

**TAMILNADU IRRIGATED AGRICULTURE MODERNIZATION AND
WATER-BODIES RESTORATION AND MANAGEMENT PROJECT**

(A Project with a Vision for future generations)

**Annual Report
(2007-08)**

Foreword

The total water resources of Tamil Nadu were estimated at 44361 Mm³ (2001). The estimated Gap was 7452 Mm³ which indicates that the State of Tamil Nadu is one of the water stressed States of the country. Tamil Nadu Irrigated Agriculture Modernization and Water-bodies Restoration and Management (IAMWARM) Project, in the context of serious water stress in the State, is aimed at augmenting the productivity by using the available water efficiently and effectively in order to enable the farmers to get more profit for each drop of water that is used for agriculture.



It is a widely known factor that agricultural sector in Tamil Nadu consumes about 85 percent of the total water that is available. Through its crop diversification activities, IAMWARM Project has been successfully facilitating farmers to change their cropping pattern from high to low water requirement crops. System of Rice Intensification (SRI), one of the achievements of the project, is being promoted and propagated throughout the state. SRI in Tamil Nadu can save 30% of irrigation water and double farm incomes. Moreover, there is scope for increasing Tamil Nadu rice production by 1.20 million tonnes with comparatively less water consumption.

IAMWARM has initiated the unique process of 'Convergence' among 8 Line Departments that are directly associated with development of farmers in Tamil Nadu. It has been a process of linkage of expertise from 8 Line Departments without losing their respective identities. ***“Convergence has not only brought unity but also enhanced the competitiveness and competencies among the line departments and no doubt this concept has potential for creating wonders in the field”.***

The Project enables the participation of Water User Associations (WUAs) in the implementation and equitable sharing of benefits of the project. Efforts have been undertaken for the formation and capacity building of Water User Associations in all the 63 sub basins.

During planning for the second phase sub basins, consultations were held with primary stake holders (farmers / water users) through joint walk through survey conducted by Water Resources Department along with other line departments. Based on this feedback Detailed Project Reports for 16 sub basins have been prepared.

The Annual report for the year 2007-08 is an exercise in learning from the experiences of the first year, aimed at consolidating the best practices so as to achieve long lasting impact on the irrigated agriculture scenario of the state.

S.Audiseshiah, IAS,
Secretary to Government,
Public Works Department,
Government of Tamil Nadu.

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IAMWARM Project – An Overview

Irrigated Agriculture Modernization and Water-Bodies Restoration and Management (IAMWARM) – ‘a multidimensional project that envisages to bringing about positive changes in the context of Irrigated Agriculture and Farm ecology & economics, involving multiple stake-holders both at facilitation and implementation levels’ – has been planned to be implemented in 63 Sub-basin in Tamil Nadu. The Project intends to expand the area under Irrigated Agriculture through effective and efficient Irrigated Water Management practices in order not only to grow more crops per drop, more meat and milk per drop, and more fish per drop but also to facilitate the farmer for fetching him more income per every drop of water that he uses for agriculture.

Negotiations for this project were held at World Bank, Washington from 11-12-2006 to 17-12-2006 and the Bank Board had approved the project for US\$566m with loan component of US\$ 485m of which US\$ 150 m will be credit under IDA. Of this US\$ 75 m will be treated as grant from GOI for the RRR sub component in this project, which contemplates rehabilitation of P.W.D tanks in the selected Sub-Basins. On 12.02.2007 at New Delhi, the officials of the Government of India, Government of Tamilnadu and the World Bank signed the legal agreements, thus paving the way for commencement of the project on 09.04.2007.

This is a unique project integrating the activities of the eight departments in the Water Sector (viz, PWD/WRO, Agri-Engineering, Agriculture, Agri-Marketing, Horticulture, TNAU, Animal Husbandry and Fisheries) with the main objective of improving the irrigation service delivery including adaptation of modern water saving irrigation technologies and Agricultural practices and with ultimate vision of the enhanced farmer income .The project covers an area of 6.17 lakhs hectares spread over 63 sub basins out of 127 sub-basins in the State. In the first year that is in 2007-08 only 9 sub-basins are taken up covering an extent of 2.94 lakhs ha .

The Objective of the project:

The Project Development Objectives is to improve irrigation service delivery and productivity of irrigated agriculture with effective integrated water resources management in a river basin / sub-basin frame work in Tamilnadu.

Project Components:

Component A: Irrigation systems modernization in a sub-basin framework

This component seeks to improve bulk water delivery to irrigation system through modernization of irrigation systems and service delivery and management in schemes in about 63 selected project sub-basins. Activities will be carried out under two sub-components:

Sub-component A1: Tank System Modernization

This sub-component focuses on reviving traditional water bodies (tanks) that are an integral part of most irrigation systems networks in the state. Special effort will be made to consider tanks in a multi-disciplinary, holistic framework to yield sustainable benefits to the farmers of such systems.

Sub-component A2: Other Irrigation Systems Modernization

This sub-component focuses on the few sub-basins where tanks are not part of the larger canal irrigated systems (PAP). These irrigation systems will also be modernized in a shared-vision sub-basin perspective.

Component B: Agricultural Intensification and Diversification

This component seeks to build on the improved bulk water delivery of component A to increase the productivity of agriculture-related activities through improved agricultural intensification and diversification in about 63 selected sub-basins. This component will also be implemented as two sub-components:

Sub-component B1: Tank Systems

This sub component focuses on intensification and diversification of tank-dependent ayacuts.

Sub-component B2: Other Systems

This sub-component focuses on the intensification and diversification of the larger canal-irrigated systems.

Component C: Institutional Modernization for Irrigated Agriculture

This component seeks to improve the institutional capacity for modern, efficient, and accountable irrigation service delivery. The scope of this activity is state-wide.

These activities will be implemented through the WRO and the WUAs. The activities are expected to substantially scale-up the institutional capacity at the WRO to design, monitor, maintain and modernize their assets in an environmentally and socially sustainable manner using appropriate state-of-art techniques, and to more effectively interact with much stronger WUAs.

Component D: Water Resources Management

The objective of this component is to improve the institutional arrangements and capacity for sustainable water resources management in the State. This will include the creation of a State Water Resources Management Agency (SWaRMA), amalgamating the existing Institute for Water Studies and the State Ground and Surface Water Resources Data Centre.

Component E: Project Management Support

This component supports the management and coordination efforts related to this project.

This component will be implemented by the Multi-Disciplinary Project Unit (MDPU). It is expected that the project activities would help MDPU improve its challenging institutional coordination function, remain on top of the status of project activities, and undertake corrective measures as required.

IAMWARM Project in 1st phase sub-basins.

With agriculture sector facing major constraints due to poor irrigation infrastructure, long term growth in agriculture and rural income depends in large part on increasing efficiency and effectiveness in the use of water. Increased agricultural diversification and private investments in higher value processing are likely to generate new rural non-farm employment opportunities and raise rural incomes. Increased availability of water and greater efficiency of water use through widespread adoption of drip and sprinkler irrigation could enable cultivation of crops over larger area, providing employment in agricultural production and processing, benefiting the rural poor. It is with this back

ground that the Irrigated Agriculture Modernization and Water-Bodies Restoration and Management (IAMWARM) project is prepared and officially launched on 19-09-2007 by Honourable Minister for Public Works and Law. The project activities, converging all line departments, were initiated in 9 sub-basins as first phase implementation plan covering 2.94 Lakh hectares.

List of First year 9 Sub Basins

Sl. No	Sub Basin	Registered Ayacut (in Ha)
1	2	3
1	Varahanadhi	25274.96
2	Vasishta Nadhi-Upper Vellar	10145.45
3	South Vellar	21079.18
4	Pambar	18886.48
5	Manimuthar	16921.19
6	Kottakkarayar	17424.04
7	Arjunanadhi	11185.78
8	PAP - Aliyar	20536.36
9	PAP - Palar	152717.94
Total		294171.38

Tables showing Sub-basin wise Physical Progress of Line Departments

1. Water Resources Department

Sl.No.	Sub Basin	Total No. of Packages	Total estimated cost (Rs. in lakhs)	Total No. of Packages taken up	Total No. of Tanks	Total No. of Anicuts	Current Status	Expenditure upto 03/2008 (Rs. in lakhs)
1	Varahanadhi	12	2387.52	8	237	38	All are under progress	281.58
2	Upper Vellar	3	2447.70	3	76	107		246.86
3	South Vellar	7	6048.00	5	6	4		59.48
4	Pambar	7	5179.00	7	292	22		128.23
5	Manimuthar	8	5695.00	8	378	52		207.10
6	Kottakaraiyar	9	4300.90	9	310	8		369.40
7	Arjunanadhi	5	4543.00	2	35	9		92.83
8	Aliyar (PAP)	4	1518.40	4	Canals			197.15
9	Palar (PAP)	12	5755.08	12	Canals			1268.24
	Total	67	37874.60	58	1334	240		2850.87

2. Agriculture Department

Sl. NO	Sub Basins	Demonstrations (ha)		Impact Area(ha)		Inputs distribution(ha)		Distribution of Agricultural Implements(Nos)	
		Target	Achieve	Target	Identified	Target	Achieve	Target	Achieve
1	Varahanadhi	150	229	750	780	3774	3893	0	0
2	Arjunanadhi	1795	1830	15900	16250	0	0	180	203
3	Upper Vellar	1184	1197	9530	9660	426	424	0	0
4	Kottakkariyar	2391	2009	22310	18490	5600	5330	0	0
5	Manimuthar	2305	2220	20700	19850	5800	5466	0	0
6	Pambar	2336	2336	22210	22210	12360	10860	1170	1170
7	South Vellar	2838	2689	23730	22687	15093	10052	2682	2682
8	Palar(CBE)	1585	1584	8490	8270	5197	5020	0	0
9	Palar (Erode)	188	228	1080	1480	0	0	429	611
10	Aliyar	156	153	260	230	818	730	0	0
	Total	14928	14475	124960	119907	49068	41775	4461	4666

3. Horticulture Department

Sl. No.	Activities		Unit	Physical		Status
				Target	Achievement	%
A	Area Expansion					
	1	Fruits	Ha.	1481	1377	
	2	Vegetables	Ha.	2576	2855	
	3	Spices	Ha.	785	615	
	4	Medicinal	Ha.	492	462	
	5	Others	Ha.	805	738	
		Total	Ha.	6139	6047	98.5
B	Other Items					
	1	Shade-net / Polygreen House	Sq. M.	7500	7500	100.0
	2	INM / IPM	Ha.	1945	2004	103.0
	3	Mulching	Ha.	15	15	100.0
	4	Organic Farming	Ha.	10	10	100.0
	5	Vermi-unit	No.	10	10	
C	Financial					
	1	R.E. 2007-08	Lakhs	659.06	634.766	96.3

4. Agricultural Engineering Department

Sl. No.	Description of work	Drip Irrigation		Sprinkler irrigation		PVC Buried Pipelining		Farm Pond		Water harvesting structures		IEC & CB	Grand Total
		Phy. (Ha)	Ach	Phy. (Ha)	Ach	Phy. (Ha)	Ach	Phy. (Nos.)	Ach	Phy. (Nos.)	Ach	Ach	Ach
1	Pambar	8.05	2.87	18.67	3.25		9.10	40	14.48	-	-	3.91	33.61
2	South Vellar	9.82	5.78	11.70	1.76		-	23	8.32	-	-	4.19	20.05
3	Upper Vellar	74.08	42.49	20.00	3.84		9.46	34	12.23	-	-	3.98	72.00
4	Varaganathi	9.75	4.16	263.08	36.19		9.99	19	6.86	-	-	6.08	63.28
5	Kottakaraiyar	34.01	24.59	19.00	3.29		7.80	55	19.57	-	-	4.02	59.27
6	Manimuthar	15.65	13.18	15.00	2.32		6.87	40	14.25	-	-	3.22	39.84
7	Arjunanadhi	12.02	3.24	26.67	4.59		12.00	10	3.62	-	-	3.05	26.50
8	Palar	915.95	184.86	10.00	1.50		8.47	9	3.21	8	19.70	15.74	233.48
9	Aliyar	680.26	116.44	2.00	0.38		-	10	3.21	3	9.53	2.50	132.06
	Head Quarters	-	-	-	-	-	-	-	-	-	-	9.24	9.24
	Total	1759.59	397.61	386.12	57.12	-	63.69	240.00	85.75	11.00	29.23	55.93	689.33

5. Tamil Nadu Agricultural University (TNAU)

Activities / Sub basin	SRI			Maize			Rice fallow pulses			Gingelly * Cotton # Sunflower ** Castor §			Inter-cropping cocoa in coconut		Thornless Bamboo			Casurina saucer planting method		Model Village & Organic forming		
	Phy	Ach	Imp	Phy	Ach	Imp	Phy	Ach	Imp	Phy	Ach	Imp	Phy	Ach	Phy	Ach	Imp	Phy	Ach	Phy	Ach	
Varaghanadhi *	384	384	403	41	41	100	60	60	0	45	45	50			20	20	20			20	20	
Upper Vellar §	250	250	525	110	110	630	35	350	490	75	75	205								20	20	
South Vellar	115	115	102	50	50	25	115	115												20	20	
Pambar	50	50	50	59	59	20	50	50	0									83	63	20	20	
Manimuthar	30	42	0				30	30	0											20	20	
Kottakaraiyar	20	20	0	48	48	0	20	20	0											20	20	
Arjunanadhi #	250	250	500	55	55	420	100	100	0	120	120	700								20	20	
Palar **				35	35	600				35	35	100								20	20	
Aliyar	200	200	800				170	170	0				100	100								
Total	1299	1311	2380	398	398	1795	580	895	490	120	120	700	100	100	20	20	20	83	63	160	160	

6. Agricultural Marketing Department

(Units in Nos.)

Sl. No.	Name of the Sub-Basin	Physical (2007-08)					IEC & CB		
		Storage Shed	Drying yard	Collection Centre	ABC	Pack House	Exposure Visit	Inter face work shop	Training
1	Varahanadhi	4	4	1	1	-	7	2	2
2	Upper Vellar	5	8	2	1	1	7	2	3
3	South Vellar	6	6	-	1	-	12	2	4
4	Pambar	3	3	-	1	-	6	5	5
5	Arjunanadhi	3	7	1	1	-	7	2	3
6	Kottakaraiyar	2	3	-	1	-	0	2	2
7	Manimuthar	3	3	-	1	-	3	2	2
8	Palar	13	11	-	1	-	19	9	9
9	Aliyar	2	2	-	1	-	2	1	1
10	O/o. DAM & AB								
Total		41	47	4	9	1	63	27	31

7. Animal Husbandry Department

Sl. No.	Sub basins	Est. of Sub basin Vet. Unit		Fodder Cultivation (Ha)		Infert. Camp (Nos)		Night Meeting (Nos)		Farmers Training (Nos)	
		Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
1.	VarahaNadhi	11	1	50	50	132	132	160	160	400	400
2	Palar	10	5	200	200	120	120	172	172	400	400
3	Aliyar	2	2	50	50	24	24	32	32	400	400
4	Upper Vellar	10	10	135	135	120	120	104	104	400	400
5	South Vellar	4	2	125	125	48	48	88	88	400	400
6	Pambar	3	3	50	50	36	36	44	44	400	400
7	Kottakaraiyar	3	1	5	5	36	36	52	52	400	400
8	Manimuthar	4	2	35	35	48	48	80	80	400	400
9	Arjunanadhi	3	1	120	120	36	36	68	68	400	400
	Total	50	27	770	770	600	600	800	800	3600	3600

8. Fisheries Department

(Tgt = Target, Ach = Achievement)

Name of Sub-basin	Aquaculture in Farm ponds		Fish seed Bank		Fish seed rearing in cages		Renovation of Government Fish seed Farm		Ornamental Fish culture		Fishing Implement		Fish Kiosk	
	Tgt	Ach	Tgt	Ach	Tgt	Ach	Tgt	Ach	Tgt	Ach	Tgt	Ach	Tgt	Ach
Varahanadhi	19	17	2	2	12	12	1	1	-	-	10	10	2	2
Upper Vellar	34	12	1	1	5	5	-	-	-	-	5	5	-	-
South Vellar	20	5	2	2	10	10	-	-	-	-	10	10	-	-
Arjunanadhi	10	3	1	1	-	-	1	1	-	-	15	15	-	-
Kottakaraiyar	20	0	1	1	10	10	-	-	-	-	10	10	-	-
Manimuthar	17	2	1	1	10	10	-	-	5	5	10	10	-	-
Pambar	20	5	1	-	10	10	-	-	-	-	10	10	-	-
Aliyar	29	1	0	-	-	-	-	-	2	2	-	-	-	-
Palar	25	2	0	-	-	-	-	-	2	2	-	-	-	-
Total	194	47	9	8	57	57	2	2	9	9	70	70	2	2

SUCCESS STORIES

SRI is the Future! Say Farmers.

System of Rice Intensification (SRI), an emerging alternative to conventional water and chemical intensive rice cultivation, has been promoted in Tamil Nadu under the IAMWARM Project. Farmers across the State are adopting System of Rice Intensification, as it gives equal or more produce than the conventional rice cultivation; with less water, less seed and less chemicals. The net effect is a substantial reduction in the investments on external inputs.

Mr. K.Parameswaran, one of the progressive farmers in the Kottur village situated in PAP Aliyar Sub-basin, had almost decided to give up paddy cultivation as it was not fetching favourable returns. He was explained about the SRI method of Paddy cultivation and motivated to adopt it in his field. The following is what Mr. K.Parameswaran narrated after initial experiences with SRI.

“I have been cultivating paddy for the past 8 years. As I didn’t get profit in paddy cultivation, I thought of shifting to some other profession. In due course, Scientists from Coconut Research Station, Aliyarnagar oriented me about SRI under IAMWARM Project. I didn’t have confidence in SRI cultivation, because of reduced seed rate (3 kg/ac) and single seedling/hill with square planting (with spacing of 22.5 cm x 22.5 cm). With the encouragement from scientists, I raised dapog nursery with 3 kg seeds in an acre. When compared to traditional method, the seed cost is reduced from Rs. 1000 to Rs. 75. I am expecting to get more yield in SRI.”



Mr. R.K.Karuppuswamy, living in Ramanamudhali Pudur Village, has been cultivating paddy since 15 years. When TNAU Scientist contacted, Mr. R.K.Kuppuswamy was in a state of dilemma whether to continue with Paddy as problems such as

labour and water were haunting him. He was desperately looking for some solace. Mr. R.K.Kuppuswamy too was motivated to adopt SRI method of paddy cultivation and he expressed the following about SRI.

“For the past 15 years, I have been cultivating paddy. Due to lack of labour availability, it is difficult to cultivate paddy. Scientists from coconut Research Station, Aliyarnagar explained about the SRI technology. According to the scientist’s recommendation, I used dapog nursery with 3 kg of seeds/acre. 15 days old seedlings were transplanted with single seedling per hill. By adapting this technology, an amount of Rs. 2500 was saved from reduced seed rate, effective nursery management and minimum number of labour requirement for transplanting. I am expecting more yield from SRI method of cultivation.”



Mr. T.Ranganathan, a diehard farmer, living in Pethanaickanur village has been persisting with traditional method of Paddy cultivation since 15 years. Diminishing returns, scarcity of labour and increasing demand for water were forcing him to sell his land and become a daily wage labourer in his own village. He was not only introduced to SRI method but also motivated to adopt the method in his field. Initial experience with SRI has gradually encouraged him not to sell his land. His conviction about SRI may be seen from his statements given below.

“I am cultivating paddy for the past 20 years. Because of the loss in paddy cultivation, I thought to change my occupation as daily wage labourer. By this time, the scientists from Coconut Research Station, Aliyarnagar under TN-IAMWARM Project motivated me to go for SRI. I raised dapog nursery with 3 kg/acre, and single seedlings per hill were transplanted with square planting (22.5 cm x 22.5 cm spacing). For weed management, I used rotary weeder for controlling the weeds. By the use of Rotary weeder, number of tillers (30-35) were increased and also the number of labourers for weeding reduced. Because of this technology, I am expecting to get 15 quintals per acre when compared to conventional system of cultivation.”

Bridging the Gap between Farmers and Traders and ensuring profitable price

It has been widely accepted that the "Middle Man" is the Farmer's enemy. By facilitating the farmer to avoid middle man while trading, more monetary value is accrued for his incessant efforts in the field. The objective of Interface Workshop organized by Agricultural Marketing Department in which Farmers are facilitated to have a direct dialogue with traders is to ensure that the farmers would get reasonable and assured price for their produce.

Crop Diversification has to be strategically planned in order to ensure "More Profit per Drop of Water". It has been planned to cover an area of 16820 Ha under Maize crop in Palar Sub-basin. Initially there was a bit of hesitancy among farmers to go for diversification with Maize. A meeting was organized at Udumalpet between farmers and traders of Maize like M/S Suguna, Poultry Feed Manufacturers. This was a significant meeting as it resulted in arriving at a Memorandum of Understanding between farmers and traders for purchase of Maize at a price advantageous for both. Maize growers from other parts of State have been visiting to learn about the working of this arrangement. Now farmers in Palar Sub-basin have been encouraged to grow Maize in more areas.



Mango is one of the major diversified crops picking up in Arjunanadhi, Manimuthar and other sub-basins. However, farmers have been facing marketing problems. Processing facilities were needed for export of this produce. An Interface Workshop was organized between Mango Growers and M/s Magarita & Co., that has

established processing facilities. The Interface Workshop provided a platform for Mango growers to express their marketing challenges and willingness to work with industries directly. It has been agreed upon between the farmers and traders that mango farmers would get reasonable price based on market rate and quality required by the company.



Chillies is a dominant crop in Manimuthar and Kottakaraiyar sub-basins and proposed to be cultivated in an area of more than 1500 Ha. Major chilli trader M/s VPS & Sons requires around 40000 MTs and 75% of this quantity is procured from other States. Hence an Interface Workshop between traders and chilli growers

was organized with the involvement of the District Collector. The firm agreed to procure the chillies at an agreed price not below the prevailing market rate and also supply free seeds of a variety not grown in this region which is commercially preferred by the chilli exporters.

Save Nature.....Serve Farmer

(Formation of Vision for & by Agricultural Engineering Department)

Agricultural Engineering Department (AED), one of the key stake-holders of IAMWARM Project, plays pivotal role in Soil Conservation and Promotion of Micro Irrigation for optimum use of available water in Agriculture Sector.

Change is the only unchanged phenomenon prevailing in this World. Success is always succeeded by Innovation, Incessant effort with Commitment to the Cause. Having realized the need for Change in approach and methods, Agricultural Engineering Department was the first Line Department of IAMWARM Project to undergo a Process of Managing Changes through "Change Management Workshops".



The Change Management Workshop aimed at facilitating the AED to further sensitize them around the theme of Water, critically analyze the present interventions

in order to bring in necessary changes in approach and methodology.

150 AED Officers from 9 Sub-basins had participated in Change Management Workshop in 5 batches. The Workshop was process oriented, it enabled the participants to review and revive their commitment to the Cause. The workshop not only motivated the participants to arrive at an individual goal around the theme of water but also to arrive at a Common Vision for the AED. 30 participants from 5 batches volunteered to form a "Change Management Group – AED" to promote and sustain value based changes in the department in the interest of Farmers and Agriculture Sector.

The Change Management Group underwent a process of dreaming an ideal scenario in which they wanted their future generation to live in. They arrive at a vision for AED and that has been shared and accepted by one and all in the department.



Water to tank.....Smiles to farmers

(Rehabilitation of Rain-fed tanks by Water Resources Organization (WRO))

Water Resources Organization (WRO), under IAMWARM Project, has been objectively functioning to harness surface and ground water potential and improving conveyance of water. Small Tanks in Tamil Nadu have been playing vital role in the field of Agriculture since time immemorial. They receive water from upper-catchment areas through water supply channels. Therefore, maintenance of supply channels is equally important.



Kottakaraiar, one of the first year sub-basins of IAMWARM Project, has been in the news in the recent past for all good reasons. Rehabilitation and Modernization activities of rain-fed tanks and their supply channels have been undertaken by WRO and it has brought smiles on the faces of farmers.

Ayankudi village of Thiruvudani Taluk, Ramanadhpuram District, has a small tank that was weeping without water as its supply channel was encroached and silted. The supply channel was left uncared and it needed rehabilitation work.

Farmers were of the opinion that the tank had been receiving little or no water during rainy season from upper catchment areas as the supply channel was totally invisible. It had adverse impact on cultivation and livelihood options for families in that village.

WRO undertook rehabilitation of supply channel and completed before rainy season to enable the Ayankudi tank to receive water from upper catchment areas. While expressing his gratitude, Mr. S.Selvaraj, former Village Council Leader said that the Ayankudi tank now looks different altogether. Farmers were happy that the desilting of supply channel was done effectively by WRO, they said that the tank received water without any wastage through the rehabilitated supply channel after 35 years, only during the recent rainy season. It was reported that paddy cultivation was successfully done as there was sufficient water. Melpanaiyur is one of the typical villages in Kottakariayar sub-basin that has a tank which was empty since 15 years due to reduced water supply through its supply channel. The supply channel was in bad shape due to siltation and encroachment.



Mr. K.Muthuramalingam, Vice-president of Village council, could not hide his blissful emotions while explaining the process of fetching water to their tank through rehabilitated supply channel. ***“It is a great relief for us, now we can think of sustaining with cultivation of paddy,”*** expressed farmers who assembled to witness the rehabilitated supply channel with current water passing towards the tank.



“The rehabilitated supply channel brought water to the tank and smiles on our faces,” said many farmers of both Ayankudi and Melpanaiyur Villages.

IAMWARM Team at Varahanadhi sub-basin.

The success of any project depends upon the efficiency and effectiveness of the personnel and their ability to work in a team. Formation of teams and enhancing the cohesiveness among its team members is, therefore, vital for the success of IAMWARM project which is



complex and multifaceted in nature. The project involves multiple stakeholders from diversified fields and backgrounds. Formulation of “homogenous teams consisting of heterogeneous members” is a challenging task and that is what needed for the successful implementation of IAMWARM Project. This project is conglomeration of different line departments and Communities, when several people use their skills and knowledge together, the result should be a better project. People working together can sustain the enthusiasm and lend support

needed to complete the project.

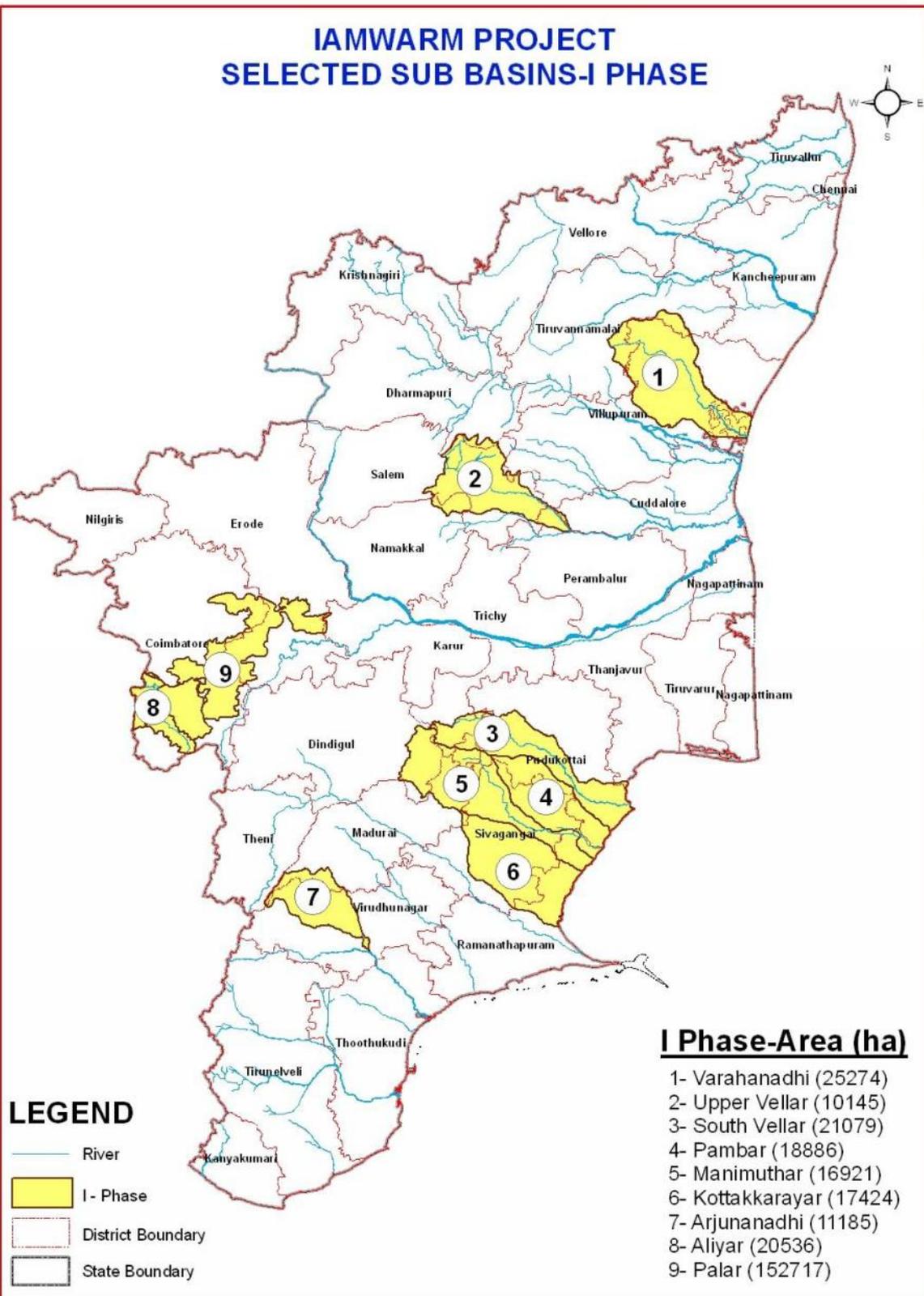
A Team Building workshop was contemplated with strategic objectives such as enhancing Interpersonal Relationships among the sub-basin IAMWARM project team members and Communication skills so that they could communicate effectively with the primary stakeholders (the community, especially farmers) and ensure their participation in restoration of water bodies and adapt sustainable water management practices.

In this context, workshop on Team Building for Varahanadhi Sub-basin was organized during the month of March 2008 in which 30 participants participated from 8 line departments. The workshop, probably one of the first of its kind in the world, focused on bridging the gap among different line departments through process oriented training methodology. The participants were involved in group exercises, activities and simulations.



As an outcome of the workshop, the Varahanadhi Sub-basin IAMWARM team has emerged with follow-up activities to be carried out in order to keep the team intact. The team, which is consisted of all participating line departments, is visiting villages and having interactions with farmers to generate awareness and get their feed-back. The team has plans to meet farmers at regular intervals to facilitate their active participation in the implementation of the project. Farmers felt very happy to see all line departments on a single platform to discuss about problems pertaining to irrigation and agriculture.

IAMWARM PROJECT SELECTED SUB BASINS-I PHASE



Aliyar Sub-basin

Having its source in Anamali hills, **The Aliyar River** flows in a north-westerly direction for about 37 Kms in Tamilnadu and enters into Kerala and finally confluences with Bharathapuzha. Uppar and Palar Rivers are the major tributaries of the Aliyar River.

The sub-basin covers Pollachi Taluk in Coimbatore District. The annual average rainfall of the sub-basin is 635 mm.

The Water Resources Department (WRD), along with other line departments, had jointly conducted a walkthrough survey. The team met water users and other opinion makers in the villages and prioritized the issues, based on which the sub-basin plans were prepared.

It was proposed to implement 5 packages at an estimated cost of Rs.2752.25 lakhs. 4 packages, at an estimated cost of Rs.1518.40 lakhs, were taken up and in progress. The total expenditure incurred upto 31.03.2008 was Rs.197.15 lakhs.

Besides existing 16 Water Users Associations (WUAs), preparatory activities for the formation of remaining 2 WUAs had been initiated in the sub-basin. Water Users were facilitated to participate in the project planning and their participation in project implementation has been encouraging.



The Agriculture Department participated in 16 village level IAMWARM days in the sub-basin along with the other line departments, to create awareness about the project activities and also to motivate the farmers to participate in the project to get increased farm income. 80 opinion makers were



identified in the sub-basin to assist The Agriculture Departmental staff in convincing the fellow farmers to diversify and adopt the latest crop production technologies to get the increased productivity and income.

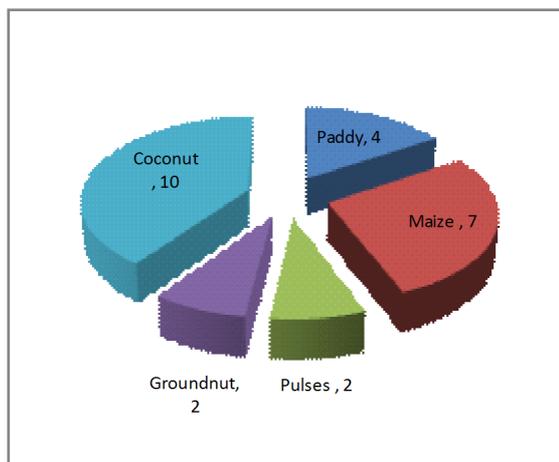
Though most of the farmers in the sub-basin were adopting the latest production technologies for crops like paddy, pulses and maize, it was observed that the awareness of farmers was poor on technologies pertaining to irrigated groundnut, knowledge on Integrated Nutrient Management (INM) and Integrated Pest Management (IPM) for coconut, organic farming, coir pith composting, vermi composting etc. To educate and motivate farmers, demonstrations of different kind, including 23 ha

of groundnut, 4 ha of coconut INM, 2 ha of coconut IPM, 85 ha. of organic farming, 9 Nos. of coir pith composting and 30 Nos. of vermi composting, were organized in this sub-basin. In total 153 demonstrations were laid in clusters and 230 ha of **impact area** was also identified around the demonstration plots.

Many farmers in the sub-basin had not regularly been applying the Micro Nutrient (MN) Mixture for coconut due mainly to the cost factor and lack of knowledge on the role of it in increasing the net yield. Coconut MN mixture was distributed for 730 ha. It was expected that the application of such critical inputs would increase the yield and income for farmers.

25 Commodity Groups were formed not only for getting good price for the crops of interest, but also for easy transfer and adoption of the latest crop production technologies.

Mr. Sunder Raj, one of the satisfied maize demonstration farmers, in Kongalanagaram village of Pethampatti block, harvested 8.250 MT/ha. (Pioneer). This was 750 Kgs more than the previous year's record with the same variety.



The Horticulture Department covered 535 hectares additionally under area expansion. Fruit bearing tree crops were raised in 187 ha and hybrid vegetable and spice seeds were provided for 148 ha. Cocoa, one of the high income generation crops, was planted in 200 ha with buy back marketing arrangements with Cadburys. This firm supplied quality saplings to the farmers. It was expected that the cultivation of this commercial crop would improve the income level of the farmers.

Hi-tech poly house demonstration was laid in 1000 sq. meter area and Shade net poly house was established in 2200 sq.m. INM/IPM practices were demonstrated in 200 ha by providing organic inputs to the farmers. Exposure visit and farmers training programmes were conducted prior to the cropping season. Leaflets, booklets, stickers were printed and distributed to the farmers. IEC and Capacity building activities focused mainly on crop diversification aiming for more income per drop of water.

Agricultural Engineering Department, through its IEC and Capacity building activities, facilitated farmers to realize the importance of Micro Irrigation System (MIS). Yield increase per unit volume of water, quality output and consequent price advantage of the produce were projected as major advantages of MIS and it had definitely facilitated farmers to affect a paradigm shift in irrigation methods, i.e., from traditional method to Micro



irrigation system. The persistent efforts of the AED had witnessed an area of 682 hectares under Micro Irrigation System in this Sub-basin in 2007 - 08. It is expected that more farmers would adopt the micro irrigation system.

3 Water Harvesting Structures were proposed during 2007 – 08 and all of them were completed.

Convergence: As per the approved plan for 2007-08, 10 Farm Ponds were completed and handed over to Fisheries Department for fish culture. One farm pond was stocked with fingerlings by Fisheries department. The beneficiary farmer was very happy as he believed that the fish farm pond would fetch him more income.

Tamil Nadu Agricultural University (TNAU), in Aliyar sub-basin, had contemplated for large scale coverage of situation specific technologies. Principal water saving technologies, like SRI in rice, were demonstrated in 200 hectares which had an impact in 800 hectares. For the first time, SRI was successfully demonstrated in the sub-basin. Introduction of SRI in the sub-basin resulted in 38 to 50 per cent increase in rice productivity. On knowing successful implementation of SRI, teams from Uttar Pradesh and Andhra Pradesh states visited Allayer sub-basin to learn lessons for up scaling and strategizing for mass adoption in their respective states.

The sub-basin falls under important groundnut belt of Tamil Nadu, Therefore, adequate emphasis was

Activities	Demo Area Covered (ha.)
Production technology for Groundnut	96
Intercropping of cocoa in coconut	100
System of Rice intensification	200
Rice fallow pulses	170
Model village and organic farming	20

given for improved production technologies for groundnut. Demonstrations were organized to cover 96 hectares, and it resulted in popularizing the technology further in 522 hectares.

Coconut is the principal crop in the sub-basin and in order to increase the farm income, introduction of cocoa, as an

intercrop in the coconut plantations, was contemplated. As a result, 100 hectares of coconut crop was covered. Cocoa farmers were facilitated to arrange Market tie-up with M/s Cadbury Ltd, Pollachi.



Improved production technologies were demonstrated in 170 hectares for rice fallow pulses for achieving higher yields.

Pamphlets on importance of soil testing and crop diversification, especially for maize cultivation and tissue culture banana, were printed and circulated among farmers in the sub-basin.



Sustainability and further extension of any new methodology depends on the capacity of farmers and laborers to carry out it without much external assistance. Capacity building activities, such as on farm training for agricultural laborers, training and exposure visits to farmers, were organized to impart pertinent skills on SRI method of rice cultivation. The precision of SRI was adequately tuned up by the monitoring committee under

the chairmanship of leading scientist who was involved with SRI.

“Here is SRI to rescue farmers” (As narrated by Mr. T.Renganathan, a farmer who wanted to give up Agriculture and later on decided to continue with SRI)

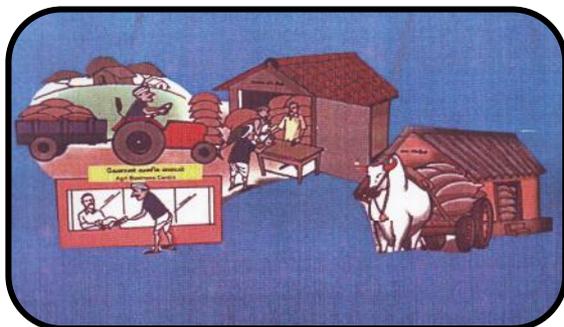
“I have been cultivating paddy for the past 20 years. Because of monetary loss in paddy cultivation, I thought of changing my occupation. In due course, I met a Scientists from Coconut Research Station, Aliyarnagar (TNAU) under TN IAMWARM project, who motivated me to adopt SRI in a smaller area. A good SRI crop has motivated me to continue with Agriculture”. Said Mr. T.Renganathan, with smiling face



T.RENGANATHAN
S/O Thirumalaisamy
Village: Pethanaickanur
Block : Anaimalai
Taluk : Pollachi
(Contact number.9245078396)

Mr. Karuppusamy, Ramanamudali Pudur village, raised *dapog* nursery with 3kg seeds/ac and planted single seedling per hill adopting square planting method. He adopted all the other SRI steps. He was amazed to see number of tillers (40-50) and claimed a saving of Rs 1000/ac as he had to employ comparatively less number of labourers.

Department of Agricultural Marketing identified lack of market information, aggregation of produce and production glut as main issues in the sub-basin. The fluctuating nature of the produce was one of the major marketing problems for the farmers in this sub-basin that has 20560 ha under registered ayacut mostly with Coconut, Paddy, Groundnut and Vegetables. Marketing surplus was around 17000 MT. of produces and 6 crore nuts. Gourds were grown under contract system with Hotels in



Palakad of Kerala State etc. MOU was signed with M/s.Suguna for poultry feed manufacturing.

29 Nos. of Commodity Groups for Maize, Vegetables, Sunflower and Groundnut were involved with marketing aspects. MOU for crops like Maize, Vegetables, Cocoa etc. was signed. Exposure visits, Interface workshop and Training on Pre and Post

Harvest Technology were conducted to increase the knowledge level of farmers. Under infrastructure

development, 2 Nos. of storage sheds, 2 Nos. of Drying yards and 1 No. of ABC were under construction.

Farmers functioning as a single unit, through Commodity Interest Groups, had enabled to fix the selling price for their produce based on market price for Vegetables, Sun flower etc., through signing MOU with private purchasers like Reliance Fresh and Spencers.

Mr. P. Subramani, S/o. Pachayapa Gounder, Govindapuram, Dharapuram Taluk, had cultivated maize in lieu of other crops and signed an MOU with M/s. Shanti Fortune (India) Ltd. The MOU provided for the purchase of maize by the procurer at prevailing market rate arrived at by calculating the weighted average price in the nearest regulated market. This arrangement fetches Rs. 1 more per Kg for the farmer.

The Animal Husbandry Department established 2 cluster Sub-basin veterinary Units. Fodder Cholam was delivered at Beneficiaries door steps covering 50 ha.

24 Infertility cum total Veterinary Health Care Camps were conducted benefiting 13,146 animals belonging to 2,876 farmers. 588 calves were also facilitated to participate in calf rally.

1,039 farmers participated in 32 night meetings that were conducted at selected villages so as to cover the maximum number of farmers. In addition, posters pertaining to project activities were displayed at prominent places in the sub-basin. Pamphlets on best animal husbandry practices and project activities, were printed and distributed to farmers while conducting camps, night meetings and farmers trainings. 400 farmers were trained in 25 batches.

A total of 16,324 artificial inseminations, in 13,110 cross bred cattle, 2,985 indigenous cattle and 229 buffaloes, were carried out at the graduate institutions, sub centers, health camps and mobile units in the sub-basin.

The Fisheries Department had organized awareness campaigns and Capacity building programmes in order to motivate farmers to adopt aquaculture in farm ponds. Though there were initial apprehensions, farmers were convinced that farm ponds would fetch additional income. Mr. K.Chinnaswamy, one of the progressive farmers in Vanjiyapuram village, wanted to lead by example and dug a farm pond. This was stocked with carp seeds and the culture was in progress. Training was organized on good management practices in fresh water aquaculture to those farmers who showed initial inclination to have farm ponds.



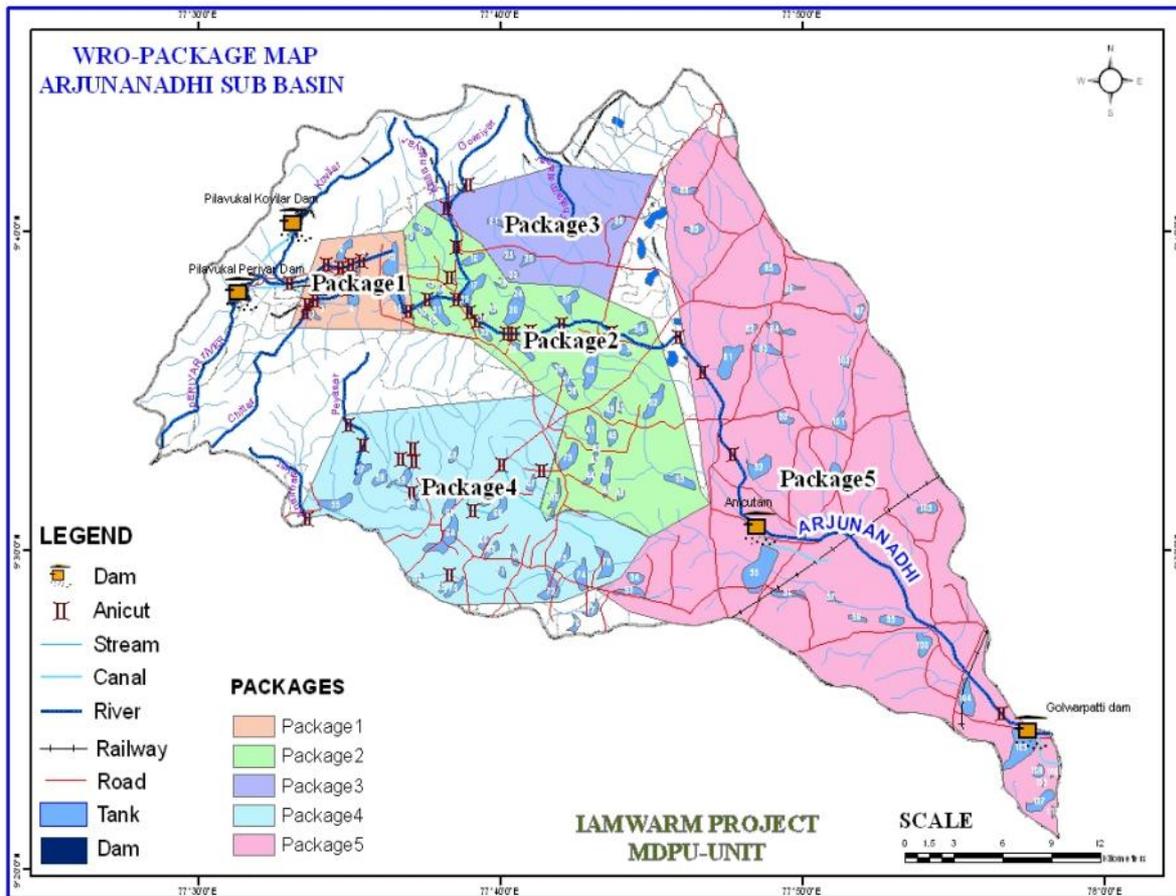
Two ornamental fish culture units were established. The beneficiaries were trained in rearing of ornamental fish and they were taken for exposure visits to ornamental fish farms.

Arjunanadhi Sub-basin

Of the various hill streams that emerge out of the eastern slope of the Western Ghats the Periyar, Kovilar, Chittar, Kallanaiyar, Kavariyar, Thalamaiyar, Anaithalaiyar and Peyanar are worth, mentioning tributaries of Arjuna River.

Arjuna Sub-basin area is **1096 Sq Km** including a hilly area of 195 Sqkm. The taluks covered in this sub-basin are Srivilliputhur, Sivakasi, Sattur, Virudhunagar of Virudhunagar district and Peraiyur of Madurai district. The sub-basin commands an area of 11186 Ha

The **Water Resources Department** proposed 5 packages at an estimated cost of Rs.4543.00 lakhs.

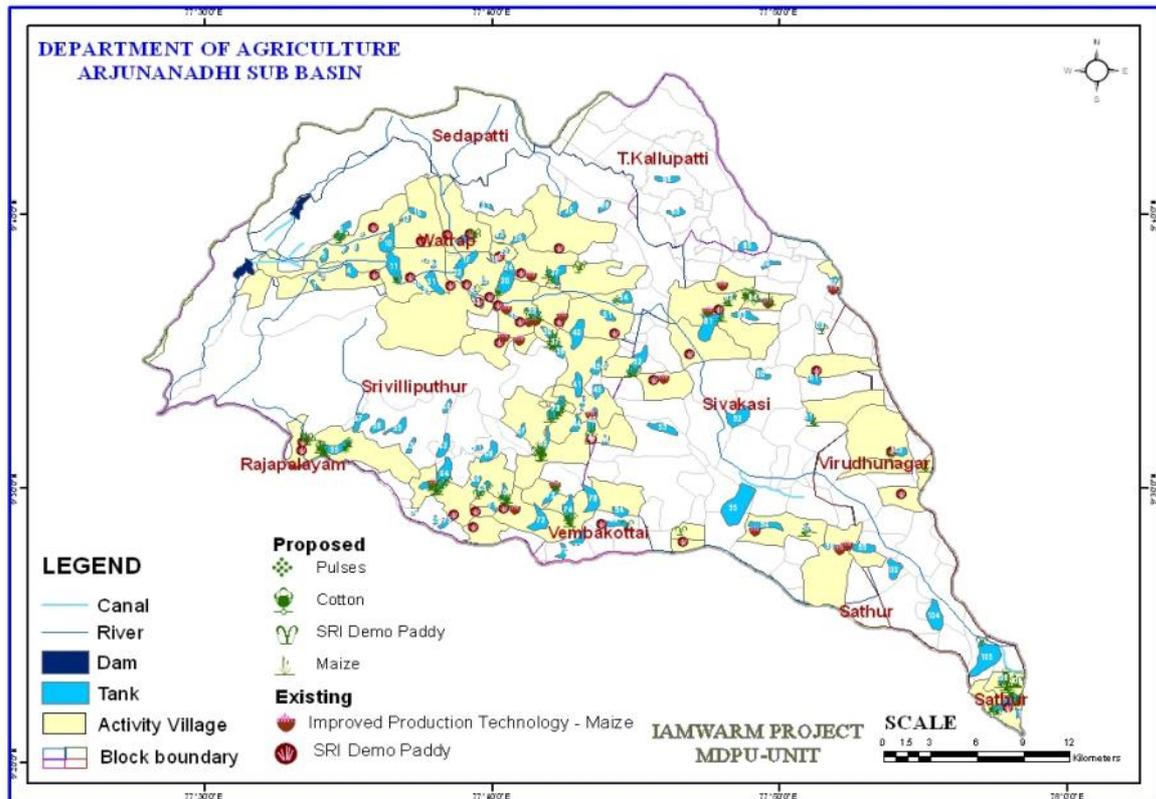


Two packages at an estimated cost of Rs. 1403.00 lakhs were taken up and in progress. The total expenditure incurred upto 31.03.2008 was Rs.92.83 lakhs.

Of the 69 proposed Water Users Associations (WUAs), 5 were already formed. Concerted efforts had been initiated for the formation of remaining 64 WUAs.

The sub-basin had 25 village level IAMWARM days in which different line departments explained their respective activities under IAMWARM project to the primary stake holders.

The Agriculture Department focused more on demonstrations to motivate the sub-basin farmers to diversify and take up the latest crop production technologies in order to get increased productivity and



profit. As a part of skill transformation process, demonstrations on latest technologies of different crops were laid at different parts of the sub-basin at farmers' plots. These demonstration plots worked well in great extent in order to diversify and spread latest production technologies to other fields. 16250 ha of impact area was identified around the demonstration plots.

Table showing Crop wise Demonstrations.

Crop	Area Covered in Ha.
Paddy	580
Pulses	362
Cotton	369
Hybrid Maize	488
Organic Farming	31

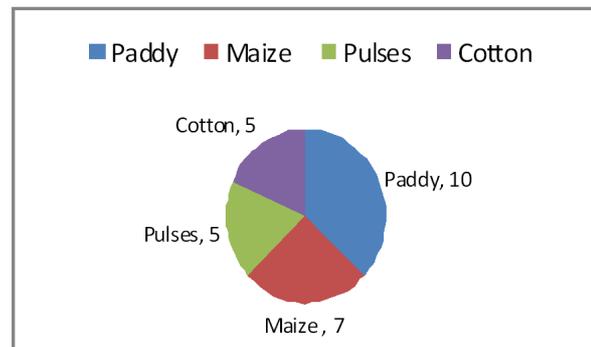
Mr. Palani Velmurugan, who belongs to Wathrap Village and Block, adopted SRI method of rice cultivation and harvested 7700 Kgs/Ha (ASD 16) against the normal yield of 5425 Kgs/Ha. This was 50% more than the previous record.

Similarly Mr. Kanagaraj, one of the many maize demonstration farmers of

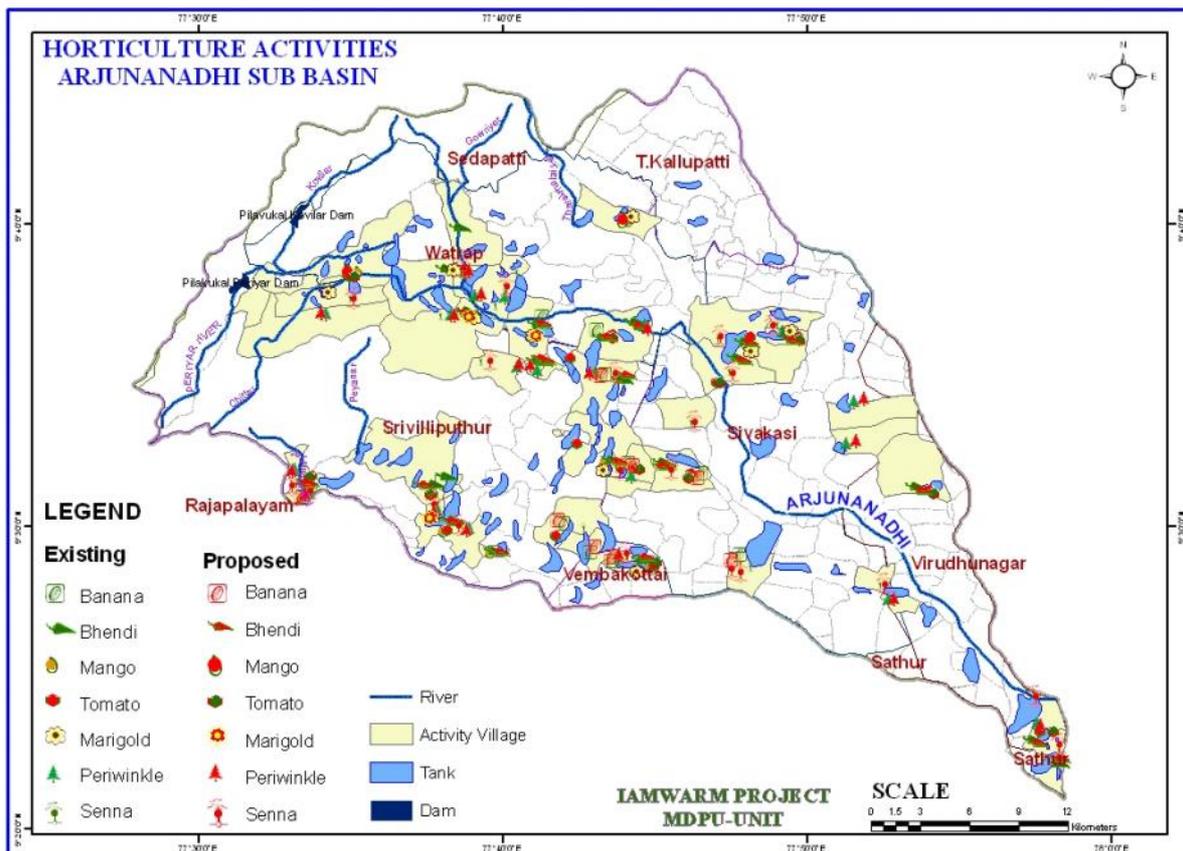
Arjunanadhi sub-basin at Athikulam village, harvested 8750 kgs/ha, (Pioneer). This was 59% more than the previous year's record. The Department had distributed 203 Hand Operated Sprayers to farmers.

Diversification: 24 ha of traditional paddy area in Malli village of Srivalliputhur Block had been fully diverted to maize crop. In a plea to sustain the newly introduced crops and technologies and spread them to other areas, 116 opinion makers have been identified and trained in order to motivate fellow farmers for diversification and adoption of new crops and technologies that would fetch them more income.

27 Commodity Groups were formed (10 for paddy, 7 for maize, 5 for pulses and 5 for cotton). These Commodity Groups were formed not only to get good price for the produce, but also for mass diversification and adoption of latest crop production technologies.



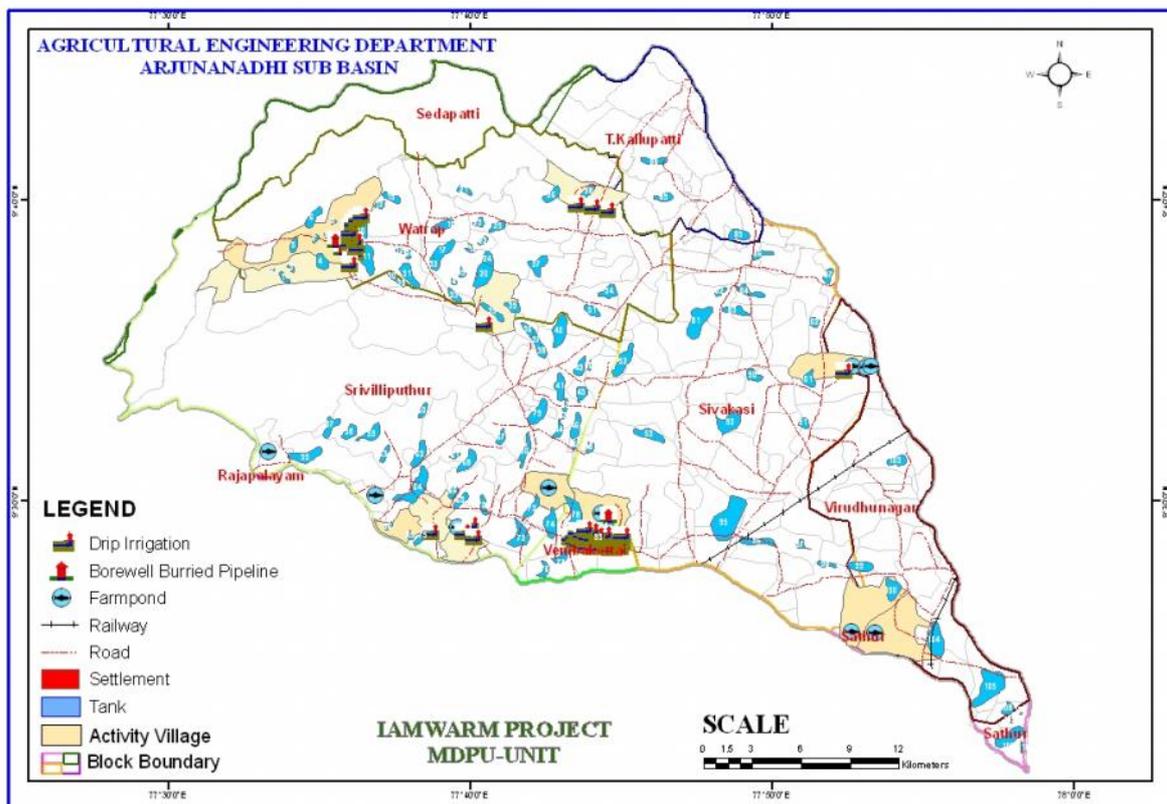
The Horticulture Department covered 965 hectares additionally under crop diversification. Pedigree planting material of fruit grafts were distributed covering 182 ha.



301 ha of ayacut area was covered under hybrid vegetable crops. Medicinal crops like Senna and Periwinkles were raised in 462 ha, with marketing buy back arrangements. Floriculture was developed in 20 ha. INM/IPM practices were demonstrated in 140 ha.

Farmers were taken for exposure visits to Hi-tech farms and to the fields of innovative farmers. They were also trained in the fields with relevant technologies. Booklets, stickers and posters were developed and distributed to the farmers.

Agricultural Engineering Department intensified its IEC and Capacity building activities in the sub-basin in order to propagate and promote Micro Irrigation System (MIS). The propaganda slogans were focused on the importance of MIS in increasing productivity and farm income with less water consumption. Street plays were performed in various places covering large number of farmers. Exposure visits were organized for farmers within the Sub Basin as well to Dharapuram and Erode districts. Cable TV scrolling and advertisements in Cinema theatres had tremendous impact so that an area of 40 hectares was covered under Micro Irrigation during 2007 – 08. It is expected that the area covered under MIS would be multiplied in the ensuing years.

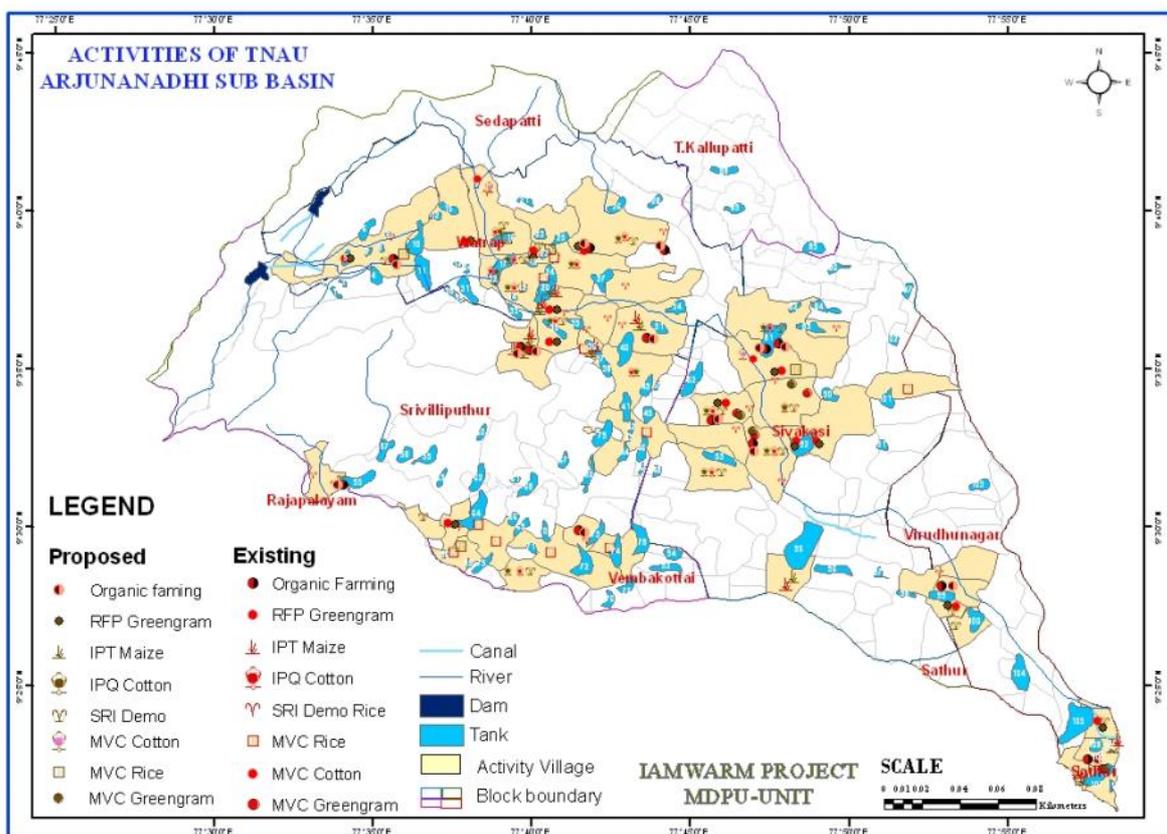


Formation of 10 Farm Ponds was completed during the year 2007-08 and handed over to Fisheries Department for aqua culture. Enjar Naduavaptti and S.Kodikulam tanks, with an area of 151.44 hectares, were taken up for implementation of PVC buried pipeline system and it was under progress.

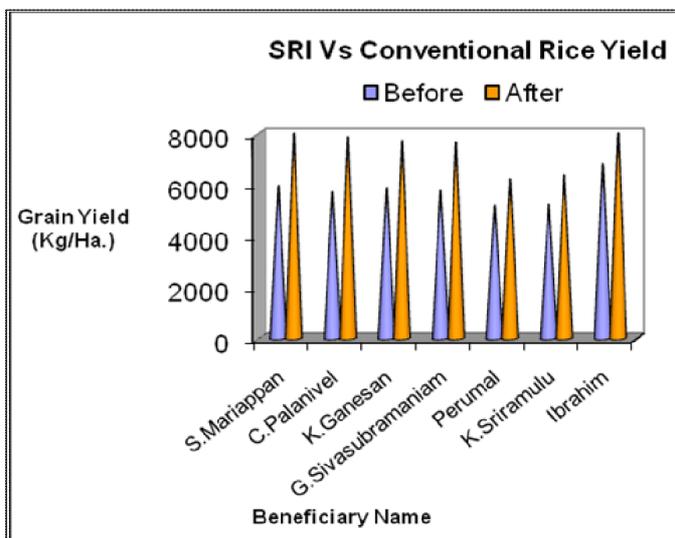
Tamil Nadu Agricultural University demonstrated proven site specific technologies in Arjunanadhi Sub-basin under **TN-IAMWARM Project**.

Despite being one of the drought prone areas of the State, the water productivity could be enhanced through facilitating a transformation process, from traditional rice cultivation method to modernized methods such as SRI, among farmers in Arjuna Nadhi sub-basin. SRI method of rice cultivation was alien to the sub-basin and it was demonstrated in 250 ha. Sustainability of any new method or technology is possible only when adequate technology transformation is done at the grassroots level.

Activities	Area Covered in Ha.	
	Demo	Impact
Production technology for Maize	55	420
Improved production technology for cotton	120	700
System of Rice intensification	250	500



Therefore, the farmers were taken to Thirunelveli for exposure visit and imparted SRI skills through trainings and On the farm trainings. As far as SRI is concerned, on an average 40 to 50 per cent yield increase was recorded. Incidentally, farmers also experienced minimum rat damage in SRI fields. They accepted this new method of cultivation (SRI) and adopted it in 500 ha without any subsidy component



Mr. S.Rajendran, from Pudukottai, was impressed with SRI on seeing more number of productive tillers and determined to continue with SRI method of rice cultivation in the ensuing seasons too.

Rice fallow pulses are the main income provider for the farmers of this sub-basin. In order to increase the yield of the rice fallow pulses, demonstrations were laid in 100 ha. The farmers were showing encouraging signs and were interested in adoption of relay cropping of rice fallow

pulses. The researchers involvement, in the introduction of refined technologies like foliar spraying of DAP, Planofix – a phyto hormone, was highly useful to increase the productivity. As seed is one of the important critical inputs for augmenting the productivity of various crops, seed production programme was undertaken through TN IAMWARM Project in crops like Paddy-(ADT 43), Green gram - VBN (GG) 2 and Cotton (SVPR 2) in an area of 25,15 and 10 ha respectively. The Cotton is one of the important crops in this sub-basin, therefore, large scale demonstrations on cotton hybrids were conducted in an area of 120 ha as an



initial step through this project and it had spread into 700 ha in the sub-basin.



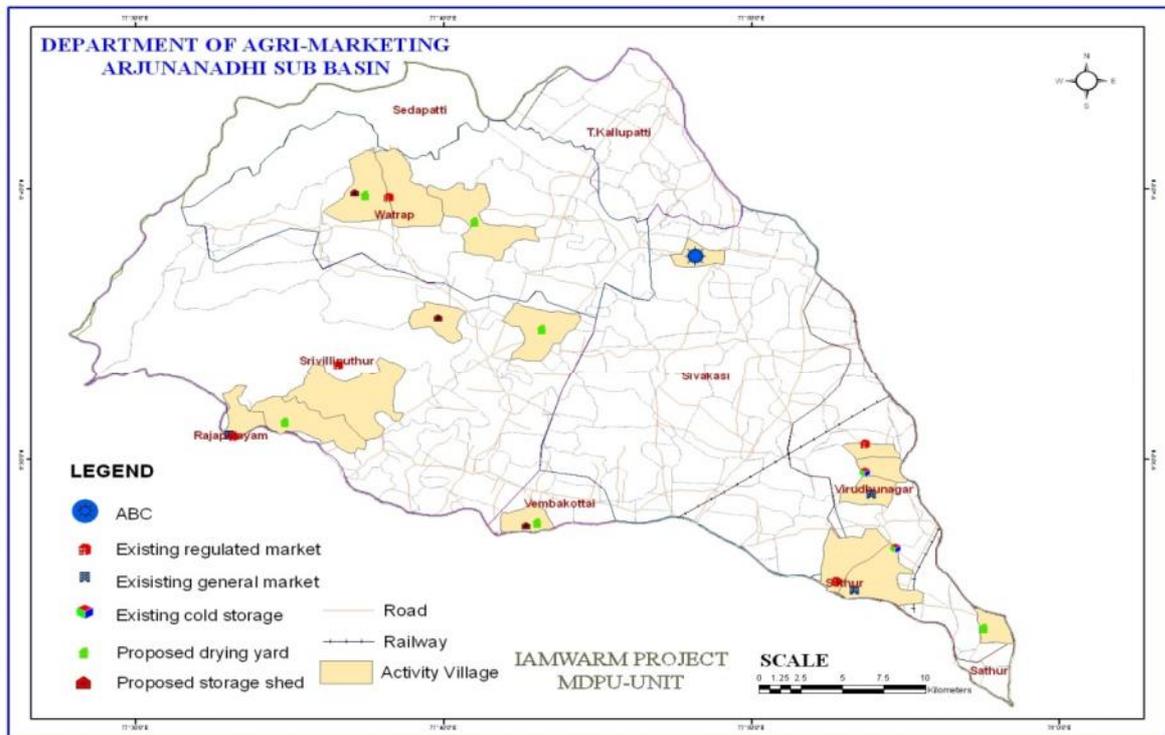
Farmers were constantly motivated for crop diversification in order to use available water efficiently and effectively. Being projected as profit making proposition, Maize cultivation was introduced in the sub-basin with improved production technologies. The improved Maize production technologies were successfully demonstrated in 55 ha in and around Sundrapandiam Village. The Maize husker cum sheller was

also introduced to the sub-basin through IAMWARM project to counterbalance the labour scarcity for harvesting and processing. The demonstrations had positive impact and maize cultivation extended to an area of 420 ha in the sub-basin. A maximum yield of 9250 kg/ha was recorded by Mr. M. Manikandan of Moovaraivendran village. Mr. M.Arumugam, Sundarapandiyam village, used maize husker cum sheller through TN-IAMWARM and the performance was quite impressive.

Pamphlets were printed and distributed among farmers on IAMWARM project, SRI and improved maize production technologies. A total of 43 villages were covered by "IAMWARM Campaign on Wheels" and it was estimated that 1005 farmers would have been covered.



The Agricultural Marketing Department identified that the lack of assured market, poor post harvest practices, lack of aggregation, lack of market information and non-adoption of processing practices as major issues in



the sub-basin. The sub-basin is dependent on non-system chain of tanks and the cropping system is dominated by Paddy, Pulses, Sugarcane, Mango, Cotton and Vegetables.

36 Nos. of Commodity Groups were formed for Maize, Cotton, Vegetables etc, for aggregation of produce. Under infrastructure development, 3 Nos. of Storage sheds, 7 Nos. of Drying yards, 1 No. of Collection centre and 1 No. of ABC were under construction. Under IEC & CB component, Exposure visits, Interface workshops and Pre/Post Harvest Technology trainings were conducted. MOUs were signed for crops like maize.



The farmers were interested in getting the details of more number of dealers from different places and also the prices of commodities at prime markets. Under the auspices of FICCI, a workshop was organized for creation of awareness among mango cultivators for export of mango through EUREP GAP. The farmers, from

Virudhunagar and Watrap, paid the registration fee of Rs.5000 with FICCI for certification of Mango trees / produce for export.

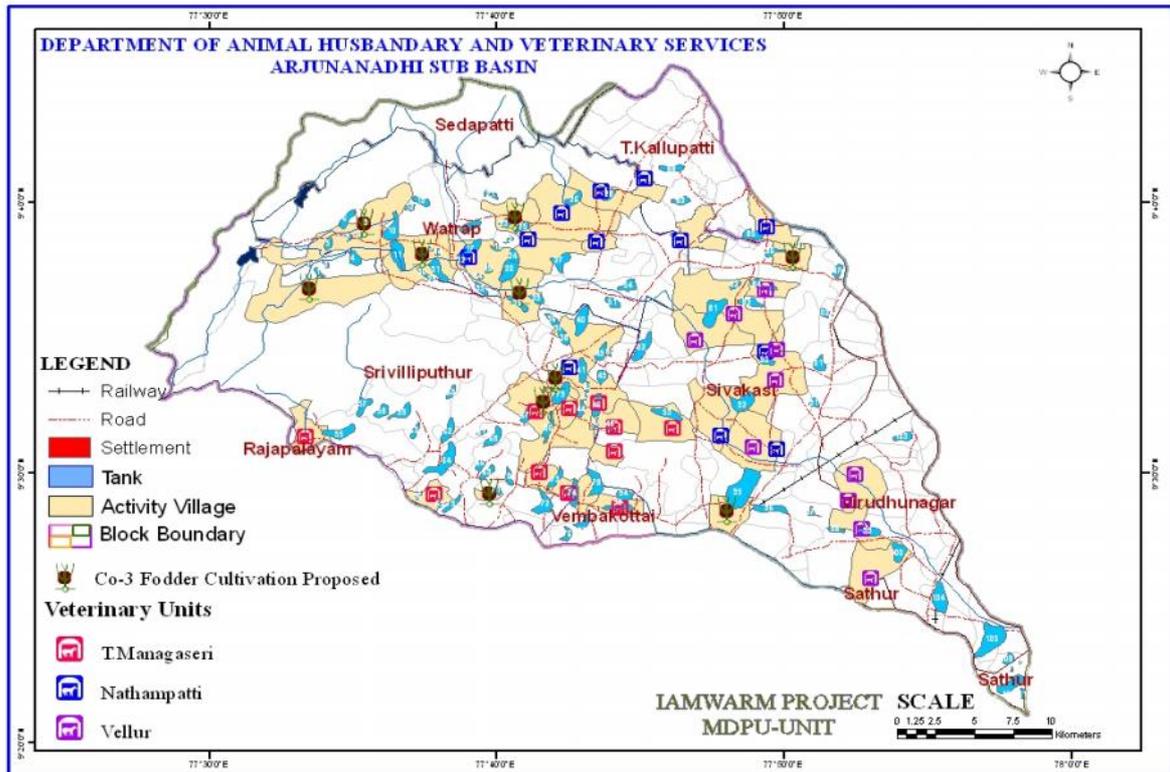
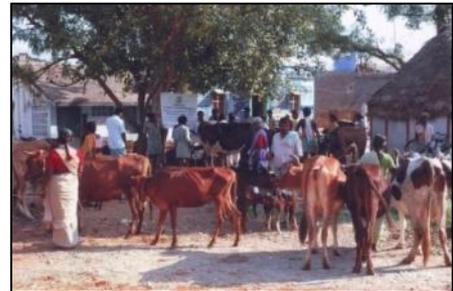
The Animal Husbandry Department established one Cluster level Veterinary Unit in Arjunanadhi Sub-basin. 1 set of jumbo liquid nitrogen containers were provided for storage and transportation of frozen semen straws to the mobile units and camps.



120 ha were brought under fodder cultivation. Beneficiaries were provided with fodder inputs at their door steps.

36 *Infertility cum Total Veterinary Health Care Camps* were conducted benefiting 42,496 animals and 5,762 farmers. 734 calves were facilitated to participate in calf rally.

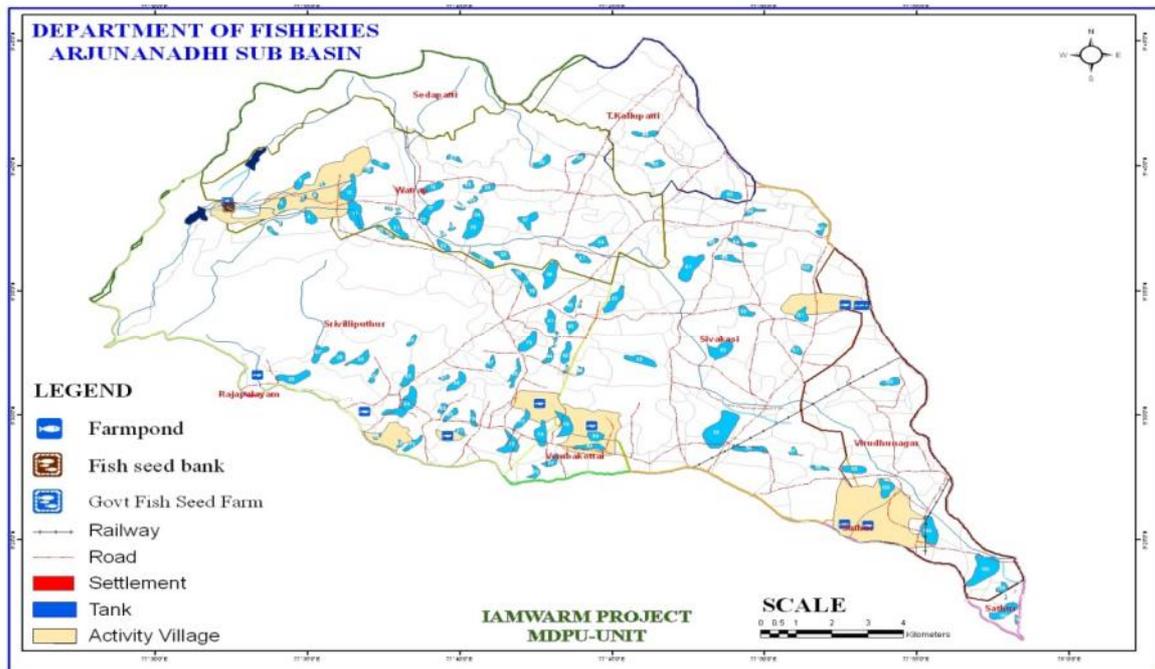
3,070 farmers, including 2,218 males and 852 females, participated in the 68 meetings that were conducted in selected villages so as to cover more number of farmers. Posters on project activities were displayed at prominent places in the sub-basin. Pamphlets on best animal husbandry practices and project activities were printed and



distributed in the camps, night meetings and farmers training.

400 farmers, that include 183 participants belonging to Scheduled castes and 217 others, were trained in 25 batches. A training manual on animal husbandry was distributed to farmers during the training. A total of 23,275 artificial inseminations in cross bred cattle were carried out at the graduate institution, sub centers, health camps and mobile units in the sub-basin.

The Fisheries Department, while participating in IAMWARM Days, generated awareness among



farmers on Farm Ponds. Initially, three Agricultural Farmers came forward to dig fish farm ponds. All the three farm ponds were stocked with carp seeds and the culture was in progress. The farm pond owners / farmers were trained in good management practices in fresh water aquaculture.

One fish seed bank was established in this sub-basin and this would be in operation in 2008-09 and should rear fish seeds from early fry to advanced fingerling which would be the stocking material to the irrigation tanks in the sub-basin.

The government fish seed farm at Pilavukkal dam was renovated. The nurseries would be operational during ensuing year and the fingerlings produced would cater to the needs of the irrigation tanks in the sub-basin.

15 units of fishing implements were supplied and this would ensure better fishing efficiency in the irrigation tanks and reservoirs.

Kottakkariyar Sub-basin

Kottakkariyar is one of the Sub-Basins in Pambar-Kottakkariyar basin which is located in between Agniyar Basin in North and Vaigai Basin in South. It covers Sivagangai, Manamadurai and Ilayangudi taluks in Sivagangai District and Paramakudi, Ramanathapuram and Thiruvadanai taluks in Ramanathapuram District. This Sub-Basin is highly drought prone and most backward. It irrigates an extent of 17424 ha.

The Water Resources Department: The sub-basin has around 17400 ha. of registered ayacut area covered with major crops like Paddy, Sugarcane, Chillies, Maize and Vegetables. It was proposed to form 53 Water Users Associations (WUAs), of which 10 WUAs were already formed and functioning effectively. Formation of remaining 43 WUAs was in progress.

43 village level IAMWARM days were organized in the sub-basin to elicit primary stake holders' participation in implementation of the project.

It was proposed to have 9 packages at an estimated cost of Rs.4300.90 lakhs. All 9 packages were taken up and in progress. The total expenditure incurred upto 31.03.2008 was Rs.369.40 lakhs.

The Agriculture Department, to further extend and sustain its innovative efforts in farmer fields, had identified 560 **Opinion makers** in the sub-basin who would act as grassroot level change activists in the field of agriculture. The Department, based on the needs expressed by the primary stake-holders during Joint Walkthrough Survey, organized demonstrations in clusters on different crops covering an area of 2009 ha.



Crop wise distribution of demonstrations.

Crop	Area Covered in Ha.
Paddy	500
Pulses	745
Hybrid Maize	608
Groundnut	146
Organic Farming	10

18490 ha. of **impact area**, around the demonstration plots, was also identified in which all the technologies, as adopted in the demonstration plots, would be extended during the subsequent seasons / years.

In order to encourage and educate the farmers, the following identified critical inputs that were required for the

sub-basin were distributed for 5330 ha. 1) Paddy MN mixture 530 ha 2) Paddy bio-fertilizers 800 ha and 3) Bund Pulses 4000 ha. . It was expected that the application of such critical inputs would increase the yield and income for farmers.

Printed publicity materials were distributed to farmers on the latest production technologies of different crops. Training, exposure visit, farmers meetings etc were conducted from time to time based on need, involving farmers and field staff.

17 **Commodity Groups** were formed, 5 for Paddy, 7 for Maize and 5 for Pulses. The Commodity Group members were given exposure on the latest crop production technologies for the crops of their interest and also on the available market avenues to get the maximum price for the produce under the project guidance.

The Horticulture Department had covered 570 hectares additionally under Horticultural crops. Planting materials were distributed for planting fruit tree crops covering 160 ha.

Hybrid vegetable seeds were distributed covering 210 ha, and 200 ha were covered under spice crop. INM/IPM demonstrations were conducted in 440 ha.

Farmers were taken for exposure visits to research stations and innovative farm fields. They were trained on improved cultivation practices.

Stickers, leaflets, posters were printed and distributed to the farmers. Field boards and wall paintings were displayed across the sub-basin.

Agricultural Engineering Department had covered 54 hectares under Micro Irrigation (MIS). Farmers had been approached with IEC and Capacity building activities to motivate them to adopt MIS as it would enhance the productivity with comparatively less water. Awareness campaigns, roadside canvassing melas and demonstrations were conducted through out the district. A mobile unit that had advertisement boards, pamphlets etc had travelled through the entire sub-basin.

IAMWARM project encourages its primary stake-holders (farmers) to adopt farm pond as it would fetch multiple benefits to them. 55 Farm Ponds were undertaken and completed during 2007 – 08.

Sengulam tank of this Sub Basin with an area of 64.09.0 hectare was selected for carrying out the PVC buried pipeline activity. The farmers of this tank were taken for exposure visits to learn from other successful efforts.

As far as MIS is concerned, the trend has been established and moving upwards. It is expected that more number of farmers would adopt MIS in the ensuing years.



Briefing session during exposure visit

Tamil Nadu Agricultural University (TNAU): Soil Science and Agricultural Chemistry Department of Agricultural College and Research Institute, (A constituent college of **Tamil Nadu Agricultural University**) is the IAMWARM implementing research institution for Kottakaraiyar sub-basin. In order to increase the farm income and water productivity, the interventions such as improved production technology for maize, groundnut, System of rice intensification, improved production technology for



rice fallow pulses and model village and organic farming were planned and implemented.

Demonstrations on System of Rice Intensification (SRI) were carried out in 20 hectares. As SRI method of rice cultivation is entirely new to the sub-basin, farmers were given exposure visits.

Ms Padmavathy, Alambacheri Village Panachayath President and SRI farmer, expressed her conviction over SRI method of rice cultivation and had been motivating her fellow farmers to adopt the novel method.

Mr. P.Paulraj who belongs to Alambacheri village in the sub-basin, said that he was keen to adopt SRI in its full spirit. He had acquired pertinent skills to use marker and cono weeder. His son was amazed on seeing the crop growth.

Activities of TNAU in Kottakaraiyar sub-basin (in ha.)

Activities	Demo area Covered
Production technology for maize	48
Production technology for groundnut	13
System of Rice intensification	20
Rice fallow pulses	20
Model village and organic farming	20

Productivity in rice fallow pulses was seriously constrained by non-adoption of technologies which led to drastic reduction in yield. Adoption of key technologies like spraying of DAP and bio-fertilizer application at critical stages would lead to 40 per cent yield increase in pulses under rice fallow conditions. Therefore, demonstrations were laid in 20 hectares to popularize the improved production technology in rice fallow conditions.

Being highly exposed to the vagaries of monsoon, groundnut is the most preferred alternate crop for rice among the farmers in the event of monsoon failure in the sub-basin. Adoption of improved production technologies like, seed drill sowing, gypsum application and micro nutrient spray would lead to production enhancement and hence, demonstrations were conducted in 13 hectares.

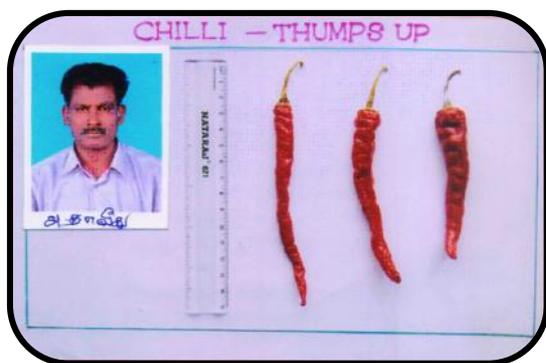
The average rainfall of this sub-basin is only 831 mm and this necessitates for introduction of less water demanding crops in the sub-basin. As part of crop diversification programme, large scale maize demonstrations were laid in 48 hectares. Maize crop was raised for the first time in villages like Katchathanallur, Bramanakuichi and T.Pudukottai.



It is quite evident that the organic farming is gaining its momentum back and in order to revive it, demonstrations on organic farming were conducted in 20 hectares under model village concept. Chillies farms were covered under organic farming after the farmers were taken to Kotturmalaiyandi Pattinam village for exposure visit. Leaflets and pamphlets on SRI method of rice cultivation and maize were prepared and distributed among the farmers.

The Agricultural Marketing Department, while participating in Joint Walk Through survey along with other Line Departments in the sub-basin, identified that proper buy-back arrangements for major commercial crops like chillies, maize etc., were not available in the sub-basin. The department was also determined to do away with the technological gap in packaging practices for export varieties. Market information on prices, transport etc. were also needed significant improvement.

Under IEC & CB component, Interface workshops and Pre/Post Harvest Technology Trainings were conducted. Under infrastructural development, 2 Nos. of Storage sheds and 3 Nos. of Drying yards



were under construction. 18 Nos. of Commodity groups were formed for different agricultural and commercial crops. And to give business orientation to farmers, one Agricultural Business Center (ABC) was proposed and it was under progress.

Farmers had aggregated their produce of maize and were already getting negotiated price from poultry feed manufacturers. One Chilli-oil manufacturer has distributed seeds of export variety at free of cost and was procuring the produce from farmers at premium prices.

Mr. Daveed, S/o. Antonysami from Saveriarapuram village was one of the progressive farmers, who agreed to grow "Thumps up" chillies which is an export variety. As per an earlier agreement between the chilli oil manufacturer and farmers in presence of the District Collector, Sivaganga, a premium

price of Rs.5500 per quintal was paid to the farmer while the local variety would have fetched only Rs.3500 per quintal.

The Animal Husbandry Department established one Cluster level Veterinary Unit. Selection of candidates was in process for the remaining units.

The project also supports for strengthening of infrastructure. Veterinary dispensaries and sub centers in the sub-basin were provided with necessary equipments along with 1 set of jumbo liquid nitrogen containers for storage and transportation of frozen semen straws to the mobile units and camps.



The department was focusing on promotion and propagation of Fodder cultivation in sub-basin. 25

beneficiaries were provided Co3 fodder inputs at their door steps covering 5 ha.

36 Infertility cum Total Veterinary Health Care camps were planned and conducted based on the need, benefiting 19,841 animals and 2,364 farmers. 740 calves were facilitated to participate in calf rally.

2,125 farmers, including 1,206 males and 919 female, participated in the 52 night meetings that were conducted at selected villages. Posters and pamphlets, on best animal husbandry practices and project activities, were printed and distributed in the camps, night meetings and during farmers training.

400 farmers, including 136 participants who belong to Scheduled castes and 264 others, were trained in 25 batches. A training manual on animal husbandry was distributed to farmers during the training.

A total of 11,066 artificial inseminations, which includes 10,938 cross bred cattle, 70 indigenous cattle and 58 buffaloes, were carried out at the graduate institutions, sub centers, health camps and mobile units in the sub-basin.

The Fisheries Department established one seed bank in the sub-basin. Seed banks would be in operation during 2008-09 and should rear fish seeds from early fry to advanced fingerling which would be the stocking material to the irrigation tanks in the sub-basin.

Ten units of Fish seed rearing cages were supplied to the progressive farmers and fishermen. Rearing of fish seeds would be taken up during the ensuing season.

Six units of fishing implements were supplied. This would ensure better fishing efficiency in the irrigation tanks and reservoirs.

Manimuthar Sub-basin

The surplus of Eriyur tank is the origin of river **Manimuthar** and traverses to a distance of 65km in Thiruppathur, Karaikudi, Devakottai and Thiruvadana taluks of Sivagangai and Ramanathapuram Districts and confluences with Pambar near Sirukambaiyur village of Ramanathapuram District and finally joins Bay of Bengal near S.P Pattinam village. It commands an area of 16921 Ha.

The sub-basin, mostly covering Sivaganga District, has around 17000 ha with major crops such as paddy, pulses, chillies and vegetables etc.



The Water Resources Department proposed to have 8 packages at an estimated cost of Rs.5695.00 lakhs. All 8 were taken up and in progress. The total expenditure incurred upto 31.03.2008 was Rs.207.10 lakhs.

It was proposed to form 92 Water Users Associations (WUAs) in the sub-basin, of which 35 were already in action. Participation of WUAs, where ever they existed in the sub-basin, was elicited during Joint Walk Through Surveys that were organized in collaboration with other line departments. Concerted efforts were in progress to

form remaining 57 WUAs. The Sub-basin witnessed 45 village level **IAMWARM Days** during the reporting period in which line departments participated in order to generate awareness among farmers and elicit their active participation in implementation and monitoring of the project.

The Agriculture Department, while taking part in Joint Walkthrough Survey, observed that the knowledge on the latest crop production technologies was poor among the sub-basin farmers. Based on field reality and farmers' needs, 2220 ha. of large scale (in clusters) demonstrations were organized in the farmers fields.

Crop wise distribution of demonstrations.

Crop	Area Covered in Ha.
Paddy	750
Pulses	840
Hybrid Maize	520
Groundnut	100
Organic Farming	10

19850 ha of **impact area**, around the demonstration plots, was also identified in which all the technologies adopted in the demonstration plots would be adopted during the subsequent seasons / years.

Many farmers skipped the application of critical inputs as they were unaware of their role in increasing the productivity of crops and had other reasons such as cost constraints. Farmers were adequately briefed on the importance of critical inputs such as Paddy Micro Nutrient Mixture, Paddy Bio-fertilizers and Bund Pulses and the same were distributed to the farmers covering 5466 ha. It was expected that the application of such critical inputs would increase the yield and income for farmers.

Distribution of Critical Inputs

In order to educate and encourage the farmers, the following identified critical inputs were distributed to farmers covering 5466 ha. 1) Paddy MN mixture 466 ha., 2) Paddy Bio-fertilizers 1000 ha and 3) Bund Pulses 4000 ha. It was expected that the application of such critical inputs would increase the yield and income for farmers.

Critical Input	Area Covered in Ha.
Paddy MN Mixture	466
Paddy Bio-fertilizers	1000
Bund Pulses	4000
Total	5466

Printed publicity materials were distributed to the farmers on the latest production technologies of different crops. Training, exposure visit, farmers meetings etc were conducted from time to time based on needs involving farmers and field staff.

312 **Opinion Makers** were identified in the sub-basin to help the local departmental staff in convincing the farmers to adopt the latest crop production technologies. 17 **Commodity Groups**, (5 for Paddy, 7 for Maize and 5 for Pulses), were formed. The Commodity Group members were given exposure on the latest production technologies of the crops of their interest and also on the market avenues and project services / facilities available to get the maximum price for the produce.

The Horticulture Department initially had to focus on software components such as exposure visit, farmer training and village campaigns to motivate farmers for diversification of crops. The department covered 430 hectares additionally under Horticultural crops. Location specific and market preferable fruit grafts were planted in 95 ha; 285 ha of vegetable crop and 50 acres of spice crop were raised in the ayacut area. 165 ha were covered under INM/IPM demonstration activities.

Agricultural Engineering Department, in Manimuthar sub-basin, approached farmers with an intention to facilitate them to effect a change from traditional to modernized irrigation methods such as Micro Irrigation System (MIS). IEC activities were devised and implemented to sensitize farmers on the importance of Micro Irrigation System in enhancing the productivity with comparatively less water. Awareness campaigns, roadside canvassing



melas and demonstrations were conducted through out the district. It was expected that IEC and Capacity building efforts, which were carried out during the year 2007-08, would cover more hectares under MIS in ensuing years.

This Sub Basin is peculiar as the tanks are spread all over. The farmers, through awareness campaigns and training programmes, had become well aware of storing the surface water into small ponds for and utilizing the same for life saving irrigation. As IAMWARM project promises for additional income through fish culture in the Farm Ponds, many farmers had expressed their willingness for formation of Farm Ponds. However, 40 Farm Ponds were taken up and completed during 2007 – 08.

S.R. Pattanam tank, of this Sub Basin with an area of 64.48.0 hectare, was selected for carrying out the PVC buried pipeline activity. The farmers of this tank were taken to various other places like Dharapuram to learn the benefits of Drip irrigation. They were encouraged to go for micro irrigation to get more income while using the available water judiciously. More coverage of area under micro irrigation in this tank is on the agenda.

Tamil Nadu Agricultural University (TNAU), in Manimuthar sub-basin, organized on farm trainings to impart fundamental skills pertaining to SRI viz., planting of single seedling, square planting, cono weeder usage and nutrient management. Initially, farmers were taken for exposure visit to successful SRI fields in Balagudipatti village. Infact, for the first time in the state, SRI harvest mela was conducted in Mahibalanpatti village of Manimuthar sub-basin. Mr.K.Shanmugam, who hails form the above village, experienced a record yield of 8.75 MT per ha. Farmers from the sub-basin, who were invited to witness the harvest, had been motivated to adopt SRI method of rice cultivation in their respective fields.



Ms. Nachiammal, one of the progressive farmers in Pudikktai village, thought that the square planting was a tedious process when she heard about it. But her experiences in the field taught her that it was simpler than she thought and scientific too.



Mr. C.Subbiah, from Mahibalanpatti village, while replying to a question said, “Why should I go back to conventional method of rice cultivation after witnessing magic with SRI (referring to number of tillers from a seedling - 62 tillers/hill)”.

Activities of TNAU in Manimuthar sub-basin (in ha.)

Activities	Achievement (ha)
Production technology for groundnut	46
System of Rice intensification	42
Rice fallow pulses	30
Model village and organic farming	20

Demonstrations on rice fallow pulses production (30 ha) were conducted in order to give publicity to the technology in the SRI demonstration fields,.

In order to increase the productivity, demonstrations on improved groundnut production technologies were conducted in 46 hectares. The importance of seed



treatment, soil application of *Trichoderma viride* and gypsum application were emphasized in the demonstrations. Utilization of machineries like seed drill and stripper in farmers fields had resulted in registration of higher yield in the sub-basin. The farmers were taken for exposure visit to Oilseeds Research Station, Tindivanam to have the first hand information on improved groundnut production technologies.

Demonstrations on organic farming in Banana (5 hectares in Karungkalakudi village) and rice cultivation (15 hectares in Kaungalakudi and Piranmalai villages) were conducted under Model village concept. Under IEC activities, IAMWARM days and informal meetings were conducted to bring about awareness on the project. Leaflets and pamphlets on SRI and groundnut were prepared and distributed to the farming community. "IAMWARM on wheels" visited the sub-basin villages briefing primary stakeholders on the project activities.

The Agricultural Marketing Department enlisted issues pertaining to marketing in consultation with the farmers prior to finalizing the Action Plan for the Sub-basin. The issues of primary concern include traditional way of marketing (commission agents), lack of aggregation of produce, lack of transportation, storage and quality aspects etc. Along with the market information, a business outlook for farming was also absent in this sub-basin. Infrastructural gap in the form of drying yards was also seen as major constraint.

To inculcate agri-business perspective among the farmers, an Agri-Business Centre was proposed and under progress. Commodity groups were formed and would be linked to ABC with a business and extension plan. Under IEC & CB, Exposure visits, Interface workshop and Pre/Post Harvest Technology Trainings were conducted. 3 Nos. of storage sheds and 3 Nos. of drying yards were under construction.



Maize farmers were selling their produce at pre-negotiated price to poultry feed manufacturers. The Commodity Group farmers of Thirupathur village for maize crop were given training on post harvest technologies,

storage etc. Mr. Suruliraj is a farmer who has gained from the project intervention. In 2007, he accepted the suggestion of project officials and shifted an area of 0.75 acre from paddy to maize. This shift was supported by an MOU with M/s. Suguna Poultry feeds Ltd. that helped him realize an additional amount of Rs.1800 compared to the previous year. The maize farmers, through collective bargaining, obtained a minimum of Rs.1 per kg extra over the prevailing market price which ranged from Rs.7 to 8 per kg.

The Animal Husbandry Department established 2 Cluster level Units and actions were in progress for the remaining 2. The infrastructure of the veterinary dispensaries and sub-centers in the sub-basins was strengthened with necessary equipments along with 1 set of Jumbo Liquid Nitrogen Containers for storage and transportation of frozen semen straws to the mobile units and camps. 89 farmers were provided with Co3 fodder inputs at their door steps covering 35 ha.

48 Infertility cum Total Veterinary Health Care Camps were planned. 48 camps were conducted benefiting 49,972 animals and 4,799 farmers. 756 calves were facilitated to participate in calf rally. 3,466 farmers, including 1,833 males and 1,633 females participated in the 80 meetings that were conducted at selected villages. In addition,



posters relating to project activities were displayed at prominent places in the sub-basin. Pamphlets on best animal husbandry practices and project activities were printed and distributed in the camps, night meetings and farmers training.

400 farmers, including 162 participants who belong to Scheduled castes and 238 others, were trained in 2 batches. A training manual on animal husbandry was distributed to farmers during the training. A total of 11,364 artificial inseminations were carried out in 11,247 cross bred cattle, 70 indigenous cattle and 47 buffaloes, at the graduate institutions, sub centers, health camps and mobile units in the sub-basin.

The Fisheries Department, through its various IEC and Capacity Building activities, motivated farmers to take up **Aquaculture in farm ponds**. As a result two farmers took the lead step in digging Farm Ponds. Two farm ponds were stocked with carp seeds and the culture was in progress. The farm pond owners / farmers were trained in good management practices in fresh water aquaculture.

One fish seed bank was established in this sub-basin. The seed banks would be operational in 2008-09 and should rear fish seeds from early fry to advanced fingerling which would be the stocking material to the irrigation tanks in the sub-basin. Ten units of cages were supplied to the progressive farmers and fishermen. Rearing of fish seeds would be taken up during the ensuing season. Five ornamental fish culture units were established. The beneficiaries were trained in rearing of ornamental fish and they were taken on exposure visits to ornamental farms.

Palar Sub-basin

Palar River is a sub tributary of Aliyar River which joins Bharathapuzha River and empties in to Arabian Sea. Though the total registered ayacut under PWD control is 153965he, average cultivation is only 138797, leaving a gap of 15197 ha., which is approximately 9.8% of designed irrigation extent.



The Water Resources Department proposed to have 13 packages at an estimated cost of Rs.6175.08 lakhs. 12 packages, at an estimated cost of Rs.5755.08 lakhs, were taken up and in progress. The total expenditure incurred upto 31.03.2008 was Rs.1268.24 lakhs. Canal automation works was piloted in one of the basin canals.

Palar Sub-basin, where farmers have been progressive and proactive, had witnessed 48 village level **IAMWARM days** through which farmers were explained about the salient features of the project activities and motivated to participate in the project.

Water Users Associations (WUAs), in the sub-basin, had actively participated in providing inputs for the preparation of Detailed Project Report (DPR). 134 WUAs were functioning with dynamic leaders and members. Remaining 5 WUAs would be formed in ensuing year.

The Agriculture Department, along with the other line departments, participated in Joint Walk through Survey to have first hand experience on farmers' problems. While enlisting the issues pertaining to Agriculture, lack of knowledge on the latest crop production technology was considered to be the major issue in this sub-basin. Due attention was paid to the farmers needs while planning the activities for the sub-basin. 561 **Opinion makers** were identified in the sub-basin to assist the local departmental staff in convincing the farmers to diversify and adopt the latest crop production technologies in order to get the increased productivity and income. Based on the need, It was decided to organize demonstrations in clusters.



Diversification and Technology transformation to the farmer were the primary objectives of demonstration programmes. These demonstration plots were the source of technology extension to other fields. 9750 ha of **impact area**, around the demonstration plots, was also identified in which all technologies adopted in the demonstration plots would be extended during subsequent seasons / years.

Crop wise distribution of demonstrations.

Crop / Method	Area Covered in Ha.
Pulses	4
Maize	772
Groundnut	199
Coconut INM	144
Coconut IPM	102
Organic farming	173
Coir Pith	231 Nos.
Vermi Composting	217 Nos.

Like many other maize demonstration farmers in Palar sub-basin, Mr. C. Easwaran of Pothipalayam village, Kangayam block harvested 13.150 MT/ha. (HB maize 30 B 07-Pioneer) against previous record. This was 152% more than the previous yield.

Mr. Karuppanna Gounder, a maize demonstration farmer of Sivan Malai village, Kangayam block had taken up maize(Pioneer) cultivation for the first time, and harvested 12780 kgs/ha (harvested on 14/2/08).

Similarly another maize demonstration farmer of the sub-basin,

Ms. S. Amaravathy of Kongalnagaram village, harvested 8.750 MT/ha. (Pioneer). The previous yield was only 4.986 MT/ha. This was 75% more than what he got from the previous harvest.

Diversification: 80 ha of traditional fodder cholam area had been completely diverted to maize crop, in Pachapalayam village of Vellaikoil Block. It was a notable achievement that 60 farmers from one village were involved in this large scale diversification.

Due to cost factor and lack of knowledge on the role of critical inputs in increasing the productivity, many farmers were not giving importance for the application of critical inputs. The critical inputs were distributed to the farmers for 5020 ha at a cost of Rs .291 lakhs. It was expected that the application of such critical inputs would increase the yield and income for farmers.

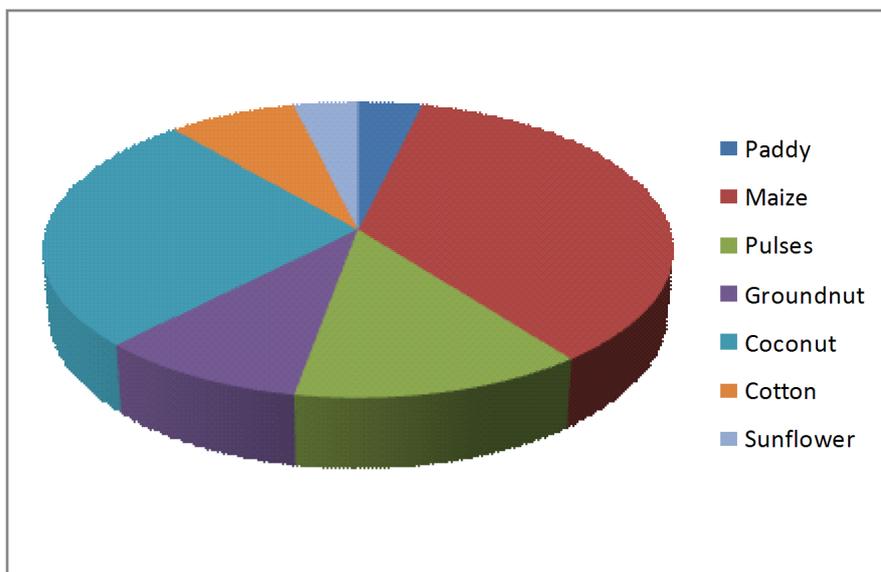
Distribution of Critical Inputs

Critical Input	Area Covered in Ha.
Groundnut Bio-fertilizers	1680
Coconut MN Mixture	628
Coconut Bio-fertilizer	1040
Groundnut gypsum	1672
Total	5020

The project not only enabled farmers to upgrade their technical knowledge, but also to possess with farm implements and equipments. 424 Nos. of Hand Operated Sprayers and 187 Nos. of Power Operated Sprayers were distributed to the farmers.

Printed publicity materials were distributed to the farmers on the latest production technologies of different crops. Training, exposure visit and farmers meetings were conducted from time to time based on needs involving farmers and field staff.

53 **Commodity Groups** were formed (2 for paddy, 19 for maize, 7 for pulses, 5 for groundnut, 14 for coconut, 4 for cotton and 2 for sunflower). Commodity Group members were given exposure on



the latest production technologies of above crops and available market avenues to get the maximum price for the produce.

Commodity Groups had been functioning with effective advice from other line departments such as Horticulture, TNAU and Agricultural marketing.

The Horticulture Department covered 665 hectares additionally under horticultural crops. Location specific and market preferable fruit grafts were planted in 184 ha.

Hybrid vegetable seeds were distributed covering 356 ha. Cocoa plantation crop was raised in 50 ha, with buy back arrangement with Cadburys.

IPM and INM technologies were demonstrated in 300 ha and organic manures and other inputs were provided to the farmers.



Farmers were taken for exposure visits to the research stations and to the innovative farm fields. Leaflets, posters and booklets were printed and distributed to the farmers.

The Agricultural Engineering Department had immense scope for promotion and propagation of Micro Irrigation Systems (Drip, Sprinkler systems) in Palar sub-basin as it is predominantly a Coconut plantation region. With Canal systems meeting partial irrigation requirements, existing practice is to supplement with well irrigation under surface irrigation. Drip Irrigation is not new to this sub-basin thanks to the persistent efforts by Govt of India & State Govt. of Tamil Nadu.



As power availability was for a limited period of time in a day, the farmers were in the habit of using tap system instead of the dripping emitters. Apart from efforts to motivate the farmers to change over to the Drip Irrigation systems, it

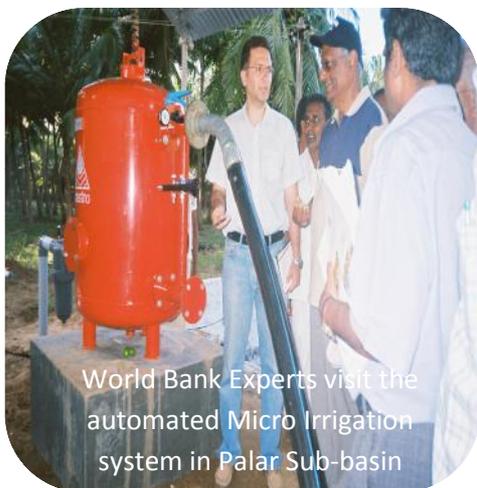
became equally a tough task to make them find funds for the non-subsidy portion of the cost of installations. With concerted efforts, an area of 926 hectares under Drip & Sprinkler Irrigations was covered to benefit 254 farmers. The major crops covered were Sugarcane and Coconut.

Convergence: 173 farm ponds were proposed for 2007 – 08. As this is a **convergence activity** with the Fisheries Department to promote inland fish culture, based on the suggestion about the porous nature of soil in this sub-basin, 164 sites were subsequently deleted. 9 Farm Ponds were formed and handed over to Fisheries Department for rearing fishes.

Being a dry ayacut sub-basin, 8 Water Harvesting Structures such as Major & Minor Checkdams, Percolation Ponds were taken up for construction. Construction of all the Water Harvesting Structures proposed were completed.

Automated Micro Irrigation System in Palar (Erode) Sub-basin:

As a special project, an ayacut of 28.55.0 Ha in Viruvidampalayam - Distributory @ 54.0.0(R) of Parambikulam Main Canal was selected for PVC buried pipeline activity. Four farmers, whose fields come under this activity, were flooding water for coconut using tap irrigation system. AED field personnel met them and convinced about the merits of drip irrigation system. He came forward to

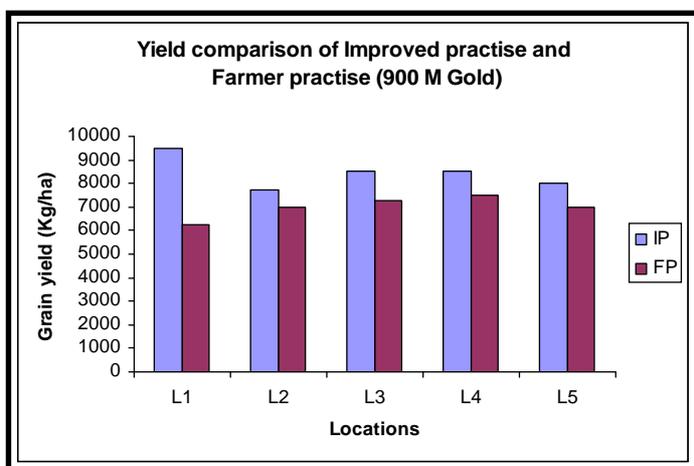


install Drip Irrigation System. As an experiment, it was also planned to install indigenous moisture meters around the coconut trees which would help in monitoring the moisture level in the soil. When the moisture level goes below the prescribed limit, the motor would automatically switch on and when moisture reaches the optimum level, the motor would automatically switch off. Now the farmers experience multifold benefits viz. savings in water, savings in labour for irrigation and weeding, savings in time of motor run and savings in electricity (though it is free). The study was under progress.

Water Technology Centre of Tamil Nadu Agricultural University (TNAU) is the IAMWARM Project implementing body in Palar sub-basin and emphasis was given for improved production technologies on maize and sunflower which are less water intensive crops. Usage of hybrid seeds, fertilizer management and application of micro nutrients are the fundamental principles of improved production technologies for sunflower.



Mr. N.Jagadish, a maize farmer from Malayandipalayam village, who adopted improved maize production technology, had obtained an yield of 8750 kg/ha. The performance of the both crops (sunflower and maize) had motivated the fellow farmers that resulted in impact area to the tune of 600 ha and 100 ha respectively.



performance.

Gopinath of Kongalnagaram, an Engineering graduate, felt that application of bio –fertilizer, bio-inoculants and micro nutrient mixture had definite positive influence on Maize yield.

A.S. Mani of Alamarathur Village, opined that the balanced nutrient application through soil test crop response and timely application of fertilizers had recorded higher yield and impressive crop

Activities of TNAU in Palar sub-basin (in ha.)

Under model village and organic farming concept, onion, banana, tomato, chilles and cauliflower crops were raised in 20 hectares. Farmers were taken to TNPFP site in Dharmapuri district..

Pamphlets and leaflets on improved maize and sunflower production technologies, drip irrigation in

coconut, soil testing and on IAMWARM project were prepared and distributed. On field trainings were conducted on improved production technologies for maize and sunflower.

Activities	Achievement	
	Physical	Impact
Improved production technology for Maize	35	600
Improved production technology for Sunflower	35	100

The Agricultural Marketing, in Palar sub-basin, had several challenging tasks as it is dominated by commercial crops. Lack of market information and technology gap were the main constraints. Under diversification process, maize was introduced in large areas, which required marketing support.

Farmers were linked to DEMIC of TNAU for price information and under IEC & CB, Exposure visits, Interface workshops and Pre and Post harvest Trainings were conducted besides posters, pamphlets etc. 59 Nos. of Commodity Groups for Maize, Medicinal plants, Cocoa, Sunflower etc. were formed and MOUs with end purchasers were signed. Towards infrastructure development, 13 Nos. of Storage sheds, 11 Nos. on Drying yards and 1 Nos. of ABC were under construction. It is quite interesting to note



that the farmers had donated sites at free of cost for construction of Storage sheds and Drying yards etc. This is one of the evidential factors that could be measured to assess the involvement of primary stake-holders in the IAMWARM Project.

MOU for maize, contract farming for cocoa, export of unconventional crop products like curry leaf, marketing of medical plants to Ayurvedic medicine manufacturers in Kerala etc. were few of the farmers own initiatives under the IAMWARM project.

Among other such groups, one group with 11 farmers was constituted as maize Commodity group and entered into an MOU with MPS. Hatcheries, Pollachi. The farmers represented by Mr. Balathandapani, Marulpatti had cultivated maize in an area of 93 acres. The produce was procured at MSP+Rs.10 per quintal.



In an another instance, farmers led by Mr. M.Gopalsami, S/o.Manimuthu, Mullupadi, Kinathukadavu had constituted a curry leaf Commodity Group and cultivated curry leaf which is a leafy spice. Curry leaf was harvested and dried to 1.5 MT. utilizing the godown and drying yard facilities that were available at Regulated Market, Kinathukadau. The dried produce was sold to M/s. GDPA Food Products, Mullupadi at a predetermined price of Rs.18 per kg while the local market price was only Rs.15 per kg. Thus the farmer gained an amount of Rs.4500 in this transaction alone due to the consultancy assistance from the project.

The Animal Husbandry Department established 5 cluster level Veterinary Units. In an effort to strengthening the infrastructure, **Veterinary** dispensaries and sub centers in the sub-basin were provided with necessary equipments along with 2 sets of jumbo liquid nitrogen containers for storage and transportation of frozen semen straws to the mobile units and camps. 498 farmers were provided with fodder inputs covering 100 ha. 120 Infertility cum Total Veterinary Health Care Camps were conducted benefiting 64,991 animals and 11,327 farmers. 3,247 calves were facilitated to participate in calf rally.



8,267 farmers, including 7,515 males and 752 females, participated in the 172 meetings conducted. Posters on project activities were displayed at prominent places in the sub-basin. Pamphlets on best animal husbandry practices and project activities were printed and distributed in the camps, night meetings and farmers trainings. 400 farmers were trained in 25 batches. A training manual on animal husbandry was distributed to farmers during the training. A total of 78,202 artificial inseminations, which includes 62,971 cross bred cattle, 13,939 indigenous cattle and 1,292 buffaloes, were carried out at the graduate institutions, sub centers, health camps and mobile units in the sub-basin.

The Fisheries Department motivated agricultural farmers of this sub-basin to take up aquaculture in farm ponds through awareness campaigns and IAMWARM days. Two farm ponds were stocked with carp seeds and the culture was in progress. The farm pond owners / farmers were trained in good management practices in fresh water aquaculture.

Two ornamental fish culture units were established. The beneficiaries were trained in rearing ornamental fish and they were taken on exposure visits to ornamental farms.

Pambar Sub-basin

Pambar is one of the Sub-basins in Pambar – Kottakaraiyar Basin. It is bounded on North & West by South Vellar Sub-Basin, East by Bay of Bengal and South by Manimuthar Sub-Basin. It irrigates an extent of 18886 Ha.

The sub-basin has around 19500 ha with Paddy, Sugarcane and Groundnut as major crops.

The Water Resources Department, proposed to have 8 packages at an estimated cost of Rs.5314.00 lakhs. Out of the 8 packages, the Ground water component at an estimated cost of Rs. 135.00 lakhs was not taken up. However the remaining 7 packages, at an estimated cost of Rs.5179.00 lakhs, were taken up and in progress. The total expenditure incurred upto 31.03.2008 was Rs.128.23 lakhs.

It was proposed to form 194 Water Users Associations (WUAs) in the sub-basin. Efforts were initiated and concerted activities were undertaken to form WUAs. However, farmers participation in planning and implementation of the project, in Pambar Sub-basin, was encouraging thanks to all line departments who were involved in organizing 30 village level **IAMWARM Days** to explain the farmers about the salient features of the project activities and to motivate them to participate in the project to get the higher productivity and income.

The Agriculture Department thoroughly assessed the needs of the farmers while participating in Joint walk through survey along with other line departments. As in other sub-basins, farmers in Pambar were moving at snail's pace in adoption of latest crop production technologies for Paddy, Pulses, Maize and Groundnut. Diversification and promotion of modernized technologies were, therefore, considered the priority tasks. 152 **Opinion makers** were identified in the sub-basin to assist the local departmental staff in convincing the farmers for diversification of crops and to adopt the latest crop production technologies. It was planned to organize demonstration in farmers fields in order to transfer the technology to farmers. The sub-basin was physically segregated in to clusters so as to reach large number of farmers.



Demonstrations were organized covering 2336 ha in order to facilitate a transformation process through which farmers were enabled by themselves to effect a change from conventional to latest crop production technologies.

Crop wise distribution of demonstrations.

Crop / Method	Area Covered in Ha.
Paddy	250
Pulses	1005
Hybrid Maize	816
Groundnut	225
Organic farming	40
Total	2336

22210 ha. of **impact area** around the demonstration plots was identified in which all the technologies as adopted in the demonstration plots would be expanded during the subsequent seasons / years.

Like many other SRI demonstration farmers in the sub-basin

Mr. C. Shanmugam of Usilampatti village recorded 7.215 MT/ha, against the normal yield of 5.070 MT/ha. He was happy that he could increase the yield by 42%.

The critical inputs needed for the sub-basin were distributed covering 10860 ha. It was expected that the application of such critical inputs would increase the yield and income for farmers.

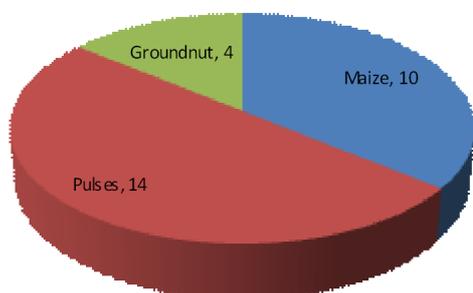
Distribution of Critical Inputs

Under distribution of farm Implements and equipments, 100 Nos. of green manure trawlers and 1070 Nos. of hand operator sprayers were distributed to the farmers.

Critical Input	Area Covered in Ha.
Paddy MN mixture	1560
Paddy Bio-fertilizers	4800
Bund Pulses	4500
Total	10860

Printed publicity materials were distributed to the farmers on the latest production technologies of different crops. Training, exposure visit and farmers meetings were conducted from time to time

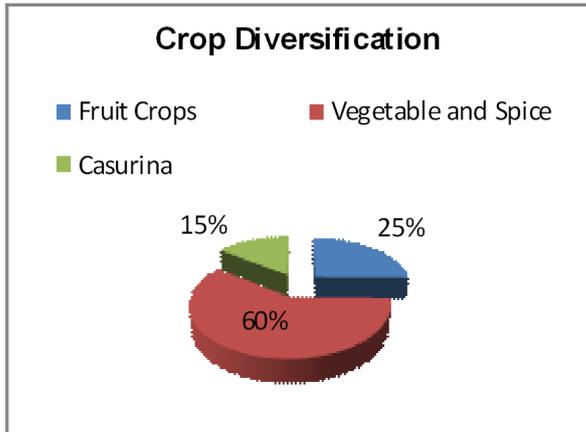
based on needs involving farmers and field staff.



28 **Commodity Groups** were formed in this sub-basin (10 for Maize, 14 for Pulses and 4 for Groundnut). The Commodity Group members were given exposure on the latest production technologies for the crops of their interest and also the market avenues and the facilities available in the project to get the maximum price for the produce.

The Horticulture Department covered 675 hectares additionally under crop diversification with

horticultural crops. 170 ha of fruit crops and 405 ha of vegetable and spice crops were brought under crop diversification. The casurina tree crops were promoted in 100 ha. Farmers were encouraged to form Commodity Groups and there by improving marketing of their produce. Exposure visits and farmers training programmes were conducted as per schedule.



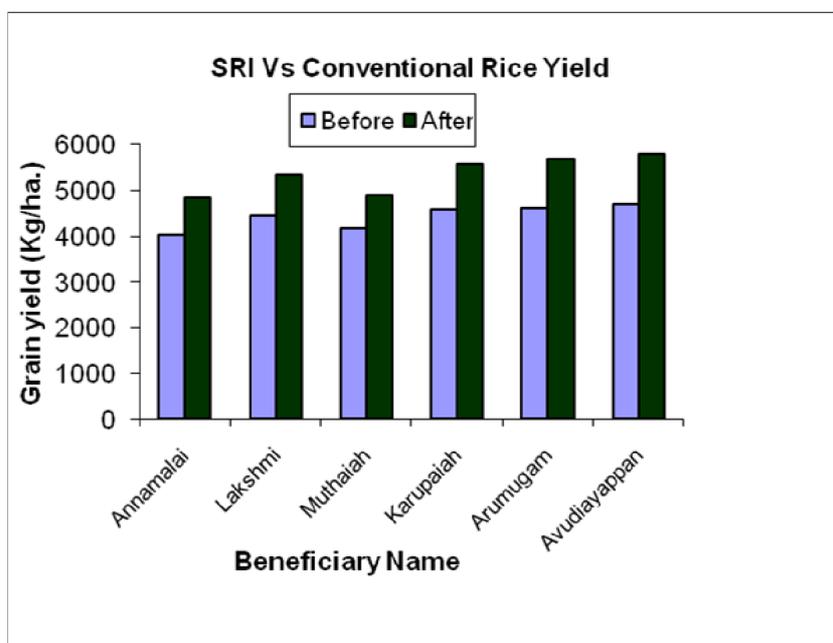
Agricultural Engineering Department, in Pambar sub-basin, had brought 20 hectares under Micro Irrigation System (MIS) through its concerted efforts to motivate farmers to adopt new methods of irrigation in order to increase the productivity with comparatively less water consumption. Mass media such as Newspapers, All India Radio and etc were strategically used to propagate and promote MIS in the sub-basin.

With active participation of farmers, formation of 40 nos. of farm ponds was undertaken and completed. Beneficiary farmers had expressed their satisfaction over the farm ponds.

Pappankanmoi tank, (K.Rayapuram revenue village) of Pambar Sub Basin with an ayacut area of 51.54.0 hectares (90 farmers), was identified for implementing PVC buried pipeline activity. The response from farmers had been encouraging. Farmers of this tank were facilitated to learn from other successful sights through exposure visits. Night meetings were conducted to convince the farmers on Micro Irrigation. 25 farmers growing groundnut & vegetables over an extent of 20 hectares had opted for sprinkler irrigation.



Since the Scarcity of water is one of primary constraints for the development of agriculture and farmers in Pudukottai district, the principal objective of **Tamil Nadu Agricultural University (TNAU)** is to enhance the water productivity, therefore SRI was chosen as one of the remedial measures. National Pulses Research Centre, the participating research station of **Tamil Nadu Agricultural University**, had demonstrated SRI in 50 hectares which had an impact in adjacent 50 hectares. Usage of markers for transplantation



and cono weeder usage for controlling the weeds under SRI method of rice cultivation had a positive response among the farming community. In general, due to adoption of SRI, an increase in the yield to the tune of 48 - 67 per cent was registered in the sub-basin.

Mr. R.Kailash, from Palaiyur village, was the first person to adopt SRI method of rice cultivation in the sub-basin.

He felt that exposure visit to SRI field motivated him to adopt this method. He further enhanced his skills pertaining to SRI in the training programmes conducted by TNAU under IAMWARM Project. He reckoned SRI as one of the best alternatives for his district.

“I was surprised to see mushrooming of tillers”, exclaimed Mr. Annamalai, a SRI farmer from Rangium village who was very much skeptical about single seedling plantation method.

Activities of TNAU in Pambar sub-basin (in ha)

Activities	Area coverage	
	Demo	Impact
Production technology for Maize	59	20
Production technology for Garden land pulses	112	100
System of Rice intensification	50	50

The implementing research station viz., National Pulses Research Centre, had disseminated information pertaining to pulses production technology in the sub-basin. Demonstrations for improved technology for garden land pulses were laid in 112 hectares which had an impact in 100 hectares. Similarly, rice fallow pulses

demonstrations were conducted in 50 hectares.

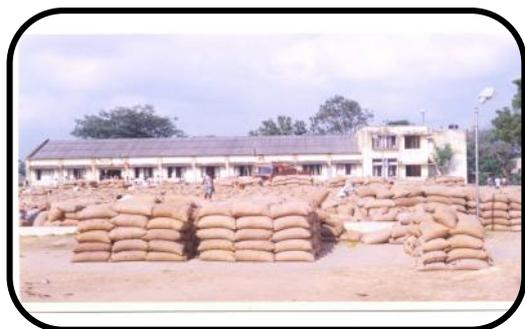
Casuarina is a nodulating nitrogen fixing tree and highly suitable for nutrient deprived soils and water stressed environment. Hence, this is an appropriate crop for this sub-basin. TNAU had introduced a saucer method of Casuarina planting with a prime objective of moisture conservation and reduction of seedling mortality, especially during the initial stage of establishment. Moreover, this method requires less number of seedlings than the conventional method of Casuarina planting. Casuarina Saucer planting Demonstrations were laid in 63 hectares in the sub-basin.

Under diversification, maize was introduced in this sub-basin. The water requirement for maize is much lower than the water intensive crops like paddy. Most of the farmers had cultivated maize for the first time and expressed satisfaction over the performance of the crop. Improved maize production technology demonstrations were conducted in 59 hectares and it had a spreading effect in 20 hectares.



Under IEC component, leaflets and pamphlets on production technologies on maize, pulses, and SRI were distributed to the farming community in the sub-basin. An exclusive booklet on pulses containing full package of practices for garden land pulses was distributed to the farmers. IAMWARM Days and IAMWARM on Wheels generated ample awareness among the farming community.

The Agricultural Marketing Department identified few major problems that include glut / Storage of



produce, lack of available market, non-aggregation and resultant less bargaining power to farmers, lack of Post harvest practices and lack of market information on prices, quality parameters, export opportunities etc. at different places as expressed by the farmers.

Under infrastructure development 3 Nos. of Storage sheds, 3 Nos. of Drying yards and 1 No. of ABC are under construction. Exposure visits, Interface workshops and Pre/Post Harvest Technology trainings were conducted under IEC & CB component. 34 Nos. of Commodity Groups were formed for crops like maize and prices are pre-negotiated by the farmers with end purchasers.

Mr. Murugananda, S/o. Veerappan, Thanjur village, Arimalam block cultivated sugarcane during last year in 4 acres. Though the farmer had spent Rs.74000, he could realize only Rs.40000, thus incurring a loss of Rs.34000 due to delay in issue of cutting order by mills. He was persuaded to take up maize cultivation with minimum expenditure of Rs.5400. He harvested a quantity of 2060 kgs/acre and realized an amount of Rs.15244/acre, thus getting a profit of Rs.8844 per acre. This example motivated other farmers who suffered loss due to sugarcane cultivation to find an alternate crop and earn profit.

The Animal Husbandry Department established 3 cluster level Veterinary Units during the reporting period. Under infrastructural development, Veterinary dispensaries and Sub centers in the sub-basin were provided with necessary equipments along with one set of jumbo liquid nitrogen containers for storage and transportation of frozen semen straws to the mobile units and camps. It was planned to bring 50 hectares under fodder cultivation. 217 beneficiaries were provided with fodder cholam covering 45 ha and Co3 fodder slips in 5 ha

36 Infertility cum Total Veterinary Health Care Camps were planned. 36 camps were conducted benefiting 30,443 animals and 2,559 farmers. 1,062 calves were also facilitated to participate in calf rally. 2,109 farmers, including 1,377 males and 732 females, participated in the 44 meetings conducted. In addition, Posters on project activities were displayed at prominent places in the sub-basin. Pamphlets, on best animal husbandry practices and project activities, were printed and distributed in the camps, night meetings and during farmers trainings.



400 farmers, including 124 who belong to Scheduled castes and 276 others, were trained in 25



batches. A training manual on animal husbandry was distributed to farmers during the training. A total of 6,315 artificial inseminations were carried out in 3,482 cross bred cattle, 2,569 indigenous cattle and 264 buffaloes, at the graduate institutions, sub centers, health camps and mobile units in the sub-basin.

The Fisheries Department motivated agricultural farmers of this sub-basin to take up aquaculture in farm ponds through awareness campaigns, exposure visits and IAMWARM days. Five farm ponds were stocked with carp seeds and the culture was in progress. The farm pond owners / farmers were trained in good management practices in fresh water aquaculture. It was ensured that the five farm ponds would be stocked with the stunted seeds even though the excavation of the ponds was completed during March 2007, after the availability of carp seed season. One fish seed bank was established in this sub-basin. Ten units of cages were supplied to the progressive farmers and fishermen. Rearing of fish seed was taken up in one unit.



Ten units of fishing implements were supplied. This would ensure better fishing efficiency in the irrigation tanks and reservoirs.

South Vellar Sub-basin

The South Vellar is bounded on North by Agniar and Ambuliyar Sub-basin, East by Bay of Bengal, West by Velamalai Hills and Cauvery Basin and Cauvery Basin and South by Pambar Basin. The River runs for a distance of 137 Kms from its origin and confluences with the Bay of Bengal near Mumbalai village in Manamelkudi Taluk of Pudukkottai District.

The sub-basin is highly drought prone and analysis of rainfall data over the years revealed that scanty and ill distributed rainfall is the common phenomenon. The most affected are the small and marginal farmers who mostly belong to marginalized communities. The need of the hour, as expressed by farmers, has been to renovate and rehabilitate the existing water resource structures in the sub-basin.

The Water Resources Department proposed to implement 8 packages at an estimated cost of Rs.6310.50 lakhs. 5 packages, at an estimated cost of Rs. 4344.00 lakhs, were taken up and in progress, bidding process was in progress for 2 packages at an estimated cost of Rs.1704.00 lakhs and one ground water component at an estimated cost of Rs.262.50 lakhs was not taken up. The total expenditure incurred upto 31.03.2008 was Rs.59.48 lakhs.

It was proposed to form 197 Water Users Associations (WUAs) in the sub-basin. Efforts were already initiated to complete the formation of WUAs.

The sub-basin has around 25100 ha. of registered ayacut area with Paddy, Groundnut, Maize and Sugarcane as major crops. Farmers in South Vellar Sub-basin were briefed about the IAMWARM Project emphasizing for the need of their participation not only in reaping the benefits but also implementation and monitoring. Altogether, 28 village level **IAMWARM Days** were conducted to explain to the farmers about the salient features of the project.

The Agriculture Department, based on need and demand of the sub-basin farmers, planned and implemented Demonstration programmes in order to facilitate effective and quick dissemination of the latest crop production technologies. The project intends to modernize the agricultural practices. Farmers were enabled to upgrade their agri-based skills and provided with modernized farm implements and equipments. 185 **opinion makers** were identified in the sub-basin to assist the local departmental staff in convincing the farmers to adopt the latest crop production technologies.



The demonstrations were organized at different clusters so as to cover as many farmers as possible.

Crop wise distribution of demonstrations.

Crop	Area Covered in Ha.
Paddy	1401
Pulses	875
Hybrid Maize	100
Groundnut	313
Total	2689

The demonstration programs on latest crop production technologies covered 2689 ha. Each demonstration plot was expected to convince the adjacent farmers and had a ripple effect aimed at covering an impact area upto 22687 ha.

Regular follow-up visits were made to demonstration plots in order to support the farmers with upgraded information and enable them to gain confidence with the new technology.

Diversification: With an intention to facilitate farmers to initiate transformation process from high water to low water crops, the Department in the sub-basin took multi-pronged steps. As a result, 45 ha of traditional sugarcane area in Thanjur village , Arimalam Block , had been completely diverted, in single season, to maize (25 ha) , pulses (10 ha) , and groundnut (10 ha).



Mr. M. Gunasekar, of Palakudipatti village of Thirumangalm block, adopted SRI method of rice cultivation and failed to harvest increased yield due to persistent heavy rain fall over a week during flowering stage. Despite this set back, the same farmer had taken up SRI again in the same field (ADT 45) and adopted all SRI technologies without any assistance from the departmental officers. He did not loose the confidence of the SRI techniques, since he was convinced about its key concepts such as 1) perfect field leveling, 2) only 7 kg of seeds per ha., 3) Pai nursery, 4) 13 days old seedlings, 5) single seedling, 6) square planting and 7) Cono weeder.

Another SRI demonstration farmer, Mr. S. Sethu of same village, (Palakudipatti) harvested 8.550 MT/ha. (Trichy – 1) against the normal yield of 5.070 MT/ha. This was 69% more than the previous yield.

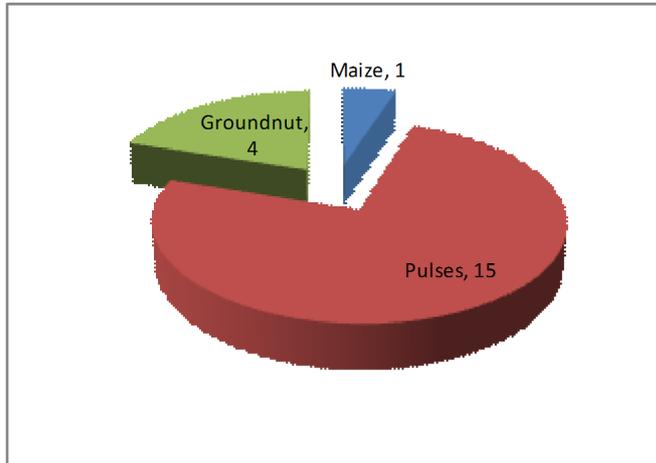
It was also decided to supply critical inputs covering 10052 ha in order to enable farmers to see the difference in productivity and educate other farmers to follow the same. It was expected that the application of such critical inputs would increase the yield and income for farmers.

Under distribution of Farm Implements and Equipments ,528

Distribution of Critical Inputs

Critical Input	Area Covered in Ha.
Paddy MN Mixture	4361
Paddy Bio-fertilizers	4538
Groundnut Gypsum	1153
Total	10052

Nos. of Cono weeder / Marker, 360 Nos. of Green manure trammers and 1794 Nos. of hand operated sprayers were distributed to the farmers.



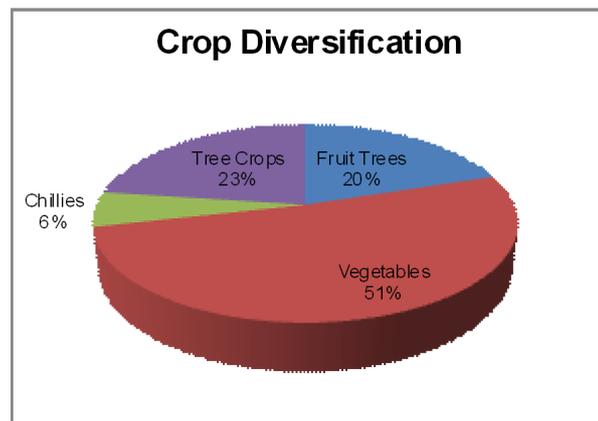
20 **Commodity Groups** were formed, 1 for Maize, 15 for Pulses and 4 for Groundnut. The Commodity Groups members were given exposure on latest crop production technologies and available market avenues to get the maximum price for the produce of the crops of their interest.

Printed publicity materials were distributed to the farmers on the latest production technologies of different crops. Training,

exposure visit and farmers meetings were conducted from time to time based on needs involving farmers and field staff.

The Horticulture Department in South Vellar sub-basin covered 875 hectares additionally under Horticultural crops. 175 ha covered under fruit tree crops, 450 ha under vegetable crop, 50 ha of chillies and 200 ha covered under tree crops. The INM/IPM demonstrations were conducted in 250 ha.

As a new introduction, Casurina jungniana hybrid seedlings were distributed to the farmers. This hybrid variety can be harvested within 3 years and there by saving 2 years of cropping period. The yield potential of this variety is double the rate of local variety.



Agricultural Engineering Department had taken concerted efforts to effect a paradigm shift from traditional to Micro Irrigation Systems (MIS). South Vellar is one of the most water stressed sub-basins with large number of small and marginal farmers. The importance of MIS was emphasized through Newspapers and All India Radio. Pamphlets, flex banners, wall paintings and other IEC activities were intensified which resulted in bringing 20 hectares under Micro Irrigation.

With active participation of farmers, formation of 23 nos. of farm ponds were undertaken and completed during the year 2007 – 08.



Nambukuzhi tank (Kathakurichi revenue village) of South Vellar Sub Basin with an ayacut area of 50.06.0 hectares was identified for implementing PVC buried pipeline activity. Farmers of this tank were taken for exposure visit to local successful farmers' fields as well as to Dharapuram area to learn about the benefits of the Micro Irrigation systems. More coverage of area under micro irrigation in this tank is on the anvil.

TN-IAMWARM Project, in South Vellar sub-basin, is implemented by the Krishi Vigyan Kendra (KVK),



the constituent of **Tamil Nadu Agricultural University**, at Vamban in South Vellar basin. Large scale demonstrations on SRI were conducted in 115 hectares in order to enhance productivity by 15% with 30% water saving and also aiming to achieve enhanced soil health and farm income. These demonstrations had beneficial impact in another 102 hectares. The farmers were taken for exposure visit clubbed with training at the KVK on SRI. SRI had boosted the yield

by 45 to 55 per cent over the conventional method of rice cultivation.

“My mother was screaming at me just after seeing the SRI plantation. She was highly apprehensive whether there would anything for atleast animal consumption. But she was amazed on seeing the mushrooming of tillers/hill and kept a “Drishti Bhommai” (to protect the crop from evil eye).” Said Mr. Ravi a SRI farmers from Parambur village. He obtained 50 bags/acres. This was 20 bags/acre more than the previous yield with traditional method.



Activities of TNAU in South Vellar sub-basin (in ha.)

Activities	Achievement area (ha)	
	Physical	Impact
Production technology for Maize	50	25
System of Rice intensification	115	102

Rice fallow pulses are another important crop in the sub-basin but the potentials were not tapped to the its full extent. Increasing the pulses productivity is the need of the hour in the State, keeping this in view, demonstrations were continued in the SRI plots (115 hectares) for enhancing the yield of rice fallow pulses.

The sub-basin falls under drought prone area and analysis of rainfall data over the years revealed that scanty and ill distributed rainfall is the common phenomenon in this sub-basin. In this context, crop diversification with less water intensive crops would be an appropriate option to cope up with the paucity of irrigation water. As a result, it was planned to introduce Maize crop in larger areas in this sub-basin. Improved maize production technology demonstrations were conducted in 50 hectares by TNAU. The performance of the crop had led to spreading effect in additional 25 hectares.

The need and importance of organic farming was emphasized to the farmers. Exposure visit to a well maintained organic farm was organized for better understanding of principles and to give first hand information on problems in organic farming. The farmers were exposed to field problems and necessary remedial measures were made available to them. Demonstrations in organic farming under Model village concept were conducted in 20 hectares



Leaflet and pamphlets on SRI, improved production technology for maize were distributed among the farmers. IAMWARM on Wheels, mobile exhibition, was conducted in the sub-basin villages and the farmers benefited as they got their queries answered by the line department officials.

The challenges for Agricultural Marketing in the sub-basin are to improve the existing market utilization, providing multiple market information, enhancing farmers' collective bargaining power, dissemination of knowledge and adoption of modern marketing practices of handling, grading, packing, on farm process and quality control. The knowledge gap and infrastructural gap existed as in other sub-basins.

25 Nos. of Commodity Groups were formed for aggregation of produce to increase bargaining power of farmers. Under infrastructural development, 6 Nos. of Storage sheds and 6 Nos. of Drying yards besides 1 No. of ABC are under construction. Under IEC & CB, Exposure visits, Interface workshops and Pre/Post Harvest Technology Trainings were conducted thereby improving the technological knowledge and infrastructural status of the stakeholders.



The farmers were very much interested in Exposure visits and many of the Commodity Group members were included in these visits. Banana farmers negotiated with Reliance Fresh on price, quality parameters, aggregation, transportation and etc.

Mr. Murugesan, S/o. Periasamy, Poovattupatti village, Annavasal block had cultivated Paddy ADT 39 during last year and spent Rs.8500/acre. He obtained an yield of 30 bags which was sold at Rs 350 per bag and fetched him Rs 10500/acre. He also experienced water shortage at the fag end of the cropping. On the advice of the project staff, he switched over to maize crop and spent Rs.4500/acre and harvested 1480 kgs/acre. Based on MOU with M/s. Suguna Feeds Ltd, he sold his produce at

Rs.14652 @ Rs.7.40/kg. In the process he got a net profit of Rs.10152/acre, against the previous profit of Rs 2000/-.

The Animal Husbandry Department established 2 Cluster level Veterinary Units. In the process of strengthening infrastructure, Veterinary dispensaries and 18 Sub centers, in the sub-basin, were provided with necessary equipments along with 1 set of jumbo liquid nitrogen containers for storage and transportation of frozen semen straws to the mobile units and camps.



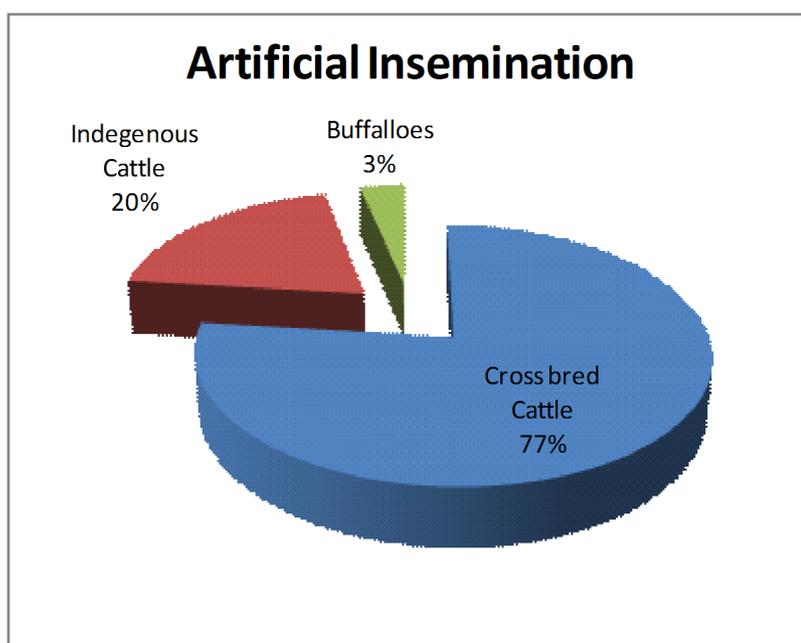
Promotion of Fodder cultivation was given priority. As a result, it was planned to bring about 125 ha under fodder cultivation in the sub-basin. 453 beneficiaries were provided with fodder inputs covering 120 ha. of fodder cholam and 5 ha. of Co3 fodder slips at their door steps.



48 Infertility cum Total Veterinary Health Care Camps conducted benefiting 42,543 animals and 4,745 farmers. 1,899 calves were facilitated to participate in calf rally. 88 night meetings were organized in selected villages where more farmers could be covered. 3,147 farmers, including 2,431 males, and 722 females, participated in the 88 meetings conducted. In addition, Posters on project activities were displayed at prominent places in the sub-basin. Pamphlets on best animal husbandry practices and project activities were printed and distributed in the camps, night meetings and farmers trainings.

A total of 33,703 artificial inseminations were carried out in 25,888 cross bred cattle, 6,673 indigenous cattle and 1,142 buffaloes at the graduate institutions, sub centers, health camps and mobile units in the sub-basin.

400 farmers including 102 members, who belong to Scheduled castes and 298 others, were trained in 25 batches. A training manual on animal husbandry was distributed to farmers during the training.



The Fisheries Department, through awareness generation campaigns, exposure visits and trainings, motivated farmers to adopt **Aquaculture in farm ponds**. Five farm ponds were stocked with carp seeds and the culture was in progress. The farm pond owners / farmers were trained in good management practices in fresh water aquaculture.

Two fish seed banks were established in this sub-basin. The seed banks would be operational during 2008-09 and should rear fish seeds from early fry to advanced fingerling which would be the stocking material to the irrigation tanks in the sub-basin.



Ten units of fishing implements were supplied. This would ensure better fishing efficiency in the irrigation tanks and reservoirs. Ten units of cages were supplied to progressive farmers and fishermen. Rearing of fish seeds would be commenced in two months.

Upper Vellar Sub-basin

The Upper Vellar, also known as Vasistanadhi, is one of the sub-basins in Vellar Basin. It comprises the parts of Attur, Salem, Rasipuram and Uthangarai revenue taluks in Salem district, Veppanthattai, Kunnam taluks in Perambalur district and Viruthachalam, Thittakudi taluks in Cuddalore district.

The Water Resources Department proposed 3 packages at an estimated cost of Rs.2447.70.00 lakhs and all of them were taken up and in progress. The total expenditure incurred upto 31.03.2008 was Rs.246.86 lakhs.



The Upper Vellar Sub-basin, with 11000 ha. of registered ayacut area, is one of the few sub-basins where commercial crops like Groundnut, Sugarcane, Pulses, and Tapioca etc. are given more importance than Paddy. Joint Walk through Survey was conducted in which all stake-holders, including farmers,

participated for assessing the context and prioritizing needs.

Formation of 52 Water Users Associations, which was proposed under IAMWARM Project, was in progress. Farmers' participation in the project was strengthened by 25 village level **IAMWARM days**, that were organized to create awareness about the project activities and also to motivate the farmers to participate in the project to get higher productivity and farm income.

The Agriculture Department, as a part of motivating sub-basin farmers for diversification of crops and to adopt latest crop production technologies, organized demonstration in clusters. 56 **opinion makers** were identified to assist the local departmental staff in convincing the fellow farmers to adopt the latest production technologies to get the increased productivity and farm income.



The demonstrations intended not only to

familiarize farmers on latest crop production technologies but also to impart them with pertinent agri-based skills and technologies.

Crop wise distribution of demonstrations.

Crop	Area Covered in Ha.
Paddy	400
Pulses	100
Maize	501
Groundnut	85
Coconut INM	71
Total	1157
Vermi Compost	40 Nos.

1157 ha were covered under demonstration programs in the sub-basin. Demonstrations of different kind, including 400 ha of paddy, 100 ha of pulses, 85 ha of groundnut, 71 ha of coconut INM and 40 Nos. of vermi compost, were organized in clusters in the farmers holdings. In total 1157 ha of demonstrations were laid in the sub-basin. 9660 ha. of **impact area** around the demonstration plots had also been identified.

Mr. R.Vivekanandan of Chinnmanaickanpalayam, a SRI farmer, harvested 7776 kgs/ha (ADT 43) against the normal yield of 6150 kgs/ha. This was 26% more than the previous

record.

Similarly, Mr. A Maheswaran, Ramanaickanpalaym, a maize demonstration farmer, harvested 8280 kgs/ha. This was 37% more than the previous yield.

On seeing the results, many farmers were showing their inclination for adoption of modernized technologies and methods of cultivation.

Critical inputs such as Groundnut bio pesticides for 384 ha and Coconut MN mixture for 40 ha., were distributed to the farmers. It was expected that the application of critical inputs would enhance the productivity and fetch more income for farmers.

Printed publicity materials were distributed to the farmers on latest production technologies of different crops. Training, exposure visit and farmers meetings etc were conducted from time to time based on needs involving farmers and field staff.

6 Commodity Groups were formed, 2 for paddy and 4 for maize. These Commodity Groups were formed not only to get good price for the produce, but also for mass adoption of latest crop production technologies.

The Horticulture Department covered 509 hectares additionally under area expansion with Horticultural crops. High density Mango grafts were planted in 19 ha. An extent of 370 ha covered with hybrid vegetable crops like Tomato, Brinjal, Bhendi and others. Improved Turmeric variety was promoted in 100 ha, replacing the traditional varieties. Cocoa plantation crop was planted in 20 ha with marketing buy back tie-ups with Cadburys.

Kuruchi is one of the villages in the sub-basin, where one could find many number of progressive farmers. Few farmers in this village joined together and developed a shade net house to raise Hybrid Tomato seedlings in protrays. A vigorous and healthy seedlings were grown in these portrays and

they were planted in the main field. The method was well established and paved the way for a bumper crop yield.

Banana farmers in Abinav village adopted plastic mulching technology. The soil surface is covered with plastic sheets and there by controlling the weed growth. This practice also minimizes the evaporation loss of soil moisture.

Agricultural Engineering Department, in convergence with Fisheries Department, had completed the formation of farm ponds benefitting 34 farmers in the sub-basin. Introduction of Micro Irrigation System to major crops such as Sugarcane, Coconut, Arecanut, and Tapioca was one of the major inventions in the sub-basin. MIS such as drip and sprinkler had covered an area of 95 hectares benefitting 77 number of farmers.

The Farm Pond farmers formed “Vashista Aqua Club” to facilitate joint efforts for learning and marketing of fish products. The group was trained on best management practices in fresh water aqua farming by the Fisheries Department during January 2008. Indian Major Carp and Common Carp fingerlings were let into the Farm Pond. Farmers enthusiasm bound to give good results by way of better income



Kalleri tank of Chokkanathapuram village with an ayacut area of 88.00.0 hectares was identified for implementing buried pipeline programme. Farmers of this tank were taken for exposure visit to nearby successful farmers’ fields and to far away places like Dharapuram to learn about the water saving technologies.

Tapioca and Castor Research Station, Yethapur of TNAU is the **TN-IAMWARM** project



implementing body in Upper Vellar sub-basin. The objective based progress was achieved by the IAMWARM team and adoption of SRI was carried out as planned at full swing in the sub-basin. Higher tiller count was recorded in all the inspected SRI Fields. Though the scientists experienced initial reluctance from farmers’ side, exposure visits and better performance of SRI crop helped them to achieve the targets. Successful SRI demonstrations were conducted in 250 ha which had a spreading effect in 525 ha. Mr. C.Ravi of Pallathathanoor registered 9750 kg/ha in his ADT 39, whereas 6500 kg/ha was observed in conventional method

of rice cultivation. Demonstrations on improved production technologies for rice fallow pulses were organized in 350 ha which had ripple effect aimed at covering 490 ha.

Castor is being cultivated as a border crop in turmeric fields in the sub-basin. And the prevailing

Activities	Area covered in Ha.	
	Demo	Impact
Production technology for Maize	110	630
Production technology for Groundnut	70	230
Production technology for castor	75	205
System of Rice intensification	250	525
Rice fallow pulses	350	490

weather provides excellent growing conditions. Hence, in the TN-IAMWARM project, demonstrations on improved castor production technologies were organized in 75 ha with Castor hybrid TMVCH 1. The crop establishment was so convincing

that led to self perpetuating effect which had ripple effect aimed at covering an impact area of 205 ha. Marketing tie-up with private sector pharmaceuticals was felicitated through TN-IAMWARM project by TNAU.

The sub-basin was noted for groundnut production and it was considered as focus crop under IAMWARM project and improved production technologies were demonstrated in 70 ha which had a spreading effect in 230 ha.



Similarly, Maize was another focus crop in the sub-basin

for which demonstrations were organized in 110 ha with an impact area of 630 ha. A maximum yield of 7.4 tonnes per ha was registered by Mr.N.Gopal of Vazhapady village.



Under IEC activities, wall paintings at 15 places in the sub-basin were organized to popularize the IAMWARM project. 70 numbers of informal meetings were conducted. Leaflets on improved production technologies on focus crops (16 Nos) were distributed among the farming community. A news letter with IAMWARM Project activities, published by TNAU research

center, was being circulated among farmers.

IAMWARM on wheels, mobile campaigning programme, was conducted for 14 days during the first to third week of February 2008. Training component too plays a dominant role in adoption of new technologies as it exposes the farmers and gives the solution for the actual field problems. Farmers' training, on SRI and improved production technologies, were organized. Expansion of SRI method of Rice cultivation depends on the successful square planting and cono weeding; these concepts were new to the labourers in the sub-basin. Hence, training programmes were organized for agricultural labourers to impart fundamental SRI skills and techniques. Since, entire world is now leaning towards computers and information technology, e-learning oriented trainings



(2Nos.) were given to the farmers by the outsourced resource persons by effectively utilizing the locally available infrastructure.

Mr. Raju, of Thumbal village, adopted SRI method of rice cultivation in 6 acres. “My mother opined,



after seeing the field after transplantation, that there would not be any grains even for home consumption. But now she is more confident of higher yield than the normal”, said Mr. Raju.

Mr. Raju’s quest for innovativeness enabled him to modify the rotary weeder. He removed the float in the front and turned the weeder upside down to facilitate the easy movement. He used the weeder back and forth to his left and right while moving across the rows. It enabled him to reduce the total distance moved in the field significantly. This innovation is worth trying in other areas too.

The Agricultural Marketing Department had several challenges in Upper Vellar sub-basin. The sub-basin, with 11000 ha. of registered ayacut area, is one of the few sub-basins where commercial crops like Groundnut, Sugarcane, Pulses and Tapioca are given more importance than Paddy. Hence technology for crop growing, quick transport, storage and market information was assumed greater importance which was also brought out during the consultative process with primary stake holders. With around 24000 MT of marketable surplus, there existed an infrastructural gap. Aggregation of the produce was the immediate necessity to bargain for better price with the traders. Processing was another area that needed attention in this sub-basin.

Under IEC & CB, Exposure visits, Interface workshops and Pre/Post Harvest Technology trainings were conducted. To bridge the infrastructural gap, construction of 5 Nos. of Storage sheds and 8 Nos. of Drying yards were under progress. One Pack house, 2 Collection centers and one ABC (Ethapur) that were under progress would give agro-business perspective to farming in this sub-basin. Besides the above, 11 Nos. of Commodity Groups for different agricultural and commercial crops were formed along with capacity building measures.

Due to high labour charges, transport, perishable nature of produce and fluctuation in market prices etc. farmers preferred farm gate sales of produces. Few agreements, with corporate sectors such as Reliance Fresh, were arrived for produces like tomato.

20 banana farmers, who reside in Abhinav Village, joined and formed a Commodity Group. This group interacted with M/s. Reliance Private Ltd., SAFAL Market representative and others. An MOU was signed with M/s. Reliance Pvt Ltd. and an initial lot of 38 MT. was sold at Thalaivasal. Farmers got Rs 3.23 lakhs for 38 MTs (Prevailing market rate was Rs 2.28 lakhs). . The increased bargaining capacity fetched more income for farmers. The farmers were also trained on processing and packing their produce.

The Animal Husbandry Department established 10 Cluster level Veterinary Units. Veterinary dispensaries and 17 sub centers in the sub-basin were provided with necessary equipments along with 2 sets of jumbo liquid nitrogen containers for storage and transportation of frozen semen straws to the mobile units and camps.



Fodder Cultivation was promoted in 135 ha. 759 beneficiaries were provided fodder inputs covering 75 ha (Fodder cholam), 10 ha (Kollukattai seeds) and 50 ha (Co3

fodder slips) at their door steps. 120 Infertility cum Total Health Care Camps were conducted benefiting 1,13,341 animals and 18,975 farmers. 5,137 calves were facilitated to participate in calf rally. 4,631 farmers, including 3,337 males and 1,294 females, participated in the 104 meetings conducted. In addition, Posters on project activities were displayed at prominent places in the sub-basin. Pamphlets on best animal husbandry practices and project activities were printed and distributed in the camps, night meetings and farmers trainings. 400 farmers, including 122 who belong to Scheduled castes and 278 others, were trained in 25 batches. A training manual on animal husbandry was distributed to farmers during the training.



A total of 43,201 artificial inseminations were carried out in 33,923 cross bred cattle, 5,422 indigenous cattle and 3,856 buffaloes at the graduate institutions, sub centers, health camps and mobile units in the sub-basin.

The Fisheries Department, in the sub-basin, motivated farmers to take up aquaculture in farm ponds through awareness campaigns, trainings and exposure visits. 51 farmers in the sub-basin had



shown their interest in taking up aquaculture in farm ponds. Twelve farm ponds were stocked with carp seeds and the culture was in progress. The farm pond owners / farmers were trained in fresh water aquaculture practices. The growth assessment trials showed good growth of fishes in the farm ponds. Two farm ponds were stocked with fresh water prawns (scampi) as a trial experiment to further

enhance the net revenue per pond. Five units of cages were supplied to the progressive farmers and fishermen. Rearing of fish seeds would be taken up during the ensuing season.

Varahanadhi Sub-basin

The Varahanadhi basin is one of the major river basins and is located in Villupuram, Thiruvannamalai, Kancheepuram and Cuddalore districts of Tamil Nadu and Pondicherry. Varahanadhi Basin consists of Varahanadhi , Ongur and Nallavur sub-basins.

Varahanadhi is the largest sub-basin among the above three sub-basins which is taken up for the modernization and rehabilitation under IAMWARM project. It commands an area of 25275 Ha.

The Water Resources Department proposed 12 packages at an estimated cost of Rs.2387.52 lakhs. Out of the 12, 8 packages at an estimated cost of Rs 1372.79lakhs were taken up and in progress. Rebidding was in progress for the remaining 4 packages at an estimated cost of Rs. 1014.73 lakhs. The total expenditure incurred upto 31.03.2008 was Rs.281.58 lakhs.

Besides Walk through Survey, in which all line departments along with farmers assessed the context and prioritized the issues, 70 village level **IAMWARM days** were conducted to create awareness about the project activities and also to motivate farmers to participate in the project.

Formation of 154 Water Users Associations was proposed of which 19 had already been existing. Efforts had already been initiated for formation of remaining 135 Water Users Associations in the sub-basin.

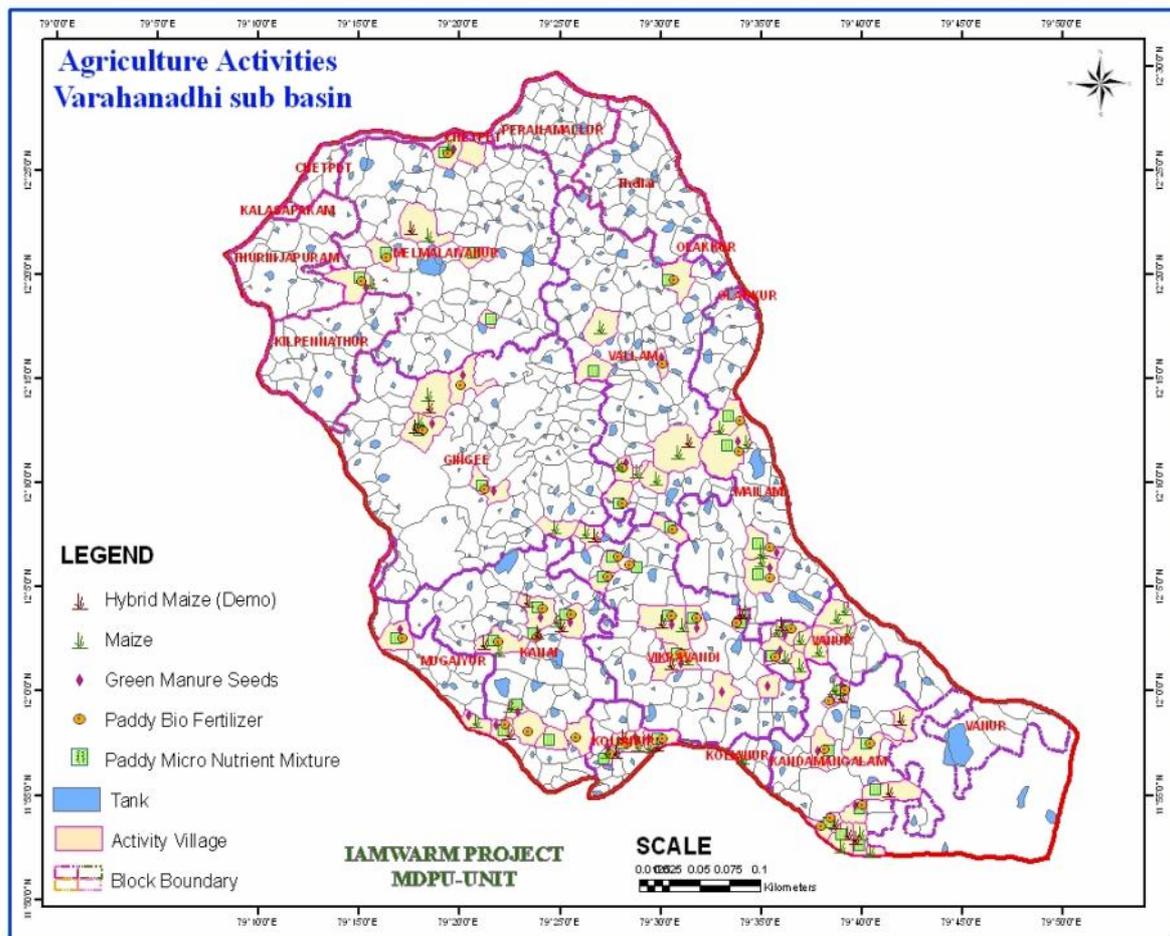
The Agriculture Department's principal focus in this sub-basin was to motivate farmers to diversify and adopt latest technologies in agriculture. 80 **opinion makers** were identified to assist the local departmental staff in convincing the fellow farmers to diversify and adopt the latest crop production technologies. When compared with the other principal crops, the awareness and popularity of maize was poor in this sub-basin. This crop has high yield potential, shorter in duration and requires less irrigation water. Hence, to encourage the farmers, maize demonstration was organized in farmers' holdings covering 78 ha.

The awareness on the benefits of IPM in Groundnut in minimizing the cost of cultivation, increase in the yield, protection of soil health and prevention of atmospheric pollution etc. was poor among the farmers. Hence, ground nut IPM demonstrations were also organized covering 151 ha in the sub-basin. 780 ha of **impact area**, around the demonstration plots, was also identified. In total, 229 ha were covered under demonstration programme.



Paddy MN mixture for 1129 ha, Paddy bio-fertilizers for 1310 ha, Paddy green manure seeds for 1144 ha and groundnut bio-fertilizers for 310 ha were distributed to the farmers. It was expected that the application of such critical inputs would increase the yield and income for farmers.

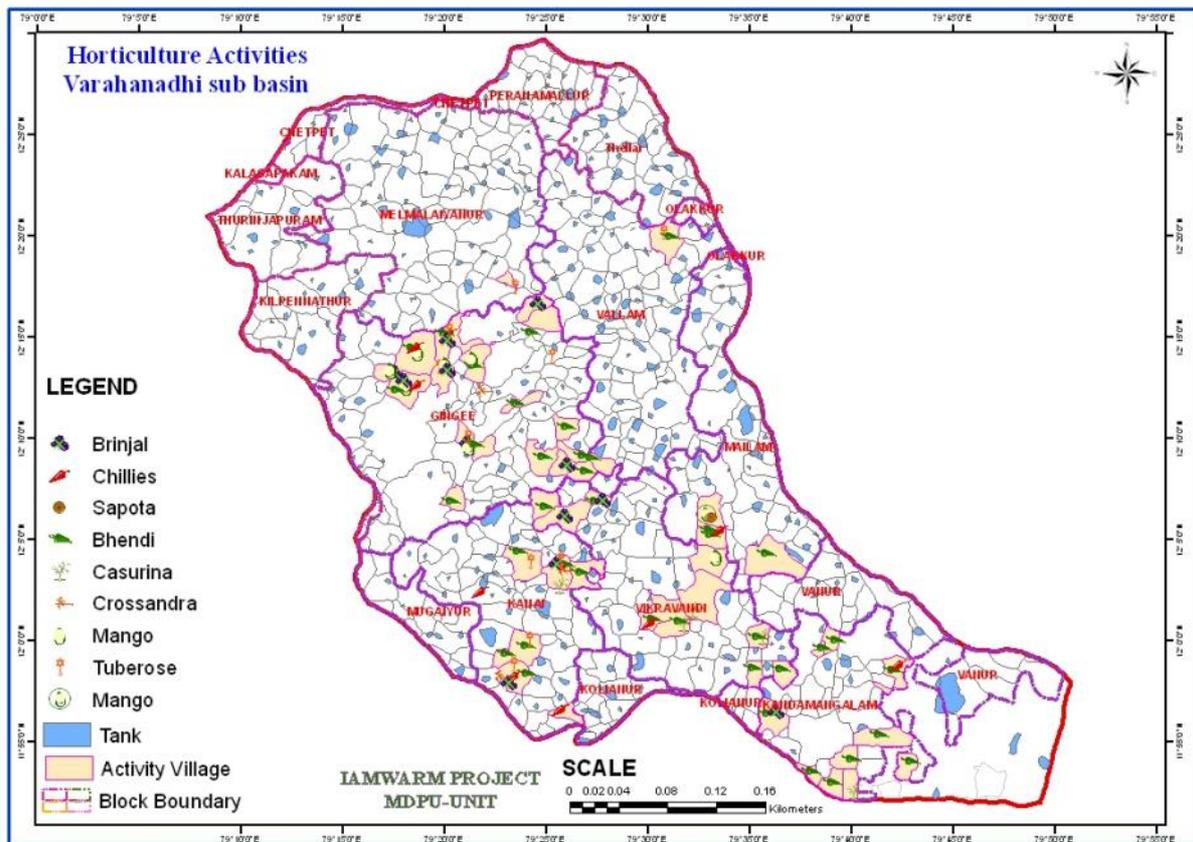
Public function was organized at Chendur village near Tindivanam during July 2007, in which the Scientist from Agriculture Extension Education Institute, Hyderabad, Scientists from Oil seeds Research Station, TNAU, Tindivanam and the students of Ahiparasakthi Agriculture College, Melmaruvathur participated. Inputs like green manure seeds, bio-fertilizers and micro nutrients were distributed to the farmers. Similarly, a function was organized in Vallam block in Gingee Taluk and inputs were distributed to the farmers during August 2007.



Printed publicity materials relevant to the crops of this sub-basin were distributed to the farmers. Training, exposure visit and farmers meetings were conducted from time to time based on needs involving farmers and field staff.

17 **Commodity groups** were formed for maize in this sub-basin. The commodity group members were given exposure on the latest maize cultivation technologies, the available market avenues and project facilities to get the maximum price for the produce.

The Horticulture Department, in Varahanadhi sub-basin, covered 933 hectares additionally under Horticultural crops. 205 ha were planted with grafts of fruit crops, 470 ha were covered under vegetable crops and flowers and tree crops were raised in 135 ha.



Organic farming was taken up in 10 ha and INM/IPM demonstrations were conducted in 178 ha.

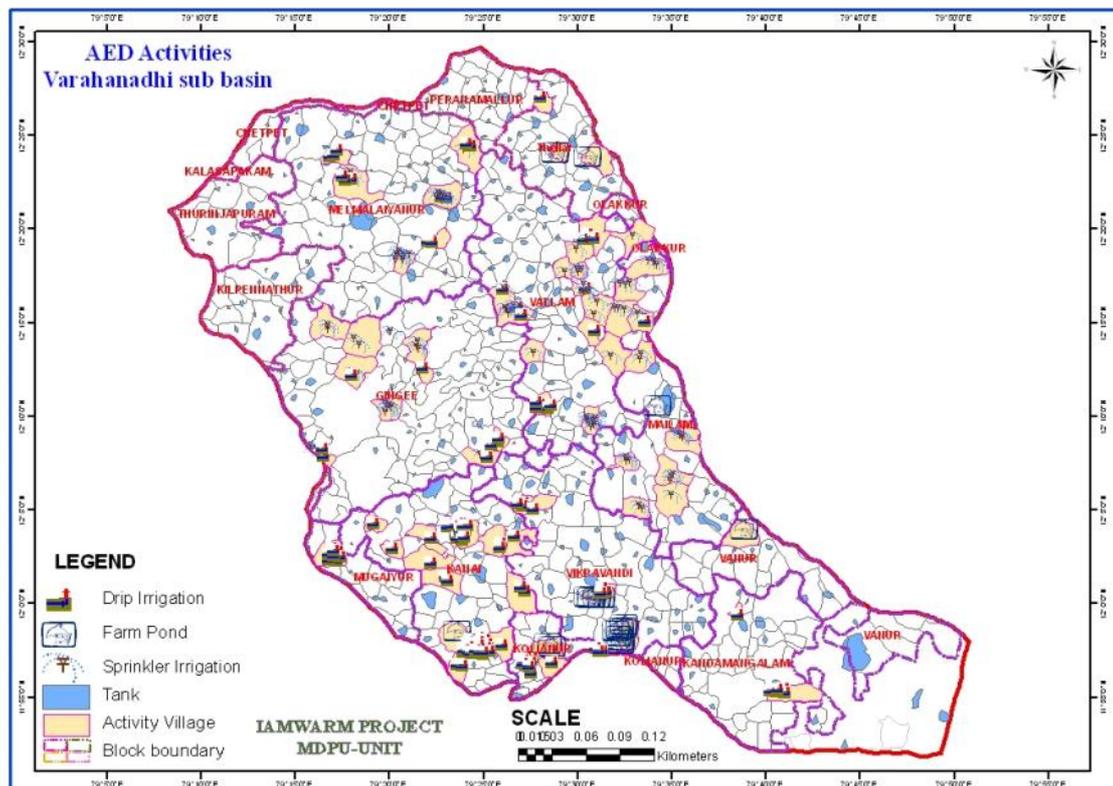
Exposure visits and farmers training programmes were conducted. Printing of leaflets, posters and wall painting publicity were used for generating awareness. Farmers attended interface workshop and they were encouraged to form Commodity Groups to market their produce.

Major focus of **Agricultural Engineering Department** in the sub-basin was to introduce Micro Irrigation systems (Drip, Sprinkler systems) for Coconut, Mango and Groundnut. Apart from various other IEC activities, Street plays and awareness campaigns were conducted in villages which had resulted in covering an area of 95 hectares under Drip & Sprinkler Irrigations benefiting 77 farmers.

In convergence with Fisheries Department, formation of 19 Farm Ponds was completed for aqua culture. Mr. Vaithialingam of Pananpattu, a Farm Pond farmer,



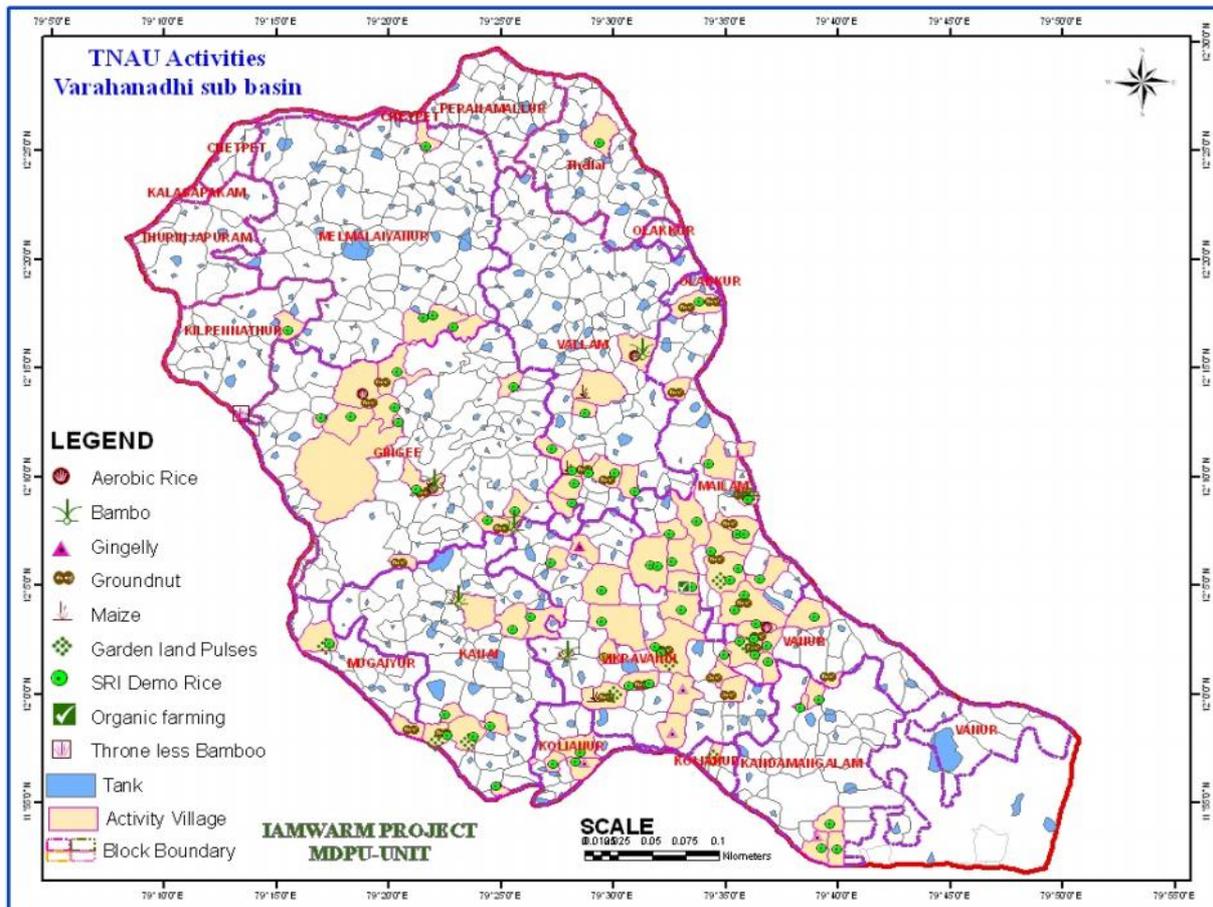
underwent a training on aquaculture in Fisheries College, Tuticorin. He was confident of getting a very good harvest.



Kuppam tank, having an Ayacut of 88.04.5 hectares, with 150 beneficiary farmers, was selected for taking up buried pipeline programme. The participation of beneficiary farmers was encouraging. They had been motivated to adopt Micro Irrigation System.

Besides research, **Tamil Nadu Agricultural University** constantly advocates for resource competence methods to enhance farm productivity and thereby increasing the farm income. **TN-IAMWARM** project provided an excellent opportunity for the outreach programs. SRI (System of Rice Intensification) is one of the methods which satisfies the twin goals *i.e.*, rice productivity enhancement and increase in water use efficiency. In Varahanadhi sub-basin, important water saving technologies, like SRI in rice, were demonstrated in 384 hectares which had an impact in 403 hectares. The scientists and outsourced resource personnel from Oilseeds Research Station, Tindivanam involved in disseminating the SRI method of rice cultivation and it was much appreciated by the participating farmers. For the first time, SRI was successfully demonstrated in the sub-basin.





An increase in yield by 50 to 65 per cent was observed in the SRI plots over conventional method of rice cultivation. Establishment of community nursery in villages called Siruvai and Bommbur, which was a novel idea, had multiplied the adoption of SRI. A monitoring team, to track the implementation of SRI, visited the basin. The excellent SRI fields were documented by Mr. Michael Foley from World Bank.

Ms Vijalakshmi, residing in Vikravandi village, had adopted SRI method of rice cultivation successfully. “I was excited to see 80 to 100 tillers per hill, 230-236 grains per panicle. I got 7875 kg/ha and additional revenue of Rs 15000/ha. I would continue the same SRI method in ensuing season also”. Said Ms Vijayalakshmi.

Activities of TNAU in Varahanadhi sub-basin (in ha)

Activities	Area Covered	
	Demo	Impact
Production technology for Gingelly	46	50
Production technology for Maize	41	100
Production technology for Groundnut	112	500
Production technology for Garden land pulses	40	100
System of Rice intensification	384	403
Production technology for throneless bamboo	20	20

In order to raise the pulses productivity, demonstrations were laid in 40 ha which had beneficial impact in another 100 ha. Cultivation of pulses in rice fallow was not in vogue in this sub-basin and demonstrations were conducted covering 60 ha to popularize it.

Groundnut is the predominant crop in the Varahanadhi sub-basin. Hence, adequate emphasis was given for popularizing improved groundnut production technologies and demonstrations were conducted in 112 hectares which had evidential impact in another 500 ha. Similarly, demonstrations were conducted in 46 ha for another oilseeds crop viz., gingelly, which had an impact in 50 ha. As an important step towards crop diversification, improved maize crop demonstrations were conducted in 41 ha which had impact in 100 ha.

Introduction of high value crops would certainly increase the farm revenue. TNAU introduced thornless bamboo in the Varahanadhi sub-basin for the first time and demonstrations were conducted in 20 ha in Mathur Thirukai village. On seeing the crop's performance, adjacent farmers were showing interest to adopt it on their respective fields. Bamboo cultivation had spread in 20 ha.



To popularize the IAMWARM project among the farming community, pamphlets highlighting the project objectives were distributed among the farmers. Particularly, pamphlets on SRI and improved maize production technologies were distributed. A total of 24 trainings on SRI and other technologies were conducted. Besides the above, one harvest mela (Vikravandi) was conducted to emphasize the role of SRI in

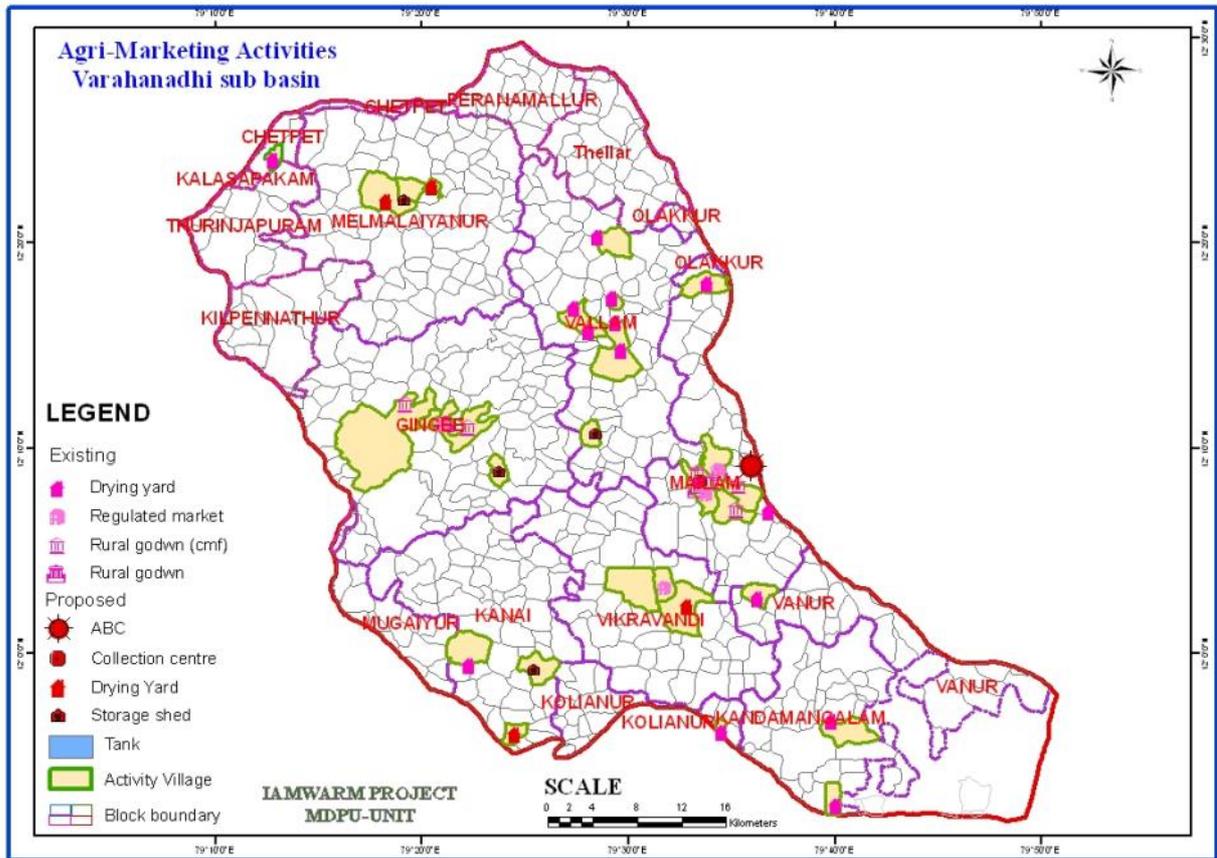


water stressed districts like Tiruvannamali and Villupuram. A farmers' group was taken for an exposure visit on SRI to Nadukuppam village and 45 campaigns were also conducted. Hoardings (27 Nos) on SRI were erected to popularize SRI. One of the exhilarated farmers had composed a folk song on SRI which had mass acceptance and the song was printed as pamphlet and distributed. Training manual on SRI and Maize

was prepared. Time bound pamphlet with SRI message to mark the Pongal festival was released which was utilized productively by the farmers. IAMWARM on wheels, a mobile unit that was created to generate awareness among farmers, travelled through 74 villages in the sub-basin.

The Agricultural Marketing Department found that the field staff and farmers had inadequate knowledge about modern marketing concepts such as supply chain analysis, value addition and e-marketing. The sub-basin had around 54000 MT of marketable surplus consisting mostly of groundnut, Pulses etc. The consultative process with farmers brought out the necessity to fill up technological and infrastructural gap in marketing.

Under IEC & CB component, Exposure visits, Interface workshops, Pre/Post Harvest Technology training besides printing of posters, pamphlets, wall paintings etc. were implemented.



18 Nos. of Commodity Groups were facilitated to involve in marketing aspects. Aggregation of produce to enhance the power of bargaining would be the main focus for these Commodity Groups to get better price.

Under infrastructure, 4 Storage sheds, 4 Drying yards, 1 Collection centre and 1 ABC were under construction.

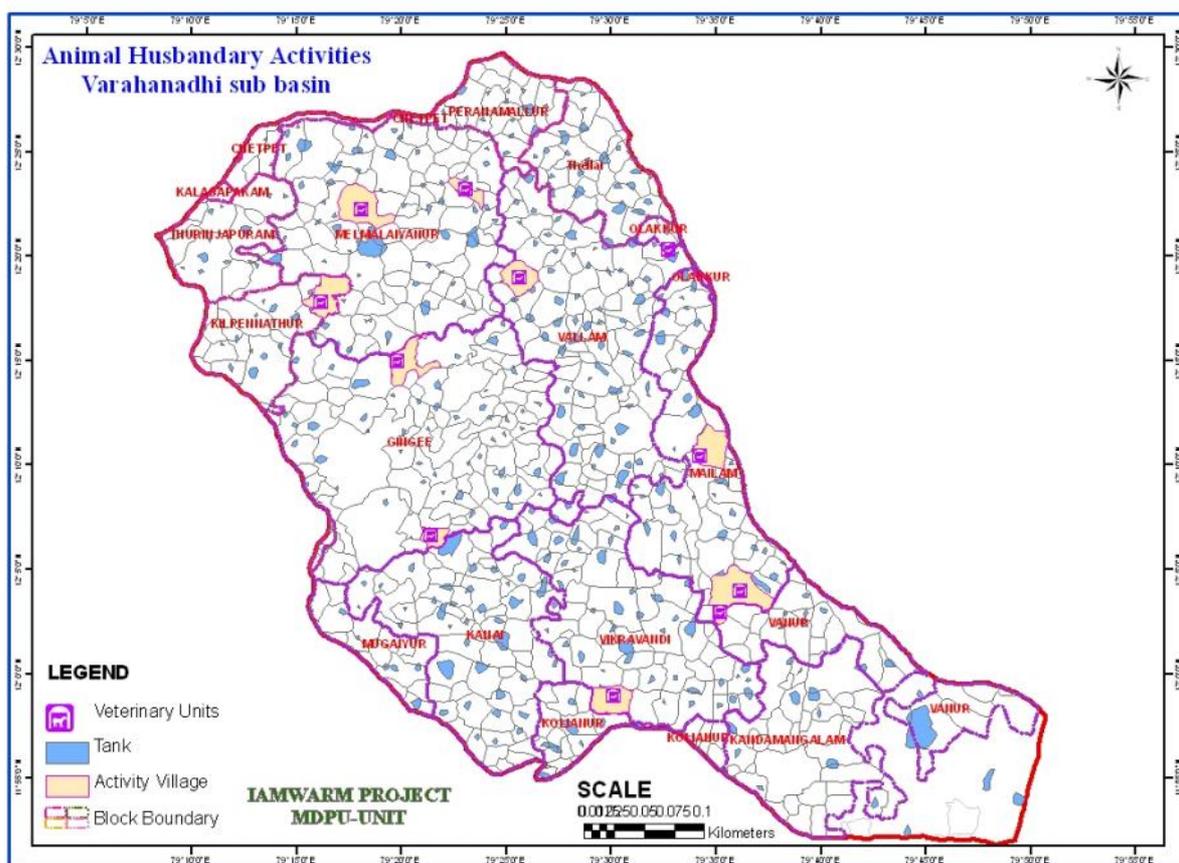
Farmers appraised the existing IEC & CB activities as useful; and they wanted to have more exposure visits, trainings and a directory of buyers. Mr. Asaithambi,

S/o. Balaiah, Vanatharam village, Vallam Taluk was cultivating cumbu millet crop in 75 cents. The farmer was getting an yield of 450 kgs in 75 cents and an income of Rs.1350 @ Rs.3 per kg. Accepting the suggestion of project staff, he switched over to



maize cultivation and got an yield of 24 bags, each consisting of 100kgs. An MOU with M/s. Shanti Fortune Ltd. was also signed and the farmer got a gross income of Rs.17500 and a net income of Rs.13300. On seeing the results, other farmers were motivated and planning to follow Mr. Asaithambi.

The Animal Husbandry Department established one cluster level Veterinary Unit and efforts were being made to establish the remaining 9 units. In an effort to strengthen the infrastructure, veterinary dispensaries and 28 Sub centers in the sub-basin were provided with necessary equipments along with 2 sets of jumbo liquid nitrogen containers for storage and transportation of frozen semen straws to the mobile units and camps.



It was planned to bring 50 ha under Fodder Cultivation Programme. 614 beneficiaries were provided Co3 fodder inputs at their door steps covering 50 hectares.

132 Infertility cum Total Veterinary Health Care camps were organized benefiting 1,00,467 animals and 22,983 farmers. 8,628 calves were facilitated to participate in calf rally.



160 night meetings were organized. 10,730 farmers, including 6,634 male and 4,096 females, participated in it. In addition, Posters on project activities were displayed at prominent places in the sub-basin. Pamphlets, on best animal husbandry practices and project activities, were printed and distributed in the camps, night meetings and farmers training.

400 farmers, including 133 participants belonging to Scheduled castes and 267 others, were trained in 25 batches. A training manual on animal husbandry was distributed to farmers during the training.

A total of 86,735 artificial inseminations were carried out in 70,712 cross bred cattle, 14,876 indigenous cattle and 1,147 buffaloes at the graduate institution, sub-centers, health camps and mobile units in the sub-basin.

The Fisheries Department, in Varahanadhi sub-basin, motivated farmers to take up aquaculture in



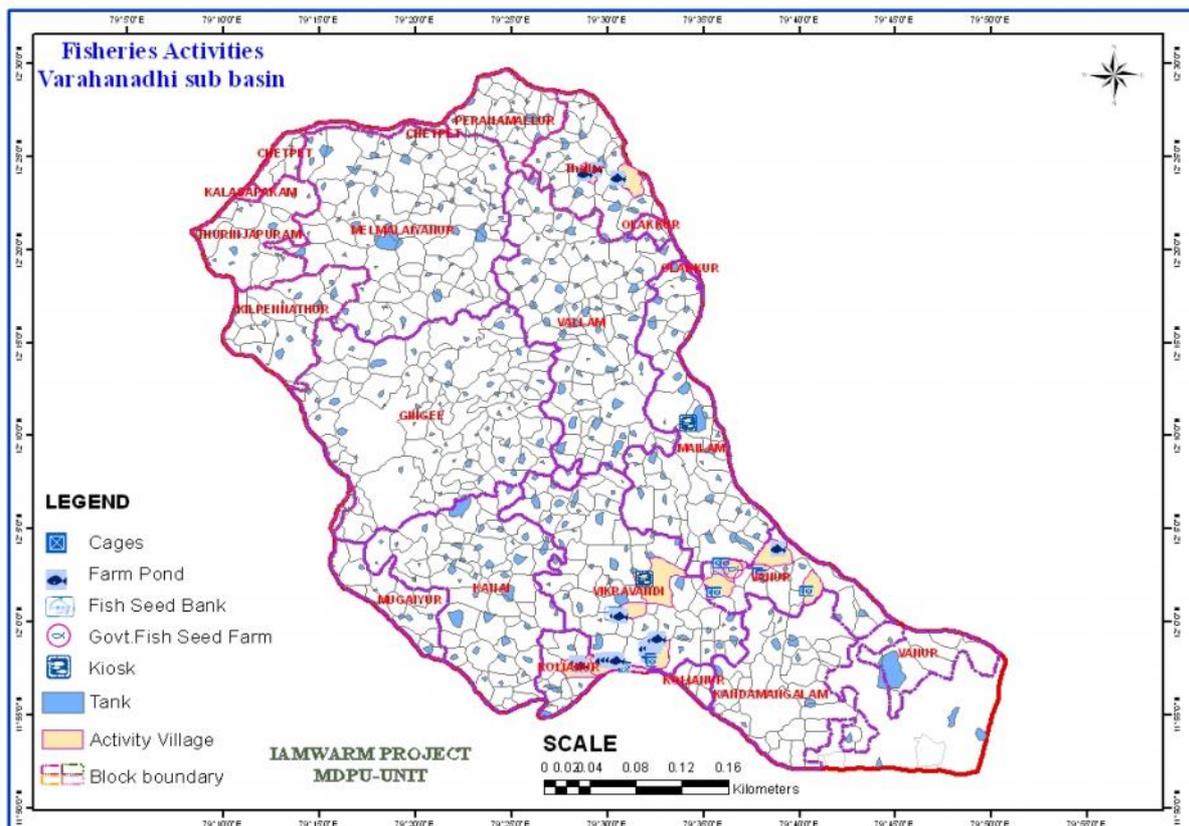
farm ponds. Sixteen farmers in Villupuram district and three farmers in Tiruvannamalai district had shown interest in taking up aquaculture. All of them were trained in good management practices in aquaculture and related activities. Seventeen farm ponds were stocked with carp seeds and the culture was in progress.

The growth assessment trails showed good growth of fishes in the farm ponds.



Water user associations were motivated to take up fish seed rearing. Two fish seed banks were established in this sub-basin. The seed banks would

become operational during 2008-09 and should rear fish seeds from early fry to advanced fingerling



which would be the stocking material to the irrigation tanks in the sub-basin.

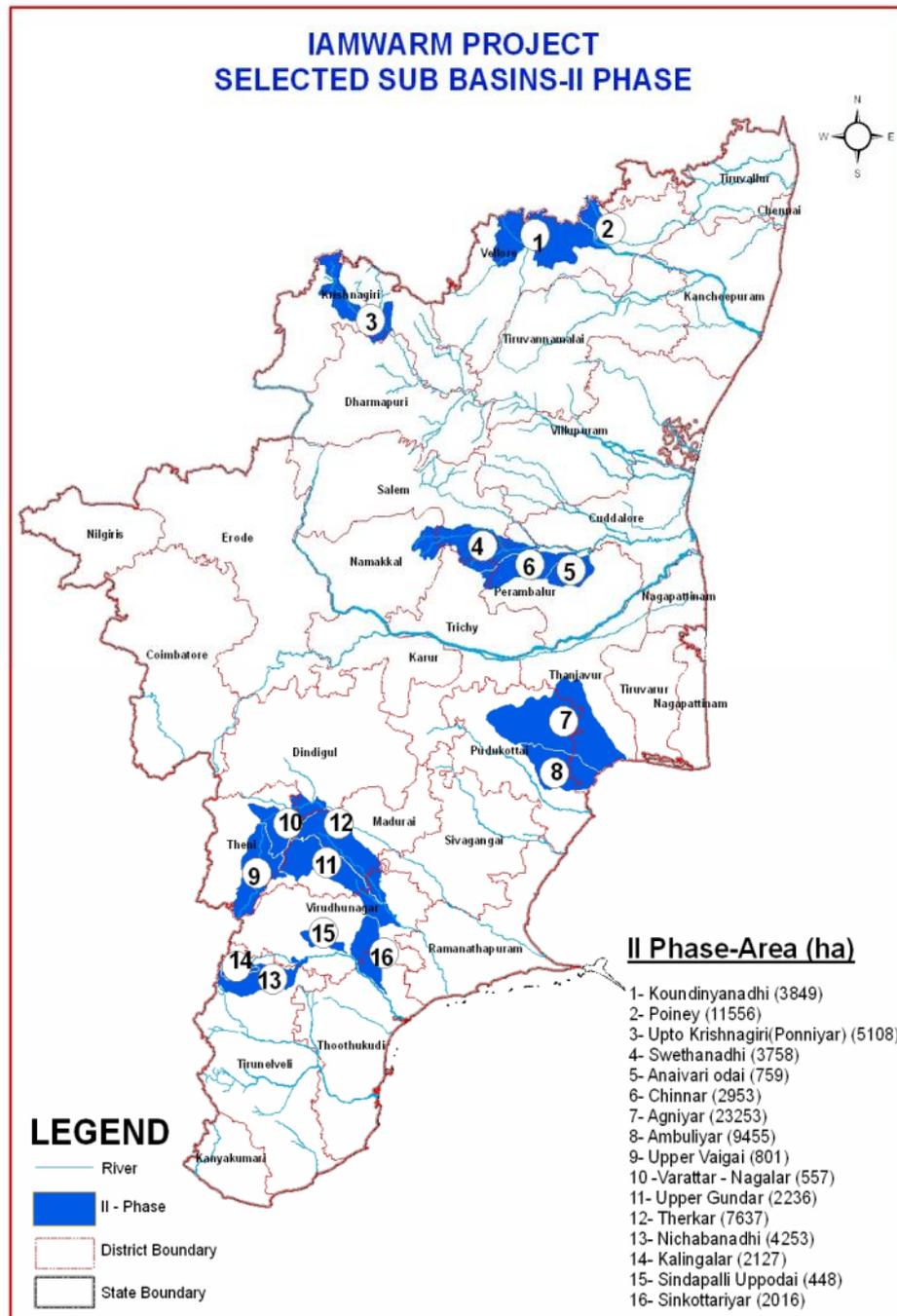
Twelve units of cages were supplied to the progressive farmers and fishermen. Rearing of fish seeds would be taken up during the ensuing season.

Two fish kiosks were established in the sub-basin which would ensure better price for fresh water fish and quality fish to the consumer.

Ten units of fishing implements were supplied. This would ensure better fishing efficiency in the irrigation tanks and reservoir.

IAMWARM Project in 2nd phase sub-basins

IAMWARM – ‘a multidimensional project that envisages to bringing about positive changes in the context of Irrigated Agriculture and Farm ecology & economics, involving multiple stake-holders both at facilitation and implementation levels’ – facilitates for the involvement of primary stakeholders (farmers / water users) in the project planning, implementing and monitoring. The project will be implemented in 16 sub-basins under 2nd phase project implementation plan.



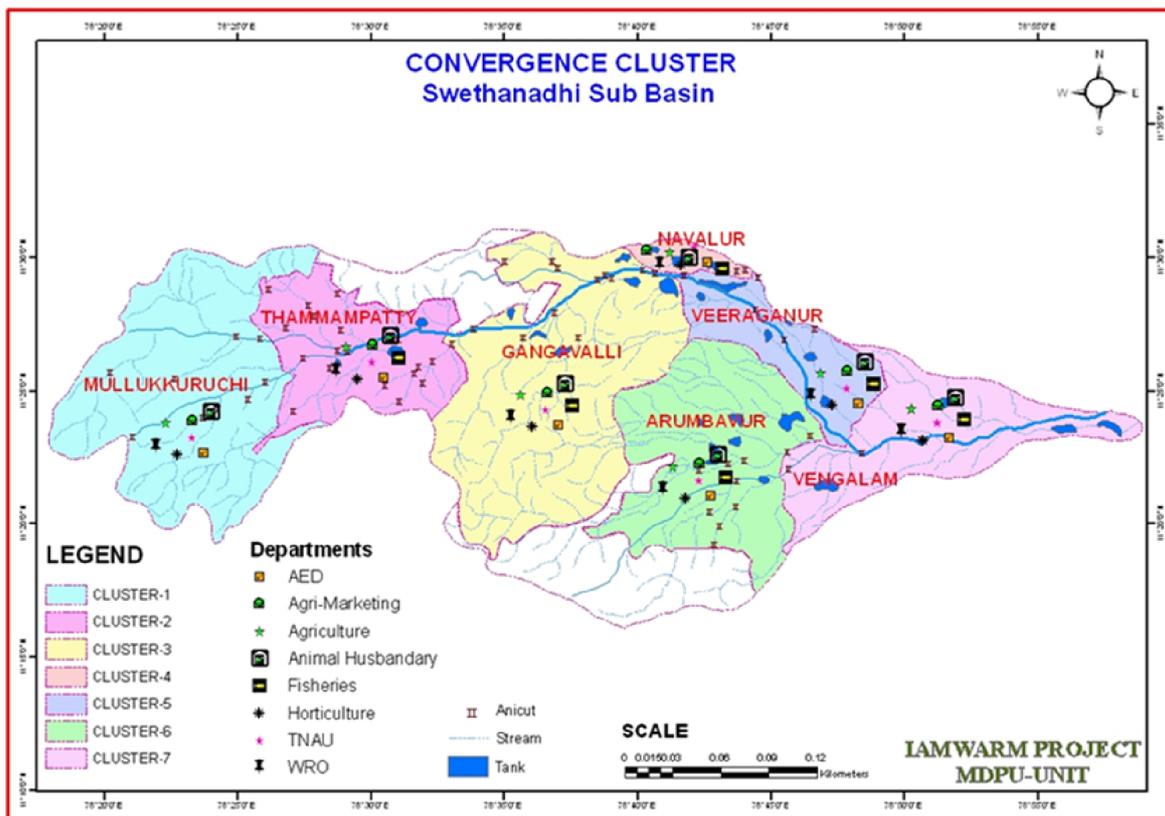
Water Resources Department (WRD), along with other line departments who are involved in IAMWARM Project, jointly organized village level walk through surveys, a consultation method of involving all stake holders of the project including primary stake holders (farmers / water users), in 16 sub basins.



Village Panchayath president, representatives of Water Users Association and opinion makers in the villages were approached prior to the actual date of conduct of walk through survey, and informed about the IAMWARM Project and date of walk through survey to be conducted in their ayacut area.

The walk through survey, in each sub basin, started with a briefing session to farmers on objectives of the project and the need for their involvement in all aspects of the project. The exercise was a rapid

II Year Sub Basin



context analysis of problems pertaining to irrigated agriculture, diversification, marketing and other agro-based alternatives for farmers such as aquaculture in farm ponds.

At the end of the walkthrough survey, there was a discussion with farmers on various constraints they faced in the field of agriculture. The deliberations were carefully documented and used as major input for preparation of Detailed Project Report (DPR) for the sub basins.

Given below is a consolidated overview of constraints and counter measures enlisted in 16 sub-basins in consultation with farmers.

Department	Constraints	Counter Measures Proposed
WRO	(i) Ineffective headwork and out dated distribution systems.	(i) Proposed to have topographic survey. ii) Proposed to redesign the system
	(ii) Insufficient water ways and damaged bunds needed revetment and lining etc.	(i) Redesigning and protection work, river / canal lining works were proposed where ever necessary.
	(iii) There were problems like leakage through shutter and sluices regulating arrangements	Damaged shutters were proposed to be replaced.
	(iv) The Tank feeder channels and tanks were silted and distribution system was not in repairable condition.	(i) It was proposed to adopt a wholistic approach. Improving bunds & desilting was planned to the minimum extent to harvest rainwater. (ii) WUAs were to be formed and equipped for further maintenance and management. (iii) Surplus weirs, tank sluice, were to be improved etc. (iv) The rehabilitation of distribution system network was also proposed.
Agriculture	Traditional practices & old cropping pattern were being adopted.	(i) Productivity linked Demonstration by TNAU and by Agriculture Department was proposed. (ii) Capacity Building of farmers and officials was planned. (iii) Extension of new Agricultural technology on application of optimum fertilizers, IPM measures were proposed through Agriculture, Horticulture Departments and TNAU. (iv) Supply of quality seeds was to be ensured.
Agriculture	(i) Farmers failed to adopt new	(i) Agri. Marketing Department and TNAU

<p>Marketing, Horticulture, Agricultural Engineering</p>	<p>technologies, and non-diversification was mainly due to absence of correct market information.</p> <p>(ii) Modern technologies, like micro irrigation, were costly and required training programmes at regular intervals.</p> <p>(iii)The value addition technologies observed were absent.</p>	<p>jointly planned to assess the market trend and advise the WUA through Agribusiness Cell, Kiosks & Discussion meetings.</p> <p>(ii)Grading arrangements, threshing floor and cold storages were proposed for value addition to products.</p> <p>(iii)The possibilities of making WUA as entrepreneurs of Agri-processing units were to be explored.</p> <p>iv) Depending on the marketability and Agro-climatic suitability, appropriate Horticulture crops were to be proposed and the extent of development was also proposed in consultation with the WUA.</p> <p>(v) AED proposed to link installation of micro irrigation system with credit network, based on the crops that were to be proposed by Horticulture Department,</p>
<p>Animal Husbandry and Fisheries</p>	<p>(i) Livestock population needed health improvement schemes</p> <p>ii) Quality Fodder was needed.</p> <p>iii) Infrastructure development in existing veterinary sub centers was needed.</p> <p>iv) Good fish fingerlings were required to promote inland fishery through farm ponds in the farmers' lands.</p>	<p>(i) Artificial Insemination centers with improved infrastructure in existing veterinary sub centers were proposed.</p> <p>(ii) Sufficient fodder area was proposed to be cultivated with good quality fodder seeds supply</p> <p>(iii) Adequate trainings were proposed.</p> <p>(iv) Fisheries Department was, in consultation with the AED and WUA, to propose inland fishing with the farm ponds etc with provision for Kiosks for improved marketability.</p>

The Detailed Project Report (DPR) has been prepared and ready for implementation in 16 sub-basins.



Contact us at

IAMWARM Project, Multi-disciplinary Project Unit (MDPU) Office,
PWD Complex, Chepauk, Chennai – 600 005.

Ph: 91-44-28591057, 28591058, 28591059

E mail: mdputn@gmail.com,

Website: www.iamwarm.gov.in