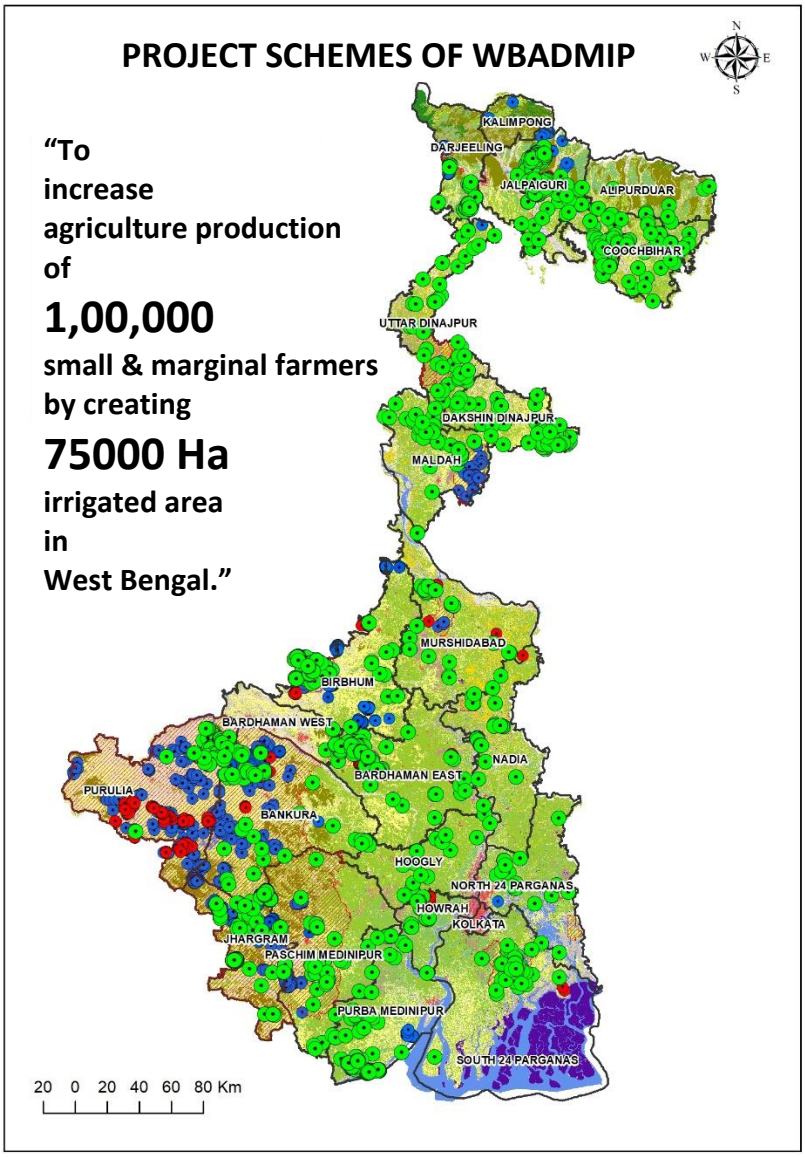


Empowering Water Users Associations (WUAs)

West Bengal Accelerated Development of Minor Irrigation Project (WBADMIP)
Water Resources Investigation & Development Department
Government of West Bengal
Tollfree No 1800 345 8888 visit us @ www.wbadmip.org

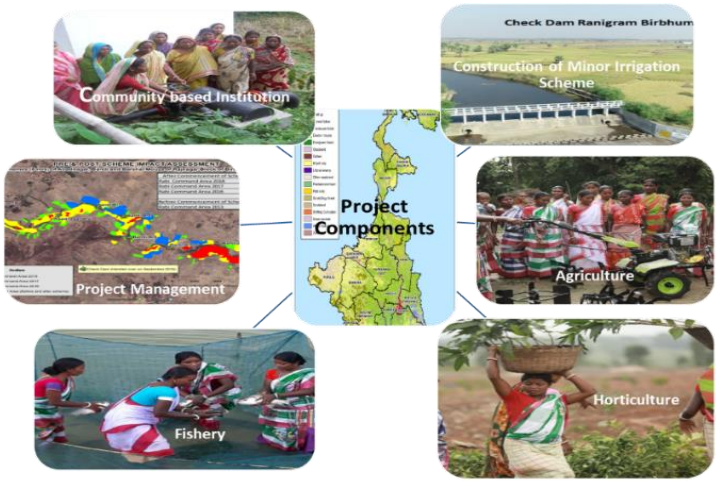
WB ADMI Project Supported by World Bank

WB ADMI Project (West Bengal Accelerated Development of Minor Irrigation Project) is a World Bank-supported project implemented by Water Resources Investigation & Development Department (WRI&DD) **Government of West Bengal** since 2012. It is expected to continue until October 2021. The project objective is to enhance agriculture production in the rainfed and underprivileged areas of the state by creating assured irrigation facilities. The project works through Water Users Associations (WUAs) and extends the agriculture support services including agriculture, horticulture & fishery activities to the beneficiary farmers to maximize the returns from agriculture.

WBADMIP is aimed at creation of minor irrigation infrastructure which includes water harvesting structures like check dams, water detention structures, Pump Dug well, Tube well and Lift irrigation schemes. In addition, agriculture support services are provided in the command area. The emphasis has been on surface water-based systems which has resulted into recharging of ground water. The results have been more visible in predominantly single cropped areas of western lateritic zones and Salinity affected Sunderban areas. So far 117 check dams and 345 water detention structures have been created. In Sunderban area around 200 km of canal has been excavated which has facilitated increased storage of rain water.

Salient Features of the WB ADMI Project	
Particulars	**Features of the Project**
Name of Project	West Bengal Accelerated Development of Minor Irrigation Project WBADMIP
Implemented by	Water Resources Investigation & Development Department WRI&DD, GoWB
Supported by	World Bank
Project Duration	January 2012 - December 2019
Project Objective	To enhance Agricultural Production of Small & Marginal Farmers by providing assured irrigation facility
Project Cost	US$: 205 million (INR 1380 Crores)
Loan Amount	US$: 155 million [IBRD: 30 million IDA: 125 million]
Current value	US$: 168 [IBRD: 30 million IDA: 110 million]
State Share	US$: 50 million [28 million]
MI Schemes	2500 (3600 Installations)
Type of Schemes	Check Dam, Water Detention Structures, Pump Dug Well, Lift Irrigation & Tube wells
Other components	Strengthening WUAs, Agriculture Support Services-Agriculture, Horticulture & Fishery
Irrigated area	75000 Ha
Beneficiaries	1,00,000
Coverage	21 Districts
Priority	Single cropped Rain fed area with priority to underdeveloped & tribal communities

***Key learnings of the WBADMI Project** is that any standalone irrigation infrastructure development without community involvement is not sustainable. In this project community involvement has been ensured through integration of agriculture support services like agriculture, horticulture and fishery activities in the irrigated command area of the minor irrigation schemes. In existing system of governance these sectors are handled by different Government Departments which generally operate in silos. In WBADMIP the focus is on outcome and there is an effective convergence through community participation. Integration of these together helps in improving effectiveness and continuously growing command area. This has resulted into a better ownership of the community. Farmers are organised in the form of Water User Associations (WUAs) which take active part in the project right from the stage of conceptualisation to operation and maintenance. WUAs formed in this project are today involved in operation & maintenance of the minor irrigation infrastructure, better water management practices & crop planning to maximise the command area, production of high value crops and various fish species. WUAs collecting water charges for the water service provided to its beneficiaries on agriculture, horticulture & fishery purpose. which has created a sustainable model for infrastructure management in this sector. Engagement with WUAs in this project is on ethical principles which has led to their empowerment.*



Projects Components

A. Strengthening community-based Institution - Water User Associations (WUAs)
B. Development of Minor Irrigation (MI) schemes
C. Agriculture Support Services
   I. Agriculture
   II. Horticulture
   III. Fishery
D. Project Management

A. Strengthening community-based Institution (Water User Associations (WUAs)- All the water users of the Minor irrigation schemes are grouped as Water user Association. It is registered under Society Registration Act 1961. WUAs are the single window delivery system for the implementation of all the project activities. They are empowered for operation, maintenance and management of Minor Irrigation Scheme created by the project. Its size varies from 15-100 members. Women & tribal involvement is ensured. Majority of beneficiaries are small & marginal farmers. **Women & tribal dominated WUAs showing better performance**

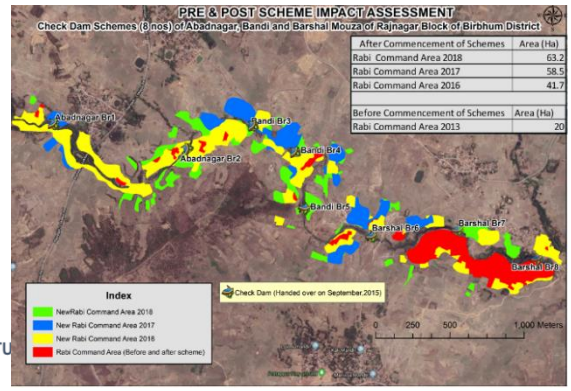
More than 2000 WUAs are created and strengthened. About 1700 WUAs have started providing paid irrigation services to more than 82000 farmers by irrigating 64000 Ha area. About 1300 such WUAs are already registered. 64% WUAs are rated grade A/B are effectively functioning and are able to meet their expenses.

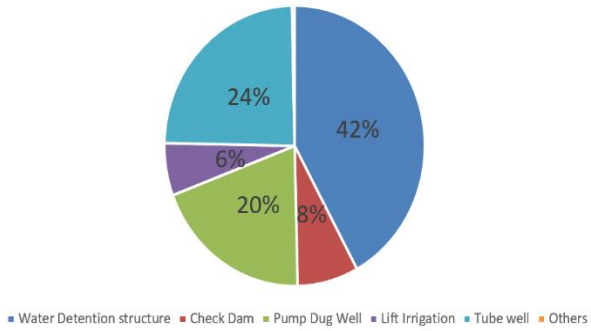
B- Development of Minor Irrigation Schemes

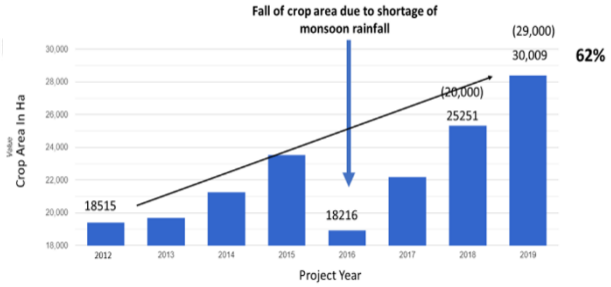
The component purpose is to provide assured irrigation to increase agriculture, horticulture & fisheries production & productivity. It will lead to increase income of the farmers in the command areas of MI schemes. *Minor Irrigation Scheme design, specifications, budget estimates are modified & upgraded with experience. Use of GIS systems made them more appropriate, robust, cost effective, success rate & its impacts improved significantly.*

Particulars of the schemes	Schemes	Amount	CCA	Irrigation Potential
Total approved MI Schemes	3274	970	46000	81000
Already Handed over Scheme	1756	619	34910	64363
Expected to be handed over by December 2019	535	211	4208	5664
Cumulative Status by December 2019	2291	830	39118	70028
Spill over Works beyond December 2019	983	140	6956	11794

Cropping area progressively improving every year due to agriculture support services provided to the WUA members. Cropping area progressively improving every year due to agriculture support services provided to the WUA members.







Note: Obtained through remote sensing analysis on google earth engine

Component C- Agriculture support services

C-I- Agriculture component

Dissemination through on-farm demonstration.

- ***Promoting Good Agriculture Practices*** like seed, seed treatment, spacing, timely sowing, soil testing etc.
- ***Better water management practices*** like SRI (system of Rice intensification, use of flexible pipes, Drip & sprinkler, promoting less water demanding crops etc
- ***Crop diversification***- promoting pulses, oilseeds in rice fallow areas
- ***Promotion of appropriate technologies*** - farm equipment like Power tiller, Zero tillage machine, Paddy trans-planter, Drum seeder, reaper etc
- ***Promoting organic/indigenous practices-*** use of azotobacter, rhizobium culture, vermicompost, neem-based products, mulching, sticky card, pheromone trap etc
- ***Introduction of improved varieties-*** *Short duration Paddy Sahabhagi, GB1, PDM 539 for Green Gram, Subrata for Lentil, Sarada for Black Gram, K-6 for Groundnut etc.*
- ***Mobile based advisory services*** on agriculture, horticulture and fisheries to address the farmer's needs

C-II- Horticulture component

Project has Introduced quality vegetable seeds as per different agro-climatic condition. Promoted soil free vegetable nursery using plug trays to get best quality saplings. Transplanting of vegetable seedlings were done on raised bed to get optimum growth. Balanced dose of nutrients was applied like FYM & vermicompost to reduce the chemical fertilizers. Used different biological IPM practices for pest attack, as a result of which, application of chemical spraying was minimized. Sowing & transplanting of seedling with optimum population per unit area was done on time to get optimum production. Farmers were encouraged to make vermicompost production units in cement tanks, to use as manure in their fields to maintain the fertility of the soil. Introduced drip irrigation, sprinkler & poly houses for high value vegetables to get more yield & better price in off-season.

Area under vegetable cultivation is significantly increased in all agro-climatic zones. It has improved its consumption among marginal farmers.

Waste land development/ Plantation program- The objectives is to make productive use of "current fallow" land available in abundance specially in Paschimanchal & a few other districts. Water User Association operating as the implementing agency. About 70% of beneficiaries are the marginal & poor farmers from tribal community and mostly are women. Micro-Irrigation structures for irrigation and Low/very low water requiring crops introduced as intercropping to provide additional income. Mixed fruit tree plantation of Mango, Guava, Citrus, Jackfruit, Pineapple, Cashew, etc to ensure income round the year.

Summary of the project interventions

Particulars	Demonstrations	Beneficiaries	Area Ha
Agriculture	28481	53813	7068
Horticulture	25840	25840	3400
Fishery	552	14000	910

During last two years mixed fruit tree and spices plantation has been taken up on 1334 Ha area Covering 850 WUAs having 27,895 farmers of which 6841 are ST (26.87%) and 4069 women (14.49%) on "Current fallow" land. Total 4 lakhs saplings in 2018-19 and about 12 lakhs saplings planted in 2019-20.

C-III- Fishery Component

Fisheries activity is an important component of Agriculture Support Service. State being deficient in fish production (1.64 lakh ton/annum, Source – Hand of Fisheries Statics, 2015-16, Govt. of W.B), has greater scope for expansion of the activity. Huge water bodies created under the Project may be tapped to its full potential. Scope for creating sustainable gainful employment for the farmers throughout the year. Farmers generally practice conventional fishery in villages.

Project Interventions: Working through Fishery Interest Group (FIG)

- Arrangement of Inputs like Spawn, Fish fingerlings, fish-feed, Lime, Cage, Geothermal Sheet etc
- Water quality management
- Feed management
- Periodical netting and
- Use of maximum water volume

Seventeen different models of fisheries activities introduced under the Project according to different climatic condition. Schemes fits to water area varying from 0.065 to 2 ha. Culture period varies from 3 to 9 months. Unit cost ranges from about Rs. 25000 to 2.75 Lakhs per hectare. Spawn to fingerlings, small Cage fish culture and deshi magur hatchery scheme are exclusively carried out by women fishery Interest Group (FIGs). Project is promoting culture of indigenous fish species specially to maintain biodiversity eg Hilsa, Magur, Mahsher, Tilapia etc. Previously private ponds were taken on lease by the FIGs for pisciculture and now all water Detention structures created under the Project are also taken up. This has created additional employment opportunity and income for WUAs, thereby contribution to WUA corpus is likely to improve. Twenty-one hatcheries have been set-up for conservation of germplasm of indigenous fish species like Deshi Magur, Singhi, Koi, Tangra, Mahasher etc its cultivation is economically very profitable and gradually adopted by the neighbouring farmers.

Way forward - The project team is fully geared up to apply the learnings of the project in its new phase and further enhance its effectiveness. Some of the models which have been tested and validated presently will be scaled up in the additional financing phase of the project leading to a much larger dividend in the limited period. Same has been reflected in the impact studies by International Water Management Institute (IWMI).

"Results indicate that community involvement in the form of WUAs and agricultural support services will definitely add critical value towards similar minor irrigations schemes of the government"- **Abstract of 3rd Party Impact assessment by International Water Management Institute (IWMI)**

"*The Project has demonstrated appropriate models for different agro-climatic regions ... Use of GIS technology in planning, implementation & impact assessment .. and Watershed based approach for promotion of different project activities. I have visited many projects around the world and never came across any such integrated & quality work. These works need to be shared across so that others can also be benefited."*- **Dr Yoro Sidibe, Water Management Specialist, World Bank Group, Washington DC USA** and Team leader for Project Evaluation. (12th Sept 2019)