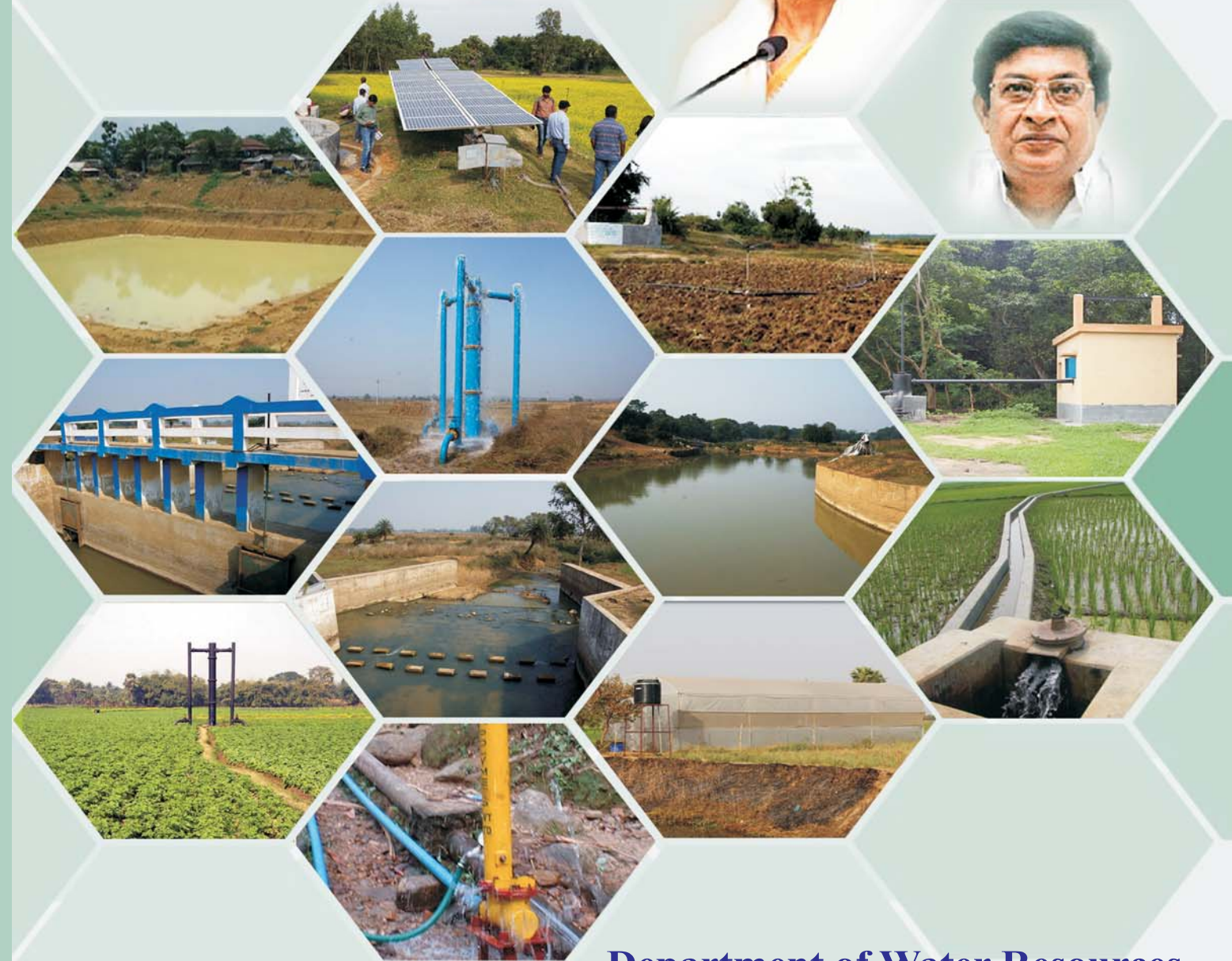




ANNUAL REPORT 2016-17



**Department of Water Resources
Investigation & Development
Government of West Bengal**



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GOVERNMENT OF WEST BENGAL

ANNUAL REPORT 2016-17

**DEPARTMENT OF WATER RESOURCES
INVESTIGATION & DEVELOPMENT**



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FOREWORD

This Department has been playing a significant role for Investigation and Development of Surface Water and Ground Water Resources with the aim to provide assured Irrigation for increasing of Agricultural Growth and Rural Employment throughout the year for Socio-Economic Development mainly of small and marginal farmers through execution of different type of Minor Irrigation Schemes throughout the State with special stress in Jangal Mahal, Tribal & Backward Areas and Hills areas of the State.

This Department has also taken a lead role for one of the most important and beneficial irrigation programmes, namely, 'JAL DHARO JAL BHARO'. It should be mentioned here that various types of Schemes mainly Check Dam/Water Harvesting/Detention Structures are being implemented since the Financial year 2014-15 in the arid Districts namely Birbhum, Bankura, Purulia, Jhargram & Paschim Medinipur for conservation of rain water and surface water with the objective to provide assured irrigation to the beneficiaries throughout the year under a special Programme 'Jaltirtha' as per inspiration and desire of the Hon'ble Chief Minister, Government of West Bengal. And this Department has created Irrigation Potential of 82000 Hectares in the Financial Year 2016-17, a record in the history of the Department.

This publication is an exhaustive compilation of the works undertaken by this Department and I do hope this publication will certainly be helpful for the Organisations/Departments which are engaged in the field of Water Sector including Development of Minor Irrigation Sector.

I convey my sincere thanks to the Principal Secretary and all other officials/staffs for rendering their best effort to publish this Report.

Prof.(Dr.)Saumen Kumar Mahapatra



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27th April, 2018.

PREFACE

The principal aim of the Department of the Water Resources Investigation & Development (DWRI&D) of the Government of West Bengal is to explore, utilize and conserve Surface and Ground Water in the State of West Bengal. And in so doing, use the state of the art technology to address the increasing demand of fresh water while preventing the degradation of water quality.

Water is an essential prerequisite for Life. Its availability and quality have come to the centerstage the world over in recent years. Climate change, increasing population coupled with increasing incomes and consequently demand, depletion of forests, wastage of water, lack of correct pricing for water and several other factors have resulted in indiscriminate and inefficient use of water. Large tracts of land across the globe are facing the specter of water stress. There is therefore a strong case for an integrated water resources management approach. The Water Resources Investigation and Development Department has been striving to adopt this approach with emphasis on scientific irrigation.

The WRID Department is responsible for implementation of a variety of Minor Irrigation Schemes with command area less than 2000 Hectares to support mainly small and marginal farmers. It is well known that assured irrigation is a game changer for the farming community and is the surest way to ensure their economic upliftment. The urgent need of the hour is to change the way we use and manage this vital resource. The department encourages the adoption of new crops to augment income of farmers while economizing water use in different parts of the state. There is a need to adopt participatory and efficient irrigation management, crop cycle commensurate with water availability and adoption of schemes for rainwater harvesting and groundwater recharge. It is a collective effort which needs to be sustained over the long term.

Department: The department is headed by a Principal Secretary under the Hon'ble Minister-in-Charge and assisted by Civil, Electrical and Mechanical Engineers, Secretariat officials and staffs for effective and efficient implementation of minor irrigation schemes throughout the state.

Directorates: Two Directorates namely, Water Resources Development Directorate (WRDD) and State Water Investigation Directorate (SWID) have been functioning under this Department.

WRDD is responsible for installation/implementation of a variety of minor irrigation projects of different geometries, viz. Deep/Shallow Tube Wells, River Lift Irrigation Schemes, Dug Wells, Surface Flow Schemes, Water Harvesting Tanks, Hydrams (in hilly areas), Drip and Sprinkler irrigation systems. It is also introducing solar power systems to power these schemes. It also implements various types of schemes for conservation of rain water in all kinds of water bodies viz. tanks, ponds, reservoirs, canals etc. for sustainable development of water resources and its convergence with agriculture and allied activities under Jal Dhara Jal Bhara Programme and in convergence with MGNREGA for development of not only agriculture sector but also pisciculture and animal husbandry.

The Directorate is also entrusted with implementation of Jalatirtha Programme since 2014-15 in the arid districts of the state viz. Bankura, Birbhum, Purulia, Jhargram and Paschim Medinipur aimed at extending irrigation in additional areas. It implements schemes for conservation of surface water, prevention of soil erosion, recharge of ground water aquifers through construction of Check Dams (CDs), Water Harvesting Structures (WHTs) and Surface Flow Minor Irrigation Schemes (SFMISs). Many of these schemes are developed with an integrated approach to support irrigation and also allied activities like fishery, duckery etc. for improvement of livelihood of the local inhabitants.

SWID is a multi-disciplinary organization for exploring and assessing quantity and quality of ground/surface water. Among other diversified activities, this Directorate implements schemes to demonstrate artificial recharge to groundwater schemes and Water Harvesting Structures. This Directorate conducts census of Minor Irrigation installations and mass awareness programmes and is responsible for implementation of the West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005 and the West Bengal Ground Water Resources (Management, Control and Regulation) Rules, 2006 with a view to regulate extraction and use of ground water. It also takes measures against widespread contamination of groundwater.

Command Area Development Authorities (CAD As): Four CAD As namely, Damodar Valley, Mayurakshi, Kangsabati and Teesta are responsible for taking up schemes with a view to minimize the gap between the Irrigation Potential Created (IPC) and Irrigation Potential Utilized (IPU) of the four Major Irrigation Projects of the state. These CADAs also organize awareness programmes and crop demonstration for the farming community. They also carry out evaluation studies under Command Area Development and Water Management.

State Owned Corporations: Two Government of West Bengal undertakings are under the administrative control of the Department:

- i) **West Bengal State Minor Irrigation Corporation Limited (WBSMICL)**, is engaged in implementation and maintenance of Minor Irrigation Schemes. The Hon'ble Minister of the Department is the Chairman of this company. A Superintending Engineer of the Department is deputed as its Managing Director.
- ii) **West Bengal Agro Industries Corporation Limited (WBAICL)** caters to the needs of the farmers providing them modern agricultural equipments and machineries.


This company is also responsible for procurement of materials for Minor Irrigation installations and ancillary items/articles for irrigation & cultivation. The corporation has also diversified its activities through execution of civil works under different projects namely BEUP, MPLAD, BCWD, PMGSY etc. The Special Advisor to the Chief Minister on Agriculture is the Chairman of this company. A Chief Engineer of the Department is deputed as its Managing Director.

Externally Aided Project:

An Externally Aided Project namely **West Bengal Accelerated Development of Minor Irrigation Project (WBADMIP)** supported by World Bank and the Government of West Bengal for sustainable development and management of surface and ground water resources to increase agricultural productivity and rural employment generation is being implemented since 2012. The project is being implemented in the entire state with a special thrust in the western lateritic arid zone, rainfed areas and Tribal and underdeveloped areas. Major emphasis has been laid on exploitation of surface water. The project, originally scheduled to end in 2017, has been proposed for a two years extension. The project aims an installation of total 2500 MI Schemes creating Culturable Command Area of 75000 Hectares. The Project's aim is to bring 100000 (one lakh) beneficiaries under its command areas.

Prof. (Dr.) Saumen Kumar Mahapatra, the Hon'ble Minister-in-Charge has been constantly guiding the departmental activities and supporting the new initiatives which are being taking up.

The WRID Department is striving hard to make a difference in the lives of countless farmers across the state, adopting, assimilating and implementing new technologies to provide vital water to the farming communities. And in this huge endeavor, the engineers of the Department and the supporting staffs have been playing a stellar role, they deserve appreciation from all. This Annual Report for the year 2016-17 documents the activities of the WRID Department, its organizational structure, its initiatives and other information of interest to those interested in the sector of minor irrigation. My whole-hearted thanks to all the associated personnel for extending co-operation in publication of this Annual Report. I am very optimistic that with the initiatives taken, the WRID Department will be the principal vehicle for change in the agriculture sector in the years to come.


27/11/2018
(Subrata Gupta)
Principal Secretary

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CHAPTER- I

WATER RESOURCES INVESTIGATION & DEVELOPMENT DEPARTMENT



CHAPTER - I

WATER RESOURCES INVESTIGATION & DEVELOPMENT DEPARTMENT

In the early 60s, under the Agriculture Department, a small branch comprising a few Engineers was created for the purpose of supervision and maintenance of Agricultural implements in the Government Agricultural Farms. In the late 60s, the aforesaid branch was converted as full-fledged Directorate, namely, Agricultural Engineering Directorate under the control of Agriculture Department for implementations of Minor Irrigation Project in the State. In the first lap of 80s, a minor irrigation branch was opened as a branch of Agriculture Department and the Agricultural Engineering Directorate was placed its control. Finally, on 8th February 1995 a new Department in the name of Water Investigation & Development Department was created. Late on in the year 2008 the Department has been renamed as Water Resources Investigation & Development Department.

The irrigation scheme which can serve a command comprising of 2000 hectares or less is termed as 'Minor Irrigation' schemes. Of late, the importance of providing minor irrigation has been well accepted by all because of various reasons viz. low investment per scheme, easy operation and maintenance, quick return of investment etc. At present, this department has undertaken a lot of programme under minor irrigation sector to achieve its goal to increase irrigation potential within specified time frame.

The **Department of Water Resources Investigation and Development (DWRI&D)** is mainly responsible for providing irrigation services to the small and marginal farmers of West Bengal by implementing various types of minor irrigation schemes under different programmes utilizing both the ground water and surface water resources. It deals with investigation and assessment of water resources both in terms of quality & quantity in the state. The Department is also involved for development of Command Area of major irrigation projects by construction of field channel schemes and water management programmes. In response to the emerging challenges, the Department has embarked upon large scale harvesting of rain water. JalDharo-JalBharo Programme has been continuing on multiple platforms.

This Department executes Excavation of Ponds, Tanks & Reservoirs, Harvesting of rain water in any kind of water bodies, Artificial Recharge and Rain Water Harvesting, Check Dams, Water Harvesting Tanks, Surface Flow Minor Irrigation Schemes, River lift irrigation schemes viz., Major, Mini & Midi, Micro Irrigation schemes viz., Drip, Sprinkler & Hydram and formulates different capacities of Tube well schemes viz., Heavy Duty Tube Well, Medium Duty Tube Well, Light Duty Tube Well and Shallow Tube well, Open Dug Well, Pump Dug Well, Solar operated Minor Irrigation schemes etc.

This Department is the controlling authority in respect of two major Directorates; two State owned Corporations and four CAD Authorities as noted hereunder:

1. **Water Resources Development Directorate**
2. **State Water Investigation Directorate**

3. Command Area Development Authorities (CADAs) viz.

- i) Teesta Command Area Development Authority
- ii) Damodar Valley Command Area Development Authority
- iii) Kangsabati Command Area Development Authority and
- iv) Mayurakshi Command Area Development Authority

4. West Bengal State Minor Irrigation Corporation Ltd.

5. West Bengal Agro-Industries Corporation Ltd.

The activities of these Directorates and Corporations have been dealt separately in the subsequent chapters in details.

This department is carrying out its activities under the leadership of a Cabinet Minister. The Principal Secretary with the Engineer-in-Chief & Ex-officio Secretary, 3 (three) Joint Secretaries, 1 Deputy Secretary and 2 Assistant Secretaries and other supporting officers & staff, is the pivotal person to guide and instruct in respect of implementation of all programme undertaken by this Department.

Monitoring of the progress of works under different programmes is made by the Hon'ble Minister-in charge, the Principal Secretary and the Engineer-in-Chief & Ex-officio Secretary of the Department and they also oversee all the aspects for implementation of overall Govt. policies in this regard. The periodical meetings with the officers of the Directorates and Corporations are held on a regular basis for the purpose.

The Water Resources Investigation & Development Department published the report of 4th Minor Irrigation (MI) Census with reference year 2006-2007 which is essential for further planning in this sector. 5th MI Census with reference year 2013-14 is in progress jointly with Technical Education Department & Department of Science & Technology.

As a policy of participatory irrigation management, this department is monitoring all activities and presently most of the schemes undertaken and executed by this department are being handed over to the beneficiary farmers.

The State of West Bengal has a geographical area of about 88.75 lakh ha. Cultivable area is 56.48 lakh ha. Net-cropped area is 52.43 lakh ha. and Gross cropped area is 98.81 lakh ha. The ultimate minor Irrigation potential in the State had been estimated long back at 44.34 lakh hectare, out of which 31.34 lakh hectare is from ground water resources and 13.00 lakh hectare is from surface water resources. At the end of the Annual Plan of 2016-2017, creation of irrigation potential in the minor irrigation sector has been estimated to be about 41.97 lakh hectare, of which 29.54 lakh hectare is from ground water resources and 12.43 lakh hectare is from surface water resources which are to be validated after publication of ongoing 5th MI census report.

Minor irrigation potential in this State are created mainly by Water Resources Investigation & Development Department, Panchayat & Rural Development Department, different Zilla Parishad, Department of Agriculture, Other Backward classes & Welfare Department in the public sector.

DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

Water Resources Investigation & Development Department are installing MI Schemes through Water Resources Development Directorate & West Bengal State Minor Irrigation Corporation Ltd. both of which are owned by this Department. According to the Govt. policy, MI Schemes are being handed over to the beneficiaries of the schemes for operation, maintenance and management since inception of RIDF II programme.

In the Private Sector individual or group of farmers with self-finance or bank finance or other financial assistance executes minor irrigation schemes. Enumerations of those schemes are in progress through 5th Minor Irrigation Census. In the Private Sector, the individual or group of individuals set up M.I installations at their own cost or with institutional finance. Small and Marginal farmers and also farmers from SC & ST communities are being given top priority in selection of sites of Minor Irrigation installations in the Government sector.

Water Resources Investigation & Development Department also undertakes different type of deposit work of other Departments / Agencies in the interest of public service. This Department allocates fund for implementation of Minor Irrigation Schemes to Gorkha Territorial Administration (GTA) from Plan Fund through Special Area Programme as grant-in-aid.

During 2016-17, Creation and revival of Irrigation Potential through Minor Irrigation Projects is about 82000 hectare by installing & reviving about 2210 different type of Minor Irrigation schemes viz., Deep/Shallow Tube Wells, River Lift Irrigations, Water Harvesting Tanks, Check Dams, SFMIS, Solar operated M.I. schemes etc. under different programmes viz., Jalatirtha, WBADMIP, RIDF, RKVY, Core Sector & Others. and about 443 hectare CCA has been brought under assured irrigation through Command Area Development & Water Management by construction of field channels in the Command Areas of the four Major River Valley Projects.



CHAPTER- II

WATER RESOURCES DEVELOPMENT DIRECTORATE



CHAPTER - II

WATER RESOURCES DEVELOPMENT DIRECTORATE

West Bengal receives sustained rainfall due to its proximity to the Bay of Bengal yet we are unable to make full use of it due to some natural constraints. Rapid rise in demand of water in all sectors of domestic, industrial and agricultural uses during the last decade has started throwing up several problems in water resources management. So the optimal management of available Water Resources has become a major issues world over. Due to occurrence of recurrent droughts, advent of high yielding varieties and introduction of an incentive oriented agricultural pricing policy paved the way for irrigated agriculture. The Spatial and temporal variability of rainfall along high evapo-transpiration and runoff is posing a major challenge to the scientific community. As a result development of agriculture is essentially dependent on irrigation, not only in Rabi / Boro season but also in Khariff seasons in the event of drought or inadequate rainfall. Harnessing of Water Resources to meet various Sectoral requirements has been our prime concern, which is the foundation of our agricultural vis-à-vis economic growth and welfare of state. Water Resources are being utilized in the State from medium and major sized irrigation schemes whose culturable command area(C.C.A) above 2000 ha. and from minor irrigation schemes with the C.C.A up to 2000 ha. as per the criteria laid down by the Planning Commission, Govt of India.

Thus small and marginal farmers who constitute the majority of cultivators and cultivate major portion of agricultural land in West Bengal, can afford to individually invest on creation of irrigation sources. Therefore, with a view to boosting up agriculture production in a large scale and to promote rural economy, the policy of the government has been to create new sources and hand them over to the Beneficiary Committees through the Panchayat for their operation, maintenance, optimal use and overall management.

Water Resources Development Directorate is responsible for the development of existing potential of water resources available in the State through construction and maintenance of various types of MI schemes utilizing ground water as well as surface water resources. The schemes which are implemented by this directorate for development of water resources under M.I. sector may be categorized as below :-

1) SURFACE WATER DEVELOPMENT MINOR IRRIGATION SCHEMES

Surface water resources are being utilized through irrigation tanks, storage, permanent and temporary diversions. Water of these detention storage reservoirs & Perennial sources are utilized for irrigation during the period of no rain. A small portion of surface water run off of each watershed is being utilized yet.

1.1) Surface Flow Irrigation Schemes :

These schemes use rainwater for irrigation purposes either by storing it or by diverting it from a stream, nala or river. Sometimes, permanent diversions are constructed for utilizing the flowing water of a stream or river. Temporary diversions are also constructed in many areas which are usually washed away during the rainy season.

a) Diversion schemes:

These schemes aim at providing gravity flow irrigation by mere diversion of stream water supply without creating any storage. An obstruction (weir) constructed across the stream for raising and diverting water through the artificial channel.

b) Drainage-cum-Irrigation Schemes :

These schemes are constructed mainly to drain water from low-lying areas which are water-logged due to tidal action of river. Reversal flow of water of the river enters into and inundates the agriculture. To control the entry of water, a sluice gate is constructed at the outlet of the natural drainage channel of the area. By way of construction of this type of scheme two-fold facilities namely (i) drainage and (ii) irrigation are obtained. According to the requirement of water for irrigation during Rabi / Boro season, a portion of water is preserved in the existing channel instead of draining it out.

c) Waste water utilisation Irrigation Scheme:

Water Resources Development Directorate have implemented Surface Flow Minor Irrigation Schemes in the Districts of Hooghly using treated effluents of Tribeni Tissue Factory and Bandel Thermal Power Station benefiting 50 ha. and 120 ha. irrigation area respectively in the adjoining cultivable area of those locations instead of discharging back to the river.

d) Boro Bundh Scheme :

Boro Bundh Schemes are taken up in some low-lying areas of Midnapore, Hooghly, and Howrah districts where no cultivation is possible during rainy season and topography and characteristics of the river do not permit to construct a permanent storage work. These schemes are temporary in nature. Earthen bundhs are constructed across the river in the month Oct-Nov every year to harvest water for utilisation in boro crops. Before onset of the monsoon these bundhs are removed to restore the natural water way.

1.2) Surface Lift Irrigation Schemes :

In regions where the topography does not permit direct flow irrigation from rivers and streams, water has to be lifted into the irrigation channels. These works are similar to diversion schemes, but in addition pumps are installed and pump houses constructed.

a) River Lift Irrigation Schemes (RLIs):

River lift irrigation Schemes are installed where topography of land does not permit to construct storage of diversion works with gravity flow irrigation schemes. Water is lifted from the river with the help of either by two number diesel engine pump-sets or two number electric driven pump-motor sets and delivered to field through underground pipe line net work. The schemes may be categorized as below :

i) Major River Lift Irrigation Scheme

Water from River, Canals, Beels etc. is lifted by two pump sets each capable of discharging 200 cubic meter per hour ie. total 400 cubic meter per hour to irrigate and area of 60-80 hectares of land. Water is distributed through under ground pipe line emanating from two distribution chambers which may either be independently connected with the pump sets or may be interlinked depending upon shape and size of command area.

ii) Medium River Lift Irrigation Scheme

Water from River, Canals, Beels etc. is lifted by two pump sets each capable of discharging 100 cubic meter per hour ie. total 200 cubic meter per hour to irrigate and area of 40 hectares of land. Water is distributed through under ground pipe line emanating from two distribution chambers which may either be independently connected with the pump sets or may be interlinked depending upon shape and size of command area.

iii) Mini River Lift Irrigation Scheme

Water from River, Canals, Beels etc. is lifted by two pump sets each capable of discharging 50 cubic meter per hour ie. total 100 cubic meter per hour to irrigate and area of 20 hectares of land. Water is distributed through under ground pipe line emanating from two distribution chambers which may either be independently connected with the pump sets or may be interlinked depending upon shape and size of command area. In all the schemes it is possible to have cropping intensity of 200%.

b) Tank Irrigation

Rain Water Harvesting are being done by excavating top soil and part of weathered mantle down to a shallow depth below ground level, creating a reservoir for storage of rain water as surface resources and simultaneously enriching soil moisture as well as sub-surface resources with natural percolation. Re-excavation of old tanks are made to augment their capacities for harvesting rain water during monsoon and for subsequent utilization of the same in irrigation during dry seasons. Re-excavation also augments recharge to the water basin thereby increasing availability of ground water.

c) Hydraulic Ram (Hydram) :

An automatic device with which the energy of a quantity of water from a low head is used to lift proportionate quantity of this water to a greater height. This works on the principle of water hammer. In hilly areas use of hydram has been proposed considering steep gradient and high velocity of the streams.

2) GROUND WATER DEVELOPMENT MINOR IRRIGATION SCHEMES**2.1) Deep Tube Wells.**

These schemes are constructed for utilization of ground water resources in areas where irrigation is not covered through surface water resources & where water table is usually more than 7 meters below ground level and electrically operated submersible pump sets are required to be used for lifting water.

a) Heavy Duty Tube Well (HDTW)

These are capable of discharging 200 cubic meter per hour to irrigate and culturable command area of 40 hectares through under ground pipe lines emanating from an elevated distribution chamber. A large number of such structures are existing and are being operated by Govt. machinery. However as per policy of the State these type of structures are being handed over to the users for subsequent operation, management & maintenance.

b) Medium Duty Tube Well (MDTW)

These are capable of discharging 100 cubic meter per hour to irrigate and culturable command area of 20 hectares through under ground pipe lines emanating from an elevated distribution chamber. A large number of such structures are existing and are being operated by Govt. machinery. However as per policy of the State these type of structures are also being handed over to the users for subsequent operation, management & maintenance.

2.2) Shallow Tube Well

a) Light Duty Tube Well (LDTW).

These structures are suitable for areas where water table is usually more than 7 meters below ground level and electrically operated submersible pump sets are required to be used for lifting water. These are capable of discharging 30 cubic meter per hour to irrigate an area of 4 to 6 hectares through open channels. These structures are installed in a cluster of 5 to 6 tube wells. It has been found that such structures can be managed very efficiently and economically by the users.

b) Shallow Tube wells (Diesel/Electric)

These structures are suitable for areas where water table is within 7 meters below ground level and water can be lifted with centrifugal pump sets run by electric motor set or diesel engines and thereby dependence on electricity can be avoided. These structures are suitable for the 6 Districts in the northern part of the State and part of Murshidabad District. Each of the tube well will be capable of discharging 30 cubic meter per hour to irrigate 4 to 6 hectares of culturable command area and it is possible to have 200% cropping intensity.

2.3) Dug-Well

It covers ordinary open wells of varying dimension dug or sunk from the ground surface into water bearing stratum to extract water for irrigation purposes. These open dug wells are of 1.2 to 1.5 meters to 3.0 meters diameter for a depth of 8 to 12 meters approx. Generally 1.2 dia. with R.C.C ring are constructed in alluvium formation and 3.0 meter dia. ODW is constructed in lateritic and hard rock formations. Water is being lifted manually and the quantum of water lifted is approx. 5 to 25 m³/ hour. The average culturable command area varies from 0.4 hectares to 5.0 hectares with 300 percent crop intensity of cultivable land.

3) SURFACE WATER & GROUND WATER DEVELOPMENT MICRO IRRIGATION SCHEMES

3.1) Drip Irrigation

In draught prone areas of western part of the State, economic and efficient use of irrigation water is necessary to have as much agriculture production as possible with minimum water use. In these areas pilot schemes using drip irrigation method have been proposed. Drip Irrigation system delivers water to the crop using a network of mainlines, sub—mains and lateral lines with emission points spaced along their length. Each Drip/ emitters, orifice supplies a measured, precisely controlled uniform application of water, nutrients, and other required growth substances directly into the root zone of the plant.

3.2) Sprinkler Irrigation

In vegetable producing areas of districts of northern part of the State, pilot schemes using sprinklers have been proposed on the consideration that rate of evaporation is comparatively less in those areas. Sprinkler Irrigation is a method of applying irrigation water which is similar to rainfall. Water is distributed through a system of pipes usually by pumping. It is then sprayed into air of entire soil surface through spray heads. It breaks up into small water drops which fall to the ground.

3.3) Micro Sprinkler Irrigation

Micro sprinklers, spray jets, micro sprayers and misters can throw the water over a wide area, when low volume overhead irrigation is desired and for areas where drip emitters are not practical. Micro Sprinklers are used for irrigation of seasonal crops like vegetables, onions, potato, nurseries etc. Micro sprinklers, micro sprayers, spray jets, misters and foggers are available in a variety of styles and configurations and, like drip-emitters, operate at low-pressure from as low as 15 PSI to as high as 50 PSI.

PROJECTS OF THE WRI&DD

A) WEST BENGAL MINOR IRRIGATION PROJECT

West Bengal Minor Irrigation Project (Credit No. 1619-IN) with World Bank assistance was started during 1985. The Project was due to expire on 31.3.93. The World Bank Review Mission extended one year after assessment of target vis-a-vis achievement & the Project WBMIP was finally closed during 1994.

Project Components :- HDTW -1200, MDTW-500, LDTW-2940, STW-5400, ODW-11100
RLI-220 (69 nos new + 151 nos conversion)

The Project includes irrigation facilities for : HDTW @ 40 ha. CCA & 80 ha. potential, MDTW @ 20ha. CCA & 40HA. potential,, LDTW @ 6 ha. CCA & 12ha. potential, STW @ 6 ha. CCA & 12ha. [potential, RLI @ 80 ha. CCA & 160 ha. potential & ODW @ 0.4 ha. CCA & 1.2 ha. potential.

The project formulated for handing over of all STWs, LDTWs, alongwith few HDTWs, MDTWs on experimental basis after installation of those schemes by WRDD. Fund was placed to different Panchayat Samities for construction of Open Dug Well.

Project completed upto March 1994

	Drilled & Dev	Drilled & Energized
HDTW	1018	602
MDTW	427	178
LDTW	2270	838
STW	3918	1495
ODW-6681		
RLI -Energised :125		Expenditure : 209.62 Crore
Potential created upto 1993-1994 : - 56524 Ha (net), 109433 Ha (Gross)		

WBMP AT A GLANCE		Physical Progress as on 31.3.1995				
SI NO	ITEMS OF WORKS	HDTW	MDTW	LDTW	STW	RLI
1	Drilled & Developed	1018	427	2701	5619	-
2	Pump-House Completed	953	395	2441	3438	216
3	Test-Form Submitted	813	328	1679	2321	183
4	Nos. Energised	740	253	1182	1721	162
5	Pipe-Line Completed	707	308	-	-	191
6	Handed-Over to P.S.	6	6	997	1450	-

B) RURAL INFRASTRUCTURE DEVELOPMENT FUND (RIDF)

RIDF-I PROGRAMME:

At the time of closure of World Bank Project in the year 1994, a good number of Minor Irrigation Schemes were incomplete due to non-execution of some of the Project components like Pump House(2709Nos.), Pipe Line(576Nos.), Internal Wiring(4898Nos.), Energisation (5438Nos.) and also some construction work in respect of Surface Flow MI Schemes(9Nos.). As it was not possible to make provision for sufficient fund in the Budget due to resources crunch to complete the residual work of WBMP, the erstwhile Water Investigation & Development Department opted for Institutional Loan from NABARD under RIDF-I Programme through the State Government for completion of the aforesaid Project components of the MI Schemes under WBMP. Sanction was accorded by NABARD during September, 1995 for the Project which was started at the end of 1995-96. The final estimated cost of the Project was Rs.67.25 Crore (RIDF Loan: Rs.51.65 Crore + Govt. contribution: Rs. 15.60 Crore). After completion of the Project on 31.3.1998, Irrigation Potential to an extent of 76700 Hectares was created.

RIDF-II PROGRAMME :

Execution of 2165 numbers later revised to 2203 numbers of various types of Minor Irrigation Schemes was taken up by Water Resources Development Department under RIDF-II Programme funded by NABARD. Upto 31.3.2004, 154 Nos. High Capacity Deep Tube wells, 83Nos. Medium Capacity Deep Tube wells, 60Nos. Low Capacity Deep Tube wells, 1420 Nos. Shallow Tube Wells, 84 Nos. Major River Lift Irrigation and 368 Nos. Mini River Lift Irrigation Schemes have been handed over to the beneficiaries for O & M through Panchayats. An additional potential of 57996 Hectares has already been created out of target potential of 58896 Hectares under this Programme.

Apart from that, RIDF fund was allotted to three Zilla Parishads for installation of 190 numbers of LDTWs with Generator sets, 99numbers Electrically operated LDTWs, conversion of 19 numbers exploratory Deep tube Wells by the erstwhile Midnapore Zilla Parishad, 4 numbers of Major RLIs, 65 numbers of LDTW Clusters, 2 nos. HDTWs, Deb Khal water conservation scheme, completion of residual components of 8Nos. of RLI & 15Nos. DTWs by Burdwan Zilla Parishad and installation of 450 numbers of Shallow Tube Wells by Dakshin Dinajpore Zilla Parishad. Fund amounting to Rs.733.83 Lakh, Rs.844.19 Lakh and Rs.117.00 Lakh was allotted to Midnapore Zilla Parishad, Burdwan Zilla Parishad and Dakshin Dinajpore Zilla Parishad respectively for the work under RIDF-II Programme.

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RIDF-V PROGRAMME:

870 numbers of Minor Irrigation Schemes [HDTW: 75 Nos., MDTW: 46 Nos., LDTW: 162 Nos., STW(D): 280 Nos., Major RLI: 53 Nos., Medium RLI : 20 Nos. and Mini RLI : 234 Nos.] were sanctioned by NABARD for implementation in different Districts with a target irrigation potential of 29420 Hectares. An irrigation potential to the tune of 27470 Hectares had been created upto 31.3.2009. An amount of Rs. 4256.76 Lakh was allotted to different Zilla Parishads for the purpose.

RIDF-VI & VII PROGRAMME:

201 numbers of Minor Irrigation Schemes at a total estimated cost of Rs. 599.94 Lakh for the Districts of North 24-Parganas, Howrah and Darjeeling under RIDF-VI Programme and 1113 numbers of Minor Irrigation Schemes at a total estimated cost of Rs.2108.61 Lakh for the Districts of Howrah, Hooghly, Birbhum, Dakshin Dinajpur and Coochbehar were originally taken up for execution through respective Zilla Parishads by the Panchyat & Rural Development Department. As per revised guidelines, it was decided that the schemes under RIDF-VI & VII would be executed by the line Department. It is reported that all the sanctioned schemes under RIDF VI Programme have been undertaken for execution by the concerned Zilla Parisad. Also execution of major portion of schemes under RIDF VII Programme have been taken by Zilla Parisads excepting 3 number RLIs in Birbhum and 4 HDTWs, 13 Major & 7 Mini RLIs in Hooghly District. But the proposed schemes have not been entrusted to this Directorate by the concerned Zilla Parishads and no fund has been placed. So the work could not be started. An irrigation potential to the tune of 2028 Hectares out of total target potential of 4548 Hectares under RIDF-VI Programme and 9722 Hectares out of total target potential of 15212 Hectares under RIDF- VII Programme had been created upto 31.3.2009.

RIDF-VIII:

The Water Resources Investigation & Development Department took up the execution work of 4002 numbers of various types of Minor Irrigation Schemes under RIDF-VIII Programme with a total project cost of Rs. 8764.34 Lakh during the year 2002-2003. 14 numbers of Schemes out of sanctioned 4002 numbers had been dropped due to various reasons. The project work was completed by March, 2006 excepting some energisation works. The works of 3061 numbers of schemes have been completed and handed over to the 'Beneficiaries Committees' though Project Completion Report (PCR) of all the 3988 (4002-14) numbers of schemes had already been submitted to NABARD in anticipation of energisation works by West Bengal State Electricity Distribution Company Limited (WBSEDCL). Already additional M.I. Potential of 69376 Hectares out of targeted 70268 Hectares has been achieved under this project upto 31.3.2010.

RIDF-X:

The Department took up the execution of 561 numbers of various types of Minor Irrigation Schemes under RIDF- X programme with a total project cost of Rs. 1952.77 Lakh which have been sanctioned by NABARD under this programme for the different Districts in West Bengal. All the schemes excepting 1 no. (Dropped scheme) have been completed and handed over to the 'Beneficiaries Committees'. The project was completed by March 2009. Irrigation Potential to the tune of 12536 Ha. has been created under this programme.

RIDF-XI:

During the month of February, 2006, an amount of Rs. 4430.69 Lakh was sanctioned by NABARD for execution of 1272 Nos. of Minor Irrigation Schemes comprising of 11 nos. HDTW,

18 nos. MDTW, 297 nos. LDTW, 834 nos. STW(D), 21 nos. Major RLI, 15 nos. Midi RLI, 39 nos. Mini RLI and 37 nos. of Surface Flow / Drainage- Cum- Irrigation Schemes. 39 nos. schemes out of 1272 nos. sanctioned structures have been dropped. UP TO 31.3.2015, 1232 nos. of schemes [HDTW:11 nos., MDTW:17 nos., LDTW:279 nos., STW(D):834 nos., Major RLI:19 nos., Midi RLI:12 nos., Mini RLI:39 nos. and SFMIS:21 nos.] have been completed and handed over to the 'Beneficiaries Committees'. 1 (one) number scheme could not be completed being a subjudice one.

Irrigation Potential to the tune of 22501 Ha. (based on handed over schemes) has been created under this programme up to 31.3.2015.

RIDF- XII:

Under RIDF XII Programme, altogether 2589 nos. of M.I. Schemes [HDTW: 40 nos., MDTW: 44 nos., LDTW: 503 nos., STW (D): 1778 nos., Major RLI: 55 nos., Midi RLI: 25 nos., Mini RLI: 119 nos., Hydram: 10nos., Sprinkler: 9 nos. and SFMIS: 6 nos.] have been sanctioned by NABARD with a total project cost of Rs. 8092.64 lakh during the year 2006-2007. 56 number of schemes out of total number of sanctioned schemes had been dropped. 2533 number of schemes [HDTW:35 nos., MDTW:37 nos., LDTW:481 nos., STW(D); 1777 nos., Major RLI:52 nos., Midi RLI:23 nos., Mini RLI:109 nos., Hydram:10 nos. and Sprinkler: 9 nos.] have been completed and handed over to the 'Beneficiaries Committees' upto 31.03.2016. Irrigation Potential to the tune of 44152 Hectares (based on handed over schemes) has been created under this programme up to 31.3.2016.

RIDF- XIII:

The Department took up the execution of 1208 numbers of various types of Minor Irrigation Schemes [HDTW: 28 nos., MDTW: 61 nos., LDTW: 409 nos., STW (D): 510 nos., Major RLI: 49 nos., Midi RLI: 26 nos. and Mini RLI: 125 nos.] sanctioned by NABARD under this programme with a total project cost of Rs.6743.54 Lakh during the year 2007-2008 subsequently Project cost was revised to an amount of Rs.8389.79 Lakh in the year 2009-10 with an aim to create an irrigation potential of 24992 Ha. 51 number of schemes [HDTW:1 nos., MDTW:9 nos., LDTW:4 nos., STW(D); 11 nos., Major RLI:7 nos., Midi RLI:7 nos., and Mini RLI: 12 nos.] under this programme have been dropped due to various reasons.

1122 number of schemes [HDTW:25 nos., MDTW:49 nos., LDTW:375 nos., Major RLI: 42 nos. Midi RLI: 19 nos. Mini RLI: 113 nos. and STW(D): 499 nos.] have been completed & out of these completed schemes, 1117 number of schemes have been handed over to the 'Beneficiary Committees' up to 31.3.2017. Irrigation Potential of 25440 Ha. (based on handed over schemes) has been created up to 31.3.2017.

RIDF- XIV [PHASE- I]:

Execution of 33 number of various types of Minor Irrigation Schemes (SFMIS: 10 Nos. Sprinklers: 15 Nos. and Hydram : 8 Nos.) were taken up under this programme with a total project cost of Rs. 661.31 Lakh during the year 2008-09 with an aim to create an Irrigation potential of about 2144 Ha. 18 (eighteen) numbers of schemes [Sprinkler: 15 Nos. & SFMIS: 3 Nos.] under this Programme have been dropped due to various reasons. The rest 15 number of schemes [Hydram: 8 nos. and SFMIS: 7 nos.] have been completed and handed over to the 'Beneficiary Committees' by 31.3.2014. Irrigation Potential created: 738 Ha. (Based on the handed over schemes).

RIDF- XIV [PHASE- II]:

The Department has taken up execution of 691 numbers of various types of Minor Irrigation Schemes { HDTW: 8, MDTW: 27, LDTW: 276, STW(D): 198, Major RLI: 32, Midi RLI: 35, Mini

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RLI: 87, SFMIS: 17, Sprinklers: 5 and Check Dam: 6 } under this programme with a total project cost of Rs. 6337.74 Lakh during the year 2008-2009. 33 number schemes (MDTW: 5 nos., Major RLI: 7 Nos., Midi RLI: 1 No., Mini RLI: 12 Nos., SFMIS: 4 Nos. and Check Dam: 4 Nos.) have been dropped. 611 number of schemes (Major RLI: 25 Nos. Midi RLI: 34 Nos. Mini RLI: 75 Nos. Sprinkler: 5 nos., SFMIS: 13 nos., Check Dam: 2 nos., HDTW: 5 nos., MDTW: 20 nos., LDTW: 234 nos. and STW (D): 198 nos.) have been completed and out of these completed schemes, 605 schemes have been handed over to the 'Beneficiary Committees' upto 31.3.2017. The rest 34 schemes' all works are completed except energisation. Irrigation Potential (based on 578 number handed over schemes) to an extent of 16805 Hectares has been created up to 31.3.2017.

RIDF- XIV (PHASE- IV) :

Execution of 2372 numbers of various types of Minor Irrigation Schemes (HDTW: 31, MDTW: 42, LDTW: 442, STW(D): 1809, Major RLI: 19, Midi RLI: 11, and Mini RLI: 18 } has been taken up under this programme with a total project cost of Rs. 8016.27 Lakh during the year 2008-2009. 47 schemes { 3 (three) nos. HDTW, 8 (seven) nos. MDTW, 14 (fourteen) nos. LDTW, 10 (ten) nos. STW(D), 6 (six) nos. Major RLI, 2 (two) nos. Midi RLI and 4 (four) nos Mini RLI } out of 2372 nos. sanctioned schemes have been dropped.

As on 31.3.2017, 2271 numbers of schemes [HDTW:26 nos., MDTW:33 nos., LDTW: 377 nos., STW (D):1799 nos., Major RLI:13 nos., Midi RLI: 9 nos. and Mini RLI: 14 nos.] have been completed and out of these completed schemes, 2267 schemes have been handed over to the 'Beneficiary Committees' upto 31.3.2017. Irrigation Potential to the tune of 32632 Ha. (based on 2267 number handed over schemes to the 'Beneficiary Committees') has been created up to 31.3.2017.

RIDF- XV:

1286 Nos. of Minor Irrigation Schemes [HDTW: 27 nos., MDTW: 65 nos., LDTW: 699 nos., STW (D): 378 nos., STW (E): 60 Nos. Major RLI: 10 nos., Midi RLI: 23 nos. and Mini RLI: 24 nos.] have been sanctioned by NABARD under this programme with a total project cost of Rs. 8470.09 Lakh during the year 2009-2010.

62 number of schemes (HDTW : 1 no , MDTW- 14 nos., LDTW- 23 nos., Major RLI: 5 Nos., Midi RLI: 9 Nos. and Mini RLI: 10 Nos.) have been dropped. As on 31.3.2017, 986 number of schemes [HDTW: 21 nos., MDTW: 46 nos., LDTW: 478 nos., Major RLI: 5 Nos., Midi RLI: 14 Nos., Mini RLI: 14 Nos., STW (E) : 30 nos. and STW (D) - 378 nos.] have been completed and out of these completed schemes, 974 schemes have been handed over to the 'Beneficiary Committees' upto 31.03.2017. 238 number of schemes' all works are completed except energisation . Irrigation Potential to the extent of 16488 Hectares has been created up to 31.3.2017. After completion of all the schemes excluding dropped schemes under this programme, Irrigation Potential to an extent of 178444 Hectares will be created.

RIDF- XVI (Phase-I) :

The Department has also taken up execution of 3076 number of various types of Minor Irrigation Schemes [MDTW:111, LDTW:521, STW(D):2125, Midi RLI(D):54, Midi RLI(E):2, Mini RLI(D):76, Mini RLI(E):1, Sprinkler:43 and PDW(D):143] under this programme with a total project cost of Rs.10607.31 Lakh. 153 number of schemes [MDTW : 13 Nos , LDTW : 22 Nos , Midi RLI: 15 Nos., Mini RLI: 15 Nos. and STW (D)-88 Nos.] have been dropped. 2742 number of schemes (Midi RLI: 40 Nos., Mini RLI: 60 Nos., Sprinkler: 43 nos., STW (D): 2020 nos., MDTW: 57 Nos.,

LDTW: 380 Nos. and PDW (D): 142 Nos.) have been completed and 2661 Nos out of completed schemes have been handed over to the 'Beneficiaries Committees' up to 31.03.2017. Remaining 128 number of schemes' all works completed but yet to be energized by WBSEDCL and remaining schemes' works are in progress. Irrigation Potential of 38104 Hectares has been created up to 31.3.2017.

RIDF- XVII :

Under this programme, 04 nos. of projects have been taken up: one no. project for Teesta Comprehensive Area Development and Water Management at an estimated cost of Rs.19183.70 Lakh with an aim to bridge over the gap between the irrigation potential created and irrigation potential utilized, two nos. of projects for renovation of 24 nos. State owned M.I. Schemes in Malda District at an estimated cost of Rs. 843.12 Lakh with an aim to revive irrigation potential to the tune of 1006 Ha (approx.) and one no. project for drilling and installation of 200 nos. of S.T.Ws in Border Area Development (Chitmahal) at an estimated cost of Rs. 258.00 Lakh. 224 number schemes [Renovation of RLI: 24 Nos., and STW (D): 200 nos.] have been completed and out of that 200 numbers of schemes have been handed over to the 'Beneficiaries Committees'. Irrigation Potential of 4320 Hectares has been created up to 31.3.2016.

The Department has already been approached for consideration of a revised proposal under Teesta CAD&WM at an estimated cost of Rs.116.3982 Crore considering CCA of 25000 Hectares in respect of Jalpaiguri District only as because the area of activity under Teesta CAD&WM has reasonably been reduced due to release of water only through two main canal network systems out of five main canals. Accordingly, the Department has approached to the Finance Department for deletion/withdrawal of the schemes already sanctioned under RIDF Project in respect of Teesta CAD&WM and subsequently the said Project has been cancelled.

RIDF- XVIII:

The Department has also taken up execution of 503 numbers of different types of Minor Irrigation Schemes [Major RLI (E): 52 nos., Midi RLI (E):41 nos., Mini RLI (E): 20 nos., SFMIS: 28 nos., WHT: 4 nos. and Solar Power operated Sprinkler Irrigation Scheme: 358 nos.] under this programme with a total project cost of Rs.7397.74 Lakh and 8 schemes (SFMIS : 4 nos, & Midi RLI : 4 nos) have been dropped . The sanction for the Schemes was accorded in the year 2012-13. The target date for completion of the Project was 31.03.2017 and applied for extension of time for completion of Project up to 31.03.2018.

As on 31.3.2017, 328 number of schemes (SPSIS: 223 nos., SFMIS: 23 nos. and WHT: 4 nos., Maj. RLI : 37 nos ,Midi RLI : 23 nos and Mini RLI : 18 nos) have been completed and 322 number of schemes have been handed over to the 'Beneficiary Committees'. 27 number of schemes' all works are completed but yet to be energized by WBSEDCL and Other schemes are in progress. Irrigation Potential to an extent of 10722 Hectares has been created up to 31.3.2017.

After completion of all schemes (excluding dropped Scheme) under this Tranche, it is estimated that Irrigation Potential of about 16261 Ha. will be created.

RIDF-XIX:

Execution of 2164 number of various types of Minor Irrigation Schemes { HDTW: 44, MDTW: 49, LDTW: 1246, STW(E): 702, Major RLI (E) : 35, Midi RLI(E): 49, Mini RLI(E): 5, SFMIS:27 and WHT:7 } has been taken up under this programme with a total project cost of Rs. 18646.55 Lakh

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. Administrative approval for these Schemes has been accorded on 07.02.2014. Procurement of materials vis-à-vis works under this programme has been taken up in the financial year 2014-2015.

As on 31.3.2017, 283 number of schemes (HDTW : 10 nos , MDTW : 11 nos, LDTW : 172 nos, Major RLI : 25 nos, Midi RLI : 29 nos, Mini RLI : 5 Nos, SFMIS: 24 Nos. and WHT: 7 Nos.) have been completed and out of these completed schemes ,261 number of schemes have been handed over to the 'Beneficiary Committees. 32 number of schemes (HDTW : 2 nos, MDTW : 2 nos, LDTW : 21 nos, Major RLI: 2 nos, Midi RLI : 4 nos and SFMIS : 1 no) have been dropped. The rest Schemes are in progress. Irrigation Potential to an extent of 10122 Hectares has been created up to 31.3.2017.

Target date for completion of the Project was on 31.3.2017 and Department has applied for extension of time up to 31.03.2018 for completion of Project. After completion of all the schemes excluding the dropped schemes under this Programme, Irrigation Potential to an extent of 40455 Ha will be created.

RIDF-XX :

Execution of 1469 number of various types of Minor Irrigation Schemes { HDTW: 19, MDTW: 48, LDTW: 687, STW(E): 356, Major RLI (E) : 26, Midi RLI(E): 42, Mini RLI(E): 2, Conversion of RLI: 126, Renovation of RLI: 93, Sprinkler (D): 28, SFMIS: 30 and WHT: 12 } has been taken up under this programme with a total project cost of Rs. 22398.02 Lakh . Administrative approval for these Schemes has been accorded on 07.11.2014. The target date for completion of the Project is 31.03.2018.

As on 31.3.2017, 379 number of schemes (HDTW: 10 nos , MDTW: 14 nos, LDTW: 100 nos, Major RLI : 20 nos, Midi RLI : 26 nos, Conversion of Maj. RLI : 64 nos, Renovation of Maj. RLI : 78 nos , Sprinkler (Diesel) : 28 nos, SFMIS: 27 Nos. and WHT: 12 Nos.) have been completed and out of these completed schemes , 206 schemes have been handed over to the 'Beneficiary Committees. 16 number of schemes (MDTW: 2 nos, LDTW: 1 no, Major RLI: 3 nos, Midi RLI : 1 no ,Conversion of Maj. RLI : 4 nos , Renovation of Maj. RLI : 3 nos and SFMIS : 2 nos) have been dropped. The rest Schemes are in progress. Irrigation Potential to an extent of 14617 Hectares has been created up to 31.3.2017. After completion of all the schemes excluding the dropped schemes under this Programme, Irrigation Potential to an extent of 34339 Ha will be created.

RIDF-XXI (Phase-I) :

Execution of 1601 number of various types of Minor Irrigation Schemes { HDTW: 15, MDTW: 62, LDTW: 665, STW(E): 230, Major RLI (E) : 47, Midi RLI(E): 67, Mini RLI(E): 21, Conversion of RLI: 94, Renovation of RLI: 94, PDW(E) : 133 , SPK (D) : 23, SPSIS (8Ha): 14, SPSIS (1.75 Ha) : 61 , Check Dam : 2 , SFMIS: 10 and WHT: 63 } have been taken up under this programme with a total project cost of 24601.61 Lakh. Administrative approval for these Schemes has been accorded on 19.11.2015. Date of commencement of the Project is 01.01.2016 and the target date for completion of the Project is 31.03.2018.

As on 31.03.2017, 205 number of schemes { MDTW: 2, Major RLI (E) : 20, Midi RLI(E): 6, Mini RLI(E): 9, Conversion of RLI: 13, Renovation of RLI: 39 , SPK (D) : 18, SPSIS (8Ha): 12, SPSIS (1.75 Ha) : 41, SFMIS: 1 and WHT: 44 } . Other schemes are in progress. Irrigation Potential to an extent of 8869 Hectares has been created up to 31.3.2017. After completion of all the schemes excluding the dropped schemes under this Programme, Irrigation Potential to an extent of 40519 Ha will be created.

RIDF-XXI (Phase-II) :

Execution of 344 number of various types of Minor Irrigation Schemes { MDTW: 26, , LDTW: 24, Re-drilling DTW/HDTW : 36, Renovation DTW/HDTW : 16 , Renovation MDTW : 10, Renovation of SOSTW to LDTW : 156, Re-drilling LDTW : 30, Major RLI : 13 , Midi RLI(E): 4, Conversion of RLI: 7, Renovation of RLI: 11, SFMIS: 3 and WHR: 8 } have been taken up under this programme with a total project cost of Rs 5941.10 Lakh. Administrative approval for these Schemes has been accorded on 14.01.2016. Date of commencement of the Project is 04.02.2016 and the target date for completion of the Project is 31.03.2019. 2 nos MDTW schemes have been dropped due to various reasons. As on 31.03.2017, 6 nos Renov. RLI has been completed and 360 Ha Irrigation Potential has been created. After completion of all the schemes excluding the dropped schemes under this Programme, Irrigation Potential to an extent of 11322 Ha will be created.

Potential Created under Different RIDF Programme During the Year 2016-2017

SL. No.	Programme	Type of Structure	Nos. Completed	Potential Created (in 'Ha')	Total Potential Created under each Programme (in 'Ha')
1	RIDF -XIII	M D T W	1	40	388
		LDTW	29	348	
2	RIDF -XIV (Phase- II)	HDTW	2	160	432
		MDTW	5	200	
		LDTW	6	72	
3	RIDF-XIV (Phase -IV)	HDTW	1	80	524
		MDTW	3	120	
		LDTW	27	324	
4	RIDF-XV	HDTW	3	240	2552
		MDTW	12	480	
		LDTW	146	1752	
		MIDI RLI	1	80	
5	RIDF-XVI	MDTW	29	1160	4052
		LDTW	178	2136	
		STW(D)	13	156	
		MIDI RLI	6	480	
		MINI RLI	3	120	
6	RIDF-XVIII	MAJOR RLI	8	1280	3517
		MIDI RLI (E)	16	1280	
		MINI RLI	15	600	
		SFMIS	1	134	
		WHT	1	110	
		SPSIS (1.75 Ha)	45	113	
7	RIDF-XIX	HDTW	7	560	
		MDTW	8	320	

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SL. No.	Programme	Type of Structure	Nos. Completed	Potential Created (in 'Ha')	Total Potential Created under each Programme (in 'Ha')
		LDTW	137	1644	7524
		MAJOR RLI	17	2720	
		MIDI RLI	27	2160	
		MINI RLI	2	80	
		SFMIS	1	40	
8	RIDF-XX	HDTW	5	400	7929
		MDTW	14	560	
		LDTW	76	912	
		MAJOR RLI	12	1920	
		MIDI RLI	23	1840	
		CONV. RLI	45	900	
		RENOV. RLI	20	1200	
		SFMIS	10	134	
		WHT	4	63	
9	RIDF-XXI (Phase-I)	MDTW	2	80	8869
		MAJOR RLI	17	2720	
		MIDI RLI	6	480	
		MINI RLI	9	360	
		CONV. RLI	13	260	
		RENOV. RLI	39	2340	
		SPK(D)	18	388	
		SPSIS (8 Ha)	12	192	
		SPSIS (1.75 Ha)	41	103	
		SFMIS	1	53	
		WHT	44	1893	
10	RIDF-XXI (Phase-II)	RENOV. RLI	6	360	360
Total					36147
G.W. Potential (Ha)			11824		
S.W. Potential (Ha)			24323		

C) JAL DHARO JAL BHARO (JDJB)

The programme named "Jal Dharo-Jal Bharo" was launched during 2011-12 with the objective for conservation of precious water resources in all kinds of water bodies viz. tanks, ponds, reservoirs, canals etc. for sustainable development of agricultural economy and also for providing living wage security of rural people through labour-intensive job where alternative source of employment are limited.

The Department of Water Resources Investigation & Development is not only executing water harvesting structures under different plan fund but also engaged in re-excavation of tanks and

other water bodies under MGNREGA programme in convergence with P&RD Department, Govt of West Bengal for successful implementation of the programme. Different types of structures like Check Dams, Water Harvesting Tanks and Surface Flow Minor Irrigation Schemes are being constructed for arresting surface run-off vis-a-vis utilisation of stored water for supplementary irrigation/ other purpose during the dry spell.

Apart from agriculture activities, pisi-culture as well as animal husbandry activities are being promoted resulting in additional avenue of income for the rural people.

DWRID has launched Mass awareness campaign in different Districts of West Bengal to save the precious water resources through "JAL DHARO-JAL BHARO" Programme with the aim towards building citizens' awareness for rain water conservation and its effective use.

During 2016-17, 38,398 number water bodies/retention structures have been created out of which 11,776 equivalent tanks have been created by WRI&DD, 26,557 number Water Bodies have been created/renovated in convergence with P&RD Department and 65 number pond have been implemented/renovated by WRI&DD under MGNREGA.

**ASSETS CREATED UNDER "JAL DHARO JAL BHARO" BY WRDD & UNDER THE
CONVERGENCE PROGRAMME WITH P&RD DEPTT, GOVT OF WEST BENGAL
AS ON 31.03.2017**

Sl. No.	District	Convergence with P& RD	W.R.D.D.		Grand Total of water Bodies of P&RD and WRDD
		FY-(16-17)	Equivalent tank(16-17)	MGNREGA Pond(16-17)	
1	Birbhum	2958	390		3348
2	Howrah	258	134		392
3	Paschim Midnapore	3442	2430		5872
4	Kalimpong				0
5	Jalpaiguri	276			276
6	Bankura	282	3322		3604
7	Coochbehar	135			135
8	Burdwan	1738			1738
9	Purba Midnapore	5757	937	65	6759
10	Nadia	223			223
11	Malda	101			101
12	Hooghly	157			157
13	24 Parganas(N)	3714	45		3759
14	Murshidabad	758			758
15	Dakshin Dinajpur	84			84
16	24 Parganas(S)	2642	1001		3643
17	Uttar Dinajpur	206			206
18	Purulia	3399	3517		6916
19	Dargeeling (DGHC)	3			3
20	Siliguri Mahakuma Parishad	30			30
21	Alipurduar	394			394
TOTAL		26557	11776	65	38398

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D) RASTRIYA KRISHI VIKAS YOJANA (RKVY)

The RKVY Project during the financial year 2016-17 consists of 03(three) part namely (i) RKVY 2016-17 Programme ,(ii) Spill over scheme of RKVY 2015-16 Programme, (iii) Spill over scheme of RKVY 2014-15.

The RKVY 2016-17 Programme comprises of 2 nos component of scheme which includes 96 nos. Tubewell (Solar) in the district of North 24 Pgs, Nadia and Construction of 45 nos. Field Channels in the district of Paschim Medinipur, Hooghly, Howrah, North 24 Pgs. & Nadia; out of which 24 nos Tubewell (Solar) schemes was completed and handed over to beneficiaries during 2016-17 creating an irrigation potential of 288 ha & 43.5 nos Field Channel (1nos Field Channel = 1km) was completed during the year 2016-17 creating an irrigation potential of 830 ha and rest 72 nos Tubewell (Solar) and 1.5 nos Field Channel was carried over to the Financial Year 2017-18.

The Spill over scheme of RKVY 2015-16 Programme comprises of 20 nos Field Channels in the district of Coochbehar, Malda, Howrah, North 24 Pgs & Nadia. Out of which 18 nos was completed creating an irrigation potential of 720 ha. The residual 2 nos Field Channels was dropped.

The Spill over scheme of RKVY 2014-15 Programme comprises of 2 nos component namely 3 nos Farm pond (spill over) in the district of Purulia & Birbhum and 3 nos (spill over) Minor Irrigation Tank in the district of Purulia & Jhargram. Out of which 3 nos Farm pond and 2 nos Minor Irrigation Tank was completed during the year 2016-17 creating an irrigation potential of 78 ha and 15.6 ha respectively. 1(one) no. MIT in the Jhargram district was abandoned. Thus, the total irrigation potential created under RKVY Project during the financial year 2016-17 is 1931.6 Ha.

The total Outlay of RKVY project during 2016-17 was Rs.1384.00 lakh, out of which Rs.1012.00 lakh was sanctioned under RKVY 2016-17 Programme and Rs.372.00 lakh was sanctioned under RKVY 2015-16(spill over) & RKVY 2014-15 (spill over) Programme. The total expenditure incurred under RKVY project during 2016-17 was Rs.1378.98 lakh, out of which an amount of Rs.1009.17 lakh was utilized under RKVY 2016-17 programme and Rs. 369.81 lakh was utilized under RKVY 2015-16 & RKVY 2014-15 Prog. (spill over). The balance amount of Rs.5.02 lakh was carried over to the F.Y 2017-18.



Photographs of Minor Irrigation Tank at Balarampur Block under RKVY Program

E) CORE SECTOR :

The Water Resources Development Directorate took up work under Core Sector for completion of on-going Minor Irrigation Schemes along with other new schemes out of the Budget provision during 2016-17. During 2016-17, additional Minor Irrigation Potential to the tune of 4472 Hectares was created. Apart from creation Irrigation Potential, Infrastructure Development works like Computerization in different office, Construction of office Buildings, Godown, Modernization of Bungalow etc. under this Directorate were executed under Core Sector during 2016-17

F) JALATIRTHA PROGRAMME :

The State Government has taken up an ambitious Scheme in the arid zone of the State in the districts of Bankura, Birbhum, Purulia and Paschim Medinipur. The western part of the State of West Bengal receives ample rainfall ($\approx 1,400$ mm) during rainy season. But, due to topographic condition a large volume of the water flows as surface runoff & stream flow leaving a very little scope for infiltration into soil. The geologic condition of the area is not also favorable for ground water extraction & natural ground water recharge. For productive use of water in dry season as well as in dry spells during rainy season surface water storage in these areas has become indispensable. Hence, a focus of Jalatirtha is mainly on rain water harvesting.

The main objective of the scheme is to conserve surface runoff water and rain water to provide round the year assured irrigation to the communities in the Scheme area by construction of Check Dams (CDs), Water Harvesting Tanks (WHTs) and Surface Flow Minor Irrigation Schemes (SFMISs). Apart from irrigation, the Scheme will also help in preventing soil erosion, recharge of ground water aquifers, and protection of environment besides improvement of production and productivity of the agriculture. It will also help in taking up allied activities like fishery, duckery and animal feeding etc.

Keeping these in consideration following were the key objectives:

- " Arresting and utilizing Surface water run-off and conservation thereof through Minor Irrigation structures and prevention of soil erosion.
- " To provide round the year assured irrigation through Minor Irrigation structures.
- " Conservation of rain and surface water resources in arid zone to boost up ground water recharging.
- " Increase in agricultural production and productivity and livelihood of local beneficiaries.

A special fund of Rs. 500 crores was announced in the budget of FY 2014-15 for creation of additional irrigation potential in the arid districts viz. Birbhum, Bankura, Purulia & Paschim Medinipur of the State.

It was decided that the Programme "Jalatirtha" would be executed by Six departments viz. Water Resources Investigation & Development Department (WRI&DD), Public Works Department (PWD), Paschimanchal Unnayan Affairs Department (PUAD), Irrigation & Waterways Department (I&WD), Panchayat & Rural Development Department (P&RD) & Forest Department. WRI&DD was designated as nodal department.

Hon'ble Chief Minister has kindly named the initiative as Jalatirtha.

Project area

The project area of Jalatirtha is within the district boundary of Birbhum, Bankura, Purulia & Paschim Medinipur Districts of the State.

DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

Methodology

WRI&DD was assigned for construction of CDs, SFMISs & WHTs and other Departments were entrusted for construction of CDs only in four arid districts. WRI&DD organized a kick-off workshop. WRI&DD using GIS platform & maps from the Department of Science & Technology (DST) identified potential sites for construction of CDs. The sites were allocated to the departments except Forest Department and concerned Departments studied feasibility of the schemes. Thereafter, schemes fallen under forest were allocated to the Forest Department and clearance from I&WD was obtained for the schemes intended for construction. A technical guideline was prepared by I&WD and circulated to all Departments. It was decided that the every Check Dam scheme would be constructed only after obtaining clearance from I&WD.

Minor Irrigation Structures

For conservation of surface water by arresting surface runoff and for utilization of the water during period of need the following structures were considered for construction:

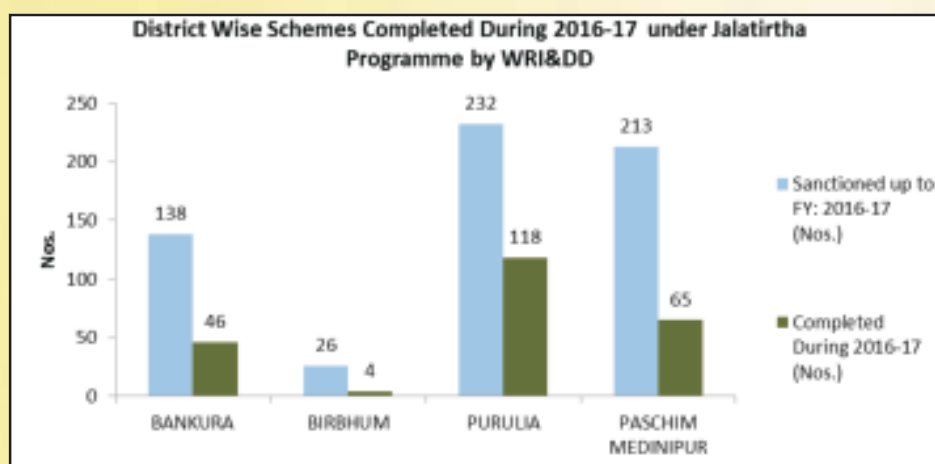
- " Check Dam (CD): This type of schemes is being implemented by all six Departments.
- " Surface Flow Minor Irrigation Scheme (SFMIS): This type of schemes is being implemented by WRI&D Department only.
- " Excavation/ Re-excavation of Water Harvesting Tank (WHT): This type of schemes is being implemented by WRI&D Department only.

Achievement

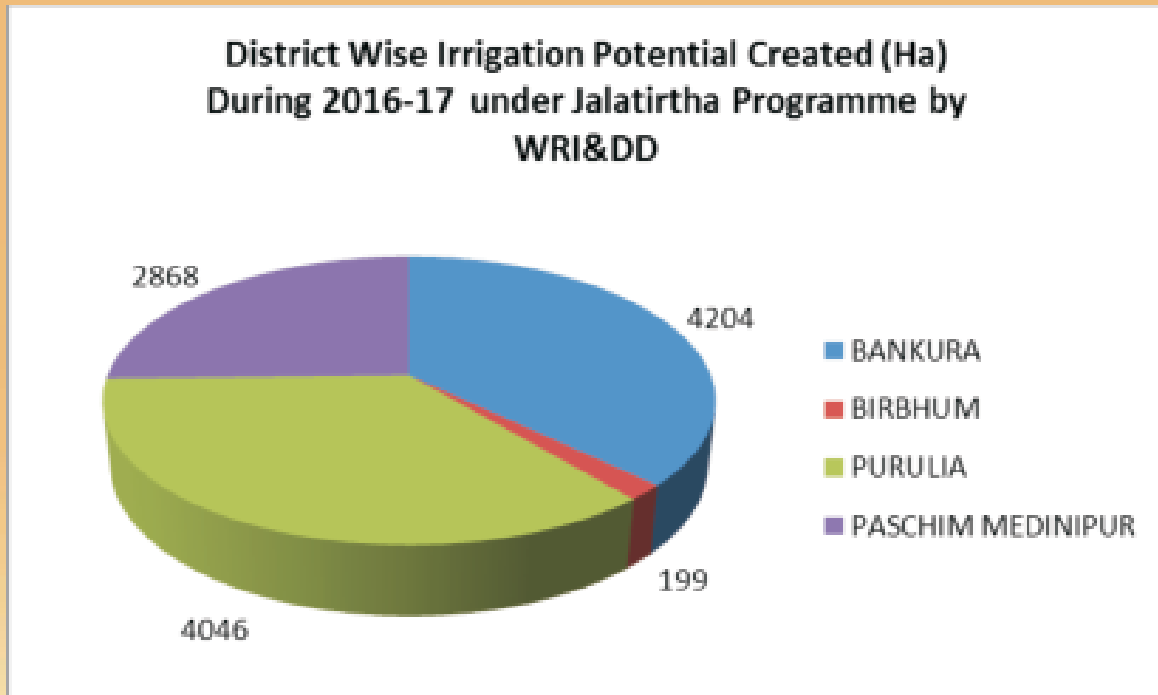
About 609 Minor Irrigation Structures viz. CDs, WHTs & SFMIS have been sanctioned up to the financial year 2016-17 in the Districts of Birbhum, Bankura, Purulia & Paschim Medinipur. The progresses of works during 2016-17 by this Department are as follows:

- " 609 Schemes [WHTs-243, SFMISs-253, CDs-113] have been sanctioned till 2016-17
- " 233 schemes [WHTs-61, SFMISs-105, CDs-67] have been completed during 2016-17
- " Culturable Command Area (CCA) of about 8,702 Ha & Irrigation Potential (IP) of 11,317 ha has been created during 2016-17
- " Works for more than 80 schemes are in progress at the end of 2016-17

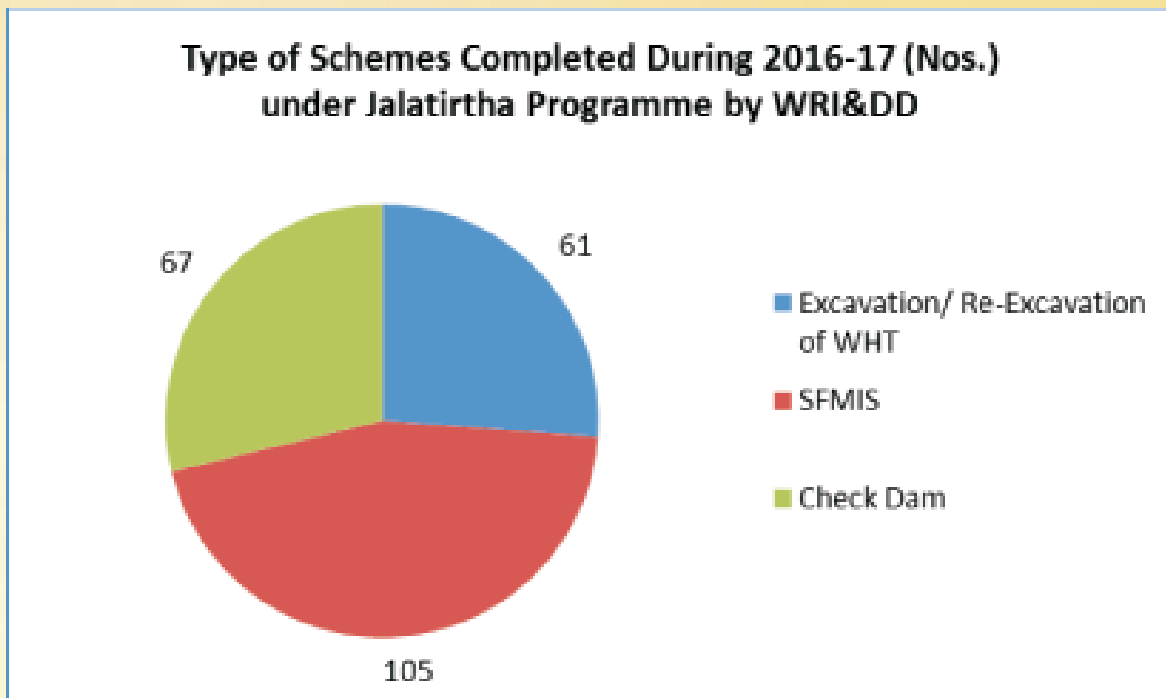
Details of Schemes completed during 2016-17 under Jalatirtha Programme by WRI&DD:



District wise Irrigation Potential (Ha.) Created during 2016-17 under Jalatirtha Programme by WRI&DD:



Type of Schemes completed during 2016-17 under Jalatirtha Programme by WRI&DD:



DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

Status of Minor Irrigation Installation

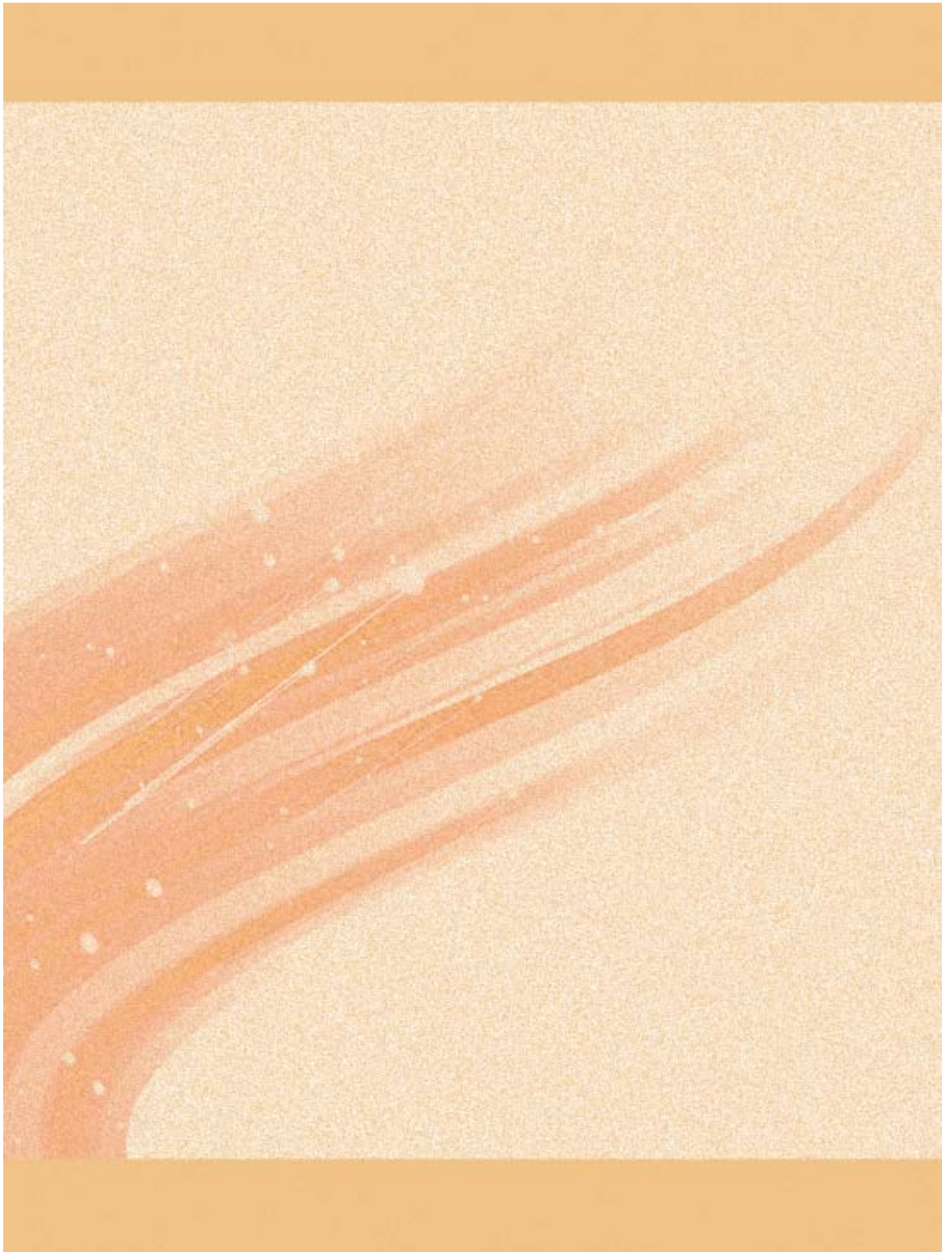
Status of Minor Irrigation Installation set up by Water Resources Investigation & Development Department as on 31.3.2017 is given in Appendix.

Water Rates Realisation against Minor Irrigation Installations operated by WRDD

Realisation of water rates against supply of irrigation water from Minor Irrigation installations of Water Resources Development Directorate are collected by the different Block Development Office in the State. In practice the beneficiary farmers from respective scheme deposit the required amount of water rates in advance directly to the Block Development Offices. On production on the prepaid receipt issued by the Block Development Offices, Operators record the same in their log books and release water accordingly. Water rates so collected by the Block Development Offices are deposited into the Government Account in the corresponding revenue receipt head and the actual state level figure is reflected in the Revenue Receipts accordingly.

PARTICIPATORY IRRIGATION MANAGEMENT :

Minor Irrigation Sector is the key area where the beneficiaries (above 80% small & marginal farmers) are actively associated with all the stages of development under the leadership of Panchayat. Field channels in the command areas of the major river valley projects are also being managed in association with the Panchayat bodies with full participation of beneficiaries. In West Bengal Panchayat are actively involved in implementation of all minor irrigation schemes right from site selection to construction and ultimately in operation, maintenance and management. After construction open dug wells, low to high capacity tube wells and major, midi and mini River Lift Irrigation Schemes are handed over to the beneficiaries of the schemes through Panchayat Samities for its operation, maintenance and management. The Panchayat Samities have been authorized to fix water rates and realize water rates from beneficiaries to meet operation and maintenance cost in full. Status of handed over Minor Irrigation schemes up to 31.3.2017 by Department of Water Resources Investigation & Development is given in Appendix.



CHAPTER- IV

COMMAND AREA DEVELOPMENT AUTHORITY



CHAPTER - IV

COMMAND AREA DEVELOPMENT AUTHORITY

India is blessed with a good amount of average rainfall but the challenge lies in utilizing the water resources to cultivate the sustainable agriculture by proper distribution of the water through the canal and channel networks. Due to poor irrigation network system, a major portion of India is dependent on rainfed irrigation where khariff crops can only be grown which puts a limitation to the total cereal production of the country.

So immediately after the independence, numbers of major irrigation projects were taken up and implemented during different plan periods to bring maximum possible agricultural land within assured irrigation. By early seventies, most of these major irrigation projects were completed which created a good number of culturable command area under irrigation. But to feed the huge population of India, agricultural production and productivity needed further improvement by quality enhancement and utilize additional area under assured irrigation within the command area of the major irrigation projects.

After critical overview and in-depth analysis of the performances of the completed major irrigation projects by Irrigation Commission (1972), Committee of Irrigation Ministers (1973) and Planning Commission (1973) revealed that there were large gaps between irrigation potential created and irrigation potential utilized in case of these projects and the crop yields also were much low compared to those of other countries. Further analysis indicated that the anomaly developed due to lack of integrated approach in development and management of the irrigated command areas. The Irrigation Commission recommended systematic development of the command areas through irrigated management of all agricultural activities within the command areas.

These considerations led to the concept of comprehensive command area development programme by bringing in various agricultural activities under one authority. Finally, in 1974-75 Command Area Development Programme was launched by Govt. of India, with the objective to bridge the gap between irrigation potential created and that utilized through micro level infrastructure development and efficient farm water management to enhance agricultural production and productivity and to improve socio-economic conditions of the farmers. Again the Command Area Development (CAD) Programme in a restructured form called as Command Area Development and Water Management (CADWM)) Programme is being implemented with effect from 01.04.2004, covers a great deal of activities for bringing in greater efficiencies in land water and crop management.

In West Bengal, CAD Programme was started from 1974-75 in Kangsabati, Mayurakshi and Damodar Valley Projects. The original irrigation projects were completed in all these cases. Teesta Barrage Project was started in the eighties decade and is still ongoing. Presently the Project has been declared as a National Project and 1st Sub stage of Stage I of Phase-I of the Project is expected to be completed by 2014-15. The Teesta Command Area Development Authority was set up in 1999-2000.

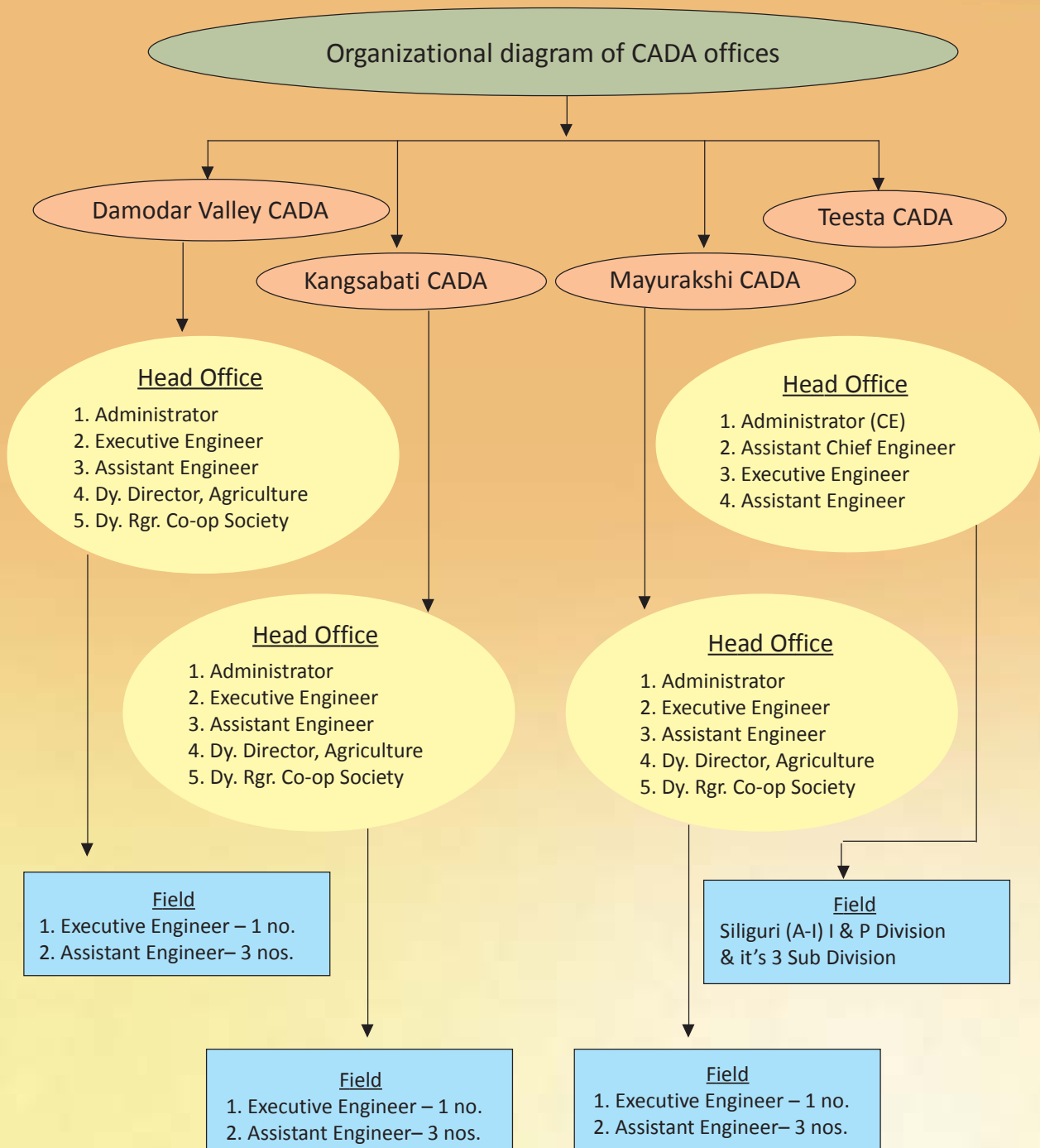
OBJECTIVE :

The Irrigation Commission during the review of performances of the major irrigation projects identified that the command areas of all the major irrigation projects suffer from number of deficiencies, specifically for the following reasons, specially (i) lack of adequate delivery systems which should reach upto the farmers' fields, (ii) lack of proper land shaping and land leveling, (iii) absence of drainage, (iv) proper timing of water supply, (v) wastage through seepage etc. The lack of comprehensive infrastructural supports extension, demonstration, adequate communication, marketing facilities, scientific crop planning, supply of inputs such as credit, fertilizers, pesticides, machineries, seeds etc. are also important areas that call for improvement for minimizing the gaps.

It was considered that proper utilization of water and all round improvement of other agricultural activities as well as adoption of suitable cropping pattern through integrated and systematic management of available irrigation water can bring about desired level of production in the command areas. Thus the main objective of CADWM programme envisages, among other activities, execution of (i) On-Farm Development (OFD) works comprising of construction of field channels and also land leveling/shaping and realignment of field boundaries where necessary, with a minimum of 10% beneficiary contribution (of the total cost), (ii) Construction of Field, Intermediate and Link Drains, (iii) Reclamation of waterlogged areas, (iv) Correction of system deficiencies in systems of capacity up to 4.25 cumec (150 cusec) such as cleaning of the channels by de-silting and weeding, raising earthwork in embankments or dressing the bed and side-slopes to the design standard and removing undercuts in hard strata, strengthening of banks in filling sections, restoring bed gradients, replacing and painting metal parts in gates and hoists, making control and measuring devices fully functional etc. for enforcement of Warabandi alongwith with a minimum 10% contribution (of the total cost), Adaptive Trials and Demonstration, Training, Monitoring and Evaluation etc. in other words, the programme endeavors to implement all available technologies coordinated by a single authority for scientific management of land, water and crop for sustainable optimum agricultural production.

ORGANIZATION :

For each of the project, a field level organization was set up as Command Area Development Authority headed by an Administrator. The organization includes experts from different disciplines such as agriculture, cooperative, irrigation etc. Organisation set up sanctioned for Teesta CADA, does not include experts from different disciplines probably because the original project is in initial stage and work load of CAD is likely to pick up gradually. Project level organizational structure of each CAD is furnished in separate page.



TARGETS & ACHIEVEMENTS :

The Culturable Command areas under the Damodar Valley, Kangsabati, Mayurakshi and Teesta CADAs in total as well as district- wise are as follows:

Damodar Valley CAD Project

The Culturable Command Area of the Project is 3,93,964 ha. comprising the districts Burdwan, Hoogly, Bankura and Howrah with the areas of 2,59,759 ha., 94,934 ha., 29,409 ha. and 9,862 ha. respectively.

Kangsabati CAD Project

The Culturable Command Area of the Project is 3,40,703 ha. Covering the districts Bankura, Hoogly and West Midnapore with the command areas of 1,53,462 ha, 18,799 ha. and 1,68,442 ha. respectively.

Mayurakshi CAD Project

This project has a total Culturable Command Area of 2,26,720 ha. covering the districts Birbhum, Murshidabad and Burdwan with the areas of 1,60,931 ha., 49,797 ha. and 15,992 ha. respectively.

Teesta CAD Project

Teesta CAD programme was started in 1999-2000 when construction of Teesta Barrage project was yet to be completed. In Teesta CAD project the Command Area Development activities are taken up in the command areas where irrigation water is being released from the original project. The project has a total Culturable Command Area of 3,42,000 ha. in the Sub stage I of Stage I of Phase I of the major irrigation project, which is still going on.

CADA- wise achievement during the year 2016-17 is depicted below:

Sl. No.	Activities	DVCADA	KCADA	MCADA	TCADA	Total
1	Construction of field channels	235	103	-	105	443

A summary of activities under CAD programmes in West Bengal from inception to the end of 2016-17 is furnished below in tabular form

Sl. No.	Activities	Achievement upto 2014-15 (ha)				Total
		DVCADA	KCADA	MCADA	TCADA	
1	Construction of field channels	52,287	86,383	32,440	4,651	1,75,761
2	Other activities including Development of G.W. structures	12,759	10,211	14,312	-	37,282
Total		65,046	96,594	46,752	4,651	2,13,043

IMPACT OF CADA ACTIVITIES :

Monitoring and Evaluation studies on the impact of CADA activities were carried out in different blocks of West Bengal by Central Water Commission as well as the Evaluation Wing under the Department of Agriculture, Govt. of West Bengal. From the Evaluation Studies, the following socio- economic changes are noticed in general :

1. Sustainable increase or change in productivity of agricultural crops
2. Increase in cropping intensity in field channel area
3. Diversification in crop production scenario
4. Increase in average farm business income
5. Employment generation in agricultural sector.
6. Change of the average asset base
7. Changes in family labour use pattern
8. People's participation in CAD works which develop sense of ownership leading to better maintenance of assets created



Construction of Field channel scheme at mouza- Patharmari, Piasala G.P. under P.S.- Garbeta-II



CHAPTER- V

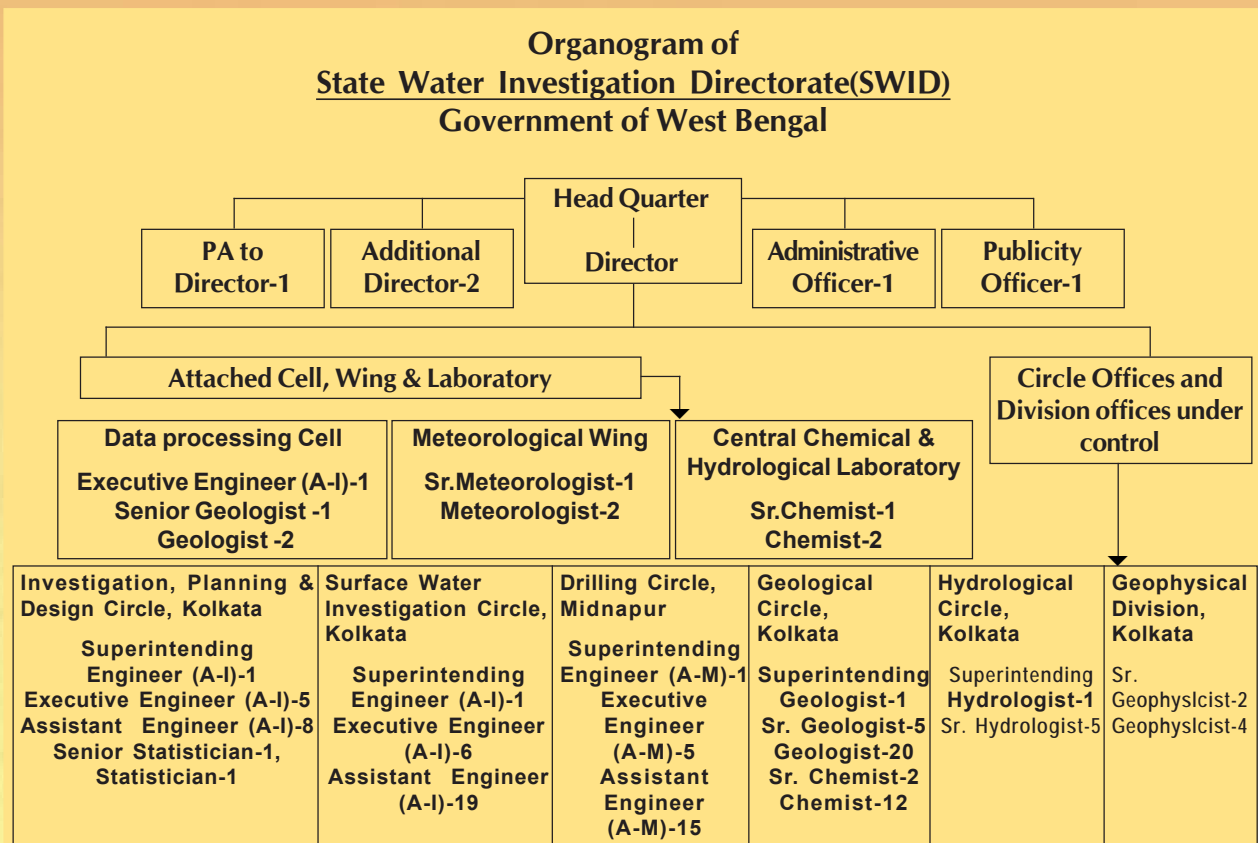
STATE WATER INVESTIGATION DIRECTORATE



CHAPTER - V

STATE WATER INVESTIGATION DIRECTORATE

State Water Investigation Directorate (SWID), an independent Directorate under the **Water Resources, Investigation & Development Department**, Government of West Bengal, is headed by the Director assisted by Engineering Wing, Geological Wing, Hydrological Wing, Meteorological Wing, Chemical Wing, Data Processing, Storage & Retrieval Wing, a Geophysical unit, to carry out investigation and assessment of water resources both in quantity & quality of the State. It also shares expertise with various government developmental agencies in various ground water and surface water projects for agriculture, industrial and drinking water development in the State including augmentation of water resources through implementation of various conservation/artificial recharge schemes.



CATEGORISATION OF BLOCKS

SWID in close association with CGWB assesses the block wise dynamic ground water resources of the State. Out of 341 blocks in West Bengal, the dynamic Ground Water Resources of 269 blocks have been assessed, leaving aside 72 blocks (59 blocks in coastal saline track where ground water predominantly occurs in confined conditions, and 13 blocks in hilly areas where slope is more than 20 %). As per latest assessment, category wise number of blocks after assessment on the basis of abstraction & significant long term decline works out to be 38 blocks falls under 'Semi-critical' category, and remaining 231 blocks fall under 'Safe' category.

SI No	Name of the District	Semi-Critical
1	Burdwan	6
2	Birbhum	4
3	Hooghly	2
4	Maldah	2
6	PurbaMedinipur	1
7	Murshidabad	17
8	Nadia	6
	Total	38

**List of "Semi-Critical" Blocks of the State published on December 2011
(Assessed as per GEC '97 Norms)**

SI No	District	SI No	Block	Category
1	Murshidabad	1	Bharatpur-I	Semi-Critical
2		2	Bharatpur-II	Semi-Critical
3		3	Burwan	Semi-Critical
4		4	Berhampore	Semi-Critical
5		5	Bhagwangola-I	Semi-Critical
6		6	Bhagwangola-II	Semi-Critical
7		7	Domkal	Semi-Critical
8		8	Hariharpara	Semi-Critical
9		9	Jalangi	Semi-Critical
10		10	Lalgola	Semi-Critical
11		11	Murshidabad-Jiaganj	Semi-Critical
12		12	Nabagram	Semi-Critical
13		13	Nowda	Semi-Critical
14		14	Raninagar-I	Semi-Critical
15		15	Raninagar-II	Semi-Critical
16		16	Sagardighi	Semi-Critical
17		17	Suti-II	Semi-Critical
18	Malda	1	Harishchandrapur-II	Semi-Critical
19		2	Kaliachak-I	Semi-Critical
20	Nadia	1	Chapra	Semi-Critical
21		2	Hanskhali	Semi-Critical
22		3	Karimpur-I	Semi-Critical

DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

SI No	District	SI No	Block	Category
23		4	Karimpur-II	Semi-Critical
24		5	Tehatta-I	Semi-Critical
25		6	Tehatta-II	Semi-Critical
26	Hooghly	1	Pandua	Semi-Critical
27		2	Goghat - I	Semi-Critical
28	Burdwan	1	Bhatar	Semi-Critical
29		2	Khetugram-I	Semi-Critical
30		3	Magalkote	Semi-Critical
31		4	Memari-II	Semi-Critical
32		5	Monteswar	Semi-Critical
33		6	Purbasthali-II	Semi-Critical
34	Birbhum	1	Murarai-II	Semi-Critical
35		2	Nalhati-II	Semi-Critical
36		3	Nanoor	Semi-Critical
37		4	Rampurhat-II	Semi-Critical
38	Purba Medinipur	1	Moyna	Semi-Critical

List of Blocks having Salinity problem in Groundwater in different Districts of the State

SI No	District	SI No	Block	SI No	District	SI No	Block
1	South 24-Parganas	1	Baruipur	30	North 24 Parganas	1	Hasnabad
2		2	Basanti	31		2	Hingalganj
3		3	Bhangore-I	32		3	Minakhan
4		4	Bhangore-II	33		4	Sandeshkhali-I
5		5	Bishnupur-I	34		5	Sandeshkhali-II
6		6	Bishnupur-II	35	Howrah	1	Bagnan-I
7		7	Budge Budge-I	36		2	Bagnan-II
8		8	Budge Budge-II	37		3	Bally-Jagacha
9		9	Canning-I	38		4	Panchla
10		10	Canning-II	39		5	Sankrail
11		11	Diamond Harbour-I	40		6	Shyampur-I
12		12	Diamond Harbour-II	41		7	Shyampur-II
13		13	Falta	42		8	Uluberia-I
14		14	Gosaba	43		9	Uluberia-II

SI No	District	SI No	Block	SI No	District	SI No	Block
15		15	Jaynagar-I	44	Purba Medinipur	1	Contai-I
16		16	Jayangar-II	45		2	Contai-II
17		17	Kakdwip	46		3	Contai-III
18		18	Kulpi	47		4	Haldia
19		19	Kultali	48		5	Khejuri-I
20		20	Mandir Bazar	49		6	Khejuri-II
21		21	Mathurapur-I	50		7	Mahishadal
22		22	Mathurapur-II	51		8	Nandakumar
23		23	Magrahat-I	52		9	Nandigram-I
24		24	Magrahat-II	53		10	Nandigram-II
25		25	Namkhana	54		11	Nandigram-III
26		26	Patharpratima	55		12	Ramnagar-I
27		27	Sagar	56		13	Ramnagar-II
28		28	Sonarpur	57		14	SahidMatangini
29		29	Thakurpukur- Mahestala	58 59		15	Sutahata
						16	Tamluk

List of Hilly Blocks in the District of Darjeeling and Jalpaiguri

SI No	District	SI No	Block	SI No	District	SI No	Block
1	Darjeeling	1	Darjiling Pulbazar	9	Jalpaiguri	1	Kalchini
2		2	Garubathan	10		2	Madarihat
3		3	Jore Bungalow- Sukhia	11		3	Mal
4		4	Kalimpong-I	12		4	Matiali
5		5	Kalimpong-II	13		5	Nagrakata
6		6	Kurseong				
7		7	Mirik				
8		8	RangliRangliot				

DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

Periodical Monitoring of Ground Water levels

Ground water is a dynamic resource, which replenishes periodically with precipitation every year. To have a watch on the behavior of ground water, there is a system of periodical monitoring of ground water level in four scheduled periods (Jan./Apr./Aug./Nov.) in a year through more than 2000 odd Permanent Hydrograph Stations (PHS) scattered over different parts of the State. On the basis of such data, the periodical reports were compiled and circulated to aware the developmental agencies and masses as a whole. This data is very helpful in predicting the ground water situation in different regions as well as long term prospective planning.

District wise distribution of Permanent Hydrograph Station is given below :-

Sl. No.	District	Number of Permanent Hydrograph Station
1	Paschim Medinipur	216
2	Purba Medinipur	232
3	Bankura	238
4	Purulia	133
5	Howrah	87
6	Birbhum	82
7	Burdwan	203
8	Kolkata	65
9	Hooghly	129
10	North 24 Parganas	125
11	South 24 Parganas	79
12	Nadia	191
13	Murshidabad	114
14	Malda	43
15	Uttar and Dakshin Dinajpur	42 + 36
16	Darjeeling	49
17	Jalpaiguri	70
18	Coochbehar	54
	Total	2188

Similarly, to watch over the behaviour of the ground water quality, there is a system of periodical collection and analysis of water samples, twice a year (Nov./Apr.) from the existing Permanent Hydrograph Stations or from nearby wells of more or less same depth. The data is systematically analyzed and time to time periodical reports are prepared and informed to the concerned users. Apart from the phenomenon of lowering of ground water level, which manifested in other areas of the state, chemical degradation of the ground water took place in the form of arsenic and fluoride contamination in localized pockets.

On the basis of a preliminary reconnaissance survey, 81 (eighty-one) blocks in the state have been identified where traces of arsenic above standard value were observed in some scattered tube wells in parts of these blocks. Similarly presence of fluoride above standard value was also observed in parts of 49 (forty-nine) blocks of the state.

Names of Arsenic and Fluoride affected Blocks in ground water in different districts in West Bengal are given below:-

List of Fluoride Affected Blocks in Groundwater of different Districts of West Bengal

Sl No	District	Sl No	Block	Sl No	District	Sl No	Block	
1	Bankura	1	Bankura-I	29	Malda	1	Bamangola	
2		2	Barjora	30		2	Englishbazar	
3		3	Bishnupur	31		3	Habibpur	
4		4	Chhatna	32		4	Ratua-I	
5		Birbhum	5	Gangajalghati	33	Purulia	1	Arsha
6			6	Mejhia	34		2	Barabazar
7			7	Partrsayer	35		3	Bandwan
8			8	Ranibundh	36		4	Hura
9			9	Saltora	37		5	Jhalda-I
10			10	Simlapal	38		6	Jhalda-II
11			11	Sonamukhi	39		7	Kashipur
12			12	Taldangra	40		8	Manbazar-I
13	Dakshin Dinajpur		1	Dubrajpur	41		9	Neturia
14			2	Khoyrasole	42		10	Para
15			3	Md.bazar	43		11	Purulia-I
16			4	Murarai - I	44		12	Purulia-II
17		5	Nalhati - I	45	13		Raghunathpur-I	
18		6	Rajnagar	46	14		Raghunathpur-II	
19		7	Rampurhat - I	47	15		Santuri	
20		8	Suri - I	48	1	Sonarpur		
21		9	Suri - II	49	1	Itahar		
22	Dakshin Dinajpur	1	Balurghat					
23		2	Banshihari					
24		3	Gangarampur					
25		4	Kumarganj					
26		5	Kushmandi					
27		6	Tapan					
28		7	Harirampur					

DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

List of Arsenic Affected Blocks in Groundwater of different Districts of West Bengal

SI No	District	SI No	Block	SI No	District	SI No	Block		
1	24 Parganas(N)	1	Habra-I	42	24 Parganas(S)	1	Baruipur		
2		2	Habra-II	43		2	Bhangar-I		
3		3	Barasat-I	44		3	Bhangar-II		
4		4	Barasat-II	45		4	Bishnupur-I		
5		5	Amdanga	46		5	Bishnupur-II		
6		6	Deganga	47		6	Sonarpur		
7		7	Rajarhat	48		7	Budge Budge-II		
8		8	Bagdah	49		8	Jaynagar-I		
9		9	Bangaon	50		9	Basanti		
10		10	Gaighata	51		10	Magrahat-II		
11			11	Baduria	52	Malda	1	Manikchok	
12			12	Haroa	53		2	English Bazar	
13			13	Minakhan	54		3	Kaliachak-I	
14			14	Swarupnagar	55		4	Kaliachak-II	
15			15	Hasnabad	56		5	Kaliachak-III	
16			16	Sandeshkhali-II	57		6	Ratua-I	
17			17	Basirhat-I	58		7	Ratua-II	
18				18	Basirhat-II	59	Murshidabad	1	Beldanga-I
19				19	Barrackpur-II	60		2	Beldanga-II
20				20	Barrackpur-I	61		3	Naoda
21	Nadia	1	Chakdaha	62	4	Hariharpara			
22		2	Chapra	63	5	Domkol			
23		3	Hanskhali	64	6	Baharampur			
24		4	Haringhata	65	7	Jalangi			
25		5	Kaligunj	66	8	Mur-Jiaganj			
26		6	Karimpur-I	67	9	Raninagar-I			
27		7	Karimpur-II	68	10	Raninagar-II			
28		8	Krishnaganj	69	11	Lalgola			
29		9	Krishnagar-I	70	12	Samserganj			
30		10	Krishnagar-II	71	13	Bhagabangola-I			

SI No	District	SI No	Block	SI No	District	SI No	Block
31		11	Nabadwip	72		14	Bhagabangola-II
32		12	Nakashipara	73		15	Farakka
33		13	Ranaghat-I	74		16	Suti-I
34		14	Ranaghat-II	75		17	Suti -II
35		15	Shantipur	76		18	Raghunathganj-II
36		16	Tehatta-I	77	Burdaman	1	Purbasthali-I
37		17	Tehatta-II	78		2	Purbasthali-II
38	Howrah	1	Shyampur-II	79		3	Katwa-I
39		2	Uluberia-II	80		4	Katwa-II
40		3	Balijagacha	81		5	Kalna-II
41	Hooghly	1	Balagarh				

Rainfall is the most fundamental climate element required as a basic parameter for proper planning in Agricultural Irrigation, land use planning and selection of cropping pattern. Agriculture in West Bengal depends primarily on rainfall. Expected rainfall in any given area in any given period is an essential consideration for planning and operation in these fields.

SWID has as many as nineteen self recording Rain Guage Stations (RGS) located in eighteen districts and in Kolkata of West Bengal. In addition, there are two Automatic Weather Stations located at Kolkata and Malda, with provisions of collection of data on Rainfall, Temperature, Humidity, Wind Direction, Wind Speed and Sun Shine Recording. The data is systematically collected and is being used for predicting ground water condition as well as utilized in assessing the ground water potential.

GROUND WATER LEGISLATION

For proper utilization of ground water resources through effective management, control and regulation, an Act titled '**West Bengal Ground Water Resources (Management, Control & Regulation) Act, 2005**' was enacted and Rules thereof was finalized and came into force with effect from 1st August 2006. In the sub-section 5 of section 3 of the West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005, the State Water Investigation Directorate (SWID) has been declared as the functional organ of the State Level Ground Water Resources Development authority. The functions of the SWID involve investigation and assessment of the ground water resources of the state and provide data and findings to the State Level Ground Water Resources Development authority for framing appropriate policy and guide lines, so that the same may be followed for effective control and regulation of the ground water resources. SWID is also responsible for implementation of the **West Bengal Ground Water Resources (Management, Control & Regulation) Act**, The act stipulates obtaining mandatory permit for installation of ground water extraction structures operated by engine or motor driven pump and mandatory certificate of registration for all such structures which existed before the act came into force. Issue of permit will require payment of prescribed fees whereas registration has been made free of cost.

DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

The main objective of this Act is to regulate the use of Ground Water in a specific and scientific manner.

Accordingly this Act stipulates two systems:-

1. **"Registration of Existing Wells"** sunk prior to the date of coming into force of the Act, i.e. 15 th September, 2005 which amended vide No: 139 dated 13 th September, 2011.
2. Issue of **"Permit for new Wells"** on and from 15 th September, 2005. Wells without any device of Mechanical/ Electrical Pumping system does not require any certification. Further criterion for exemption notified vide No: 189 dated 3 rd November, 2011, which permits sinking of wells upto the discharge limit of 30 meter cube per hour using 5 HP Pumps in safe blocks without obtaining permit. Wells without any device of Mechanical/ Electrical Pumping system does not require any certification.

3(three) different tiers of authorities as provided in the Act are established by the Government in the water Resources Investigation & Development Department. These authorities are:-

1. State Level Ground Water Resources Development Authority at Kolkata.
2. Corporation Level Ground Water Resources Development Authority at Kolkata for the Kolkata Municipal Corporation Area.
3. District Level Ground Water Resources Development Authority - 1 (one) in each of the 19 (nineteen) districts of the State.

In the State Level Authority, Director, State Water Investigation Directorate (SWID) is the Chairman and Superintending Geologist, State Water Investigation Directorate (SWID) is the Member-Secretary.

In the Corporation Level Authority, the Municipal Commissioner of the Kolkata Municipal Corporation is the Chairman and Superintending Geologist, State Water Investigation Directorate (SWID) is the Member-Secretary.

In the district Level Authority in each district, District Magistrate of the concerned district is the Chairman and Geologist, State Water Investigation Directorate (SWID) is the Member-Secretary.

Besides the Chairman and the Member-Secretary, in each of the three Authorities there are representatives from different user/related Departments as Member.

As per Notification No.1452-L, dated 23rd November,2015 of Kolkata Gazette, Notification No.2037-WI/P/MI/1W-06/2015, dated 21.01.2016 and Notification No.2251-WI/P/MI/1W-06/2015, dated 25.02.2016 of Kolkata Gazette, the following amendments of the West Bengal Ground Water Resources(Management, Control & Regulation) Act, 2005 have been done for fascinating Online Single Window Clearance System(OSWiCS) of Commerce & Industry Department for medium to large scale industries, Govt. of West Bengal, ease of doing business and e-biz.

Application Form for obtaining **"Permit" (Form 1)** will be available from the Office of the Geologist & Member Secretary, of the respective District Level Authority in 18 districts of the State.

Application Form for **"Registration of Existing Wells" (Form 6)** will be available from the respective Block Development Offices where the Well is situated.

Both the application for "**Permit**" & "**Registration of Existing Wells**" will be placed before the DLA meeting for final disposal. The "**Permit**" & "**Registration of Existing Wells**" will be issued by the Office of the Geologist & Member Secretary, of the respective District Level Authority.

PRINCIPAL ACTIVITIES OF SWID

- Periodical monitoring of ground water level fluctuation in different Blocks,
- Periodical Census of Minor Irrigation Schemes,
- Estimation of Ground Water Resources, as per norms of Ground Water Estimation Committee (GEC) of Government of India, jointly with Central Ground Water Board (CGWB).
- Estimation of surface water resources.
- Monitoring of water quality with respect to space and time,
- Delineation of aquifers containing salinity, arsenic, fluoride, iron and other heavy metals beyond permissible limits,
- Exploration of prospect of ground water extraction in problematic areas by sinking Exploratory Tube Wells & Observation Wells and determination of Aquifer Characteristics by Aquifer Performance Tests,
- Implementation of pilot schemes for artificial recharge of ground water,
- Collection, preservation and interpretation of hydro-meteorological data,
- Preparation of District-wise and Block wise hydro-geological maps and water resource maps.
- Geophysical investigation by resistivity method and
- Providing technical assistance to different Government Departments, Semi-Government Organizations, Local Self Bodies, Universities, WBSEB, Banks, individuals and groups of individuals in the matter of withdrawal and use of surface and ground water resources.
- Implementation of 'West Bengal Ground Water Resources (Management, Control & Regulation) Act, 2005' in the State of West Bengal.

SWID has to carry out the following activities in routine manner throughout the year, for collection of different hydro geological data essential for assessment of ground water resources in the State: -

- Monitoring of ground water level, from existing network of more than 2000 permanent hydrograph stations. Periodical monitoring of ground water level fluctuation in different Blocks, through out the State in the month of January, April, August & November (4 times in a year).
- Collection of ground water samples for qualitative assessment. Monitoring of water quality with respect to space and time, through out the State in the month of August & November (2 times in a year).
- Collection of meteorological data from different weather stations set up in the districts.
- Periodical washing and cleaning of the observation wells in the hydrograph stations for ensuring continuity of hydraulic connection with the surrounding ground water aquifers, so that the water level data represent the true condition prevailing in the aquifers.

DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

- Inspection and verification of applications for issuance of permit and certificate of registration for proper and judicious implementation of the provisions of the '**West Bengal Ground Water Resources (Management, Control & Regulation) Act, 2005**'.

These routine types of works have been accommodated under non-plan work head.

Apart from the Non-plan head of works in the financial year 2016-17 the budgetary allocation for works related to this Directorate and utilization of fund are shown below as follows :-

Rupees in lakh

Year	Budget allocation	Revalidation	New Scheme	Total Fund	Utilized Amount
2016-17	790.00	329.34	326.50	655.84	515.97

- "**Jal Dharo Jal Bharo**" Programme which aims towards building citizen's awareness towards rain water conservation and efficient water-use in irrigation.
- Schemes on Installation titled on "**Roof Top Rain Water Harvesting, Conservation and Artificial Recharge to Ground Water**" in the district of Purba Midnapore(5 no.), Paschim Midnapore (2 no.), Nadia (3 no.), Howrah(2 no.), North 24-Parganas(1 no.), South 24-Parganas (1 no.), Hooghly(1 no.), Dakshin Dinajpur(1 no.), Murshidabad(1 no.) and Kolkata MC area(1 no.). , total 18 no. scheme completed during Financial year 2016-17
- Schemes titled on "Rain Water Harvesting, Conservation and Artificial Recharge to Ground Water" for Implementation of **Percolation tanks** in the district of in the district of Malda (4 no.), and Kolkata MC area (8 no.), total 12 no. completed during the financial year 2016-2017.
- For proper utilization of ground water resources through effective management, control and regulation, an Act titled '**West Bengal Ground Water Resources (Management, Control & Regulation) Act, 2005**' was enacted and Rules thereof was finalized and came into force with effect from 1st August 2006. During the financial year **2016-2017**, Registration of existing tubewell and Permits for new ground water structures and the collection of revenue for such issuances of permits and penalties for violation of ground water act, if any are shown below as follows :-

Year	No. of Registration for existing tubewell (in No.)	No. of Permit Issued for new tubewell (in No.)	Revenue Collected (in Rs.)
2016-17	Nil	621	20,17,000.00

Mass Awareness

- Mass awareness campaign of "**Jal Dharo Jal Bharo**" programme has already been launched in Kolkata areas and different districts of the State to aware the people after propagating ideas on water conservation, artificial recharge, efficient use of Irrigation water, quality preservation by controlling pollution and above all their active participation to mitigate the water crisis, through daily leading newspapers and display of hoarding the same at different locations of Kolkata areas and different districts of the state.

- A Pavilion in "**Subhas Mela**" showing different activities of the Department of Water Resources Investigation & Development Govt. of West Bengal, has to be framed and displayed at Kankurgachi, APC Park, held on from 23.01.2017, which continues to one month. The main objective of such exhibition is to strengthen the awareness campaign especially in urban area and to open the door for interaction with NGO's, local authority through displaying different type of model, digital photograph, banners etc.
- '**Mati Utsab**' organized in the financial year 2016-17 by Government of West Bengal at Burdwan Agricultural Farm to facilitate the people of Burdwan, Bankura, Birbhum District. A portrait of natural village scene has been exhibited interlinking different wings of Agriculture, fisheries, Animal Husbandry, Water Resources, forestry etc. Department took initiatives to take up different mass awareness campaign after propagating ideas on water conservation, artificial recharge, efficient use of irrigation water.

CHAPTER- VI

WEST BENGAL AGRO INDUSTRIES CORPORATION LTD.



CHAPTER - VI

WEST BENGAL AGRO INDUSTRIES CORPORATION LTD.

For modernization of Agriculture and to increase the Agriculture production, Government of India took initiative for setting up Agro Industries Corporation in various States and accordingly **West Bengal Agro Industries Corporation Ltd. (WBAIC)** was established in the State of West Bengal. WBAIC was incorporated under the Companies Act, 1956 on 16th August, 1968. Earlier, Govt. of India and Govt. of West Bengal had contributed towards paid-up share capital. Later, the entire paid-up share capital held by Govt. of India was transferred in favour of Govt. of West Bengal. The entire paid-up equity share capital is presently held by the Govt. of West Bengal. This Corporation is now under the administrative control of **Water Resources Investigation & Development Department, Government of West Bengal**. The capital structure of WBAIC as on 31.03.17 stands as follows:-

Authorized Capital	:	Rs. 50,00,00,000 (5000000 Equity shares of Rs.100/- each)
Paid-up Capital	:	Rs. 8,40,52,000 (840520 Equity shares of Rs.100/- each)

MANAGEMENT

The Corporation is run and managed by a Board of Directors under the Chairmanship of Shri Pradip Kumar Mazumdar with effect from 01-08-2016. All the Directors including Managing Director and also the Chairman have been appointed by the Govt. of West Bengal. The total manpower strength of the Corporation is mentioned as follows as on 31-03-2017.

Permanent Employee	-	(including Managing Director) - 157
Contractual Employee	-	(including Re-employed 05 nos.) - 89
Contractual (O.S.S)	-	WBAIC - 62 DPMU - 34 WRDD - 88

The total manpower strength of the Corporation includes qualified Engineers, professionals in different fields and well trained technical and non-technical personnel. The Company is having district offices in all the districts of the State with appropriate infrastructure.

COMMERCIAL OPERATION

The Commercial Operations of the Corporation are mainly entrusted with three operating divisions as follows:

- Project Division
- Agronomy Division
- Agril Engineering Division

The **Project Division** supplies the following items:

- a. Tractors of different manufacturers, different models, different H. P
- b. 'KAMCO' brand Power Tiller, Power Reaper and Accessories
- c. Soil Testing Instrument and Laboratory Equipments
- d. Tractor drawn implements such as Trailer, Cultivator, Disc Harrow, Disc Plough, Cesspool Emptier, Container Carrier, Water Tanker, Dumper, Bulldozer and Excavator Loader etc.
- e. Agriculture implements/equipment's such as Sprayer, Thresher, Seed Drill, Paddy Weeder, Wheel Hoe etc.
- f. Seed Bins of different capacities.
- g. Spare parts for Power Tillers.
- h. Garden Tools
- i. Pump-sets of different H. P
- j. Grain age equipment/rearing appliances
- k. Agricultural machinery such as Seed Drier, Seed Treater, Seed Processing Machine

The **Agromony Division** supplies the following items:

- a. Different type of Organic manure of different composition.
- b. Plant growth Hormone and regulator.
- c. Plants and Seedlings.

The **Agri Engineering Division** mainly supplies the following items:

- a. Pump-sets with different capacities such as Diesel Engine, Electro-motor, Submersible etc.
- b. UPVC Pipe with different diameter
- c. UPVC accessories
- d. UPVC Hose Pipe, Lay Flat Hose Pipe
- e. MS ERW and GI Pipe of different diameter
- f. Electricals materials including Water Proof Cable
- g. Steel Wire Rope
- h. Quadruped, Tripod, Column Pipe
- i. Bend of different size
- j. Different Valves such as Sluice Valve, Flap Valve, Alfa-Alfa Valve, NTP Valve, Foot Valve etc.
- k. AC Pressure Pipes and accessories
- l. MS accessories such as Nuts & Bolts, Foundation Bolt, Surge Tank etc.
- m. Flange of different sizes
- n. Brass/Stainless jacketed Strainers
- o. Civil work related Well Construction, Irrigation Channel, Bundh, Road Construction etc.

The Turnover of the Corporation during the year 2016-17 is as follows:

	(Rs. In Lakh)
Sale of AED Division	6,748.08
Civil Work	5,062.00
Sales of Accessories	413.89
Sales of Pipe with Accessories	757.55
Sales of Pumpset (AED)	493.21
Sales of Tender Form	21.43
Sale of Agronomy Division	305.49
<i>Sales of Organic Manure</i>	305.49
Sale of Project Division	3,104.57
Sales of A. C. Machine	0.89
Sales of Agril Implements	1347.72
Sales of Engine for Power Tiller	22.27
Sales of Generator Set (Project)	36.15
Sales of Mini Tiller	14.70
Sales of Power Reaper	9.31
Sales of Power Tillers	987.06
Sales of Pump Sets	320.13
Sales of Scrap Materials	0.88
Sales of Stores & Spare-Parts	223.63
Sales of Tractor, Drawn & Implements	46.21
Sales of Tractors	95.62
Grand Total	10,158.14

The Corporation has diversified its activities in execution of Civil Works under different Govt. schemes namely BEUP, MP LAD, BCWD, PMGSY etc.

The Corporation is planning to establish a Multifunctional Farmers' Hub and suitable Agro based Industries under PPP or any other suitable model with due approval of the Govt.



CHAPTER- VII

WEST BENGAL STATE MINOR IRRIGATION CORPORATION LTD.



CHAPTER - VII

WEST BENGAL STATE MINOR IRRIGATION CORPORATION LTD.

For improvement of agriculture production by exploring the ground/surface water resources and to promote/advance the development of minor irrigation in the state of West Bengal, it was felt necessary to ensure that the farmers of the State to perform different agriculture operations efficiently to increase the agricultural production. Towards these objectives, West Bengal State Minor Irrigation Corporation Ltd. (WBSMIC) was established in the State of West Bengal. WBSMIC was incorporated under the Companies Act, 1956 on 29th January, 1974. This Corporation is under the administrative control of Water Resources Investigation & Development Department, Government of West Bengal. The main objectives as enunciated includes as follows:

1. To erect, improve, install, manage and arrange for operation and working of Tube wells, River Lifts and other Minor Irrigation Projects and supply the manufacture spare parts machinery tools, implements, materials, substance, goods or things of any description which in the opinion of the Company are likely to promote or advance the Development of Minor Irrigation in the State of West Bengal.
2. To take over from the Govt. of West Bengal any existing system of State owned tube wells, river lifts as may be in good working condition along with connected lands buildings, assets, work and any of the Projects connected with the installation, maintenance and operation of such tube wells, with the rights and liabilities of the Govt. of West Bengal so far as they relate to such tube wells, lands, buildings, assets, works or projects.
3. To undertake the installation and construction of tube wells, river lift and other Minor Irrigation Schemes on behalf of private individuals, associations, institutions, Panchayats, Govt. Companies etc.
4. To engage in the processing. erection and sale of River Lifts, Tube wells equipments accessories, spare parts, machinery, plants or any other commercial or industrial products connected therewith.
5. To set up and maintain laboratories, workshops and other works for providing technical guidance and repair facilities as also stock such materials and stores and sell stores concerning tube wells and Minor Irrigation Projects.
6. To provide tube wells equipment's or plants and machinery connected therewith in rental basis to any private individual or association, company or departments.
7. To carry out all kinds of ground water exploration and in particular to quantify the ground water resources in different areas, arrange for systematic exploration, all kinds of survey works and to search for and obtain information in regard to ground water resources and to regulate the installation of deep and shallow tube wells in the state of West Bengal for the development of Minor Irrigation.

8. To provide technical know-how, loans and equipment's for the installation of tube wells to the individuals , associations, companies, institutions. Panchayets and corporations in the State of West Bengal.
9. To set up demonstration farms, to introduce improved and scientific methods of the use of land and utilization of lands water resources.
10. To supply seeds , fertilizers , pesticides and to provide extension service and facilities for mechanized cultivation to the formers.
11. To sell, dispose of transfer, let on lease or hire any undertaking, Project stores, lands, factory, business or any other assets and rights of the company and any Government or company or association or concern or individual on such terms and conditions as may be determined by the company.
12. To promote and operate schemes for the development of Minor Irrigation in the state of West Bengal and for that purpose to prepare and get or cause to be prepared the feasibility reports . detailed project report .market studies, statistics and other relevant information for the establishment of any undertaking and to promote and establish companies and associations for the execution of such projects.
13. To distribute and sell water pumped through the tube wells owned by the company to individuals. Panchayets . companies .corporations. Governments , and other concerns at such rates, terms and conditions as may be determined by the company from time to time and to realize the charges therefore along with penalties, surcharges, if any.
14. To acquire lands and other properties and to develop them suitably for the purpose of the company and to make them available on such terms and conditions as may be agreed upon, to any Government , individuals , firms company, association or concern.
15. To carry on the business of engineering and manufacturing of tube wells and other machinery . plants implements and tools . equipments, apparatus, accessories and other similar goods and the production , manufacture and preparation of any other materials which may be usefully or combined with the manufacturing business of the company. A status of Minor Irrigation installations in the state of West Bengal is shown in Annexure-A attached herewith.

The Status of MI Installations spreading throughout West Bengal

Sl. No.	District	Minor Irrigation Installations set up and operated by WBSMIC Ltd., as on 31.03.2017		Handed Over Minor Irrigation Installations by WBSMIC Ltd., as on 31.03.2017	
		DTW	RLI	DTW	RLI
1	Coochbehar	33	8	×	×
2	Alipurduar	4	6	×	×
3	Jalpaiguri	×	3	×	×
4	Darjeeling (Slg)	×	×	×	×
5	Kalimpong	×	×	×	×
6	U. Dinajpur	5	19	×	×
7	D. Dinajpur	15	10	×	×
8	Malda	26	8	×	×
9	Murshidabad	34	10	2	×
10	Nadia	58	6	3	×
11	24-pgs (N)	36	16	18	×
12	24-pgs (S)	3	1	×	×
13	Howrah	28	9	6	×
14	Hooghly	75	7	8	1
15	Paschim Burdwan	2	4	×	×
16	Purba Burdwan	31	12	31	6
17	Birbhum	10	18	×	×
18	Purba Medinipur	40	4	3	1
19	Paschim Medinipur	38	20	3	6
20	Jhargram	2	6	2	1
21	Bankura	19	18	2	×
22	Purulia	×	8	×	×
	Total	459	193	78	15



APPENDIX



Water Resources Investigation & Development Department

Rs. In Lakh

Demand No. 55

Annual Plan Budget Allocation

Component	Budget Estimate 2016-2017	Revised Estimate 2016-2017	Released by Finance Dept. 2016-2017	Actuals (2016-17)
WRDD (CORE)	7002.23	10461.73	6272.04	4608.11
RRR (State Share)	1.00	1.00	0.76	
SWID	790.00	790.00	695.13	515.97
WBSMICAL	400.00	400.00	199.84	198.04
GTA	180.00	180.00	135.00	135.00
CAD&WM (Central Share)	1520.00	800.00	1134.25	578.12
TANK IMPROVEMENT, BORO BUNDH & SECTT. ECO. SER.	2.00	2.00	1.51	0.00
National Mission (OCASPS) (StateShare)	25.00	1.00	0.00	0.00
TOTAL CORE PLAN	9920.23	12635.73	8438.53	6035.23
JALATIRTHA	12000.00	15373.05	14692.03	12423.50
CAD&WM (State Share) AIBP		744.00		
AIBP (CADA)	1135.05	1138.05	963.21	834.59
AIBP & OTHER	10.00	10.00		
TOTAL AIBP & OTHER	1145.05	1892.05	963.21	834.59
EAP (WBADMIP)	0.70	656.60	651.60	166.62
EAP (WBADMIP)	36000.00	25615.81	24269.33	21272.98
TOTAL EAP (WBADMIP)	36000.70	26272.41	24920.93	21439.60
RIDF	4500.00	20000.00	21686.20	15423.36
RKVY (50:50) (State Share)	1500.00	1500.00	441.00	438.95
RKVY(50:50) (Central Share)	1500.00	1500.00	943.00	940.02
Support for Statistical Strengthening (Central Share){OCASPS}{WII}	41.56	41.26	16.22	28.31
National Mission (OCASPS) (Central Share)	762.46	1.00		
TOTAL (SP)	67370.00	79215.50	72101.12	57563.56
CN-Central Sector (New Schemes)				
5th Census of Minor Irrigation Schemes	91.47	92.88	1.14	1.14
World Bank Assistance National Hydrology Project (Phase-III)	250.00	1028.00	72.90	0.00

DISTRICT-WISE STATUS OF HANDED OVER OF MINOR IRRIGATION SCHEMES OF WRI&DD AS ON 31.03.2017

As on
31.03.17

PROVISIONAL

SL. NO.	DISTRICT	DTW			STW			LDTW			Major RLI			MINI RLI	WHT/RWHT/REXAV	PDW			ODW	SPRINKLER			HYDRAM	DRIP No. of Community RLI Scheme	CHECK DAM	MIT	FARM POND	WDS	Total No. of H.O. schemes				
		WRD	WBSMIC	TOTAL	HDTW	MDTW	DIESEL	ELEC	SOLAR	TOTAL	LDTW	LDTW (SOLAR)	TOTAL			WRD	WBSMIC	TOTAL		SPRINKLER	SOLAR SPRINKLER	TOTAL								PDW	PDW (SOLAR)	TOTAL	SPRINKLER
1	COOCHBEHAR	0	0	0	30	4276	1338150	5764	120	0	120	4	0	4	8	317	0	0	0	0	0	0	0	0	0	0	0	0	0	6243			
2	ALIPURDUAR	0	0	0	2	1448	558	0	0	0	0	0	0	0	172	0	259	0	259	0	0	0	0	0	0	0	0	0	2446				
3	JALPAIGURI	0	0	0	3	4407	47492	4973	116	0	116	4	0	4	0	278	0	13586	221	268	4	0	4	0	0	0	0	5888					
4	DARJEELING (SLG)	0	0	0	6	948	147	0	0	0	0	1	0	1	0	165	120	282	0	282	0	101	101	23	0	0	0	1793					
5	U.DINAJPUR	4	0	4	30	6467	881	0	7348	229	0	229	9	0	19	166	20	0	0	0	0	0	0	0	0	0	0	7829					
6	D.DINAJPUR	0	0	0	10	2322	1128	0	3450	839	0	839	2	0	6	147	0	0	0	0	0	0	37	37	0	0	0	4495					
7	MALDA	0	0	0	60	1839	662	0	2501	553	0	553	3	0	3	158	11	0	0	0	0	0	41	41	0	0	0	3464					
8	MURSHIDABAD	23	2	25	50	216	581	0	797	777	0	777	89	0	13	57	3	0	0	0	0	1	0	1	0	0	0	1830					
9	NADIA	51	3	54	64	2	0	546	726	0	726	47	0	47	11	35	0	0	0	0	0	0	0	0	0	0	0	1485					
10	24 PGS (NORTH)	22	18	40	30	24	0	143	864	24888	29	0	29	0	46	1	0	0	0	0	0	0	0	0	0	0	11	1213					
11	24 PGS (SOUTH)	1	0	1	0	30	0	99	26	0	26	25	0	25	1	6	36	0	0	0	0	0	94	94	0	0	93	433					
12	HOWRAH	0	6	6	0	108	0	0	6	0	6	85	0	85	9	36	0	0	0	0	0	10	10	0	1	52	0	313					
13	HOOGHLY	43	8	51	74	14	0	0	1068	0	1068	55	1	56	18	45	1	0	0	0	0	12	12	0	2	3	0	1344					
14	BURDWAN	54	31	85	74	3	0	87	1109	0	1109	58	6	64	10	31	17	0	0	0	0	0	0	0	0	5	0	1486					
15	BIRBHUM	0	0	0	0	76	0	0	544	0	544	15	0	15	5	139	46	28	6	34	950	0	30	30	0	1	9	61	1917				
16	PURBA MEDINIPUR	0	3	3	11	60	0	0	459	0	459	81	1	82	64	12	89	0	0	9	0	0	19	19	0	0	27	0	868				
17	PASCHIMMEDINIPUR	0	5	5	124	244	0	0	1351	0	1351	142	7	149	113	36	350	0	0	364	0	36	36	0	0	31	36	19	2872				
18	BANKURA	0	2	2	0	63	0	160	358	0	358	26	0	26	136	201	130	0	0	1479	0	0	0	0	2	1	191	25	2782				
19	PURULIA	0	0	0	0	0	0	0	0	0	0	4	0	4	11	120	151	0	0	4328	0	0	0	0	0	8	254	113	5014				
	Total	198	78	276	532	762	2192	36804	242289	69145	249169	679	15	694	512	2167	975	704	92	796	7398	106	279	385	23	2	72	654	218	48	20	43	53715

DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT

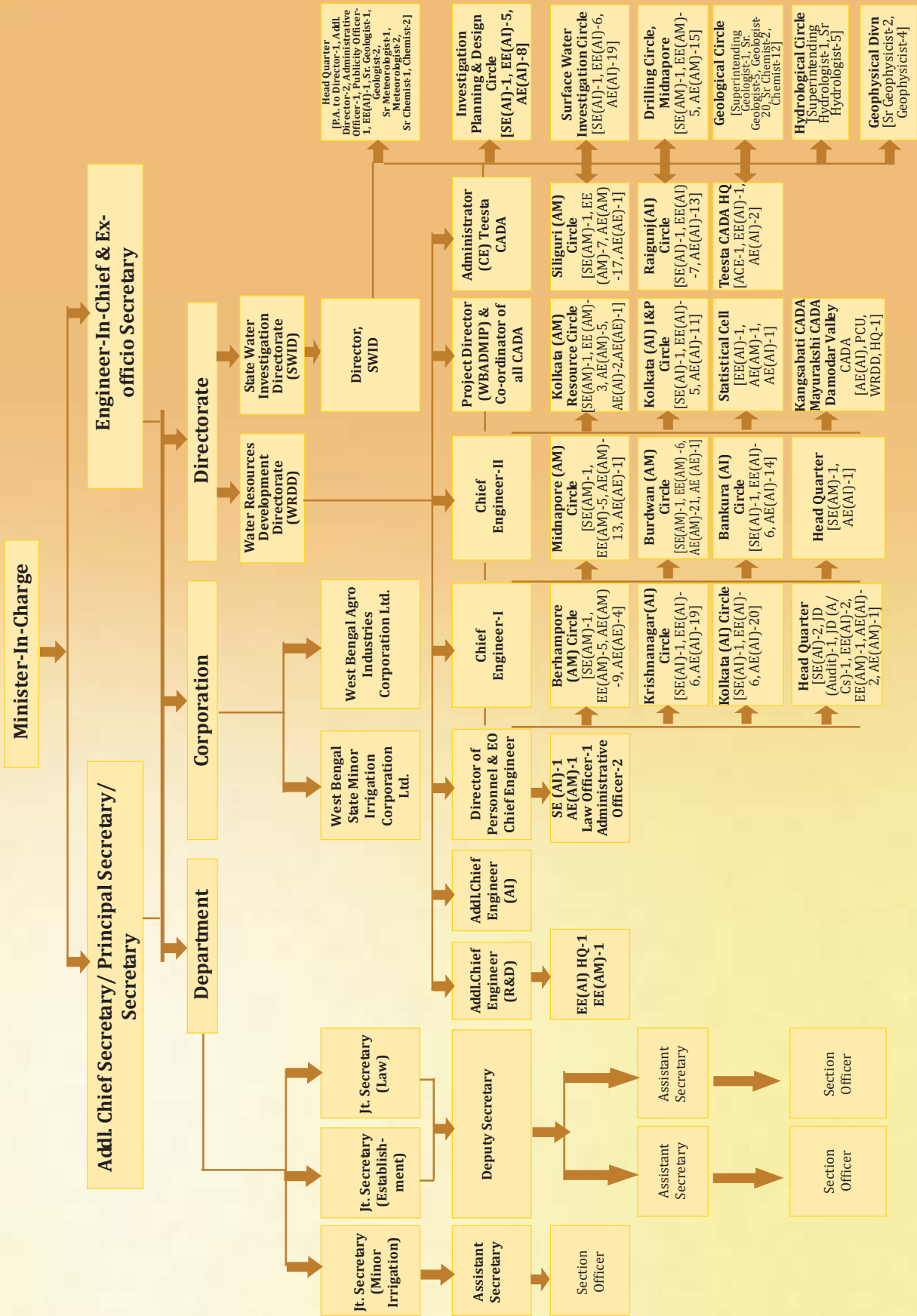
STATUS OF MINOR IRRIGATION INSTALLATION set up BY WATER RESOURCES INVESTIGATION & DEVELOPMENT DEPARTMENT
PROVISIONAL As on 31.03.17

SL. NO.	DISTRICT	DTW		MDTW	STW / SOSTW			LDTW		MAJOR RLI			MINI RLI	WHT/RWHT/REXAV	PDW			ODW	SPRINKLER			HYDRAM	Drip No. of Community RLI Scheme	CHECK DAM	MIT	FARM POND	WDS	Total No. of H.O. schemes							
		WRDD	WBSMIC		TOTAL	DIESEL	ELEC.	SOLAR	TOTAL	LDTW	TOTAL	WRDD			WBSMIC	TOTAL	PDW		PDW (SOLAR)	TOTAL	SPRINKLER								SOLAR SPRINKLER	TOTAL					
1	COOCHBEHAR	27	30	57	11	30	4276	1376	150	5802	120	0	120	107	3	110	8	317	0	0	0	0	0	0	0	0	0	0	6455						
2	ALIPURDUAR	6	4	10	7	7	1448	558	0	2006	0	0	0	34	4	38	0	172	0	259	0	259	0	0	0	0	0	0	2499						
3	JALPAIGURI	30	0	30	8	21	4407	474	92	4973	116	0	116	52	1	53	0	278	0	135	86	221	268	4	0	0	0	5972							
4	DARJEELING (SLG)	0	0	0	0	6	948	147	0	1095	0	0	0	28	0	28	0	165	120	282	0	282	0	101	0	101	23	1820							
5	U.DINAJPUR	57	4	61	121	11	6467	884	0	7351	229	0	229	103	11	114	19	166	20	0	0	0	0	0	0	0	0	8092							
6	D.DINAJPUR	51	13	64	59	11	2322	1185	0	3507	839	0	839	252	2	254	6	147	0	0	0	0	0	37	37	0	0	4924							
7	MALDA	94	19	113	155	63	1839	737	0	2576	553	0	553	359	2	361	88	158	11	0	0	0	0	41	41	0	0	4120							
8	MURSHIDABAD	338	28	366	160	50	216	773	0	989	819	0	819	397	7	404	13	57	3	0	0	0	1	0	1	0	0	2862							
9	NADIA	475	49	524	171	27	0	775	0	775	796	0	796	351	2	353	11	35	0	0	0	0	0	0	0	0	0	2692							
10	24 PGS (NORTH)	224	49	273	79	37	0	283	0	283	924	24	948	177	7	184	0	46	1	0	0	0	0	0	0	0	0	1	1863						
11	24 PGS (SOUTH)	3	1	4	0	48	0	99	0	99	26	0	26	83	1	84	1	6	36	0	0	0	0	94	94	0	0	22	513						
12	HOWRAH	57	20	77	6	146	0	0	0	0	6	0	6	178	9	187	9	36	0	0	0	0	0	10	10	0	0	0	530						
13	HOOGHLY	237	71	308	158	52	0	0	0	1141	0	1141	362	4	366	18	45	1	0	0	0	0	0	12	12	0	0	0	2106						
14	BURDWAN	339	60	399	237	39	0	104	0	104	1109	0	1109	300	14	314	10	31	17	0	0	0	0	0	0	0	0	1	2266						
15	BIRBHUM	23	8	31	0	112	0	0	0	0	544	0	544	120	7	127	5	139	46	28	6	34	950	0	30	30	0	1	2096						
16	PURBA MEDINIPUR	30	29	59	43	86	0	0	0	0	482	0	482	127	4	131	64	12	89	0	0	0	9	0	19	19	0	0	1054						
17	PASCHIMMEDINIPUR	79	39	118	184	306	0	0	0	0	1393	0	1393	485	18	503	113	36	350	0	0	0	364	0	36	36	0	0	3503						
18	BANKURA	10	21	31	0	122	0	160	0	160	358	0	358	209	10	219	136	201	130	0	0	0	1479	0	0	0	0	1	3063						
19	PURULIA	0	0	0	0	0	0	0	0	0	0	0	0	112	7	119	11	120	151	0	0	0	4328	0	0	0	0	1	5129						
	Total	2080	445	2525	1399	1174	21923	7555	242	29720	9455	24	9479	3836	113	3949	512	2167	975	704	92	796	7398	106	279	385	23	2	72	654	218	48	20	48	61559

HDTW : HIGH CAPACITY DEEP TUBEWELL
 MDTW : MEDIUM CAPACITY DEEP TUBEWELL
 LDTW : LOW CAPACITY DEEP TUBEWELL
 STW : SHALLOW TUBEWELL
 RLI : RIVER LIFT IRRIGATION
 SFMIS : SURFACE FLOW MINOR IRRIGATION SCHEME
 ODW : OPEN DUG WELL
 WHT : WATER HARVESTING TANK
 PDW : PUMP DUG WELL

WRDD : WATER RESOURCES DEVELOPMENT DIRECTORATE
 WBSMIC : WEST BENGAL STATE MINOR IRRIGATION CORPORATION
 WRI&DD : WATER RES. INV. AND DEV. DEPARTMENT

ORGANISATIONAL STRUCTURE OF DEPARTMENT OF WATER RESOURCES INVESTIGATION & DEVELOPMENT





**PHOTOES ON DIFFERENT
ACTIVITIES
OF THE WRI & DD**





Rainwater Harvesting Tank at mouza- Khatgeria, block- Jamboni under Jhargram district.



Solar power operated Sprinkler Irrigation system at mouza- Sizdiha, block- Sankrail, district- Jhargram under RIDF- XVIII programme



Modernization of Water Harvesting tank at mouza- Marnisole, block- Sankrail, district- Jhargram under Jalatirtha, Phase- II programme



Solar power operated Sprinkler Irrigation system at mouza- Bali, Block - Gosaba, District - South 24 Parganas under RIDF-XXI Programme



Minor Irrigation scheme at mouza- Dhosacharaghta, block- Joynagar, district- South 24 parganas under WBADMIP batch-III



Solar Sprinkler Irrigation System under Enclave Development Programme at Karijabhatrigach, block- Dinhata-I, dist- Cooch Behar



LDTW scheme under RIDF- XX programme at mouza- Kumarpur, block- Chakdaha, dist- Nadia



Re excavation of Tank at mouza- Parulia, block- Patashpur, dist- PurbaMedinipur under MNREGA programme



Tube well under WBADMI Programme at mouza- Shaktia, block- Bhagawanpur- II ,dist- PurbaMedinipur



Modernization of Water harvesting tank at mouza- Khasibundh, block- Jamboni, dist- Jhargram under Jalatirtha (phase- II) programme



Operation of Tubewell scheme at mouza- Dasdebgram, dist- Murshidabad



Meeting with the villagers before scheme selection at Murshidabad district



Discharge testing of a scheme before handing over to beneficiaries under WBADMI programme



Learning of new crop cultivation in an exposure visit under WBADMI programme



Field visit by Hon'ble Project Director, WBADMI Project during successful running of a pumped dug well in Jalpaiguri district



Prof. Dr.Soumen Kumar Mahapatra, Hon'ble Minister- in- Charge, WRI&DD in a meeting with the Water Users' Association in block- Mal, Jalpaiguri district