeting. The postal address of the society must be stated in bylaw No. 1.

II.28-6 MEMBERSHIP AND SHARE CAPITAL :

Membership in each society should be confined to fishermen engaged in fishing industry. The value of share capital should be low to enable the even poorest among the fishermen to join the society as members and take a share each.

II.28-7 MANAGEMENT :

They have to select the directors 5 or 9 who are trusted to deal honestly with the money of the society and deal fairly without fear or favour, in attending to the affairs of the society. The names of board of directors and president elected by the general body be proposed in the bye-laws. If the fishermen are satisfied for registration of the society, the organiser should then take the signatures of not less than ten major persons who are willing to become members of the proposed society both in the application form and in the copy of the Bye-laws which they have adopted. A statement be prepared showing the name of each applicant, fathers name, age, occupation, place of residence, signature of the applicant. The application with its enclosures and organisers report be sent to Asst. Director of Fisheries.

II.28.8 STARTING :

The Asst.Director of Fisheries, who is Ex-Officio Dy. Registrar ofCoop Societies shall examine the organisers report with all its enclosures and send his opinion to Regional Deputy Director of Fisheries who is ex-officio Jt.Registrar of Coop-Societies and who will examine the application and bye-laws are in conformity with the cooperative societies Act and the rules framed and are suitable for carrying out the objects of the society. He will also satisfy himself that the proposed society has reasonable success with reference to local conditions and may also make enquires. The Commissioner / Director of Fisheries is competent to make alterations in the draft bye-laws sent with the application before permitting to register the society with the written consent of the applicants. After satisfying himself, he gives permission to the Asst.Director of Fisheries to register the society. Then the Asst. Director of Fisheries will register the society with a certificate of registration signed by himself and bearing his official seal. The copies of the registered bye-laws will be sent to the Regional Deputy Director of Fisheries, Central Cooperative Bank. Then, the officer should proceed to the village, assemble all the fishermen and elect a Chairman for the meeting from the applicants. The officer then read the certificate of registration. Then the Directors be elected in accordance with the bye-laws. The officer shall write the minutes of the meeting in the minute book and Chairman should sign on it. The officer shall then make the necessary entries in the admission book those who have paid share capital and obtain their signatures. The Share capital, entrance fee paid then be entered in the Cash book and receipts given thereof.

II.28.9 DIRECTOR'S MEETING :

A meeting of the Directors must be held immediately and officer shall attend to it. On completion of election, they proceed with the work such as new admissions, applying for lease of Water sources, etc. Entries on the first day and the first few entries in each register be made by the Starting Officer and subsequent entries made by the Secretary in his presence. The Starting Officer should submit a report to the Asst. Director of Fisheries specifying in detail the number of members joined the society, the date of starting the society.

II.28.10 WOMEN F.C.S :

Govt are giving special importance to emphasis on the role of Women in fishery activities and by organising exclusive F.W.C.S.S. So far 130 F.W.C.S. exclusively for women were organised. Working capital to selected F.W.C.S. are being granted at the rate of Rs. 1000 per member for 30 members in a society. So far

II.29.11 SUPERVISION AN ADMINISTRATIVE CONTROL :

The Supervisory staff assist the society in respect of Rectification work, Enquiry under section 38 of the Act whenever ordered, Enquiry into petitions against management of societies, Inspections etc. The administrative or supervisory officers have to check up the following records whether they have maintained properly. If any mistakes are there suitable suggestions be given and get them corrected.

1. Cash book
2. Minutes book
3. Admission register
4. General ledger
5. Share capital register
6. Subsidiary Ledgers
7. Visit book

An officer of the Cooperative Department in the grade of Deputy registrar of Cooperatives is assisting in Cooperative matters to the Director of Fisheries at Head Quarters. The ADF should maintain a Register of Cooperative Societies Registered, number of members in each society, paid up share capital, area of operation of the society, their indebtedness etc., He should also make a periodical visit & inspection n of records of these societies to ensure their proper function.

II.28.12 Two Regional Societies were registered, viz., The Andhra Pradesh Fishermen Central Cooperative Society Ltd., at Vijayawada now at Kakinada with jurisdiction over the Andhra and Rayalaseema areas of the State and the Hyderabad (now Telangana) Fishermen Central Cooperative Society Ltd., Hyderabad with jurisdiction over the Telangana area of the State. They were registered on 12.12.1960 and on 14.11.1960 respectively. Their main objectives are to organise and promote the primary fishermen Cooperative Societies, to promote and develop fishing industry, to increase production and marketing of fish on commercial basis, to strive for the welfare of the affiliated societies and fishermen and to transport and preservation of fish. The Govt have ordered to merge these regional societies with Apex Federation to make the Coop system, a 3 tier structure vide G.O.Ms.No. 456 Agri & Coop Det., dated 25.3.92.

II.28.13 Fish marketing Cooperative Societies may also be registered. These societies will play a vital role in the disposal of the catches for a favourable price. Which improve the economic condition of the fishermen.

II.28.14 CONCESSIONS GRANTED TO FISHERMEN COOPERATIVES :

1. In exercise of powers conferred by section 60 of the A.P. cooperative Societies Act, 1932 (Andhra area) all registered Cooperative societies in the State are exempted from making a contribution from their net profit to the " Audit fund".
2. The Fishermen Cooperative Societies are exempted from paying stamp duty and Registration fees, whenever they enter into a contract, lease or agreement (Notification of the G.O.I. dt. 23.10.1919 printed on page 245 of the Stamp Act (1933 Edition)
3. As per G.O.Ms.No. 776 A.H & Fisheries Department dated 31.12.1990, the first preference while leasing out the fishery of the water sources of Fisheries Department and local bodies on reasonable rentals.
4. The Fishermen Cooperative Societies are specially permitted under the bye-law to sub-lease or distribute the rights of fishery leases to any on or group of members of the society.
5. They can obtain loans from central cooperative society if joined as a member for purchase of Fishing implements, for lease of tanks, etc.,

II.28.15 A.P. STATE FISHERMEN COOPERATIVE SOCIETIES FEDERATION LIMITED :

The Andhra Pradesh Federation Limited, Hyderabad was registered in the year 1987. With registration No. II/Iu/87 with an area of operation of Andhra Pradesh State. The objects of the federation are to look after the needs of primary fishermen cooperative societies such as supply of fishing implements, marketing of fish etc.,

II.28.16 A.P. FISHERIES CORPORATION LIMITED, HYDERABAD :

This was established in 1974 under companies Act of 1956 and its employees were given V.R.S. in 1997-98.

II.28.17 There are 4061 fishermen cooperative societies functioning in the State. They are Inland primary societies for men (3680) Inland primary societies for women (84), Marine primary societies (259), Brackish Water primary societies (16) and District Fishermen Cooperative Societies (22).

II.29 WELFARE SCHEMES :

II.29.1 In addition to Fisheries development, the Department has taken up certain welfare schemes for the improvement of the socio-economic condition of the fishermen in the State. They are as given below :

1. Housing Scheme for fishermen
2. Group Accident Insurance Scheme

3. Relief cum savings scheme
4. Special assistance to fisherwomen cooperative Societies.

II.29.2 HOUSING SCHEME :

Both GOI & GOAP have been participating in the Housing Scheme for fishermen.

The scheme was first launched in the year 1987-88 with GOI & GOAP participation of 50:50 ratio.

The district collector can be allotted house sites to the selected Fishermen beneficiaries. The Department of fisheries has to identify the list of beneficiaries and District Collector has to approve the list. The houses are to be constructed through A.P. Housing Corporation utilising the funds released by G.O.I. and Government of Andhra Pradesh. This scheme is taken up as per Government orders given in the table.

The details of houses sanctioned / constructed are given below.

S.NO.	YEAR	No.of HOUSES SANCTIONED	AUTHETICATION
1	1987-88	200	G.O.Ms.No. 88 F&A (Fish.II) dept dt. 11.2.88
2	1988-89	300	
3	1992-93	1540	G.O.Ms.No. 263F&A (FishII) Dept., dt 28.3.91
4	1993-94	5000	G.O.Ms.No.20 A H & F
5.	1995-96	2000	dt. 19-2-94 G.O.Ms.No. 31 AH&F dt. 25.3.1993
6	1996-97	800	G.O.Ms.No.110 AH & F dt. 25.9.97 G.O.Ms.No. 8 AH&F dt. 5.7.98
7	1997-98 sanction	1460	G.O.Ms.No. 100 AHD D&F Dept., dt. 8.10.99
8	1998-99 (Special Housing Scheme)	25000	G.O.Ms.No. 13 Housing R H & Dept., dt. 9.2.99

II.29.3 GROUP ACCIDENT INSURANCE SCHEME :

It is Centrally Sponsored Scheme which was initiated in the year 1987-88. The Scheme provides relief to families of fishermen who die or sustain permanent disability in an accident while in fishing. The National Federation of Fishermen Co-operatives, New Delhi has taken a National-wide group Accident Insurance Policy to cover all the Fishermen. An amount of Rs. 35,000/- in case of death will be paid to the Legal heir. Similarly Rs. 35,000/- in case of total disability and Rs. 17,500/- in case of partial disability be paid to the person by the Insurance Company which has given the policy. The Fisheries Development Officer has to assist the fishermen for filing the application along with necessary certificates to the C.F/D.F through the Asst.Director of Fisheries, which is turn is sent to the FISHCOPFED/ Insurance Company for payment.

This scheme is implemented as per Government orders given below :

Year	Government order No	Amount Sanctioned (Rs.in lakhs)
1991-92	G.O.MS.NO. 496 F&A (F.II) DEPT DT. 9.7.1991	10.00
1992-93	G.O.MS.NO. 1634 F&A (F.II) DEPT., DATED 15.12.92	14.10
1993-94	G.O.MS.NO. 175 AH&F DEPT., DT. 8.10.93	14.10
1994-95	G.O.MS.NO. 110 A H & F (F.II) DEPT., DT. 13.7.94	15.60
1995-96	G.O.RT.NO. 163 A H & F F(F.II) DEPT., DATED 30.3.96	13.66
1996-97	G.O.MS.NO. 179 AH & F(F.II) DEPT., DATED 31.2.97	13.65
1997-98	G.O.MS.NO. 17 AH & F (F.II) DEPT., DATED 11.3.98	18.00
1998-99	G.O.MS.NO. 32 AH & F (F.II) DEPT., DT. 27.2.99	12.00
1999-2000	G.O.MS.NO. 94 AH & F (F.II) DEPT., DT., 28.9.99	12.00

II.29.4 RELIEF CUM SAVINGS SCHEME :

The Scheme is for prolding assistance to Marine Fishermen in Coastal districts in non-fishing months. The Marine Fishermen has to contribute at the rate of Rs. 45/- per month for a period of 8 months which amounts to Rs. 360/- and will be given matching share of State Government and Central Government Rs.

720/-. The total amount of Rs. 1080/- will be given to fishermen during non-fishing months. The Field Officers of the department has to inform the fishermen and motivate them. This scheme is implemented as per Government orders given below:

YEAR	G.O.NO. & DATE
1992-93	G.O.MS.NO. 9 F&A (F.II) DEPT., DT 18.12.92
1993-94	G.O.MS.NO. 203 A H & F DEPT., DATED 2.12.93
1994-95	G.O.MS.NO. 110 AH&F DEPT., DATED 13.7.94
1995-96	G.O.MS.NO. 163 A.H & F DEPT., DATED 20.3.96.
1998-99	G.O.MS.NO. 429 AH&F DEPT., DATED 24.8.98

II.29.5 ASSISTANCE TO FISHERWOMEN COOPERATIVE SOCIETIES :

The fisherwomen are involved in the following activities :

a. Marketing of fish

b. Mending of Nets

c. Processing of fish like Salting, Drying, Smoking

d) Pickle - making

The Fisherwomen are now organised into self help groups and getting financial assistance from Dist. Rural Development Agencies. The Scheme is intended for women cooperative societies. Under this scheme, working capital of Rs. 1000/- to each fisherwomen is provided to undertake fish marketing. This scheme was started in the year 1998-99. This scheme under implementation as per Government Orders of G.O.Rt.No. 398 AH & Fisheries (Fish.II) Det., dated 10.8.99 and G.O.Rt.No.492 AH DD & Fisheries Dept. dated 25.9.99.

II.30 COMMON FACILITY CENTRES UNDER N.C.D.C. SCHEME :

Under the IMFP Phase II of N.C.D.C. Scheme,. on amount of Rs. 190.00 lakhs has been available for providing infrastructure facilities, including common service facilities, auction halls, etc. Therefore, after discussing with Commissioner of Fisheries and based on the member of Representations received from various societies including the proposals received from the District Collector, Kakinada and keeping in view of the rapid charges in requirement and genuine wants of the people of Fishermen Community. After careful

examination., it is proposed for construction of common facilities centers (Community Hall) and it has been decided that a "Common Facility Center", which including an office Room for the F.C.S., a Store Room-cum-Go down for offering service facility and also common hall of reasonable dimensions, to provide facility for congregations, meetings, marriages, community related festivals, etc., Therefore, it has been tentatively decided to construct a Common Facility Centre with a minimum dimension of 60 X 30 out of which 30 X 45 will be earmarked for the congregation hall purpose, with a dias butyl in. Besides the same, an office room and a godown each of 15 X 12 with attached toilet will provided.

In addition to the above facilities, the Hall can be utilized as a shelter in case of emergencies, with a provision for approach staircases on either side of the buildings, to enable the fishermen to go to the top of the hall. Therefore, this Common Facility Centre will offer the following facilities.

1. Provides a Common Community Hall for all congregation.
2. Provided on Office Room for administering Cooperative Society matters.
3. Provides a Godown - cum - Store Room for making available the required inputs as well as for storing important material required for the Members of the F.C.S.s.
4. Will serve as a Cyclone Centre in case of emergency.
5. Well serve as a permanent asset to the FCS, with a regular income on the building.

PATTERN OF FINANCIAL STRUCTURE :

Cost of each Common Facility Center in Rs, 10.00 Lakhs.

Out of which :

25% i.e., 2.50 lakhs in Subsidy

25% i.e., Rs. 2.50 lakhs Share Capital Loan (Interest free)

50% i.e., Rs. 5.00 lakhs Loan, interest will be levied @ 15% p.a.

The above loon (principal + interest) is repayable by the Society / Societies in 10 years on monthly instalments basis to the Government.

The Societies will get revenue for repayment is through leasi out and etc., besides keeping a portion of it to maintain their Office.

It is expected that a monthly rent of Rs. 1500/- will be collected for the Office building and another Rs. 1500/- for the Godown-cum-Store. The common hall will be utilized for marriages, festive accessions. Nominal amount of Rs.500/- for each day's

meeting will be collected from the users. It is expected that at least 40-50 such functions will take place in a year and the total income would be :

- Office Room	:	Rs. 1500x12 = Rs. 18,000/-
- Godown	:	Rs. 1500x12 = Rs. 18,000/-
- Community Hall	:	Rs. 500 x 12 = Rs. 6,000/-
Total		Rs. 42,000=00

Rounded off to Rs. 42,000/- per annum

Therefore, there is an assured income of Rs. 42,000/- on Common Facility Centre, which is proposed under the NCDC Scheme and the same will be remitted as repayment by the Society. In due course, the Society will become the owner and far any default, the Building can be taken over by the Government / AFCOF and put to public auction, for recovery of the dues.

It is estimated that each common facility center/community hall would cost about Rs. 10.00 lakhs which includes Community Hall Compound Wall, Common Toilets, Office Room, Godown, Watchman quarter etc.,

Further, it is also proposed to have at least 2 such Common Facility Centres in each of the Districts covered by the NCDC Scheme of IMFP (Phase - II), viz., Srikakulam Vizianagaram, Vizag, West Godavari, Krishna and Guntur.

1. Srikakulam	a) Donkuru	Ichapuram
	b) Srikakulam	Srikakulam
2. Vizianagaram	a) Chapalakancheru	Bhogapuram
3. Visakhapatnam	a) Thikkavaripalem	Parvada
	b) Kondapalem	Yalamanchali
4. West Godavari	a) Mogalthuru	Naraspur
	b) Perupalem	Naraspur
5. Krishna	a) Machilipatnam	Bandar
	b) Laxmipuram	Malleswaram
6. Guntur	a) Repalle	Kuchinapudi

II.31 CIVIL WORKS :

II.31.1 BUILDINGS :

Buildings are classified under the categories of (a) Buildings borne on the register of buildings of the public works department (b) Government buildings not borne

on the register of buildings of the public works department (c) private buildings leased for office accommodation or residential purposes by Government.

The term "Residential Building" referes to a Government building used as a residence by a Government servant. Buildings which are not used as residence are termed as "Non-residential Buildings".

II.31.2 MAINTENANCE OF REGISTER :

A Register should be kept for all the existing buildings and other permanent works such as fish farms, wire works, well etc.. The register will have the following columns.

1. Name of the building or permanent work
2. Date of erection or purchase
3. Record value
4. By whom of how occupied with dates
5. Nature of building / permanent structure, etc
6. Cost of subsequent additions alternation and special repairs which will increase the capital cost of the work.

Full details should be furnished in each case. A seperate page should be allowed for each building or permanent work to enable the particulars required in column (5) being accorded. The officer in charge should see that all buildings permanent works in his charge are kept clean and tidy. The entries in the register should bee attested by the officer-in-charge and scrutinized periodically by the Head of the Office.

The improvements effected should be envisaged in the register.

Proposals for construction or extension of works : When it is considered for permanent work, proposals should be submitted to the Head Office by the controlling officer concerned furnishing information on the following points.

1. In what kind of work proposed
2. The site available
3. The amount of work which is being done or likely to be done
4. The performance structure which it is considered should be constructed.

Preparation of detailed plans and estimates to the scheme / work can be undertaken only after the administrative approval to the scheme, is accorded by the competent authority only provisional estimates are required for obtaining administrative approval. It is only, after the receipt of the administrative approval of the competent authority through the Heads of the Departments that (a) preparation of detailed plans

and estimates for schemes (b) preparation of detailed plans and estimates for competent works of the scheme need be undertaken.

The completion of work in accordance with the sanction and approval, executed by the P.W.D. for fisheries Department or Departmental Executive Engineer of the Department will be intimated in writing by the Executive Engineer to the departmental officer and such formal intimation will constitute the handing over the work to this Department.

II.31.3 ADMINISTRATIVE APPROVAL :

The Commissioner of Fisheries is empowered to accord administrative approval. The financial powers delegated in respect of civil works and repairs to the Commissioner of Fisheries are for worth Rs. 10.00 lakhs and repairs Rs. 1.00 lakh vide G.O.RT.No. 8 AH, DD and Fisheries (Fish I) Department dated 12-1-2000. The technical sanctions are to be obtained to the competent authority of works.

The executive engineer of the Department will assist to the Commissioner of Fisheries in execution of all Civil works.

II.31.4 WORK EXECUTION :

After obtaining the administrative and technical sanction of the competent authorities, tenders for works are invited from competent contractors. The tenders are scrutinized by the executive engineer and put before the tender committee to finalise the contractor. On finalisation work order to be issued to the contractor following the rules and regulations.

No payments are to be made to contractors unless upon the measurement by an officer of the department/not below the rank of Asst. Engineer of the whole work done up to date. Advances to contractors should not ordinarily be given without the production of sufficient materials at the work spot to coop the advances and the advance should not excess 75% of the value of such materials.

II.31.5 MEASUREMENT OF WORKS :

Measurements of work, who should immediately record them in the measurement books (C.F.298) supplied to them. Each set of measurements should end with the dated signature of the officer who made the measurements. The measurement book is a most important record since it is the basis of all accounts of quantities, whether of work done of peace of work or contract,. Or of materials received whicn have to be counted or measured. Out set of measurements, should being with entries showing :

1. In the case of work done :-

a. Full name of work as given in the estimate
b. Situation of the work
c. Name of contractor
d. No and date of agreement, if any
e. Date of commencement of work
f. Date of completion of work and
g. Date of measurement

2. In case of material supplied :

a. Name of the supplier
b. No and date of his agreement if any, or of the order
c. Purpose of supply
d. Date of written order to begin supplies
e. Date of actual completion of supplies and
f. Date of measurement

Each set of measurements should and with the dated signature and designation of the officer who takes the measurements. The signature of the contractor should be obtained in the measurement book after each set of measurement below the statement "I accept the measurements"

II.31.6 CHECK MEASUREMENTS :

Check measurement is intended to check errors and prevent fraudulent entries. It should be done with not most case. The check measurement should be done by the Asst. Director of Fisheries / Executive Engineer of Chief of the work.

II.31.7 COMPLETION REPORT :

When a work has been duly completed, the officer who pays for it should have a completion report and forward it to the Accountant General, or other prescribed authority. The report should be prepared in common form No. 296 every completion report should show the name of the work. The number and date of the order sanctioning it, the amounts of expenditure sanctioned and to actual expenditure incurred. If the actual expenditure exceeds the amounts of the sanctioned estimate. The completion report should be sent to the prescribed authority through the authority which sanctioned the estimate. The reasons for the excess expenditure should be stated in the completion report and the sanction of the authority competent to sanction the total expenditure should be obtained and recorded.

III. PRESENT ROLE OF THE DEPARTMENT

III. PRESENT ROLE OF THE DEPARTMENT :

III.1: Development of Fisheries well known as "Blue Revolution" has made rapid studies in the recent years. Close on the heels of green and white revolutions. The State Andhra Pradesh has earned the distinction in several fields of Aquaculture. The Department of Fisheries which has started its activities in early fifties with survey of water sources, Natural collection of fish seed, designing of new craft and tackle. It has transformed its role to standardise the technologies developed to suit the local conditions, take up production activity with orientation to demonstration and transfer of technology. During this period, the Department of Fisheries has established fish seed farms, Boat Building Yard as production cum demonstration unit. The Research activity has been taken up by ICAR Institutes which have set up their research units at Kakinada, Vizag, Nagarjunasagar and also by A.P. Agricultural University. The Institutional research work was backed up by extension net work by having fisheries extension units in 56 blocks. The fishermen are mostly traditionally superstitious, educationally illiterate, economically poor and socially backward communities. The Government has taken up the cardinal principle that welfare of Fishermen as the motto Welfare Schemes for supply of fishing inputs were taken up.

III.2 The training in fisheries was given special importance during sixties and a fisheries training institute was started at Kakinada during 1957. An Inland Fisheries Training Center at Warangal were supplemented with 2 more such centers in Rayalaseema and Coastal Andhra regions and one more Marine Fisheries Training Institute at Machilipatnam. Several fisheries schools have been established which were later handed over to Panchayat Raj Department during 1980 except the school at Lawson's Bay, Visakhapatnam.

III.3 Infrastructure is the backbone of any activity starting with small schemes like infrastructure facilities scheme at Vadacheepurupalli and Sorlagondi during V Five Year Plan, the need for Integrated Marine Fisheries Projects was felt during 1970s and ultimately the World Bank has sanctioned during 1979 an Integrated Marine Fisheries Project for construction of Fishing Harbours at Vizag, Kakinada, Nizampatnam, Harbour facilities, Post harvest Infrastructure, overseas study tours etc. This was followed up by another harbour at Bhavanapadu during 1980 and at Machilipatnam during 1999, 2 fish landing centers and fishery industrial estate etc.,..

III.4 There was a great awakening among the private sector during 1970 - 1995 during which period private sector participation and investment was high in all sectors. Started as a small project of construction of fish ponds in Kolleru area during 1980s, it has extended to many coastal districts and command areas in upland areas and now there is 1.00 lakh hectare of water spread area of fresh water ponds. Started as small collection centers of fish seed in 1960s, now there are 150 fish seed farms within 6 to 7 districts which are producing over 6000 lakhs of fry. Many ice plants, cold storages, transport vehicles are established. The mechanised fishing trawler constructed as an innovative design during 1959 have increased in their fleet strength and capacity and by the time 3 harbours were constructed in 1980s. They were already not sufficient to provide berthing facilities to all these vessels. The coastal Aquaculture which has started with demonstration projects in public and private sector in 1980s has picked up during 1990-95 and more than 70,000 farmers have taken up this activity. Corporate sector has also invested huge amounts for farms, hatcheries, feed mills but have to face a set back due to problems related to pollution, diseases and regulation for sustainable Acquaculture.

The Andhra Pradesh State has a vast resources of Inland, Marine and Brackish Waters.

III.5 CLAUSES FOR THE DEVELOPMENT OF FISHERIES :

A. INLAND WATERS :

The State ranks second in Inland Fish production in the country. In Andhra Pradesh perennial or seasonal ponds, tanks, natural lakes, canals, wells, quarily pools, swamps and seasonal accumulation of water shallows etc., resources in State of Andhra Pradesh are length of rivers and canals 11,514 K.M., Area of reservoirs 2.34 lakh hectares and area under tanks and ponds 5.17 lakh hectares. The present level of fish production in the state in Inland water is 4.07 lakh tonnes. It indicates that the production levels in all the water sources are comparatively low and the production is yet to be increased. Inspite of the availability and vast resources of cultivable and capture waters in the state, level of production and productivity have not been increased. There is a gap between potential of 8.00 lakh tonnes and actual yields. In the recent past, many areas were brought under culture in the State. Some of the farmers have achieved the production of fresh water fish 10 tonnes per hectare and still many farmers are not reached these production level.

In Indian Fisheries Act 1897 and the Indian Fisheries A.P. Extension and Amendment Act 1961 empowers the State Government for introduction of licensing schemes and conservancy save the fishery wealth of the waters from destruction of fish seed and breeders by imposing closed season and mesh regulations. Besides the licensing system, the method of fishing by imposing various conditions to avoid depletion of fishery in a particular water source. The

Indian Fisheries Act of 1897 (Central Act IV of 1897) empowers the Government to make any rules for the introduction of conservancy measures and licensing system in any waters.

The State Government have created a separate Fisheries Department to take up the various schemes/projects in Inland waters vide G.O.Ms.No. 2414 Agril. Department dt. 4.11.1959.

The Departmental officers are empowered to exercise the powers conferred by sub-section (1) of section 7 of the Indian Fisheries Act 1897 in respect of any offence punishable under section 4 or 5 under any rule made under section 6 of the said act.

B. MARINE WATER RESOURCES :

The State ranks 6th in Marine Fish production in the country.

The Andhra Pradesh State has a vast inshore fishery base along its long coast of 974 KM plus an exclusive economic zone of around 33024 square kilometers area which is unpolluted and largely unexploited. The estimated potential resources of E.E.Z of the State is around 4.00 lakh tonnes, of which the present exploitation is 1.82 lakh tonnes. The bulk of the resources beyond 50 meter depths are yet to be exploited even after a more than a decade since the declaration of EEZ. Thus, the state provides a tremendous potential for growth of the fishery industry and it is capable of becoming an important sector in the State and national economy. It is also a major thrust area for exports with a great scope for value addition through proper processing and package of the products.

The Government of India have declared a exclusive economic zone of Martian States in the year to enable the State Government to develop the marine fisheries of the State. The A.P. State while creating a separate Department vide G.O.Ms.No. 2414 Agril Dept., dated 4.11.1959 permitted to formulate various projects/schemes for Marine fisheries development in the State. The State Government also legislated the A.P. Marine Fishing Regulation Act 9 of 1955 and A.P. Marine Fishing Regulation Rules of 1996 for regulation of fishing by different Fishing vessels such as traditional craft motorised craft and mechanised boats. 1. The Fishing craft and Tackle are regulated by Registration under Rule 3, Chapter II of A.P. Marine Fishing (regulation) Rules 1995. 2. The issue off-licences and their renewal vide rules 7 of Chapter III of Rule 1995. 3. Observing closed season for sustainable fish production vide G.O.Ms.No. 43 AH & Fisheries, Dept., 16.4.99.

C. BRACKISH WATER :

The A.P. Stands first in Coastal Aquaculture. The other products mainly are of lobsters, cuttle fish, Squids, crabs and fish. The chief source of shrimp production

for seaport are mainly from capture fishing in the sea which has over the last few years exceeded sustainable levels of exploitation (0.25 lakh tonnes) and hence shrimp production in quantity has not shown any drastic increase. Since the production levels from capture-based fishing would remain at current levels. Unlike in capture fishing, a choice of compatible technology is made available to produce shrimp and other crustaceans through Brackish Water Aquaculture. The quality and quantity of the yield in Brackish water aquaculture to a great extent be manipulated, to achieve optimum levels of production.

The shrimp is the largest chunk of Marine exports both in quantity and value. The brackish water aquaculture assures high importance in the state as well as in India. This is further added by the high potential for shrimp and other crustaceans farming, given the vast unexploited areas of land for Aquaculture.

India has total estimated brackish water area of around 14 lakh hectares suitable for shrimp farming which only around one lakh hectares is presently under culture. Out of which, the State of Andhra Pradesh have 1.50 lakh hectares area of which around 0.80 lakh hectares are utilised. Still there is a 50 percent of the area to be developed for Brackish Water fish and prawn production.

The State of Andhra Pradesh have started Brackish Water development vide G.O.Ms.No. 1562 Agril.Dept., dt. 11.7.1960 by constructing an experimental Brackish Water fish farm at Kakinada in East Godavari District. In view of enormous export demand for Shrimp, the Government of India have issued guidelines to all the martine states for development of Aquaculture.

Basing on that the State Government have issued orders for lease of Brackish Water lands and their development, section 3 (1) and section 3 (2) (b) of the environment (protection) Act 1986, and rule 5 (3) (d) of Environment protection rules 1986, the regulation of construction of ponds in CRZ areas upto 500 meters from high side lane and also areas surrounding the creek depending on its width are the regulation measures imposed under CRZ.

Further while approving the C.R.Z. plans of A.P. State the Government of India have agreed for 600 metres central Regulation zone along rivers, creeks and other water bodies vide Lr.No. 317011/40/95 dt. 27.9.1996.

Due to hopparzed development of Brackish water Aquaculture the supreme court has given a Judgement dated 11.12.1996. The Aquaculture Authority was set up by Government of India under the relevant provisions of the environment (Protection) Act 1986. The State Government have constituted State level and District level committees for the purpose of processing applications for setting up of Shrimp Aquaculture farms vide G.O.Ms.No. 124 AH & Fisheries (Fish II) Dept., dt. 5.11.1997 for further development of Brackish Water Aquaculture.

III.6 SETTING UP OF AIMS & OBJECTIVES :

The aims & objectives of the fisheries sector broadly are as follows

* to give cheap & nutritious food to the people
* to generate rural employment
* to promote exports from the country to earn foreign exchange
* Utilise the natural resources which are other wise not put to use for food production

The interests of the share holders dealing with the above matters have to be coordinated to have an integrated approach of setting up of objective. This will usually be done by the top level management like Director of Fisheries, Secretary to Government, Minister for Fisheries, Cabinet of Ministers etc.,...

III.7 POLICY DECISIONS :

The Policy is broad-frame work of planning the development of the sector which is usually finalised by parliament legislature and general bodies in the case of Cooperatives & Corporations. The suggestions of experts is also taken while formulating of polices. The interface of the Department with these bodies will be in the following activities.

* Budget presentation to the Legislature
* Legislative Committees
* Enactment of the bill & framing of Rules, Amendment to the Acts
* Public Accounts Committee dealing with Audit matters
* Fisheries (Constituted by GOI) and State Level Committee.

III.8 IDENTIFYING THE STRATEGIES :

The Strategy is an approach based on the policy decided on how to achieve the objectives. The strategies are the functions of high & middle level executives. In Fisheries, the strategies for Marine Fisheries development can be by mechanisation (or) diversification of fishing methods etc. Similarly in Inland Fisheries the strategies for fresh water fish production can be reservoir fisheries development (or) construction of ponds for fish culture etc.,, In Brackish water the strategies can be satellite farming etc.

III.9 HOW TO IDENTIFY THE STRATEGIES ? :

The Field Officers have to conduct surveys, share holder Analysis and conduct meetings with them to discuss on the strategies to be adopted. In the Department, the workships, seminars will help to select the suitable strategies for different sections.

III.10. FORMULATION OF PROGRAMMES & PROJECTS AND FIXING OF THE TARGETS TO ACHIEVE THE GOALS :

The Project is a time-framed activity with definite goals to be achieved. The programme is an activity for sustainable development implemented continuously. Depending on the situation, the field officers have to formulate the project/ programmes/schemes. They have to collect data on

* Resources available (Materials, Men, Machines, Technology)
* Data of previous performance
* Viability of the technology
* Environmental parameters
* Economic feasibility
* Social benefits to be accrued
* Time scheduling of the activity & management aspects etc.

The Field Officers have to contact and obtain data which will be produced by the Asst. Director of Fisheries and suitable projects are formulated. The scheme has to be broken down in to details to smaller tasks and targets have to be set for all such tasks and targets have to be set for all such tasks or activity so that performance can be evaluated at a later stage with reference to targets fixed. The District Officers has to contact District level funding agencies like SC Corporation, DRDA, BC Corporation, Banks etc., for formulating the different projects.

III.11. MONITORING OF THE IMPLEMENTATION OF THE SCHEMES :

The responsibility to monitor the implementation of the scheme lies with the field level officers. The Supervision on implementation of the scheme will be done by District Officers & Regional Officers. The District Officer will monitor the implementation of the Projects/Programmes/Schemes based on the reports, reviews, inspections & Interaction with the share holders.

Similarly the Regional Deputy Director and Director of Fisheries will oversee the implementation of the schemes being implemented. The District Collector is the authority at the District level for supervising developmental activity. The District Officer has to report to the District Collector, appraise the programs of implementation, problems confronted. The District Collector is the authority for approval of lease matters & finalisation of beneficiaries etc. The District Collector is the Chairman of Fish Farmers Development Agencies and Brackish Water Farmers Development Agencies. In the event of natural calamities, the District officers and field officers have to be in close contact with Revenue Authorities in all cyclone flood relief works.

The District officers and field officers have to interact with Production units like Boat yard, Net making plants, Feed mill plants and hatcheries for supply of inputs under different schemes. The field officers have to conduct on - the farm demonstration activities to see that the transfer of new technologies is done effectively.

The regional officers will co-ordinate with the District level funding agencies in the Zone in implementation of the projects.

III.12. FEED BACK & EVALUATION :

The feed back is the last but not least item of work as the success of all the schemes depends on how better the feed back has been collected & evaluated. The mechanism for monitoring the implementation & collection of feed back is by extension services. The fishermen, & fish farmers are the primary stake holders in this activity. The extension tools like farmers meet, participatory Rural Appraisal (PRA). Independent Evaluation studies by experts, Mid term appraisal by the executives will help to evaluate the performance of the project and take remedial action to avoid such cases in future. In such cases, the interface is with exerts & funding agencies.

III.13 STRATEGIES FOR FISHERY DEVELOPMENT :

INTRODUCTION :

In order to fulfil the commitments given to the people for achieving **SWARNA ANDHRA PRADESH**, a working paper was prepared in Fisheries sector for eliciting the views from the people in the district level, regional level and State level conferences held. The views/inputs given by them at the meetings and in writing have been incorporated and final paper is submitted with strategies identified for fishery development in the next 5 years. Development of fisheries is not for fishermen alone. But to all those who connected with it directly or indirectly. In fact it is an employment generating activity and promotes economic activity of the state as well as the country. The Department of Fisheries has been implementing Developmental schemes for enhancing fish production and its increased consumption by the people, thereby generating employment to fishermen, fish farmers, technocrats & entrepreneurs involved in the activity.

III.14 FISH IS AN IMPORTANT SOURCE OF

♦ FOOD

Fish is a protein-pack with high protein value (19.5)gms but lean in fats (2.3)

as against Goat meat which has proteins		(18.5)	&	Fat	(13.3)
and	Egg which has proteins	(13.3)	&	Fat	(13.4)

(in 100 grm.s of flesh)

The per capita consumption of fish is 40.0 Kg.s/p.a in Japan
21.3 Kg.s/p.a in America
3.7 Kg.s/p.a. in India and
4.0 Kg.s/p.a. in Andhra Pradesh.

-Campaign for Public awareness will be taken up and nutritional value of fish to double the per capita fish consumption in the state.

III.15 ♦ GENERATION OF EMPLOYMENT

The Fisheries sector provides direct employment to 9.96 lakhs
and indirect employment in associated activities to 4.09 lakhs. Total 14.05 lakhs
The addl. employment in next 5 years would be 7.55 lakhs. Total 21.60 lakhs
The addl. employment in next 20 years would be 20.00 lakhs. Total 41.60 lakhs

- Career Guidance cell will be set up for creating of awareness of employment opportunities will be created at State Institute of Fisheries Technology.

III.16 ♦ COMMERCE

The fish and other marine products are creating lot of economic activity not only within the state and country but also by exports to other countries

The Value of marine products exports to other countries.

The Value of marine products from India (1998) is Rs. 4710 Crores
and from state is Rs. 2000 Crores

(Rs. 1042 Crores from Vizag port & the rest is from Chennai port)

- The career Guidance cell will be equipped with Geographical Information system on available Natural Resources & utilisation, Data bank of fishery resources available on CR Rom and will help the entrepreneurs to prepare project reports.

III.17 ♦ RECREATION:

The Fisheries sector has a potential for recreation and provides scenic beauty and tourist attraction in the activities like

Boat riding in lakes & reservoirs,

Establishment of Angling clubs

Ornamental fish and aquaria

Development of fishermen villages for tourist attraction as in Europe and

Establishment of marine parks etc.,

-The Department of Fisheries will promote these activities with the coordination of Tourism Department.

III.18 ♦ HEALTH :

Fish is an important source of A,D,E&K vitamins, and in fact it is called as Vitamin pack.

Murrel seed is administered with medicine for Asthma patients on Mrigasira day

Gambusia, Labestes fish can eradicate Mosquito menace.

Sweage water fish culture will not only improve fishery wealth, but also can control

Mosquito menace & **Pig menace**

Fish is good for heart patients

The Department of fisheries promote those activities with the co-ordination of Medical + Health Department.

III.19 VISION - 2020

The Fisheries sector has been identified as a potential growth engine out of 6 sectors in Agriculture. It was envisaged that by 2020, Andhra Pradesh will have a thriving fisheries sector with fish production increasing four times its current size, producing 10 lakh tonnes per year.

The following initiatives are identified.

- Develop the Fisheries value chain & boost exports
- Create & promote investment in infrastructure to support the development of fisheries
- Ensure the setting up of institutions to build skills
- Ensure sustainable development
- Promote the welfare of the States Fishing community through investments in housing, education & health.
- Re-defining the role of Dept. of Fisheries to be made as pro-active and co-ordinating agency

III.20 FISHERY POTENTIAL AND TARGETS UNDER SWARNA ANDHRA PRADESH :

Andhra Pradesh stands first in Prawn production from Brackish water culture, Second in Fresh Water Fish production, and Seventh in Marine Fish production

The targets proposed for enhancing the production over the next 5 years are as follows.

S.No.	Source of Production (Lakh Tonnes)	Potential	Existing 98-99 Achievement	99-2000 Achieved	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	By 2010
1	FreshWaterFish	8.00	2.38	3.45	4.50	4.05	4.50	5.45	5.70	5.80
2	Marine Fish	4.00	1.30	1.42	2.00	1.45	2.35	2.25	2.95	3.20
3	Shrimp/prawn	0.00	0.43	0.59	0.55	0.70	0.75	0.80	0.85	1.00
	Total	**12.00**	**4.11**	**5.46**	**7.05**	**6.20**	**7.60**	**9.00**	**9.50**	**10.00**

III.21 EMPLOYMENT OPPORTUNITIES IN FISHERIES SECTOR :

S.NO.	CATEGORY OF PRODUCTION	OCCUPATION	PRESENT	EMPLOYMENT IN NEXT FIVE YEARS		EMPLOYMENT BY 2020	
			Status	Status	Addl.	Status	Addl.
1	FRESH WATER	CAPTURE	2.93	3.13	0.20	4.00	0.87
2	MARINE	CAPTURE	1.97	2.07	0.10	3.00	0.93
3	FRESH WATER	CULTURE	2.70	4.70	2.00	9.00	4.30
4	BRACKISH WATER	CULTURE	2.36	3.70	1.34	7.90	4.20
5	ALLIED ACTIVITIES 1	MARKETING	2.20	4.20	2.00	9.00	4.80
	2	PROCESSING	0.20	0.50	0.30	2.00	1.50
	3	ICE MAKING	0.15	0.35	0.20	0.70	0.35
	4	FEED MAKING	0.30	0.50	0.20	1.00	0.50
	5	HATCHERIES	0.30	0.50	0.20	1.00	0.50
	6	BOAT BUILDING	0.20	0.35	0.15	0.70	0.35
	7	NET MAKING	0.20	0.50	0.30	1.00	0.50
	8	POND CONSTRN	0.15	0.35	0.20	0.70	0.35
	9	INPUT Mannure	0.20	0.45	0.25	1.00	0.55
		Medicines, Machinery etc					
	10	Miscellaneous	0.19	0.30	0.11	0.60	0.30
	TOTAL		14.05	21.60	7.55	41.60	20.00

III.22 INITIATIVES

In order to achieve the goals under Swarna Andhra Pradesh, number of initiatives and policy interventions are proposed to be taken by the Government.

♦ DEVELOP FISHERIES VALUE CHAIN AND BOOST EXPORTS

The State has bountiful fresh water resources. There are 102 reservoirs with a water-spread area of 2.34 lakhs Ha. There are 74,051 perennial, long seasonal and seasonal tanks with a water spread area of 6.23 Lakh ha. There are 90,000 Ha. of ponds constructed exclusively for Fish culture.

Present Status	Proposed Interventions
♦ Low Rate of fish Production	Steps to increase the rate of production
in Tanks : 750 Kg.s/Ha	to 1800 Kg.s/Ha
in Reservoirs 30 Kg.s/Ha	to 150 Kg.s/Ha
in Ponds 1500 Kg.s/Ha	to 3000 Kg.s/Ha to 5000 Kg.s/Ha gradually
♦ Lack of comprehensive Inland fishery policy	- Comprehensive legislative measures for inland fisheries as in the case of marine fishing.
♦ **Silting up of tanks**	- Desilting & widening of tanks - Connecting of smaller tanks with other water bodies
♦ **Indequate supply of inputs**	- New approaches in stocking of seed Stocking of fingerlings/yearlings as against fry/spawn. - Provision of transitional tanks near water bodies for rearing fry to fingerlings and supplement the effort by introduction of modern methods.
♦ **Only selected varieties (Catla Rohu etc.,) are cultured.**	- Diversification to alternate species like F.W.Prawn, Catfish, Murrel & F.W. Pearl culture - Providing supplementary feed in tanks and reservoirs - Adopting Integrated fish culture methods with Duckery, Poultry etc.,
♦ **Infestation of tanks by weeds.**	- Desilting and deweeding of tanks by Biological Control methods, and manual methods.

- Eradication and utilisation of weeds for Manures, Fodder, and other industrial purposes including perfumes

Lease of water bodies by different depts.

- Long leasing of all water bodies exclusively by Department of Fisheries

Effective utilisation of Reservoirs

- Stocking of fingerlings adequately
- Introduction of cage culture
- Auctioning of selected reservoirs & Intensive fish culture
- Enforce regulatory measures like mesh size Prohibitive methods of fishing

River ranching

Incentives for Fish culture

- Incentives for fish culture

- ♦ Addl taxes like NALA are being levied
- ♦ Power tariff is high on par with Industry

- To encourage fish farmers by treating aquaculture on par with Agriculture for giving concessional tariffs (power etc.), exemption from additional taxes like NALA exemption of sales tax on prawn seed & feed and giving other concessions.
- Revival of Fish farmers Devp.Agencies

Animal Health care

- Establishment of disease diagnostic centres
- Licensing and recognition of Voluntary Animal (FISH) health doctors/workers and elimination of Aquaquacks.
- Centralised Supply of Inputs

Departmentally & through Dt.Coop stores.

- Dt.Fishermen Coop.societies to be the nodal

Agencies for supply of inputs

- Co-ordination with research Institutes for deciding feeding regime

- Recommending feeds with better and feed conversion ratio and cheaper ingredients.

- **Extension services**

  Inadequate extension services due to Shortage of staff
  - Establishment of demonstration farms
  - Revival of Fish Farmers Deve.Agency for extension work exclusively

III.23 MARINE SECTOR (7TH POSITION IN INDIA) - To improve All India ranking

- **More number of country crafts**
  - Motorisation of traditional crafts,
  - Replacement of wooden crafts with FRP crafts gradually.

- **In adequate conservancy measures and irresponsible exploitation**
  - Enforce mesh regulation, responsible fishing by fishermen, Observing closed season and sea ranching

- **Old and conventional Fishing methods**
  - Modern methods with improved designs of craft & tackle
  - Use of satellite data for forecasting fish movements
  - Communication system to boats through VHF Sets and other modern system.
  - Conversion of trawlers to Gill netters etc., with orientation on exploitation of offshore pelagic fishing
  - encourage Tuna long line fishing
  - Enforcement of Turtle Excluder Devices
  - Introduction of mariculture methods, Fish aggregating devices like Artificial reefs

- **No communications to boats**
  - Shore to vessel communication system with Radio towers on the shore, VHF sets in boats.

- **Inadequate fishing harbours**
  - Organised development of fishing harbours

- **Reporting of marine landings**
  - Improving the system of recording total Landings

III.24 BRACKISH WATER SECTOR : (1st position in India)

♦ **Inadequate availability of seed and brood stock**	- Development of alternate species like Sea bass, F.W.Prawn, Crab and mullets
♦ **Improper Cultural practices**	- Traditional/improved traditional methods
♦ **Un hygienic handling centres**	- Hygienic standards to be maintained for exports
♦ **Inadequate legislative measures absence of control on seed and feed**	- Environmental monitoring plans -Coastal Aquaculture Regulation Act, -Aquaculture Seed Act
♦ **Improper water management**	- Lift irrigation of sea water & maintain quality - Effluent treatment plants, proper burial Methods of infected specimens.
♦ **Lack of Incentives for Coastal aquaculture**	- Incentives for Coastal aquaculture
● Addl taxes like NALA are being levied	- To encourage farmers by treating Aquaculture
● Power tariff is high on par with Industry	On par with agriculture for giving concessional tariffs (power etc.,) exemption from addl.taxes like NALA and giving other concession
♦ **Absence of health care (Animal Health Care)**	- Establishment of Disease diagnostic centres Licensing and recognition of Voluntary Animal (FISH) health doctors/workers & elimination of aquaquacks
♦ **Supply of inputs**	- Centralised supply of inputs departmentally & through District co-operative stores - Dt.Fishermen Coop.societies to be the nodal Agencies for supply of seed, feed and fishing craft & tackle etc., - Co-ordination with Research Institutes for deciding feed regimes - Recommending feeds with better feed conversion ratio and cheaper ingredients.
♦ **Improper regulation**	- Encourage Aqua clubs

♦ **Environmental protection**	- Dumping sites for fish wastage & its proper disposal to protect drinking water from pollution
	- Ensuring Reservation to fishermen in allotment of shops in markets

III.25 COMMON APPROACHES :

♦ **Inadequate credit facilities**	- Giving crop loans
	- starting of Fishery co-operative banks or financial corporation
♦ **Inadequate / absence of Insurance**	- Provision of adequate & appropriate insurance Scheme for all fishery activities
	- Remission on crop losses
♦ **Scattered landing centres**	- Hygienic landing centres with all facilities
♦ **Inadequate Marketing facilities**	- Establishment of modern marketing complex with cold storage and ice plant.
	- Proper hygiene in existing markets.
	- Fixation of Government supporting price.
	- Introduction of modern processing methods, like filleting boneless fish meat, dry fish in polythene covers etc.
	- Creating marketing awareness
	- Market Information systems
	- Creating of separate Department for food processing (AH & Fisheries) in the State Govt.
♦ **Organised logistics**	- Introduction of improved packing system,
	- Provision of insulated vehicles
	- Improved road net work,
	- Education on hygienic handling
♦ **Co-operative Movement**	
Inadequate knowledge	- Pro-active role of the department in maintenance of records and giving guidance
Lack of training	- Periodical training in co-operative movement

Lack of discipline
- Removal of bogus members
- De recognition of bogus societies
- Periodical vigilance, inspections and audit
- Taking steps to avoid influence of middle men
- Promoting exclusive women co-operatives
- ensuing 3 tier system of functioning of fishermen Co-operative Societies in the state.

III.26 CREATE & PROMOTE INVESTMENT IN INFRASTRUCTURE :

Infrastructure is the back bone of development activity.

Status	Fish seed hatcheries	230 No.s.	Capacity	7500	lakhs seed
	Shrimp seed hatcheries	142 No.s	Capacity	8200	million PI
	Feed mills	28 No.s	Capacity	1.49	lakh tonnes
	Ice plants	305 No.s	Capacity	2740	tonnes per day
	Cold storages	44 No.s	Capacity	528	tonnes
	Freezing plants	38 No.s	Capacity	847	tonnes

Present status	Proposed interventions
♦ **Inacessible & un hygienic landing Centres**	- Proper road net works - Transport network, Insulated Carriers - Ice boxes & Modern packing systems
♦ **Inaquate harbouring facilities**	- Operationalisation of Bhavanapadu fishing harbour - Completion of new fishing harbour at Machilipatnam - Establishment of more fishing harbours
♦ **Inadequate supporting systems**	- Strengthening the infrastructure of Feed mills, Ice plants, Cold storage Freezing plans & Net making plants in private sector on cluster approach
♦ **Irregular growth of Fish seed hatcheries**	- Encourage private sector and co-operative sector to set up farms for rearing fish seed

- **Absence of Disease diagnostic labs** - To establish disease diagnostic laboratories in all training institutes
  - Co-ordination with Research institutions,
  - Co-ordination with Universities/colleges
- **Absence of Quality control labs** - Co-ordination with MPEDA to maintain international quality standards
- **Inadequate early cyclone warning and Poor communication systems** - Establishment of Shore stations to cover all coastal Districts
  - VHF sets to boat operators to communicate with shore stations and training to use them.

III.27 ENSURE THE SETTING UP OF INSTITUTIONS TO BUILD SKILLS :

There are 2 Marine training Institute at Kakinada and Machilipatnam with an intake capacity of 95, imparting training in Marine fishing, repairs of nets, engine maintenance & navigation for a period of 12 months and they are being paid Rs. 200/-pm as stipend. There are 3 Inland Fisheries Training Centres at Kurnool, Warangal and Badampudi (W.G.District) with course period of 3 months. The Fishermen/Fish culturists are trained in Fish Seed production, Fish culture, crats & tackle used. The Fisheries Training Institute, Kakinada was upgraded as State Institute of Fisheries Technology with buildings & modern equipment to conduct refresher courses to the Departmental Officers in addition to training's to Fishermen children and induction training of 6 months to departmental officers.

Present status	Proposed interventions
	- Strengthening centres with equipment
	- Conducting of Refresher courses to staff
	- Establishment of Disease diagnostic Laboratory & lab. for Aquaculture.
Lack of proper buildings	- Arranging training courses for fisher women in Lack of proper equipment & furniture making pickles and other value - added products
Lack of audio - Visual equipment	- Importing training to fishermen/fish farmers in the demonstration centres nearer to them.
	- Co-ordination with Universities, Fishery Colleges, Central institutes, NGOs in arranging training courses.

- Imparting training on disaster preparedness to villagers of all districts and also train master trainees from other states.
- Imparting training to fishermen co-op members
- Increasing the stipend to the trainees & other facilities

Inadequate usage of Information Technology

- Building up of Data bank of Natural resources for fish culture & making it available on CD Roms
- Geographical Information system on resources available & utilisation.
- Payment of lease amounts of all Water bodies & licences for Inland & Marine waters under A.P. State Wide Area Net work (APSWAN).

III.28 ENSURE SUSTAINABLE DEVELOPMENT :

Andhra Pradesh stands first in area under production, productivity per Ha and total production in Coastal Aquaculture. There are 1.50 lakh Ha of area suitable for Aquaculture. Shrimp Aquaculture practices were oriented towards traditional/improved traditional methods of Shrimp culture in low lying / tidal fed areas. Commercial scale shrimp farming in early eighties was effected due to the spread of diseases and Supreme Court orders. Tiger Shrimp is the major species cultured. 78,701.92 Ha has been brought under culture and many of them are small farmers with land holding, less than 2 ha 69,360 out of 73,740 nos. But due to the unregulated activity of Coastal Aquaculture no proper intake & drainage systems, the white spot syndrome virus is causing heavy losses to Shrimp farmers, which is estimated as Rs. 300 crores per annum.

Present status **Proposed interventions**

♦ **Legal impediments :**

- Enactment of Coastal Aquaculture Regulation bill.
- Aquaculture Seed act.
- Regulation on excess use of antibiotics,
- Regulation of water In-take, drainage etc.,
- Regulation on dumping of infected animals & animal waste.

♦ **Removing Social & other impediments**

- Better understanding between Coastal Fishermen & B.W. Farmers

- Drinking water facilities to fishermen including protected water supply

establishment of desalination plants.

- Access to sea for fishermen
- Removing encroachments of land
- Create & improving Road & communication facilities

♦ **Incentives to boost Exports**

- Rationalisation of freight cost in all ports
- Promotion of hygienic handling centres
- Improving hygienic standards

at processing plants as per inter national standards.

Quality control before exports

♦ **Check Excess usage of antibiotics**

- Creating awareness to farmers and legal

Provisions to check excess usage of antibiotics

♦ **Extension work and guidance**

- Organising awareness meetings in cluster of villages.
- Encourage Development of mangroves along the coast and protective plantations like casurina along the coast.
- Licensing and recognition of Animal Health doctors / workers.
- Elimination of Aquaquacks.
- Revival Coastal Aquaculture development Agencies for exclusive extension work

III.29 PROMOTE WELFARE OF THE FISHING COMMUNITY :

Government believes that the welfare of the fishermen is essential for development of fisheries. The Fishermen are generally educationally illiterate, economically poor & socially back ward. The population of the fishermen as per the live stock census, 1993 is 8.717 lakhs. However, there is a need to update it. The Fishermen have been agitating for including them under Scheduled tribes category and requested for higher concessions. It is proposed that increased outlay may be made available for the welfare of the fishermen. To improve the socio-economic condition of fishermen and to create social security for the

fishermen risking their lives to go on to sea for fishing, several welfare schemes are proposed.

Present status	Proposed interventions
♦ **Pucca houses to fishermen with Unit cost Rs. 20,000/-**	- All fishermen have to be provided houses progressively - The unit cost to be enhanced to Rs.50,000/- - Annual allocation for more houses - More plinth area for fishery related activity
♦ **Group Accident Insurance scheme With exgratia of Rs. 35,000/-**	- The exgratia amount to be increased to Rs. 50,000/- immediately & then to Rs. 1.00 lakh by 2004. On par with other rural artisans.
♦ **Relief cum savings scheme to marine fishermen**	- Coverage to be extended to more persons - Coverage to be extended to Inland fishermen
♦ **Inadequate early cyclone warning and poor Communication systems**	- Establishment of Shore stations to cover all coastal districts. - Supply of VHF sets to boat operators for communicating with shore stations - Identifying essential requirements for relief works to be taken up after disasters (area-wise) - Imparting training on disaster preparedness to villagers of all districts and also train master trainers from other states.
♦ **In adequate Subsidy for exemption of Central Excise Duty on HSD oil**	- Provide adequate subsidy to compensate excise duty on HSD oil and sales tax to encourage mechanised fishing activity.
♦ **In adequate Health care**	- Establishment of Mobile dispensaries on road & on water to reach the marine fishermen, including primary health centres in fishermen villages.

♦ **In adequate Drinking water facilities**	- Provision of drinking water supply Specially at the time of disasters - Desalination facilities.
♦ **In adequate Education facilities**	- More number of Ashram schools for fishermen - Reservation of seats in fisheries colleges - Preference to children to fishermen, at graduate and post-graduate level and also in employment - Welfare of senior citizens - Pensions to fishermen who are more than 65 years age.
♦ **Welfare of fisher-women**	- Organisation of more women co-operatives - Providing working capital to do business - Supply of FRP ice boxes - Imparting Training in pickle making, preparation of smoked fish, dry fish and other value-added products - Sanction of Houses in the name of fisher women, instead of men
♦ **Strengthening of Dist. Fishermen Coop.society**	- Nodal agency for supply of fishing inputs - Provision of honorarium to elected president. - Implementation of 3 tier system of Co-operatives - Membership inDt.Coop.Central Bank - Lease of selected fish farms for rearing fish seed. - Representation in District Rural Development Agency - Membership in Zilla Parishads - Representation in consultant committees on distribution of assets including houses.

III.30 REDEFINING THE ROLE OF THE DEPARTMENT OF FISHERIES :

1. Department will play a more pro-active role & take up active extension work
2. Promote participation of private sector & coop. Sector
3. Take up pilot projects for introduction of new technologies.
4. Strict enforcement of fishing regulations
5. Promote Social welfare activities of the fisher-folk.
6. Utilisation of centrally sponsored schemes for creation of required infrastructure.
7. Encouragement of the weaker sections under the Govt.schemes
8. Involving Non-Govt. organisations for getting benefit of their experiences development and to use them as bridging agencies between Govt. & people
9. To act as a Co-ordinating agency with Universities, educational Institutes, fisheries colleges & research institutes.

D.S. MURTY

Commissioner of Fisheries

IV ORGANISATIONAL STRUCTURE

(IN SEVEN TABLES INDICATING THE ORGANISATIONAL STRUCTURE AT STATE LEVEL, REGIONAL LEVEL AND DISTRICT LEVEL ARE GIVEN BELOW)

COMMISSIONER OF FISHERIES

ADDL. DIRECTOR OF FISHERIES

JOINT DIRECTOR (MARINE)	JOINT DIRECTOR (INLAND)	JOINT DIRECTOR (B.W.)	JOINT DIRECTOR (B.W.)		
Dy. Director (Marine)	Dy. Director (Inland)	Dy. Director (B.W.)	Dy. Director (B.W.)	Dy. Director (Plg)	Accounts Officer
Asst.Director (Marine) Asst. Director (Welfare)	Asst.Director (Inland) Executive Engineer Dy Ex Engineer Dy Registarar	Asst.Director (B.W.)	Asst.Director (B.W.)	Asst.Director (Plg) Asst. Director (State)	Asst.Director (Admn.)

The above Officers are assisted by Executive - 4 and Other Staff - 89.

ZONE 1

Regional Dy-Director 1
Fisheries - 8
Executive Staff - 4
other staff

SRIKAKULAM	VIZIANAGARAM	VISAKHAPATNAM
Asst. Director - 1 Fisheries Dev. Officers - 8 Ichapuram, Tekkali Ranasthalam, Palakonda Srikakulam, Kasibugga Seethampeta (ITDA) and Proj. Manager, AFCOF Srikakulam Executive Staff 26 Other Staff - 28	Asst. Director - 1 Fisheries Dev. Officers - 7 Vizianagaram, Bhogapuram Saleru, Parvathipuram Executie Staff - 16 Others - 27	Asst. Director - 1 Fisheries Dev. Officers - 7 Narkkapalli, Anakapalli Visakhapatnam, FTO(5) Thandava, Infrastructure (1), Brackishwater (2), AFCOF and Paderu (ITDA) Executive Staff - 15 Other Staff - 27

ZONE - II

Regi.Dy.Director - 1 KKD Dy.Director (BW) - 1 Asst. Director - 2 Fisheries Dev. Officer - 12 Executive Staff - 11 Other Staff - 42		Addl.Director of Fisheries (Pri SIFT) -1 Dy. Director - 1 Asst. Directors - 6 Fisheries Dev. Officers - 5 Executive Staff - 5 Others - 45

EAST GODAVARI	WEST GODAVARI	KRISHNA
Asst. Director - 3 Kakinada, Rajahmundry Polekuru Fisheries Dev. Officers - 12 Other Staff - 59 Executive Staff - 67	Asst. Director - 1 Fisheries Dev. Officers (6) Badampudi Narasapur, Bhimavaram, Eluru, Kovvuru Ganapavaram Executive Staff - 5 Other Staff - 30	Asst. Director - 3 Machilipatna, Kaikaluru Principal (FTI) Fisheries Dev Officers - 12 Machilipatnam (4) Bantumilli, Penamaluru, Vijayawada, Avanigadda4 at Kaikaluru Executive Staff - 45 Other Staff - 51

ZONE - III

Regl.Dy. Director - 1
Asst. Director - 1
Fisheries Dev. Officers - 4
Other Staff - 22

GUNTUR	PRAKASAM	NELLORE
Asst. Director - 2 Guntur, Nizampatnam	Asst. Director - 1	Asst. Director - 1
Fisheries Dev. Officers - 12 Guntur (2) Nizampatnam - (2) Repalle, Nidubrolu (2), N'Sagar, N'Peta, Bapatla Tenali, Vinukonda	Fisheries Dev. Officer - 5 Ongole, Singarayakonda Karamchedu, Darsi	Fisheries Dev. Officers - 9 Nellore, Padugupadu Gudur, Kavali, Buchireddy- Palem, Somasila, kota, Indukurupeta, Muthukuru
Executive Staff - 37 Other Staff - 30	Executive Staff - 21 Other Staff - 20	Executive Staff - 37 Other Staff - 20

ZONE - IV

Regl.Dy.Director - 1
Executive Staff - 1
Other Staff - 10

KURNOOL	CUDDPAH	ANANTHAPUR	CHITTOOR
Asst. Director - 3 Kurnool, Nandyala Gajuladinne	Asst. Director - 1	Asst. Director - 1	Asst.Director - 1
Fisheries Dev. Officers-8	Fisheries Dev. Officers - 4	Fisheries Dev.Officers-5	Fisheries Dev. Officers - 10
Nandyala, Gajuladinne	Cuddapah (2)	Ananthapur(2) M.P. Dam.B T	Chittoor (2), Tirupathi,
Sunkesula, Nandikotkuru Kurnool Trg.Centre(2)	Brahmamgarimatham and Mylavaram	Project Penna Aohobalam reservoir	Krishnapuram Piler, Palamaner, Bahuda, Araniyar Kalyani dam Madanapalli
Executive Staff - 32 Other Staff - 33	Executive Staff - 18 Other Staff - 12	Executive Staff -23 Other Staff - 17	Executive Staff - 14 Other Staff - 32.

ZONE - V

Regl.Dy.Director - 1
Executive Staff - 2
Other Staff - 8

WARANGAL	KARIMNAGAR	KHAMMAM	ADILABAD
Asst. Director - 1 Fisheries Dev.Officer-7 Warangal(4), Narasampet, Bheemaram, Eturunagaram Executive Staff - 33 Other Staff - 26	Asst. Director - 1 Fisheries Dev.Officer-7 Karimnagar, Keshavapatnam Upper, Manair, Mantheni, Sultanabad Executive STaff - 37 Other Staff -	Asst. Director - 1 Fisheries Dev.Officer-4 Khammam- 1 Wyra - 1 Kinnerasani Project-1 Bhadrachalam - 1 Executive Staff - 8 Other Staff - 23	Asst. Director - 1 Fisheries Dev.Officer-4 Kadem - 2 Nirmal Satnale Executive Staff - 23 Other Staff - 14

ZONE VI

Regl.Dy.Director
Other Staff

RANGAREDDY	HYDERABAD (U)	NALGONDA	MAHABOOBNAGAR
Asst.Director - 1 Fisheries Dev. Offcer-3 Hyderabad, Medchal Nandivagu Executive Staff - 17 Other Staff - 18	Asst.Director - 1 Fisheries Dev.officer-4 Executive Staff - 23 Other Staff - 6	Asst.Director-1 Fisheries Dev.officer-4 Nalgonda Suryapet Bhoingir Tummadam Executive Staff - 19 Other Staff - 16	Asst.Director - 1 Fisheries Dev.Officer - 4 Mahaboobnagar Koilasagar, Chandra Sagar, Kothakota Executive Staff - 28 Other Staff - 16

NIZAMABAD	MEDAK
Asst. Director - 1 Fisheries Dev. Officer - 6 Nizambad (2) Kamareddy, Nizamsagar, Pochampadu Executive Staff - 45 Other Staff - 22	Asst.Director - 1 Fisheries Dev.Officer - 4 Medak (2) Siddipet, Sangareddy Executive Staff - 13 Other Staff - 16

IV.1 In 1959-60, there were Two Deputy Directors, Personal Assistants (from the Andhra Pradesh Revenue Service), Junior Engineer and a Co-operative Sub-registrar (deputed from the Co-operative Dept.) assisting the Director of Fisheries at Head Office. There was a Fisheries Training Institute at Head Office. There was a Fisheries Training Institute at Kakinada, in the East Godavari District. This Institute gives theoretical and practical training to the Fishermen selected from Coastal Districts, in handling of the Mechanized Boats, Navigation, Crafts and Tackle, etc., and also to the Departmental Officers in foundation courses to enable them to qualify themselves in the Departmental Tests. The Principal assisted by Lecturer and other staff, is incharge of the institute. The Boat building Yard was established in the Year 1959 at Kakinada for construction of Mechanised Boats. The Superintendent, who had undergone specialized training in Boat Building, was in charge of this Yard and assisted by well-qualified technical staff. After the formation of A.P.F.C. in the year 1974 the unit was transferred to the control of A.P.F.C. The Department had Research Units, at Nagarjunasagar Dam, Pedana and Manthani and Kovvali. In these places, research on problems relating to the fish and fisheries, Paddy-cum Pisciculture and farming of fresh water prawns in confined waters was conducted. Later on all these Research Institutes were transferred to the control of Agricultural University, Rajendranagar, Hyderabad to carry on the Research and pass on result to the Fisheries Department for extension work. A number of schools were being run by the Department for giving education to the fishermen children and these schools were subsequently transferred to Panchayat Samithis after their constitution except the school at Lawsons bay, Visakhapatnam.

IV.2 THE PRESENT ORGANISATION STRUCTURE OF THE DEPARTMENT IS AS GIVEN BELOW :

The Commissioner / Director of Fisheries is the head of the department. He is the Managing Director of the Apex Federation called as A.P. State Fishermen Cooperative Societies Federation Limited. He is also ex-officio Registrar of Co-operative Societies. The general control on the Department in all its activities and other matters, is vested with the Head of the Department, i.e. Commissioner of Fisheries / Director of Fisheries The activities of the Department, may be broadly classified as detailed below:

1. Administration
2. Development of Marine Fishery
3. Development of Inland Fishery
4. Development of Brackish Water Aquaculture
5. Promotion of the Welfare of fishermen
6. Development of Marketing activites
7. Technical training Programmes.

IV.3 THE COMMISSIONER / DIRECTOR IS IN CHARGE OF THE GENERAL ADMINISTRATION OF THE DEPARTMENT. HE IS ASSISTED BY

At Head Office :

Additional Director of Fisheries	-	1	
Joint Director of Fisheries	-	3	
Deputy Director of Fisheries	-	3	
Assistant Director of Fisheries	-	7	(incl.Ad (Admn))
Deputy Executive Engineer	-	1	

The Executive Engineer (1), Deputy Registrar of Cooperative Societies (1), Asst. Director of Statistics (1), and Accounts Officer (1) are working on deputation basis at Head Office.

IV.4 AT REGIONAL LEVEL :

Under Six Point Formula (1976) the development and administration of the zones was placed under the control of Regional Deputy Director of Fisheries assisted by Superintendent, Senior Assistant, Steno, Junior Assistant, Record Assistant and Typist and Co-operative Sub Registrar. He is responsible to the Director of Fisheries for the development and administration of his zone. The Regional Deputy Director of Fisheries Jurisdiction with their Head Quarters created under Six Point Formula as per G.O.Ms.No. 655 F&RD (Fish-1) Department dated 16.7.1976 is given below.

ZONE NO.	DESIGNATION	JURISDICTION	HEAD QUARTERS
I	RDDF	Srikakulam Visakhapatnam Viziayanagaram	Visakhapatnam
II	RDDF	East Godavari West Godavari Krishna	Kakinada
III	RDDF	Guntur Prakasam Nellore	Guntur
IV	RDDF	Kurnool Cuddapah Chittoor Ananthapur	Kurnool
V	RDDF	Khammam Warangal Karimnagar Adilabad	Warangal

VI	RDDF	Hyderabad Ranga Reddy Medak Nizamabad Nalgonda Mahaboobnagar	Hyderabad

AT DISTRICT LEVEL :

IV.5 Each district is headed by Assistant Director of Fisheries and he is responsible for the development and administration. The Assistant Director of Fisheries is assisted by Fisheries Development Officer / Assistant Inspector of Fisheries at the field and Superintendent, Senior Assistant, Junior Assistant and Typist in the Office.

IV.6. OTHER SPECIAL SCHEMES

STATE PROJECT UNIT :

The State Project Unit, sanctioned under World Bank Assistance is under the control of the Director of Fisheries. The State Project Unit is headed by Project Director in the cadre of Additional Director of Fisheries. He is assisted by Aquaculturist (DDF Cadre) Asst. Project Director (1) and Accounts Officer. The Engineering Unit at Kakinada is under the control of Executive Engineer (1) Assisted by Dy. Executive Engineers (2). Now only 7 posts are being continued.

IV.7 COASTAL FISHERIES :

One Joint Director of Fisheries is working at Kakinada with Jurisdiction of over (9) Coastal districts. There are Asst. Director of Fisheries at Srikakulam, Vizag, Kakinada, Machilipatnam, Nizampatnam & Nellore looking after Marine / Brackish Water activities in the Districts.

There are 2 Assistant Executive Engineers at Vizag & Kakinada. One Assistant Director of Fisheries is also incharge for Shrimp Culture project at Polekurru in East Godavari District.

IV.8 OTHER SCHEMES :

Fisheries Terminal Organisation at Nizampatnam in Guntur District, Kolleru development scheme at Kaikaluru in Krishna District, Large scale fish seed farms at Gajuladinne and Nandyal are headed by Asst. Director of Fisheries.

IV.9 TRAINING INSTITUTES :

The State Institutes of Fisheries Technology, Kakinada in East Godavari is headed by Principal in the cadre of Additional Director of Fisheries supported by Deputy Director of Fisheries (1), Lecturer (1), Assistant Director of Fisheries (5), besides there is Fisheries Training Institute at Machilipatnam in Krishna

District headed by principal in the cadre of Assistant Director of Fisheries. Inland Fisheries Training Centres (I.F.T.C) one functioning in 3 regions viz., Andhra, Telangana and Rayalaseema at Badampudi (W.Godavari) Warangal and Kurnool respectively. In each institute there are 2 Fisheries Development officers. They work under the control of Asst. Director of Fisheries of their respective districts.

IV.10 CONSTITUTION OF THE SERVICES:

The Technical staff working in Fisheries Department comprises the following services :

The Andhra Pradesh Fisheries Services (G.O.Ms.No. 316 AH&F (F-1) Dept dt. 9.4.1991.

The Andhra Pradesh Fisheries Subordinate Service (G.O.Ms.No. 131 AH&F (F-1) Dept dt. 30.6.93)

The Posts mentioned below constitute the A.P.F.S.. The rules cover qualifications prescribed, method of appointment, probation etc.

Class - 1

Category :

1. Additional Director of Fisheries
2. Joint Director of Fisheries
3. Deputy Director of Fisheries
4. Assistant Director of Fisheries
5. P.A. to Director of Fisheries
6. Executive Engineer
7. Accounts Officer
8. Deputy Registrar of Co-op Societies
9. Assistant Director of Statistics
10. Deputy Executive Engineer
11. Statistical Officer
12. Assistant Executive Engineer

IV.11 THE POSTS MENTIONED BELOW ARE CLASSIFIED AS FISHERIES SUB-ORDINATE SERVICE:

Class - 1

Category

1) Inspector of Fisheries including Fisheries Demonstrator, Fisheries Extension Officers and Farm Superintendents. They are now redesignated as Fisheries Development Officer (Vide G.O.Ms.No. 119 AH & F (F.1) Dept., dated 7.11.96.

1.a) Research Assistants

1.b) Hydrologist

2) Assistant Inspector of Fisheries including Asst. Farm Superintendent

3) Fishery Overseer, Petty Yard Officers including Sr.Fishery, Guard and Fieldmen

Class II

Category 1 Asst. Engineer

Category 2 Cold Storage supervisor

Category 3 Draftsman

Category 4 Photo Artist

Category 5 Mechanic / Refrigeration

Category 6 Mechanical Instructors

Category 7 Bosan

Category 8 Driver for Mech.Boats

Category 9 Jr. Bosan

Category 10 Mechanic (M.B) including Diesel Mechanic & Filter

Category 11 Tracer

Category 12 Pump Operator (F1) formerly called as Engine Drivers

Category 13 Swimming Instructor

Category 14 Gear technician

Category 15 Boat driver including launch driver

Category 16 Cold storage attender

Category 17 Fishermen (The post was deleted from APLGS vide G.O.Ms.No. 21 AH&F (fish) department dt 5-3-97 and G.O.Ms.No. 311 GAD (Sec B) dept dated 22-7-97.

Class III

Category 1) Secondary grade teachers

Category 2) Higher elementary grade teachers.

IV.12 Service rules regarding qualification, recruitment, promotions relating to Ministerial service and last Grade Service are available in the Andhra Pradesh Ministerial Service Rules and Andhra Pradesh Last Grade Service Rule

IV.13 Transfers of Officers, Non-gazetted, Ministerial Subordinates, Senior Assistant, Junior Assistant except the Class IV employees, should not be retained for more than 3 Years in a district or region following the Six Point Formula. However, this is not applicable to posts occupied by specialists. The Regional Deputy Director is competent in making transfers of Executive Subordinates / Ministerial Subordinates with in the jurisdiction. Any attempt to secure a transfer or avoid a posting will be considered as a breach of discipline and dealt with as per the rules.

IV.14 MAINTENANCE OF CONFIDENTIAL REPORTS :

These reports should be maintained for all officers and Sub-ordinates in the Superior Service. These reports should be prepared for the half-financial year ending 30th September and 31st March in the case of Probationers and in respect of the confirmed members and approved probationers for the financial year ending 31st March. The authorities who should prepare these reports, maintain and scrutinize the personal files of Officers an and Executives Subordinates.

A certificate to the effect that the confidential reports of all the Sub-ordinate Officers, have been scrutinized and are maintained in the prescribed form and that copies of all orders including punishments and adverse remarks and explanations, have been filed with the confidential files, should be sent so as to reach the Director of Fisheries not later than 30th April of each year.

IV.15 CASUAL LEAVE:

The grant of casual leave Compensatory Leave (For Ministerial Staff) as per Rules

IV.16 LEAVE OTHER THAN CASUAL LEAVE AND COMPENSATORY LEAVE:

Leave of absence may be sanctioned by the Director of Fisheries to officers of the Andhra Pradesh Fisheries Service under the rules applicable to them. In case of Fisheries Development Officer the Assistant Director of Fisheries should forward the leave application to the Regional Deputy Director of Fisheries for the sanction of leave.

IV.17 GAZETTED OFFICERS VISITING THE HEAD QUARTERS :

Gazette Officers visiting the Head Quarters on leave or otherwise should at report on their arrival in the book maintained for the purpose in the office of the Director of Fisheries They should furnish their address and the period of stay.

IV.18 TRANSFER OF CHARGE CERTIFICATE OF GAZETTED OFFICERS :

The following instructions should be observed by every gazetted officer in the department in preparing the transfer of charge certificate

(i) Copies should be sent to

Chief Secretary to Government; A.P. Hyderabad.

Secretary to Government in the concerned Department Accountant General, A.P. Hyderabad

Director of Fisheries; A.P. Hyderabad

The list of authorities to which the copies of the certificates are to be sent should be noted at the foot of the certificate.

The certificates should be posted to the concerned authorities on the same day of taking or handing over charge.

In addition to the scoring of the words "Fore Noon" or After Noon" on the printed form, the words "Fore Noon" or After Noon" should be added along side the date. Leave address of officers proceeding on leave should invariably be furnished.

Officers proceeding on transfer should furnish their address during joining time, in the margin of the copy to be set to the Director of Fisheries only.

Certificate should be sent wherever charge is assumed of a new post and when renquished charge of temporary post on the expiry of its term.

IV.19 PUNISHMENT :

The imposition of punishment on members of the State and Subordinate Services in the Department is governed by the Civil Services (Classification, Control and Appeal) Rules issued by Government.

V. ROLE OF EACH CATEGORY OF FUNCTIONARY IN THE DEPARTMENT

V. Role of Each Category of Functionary in the Department

V. A. COMMISSIONER / DIRECTOR OF FISHERIES :

He is the Head of the Department and the Statutory authority to exercise ower of enforcing the laws on Fisheries in the State and monitoring the activities of the entire administration under his control. He is the Ex-Officio Registrar of Cooperative Socieities for the Societies registered in Fisheries Department. He will receive public grievances and take necessary steps to reduce them and to streamline the administration to have a clean and transparent administration on par with the aims and objectives of the Government. His powers may be classified into three parts namely (i) Statutory duties (ii) Administrative and (iii) Financial.

i. STATUTORY DUTIES :

He is the statutory authority to exercise the powers under the act and rules either by himself or by way of authorization or sub-delegation to his subordinate officer as prescribed for effective implementation and enforcement or the laws of Fisheries Department.

ii. ADMINISTRATIVE DUTIES :

He is the Head of the Department appointing authority, transferring authority and disciplinary authority.

iii. FINANCIAL POWER :

He exercise financial powers of the Head of the Department in terms of article 6 of Chapter - II of Financial Code Volume-I, controlling authority for budgeting expenditure and revenue of the Department. He is the liaison officer between State and Central Governments in aspects of Fisheries activities.

V. B. ADDITIONAL DIRECTOR OF FISHERIES :

He is the technical Head of the Fisheries Department. He assists the Director ofFisheries an overall supervision of statutory, Administrative and other technical sanctions. He is direct incharge of planning wing for organizing different types of schemes. He also in-charge of all projects for Fisheries Development. He is the

Chief Vigilance Officer of the Department. He receives public and departmental grievances and take necessary steps to redress them and to streamline the administration to have a clear and transparent administration on par with aims and objective of Government.

C. JOINT DIRECTOR :

He is the head of the particular subject and work under the supervision of the Director. He prepares State level planning of the Director. He prepares State level planning in the concerned technical faculty. He is the over all supervision and monitoring of the schemes in particular faculty and the work of field officers.

The Statutory powers are related the powers either vested under the act or delegated by the Director of Fisheries.

D. REGIONAL DEPUTY DIRECTOR OF FISHERIES :

He is the Head of the Region. He is the Coordinator between the Commissioner / Director of Fisheries and the District Administration. He is the Ex-officio Joint registrar of Co-operative Societies. He is delegated with all powers of the Ex-officio Joint Registrar in respect of his Zone. He is the liaison officer between the district Collectors and Heads of Offices at the District Level to facilitate implementation of various development schemes. His powers are classified into (1) Statutory, (2) Administration and (3) Financial.

The Statutory powers are related to the powers either vested under the act or delegated by the Commissioner / Director of Fisheries. His administrative powers are in respect of sanction of leaves, categories of employees in the Region. His financial powers are payment of salaries, for the employees working under him, sanction of TA Bills and other financial powers as delegated from time to time.

E. ASSISTANT DIRECTOR OF FISHERIES :

He is the Head of the District. He works under the supervision of the Regional Deputy Director of Fisheries. He is the Ex-Officio Deputy Registrar of Cooperative Societies and he registers the societies at district level as per act and rules. He is wholly responsible for the entire functioning of the District for implementation of all Developmental and welfare activities. He is the coordinator between the Regional Deputy Director of Fisheries and District Administration. His powers also classified into 3 parts. (1) Statutory, (2) Administration an d(3) Financial. His statutory duties are related to powers either vested by virtue of Act or delegated by the Director of Fisheries. His administrative powers are in respect of specific categories of employees. He is the head of the office at district level, drawing and disbursing officr in respect of al the claims due to the employees working in the district.

F. FISHERIES DEVELOPMENT OFFICER :

He is the Field Officer and of Gazetted rank in the Department. He is responsible for the implementation of all the developmental, welfare schemes and any other special schemes proposed in his jurisdiction. His statutory duties are related to powers vested by virtue of Act or delegated by the Director of Fisheries.

G. ASSISTANT INSPECTOR :

He is the Field Officer. He is responsible for the implementation of all the developmental, welfare schemes and any other special schemes proposed in his area of operation. His statutory duties are related to powers vested by the virtue of Act or delegated by the Director of Fisheries.

H. FIELD MAN :

They work at Field level under the direct control of Fisheries Development Officer / Assistant Inspector of Fisheries. He assists the officer in discharge of his duties, statutory an dfield functions.

I. FISHERMEN :

Fishermen are skilled fishermen, work at field level. They assist the field officer in conducting Induced breeding experiments, Management of fish farms, experimental harvesting of fish in reservoirs, tanks etc.

J. ATTENDERS :

To assist the officers in discharge of the duties VIZ., statutory and field functions.

VI. MAJOR ENACTMENTS, RULES AND REGULATIONS

VI. MAJOR ENACTMENTS, RULES AND REGULATIONS:

The enactment are classified according to the functions :

as : a) Statutory

b) Administrative

c) Financial

Vi

I. COMMISSIONER / DIRECTOR OF FISHERIES :

A. STATUTORY DUTIES - ACTS, RULES AND NOTIFICATIN :

1. The Indian Fisheries Act of 1897
2. Indian Penal Code
3. Maritime Zones of India (Regulation of fishing by foreign vessels - Act 1981)
4. M.T.Z.I Regulation of fishing by foreign vesses (Rule 1982 and amended rules 1990)
5. The A.P. Mrine Fishing (Regulation) Act 1994.
6. The A.P., Marine Fishing (Regulation) Rules 1995.
7. The A.P., Coop. Societies Act, 7 of 1964.
8. A.P., Co-operative Societies Rules 1964.
9. A.P. mutually aided Co-operative Societies Act 1995.
10. Draft rules for introduction of licensing system.
11. Coastal Regulation Zone notification, D/192/91 of GOI.
12. Executive orders on disposal of fishery wealth in tanks an dreservoirs.

B. ADMINISTRATIVE FUNCTIONS :

1. Fundamental Rules
2. CCA Rules
3. The Andhra Pradesh Fisheries Service
4. The Andhra Pradesh Fisheries Subordinate Service

5. The Andhra Pradesh Last Grade Service.
6. Organisation of local cadre Rules with reference to six point formula under Presidential order.
7. Service Commission Rules
8. Principles of Administrative Law.
9. District Office Manual
10. Constitution of India.

C. FINANCIAL FUNCTIONS :

1. A.P. Financial Code
2. A.P. Treasury Code.
3. A.P. Accounts Code.
4. A.P. Budget Manual
5. A.P. Pension Code.
6. A.P. GPF Rules.
7. Indian Accounts and Audit Manual
8. A.P. Manual of special pays and allowances.

II. ADDITIONAL DIRECTOR

1. Statutory duties as listed for Director.
2. Administrative duties as listed for Director

III. JOINT DIRECTOR :

1. Statutory duties as listed for Director
2. Administrative duties for Director.

IV. REGIONAL DEPUTY DIRECTOR :

1. Statutory duties as listed for Director
2. Administrative duties as listed for Director.
3. Financial functions.
   - (i) A.P. Financial Code.
   - (ii) A.P. Treasury Code.
   - (iii) A.P. Accounts Code.
   - (iv) A.P. GPF Rules

(v) A.P. Manual of Special Pay and Allowances.

(vi)A.P. Pension Code.

VI. **V. ASSISTANT DIRECTOR :**

1. Statutory duties as listed for Director.
2. Administrative duties as listed for Director.
3. Financial functions as listed for Regional Deputy Director.

VI. FISHERIES DEVELOPMENT OFFICER :

1. Statutory duties as listed for Director

VII. ASSISTANT INSPECTOR :

1. Statutory duties as listed for Director.

VII. AREA OF INTERFACE WITH THE GENERAL PUBLIC AND WITH OTHER DEPARTMENTS

VII. AREA OF INTERFACE WITH THE GENERAL PUBLIC AND WITH OTHER DEPARTMENTS :

VII. 1. The Fisheries sector is treated as an agriculture allied sector. The stake holders in fisheries include fishermen, fish farmers, fishery technology entrepreneur, entrepreneur, employees of fisheries units, fish merchants, State and Central Governments and their agencies, NGOs & Voluntary agencies, production units like Boat Yard, Net making Plants, Processing units, Banks andInsurance Companies etc.

VII. 2. The important activities where the interface with public and other Departments is conspicuous are broadly categorised as follows :

A. Enforcement of Act & Rules

B. Seed Production & Distribution

C. Disposal of fishery wealth

D. Sustainable Aquaculture

E. Marketing Activities

F. Skill building

G. Welfare schemes

A. ENFORCEMENT OF ACT & RULES :

This is a statutory function governed under various Acts & Rules such as Indian Fisheries Act, 1897, A.P. Marine Fishing Regulation Act and such other Acts & Rules mentioned at Chapter VI. The activities connected to Enforcement are

a) Observance of conservancy measures including type of nets & mesh size and issue of licences

b) Observnce of closed season

c) Registration of craft & Regulation of fishing by different types of vessels in different fishing zones and issue of licencees

e) Implementation of Penal Provisions for cases of violations of Acts & Rules

f) Conduct of Courts under appeal provisions

g) Organisation of Fisheries Co-operative Societies at different levels

h) Management of Fisheries Co-operative Societies

i) Implementation of regulatory procedures on location of fish culture areas Aquaculture & making it sustainable.

The important functionary who will interact will be FDOs/ADFs/DDFs/JDFs and Additional Director. The target groups of interface are individual fishermen, members of Co-op societies mechanised boat operators/owners/B.W. farmers, technocrats, Entrepreneurs and legal practitioners and Judical memebrs acting as Chairman of Appellate courts. The interaction with other Departments will be police (for protection) Judiciary (Enforcement) Co-operation (Principles of Co-operation). Shore Area Development Authority (Coastal Regulation) Port Department, Mercantile Marine Department, Banks (for loans) and Insurance companies (Boat insurances).

B. SEED PRODUCTION & DISTRIBUTION :

This is a development oriented activity. The activities identified are as follows :

a) Assessment of Seed depending onrain fall

b) Procurement of breeders

c) Procurement of materials required for Breeding & Producing of seed

d) Source of water supply

e) Supply of seed, containers & transport

The important functionary who will inter act will be AIF/FDO incharge of the fish seed farm. The target groups of interface are Co-op. Societies, fish farmers, water users Associations, Gram Panchayats, Suppliers of inputs, transporters etc., The interaction with other Departments will be with irrigation Department (Water release in canals) Panchayat Raj Department (stocking in water bodies). Electricity Corporation (Pumping of water) Ground Water Department (for tapping of ground water).

C. DISPOSAL OF FISHERY WEALTH :

This is a development oriented activity. The activities identified are as follows :

a) Assessment of Fishery wealth based on productivity

b) Fixation of Rentals

c) Implementation of lease procedures

d) Departmental exploitation

e) Collection of Statistics on production etc.,

The important functionary who will interact will be AIFs/FDOs/ADFs. The target groups of interface are fishermen Coop Societies, Gram Panchayats, Water user Associations bidders, fish traders. The interaction with departments will be Panchayat Raj Department (Disposal of fishery wealth in GP tanks), Revenue (certificates for tanks dried up, breached etc.,) Irrigation Department (retention of water levels) and Police Department (Law & Order while fishing).

D. SUSTAINABLE AQUACULTURE :

This is a development - oriented activity and related to income and employment generation. The activities identified are as follows :

a) Implementation of acceppt cultural practices

b) Environmental monitoring plans and regulation of water intake & drainage's

c) Strengthening of Infrastructure

d) Implementation of land lease policies of the Government

e) Animal (Fish) Health Management including disease control methods, check on excess usage of Antibiotics.

The important functionary who will be interact in the Department are AIF/FDO/ ADF. The target groups of interface are Aqua farmers technocrats, entrepreneurs, scientists, feed suppliers, processors, transporters and exporters. The interaction with Departments will be Central & State Research Institutes for Diseases Diagnosis, Culture methods, export Promotion agencies (MPPEDA) (for tapping of ground water) Electricity Department (for supply of electricity) Forest Department (for supply of electricity) Forest Department (for Protective Vegetation & Reserve forests) Remote Sensing Agencies & Shore Area Development authority (for Environmental Monitoring plan), Revenue Department (Possession of land), Banks & NABARD and other financial institutions credit), Insurance Companies (Insurance) & Non Government organisatins (for better interaction with people).

E. MARKETING ACTIVITIES :

This activity involves important post-harvest functions, as fish is a perishable commodity, and leading to economic growth of the nation as well as the producers. The activities identified are as follows.

a) Cold-chain activity including Ice Plants, Cold Storages, freezing plants

b) Marketing of fresh fish/dry fish/fishery requisites

c) Transportation including packing

d) Hygiene maintenance & quality control

e) Development & marketing of value added products.

f) Domestic marketing & exort promotion

g) Promotion the role of fisherwomen in marketing.

The important functionaries who will interact are AIF/FDO/ADFs. The target groups of interface are fishermen cooperatives, fish traders, entrepreneurs of Ice plants, Cold storage. Freezing plants, transportes, processors. The interaction with other Departments are Industries, (Promotion of Ice Plants, etc.,) Commercial Taxes (Taxation) MPEDA (Quality control & export promotion), Banks, NABARD and financial institutions (credit), Insurance companies (Insurance), NGOS (Product development dry fish trading), Central institutes of Research (value added products), Port Department (Hygiene in Harbours).

F. SKILL BUILDING :

This is an activity of skill building in the department. The activities identified are as follows :

a) Training programmes

b) Extension activities

c) Demonstration farms

d) Research

The important functionaries who will be interact are AIF/FDO/ADF/Principal. The target groups of interface are fishermen boys, Fishermen Cooperative Societies, Fish farmers, Technocrats, Entrepreneurs, Departmental trainees from State and outside State. The interaction with departments will be A.P.A.U., C.I.F.T., M.P.E.D.A. (for providing training for skill building) universities, Research institutes (for identification of new techniques for higher fish production) other State Governemnts (for sponsoring trainees), Equipment suppliers (for supply of equipment), All India radio, T.V. Channels (for visualising extension activities).

G. WELFARE SCHEMES :

This activity relates to the social welfare of the fishing community who are depending on fishing. The activities identified are as follows.

a) Identification of beneficiaries, their contribution & recovery of loans schemes for supply of fishing inputs such as Boats & motorisation seed feed and Ice boxes etc.,

b) Social security schemes like Group Accident Insurance Scheme, Relief cum savings scheme, Housing to fishermen

c) Disaster preparedness schemes like Establishment of Shore Stations & suppply of VHF sets for Shore toll vessel communication systems & training of storm safety action Groups.

d) Encouraging the participation of fishermen

e) The important functionaries who will interact are AIF/FDOS/ADFs. The target groups of interface are fishermen, fisherwomen, NGOs, suppliers of fishery requisites. The interaction with other Departments are postal Department & Banks (for saving A/cs) Housing Department (Construction of Houses), DRDA, BC Corporation, SC Corporation (for supply of fishery inputs), Banks (Credit), Insurance Companies (Insurance) NGOs (encouraging of women), Departments dealing with wire less communications (Police Departments).

VII. 3. AREA OF INTERFACE WITH PUBLIC WITH IN THE DEPARTMENT AND OTHER DEPARTMENTS :

The details of interface, areas of interface, target group, important functionary in the department dealing with the situation and other departments to be interacted are furnished in a table given below :

Activity of the Department	Area of interface	Target Group of Interface	Important functionary in the department	Other departments/ institutes to be interacted in the matter
1	2	3	4	5
Enforcement of Act and Rules	1. Observing conservancy measures including type of net and mesh size and issue of licenses 2. Observance of closed season 3. Ban of certain types of fishing methods	Fishermen, Members of FCS, Mechanised boat, owners/operators of B.W. Farmers, Technocrats, Enterprenuers, Legal practioners, Judicial	F.D.Os/ADFs/ DDFs/JDFs/ Addl.D.F.	Police Judiciary, Co-operation, SADA, Port Department, Marcantile Marine Dept., and Banks and Insurance Companies

	4. Registration of caft and reglation of Fishing by different types of vessels and issue of licences. 5. Implementation of penal provisions for cases of violation of Acts & Rules 6. Conduct of courts under appear provision 7. Organisation of Co-operatives at different levels 8. Mangement of Co-operatives 9. Implementation of regulatory procedures on location of fish culture areas & Aquaculture and making it sustainable	Members acting as Chairman of Appellate Courts.		
Seed Production and distribution	10. Assessment of seed depending on rain fall 11. Procurement of breeders 12. Procurement of materials required for	Co-operative societies, Fish farmers, water user Association, gram Panchayats suppliers of	Asst.Inspector /FDOs	Irregation Dept., Panchayat Raj Dept., Electricity Department Ground water

	breeding producing of seed 13. Source of water supply 14. Supply of seed, containers and Transport	inputs transporters etc		Department etc.
Disposal of fishery wealth	15. Assessment of fishery Wealth based on productivity 16. Fixation of rentals 17. Implementation of lease procedures 18. Departmental exploitation 19. Collection of Statistics on production, etc.,	F.C.Societies, Gram Panchayats, Water Users Associations, Bidders, Fish Traders	AIFs/FDOs/ ADFs	Panchayat Raj, Revenue, Irrigation, Police Department
Sustainable Aquaculture	20. Implementation of Accepted cultural practices 21. Environmental Monitoring plans and regulation of water intake and drainages 22. Strengthening of Infrastructure 23. Implementation of land lease	Aqua Farmers, technocrafts, Enterprenuers, Scientists, Seed Suppliers, Processors, Transport and Exports	AIFs/FDOs/ ADFs	Central and State research Institutes, MPEDA, Ground Water Electricity Department, Foress, Remote sensing Agency, Shore Area Development Revenue,

	policies of the Govt. 24. Fish health management including disease control methods, check on excess usage of Antibiotics			NABARD, Bank, and other financial Institutes, insurance Companies, NGOs, etc.,
Marketing Activities	25. Cold Chain activity including Ice plants, Cold Storage's, Freezing Plants, Transporters, Processors 26. Marketing of fresh fish/Dry fish/Fishery requisites 27. Transportation including packing 28. Hygine maintenance and quality control 29. Development and marketing of value added products 30. Domestic marketing and export promotion 31. Promoting the role of Fisher	Fishermen F.C.S., Fish traders, Enterprenuers of ice Plants, Cold Storages, Freezing Plants, transporters, processors	AIFs/FDOs /ADFs	Industries, Commercial taxes, MPEDA,NABARD, Banks Insurance Companies, N.G.Os, Research institutes, Port Departments

	women in marketing			
Skill Building	32. Training Programmes 33. Extension activities 34. Demonstration farms 35. Research	Fishermen boys, FCS, Fish farmers, Technocrats, Enterprenuers, Departmental trainees from State and other States	AIFs/FDOs/ ADFs/Principal	A.P.A.U.,C.I.FT M.P.E.D.A. Universities, Research Institutes, other State Govt Equipment Suppliers All India Radio, T.V.
Welfare Schemes	36. Identification of beneficiaries their contribution and recovery of loans to schemes for supply of fishery requisites such as boats, motorisation, seed, feed, ice boxes etc, 37. Social Security Group accident, Insurance Scheme, relief cum savings scheme, housing to Fishermen 38. Disaster preparations	Fishermen, Fisher Women, N.G.O.s, Suppliers of fishery requisites	AIFs/FDOs/ ADFs	Postal Banks, Housing, DRDA, BC Corporation SC Corporation Insurance Companies, NGOs, Departments dealing with wireless communiciations police Department

schemes like establishment of Shore Stations and supply of VHF sets for Shore to vessel communication systems and taining of storm safety Action Groups

39. Encouraging the participation of fisherwomen

VIII. VISION OF THE DEPARTMENT

VIII. VISION OF THE DEPARTMENT :

VIII.1 Andhra Pradesh has rich fishery potential in all areas Inland, Marine and Brackish water. The State has coastline of 974 km and a continental shelf of 33,277 square km; a river course of over 8,500 km; and large fresh water and brackish water lakes. Brackish Water areas are estimated to exceed 150,000 hectares. In addition, the State already has over 275,000 fishermen operating out of 508 landing centers. Since, a large number of these fishermen come from weaker sections, the development of this sector will create considerable impact, particularly by providing livelihoods for the poor.

VIII.2 By 2020, Andhra Pradesh will have a thriving fisheries sector. Fish Production will be four times its current size, reaching over 10 lakh tonnes a year. The sector will boast of thriving, diversified exports and provide ample stocks of a highly nutritious food to the people of Andhra Pradesh and other States.

VIII.3 In line with the strategy to develop agriculture, the State will undertake the following initiatives to achieve the vision :

- ❖ Develop the fisheries value chain and boost exports.
- ❖ Create and promote investment in infrastructure to support the development of fisheries.
- ❖ Ensure the setting up of institutions to build skills.
- ❖ Ensure sustainable development.
- ❖ Promote the welfare of the States fishing community through investments in housing, education and health.

VIII.4 DEVELOP THE FISHERIES VALUE CHAIN AND BOOST EXPORTS :

Though Andhra Pradesh is a major center for fisheries in India, its fishery potential like India's is under-utilized. For example, only 25% of Andhra Pradesh's Inland fishery potential have been utilized so far. To truly capture the rich potential of this sector, the State will need to develop the fisheries value chain. This entails

improving productivity and production. Ensuing improving productivity and production. Ensuing credit, and developing on organised logistics and marketing system. In additiion, it would require the boosting of exports to capture the opportunity from growing exports markets.

VIII.5 INCREASING PRODUCTIVITY AND PRODUCTION :

Currently Andhra Pradesh produces around 1.5 lakh tonnes of fish (including shrimp and other species) in the marine sector and 2 lakh tonnes in the inland sector. However,-it has the potential to produce 4 lakh tonnes in marine fishery and 8 lakh tonnes in fresh water fishery. This potential can be tapped by increasing the area under fresh water production, increasing coastal Aquaculture, and introducing new technologies to enhance production and minimise wastage.

VIII.6 Expanding the production of fresh water fish must be a major part of the strategy to achieve the vision. The State will consolidate the lead it has already created in fresh water fish production by spreading awareness about technologies, e.g.., for seed productin, to fish farmers. This will encourage diversification into producing more types of fish, such as eel, murrel and catfish. Another major initiative in freshwater fisheries is to grow freshwater prawns as an alternative species to shrimps. In marine fisheries as well, the State will need to pursue the development of other varieties, such as seabass. Here as well, it will need to acquire technology and spread its use among fish farmers.

VIII.7 For marine fisheries, the State can develop the following technologies: creating artificial reefs and fish aggregating devices, diversifying mechanized fishing into gill netting; encouraging voyage fishing by deep sea trawlers and providing suitable technologies for collecting "trash" fish from these vessels.

VIII.8 Similarly, a host of technologies can be introduced to boost fresh water fisheries. They include cage culture reservoirs and perennial water bodies for rearing table fish pen culture for rearing fish seed to stock size and releasing them in reservoirs; fish culture in running waters along irrigation canals; fresh water pearl culture; diagnosis of fish disease and development of remedies.

VIII.9 Brackish water fisheries can also be promoted through new technologies. These will include popularising alternate species for culture; diagnosing prawn diseases; and introducing artemia culture for live feed of prawn juveniles. In addition, the State will actively pursue the setting up of Brackish Water Users Associations that can invest in and take control of water bodies, lake drainage systems, power and road connections, charging users appropriately.

VIII.10. PROVIDING ACCESS TO CREDIT :

As in many areas of agriculture, the development of the fisheries sector is hampered by the lack of credit. The Government will, therefore, need to introduce various mechanisms to ensure access to credit. These would include sanctioning loans for fisheries from co-operative banks on the same terms as for the rest of agriculture; establishing a credit network for Fisheries to finance deep sea and mechanised fishing vessels, processing plants, hatcheries no other such infrastructure; and strengthening the state Fishermen's Co-operatives Federation to finance co-operatives.

VIII.11 DEVELOPING AN ORGANIZED DOMESTIC MARKETING SYSTEM :

The development of the sector will require a cold chain and transport infrastructure linking production centers to consumption and marketing centers. The cold chain must comprise a network of storage facilities, complete with ice production and fish preservation facilities, and insulated transport. To eliminate wastage and increase exports of fish-products and by-products, investment in processing facilites will also be essential.

VIII.12 Andhra Pradesh will also need to set up a well organized and integrated domestic marketing system for this sector, at the wholesale end, this will mean establishing markets in all districts with facilities for ice production, packing and inspection. To ensure quality, inspections should be strictly enforced, particularly for exported products. At the retailing end, the State will need to promote franchise retail outlets, with the equipment to store fish and fish products for at least a week. These franchise stores should be supplied with products by centralized fish consumer services.

VIII.13 BOOSTING EXPORTS :

The global fisheries market is growing fairly rapidly, with an expected demand supply gap of 620.5 lakh tonnes by 2025. With production declining in leading exporting countries such as Thailand, the Philippines, Malaysia and China (due to over-exploitation), and importers consequently looking for new pastures, the outlook is bring for Indian marine exports. However, today India accounts for only around 1 per cent (in value) of World trade. Hence, large-scale efforts are needed to capitalise on this export opportunity.

VIII.14 Andhra Pradesh already accounts for close to 15 per cent (in value) of India's marine exports. To further boost exports, the State will first need to diversify its exports from their current domination by prawns in to fish, filleted fish, and canned products and fish by-products. In addition, the State will need to

undertake a number of initiative be enhance production and ensure quality. These include providing suitable post-harvest technologies to minimize wastage, pursuing semi-intensive farming for sustainable, environment-friendly production, creating the requried infrastructure, such as a transport network and cold storage facilities; and ensuring hygienic and attractive packaging of finished products.

VIII.15 CREAT AND PROMOTE INVESTMENT IN INFRASTRUCTURE :

As in most sectors, the growth of the fisheries sector will hinge on the creation of adequate infrastructure. The State will need to invest as well as promote private invetment in basic and specialised infrastructure of many kinds.

VIII.16 In terms of specialized infrastructure, as started earlier, a cold chain must be established throughout the State. Moreover, the marine sector will need the expansion of landing center facilities at all important landing centers.

VIII.17 The inland sector will need the establishment of fish seed farms/hatcheries and the encouragement of cage culture in reservoirs. In addition the Government will need to consider the establishment of special Fisheries estates in waterlogged areas, for brackish water fisheries, prawn disease diagnosis facilities will be crucial. These could be set up in association with the Indian Counsel of Agriculture Research and Corporate Research Bodies. In addition, the sector will need ports, power and all weather roads and fishing harbours complete with all facilities, such as preservation, dry docking etc.

VIII.18 ENSURE SKILL BUILDING :

The sector faces an acute shortage of manpower. The State has already acted to meet this need. Andhra Pradesh now has number of training institutes; two marine fisheries training centers in Kakinada and Machilipatnam and three inland training centers, among others. The training center at Kakinada has now been upgraded into the State Institute of Fisheries Technology. However, to ensure manpower and skills of the levels required to achieve the vision, the State special initiatives. Two such initiatives would be strengthening the State will need special initiatives. Two such initiatives would be strengthening the State Institute of Fisheries Technology and setting up Fishermen's Acadmeies with the objective of enrolling children of an appropriate age and providing them with intensive training in specialised skills. The focus would be on providing students with the full range of skills such as operating fishing vessels, managing fish farms and hatcheries, and so on.

VIII.19 ENSURE SUSTAINABLE DEVELOPMENT :

Fish farming has tended to have an adverse impact on the environment mainly through over fishing and pollution. As a result, the industry has attacted severe

regulation on its activities. Finding ways to ensure sustainable and environment friendly development must, therefore be a major focus of the vision for 2020.

The State will need to enact legislation and frame regulations to govern the industry with a view to conservation and sustainable development. This legislation should cover such aspects as the treatment of effluents and the creation of buffer zones for shrimp farms to prevent the contamination of drinking water and soil. Assessing the environmental impact of all projects should be mandatory to avoid such problems as the damaging of fragile ecologies through Aquaculture.

VIII.20 PROMOTE WELFARE :

To ensure the development of the fishing community, the State will need to provide social and economic infrastructure as well as security against the hazards of this occupation.

VIII.21 The State will emphases for all habitations of the community. In addition, to improve their quality of life, it will ensure the provision of low cost housing material, services such as sanitation and drinking water, and infrastructure such as roads, power and bridges.

VIII.22 Another major requirement of the fishing community is cover for the major risks associated with its occupation. The State will need to ensure investment in better shore-vessel communication systems, and disaster warning systems. In addition, the State will need to provide insurance for craft, as well as enforce safety regulations to prevent avoidable mishaps.

VIII.23 This broad approach to the development of the fisheries sector will ensure that Andhra Pradesh captures the full potential of its fisheries sector. In order to fulfill the commitments given to the people for achieving Swarna Andhra Pradesh. The working paper was prepared by the Department of Fisheries after Dt. Level and Regional level meetings held to elicit the views of the people and discussed in the State level meeting held on 9.12.1999. The details are given in Capter. III.

VIII.24 STRATEGIES TO BE ADOPTED BY THE DEPT. - MARINE FISH PRODUCTION :

- Proposed to increase fish production from 1.55 to 1.95 lakh tonnes
- **ESTABLISHMENT OF 12 SHORE TO VESSEL COMMUNICATION STATIONS** through Radio towers on Shore. 12 Stations are at Baruva, Kaligapatnam, Vizag (to be made functional), Penta kota, Kakinada, Bhyravani tippa, Antarvedi, Manginapudi, Nizam patnam, China Ganjam, Ramayapatnam and Krishnapatnam.

- **SUPPLY OF VHF SETS** on boats will be supplied to all those applied and paid 50% cost. The mechanised boat operators are now able to communicate the about the weather conditions and fishery related information.

- **PROGRESSIVE MOTORISATION OF TRADITIONAL CRAFTS** An amount of Rs. 40 lakhs is sanctioned this year 2000-01 and 143 lakhs is provided in 2001-02. An amount of Rs. 10,000 is being given subsidy for out board motor and Rs. 12,000 in case of Inboard motor is being given. About 1830 boats will be motorised.

- **INTRODUCTION OF MODERN FRP MOTORISED CRAFTS** along with nets through AFCOF An amount of Rs. 100 lakhs is provided in 2001-02 in addition to 100 lakhs budgeted this year (2000-01) and about 200 FRP Catamarans will be introduced.

- **ENFORCEMENT OF MARINE FISHING REGULATION ACT :** As a part of the enforcement, ban on fishing was observed for 45 days in the months of April and May which is the breeding season of fish. This has enabled to increase the fish production in the post-ban period

- **OPERATION OF PATROLLING BOATS :** An amount of Rs. 70 lakhs is provided for operation of patrol boats purchased at a cost of about Rs. 190 lakhs, given by the Govt. of India.

- **EXPEDITING CONSTRUCTION OF FISHING HARBOUR AT MACHILIPATNAM :** The Govt. of India was persued and have released their share of Rs. 200 lakhs so far.. The works are expedited and Rs. 191.46 lakhs released has been spent. Apart from Rs. 20 lakhs provided in the year 2000-01, an amount of Rs. 191.11 lakhs has been provided iin the year 2001-02. The harbour is expected to be made operational by November, 2001. **The Bhavanapadu fishing harbour** will be made operational with the assistance from International agencies. M/s Baird Associates, Canada have come forward to give guarantee and arrange financial assistance to a tune of Rs. 7.5 Crores.

- **PROMOTION OF TUNA FISHING :** Assistance of International agencies, World Tuns Development Inc., is being discussed. The existing trawlers will also be requested to convert their vessels for Tuna fishing.

VIII.25 FRESH WATER FISH / PRAWN (SCAMPI) PRODUCTION :

- Proposed to increase fish production from 3.60 to 4.05 lakh tonnes and F.W. Prawn production from 0.40 lakh tonnes to 0.45 lakh tonnes

- increasing Fish seed production & Stocking.

  It is a seasonal activity. This is one of the Functional indicator for monitoring of fish seed production in departmental fish seed farms. The targets are fixed Dt.wise and for 4 quarters.

- The Dept. of Fisheries was supplying 8.99 Crores fish seed in fry stage which was increased to 31.00 Crores last year and the present achievements 31.17 Crores (out of 35 30 Crores - 88%) and further will be increased to 36.00 crores in 2001-02.

- To lease out selected fish seed farms on lease to Fishermen Coop. Societies

- Encouraging Fishermen to stock appropriate size & Variety

- **Taking up culture of alternative species like F.W. Prawn (Scampi) etc.,** At present nearly 11,000 ha. area is under culture specially in Nellore, Krishna, Wet Godavari and East Godavari districts. More farmers are taking up this culture in view of less risk of diseases than the Tiger prawn.

- **Disposal of Fishery wealth in tanks** by leasing them to societies for 3 years.

- This is a functional indicator. The targets are fixed for all Districts and targets are fixed quarterly. The Govt. have issued orders fixing an enhancement of 10% of the rental amount.

- **Issue of licenses in selected Reservoirs :** This is a functional indicator. The targets are fixed for all Districts and targets are fixed quarterly. The Govt. have issued orders fixing the amount to be collected as license fee.

VIII.26 BRACKISH WATER SHRIMP and FISH PRODUCTION :

- This is not included in the core (economic)indicators. The Hon'ble Supreme Court has permitted to take up traditional and improved traditional culture practices. The production may increase from 0.32 lakhs tonnes to 0.40 lakhs tonnes.

- **Formation of Aqua clubs** for ensuring pollution free and environmental - friendly Aqua culture. **94 Aqua clubs** have been organised.

- No new sanctions of Brackish Water fish culture will be given beyond 78,700Ha

- 3 no.s disease diagnostic centres will be established at Vizag, Kakinada and Nellore with Rs. 52.10 lakhs sanctiond under world banks scheme.

- Taking up culture of alternative species like Seabass, Fresh water Prawn & Crabs.
- Conducting of **awareness camps** for Coastal Aquaculture regulation **345 no.s** of awareness camps were conducted in this year. Rs. 4.75 lakhs was provided in the Annual plan 2000-01 but funds are not released so far and no amounts are provided in 2001-02.

VIII.27 POLICY REFORMS REQUIRED :

- **ENACTMENT OF AQUACULTURE SEED ACT :** In view of the infected seed being supplied from hatcheries, the Act is proposed to keep the quality of shrimp seed supplied by the hatcheries. The law dept., has verified the bill.
- **ENACTMENT OF INLAND FISHERIES (CONSERVATION, DEVELOPMENT AND EXPLOTATION) ACT :** The existing act is Inland Fisheries Act, 1897 and the amendments made for the state based n the above. A comprehensive bill is proposed keeping inview of the changed situations.
- **LEASING OUT SELECTED FISH SEED FARMS :** There are 98 farms. The dept., will retain 41 productive farms for keeping the check on seed production in private sector and to serve as demonstration centres. The technology for production of fish seed farms has reached the private sector, the cooperatives and the private sector will be encouraged to produce more fish seed by giving 42 farms. 15 farms in towns etc., will be put to out right sale. The sale proceeds will be utilised for revolving fund for fish seed production.
- **REVIEW OF LEASE POLICY OF TANKS AND RESERVOIRS :** The Govt. have ordered to enhance the lease amount by 10% over the last year rentals. The earlier orders were to fix the rentals based on the tank productivity. The Govt. have now ordered to lease for 3 years.
- Review of rates of licenses to fishermen: The Govt. have fixed rates for different types of nets and boats. A fishermen require 2 gill nets of 150' length, I cast net and a boat, totaling to Rs. 260/- per head but the Govt. have ordered to collect a maximum of Rs. 110 only.

VIII.28 SCHEMES CHANGES :

- **THE INTEGRATED MARINE FISHERIES PROJECT : The National Cooperative Development Corporation** has agreed in principle to extend the Integrated project phase. iii at a cost of Rs. 30 lakhs. The Inland fisheries

project was also proposed at a cost of Rs. 18 lakhs. The NCDC is giving the project cost as 100% loan except Project management, which has to be born by the State Govt.

❖ **REVIVAL OF FISH FARMERS DEVELOPMENT AGENCIES (FFDAs) :** The Govt. of India are routing all Inland fisheries schemes through this scheme and have released Rs. 69 lakhs The pattern of assistance is 75:25 between Central and State Govt.s. The provisions are not given for this scheme in the Annual Plan 2001-02.

❖ **REVIVAL OF INTEGRATED COASTAL AQUACULTURE DEVELOPMENT AGENCIES** (Previously Brackish Water Farmers Development Agencies) The scheme is included in Annual plan 2001-02. The pattern of assistance is 50:50. The existing staff of the Dept. will implement the scheme. Rs. 64.78 lakhs is provided in 2001-02.

❖ **REVIVAL OF THE SCHEME - SUBSIDY ON EXEMPTION OF CENTRAL EXCISE DUTY ON HSD OIL.** The mechanised fishing boat above 20 Mt. In length will get Rs. 0.35 per litre HSD oil supplied through the AFCOF HSD oil outlets. The pattern of assistance is 80:20 between Govt. of India and Govt. of Andhra Pradesh. Rs. 73.00 lakhs is provided in plan 2001-02.

VIII.29 MOBILISATION OF INTERNAL RESOURCES :

The present income in the state is Rs. 2.17 crores coming from Disposal of tanks, Sale of fish seed, Licensing fees and from licenses under MFR Act. The comparative picture is neighbouring states is also similar, except in Karnataka. The Income in Karnataka is Rs. 4.76 Crores. Rs. 1.52 crores in Tamil Nadu, Rs. 1.11 Crores in Orissa. The revenue can be increased by the following.

- Fixation of rentals for issue of fishing rights in tanks and reservoirs. The rentals is being fixed @ 10% on the previous rentals. The rentals may be fixed based on the productivity of the tank and lease amount @ 10% of the net income of Rs. 99.46 Lakhs (+Rs. 176.14 lakhs).

THE ISSUE OF LICENSES TO INLAND FISHERMEN the additional amount per license will be Rs. 150 and a target of 10,000 licenses is prosed, yielding an additional income of Rs. 15.00 lakhs.

LEASING OUT SELECTED FISH SEED FARMS: There are 98 farms. The dept. will retain 41 productive farms for keeping the check on seed production in private sector and to serve as demonstration centres. The technology for production of fish seed farms has reached the private sector, the cooperatives and the private sector will be encouraged to produce more fish seed by giving

42 farms. 15 farms in towns etc., will be put to out right sale. The sale proceeds will be utilised for revolving fund for fish seed production.. An addl. Amount of Rs. 100 lakhs is anticipated.

ISSUE OF LICENSES TO MARINE FISHING CRAFTS : By adopting the rates as in the neighbouring states the revenue from this source can be increased from Rs. 4.93 lakhs to Rs. 56.23 lakhs (+Rs. 51.30 lakhs). By all these measures the income will increase from Rs. 217.29 lakhs to Rs. 557.83 lakhs (+Rs. 340.54 lakhs that is +

LEASING OUT SELECTED FISH SEED FARMS : There are 98 farms. The dept. will retain 41 productive farms for keeping the check on seed production in private sector and to serve as demonstration centres. The technology for production of fish seed farms has reached the private sector, the cooperatives and the private sector will be encouraged to produce more fish seed by giving 42 farms. 15 farms in towns etc., will be put to out right sale. The sale proceeds will be utilised for revolving fund for fish seed production. 157%)

VIII.30 MONOTORING OF DEVELOPMENT INDICATORS :

Under Swarna Andhra Pradesh Monitoring of State Development is indicated in the following parameters, in so far as the Fisheries Department is concerned.

1. Core Sectors :

a. Economic Indicators : As per the Vision 2020 Document which is envisaged that Andhra Pradesh will be a thriving fisheries sector by 2020 and the fish production will be 4 time its current size reaching over 10 lakh tonnes a year.

This target will be achieved by 2010 itself.

In the Department of Fisheries the following are the sources of fish production :

i. Marine Fish Production (Code No. 35)

ii. Inland (Code No. 36)

iii. Brackish water (Code No. 37

BW Shrimp production may not be concentrated in view of its involvement in the degradation of environment. Therefore, only marine and inland fish production are being monitored. However, prawn production from marine waters as well as inland waters have already been included under Code No. 35 and 36.

VIII.31 FUNCTIONAL INDICATORS :

Among the functional indicators the following functions of the Department are required to be monitored to achieve the fish production as envisaged in the Swarna Andhra Pradesh and Vision 2000 Document.

1. Fish seed production in Departmental tanks.
2. Disposal of fishery rights in tanks.
3. Issue of licences to fishermen.
4. Issue of licences to marine fishing crafts.

Unless the above functions are carried out it will not result in fish landings on marine as well as inland waters. The fish seed production in particular for improving the fish production in inland waters.

VIII.32 INFORMATION TECHNOLOGY :

Government have launched computerisation programme very recently both at Government level, Departmental level and District level through National informatic centers. The training was imparted in late 1980 was restricted to computer cells at District Collectorates. During 1988-90 a computer was fixed for AFCOF through SVS for maintenance of accounts and staff. During 1992 Shrimp Culture project was commenced and 2nd computer was included. Later in 1995 AHRD project was commenced. By 2001 January 13 more computers were added besides adding 2 new computers in old computers, updating. The software technology. Now there are 10 computers at Head Office and 5 computers in State Institute of Fisheries Technology, Kakinada. The computers are linked to each other through server system.

Now computers are used for preparation of Project, New software system for accounts, planning section latest type of printers are used

200 departmental staff are both executive and ministerial are trained in operation of computers.

Inter linking with Districts has been done through modem. Computers at Regional level and District level are yet to be set. Inter linking with Head of the Department & Secretariat is yet to be done. Internet facilities are availed both at Kakinada SIFT & Commissioner of Fisheries.

E-mail facilities are also established.

VIII.33 The fish seed production is monitored on fortnightly basis and on weekly basis at the closing of the breeding season. The Overseeing Officers have been

appointed at the level of Joint Directors who will be supervising 6 to 10 districts each.

1. Fish Seed Production : We have 82 Fish Seed Farms and 150 Seed Production Farms in the Government Sector and 150 in the Private Sector. The total requirement of the State is about 100 crores and the entire production will be met from within the state including private and Government sector, unlike in other states. In addition to catering to the local requirement we are selling seed to neighbouring states like Tamilnadu and Karnataka through the private sector. The fish seed production is taken up in two seasons. The Major Carp during August to October and the Common Carp during January to March. The Major Carp production is by inducing breeding method and further hatchlings will be further reared into spawn in the hatcheries and have to be further reared to the fry stage in nurseries.
2. Disposal of fishery rights in tanks : The District Collectors are competent to authorise for fixation of rentals of the fishery tanks. Government have recently finalised the policy on disposal of fishery rights in the tanks for the next three years at rate of 10% enhancement each year.
3. Issue of licences to fishermen : By issuing licences to fishermen fishing is done in the reservoirs and other waterbodies which will add on to the ultimate fish production in the state.
4. Issue of licences to marine fishing crafts : All fishing crafts when they go for fishing are required to be licenced for fishing. Therefore, licences are being issue through authorised officers in the 9 coastal districts and the marine landing are monitored regularly.

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