# IAMWARM PROJECT

## நீர்வள நிலவளத்திட்டம்

WRO

TNAU

Agriculture

Horticulture

More income per drop of water

Agriculture Engineering

Agriculture Marketing

Fisheries

Animal Husbandry

**Multi Disciplinary Project Unit**

# IRRIGATED AGRICULTURE MODERNISATION AND WATER – BODIES RESTORATION AND MANAGEMENT (IAMWARM)

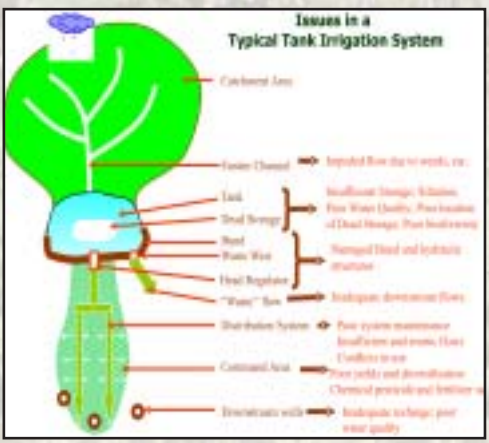
## BACK GROUND:

In an agrarian state like Tamilnadu, there is need for intensifying efforts to improve productivity, and income. Growth in agriculture depends on increasing the efficiency and productive use of water. To achieve this, there is a need for strengthening and integrating institutional structures which can help farmer's access to irrigation management and improved agriculture practices.

Tamilnadu is one of the driest states in India, with only 925 millimeters of rainfall a year. The per capita availability of water resources in Tamilnadu (population about 62 million) is only 900 cubic meters a year, when compared to the all India average of 2,200 cubic meters . The Tamilnadu geographic area can be grouped into 17 river basins (127 sub basins) a majority of which are water-stressed. There are 70 major reservoirs, about 40,000 tanks (traditional water harvesting structures) and about 3 million wells, that heavily capture the available surface water. Agriculture is the largest consumer of water in the state, using 75% of the state's water. Approximately 30% of the net irrigated area of 30 lakh hectares is irrigated by canals and 21% by tanks, while 49% is fed

by wells and the remaining area is irrigated by other sources such as streams and springs.

The irrigation infrastructure that is the backbone of the irrigated areas is in considerable need of modernization and a new paradigm for operations and maintenance. This includes rehabilitation of irrigation canal systems restoration and revival of tanks etc.,




It is in this context that the Irrigated Agriculture Modernization and Water-Bodies Restoration and Management (IAMWARM) project has been formulated converging the roles of all the line departments. The project aims to improve the service delivery and productivity of irrigated agriculture with effective integrated water resources management in a sub-basin framework in Tamilnadu with the following broad objectives:

## OBJECTIVES:

- Improving irrigation service delivery including adoption of modern water-saving irrigation technologies and
- Forming water users associations and involving farmers in water resources management;

- Agricultural intensification and diversification;
- Strengthening institutions and instruments dealing with water resources management.
- Stabilise & increase the area (hectares) served by irrigation systems in 63 sub-basins.
- Increase in agricultural productivity and stakeholder income (net benefits per unit of water delivered in Rs/$m^3$)
- Enhanced farm income adopting allied sectors through increase in fish production and livestock output.
- Increase in marketable surplus and commodity arrivals to markets
- Improved knowledge base and analytical capacity development for water resources management

## SCOPE:

The project is to be executed over 6 years starting 2007. With an outlay of Us$ 566 million the project seeks to converge Water Resources Organisation, Agriculture, Horticulture, Agri. Engineering, Agri. Marketing, TNAU, Animal Husbandry & Fisheries Departments.

Out of the 63 sub basins included in the project 12 subbasins will be initiated in the first year;14 in the second year and the remaining 37 in the third year.

# PROJECT COMPONENTS:

## COMPONENT A : Irrigation Systems Modernisation

Under this component it is sought to improve water delivery to farmers through modernization of irrigation systems with improved service delivery in schemes in about 63 selected project sub-basins. Activities will be carried out by WROunder two sub-components which include;

- Repair for minimizing wastage and improving conveyance efficiency;
- Rehabilitation of water- bodies(tanks) and improving their capacity by standardization of canals and desilting.
- Ground water recharge structures in over exploited blocks
- Environmental assessment and pilot studies to address environmental issues in the sub-basin

**Before Execution** **After Execution**

The focus is on reviving water bodies which are an integral part of most irrigation networks in the state. Special effort will be made to revive tanks to yield sustainable benefits to the farmers of such systems.

## COMPONENT B : Agricultural Intensification and Diversification

This 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 sub-basins, through demonstration of techniques related to agriculture, horticulture, animal husbandry, fisheries, promotion of market linkages and agri-business development. The activities of various Departments consist of;

## Agriculture Department:

- Transfer of technology from lab to land by laying trials and demonstrations;
- Popularisation of critical inputs for increased productivity and economic development by distribution of micro-nutrients, hybrid seeds, bio-fertilizers and bio-pesticides.
- Increased efficiency in farm operations and drudgery reduction by distribution of farm implements;
- Sustainable development of agriculture by organic farming, Integrated Pest Management

## Horticulture Department:

- Facilitating production of market driven crops by identification and development of mandate crops.
- For better returns per unit area through introduction of high yielding varieties.
- For higher productivity by maintenance of optimum population / high density planting and
- Sustaining soil health and eco-friendly technologies by promotion of Integrated Nutrient Management & Integrated Pest Management

**Hybrid Fruits and Vegetables**

## Tamil Nadu Agricultural University:

- Field application of research results on varietal & agronomical practices - by laying adaptive research trials ;
- Promoting frontier technologies with precision farming, IPM, INM technologies, etc and by laying front line demonstrations;
- Adopting Mission approach to propagate ferti - drip, System Rice Intensification (SRI) technologies,
- Promoting commercial agriculture; and providing training to officials and farmers.

## Agricultural Engineering Department:

- Increasing application efficiency through micro irriation and
- Improving conveyance efficiency at farm level by laying of HDPE pipe distribution systems in the field channels. Improving ground water recharge capacity through farm ponds.

## Agricultural Marketing Department:

- Value addition to harvested produce; by working along with farmers
- Facilitating post harvest technology storage and avoidance of distressed sale
- Marketing activity which includes collection of perishables & transportation for better returns;

## Animal Husbandry Department:

- Upgradation of existing local cattle population;
- Improving the health of livestock ;
- Enhancing nutrient management to animals; and

- Development of entrepreneurship in livestock sector by training the un-employed veterinary graduates. Improving awareness and knowledge levels of farmers through outreach programmes

## Fisheries department:

- Sustainable aquaculture in irrigation tanks;
- Additional income generating activity by promoting aquaculture in farm ponds
- Provide quality fish seeds
- Promote hygienic fish marketing;Training and capacity building of WUAs to overcome skill deficit in aquaculture

## COMPONENT C : Institutional Modernisation for Irrigated Agriculture

This seeks to improve the institutional capacity for modern, efficient, and accountable irrigation service delivery. Activities will be implemented through the WRO and the WUAs. These are expected to scale-up the institutional capacity at the WRO level to design, and modernize their assets in an environmentally and socially sustainable manner and to more effectively interact with much stronger WUAs.

**WUA - Elections**

- Computerization with net work connectivity for all WRO offices, EMIS, LAN and WAN connectivity network
- Provision of consultantcy and training support
- Support for study tours & Seminars
- Supports Participatory Irrigation management and training cells in EIC's Office and promotion of R& D by creation of Irrigation Research Fund.

## IMPLEMENTATION:

This Project will be implemented over a period of 6 years. The main implementing agencies will be the Water Resources Organization (WRO), Agricultural Engineering, Agriculture, Horticulture, Tamil Nadu Agricultural University, Agricultural Marketing, Animal Husbandry and Fisheries Departments with management support and co-ordination provided by the Multi Disciplinary Project Unit (MDPU). The project commences from financial year 2007-2008 onwards with a project outlay of Rs. 2547 crore (US$ 566m) .

| Summary of Project related incremental impacts | | |
|---|---|---|
| **Project Impacts** | **Unit** | **All Project Sub-Basins** |
| **Increased irrigated area** | ha | 215830 |
| Fully irrigated (Canals) | | 42650 |
| Fully irrigated (Tanks) | | 80680 |
| Partially irrigated (Canals) | | 31990 |
| Partially irrigated (Tanks) | | 60510 |
| **Agriculture Intensification** | | |
| *Increased cropping intensity* | % | 17% |
| *Increased crop area* | | |
| Paddy (SRI) | ha | 66500 |
| Coconut/Sugarcane/Fruits (Drip with fertigation) | | 52500 |
| Vegetables/groundnut (Micro irrigation) | | 51250 |
| **Agriculture Diversification** | | |
| *Increased crop area* | ha | |
| Maize | | 28400 |
| Oilseeds | | 29000 |
| Fruits and Vegetables | | 12000 |
| Sugarcane | | 10800 |
| *Improved cross bred lactating cows* | Number/year | 165680 |
| *Improved aquaculture under WSA* | ha | 78000 |
| **Increased Crop Productivity** | | |
| Paddy/Cotton/Sugarcane | % | 30% |
| Maize | % | 100% |
| Coconut/Vegetables/Fruits/Pulses | % | 40% |
| Groundnut | % | 50% |

| Project Impacts | Unit | All Project Sub-Basins |
|---|---|---|
| **Increased Production** | | |
| Food grains | tonnes/yr | 340000 |
| Oilseeds | | 407720 |
| Sugarcane | | 2083300 |
| Fruits/Vegetables | | 365000 |
| Fodder | | 1032600 |
| Milk | | 587000 |
| Fish | | 22500 |
| **Increased Income** | | |
| Directly benefiting farm households | Number | 677650 |
| Increased rural farm employment | Jobs/year | 49750 |
| Incremental farm income | Rs/year | 12700 |
| Farm households to go above poverty line | Number | 55550 |
| Value of Incremental production at project completion | Billion Rs/year | 7.1 |

## Department Outlays

| Department | Estimate in USD | Estimate in Rs Crores |
|---|---|---|
| Water Resources Organization | 348.74 | 1570.00 |
| Agriculture | 21.79 | 98.00 |
| Horticulture | 16.17 | 73.00 |
| Agri. Engineering | 75.40 | 339.00 |
| Agri-marketing & Agri- business | 20.53 | 92.50 |
| TNAU | 19.76 | 88.90 |
| Animal Husbandry | 8.73 | 39.30 |
| Fisheries | 3.86 | 17.30 |
| **Total Base cost** | **514.98** | **2318.00** |
| Physical Contingencies | 15.03 | 67.00 |
| Price Contingencies | 35.99 | 162.00 |
| **Total** | **566.00** | **2547.00** |

## HONOURABLE MINISTER
## FOR PUBLIC WORKS AND LAW
## LAUNCHES THE PROJECT ON 19.09.2007

# TAMIL NADU IRRIGATED AGRICULTURE MODERNIZATION AND WATER -BODIES RESTORATION AND MANAGEMENT PROJET

**Name of Sub-basins under IAMWARM Project :**

1. Coom, 2. Poiney, 3. Kavandinyanadhi, 4. Varahanandhi, 5. Uppervellar, 6. Aliyar, 7. Palar, 8. Southvellar, 9. Pambar, 10. Manimuthar, 11. Kottakarayar, 12. Arjunanadhi, 13. Up to Krishnagiri (Pennaiyar), 14. Swethanadhi, 15. Anaivari odai, 16. Chinnar, 17. Agniyar, 18. Ambuliar, 19. Uppar Vaigar, 20. Varattar Nagalar, 21. Therkar, 22. Upper gundar, 23. Senkottaiar, 24. Sindapalli uppodai, 25. Kalingalar, 26. Nichabanadhi, 27. Araniar, 28. Kosasthalayar, 29. Adyar, 30. Ongur, 31. Nallavur, 32. Thurinjalar, 33. Pambar to Thirukovilur, 34. Gadilam, 35. Markandanadhi, 36. Kamdainullur, 37. Ramakal Odai, 38. Pambanar - Varatar, 39. Kottapattikallar, 40. Valayar Odai, 41.Mattur Ar, 42. Gomukhi, 43. Paravanar, 44. Uppanar, 45. Theniar, 46. Giridhamaal Nadhi, 47. Kanal Odai, 48. Lower Gundar, 49. Vembar, 50. Uthirakosamangaiaru, 51. Palar, 52. Sevalaperiar, 53. Deviar, 54. Nagariar, 55. Vellampatti Odai, 56. Uppathurar, 57. Vaipar, 58. Uppodai, 59. Chalikulam Ar, 60. Korampallam Ar, 61. Karamaniyar, 62. Hanumanadhi and 63. Chittar.

The related map has been shown in the next page.


# IAMWARM PROJECT

## MULTI DISCIPLINARY PROJECT UNIT

**Public Works Department Government of Tamil Nadu**