### Salient Features of the WB ADMI Project

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Duration</strong></td>
<td>January 2012 - December 2019</td>
</tr>
<tr>
<td><strong>Project Cost</strong></td>
<td>US$: 186 million</td>
</tr>
<tr>
<td><strong>Loan /Credit Amount ($m)</strong></td>
<td>US$: 155 million [IBRD: US$ 30 million IDA: USD 125 million]</td>
</tr>
<tr>
<td><strong>State Share</strong></td>
<td>US$: 31 million</td>
</tr>
<tr>
<td><strong>Number of MI Schemes</strong></td>
<td>2500</td>
</tr>
<tr>
<td><strong>Proposed Irrigated area</strong></td>
<td>75000 Ha</td>
</tr>
<tr>
<td><strong>Proposed Beneficiaries</strong></td>
<td>1,00,000</td>
</tr>
<tr>
<td><strong>Coverage</strong></td>
<td>Focus on underdeveloped districts</td>
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**Project Objective:**

To enhance the **Agricultural production of Small and Marginal Farmers** by Providing Assured Irrigation
Low Income of small and marginal farmers (identifying constraints)

- Supply Side Constraints:
  - High fixed cost to higher productivity
  - Externalities of surface irrigation schemes and market failure
  - Rent seeking in ground water based schemes (e.g. tube well)
  - Small Individual Scale
  - Knowledge Gap (weak extension channels)

- Demand Side Constraint:
  - Low demand for subsistence crops produced by farmers
Where we work
Village and Scheme selection criteria

• Priority to single cropped and Rainfed areas
  • Western Districts-Single cropped (only Kharif)
  • Northern Districts- Double cropped but no Rabi
  • Southern Saline Districts- Unirrigated Rabi area

• Land use Map based area selection
• Micro Watershed approach
• Selection of Cluster of at least 4-5 villages
• Involvement of women
• At least 13% investment on tribal
• 80% Small and marginal farmer beneficiaries
Role of Water Users Associations (WUAs)

- Operation & Maintenance of MI Schemes
- Empowering communities
- Planning & Implementation / Resource Mobilization
- Better Water Management (Maximizing benefits)
- Conflict resolution
- Maintaining equity
- Agriculture support services for Income generation

Empowering communities

WUA
WBADMI Project

Minor Irrigation Schemes

Water Detention Structure

Solar Dug Well

Check Dam Ranigram Birbhum

Hapa

Tube Well

River lift irrigation scheme

Sahana Name - Chandanpur Chandanga Math-I
Introducing Solar Irrigation System

- Total number of solar system installed and handed over: 138
- Managed by WUA (irrigation plan discussed in weekly meetings)
- Operator normally from the household which provides land
- User fee (either hourly or per bigha basis) - part of it goes to the operator, rest to the common pool
- Water discharge: Designed for 30 cubic meter per hour (5 H.P.)
- Design has been further optimised in view of changing technology and falling price
- Used for 200 days (approx.) - possibility for net metering
Water Detention Structures
District - South 24 Parganas
Created - 59 No
Length - 141 KM
Kharif Area irrigated - 1931 Ha
Rabi Area irrigated - 1212 ha
17000+ demonstrations
Covering 18000 farmers
in 9000 acres area
INR 20000-50000 Rs/Ha
Gross income expected
Horticulture initiative

**Northern Districts** – 148 ha. of New plantation of Mandarin Orange, Large Cardamom, Coffee, Black Pepper, Drum stick, Bay leaf, Papaya, Tissue culture banana etc with improved cultural practices.

**Western districts** – 242 ha
Plantation on dry, fallow upland Mixed fruit tree plantation Mango (four varieties), Guava, Pineapple, Musambhi, Lemon, Sapota, etc. with improved practices.

**Southern Districts** – 96 Ha Plantation of Coconut, Papaya, Mango, Drum stick, Karamcha, etc. with improved practices.
Orchard Development Program (in western lateritic zone)

- Uncultivable dry uplands lying fallow for years; used only for grazing
- Water User Association operating as the implementing agency
- Involving stakeholders - 70% of beneficiaries are the poor from Tribal community - mostly women
- Micro-Irrigation structures for irrigation
- Low/very low water requiring crops as intercropping to provide additional revenue stream
- Mixed fruit tree plantation of Mango, Guava, Citrus, Jackfruit, Pineapple, Cashew, etc. - to ensure income round the year
Tissue culture Banana cultivation in Nadia district

<table>
<thead>
<tr>
<th>No of Block</th>
<th>No of WUA</th>
<th>Area covered</th>
<th>Net return Per Ha in Rs</th>
<th>Net return from tissue Banana</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>64.5 Ha</td>
<td>342997</td>
<td>844875</td>
</tr>
</tbody>
</table>

Market Linkage with Keventar Agro
High value crop production in Darjeeling Hills

Mandarin Orange

Mirik

Mirik

6 Ha

Coffee

Mirik & Khasmahal

16 Ha

Black Pepper

Mirik, Rangli, Rangliot

Kalimpong-I & Kalimpong-II

12 Ha

Large Cardamom

Mirik, Rangli, Rangliot

Kalimpong-I & Kalimpong-II

12 Ha
Fishery Interventions

• 25 nos of different fish species cultured in 14 Districts
• Common practice conventional fishery in villages.

Project Interventions:
• Working through Fishery Interest Group (FIG)
• Water quality management,
• Feed management,
• Periodical netting and
• Use of maximum water volume

• Average yield from 6-18 q/ha to 24-38 q/ha (water area 684 Ha)
• Average income from 1-3 Lakhs/Ha to 2-8 Lakhs/Ha
Western Zone
Hatcheries of indigenous species, Spawn to Fingerling production involving Self Help Groups, Culture of indigenous fish species like Chitala, Bhetki, Mourala, Fresh water giant Prawn etc.

North Bengal
Culture of grass carp, deshi Magur and common carp in small hapa with poly lining in Darjeeling district. Spawn to fingerlings program IMC fish production.

Southern Zone
Canal fishery, Poly culture of IMC, Monosex tilapia (Monopia) along with fresh water giant prawn; Mass production of IMC
Use of GIS Technology in Project Implementation

WEST BENGAL ACCELERATED DEVELOPMENT OF MINOR IRRIGATION PROJECT

PROJECT OBJECTIVE
To enhance agricultural production of small and marginal farmers of the project area by providing assured irrigation with the help of a robust IT system supported by WEBGIS technology.

BENEFITS OF WEBGIS
- 24 X 7 Accessible to public
- Increased transparency
- Effective planning targeting intended beneficiaries
- Helping in cost effective irrigation project design
- Site specific solutions in collaboration with the community
- Increased speed of implementation & Monitoring
- Increase in success rate of schemes
- Continuous impact assessment

IMPACTS OF THE PROJECT
- 70,000 small & marginal farmers benefited
- 30,000 hectares additional land converted to multi-crop
- 900 Irrigation Schemes running
- Increased ownership of communities and hence sustainability
- Average Farmers’ income increased
- Crop production increased in remote areas
- Increased productivity in fish culture
- Increased scope for livestock culture
Planning, Selection and Monitoring of Schemes through WEB GIS

<table>
<thead>
<tr>
<th>Area (Ha)</th>
<th>1439.75</th>
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</thead>
<tbody>
<tr>
<td>Max Flow length (m)</td>
<td>6665.28</td>
</tr>
<tr>
<td>Runoff Coefficient</td>
<td>0.53</td>
</tr>
<tr>
<td>Time of Concentration (hr)</td>
<td>2.23</td>
</tr>
<tr>
<td>2 Yr 24 hr Avg Rainfall (mm)</td>
<td>90</td>
</tr>
<tr>
<td>$I_c$ (mm/hr)</td>
<td>43.61</td>
</tr>
<tr>
<td>Return Period</td>
<td>25</td>
</tr>
<tr>
<td>Run Off (cum/sec)</td>
<td>93.12</td>
</tr>
<tr>
<td>Afflux</td>
<td>1</td>
</tr>
<tr>
<td>Weir Height (m)</td>
<td>47.68</td>
</tr>
<tr>
<td>Perimeter (m)</td>
<td>20161.3</td>
</tr>
</tbody>
</table>

Interactive tool to demarcate Catchment area and generate associate data.

Check Dam After Construction

Check Dam During Construction

Contour map of the catchment

Checking meandering stream through high resolution Satellite image

Landuse/Landcover Map of the catchment

SocioEconomic rank Map of Catchment

Elevation Profile