

REVISED PERSPECTIVE PLAN FOR ATTAINING SELF SUFFICIENCY IN FISH IN TRIPURA BY 2012 A.D.

Fish is one of the most important constituent of diet of 95% of Tripura's population. In spite of available resources, the present fish production of the State is much below the requirement (5.5 kg/capita during 2003-04 against nutritional requirement of 11.1 kg/capita). This necessitates its import from other parts of the country and the resultant drainage of funds. It was, thus, felt essential in 2001-02 to formulate a Perspective Plan for fisheries development and implement it to attain self sufficiency by 2011-12. It was accordingly done, based on the base data then available.

Implementation of the said Perspective Plan in the State is in the process of continuation from the year 2002-03. During last part of 2003-04 it was felt necessary to evaluate the ground reality of aquaculture scenario of the State. Accordingly, the Department made a detailed field survey from door to door of the fish farmers and collected basic data on fishery resources, fish production, available water areas needing reclamation for fish culture, actual consumption etc. by involving grass root level workers of the Department and the representatives of local Panchayat bodies.

On thorough examination of the ground realities of aqua-resources scenario, thus arrived at, it has been noticed that there were huge discrepancies in the earlier figures and facts, which formed the base for preparation of Perspective Plan in the year 2001-02. Thus, a revision of the same, based on newly arrived at ground realities, was felt essential. It was proposed to formulate the revised plan, with effective programmes in consultation with eminent aqua culturists of the country, scientist of ICAR and Fishery College etc. Accordingly, the Department organized a Seminar inviting experts from outside the State, ICAR, Fisheries College, dignitaries from PRIs, progressive pisciculturists and Departmental Officers for interaction on the deficiencies of original Perspective Plan and then decide the programmes to be included in the Revised Perspective Plan.

On the basis of the recommendations arrived at the Seminar, the Department has prepared this Revised Perspective Plan to increase fish production and develop the fisheries sector in the State. The details of the Revised Perspective Plan are presented hereafter.

2. PRESENT AQUACULTURE SCENARIO OF THE STATE

2.A Available Water Resources

ISRO has been approached to prepare an authentic detail data base of the aquatic resources of this State. But the same is expected to take time. In the meanwhile, the recently collected data, through Departmental survey indicates that

aqua-resources contribute only 2.02% of the total geographical area of the State. Out of the total aqua-resources of 21,169.24 ha, 37.2% is contributed by capture fishery and 62.8% by culture fishery resources. Category-wise detailed break up is as follows :-

TOTAL AQUA-RESOURCE OF THE STATE

Category of Water bodies resource	Area in ha	% against total aqua- resource
<u>CAPTURE FISHERIES</u> (as per remote sensing data from Science & Technology Deptt.)		
Rivers & Rivulets	4728.96	22.33
Reservoir (Gomti)	3049.34	14.40
Lake (Rudrasagar)	100.46	0.47
TOTAL	7878.76	37.20
<u>CULTURE FISHERIES</u>		
Ponds & Tanks	8646.08	40.08
Mini-barrages	4644.40	21.93
TOTAL	13290.48	62.80
GRAND TOTAL	21169.24	100.00

SECTOR-WISE BREAK UP OF AQUA-RESOURCES

Name of the Sector Resource under---- fishery	Resource under Capture				
	Culture fishery		Reservoir/ Lakes	Rivers/ Rivulets	Total
% against total capture resource	Ponds/ Tanks Mini- barrages	% against total culture resource			

Govt. Sector 7738.30 98.72	784.00	5.90	3049.34	4728.96
Coop. Sector 100.46 1.28	181.91	1.37	100.46	-
Pvt. Sector - -	12324.57	92.73	-	-
TOTAL 7878.76 100.00	13290.48	100.00	3149.80	4729.96

2.B Population

As per 2001 Census, the population of Tripura was 31.91 lakh. Taking the observed annual growth rate of 1.57%, State's population during 2011-12 (terminal year of this Perspective Plan) is expected to be 37.29 lakh.

2.C Production of Fish (2003-04)

Resource in	Fish Production (t)	% of contribution total production
Culture Fishery 94.59	17,006.76	
Capture Fishery 5.41	972.84	
TOTAL 100.00	17,979.60	

2.D Demand of Fish

Taking into consideration the 95% fish eating population in the State and demand of fish @ 13 kg/head/annum (a little higher than the nutritional requirement of fish of 11kg/head/annum prescribed by National Commission of Agriculture, 1976 and accepted by WHO), the requirement of fish (in t) for the expected population of 2011-12 would be 46,060 t.

3. OBJECTIVES OF THE PERSPECTIVE PLAN

This Revised Perspective Plan has been formulated with the main objective of bridging the gap between demand and supply, so as to make the State self sufficient in fish for its expected population by 2012 A.D. Additionally, it is also aimed at generating employment opportunities in the rural sector, especially for the unemployed youth. The said objectives are proposed to be met through:

- utilization of all presently available, as well as new aqua-resources (both Govt. & Privately owned), created under other developmental programmes of the State, for scientific fish culture;

- encouraging private entrepreneurship development in scientific fish culture through various extension efforts;
- involving private pisciculturists, SHGs, Fishermen Cooperatives, PRIs, TTAADC, NGOs and Financial Institutions in scientific fish production and development of capture fisheries;
- strengthening of State Fisheries Department, and human resource development;
- developing/ upgrading necessary infrastructure for production and marketing of fish; and
- inter-departmental and inter-institutional collaborations.

4. STRATEGIES FOR AUGMENTING FISH PRODUCTION

Only production-oriented programmes have been included in this Perspective Plan. Required research, if any, has been left out, expecting these to be attended by Fisheries College/ ICAR Institutes who are mandated to do so. Production of fish seed in private sector has made great progress in the State. This sector is capable of providing any quantity of fish seed required and, thus, production of seed for aquaculture is proposed to be left alone for private sector seed producers. They would also be encouraged to produce fish seed for export to the neighbouring States. The fish seed production of major carps in Govt. sector is proposed to be restricted only for stocking the open water bodies. Realising the importance of tribal welfare and upliftment of women in the State, it is proposed to specifically encourage both these groups to participate and give preference to them in all the proposed activities related to beneficiaries.

It is proposed to undertake the following programmes to achieve the above said objectives. Of these, Programme nos. I and II will be implemented in a mission mode and given top priority. The priority for others would be in the order they are mentioned below:

Programme I : Increase in Fish Productivity

Programme II : Fisheries Extension

Programme III : Strengthening of Fisheries Department

Programme IV : Development of Fisheries of Open Water bodies

Programme V : Reclamation of Water bodies

Programme VI : Development of Post-harvest Facilities

Programme VII : Development of Fishermen Cooperative Societies

Programme I : INCREASE IN FISH PRODUCTIVITY

This main programme would have four sub-components of demonstration of scientific fish culture technologies, entrepreneurship development among educated unemployed youth (through SHGs), development of model Aquaculture Villages (Centre of Excellence) and Supply of 1st year inputs (as per FFDA programme). The detail work plan for each sub-component would be as under:

I.A Demonstration of Scientific Fish Culture Technologies

Though aquaculture is a popular rural enterprise in the State, a major part of available aquaculture resource is still not being utilized for scientific fish culture. They, thus, remain highly under productive. This necessitates taking steps for increase in fish production through proper utilization of all available aquaculture resources, according to capability of the farmers and suitability of the location. For this total available cultivable aqua-resources of the State have been categorized into four following categories on the basis of their present day fish production. They are:

Category (ha/annum)	Total water area available (ha)	Fish production obtained
I	5589.35	Below 1000 kg
II	6739.30	1000 kg to 2000 kg
III	758.81	2000 kg to 3000 kg
IV	203.02	Above 3000 kg

A comprehensive approach for enhancement of fish production is proposed to be taken up through proper demonstration, with emphasis on the first three categories of culturable resource to increase the average fish production in the State to 3000kg/ha/annum from the present 1280 kg/ha/annum. Category-wise approach and targets would be as follows:-

For Category I

The targeted production from ponds under this category is 2400 kg/ha/annum. Efforts would be made to change the present day no culture/ extensive pisciculture practice in this category of resource to **low input composite fish culture** through technical demonstration in 256 ha of fish farmer's pond. **For Categories II & III**

Medium cost input technologies (semi-intensive, integrated, polyculture of major carps with others) would be demonstrated in this category of private fish farmer's ponds so as to raise their average fish production to 3400 kg/ha/annum. It is proposed to cover 307.2 ha of pond area for demonstration under this programme.

For Category IV

The resourceful private fish farmers, owning culturable water areas under this category and practicing semi-intensive fish culture, would be encouraged to take up intensive fish culture, employing **Hi-tech aquaculture practices**. Practical demonstration of such technologies would be held in 17.92 ha of water area in different suitable parts of the State. The targeted average production from this category of water resources is 5500 kg/ha/annum.

Year wise required flow of funds from various organization for the above scheme is shown below :

(Rs. in lakh)					
Year	Fishery Deptt.	NEC	PRIs	People's contribution	Total
2004-05	20.70	12.50	11.70	7.80	52.70
2005-06	32.70	20.00	--	--	52.70
2006-07	35.66	--	12.78	4.26	52.70
2007-08	35.66	--	12.78	4.26	52.70
2008-09	35.66	--	12.78	4.26	52.70
2009-10	35.66	--	12.78	4.26	52.70
2010-11	35.66	--	12.78	4.26	52.70
2011-12	35.66	--	12.78	4.26	52.70
Grand Total	267.36	32.50	88.38	33.36	421.60

I.B Entrepreneurship Development among Educated Unemployed Youth

Fishery sector has ample opportunities to offer job opportunities for a good number of educated unemployed skilled and unskilled youth, especially in the rural areas. It can also play an important role in gearing up the rural economy. But at present, though over one lakh persons are associated, in one way or the other, with fisheries activities in the State, entrepreneurship in fish culture has not developed to the desired extent, excepting in some pockets. Thus, it is felt essential to work for entrepreneurship development especially among the educated unemployed youth through motivation to take up fish culture on a commercial scale for their self employment and income generation.

The modern approach for self employment in rural areas is through formation of Self Help Groups (SHGs) to run enterprises supported by micro-credit. Besides activating the presently existing 334 SHGs in fisheries by providing them the

technical know how on advanced fish culture technologies and supplying them basic inputs for fish culture, other unemployed youths would also be encouraged to form new SHGs (166 nos.) and work on same line.

Lack of readymade balanced fish feed in the State has also been recognized as an impediment for growth of scientific fish culture. It is proposed to provide necessary funds and technical support to selected SHGs for establishing 10 fish feed manufacturing plants, in a phased manner, in different parts of the State.

Year wise fund requirement through various organization for the above scheme would be as below:

(Rs. in lakh)

Year	Fishery Deptt.	NEC	BADP	PRIs	SHGs share	Total
2004-05	36.00	--	15.00	30.71	10.24	91.95
2005-06	36.00	--	--	33.75	11.25	81.00
2006-07	51.50	10.00	15.00	11.21	4.24	91.95
2007-08	50.00	10.00	10.00	14.85	3.45	88.30
2008-09	50.00	10.00	10.00	18.79	6.26	95.05
2009-10	50.00	10.00	--	20.81	6.94	87.75
2010-11	50.00	10.00	--	20.81	6.94	87.75
2011-12	50.00	10.00	--	20.81	6.94	87.75
Grand Total	373.50	60.00	50.00	171.74	56.26	711.50

I.C Development of Aquaculture Villages (Centres of Excellence)

Area based approach for comprehensive development of fisheries is very much essential for mass awareness and motivation amongst the fish farmers. With this aim at least one Aquaculture Village is proposed to be developed in each block of the State as the Centre of Excellence. The idea is to bring all the available aquatic resources of that village under different types of piscicultural activities to set good example before the fish farmers of that village. It would also attract the fish farmers of adjoining villages and help them to build up their confidence for undertaking scientific fish culture in all the tanks available in the area.

It is proposed to create 40 such aquaculture villages during the Perspective Plan period. Four such villages (in four Districts) would be developed each year during first four years (2004-05 to 2007-08) and six each year in the last four years with demonstrations carried out in 108.8 ha of water area. The average fish production from all the available aqua-resources in such villages is expected to be above 3000 kg/ha/yr.

Year wise requirement of fund from various organization for the above scheme would be as follows:

(Rs. in lakh)

Year	Fishery Deptt.	NEC	PRIs	ACA	People's contribution	Total
2004-05	10.34	7.50	2.25	16.00	0.75	36.84
2005-06	20.84	16.00	--	--	--	36.84
2006-07	20.84	16.00	--	--	--	36.84
2007-08	16.34	10.00	7.88	-	2.62	36.84
2008-09	24.51	15.00	11.81	--	3.94	55.26
2009-10	24.51	15.00	11.81	-	3.94	55.26
2010-11	24.51	15.00	11.81	-	3.94	55.26
2011-12	24.51	15.00	11.81	-	3.94	55.26
Grand Total	166.40	109.50	57.37	16.00	19.13	368.40

I.D Supply of First Year Inputs

In order to ensure desired level of fish production from ponds belonging to poor fish farmers it is proposed to supply basic fish culture inputs to them through Swarojgar Credit Card System, PRIs and Government of India programme (Fish Farmers Development Agency). It is proposed to cover 4,658 ha of water area under this programme.

The requirement of fund, year-wise, for this sub-component, with organization-wise funding break up is indicated below:

(Rs. in lakh)

Year	Fishery Deptt.	CSS	Institutional Finance	People's contribution	Total
2004-05	6.69	20.09	62.50	68.92	158.20
2005-06	7.80	23.40	68.75	80.40	180.35
2006-07	8.85	26.55	75.00	91.80	202.20
2007-08	9.79	29.36	81.25	103.05	223.45
2008-09	10.84	32.51	87.50	114.45	245.30
2009-10	11.94	35.84	93.75	125.92	267.45
2010-11	13.05	39.15	100.00	137.40	289.60
2011-12	14.10	42.30	106.25	148.80	311.45
Grand Total	83.06	249.20	675.00	870.74	1878.00

Detailed year-wise and sub-component-wise physical and financial targets of the above given four sub-components of this Programme are presented in Tables 1,2,3 & 4 respectively.

PROGRAMME II : FISHERIES EXTENSION

This programme is proposed to have two sub-components of Training & Exposure Visits and Awareness & Motivation. The details of the proposals are as under:

II.A. Training & Exposure Visits

Human resource development is accepted as one of the essential means for proper technology transfer and development. To achieve the goals of the Perspective Plan, the Department would need a very strong extension support base to motivate and develop the skills of fish farmers through proper transfer of technology. It is, thus, proposed to train/ refresh the existing field staff in latest developments in aquaculture by in-campus/ off-campus trainings and exposure visits to different places of fisheries importance.

Besides entrepreneurship development, intensive training to pisciculturists, would also play a vital role in enhancing the fish production in the State. Stress would be laid under this programme for exposure visits and training to the farmers (both inside and outside the State) in various technologies for fish culture, seed production, feed manufacturing and post-harvest. Separate package of training programmes would be developed for tribals and women.

Year-wise break up of physical targets and financial involvement of this sub-component is presented in Table 5. The total financial involvement for implementation of this proposed programme during the Perspective Plan period is expected to be **Rs. 260.80 lakh**. A table giving year wise break up of fund required from various organization for the above scheme is given below :

(Rs. in lakh)				
Year	Fishery Deptt.	CSS	DRDA	Total
2004-05	18.11	10.72	3.60	32.43
2005-06	18.11	10.72	3.60	32.43
2006-07	18.11	10.72	3.80	32.63
2007-08	18.11	10.72	3.80	32.63
2008-09	18.21	10.72	3.80	32.73
2009-10	18.13	10.72	3.80	32.65
2010-11	18.13	10.72	3.80	32.65
2011-12	18.13	10.72	3.80	32.65
Grand Total	145.04	85.76	30.00	260.80

II.B Awareness & Motivation

Mass awareness campaigns and education, about more possible return from scientific fish culture, are required to be extended through publications, newspapers, educational films etc., to encourage the populace for its adoption and investing more funds in this sector. Organising regular fish farmer's awareness camps, group discussions, seminar at block, sub-division and district levels, participation in exhibitions, display of hoardings in blocks and headquarters, distribution of incentives to fish farmers recording highest production etc. are the possible methods for the same. Lab to land field programmes are also essentially required from time to time to achieve the goal. Year- wise details of the proposed activities in this regard and the financial requirements for the same (**Total Rs. 113.00 lakh**) are depicted

in Table 6. The total fund required for this sub-component would be met from Fishery Plan Budget of the State.

PROGRAMME III : STRENGTHENING OF FISHERIES DEPARTMENT

For effective implementation of the projected time bound programmes in this plan document certain basic infrastructures, presently not available in the Department, are essentially required. In addition, there are some specialized areas of work which need necessarily be carried out by the Department in its own Fish Farms for development of fisheries, both in available culture and capture resources. Considering the above, the following aspects of work are proposed:

III.A Creation of Water & Soil Testing Laboratories

Knowledge about soil and water quality of the aquaculture resource is most essential for scientific fish culture since only on this depends the calculations regarding required manuring schedule, stocking of fish seed and the expected fish production. The State is devoid of even one functional soil and water testing laboratory in the fisheries sector (except for one in the process of being established in West Tripura district). It is proposed to create one water and soil testing laboratory in each block during the period of this Perspective Plan.

It is proposed to first create at least one such laboratory in each District, then one in each Sub-Division and finally one each at Block level. Year-wise break up of the physical targets and financial requirement (**Total Rs. 20.00 lakh**) for this purpose are indicated in Table 7. The total fund required for this sub-component would be met from Fishery Plan Budget of the State.

III.B Breeding & Propagation of alternate/ genetically improved varieties for Aquaculture

It is essential to diversify present day aquaculture by introducing alternate commercially important species (*bata*, *pabda*, other catfishes, *sar puti*, mahaseer, freshwater prawn), as well as genetically improved varieties (Jayanti *rohu*). It would serve dual purpose of increased profitability and conservation of threatened varieties. Breeding and propagation of such species in the Govt. sector, for development of technology and availability of seed, is very much required.

The State has already made progress and succeeded in breeding *pabda* and freshwater prawn. It is proposed to further intensify this work and also attempt to produce seed of other species. The existing major carp/ prawn hatcheries and nursery/ rearing facilities, available at the Govt. Fish Farms would be utilized for the purpose. Certain additional special facilities (for new species) would have to be developed.

Detailed year-wise physical targets and financial requirements for the same **(Rs. 117.70 lakhs)** are also indicated in Table 7. A table giving year wise break up of required funding through various organization for this scheme is given below :

(Rs. in lakh)

Year	Fishery Deptt.	CSS	ACA	TOTAL
2004-05	3.70	30.00	-	33.70
2005-06	4.70	-	27.00	31.70
2006-07	6.50	-	12.00	18.50
2007-08	6.60	-	-	6.60
2008-09	6.80	-	-	6.80
2009-10	6.80	-	-	6.80
2010-11	6.80	-	-	6.80
2011-12	6.80	-	-	6.80
Grand Total	48.70	30.00	39.00	117.70

III.C Ornamental Fish Seed Production

Ornamental fish trade can open new avenues for self employment and income generation in the State. In addition to the conventional species, the State possesses good number of fish species which can be popularized as ornamental fish. Selecting more such species from natural resource and breeding and propagation (conventional and local varieties) is essentially required, in the State sector, for motivation and entrepreneurship development. A beginning in this regard has been made by the Department at the newly created facility at College tilla (West Tripura). It is proposed to expand the activities at this Centre itself and, thus, only operational cost is being provided in the Plan.

Detailed physical targets and financial requirements **(Rs. 6.80 lakh)** for this purpose are shown in Table 8. Year-wise break up of the financial requirement between Fishery Plan Budget & Centrally Sponsored Scheme would be as follows:

(Rs. in lakh)

Year	Fishery Deptt.	CSS	Total
2004-05	-	0.85	0.85
2005-06	-	0.85	0.85
2006-07	0.70	0.15	0.85
2007-08	0.85	-	0.85
2008-09	0.85	-	0.85
2009-10	0.85	-	0.85
2010-11	0.85	-	0.85

2011-12	0.85	-	0.85
Grand Total	4.95	1.85	6.80

III.D Temporary leasing out of some Govt. Fish Farms

The State Fisheries Department has presently 23 fish farms (total area 97.2 ha). In general, these Govt. Fish Farms are yielding low fish/ fish seed production due to paucity of input supply and manpower crunch. As such, besides this being an under-utilisation of this potential available aquaculture resource, it serves as a disincentive to the pisciculturists of the area in undertaking scientific fish culture. Moreover, by leasing out few of such Govt. Fish Farms (retaining those required for items of work proposed under programmes III B and V) additional manpower would be available to share the increased work load of extension, being proposed in this Perspective Plan.

It is, thus, proposed to lease out few existing Govt. Fish Farms on a short-term basis (3-5 years), in a phased manner, to SHGs/ unemployed youths/Fishermen Cooperatives/ pisciculturists of the area for their better utilization and increased fish/ fish seed production, besides release of departmental manpower, employed therein, to strengthen the required extension base.

PROGRAMME IV : DEVELOPMENT OF FISHERIES OF OPEN WATER BODIES

To enhance the production of fish from Gumti reservoir and other open water bodies of the State, ranching with quality fish seed (from healthy breeders of good size), introduction of new technology of pen culture, clearance of weeds and conservation etc. need be undertaken in extensive manner. This will not only enhance the capture fishery production but would also support the livelihood and economic status of the poor fishermen living around such water bodies and subsisting on their fisheries.

It is proposed to stock fish fingerlings (4" to 6" size) in the available open water bodies (7878.76 ha) @ 500 - 1000 nos/ha annually. Total annual requirement of fish seed for the purpose would be between 4 to 8 million. Production of seed for this purpose would be done in the Govt. Fish Farms and their rearing to the desired size would be done, both in the nursery areas of these farms and in pens installed in the open water bodies, in collaboration with local Fishermen Cooperatives and SHGs. Pen culture technology in open water bodies, for higher fish production and seed rearing, is also proposed to be introduced.

Detailed year-wise targets and requirement of funds for this purpose are indicated in Table 9. The total estimated financial requirement of this programme is **Rs. 411.24 lakh**. A table giving year-wise break up of fund requirement between Fishery Plan Budget & Centrally Sponsored Scheme for this purpose is given below:

(Rs. in lakh)			
Year	Fishery Deptt.	CSS	Total

2004-05	23.44	5.25	28.69
2005-06	44.50	31.05	75.55
2006-07	63.37	2.10	65.47
2007-08	36.62	2.25	38.87
2008-09	40.94	2.40	43.34
2009-10	45.25	2.55	47.80
2010-11	49.57	2.70	52.27
2011-12	56.25	3.00	59.25
Grand Total	359.94	51.30	411.24

PROGRAMME V : RECLAMATION OF WATER BODIES

It has been seen from the data of recent survey that 40% of existing water bodies of the State are either seasonal or silted with thick infestation of weeds or do not have capacity to retain water, particularly in the dry season, upto the desired level for fish culture. To make them perennial and suitable for aquaculture, reclamation of such water bodies, both in private and Govt. sectors, is most essential.

Accordingly, it is proposed to reclaim 4000 ha of old water areas in the private sector and 200 ha in Govt. sector under this programme through the funds from RD/ PRIs/ BADP/ ACA and Govt. of India.

Year-wise detail projected break up of physical target and the required fund for the same (**Rs. 5529.40 lakh**) is presented in Table 10. Year wise break up of the required fund amongst various organization for the above scheme would be as follows :

Organ-isation	(Rs. in lakh)								Total
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	
Fishery	1.21	1.28	1.35	1.42	1.48	1.55	1.62	1.69	11.60
CSS	3.65	3.85	4.05	4.25	4.45	4.66	4.86	5.06	34.83
NEC	-	-	-	-	15.00	10.00	10.00	20.00	55.00
RD	248.12	276.12	282.12	316.87	322.37	348.62	352.37	393.12	2539.71
PRIs	100.00	120.00	120.00	124.80	130.00	140.00	140.00	148.13	1022.93
BADP	25.00	25.00	25.00	21.00	20.00	20.00	20.00	20.00	176.00
ACA	100.00	45.00	45.00	44.20	30.00	-	-	-	264.20
Institt.Fin.	12.55	14.14	13.95	14.65	15.35	16.04	16.74	17.44	120.86

Grower	128.57	143.91	147.03	160.51	164.25	178.23	179.71	202.06	1304.27
Grand Total	619.10	629.30	638.50	687.70	702.90	719.10	725.30	807.50	5529.40

PROGRAMME VI : DEVELOPMENT OF POST-HARVEST FACILITIES

The presently available post-harvest facilities, for the fisheries sector, in the State for preservation, transport and marketing of fish are very limited and of preliminary nature. This results in loss of produce and their sale in unhygienic conditions. It is necessary to upgrade/ establish strong modern facilities for preservation, transport and marketing of fish and, thus, the same is being proposed in this Perspective Plan.

Year-wise break up of physical targets of the proposed activities for this purpose and financial requirement for the same are presented in Table 11. The total financial requirement of this programme would be **Rs. 502.00 lakh**. A table giving year-wise break up of fund required through various organization for this scheme is given below :

(Rs. in lakh)

Year	Fishery Deptt.	CSS	PRIs	Coop.Societies/ SHGs share	Total
2004-05	5.00	83.00	-	22.00	110.00
2005-06	4.00	57.75	28.00	19.25	109.00
2006-07	-	61.50	32.00	15.50	109.00
2007-08	10.00	7.50	22.00	2.50	42.00
2008-09	14.00	-	18.00	-	32.00
2009-10	14.00	-	18.00	-	32.00
2010-11	14.00	-	18.00	-	32.00
2011-12	8.00	-	28.00	-	36.00
Grand Total	69.00	209.75	164.00	59.25	502.00

PROGRAMME VII : DEVELOPMENT OF FISHERMEN COOPERATIVE SOCIETIES

There are 134 Fishermen Cooperative Societies, including one Apex Body (TAFCS Ltd.) in existence in the State who are closely associated with fisheries activities in about 300 ha owned/ leased water bodies. But these Societies are not contributing to the fish production to the desired extent, due to various factors like non-functioning of some, weak financial condition of few and lack of technical know-how in others. Thus, a fresh thrust need be given to revamp the activities of these Fishermen Cooperative Societies. For the purpose, it is proposed to revitalize the weak Societies by providing financial assistance as share capital for fish production activities and by imparting required technical know-how. In addition to that poor fishermen of these Cooperatives would be provided with necessary nets and boats for harvesting fish from open water bodies.

Year-wise detailed break up of physical and financial targets are presented in Table 12. It is evident therein that the total financial involvement for this programme would be **Rs. 108.30 lakh**. A table giving year wise break up of fund required for this scheme, amongst various organizations, is given below:

(Rs. in lakh)

Year	Fishery Deptt.	CSS	PRIs	Coop. Societies share	Total
2004-05	11.90	7.78	3.00	3.92	26.60
2005-06	13.20	7.50	-	2.10	22.80
2006-07	9.90	7.92	3.00	2.28	23.10
2007-08	7.00	0.28	2.00	1.12	10.40
2008-09	7.00	-	2.00	-	9.00
2009-10	7.00	-	2.00	-	9.00
2010-11	5.00	-	1.20	-	6.20
2011-12	-	-	1.20	-	1.20
Grand Total	61.00	23.48	14.40	9.42	108.30

5. EXPECTED AQUA-RESOURCES AND THE SEED REQUIREMENT

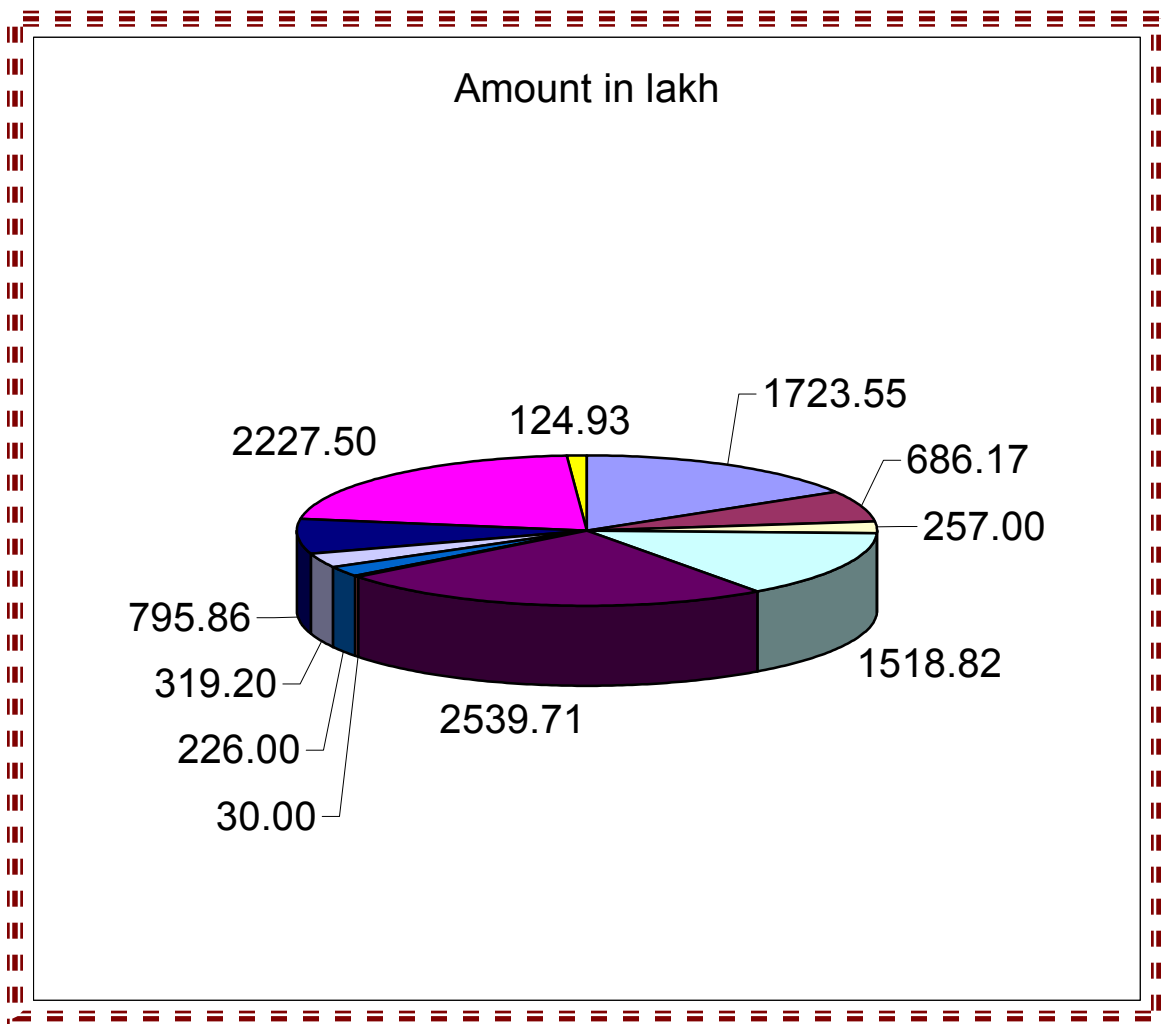
Though no programme for creation of new aqua-resources has been proposed in this Perspective Plan, it is expected that additional 2000 ha area of such resource would be created, during the period, through other developmental activities of the State Govt. (PRIs, ACA, BADP etc.) and under ongoing FFDA credit linked programmes. The expected year-wise available aqua-resources for culture & capture fisheries and fish seed production is projected in Table 13.

Table 14 shows the expected year-wise requirement of fish/ prawn seed for aquaculture and development of fisheries of open water bodies (capture fisheries). As has been mentioned earlier (item 4 – strategies for augmenting fish production), it is expected that fish seed requirement for aquaculture (1476.05 lakh during terminal year of the plan) would be fully met by fish seed producers in the private sector. The Govt. sector need produce major carp seed for stocking capture fisheries resources (requirement 78.78 lakh in the terminal year of the plan) and the prawn seed for polyculture (provision for these has been indicated in the Perspective Plan in Tables 7 & 9).

6. FLOW OF FUNDS

The programme-wise and year-wise fund requirements for implementation of this plan have been shown in Table 15. It is evident there from that the total requirement, during eight year period would be **Rs. 10, 448.74 lakh**. The various agencies for funding with their expected year- wise share of fund requirements are shown in **Table 16** and graphically depicted in the figure. It is evident from this table that major share of fund (44.34%) is expected through other developmental programmes of the State Govt. (PRIs/RD/BADP/ACA/DRDA etc.).

6.1. DIAGRAMATIC PRESENTATION OF PROJECTED FLOW OF FUND UNDER DIFFERENT ORGANISATION FOR SELF-SUFFICIENCY IN FISH DURING 2004-12 A.D. IN TRIPURA



Fishery Department – 1723.55, CSS – 686.17, NEC – 257.00,
PRIIs – 1518.82, RD – 2539.71, DRDA – 30.00, BADP –
226.00,
ACA – 319.20, Institutional Finance – 795.86,
People contribution - 2227.50, Coop. Societies/SHGs –
124.93.

7. MONITORING & EVALUATION

It is proposed to have a provision for strict monitoring and evaluation of implementation of all the programmes. The same is proposed to be done on a fortnightly basis at the Sub-Division level by the concerned Supdt. of Fisheries through actual field visits. At District level the concerned Dy. Director would monitor the progress, based on the reports submitted by the various Supdts. of Fisheries. The specially created Monitoring Cell at the Directorate would monitor the implementation and progress of the programmes through monthly reports of the Dy. Director as well as actual visits to the field from time to time.

The computerized block-wise data, recently collected through Departmental survey, would be passed on to various Community Information Centres in the Block. The data would be updated, from time to time, regarding various fisheries development activities undertaken with in the Block and their progress.

8. EXPECTED BENEFITS

Resultant to proper implementation of the proposed programmes of the Perspective Plan, the expected year-wise available resources for different types of aquaculture, the expected per ha productivity increase (average 3050 kg/ha in terminal year against 1280 kg/ ha/ yr presently) and the total fish production of the State (both through culture and capture fisheries) are projected in Table 17. It can be seen in this table that the total fish production of the State in the terminal year of the Perspective Plan is expected to be 46,842.77 ton.

The year-wise projected population, demand of fish and production (Table 18) amply shows that by 2011-12, the terminal year of this plan, the State is expected to be **self sufficient in fish**, fulfilling the main objective of this Perspective Plan. Additionally, it would also be able to **generate self employment**, right from the first year, which would keep on gradually rising and attain the level of 57,756 persons (annually) as entrepreneur + 38.91 lakh man-days as labour (Table 19) during the terminal year. This employment potential of fisheries sector shown is only of direct nature. In addition, indirect employment is also expected to be generated in the areas of fish seed & input supply, pond reclamation and fish marketing etc. It

can, thus, be seen that the proposed Perspective Plan is capable of fulfilling both its objectives (item 3), if implemented fully and properly.

9. BASIC REQUISITES FOR SUCCESS OF THE PERSPECTIVE PLAN

It is evident from above that self sufficiency in fish by 2011-12 and substantial employment generation in fisheries sector are achievable through proper implementation of the proposed Perspective Plan. Besides necessary finance, certain sincere efforts on the part of State Fisheries Department are the basic requirements for its success. They are:-

- a. Proper implementation of the proposed programmes with effective demonstration as per scientific norms.
- b. Deployment of Technical staff (Supdt. of Fisheries downwards) basically for field duty. Fisheries Officer should visit each demonstration site of his block, at least once during the month at the time of demonstration.
- c. A strict monitoring of all programme activities by Deputy Director at district level and a Monitoring Cell at the Directorate level.
- d. Encouraging production of quality fish seed (from healthy breeders of good size) in private sector to stock all the aquaculture resources.

YEAR –WISE SUMMARY TABLE OF SALIENT ASPECTS OF THE PERSPECTIVE PLAN

	2004-05 2009-10	2005-06 2010-11	2006-07 2011-12	2007-08 TOTAL	2008-09
1. Estimated population 36.15 (in lakh)	33.34 36.71	33.96 37.29	34.49	35.04	35.59
2. Expected Demand of fish 44.64 (13 kg/capita – in '000 t)	41.17 45.33	41.94 46.06	42.60	43.28	43.95

3. Programme-wise Financial Requirement for Perspective Plan (Rs. in lakh)

I. Increase in Fish Prod.	339.69	350.89	383.69	401.29	448.31
	463.16	485.31	507.16	3379.50	
II. Fishery Extension	47.13	47.63	44.83	45.13	47.18
47.10	47.40	47.40	373.80		
III. Streng. of Fish. Deptt.	36.55	34.55	21.35	9.45	10.65
10.65	10.65	10.65	144.50		

IV. Dev. Fish. Open. Wat. Bod.	28.69	75.55	65.47	38.87	43.34
47.80	52.27	59.25	411.24		
V. Reclam. Of Wat. Bodies	619.10	629.30	638.50	687.70	702.90
	719.10	725.30	807.50	5529.40	
VI. Dev. of Post-Harv. Fac.	110.00	109.00	109.00	42.00	32.00
32.00	32.00	36.00	502.00		
VII. Dev. of Fish. Coop.	26.60	22.80	23.10	10.40	9.00
9.00	6.20	1.20	108.30		
TOTAL	1207.76	1269.72	1285.94	1234.84	1293.38
	1328.81	1359.13	1469.16	10448.74	

4. Percentage Share of Different Organizations to the Financial Requirement

Govt. of India/ NEC	15.01	13.48	10.81	6.02	6.96
6.68	6.80	7.22	9.03		
Financial Institutions	6.21	6.53	6.92	7.77	7.95
8.26	8.59	8.42	7.61		
Beneficiaries	20.05	20.23	20.62	22.47	22.67
24.03	24.45	24.91	22.52		
State Fisheries	12.73	15.78	17.96	16.75	17.61
17.61	17.43	15.91	16.50		
Other State Dev. Progr.	46.00	43.98	43.66	46.99	44.81
43.42	42.73	43.54	44.34		
4. Expected Fish production	20.50	23.25	26.29	29.72	33.56
37.74	42.27	46.84			
(in '000 t)					

5. Expected Employment Generation

As Entrepreneur (no. of persons)	9327	16304	23206	30108	37010
	43913	50815	57756		
As labour (lakh man-days)	4.86	9.72	14.58	19.44	24.30
	29.17	34.02	38.91		