वृहद एवं मध्यम सिंचाई परियोजनाओं की प्रथम गणना अनुदेश पुस्तिका

MANUAL FOR FIRST CENSUS OF MAJOR & MEDIUM IRRIGATION PROJECTS

संदर्भ वर्ष : 2023-24

Reference Year: 2023-24

(जुलाई 2023- जून 2024)

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग

Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development &
Ganga Rejuvenation

MANUAL FOR
FIRST CENSUS OF MAJOR AND MEDIUM IRRIGATION PROJECTS

Reference Year: 2023-24
(July 2023 - June 2024)

GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION
MINOR IRRIGATION (STATISTICS) WING
&
PLANNING & PROGRESS DIRECTORATE
(CENTRAL WATER COMMISSION)

सी आर पाटील
C R Paatil

सत्यमेव जयते

जल शक्ति मंत्री
भारत सरकार
Minister of Jal Shakti
Government of India

Message

Since independence, India has continuously advanced in water resource management, recognizing irrigation as a crucial pillar for agricultural prosperity and economic growth.

The documentation titled "MANUAL FOR FIRST CENSUS OF MAJOR AND MEDIUM IRRIGATION PROJECTS" is a crucial step towards a sustainable and resilient water management system. It will provide valuable insights into the performance, efficiency, and expansion needs of irrigation projects, helping us optimize water usage for agriculture and other essential sectors. It marks a significant step in strengthening our understanding of the irrigation sector, ensuring better planning, resource allocation, and policy-making.

Recognizing the importance of reliable irrigation infrastructure, this census is not merely a data collection exercise but a transformative initiative aimed at enhancing water security, agricultural productivity, and rural development. By consolidating comprehensive information on MMI projects nationwide, we aim to empower policymakers, planners, and stakeholders with accurate insights for informed decision-making.

I hope the Manual will serve a handbook for all stakeholders involved in the census process.

C R Paatil

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MINISTER OF STATE FOR JAL SHAKTI
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NEW DELHI - 110001

MESSAGE

Irrigation plays a crucial role in sustaining agricultural growth and ensuring water security across India. India has made significant progress in managing water resources, with irrigation playing a key role in agricultural growth and economic development. Major and Medium Irrigation (MMI) projects are essential for providing reliable water resources for agriculture, hydro-power generation, and flood management. With their extensive infrastructure, including dams, barrages, and canal networks, these projects significantly contribute to meeting agricultural demands and supporting economic development.

To further strengthen this sector, the First Census of Major and Medium Irrigation (MMI) Projects is being conducted. This initiative aims to create a comprehensive database to enhance planning, policy-making, and resource management. The census will help assess the performance and efficiency of irrigation projects, ensuring better water utilization for agriculture and other essential needs. By using digital technology, data collection will be streamlined for greater accuracy and efficiency.

To facilitate the smooth execution of the MMI Census, a comprehensive manual has been prepared, covering key concepts, definitions, methodology, frequently asked questions, and other essential guidelines. I trust that the concerned officials will utilize this manual effectively to ensure the collection of accurate and reliable data.

(Dr. Raj Bhushan Choudhary)

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FOREWORD

In India, the irrigation sector is vital for sustaining agricultural growth and ensuring water security across the nation. Major and Medium Irrigation (MMI) projects are instrumental in providing reliable water resources for agriculture, hydro-power generation, and flood management. These projects, with their extensive infrastructure of dams, barrages, and canal networks, have significantly contributed to the country's ability to meet its agricultural demands and support its economic development.

Despite their importance, creating a comprehensive national database of MMI projects has been challenging. Water resources projects are managed and maintained by state governments, which has made it difficult to consolidate data at the national level. Recognizing this gap, discussions were held in the Department of Water Resources, River Development & Ganga Rejuvenation (DoWR, RD&GR) in March 2021, to explore the expansion of the existing Centrally Sponsored Scheme, "Irrigation Census," to include a census of MMI projects.

To address this need, the Central Water Commission (CWC) established a group to draft and finalize the parameters for the MMI Census. A pilot study of eight MMI projects conducted between 2016 and 2018 helped standardize the methodology and evaluate the performance of completed projects. The draft parameters were reviewed and refined through discussions with state governments and stakeholders. The final schedule and procedures for the census were further optimized during the Steering Committee meeting held in May, 2023.

The Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti has been conducting census of Minor Irrigation (MI) since 1986-87. The census is being conducted under the centrally sponsored scheme "Irrigation Census". Six MI census has been conducted so far. Ministry had undertaken First Census of Water Bodies in convergence with the 6th MI Census with reference year 2017-18.

In view of the importance of MMI Projects, I am happy to inform that DoWR, RD & GR is undertaking the 1st Census of MMI Projects along with the forthcoming 7th MI and 2nd Water Bodies censuses in the country.

Minor Irrigation Statistics (MI Stat.) Wing, in collaboration with CWC, is going to launch the First Census of Major and Medium Irrigation (MMI) Projects. This census aims to develop a comprehensive and reliable national database, enhancing our capacity for effective planning, policy-making, and management of irrigation resources. The census will utilize a digital approach, incorporating a dedicated web application to streamline data collection and reduce resource consumption.

This document is intended to guide field-level functionaries, primary workers, and enumerators in executing the census. It outlines the standardized procedures, concepts, and definitions to ensure consistency and accuracy across all States and Union Territories. I am confident that this census will provide valuable insights into our MMI infrastructure, supporting informed decision-making and contributing to the sustainable management of our water resources.

By fostering a clear understanding of MMI projects, this initiative will play a crucial role in enhancing agricultural productivity, managing water resources efficiently, and supporting the long-term development goals of our nation.

(Debashree Mukherjee)

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ABBREVIATIONS AND ACRONYMS

CAD	Command Area Development
CCA	Culturable Command Area
CWC	Central Water Commission
DDP	Desert Development Programme
DHARMA	Dam Health and Rehabilitation Monitoring Application
DoWR, RD & GR	Department of Water Resources, River Development and Ganga Rejuvenation
DPAP	Drought Prone Area Programme
DSL	Dead Storage Level
ERM	Extension, Renovation & Modernization
FRL	Full Reservoir Level
GCA	Gross Command Area
GIS	Geographic Information System
Ha	Hectare
IC	Investment Clearance
IPC	Irrigation Potential Created
IPU	Irrigation Potential Utilized
MCM	Million Cubic Meter
MDDL	Minimum Draw Down Level
MI Stat Wing	Minor Irrigation Statistics Wing
MoJS	Ministry of Jal Shakti
MMI	Major & Medium Irrigation
MWL	Maximum Water Level
msl	Mean Sea Level
NBWL	National Board for Wildlife
NRLD	National Register of Large Dams
OBC	Other Backward Caste
PIN	Piped Irrigation Network
SC	Scheduled Caste
ST	Scheduled Tribe
TAC	Technical Advisory Committee
UIP	Ultimate Irrigation Potential
UT	Union Territory
WUA	Water Users Association

CHAPTER ONE:

INTRODUCTION

1.0 INTRODUCTION

1.1 In India, irrigation has always been, and is likely to remain, the largest user of water for decades to come. Water resources development and management is therefore, largely dictated by the needs of irrigation. Since then, the State Governments have developed a number of water resources projects for irrigation, flood control, hydro-power generation, drinking water supply, industrial and other miscellaneous uses, and a large number of dams, barrages, hydro-power structures, canal network etc. were constructed all over the country. The projects have substantial storage component that help to provide assured irrigation, hydro-power generation, water for domestic and industrial use and also enabled flood moderation. The net impact of all these measures, despite almost a fourfold increase in the population since independence, India is now self-sufficient in food production, has sufficient buffer stock of food grains to be able to bear the brunt of consecutive years of drought. The target now is to grow enough food and fiber for a population of 1600 million in the year 2050.

1.2 Irrigation, whether major, medium or minor – from surface water sources or from ground water; flood control; and hydro-power generation – of any size; all are essential intervention for augmenting the agricultural production. Irrigation Sector plays a critical role in agricultural growth and increasing farmer's income. In order to meet the requirements of planning and policy formulation of this sector, a sound and reliable national data base is a prerequisite.

1.3 MI Stat Wing of DoWR, RD&GR has been conducting Census of Minor Irrigation schemes (including surface and ground water minor irrigation schemes) with this objective and six MI censuses have been conducted so far. The reports of six MI Censuses have been published and the last report was for the 6th MI Census conducted with reference year 2017-18 covering 33 States/UTs.

1.4 Ministry of Jal Shakti also conducted the 1st Census of Water Bodies in convergence with the 6th Minor Irrigation (MI) Census under the Centrally Sponsored Scheme "Irrigation Census" with reference year of 2017-2018 to develop a national database for all water bodies by collecting information on all important aspects of the subject including their size, condition, status of encroachments, use, storage capacity, status of filling up of storage etc. The First Census of Water Bodies also covered urban areas and took into account all types of uses of

Water Bodies like Irrigation, Industry, Pisciculture, Domestic, Drinking, Recreation, Religious purpose, Ground Water Recharge and other purposes.

1.5 Since the water resources projects are planned, formulated, implemented and maintained by the State Governments, it has been found difficult to create a national level data base of Irrigation Projects. The idea of expansion of Centrally Sponsored scheme “Irrigation census” with the inclusion of census of Major and Medium Irrigation (MMI) projects was discussed in the meetings held in DoWR, RD&GR on 02.03.2021 and 16.03.2021.

1.6 Accordingly, a group was constituted in Central Water Commission to draft and finalize the parameters for the aforesaid census of MMI Projects. A pilot census study of eight MMI Projects was also conducted by Central Water Commission during 2016-2018 for standardizing the methodology for the main census and performance evaluation of the completed MMI Projects. The list of parameters initially drafted by the aforesaid CWC group for the census of MMI projects was discussed during the meeting taken by the Secretary, DoWR, RD&GR on 27th March, 2023. As per the suggestions in the meeting, the list of parameters was further discussed with the State Governments through Video Conferencing on 25th April, 2023. The issue was discussed during the meeting of the Steering Committee under the Secretary DoWR, RD & GR for conduct of seventh MI Census, and 2nd Census of Water Bodies and proposed census of MMI projects on 3rd May, 2023. Based on the discussions, the schedule for the census of MMI projects has been modified and simplified for the better understanding of the enumerators.

1.7 Census of Minor Irrigation (MI) structures are conducted quinquennially under the Centrally Sponsored Scheme 'Irrigation Census' and six MI censuses have been conducted so far. As per recommendations of the Standing Finance Committee for continuation of the scheme, it was decided in the meeting of the Steering Committee meeting constituted for conduct of 7th MI census and 2nd Census of water bodies which was held under the chairmanship of Secretary, Department of Water Resources, RD & GR, Ministry of Jal Shakti to enlarge the scope of the scheme to take up the 1st census of MMI projects also.

1.8 Irrigation Projects are classified based on Culturable Command Area (CCA) as follows:

i. Major Irrigation Projects: The Projects having Culturable Command Area (CCA) more than 10000 hectares (CCA>10,000 ha). This type of project consists huge storage reservoirs, flow diversion structures and a large network of canals.

ii. Medium Irrigation Projects: Projects having CCA more than 2,000 ha and up to 10,000 Ha are classified as medium irrigation projects. These are also multi-purpose surface water projects. Medium size storage, diversion and distribution structures are the main components of this type of project.

iii. Minor Irrigation Projects: Projects having CCA less than or equal to 2,000 ha are termed as minor irrigation project.

1.9 For facilitating the census of the MMI projects, this document consisting of the schedules for collecting the information, the terminology used in the schedules along with the instructions for filling up the same has been prepared by the Central Water Commission.

CHAPTER TWO:

COVERAGE, CONCEPTS AND DEFINITIONS

FOR

FIRST CENSUS OF MAJOR AND MEDIUM IRRIGATION PROJECTS

2.0 1st CENSUS OF MMI PROJECTS

General:

2.1 1st Census of MMI Projects will be conducted in convergence with 7th Minor Irrigation Census using 2023-24 agricultural year as reference year. The census will be conducted fully in digital mode where data collection, data validation and monitoring work will be done through web application. A dashboard showing the real time progress is also incorporated in the web application of the Census.

2.2 This Census is the complete enumeration of all completed as well as ongoing Major & Medium irrigation projects of India. A scheme having Culturable Command Area more than 10000 hectares (CCA>10,000 ha) are classified as Major Irrigation Project and those schemes having CCA more than 2,000 ha and up to 10,000 Ha are classified as Medium Irrigation Projects.

Scope & Coverage

2.3 The 1st MMI Projects Census will be conducted in whole of India including Union Territories.

Frame of the Census

2.4 The frame of the census would be all completed MMI projects in the country run by both Central and State Governments. Data on 1,720 MMI projects will be pre-populated. The1stcensus of MMI projects shall use pre-populated data of 1720 MMI projects which is taken from the "National Register of MMI projects in India" recently published by Central Water Commission. During the census work, enumerator can either keep the same data which is pre populated or can be modified as per present requirement.

Concepts and definitions

2.5 **Gross Command Area (GCA):** The total geographical area which can normally be commanded or serviced from an irrigation project without consideration of water supplies available for irrigation.

2.6 **Culturable Command Area (CCA):** The gross command area less the non-culturable land.

2.7 **Cultivable Area:** It consists of net area sown in the command, current fallow, fallow lands, other than current fallow, culturable waste and land under miscellaneous tree crops.

2.8 **Gross Irrigated Area:** The area irrigated under various crops during a year in a command,

counting the area irrigated under more than one crop during the same year as many times as the number of crops grown and irrigated.

2.9 **Net Irrigated Area:** An area in a command may be irrigated only once a year or multiple times during various seasons of a year. It is aggregate of the area irrigated once a year and area irrigated multiple times counting it as once is net irrigated area.

2.10 **Ultimate irrigation potential (UIP):** Maximum area (Gross) identified for irrigation from available water resources. This area is aggregate of area planned to be irrigated once a year and planned to be irrigated multiple times counting it as many times as irrigated during a year.

2.11 **Irrigation Potential Created (IPC):** Gross irrigation that can be achieved through the works completed at a particular time.

2.12 **Irrigation Potential Utilized (IPU):** The gross area actually irrigated during reference year of the census out of the IPC already created.

2.13 **Kharif season:** Kharif crops are cultivated in the monsoon season. Maize, rice, small millets, peas, groundnut, cotton, sesame etc. are the principal kharif crops.

2.14 **Rabi season:** Rabi crops are cultivated in the winter season. Wheat, barley, gram, peas, potatoes, mustard etc. are the Rabi Crops.

2.15 **Bi seasonal:** The Crops which last during two crop seasons is the Bi Seasonal.

2.16 **Summer season:** Often represents an intermediate (third) crop between the Rabi and Kharif crops i.e Zaid crops etc.

2.17 **Perennial crop:** Crops which last several crop years like plantation or orchard crops.

2.18 **Major Irrigation Scheme:** A scheme having CCA more than 10,000 Ha is Major Irrigation Scheme.

2.19 **Medium Irrigation Scheme:** A scheme having CCA more than 2,000 Ha and up to 10,000 Ha individual is a Medium Irrigation scheme.

2.20 **Micro Irrigation Systems:** Micro irrigation system comprises of Drip Irrigation, Sprinkler Irrigation, Jet, Micro-Sprinkler, Porous Pipe, Rain Gun Systems with drip irrigation and sprinkler irrigation being the most common.

2.21 **Sprinkler Irrigation system:** 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 the air of entire soil surface through spray heads so that it breaks up into small water drops which fall to the ground.

2.22 **Drip Irrigation System:** It comprises the application of water in drops close to the plants. The entire space between the plants is not watered**.**

2.23 **Piped Irrigation System:** A Piped Irrigation Network (PIN) is a network of installation consisting of pipes, fittings such as valves, pumps (if necessary) and other devices properly designed and installed to supply water from the source of the water to the irrigable area.

2.24 **River Basin:** River basin is defined as a geographical area (catchment area) determined by the watershed limits of a water system flowing into a common terminus.

2.25 **Catchment Area:** The area from which runoff flows into river, reservoir, etc.

2.26 **Lift Irrigation:** Lift Irrigation is a method of irrigation in which the water is lifted with Pumps and supplied for irrigation.

2.27 **Full Reservoir Level (FRL) (in meter above msl):** It is the maximum level of the reservoir at which water is intended to be held for various uses.

2.28 **Maximum Water Level (MWL):** It is the maximum level to which the reservoir water will rise while passing the design flood with the spillway facility in full operation.

2.29 **Minimum Draw Down Level (MDDL):** It is the lowest level up to which the reservoir may be depleted for meeting various needs.

2.30 **Live Storage capacity:** Storage capacity between the Dead storage Level to full reservoir level.

2.31 **Dead Storage capacity:** Storage of the reservoir below the Minimum Draw Down level (MDDL).

2.32 **Multipurpose Project:** Multipurpose Project is designed, constructed and operated to serve two or more interests or purposes namely, flood control, hydro-electric power generation, navigation, irrigation, fisheries, public water supplies, recreation, etc.

CHAPTER THREE:

METHODOLOGY FOR CONDUCTING 1ST CENSUS OF MMI PROJECTS

3.0 METHODOLOGY:

3.0.1 For implementation of the MMI Project Census, each State/UT Administration i.e Principal Secretary/ Secretary identify a State Nodal Department for enumeration of Statistics of Irrigation Projects. The State Nodal department would preferably be the State's Water Resource Department or Irrigation Department.

3.0.2 To ensure smooth execution of census work, State Nodal Department in state / UT's must designate State Nodal Officer i.e Engineer in Chief / Chief Engineer / head of the Department. As the data of the Census has to be collected project wise hence, the State Nodal Officer may further designate a project wise Nodal officers (level I) who may be the one level down in hierarchy i.e Chief Engineer-I/ Chief Engineer II or Managing Directors etc. for the respective projects. The State Nodal Officer will be responsible for creating user accounts for project wise nodal officers (level I).

3.0.3 **Nodal Officers (level I)** may further designate a project wise Nodal officers (level II) who may be the one level below in hierarchy i.e Superintending Engineer-I / Superintending Engineer-II etc. for the respective projects. The nodal officers (level I) will be responsible for creating user accounts for project wise nodal officers (level II).

3.0.4 **Nodal Officers (level II)** may further designate project wise Nodal officers (level III) who may be the one level below in hierarchy i.e Executive Engineer I/ Executive Engineer-II etc. for the respective projects. The nodal officers (level II) will be responsible for creating user accounts for project wise nodal officers (level III).

3.0.5 **Nodal Officers (level III)** may further assign each project to concerned project in-charge i.e Assistant Engineer / Junior Engineer for enumeration of data. He would be responsible for coordinating and accomplishing the census work for that particular project.

3.0.6 Nodal officer level may vary as per Hierarchy level of respective Nodal Department.

3.0.7 The project in-charge will begin to enumerate the MMI project census. MMI Census data would be collected through the project authorities as much as possible. But, for the data related with Irrigation Potential Utilized (IPU), WUA formed etc. the concerned village officers e.g. Patwaries, revenue officials and village level workers/gram pradhans etc. can be involved. In this regard State Level Committee will issue suitable directions to the concerned Revenue Department. For Irrigation Potential Utilized (IPU), the highest figure achieved so far will be entered.

3.0.8 Census would be conducted completely in digital mode through web portal without using any paper as most of the data is static except a few. NIC has developed a Web application

for collection of data. States / UTs should make efforts to complete the field work, data entry and validation within the given time as per schedule of the census.

3.1 Implementation Guidelines:

3.1.1 A Steering Committee is to be formed in each State with Secretary of the Nodal Department for conduct of MI and water body census as Chairman and members from the CWC, State Departments of Revenue, Irrigation, Water Resources, Panchayati Raj, State Planning, DES, Rural Development and State head of NSSO (FOD). A technical Sub Committee will be formed under the Chairmanship of Regional Chief Engineer of CWC in charge of the State to provide technical inputs and guide the State Nodal Department during the Census operations. A representative from regional office of CGWB and State Water Informatics Centre (SWIC) wherever established will also be a member of this Committee. Considering the inclusion of Census of Springs, the Chairman of the committee may also co- opt representatives from other concerned State Departments like Ground Water Department, Geological Department, Soil & Water Conservation Department etc. Further, it may be ensured that representatives from Nodal Departments for census of Major and Medium Irrigation Projects and Census of Springs should be there in Steering Committee as well as in Technical Sub Committee.

3.1.2 Existing training module is to be standardized and put in Audio-Visual form in English/Hindi for uniformity in imparting training.

Note: Only one Steering Committee shall be constituted for all the 04 censuses namely, 7th MI census, 2nd Water body census, 1st census of MMI projects and 1st census of Springs. Similarly, there will be only one Technical Sub Committee for all these censuses.

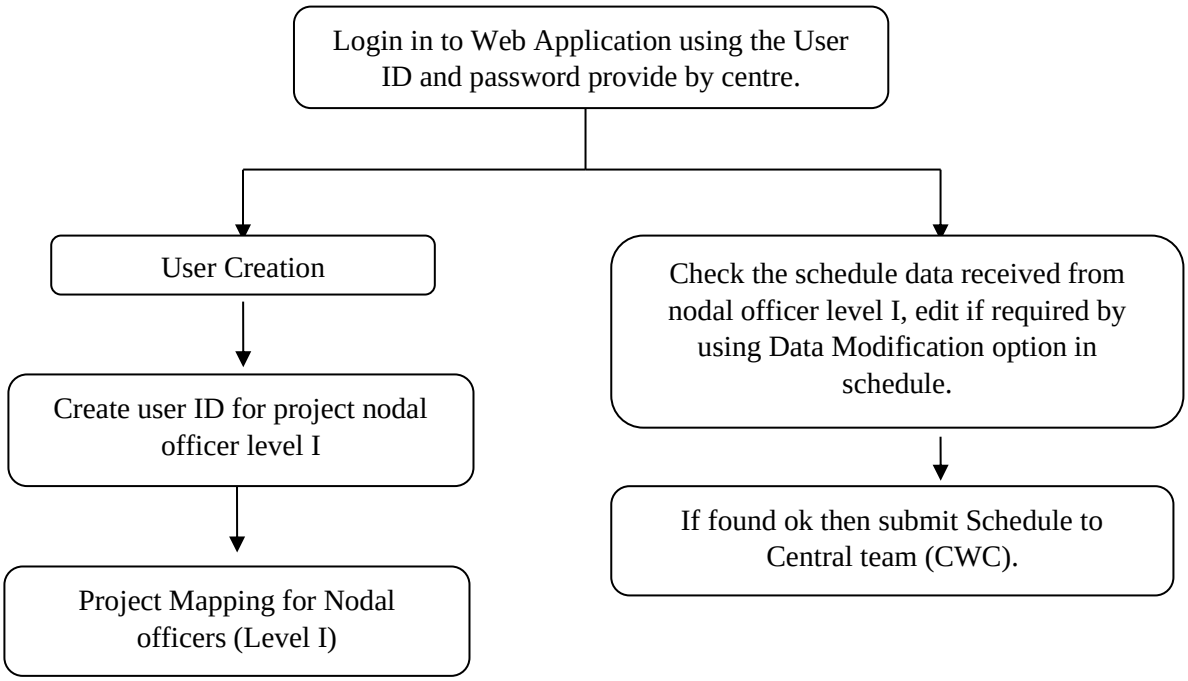
3.2 Process Flow:

3.2.1 Flow of activities to be done at State Nodal Officer, Nodal Officer (Level I), Nodal Officer (Level II) and Nodal Officer (Level III) has been illustrated below for use of Web application.

3.2.2 **State Nodal Officer**: State Nodal Officer who may be Engineer in Chief (EIC) / HOD, can login into the web application by using User ID and Password. After login into web application, State Nodal Officer can see the list of MMI Projects which falls under their State.

3.2.2.1 State Nodal Officer has to create a user list of Project Nodal officer (level I) according to their jurisdictions before project mapping. While user creation on the web application, email and mobile number of the official for whom Project Nodal officer (level I) login ID is created, has to be entered.

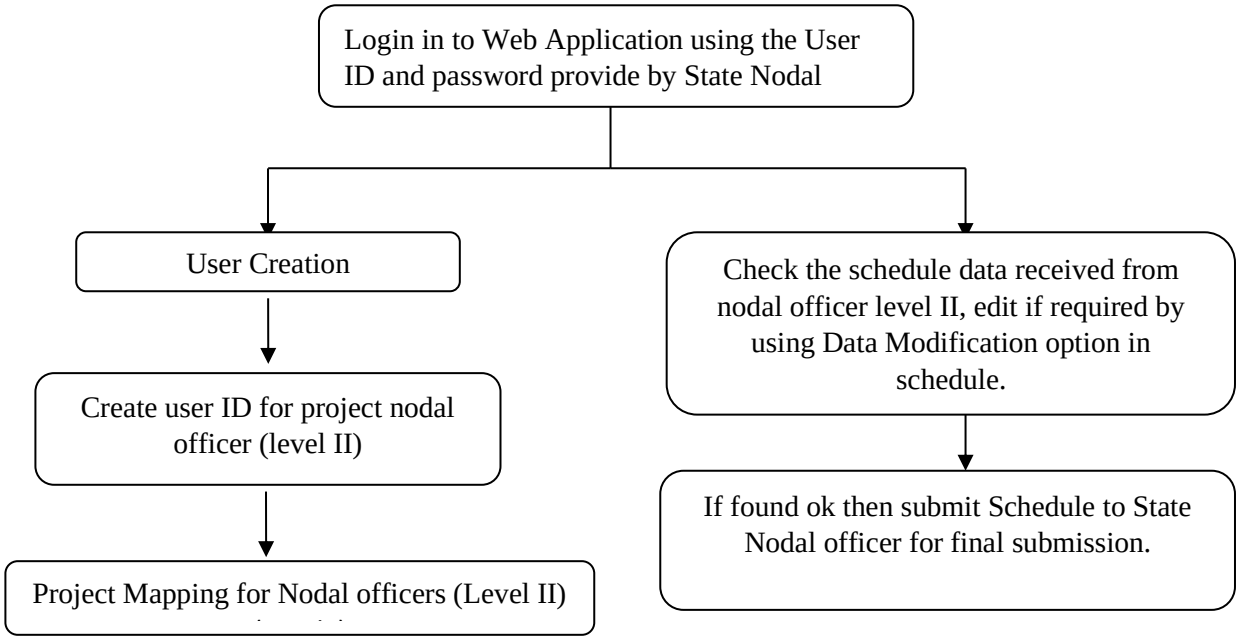
3.2.2.2 Schedules submitted by Project Nodal officer (level I) to project Nodal Officer (Level II) will be available on State Nodal Officer account also.



3.2.3 **Project Nodal officer (level I**): Project Nodal officer (level I) who may be Chief Engineer / Managing Director, can login into web application with the help of user ID and password provided by State Nodal officer. After login into web application, officers can see the list of MMI Projects which are mapped by State Nodal Officer.

3.2.3.1 Project Nodal Officer (Level I) has to create a user list of Project Nodal officer (level II) according to their jurisdictions before assigning the projects. While user creation on the web application, email and mobile number of the official for whom Project Nodal officer (level II) login ID is created has to be entered.

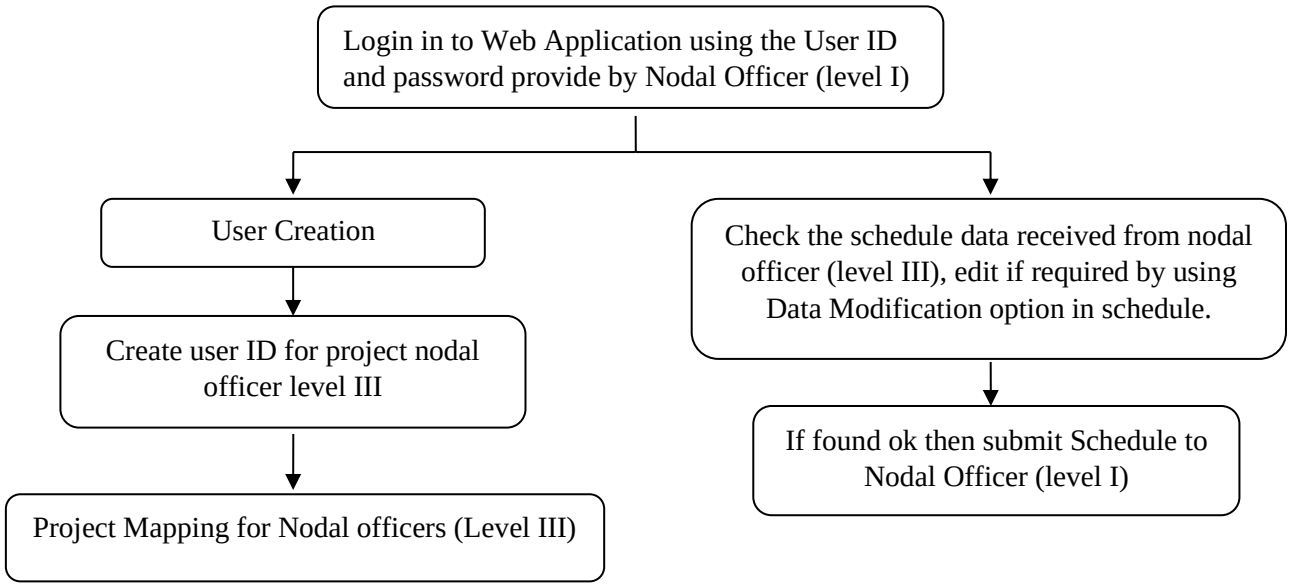
3.2.3.2 Schedules submitted by Project Nodal officer (level II) to project Nodal Officer (Level III) will be available on Project Nodal Officer (Level I) account also.



3.2.4 **Project Nodal officer (level II**): Project Nodal officer (level II) who may be Superintending Engineer, can login into web application with the help of user ID and password provided by Project Nodal officer (level I). After login into web application, officers can see the list of MMI Projects which are mapped by Nodal Officer (level I).

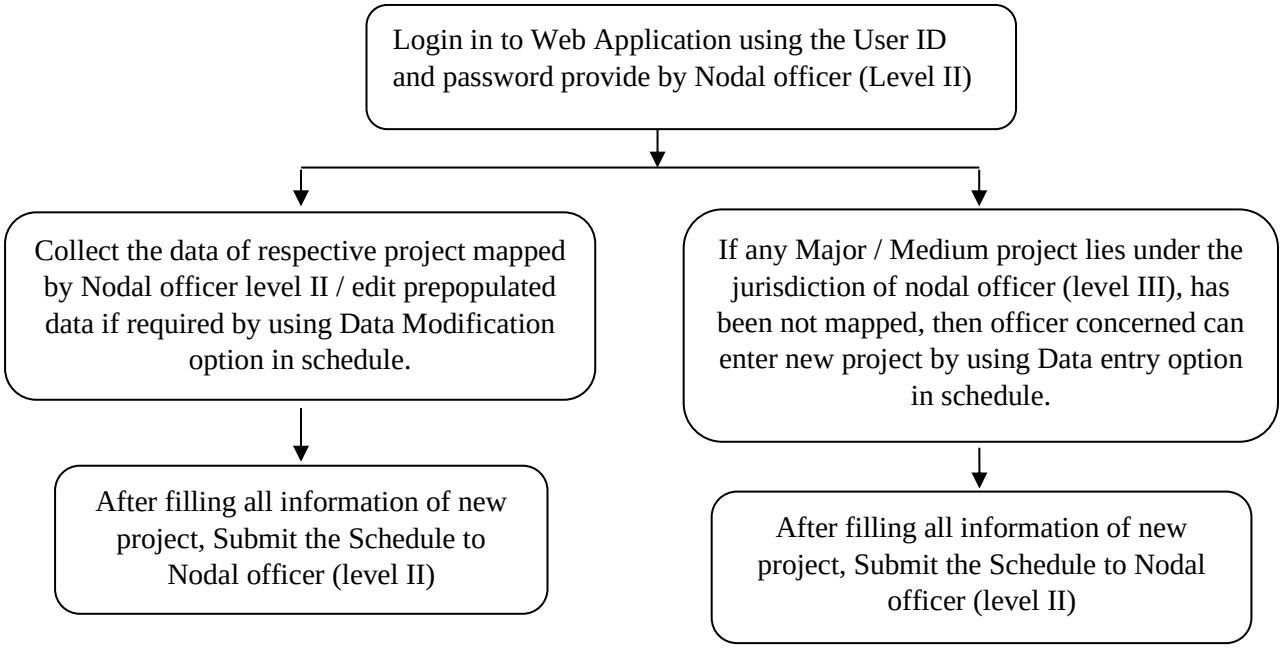
3.2.4.1 Project Nodal Officer (Level II) has to create a user list of Project Nodal officer (level III) according to their jurisdictions before assigning the projects. While user creation on the web application, email and mobile number of the official for whom Project Nodal officer (level III) login ID is created has to be entered.

3.2.4.2 Schedules submitted by Project Nodal officer (level II) to project Nodal Officer (Level III) will be available on Project Nodal Officer (Level I) account also.



3.2.5 **Project Nodal officer (level III)**: Project Nodal officer (level III) who may be Executive Engineer, can login into web application with the help of user ID and password provided by Project Nodal officer (level II). After login into web application, officers can see the list of MMI Projects which are mapped by Nodal Officer (level II).

3.2.5.1 Project Nodal Officer (Level III) may further assign each project to concerned project in-charge i.e Assistant Engineer / Junior Engineer by sharing own user ID and password to start enumeration. During enumeration, if any MMI project lies under the jurisdiction of enumerator / nodal officer (level III), has not been mapped, then enumerator can enter new project by using Data Entry option available in schedule of MMI project census otherwise enumeration can be continued with data modification option available in schedule of MMI project census.



3.3 Field Work:

3.3.1 The first Census of MMI projects will be conducted under the overall charge of State Nodal Officer. For the entire Census operation, the Nodal Officer of the State/ UT shall be the pivotal point as far as Government of India is concerned. The primary work of collection of data will be carried out by the enumerators, preferably the Assistant Engineer (AE) /Junior Engineer (JE) posted at the project. For enumeration of some data points like actual utilisation of irrigation potential or season wise breakups of

utilisation, WUA etc, the village accountants/Lekhpals or Patwaries /Patwars/ Girdavar/ Revenue official or any other official designated by the State/UT Government may also be involved.

3.3.2 The work of supervision will be entrusted to higher supervisor level officers (AEE) of the project authority. However, the overall quality of field work is to be monitored by Divisional level (EE of the project) State officers.

3.3.3 It is proposed that for the field work of census, the various functions /roles may be performed by the concerned Project officials as per following table:

Sr. No.	Roles & Functions	Official
1.	Enumeration & Data Entry	JE/AE
2.	Supervision	AEE
3.	Scrutiny	EE
4.	Validation	SE
5.	Final validation and Confirmation of Data to State Nodal Dept.	Chief Engineer
6.	Final submission of data to Central team (CWC)	State Nodal Officer

3.4 Scrutiny:

3.4.1 The data of any project has to be entered by the enumerators /JEs/AEs of the Project. The data of Irrigation Potential Utilized Season wise shall be collected by enumerators /JEs of the Project from the village accountants/Lekhpals or Patwaries /Patwars/ Girdavar/ Revenue official or any other official designated by the State/UT Government as per the need. The highest figure of Irrigation Potential Utilization (IPU) achieved so far shall be entered.

3.4.2 The immediate supervisory officer will have to do 100% test check of the data to ensure the correctness of the data collection. Further, 25% of the data will be scrutinized by the concerned Executive Engineer (EE). Afterwards Superintending Engineer (SE) level officer will validate the complete data entered.

3.4.3 After the completion of enumeration, entry, scrutiny & validation of the data filled in schedule, Chief Engineer of the Project will submit the confirmation of finalized data through portal to the State Nodal officer. The data submitted by State Nodal Officer to central team (CWC) shall be treated as final. However, CWC has the authority to edit/modify the data, if required.

3.4.4 For the processing of data, the web based online software developed by Central NIC, shall be used for data validation and tabulation etc. For all the MMI projects, it has to be ensured that the photographs of reservoir/dam/barrage/head works are also captured by enumerator by smart phone along with its latitude and longitude. The soft copies of these photographs in JPEG format are to be uploaded by enumerator or his immediate supervisor on the online software/app.

3.5 Progress Monitoring

3.5.1 The progress of Irrigation Census operations will be monitored on real time basis through web portal (dashboard). A dedicated team at the Centre as well as State/UT Headquarter would proactively monitor the progress of work and resolve issues, if any, on priority basis. In order to strengthen the monitoring system, multi-layer monitoring system would be adopted at Centre/ State.

3.5.2 At State/ UT level, the State Nodal officer including project Nodal officers will have access to the dashboard that displays status of all major and medium irrigation projects within those jurisdictions. At Centre level, the Dashboard will display status of all States major and medium irrigation projects within those States/UTs. The Dashboard will also display the total number of projects canvassed in each State at respective logins of State and Centre users.

3.6 TENTATIVE SCHEDULE OF THE CENSUSES

1.	Release of Central grant by the Centre	:	As and when demanded by States/UTs
2.	All India Training Workshop	:	August 2023
3.	Pilot testing of mobile app	:	October 2024
4.	Six Regional Training Workshops	:	December 2024 – January 2025
5.	State /District Training programmes	:	March 2025
6.	Start of field work of census on ground	:	April 2025
7.	Cleaning, validation and scrutiny of data	:	April 2025 to September 2025
8.	Examining of tables by Central Ministry	:	October 2025 to December 2025
9.	Publication of Key Results	:	March 2026
10	Final Report drafting and Publication	:	June 2026

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CHAPTER FOUR:

INSTRUCTIONS

FOR USING WEB APPLICATION

4.0. INSTRUCTIONS FOR USING WEB APPLICATION

4.1 INTRODUCTION

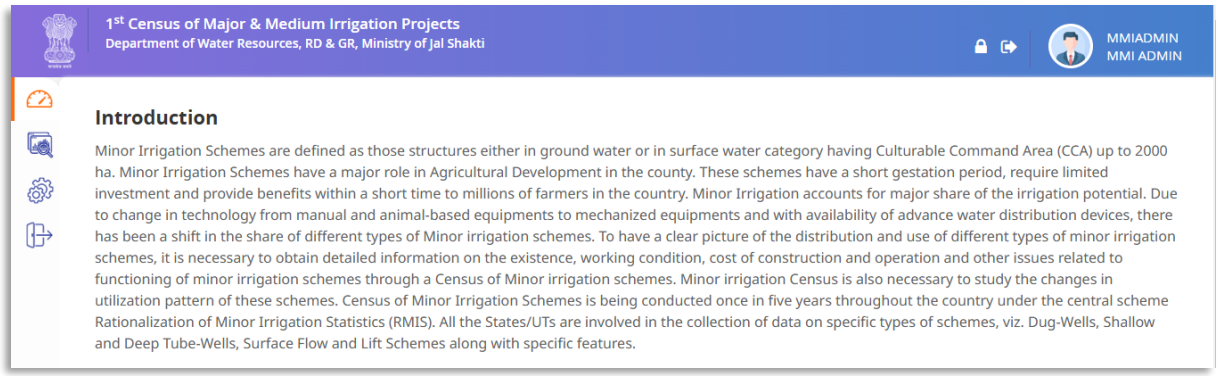
The **MMI User Manual** provides a structured guide for user roles, system navigation, and project management within the MMI System. Designed for hierarchical user management, the system enables smooth user creation, project mapping, and data entry, ensuring accuracy and approval at multiple levels.

- Navigate to the url “https://wrcensus.mowr.gov.in

- Click on Major & Medium Irrigation Census tab, related login screen will appear.

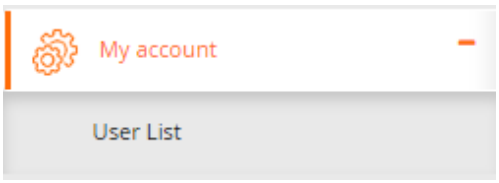
MMI Admin Login

- **Login** using the credentials of the MMI Admin. The **Dashboard** will be displayed.

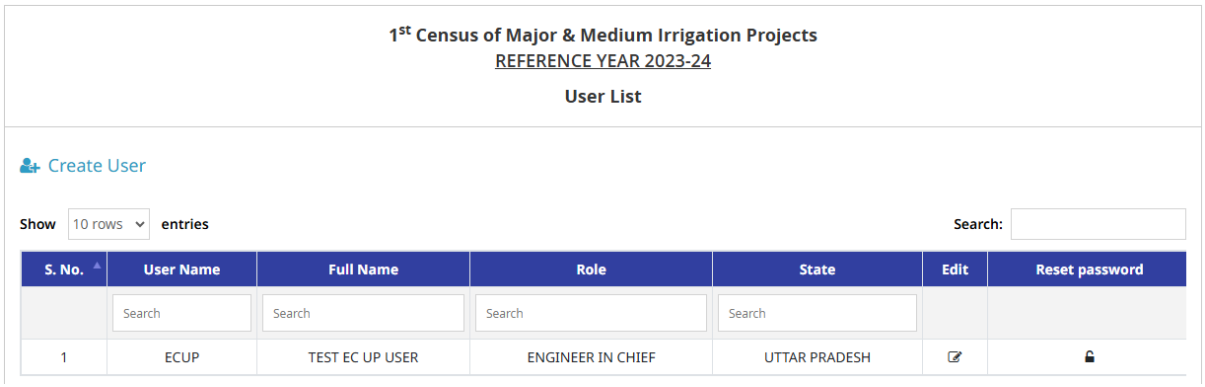


User List

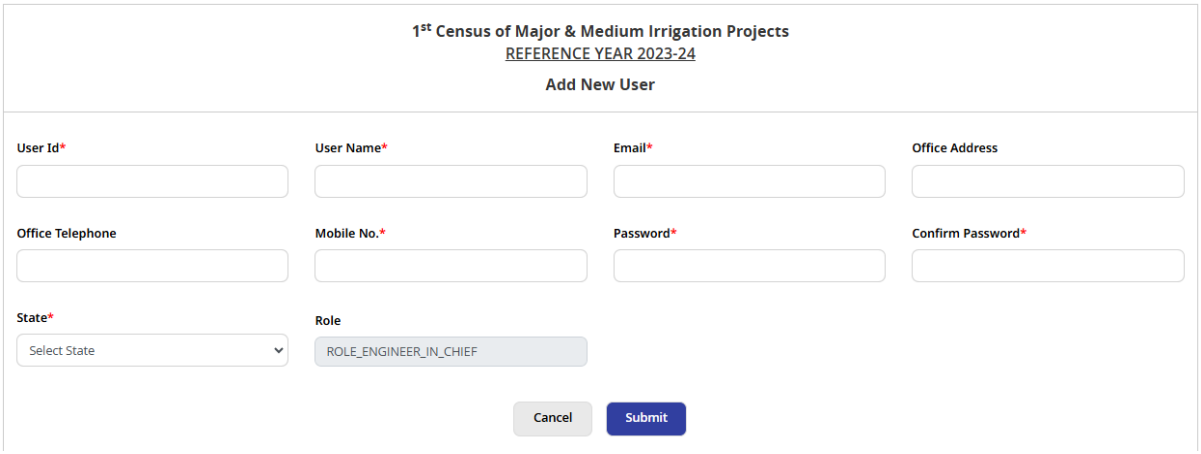
- Click on the plus icon next to the "My Account" menu. This will display the sub-menu "User List"



- Select “User List” to view all created Engineers in Chief for any state. The following screen will appear

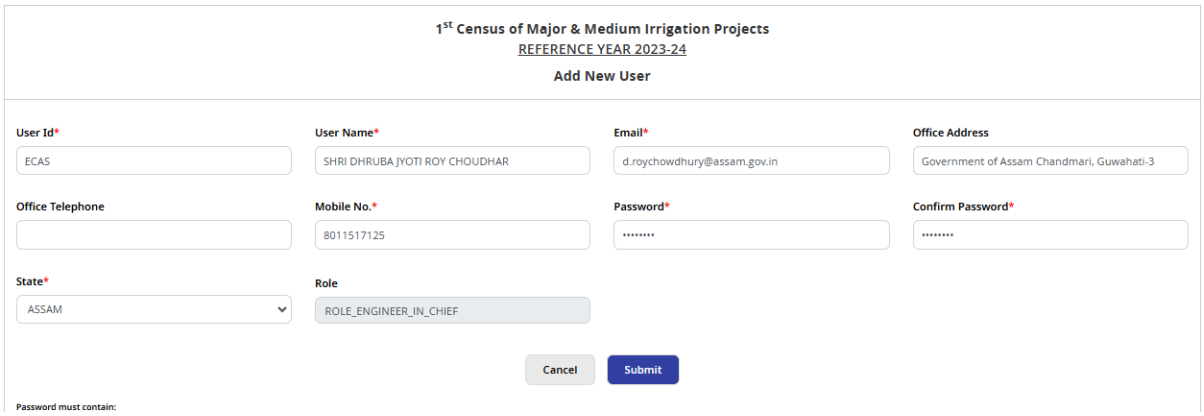


➢ Click on the “Create User” link to add a new Engineer in Chief

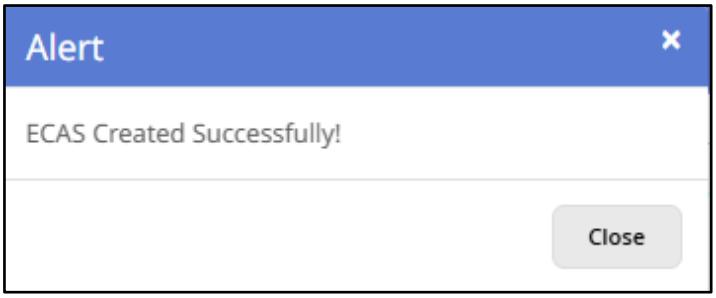


➢ Fill out the mandatory fields

Note:- Password must contain at least 8 character,1 special character, 1 Upper-Case letter and 1 Numerical digit



➢ Click on the Submit button. A success message will be displayed

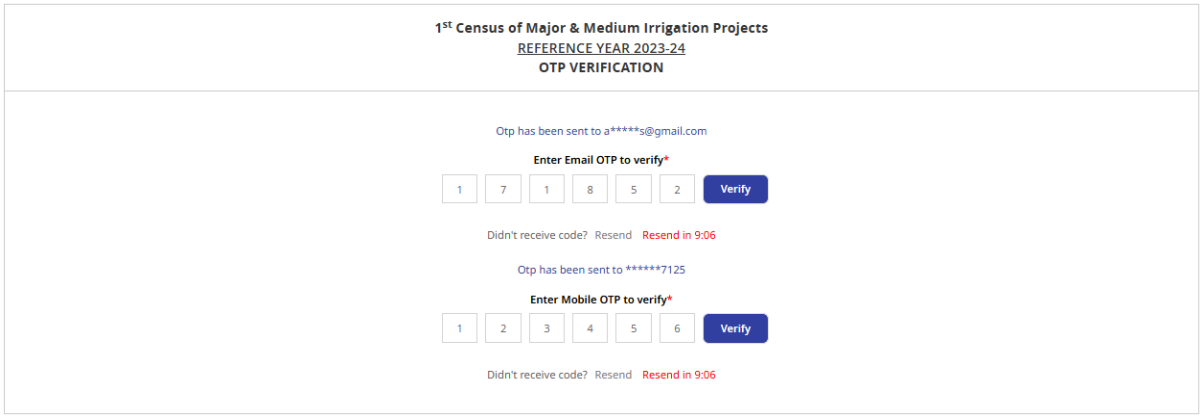


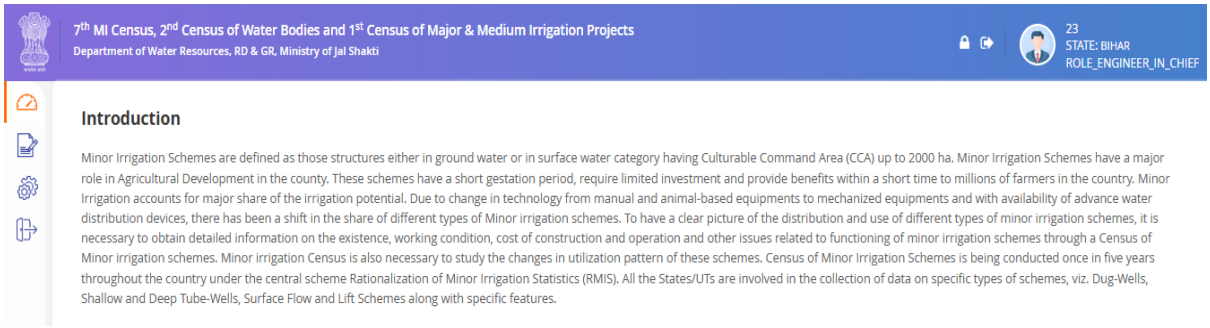
Note:- MMI Admin can create only one Engineer in Chief for a particular state

Use the credentials entered during the user creation process to log in as the Engineer in Chief.

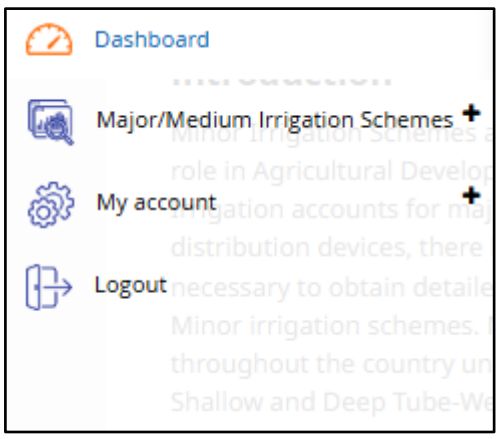
State Nodal officer Login

- Verify the **OTP (First-Time)** and **log in** as the Engineer-in-Chief. Upon successful authentication, the **Dashboard** will be displayed.



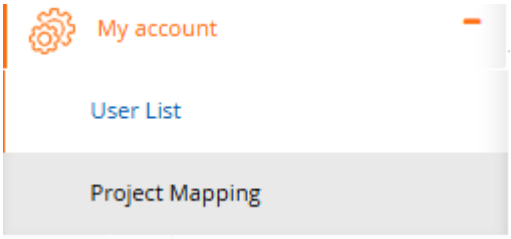


- Mouse hover on left side navigation menu

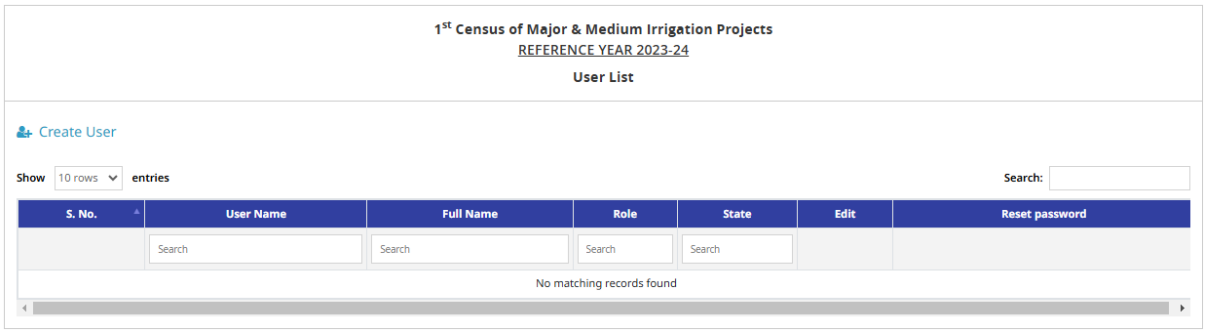


User List

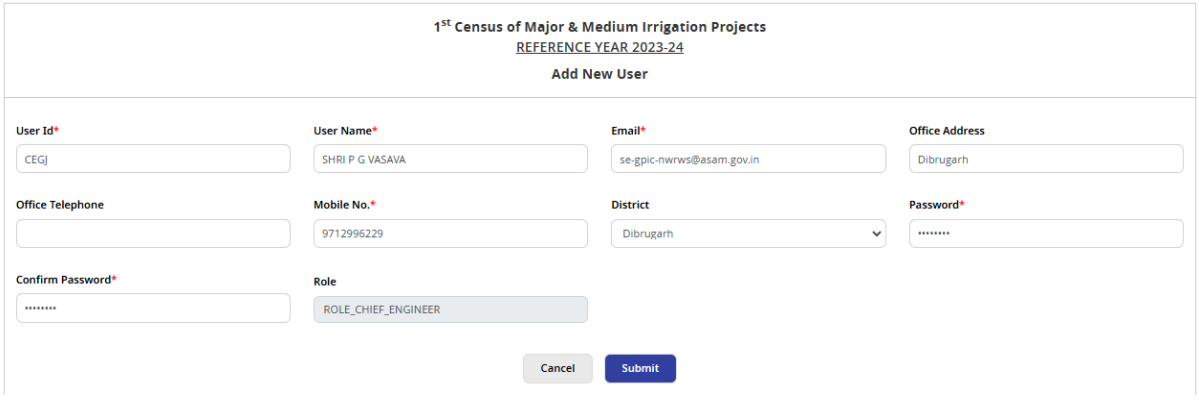
- Click on the plus icon next to the "My Account" menu. This will display the sub-menu "User List”



- Select “User List” . The following screen will appear

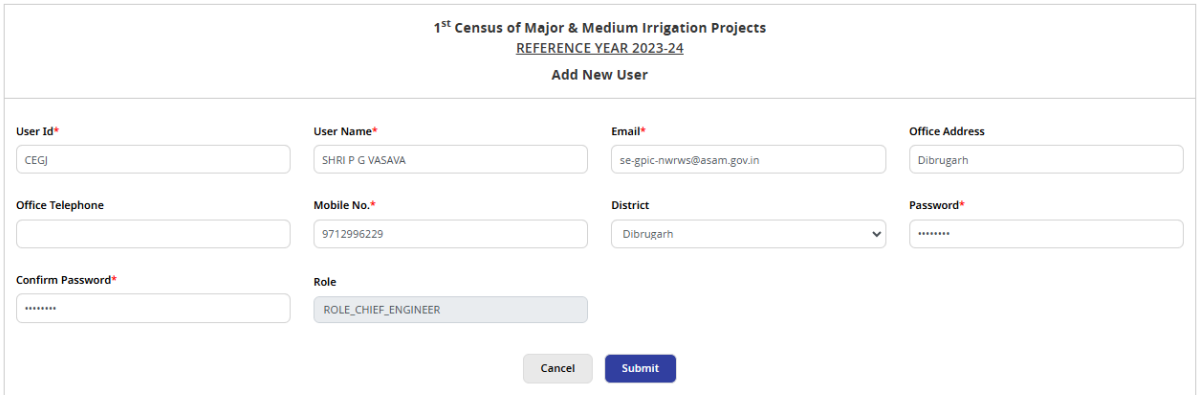


- Click on the “Create User” link to add a Chief Engineer
- The Engineer in Chief can only create Chief Engineer of that same state to which Engineer in Chief belongs

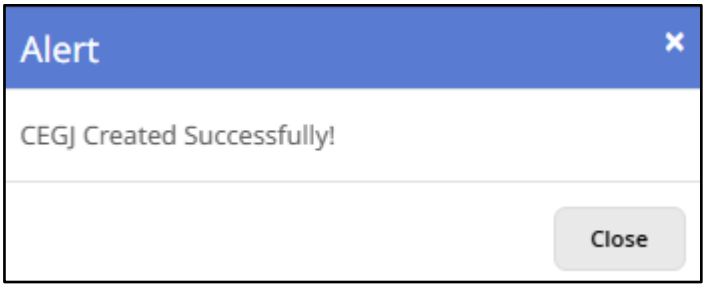


- Fill out the mandatory fields

Note:- Password must contain at least 8 character,1 special character, 1 Upper-Case letter and 1 Numerical digit



➢ Click on the Submit button. A success message will be displayed

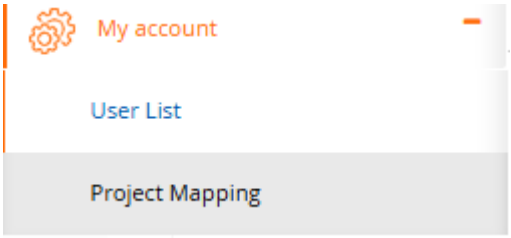


Note :- Engineer in Chief can create multiple Chief Engineer for a particular state

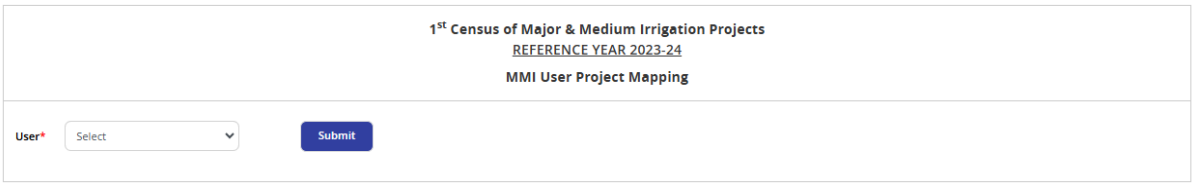
Use the credentials entered during the user creation process to log in as the Chief Engineer

Project Mapping

➢ Click on the plus icon next to the "My Account" menu. This will display the sub-menu "User List" and "Project Mapping"

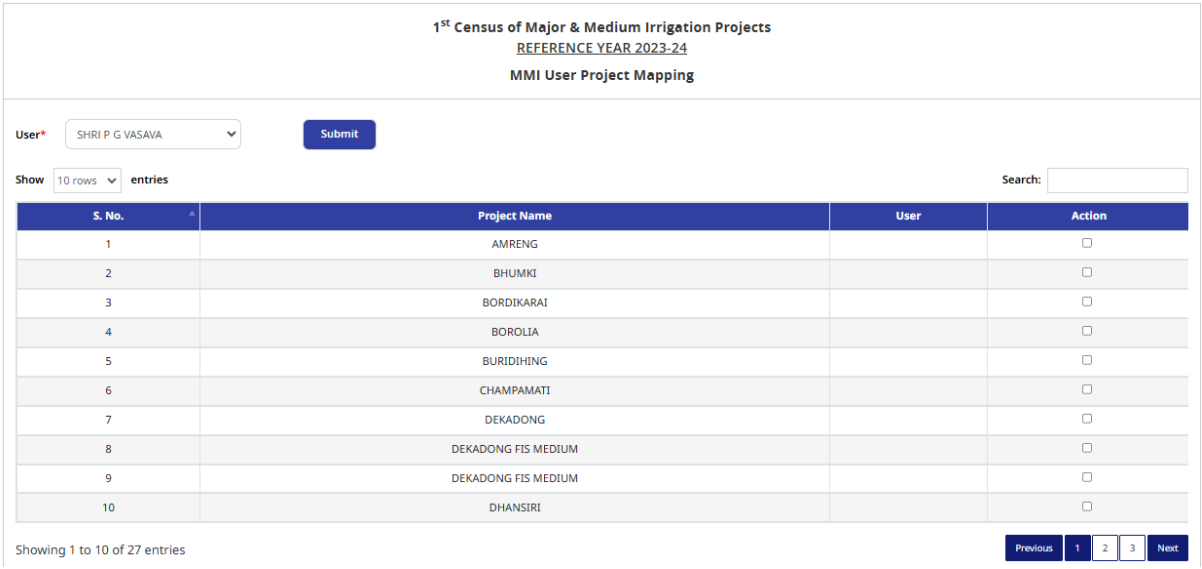


➢ Select "Project Mapping". The following screen will appear

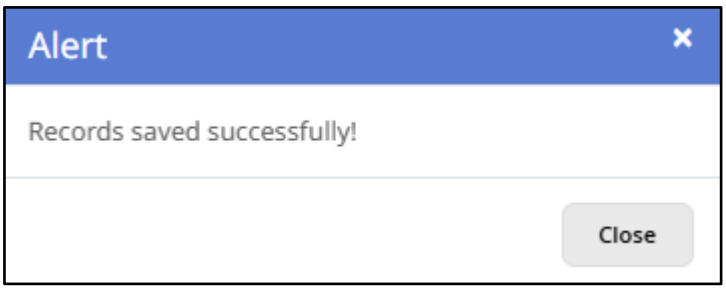


➢ Select User

➢ Click the Submit button, and a list of Projects will be shown

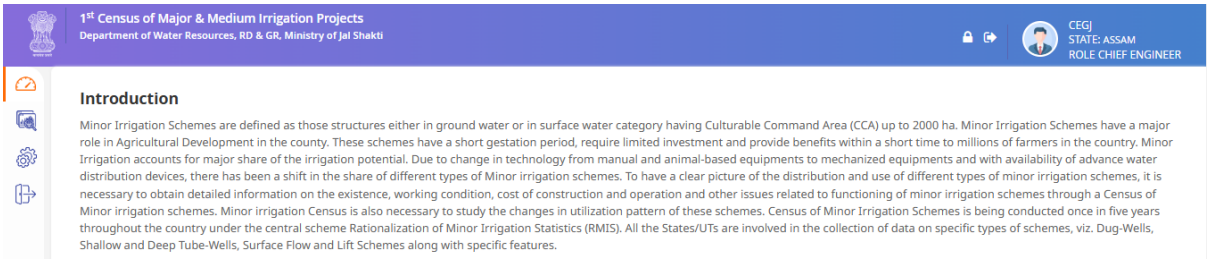


- Check the boxes next to the Project Name you wish to map to the selected user.
- After selecting the Project, click the **Submit** button to complete the mapping process.

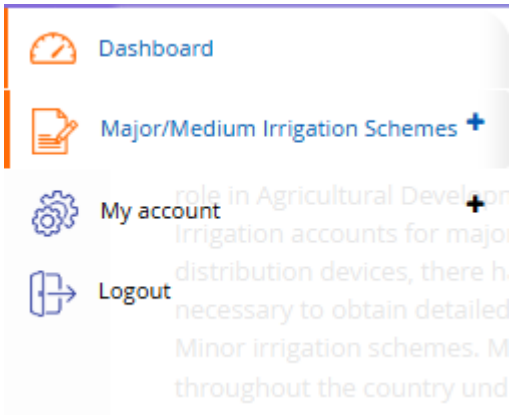


Project Nodal officer (Level I) Login

- **Login** as Chief Engineer . The **Dashboard** will be displayed.

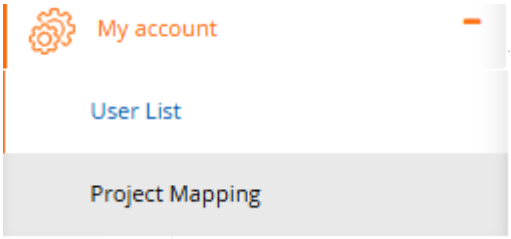


- Mouse hover on left side navigation menu

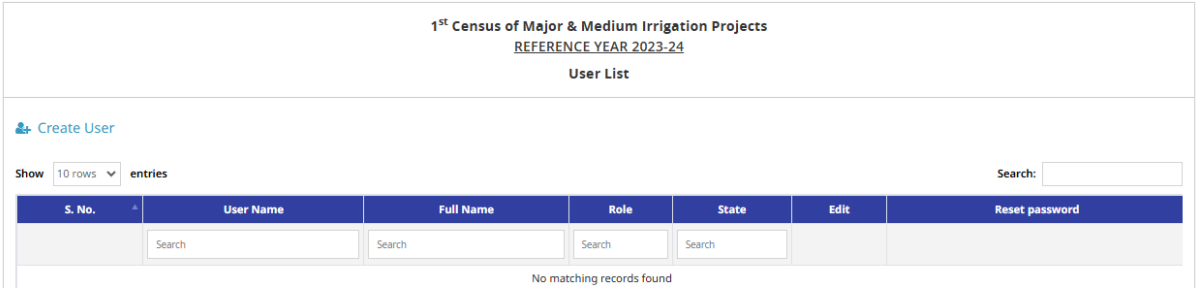


User List

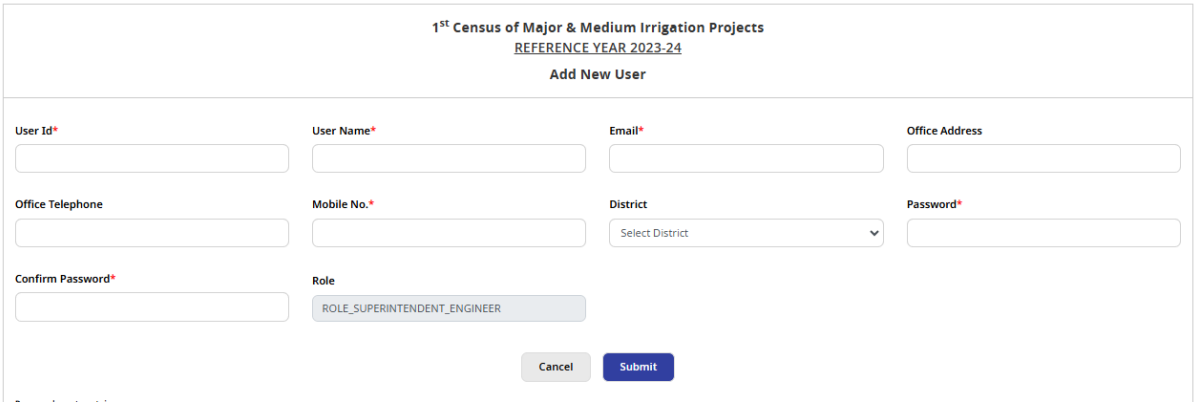
- Click on the plus icon next to the "My Account" menu. This will display the sub-menu "User List"



- Select “User List” . The following screen will appear

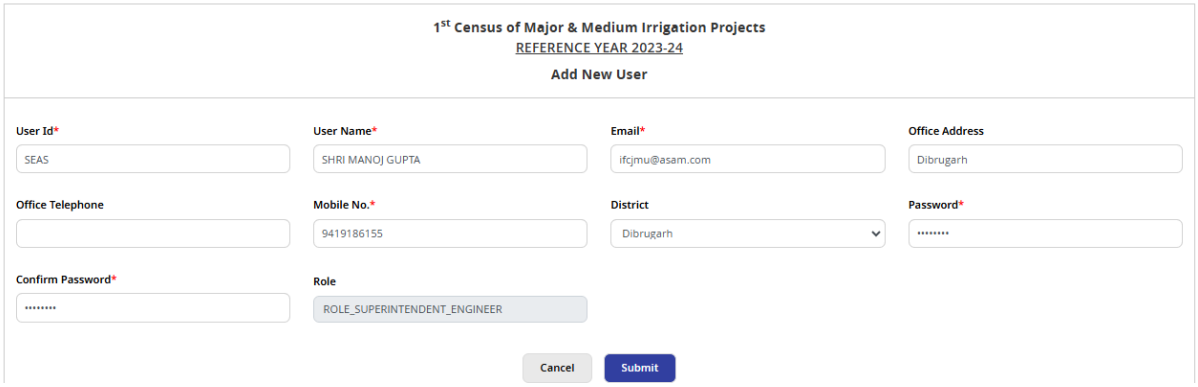


- Click on the “Create User” link to add a Superintendent Engineer
- The Chief Engineer can create multiple Superintendent Engineers, but only for the same state to which the Chief Engineer belongs.

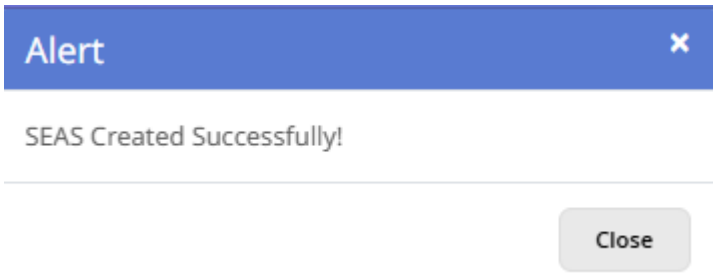


- Fill out the mandatory fields

Note:- Password must contain at least 8 character,1 special character, 1 Upper-Case letter and 1 Numerical digit



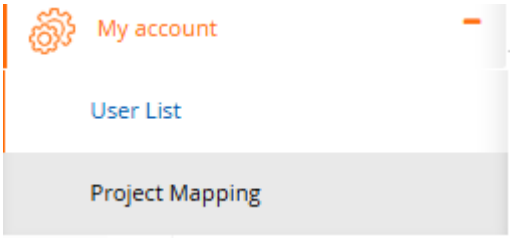
- Click on the Submit button. A success message will be displayed



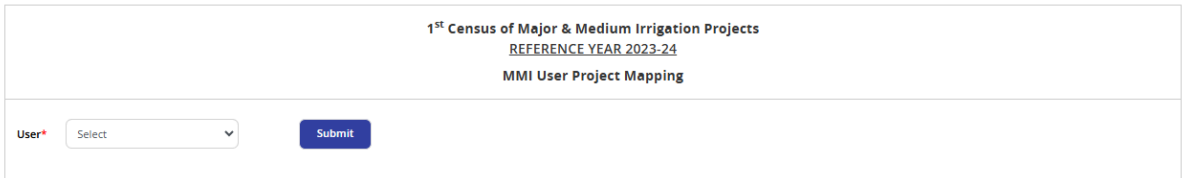
Use the credentials entered during the user creation process to log in as the Supeintendent Engineer

Project Mapping

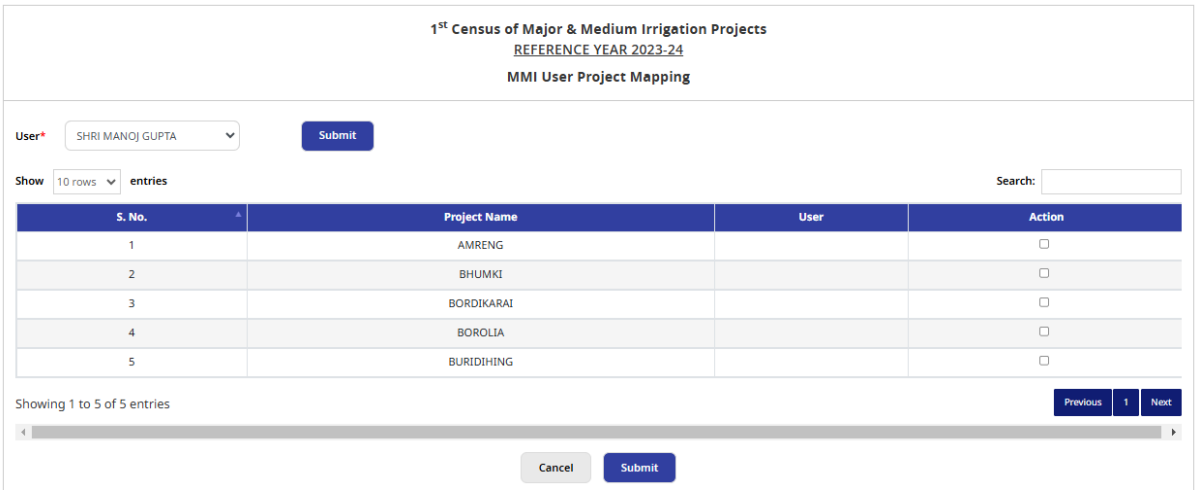
- Click on the plus icon next to the "My Account" menu. This will display the sub-menu "User List" and "Project Mapping"



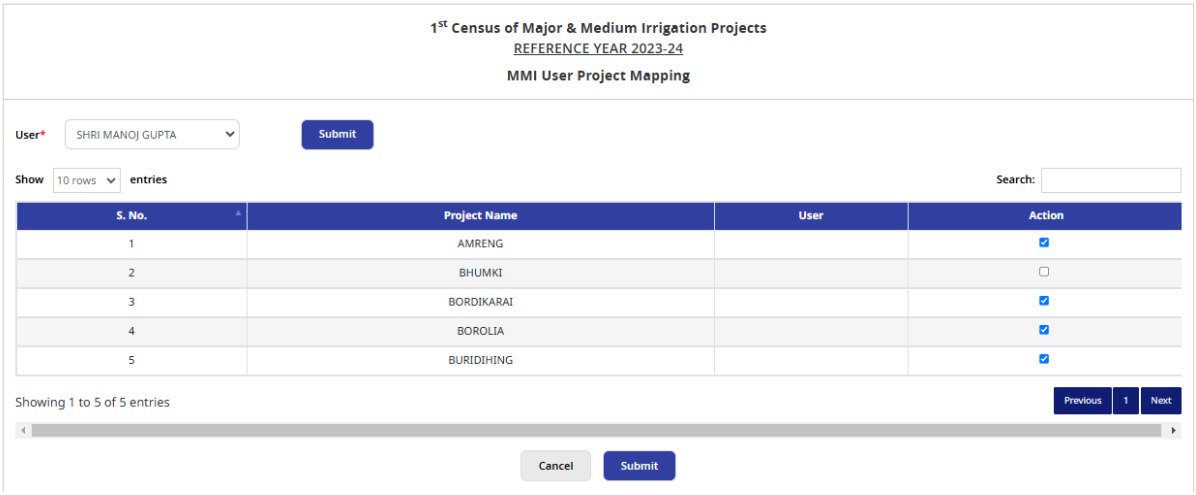
- Select "Project Mapping". The following screen will appear



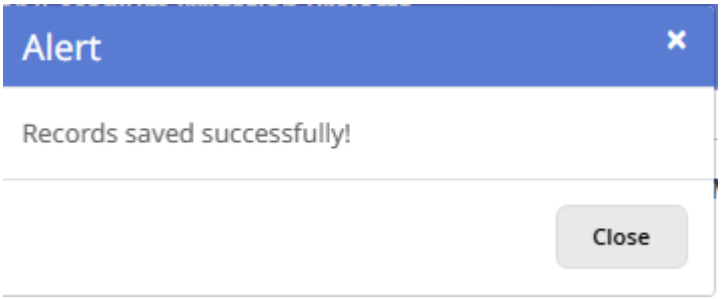
- Select User
- Click the Submit button to display the list of projects mapped to the Chief Engineer.



➢ Check the boxes next to the Project Name you wish to map to the selected user.



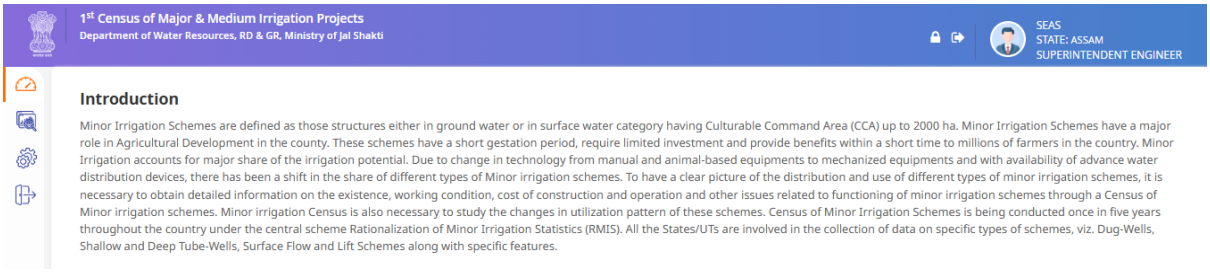
➢ After selecting the Project, click the **Submit** button to complete the mapping process.



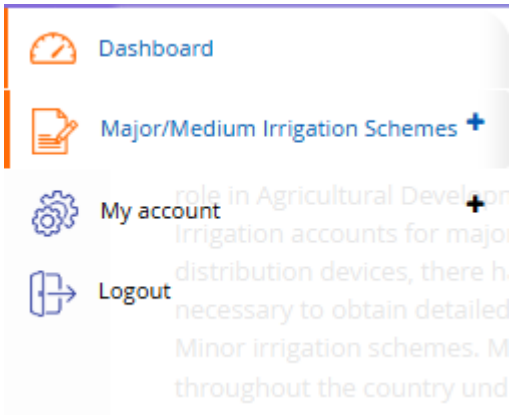
➢ The selected projects are now successfully mapped to the **Superintendent Engineer.**

Project Nodal officer (Level II) Login

➢ **Login** as Superintendent Engineer . The **Dashboard** will be displayed.

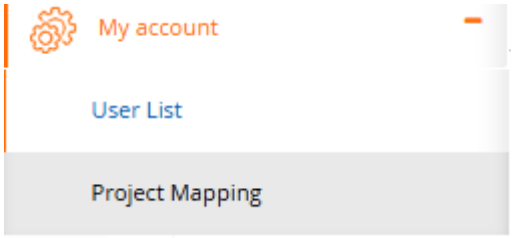


- Mouse hover on left side navigation menu

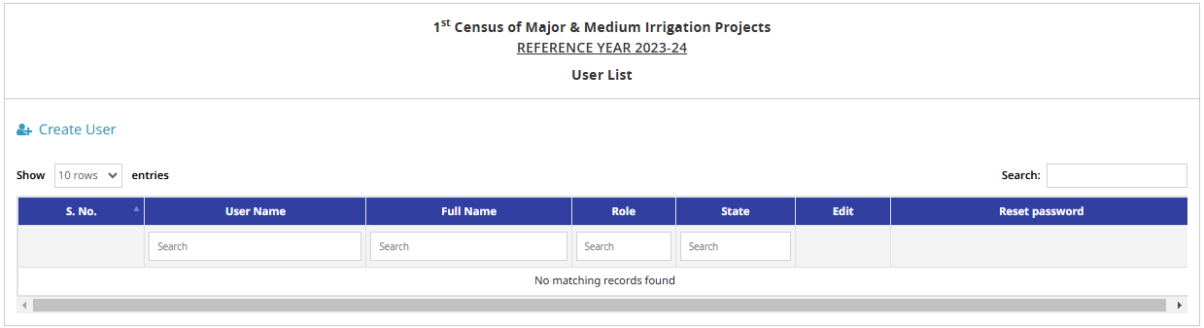


User List

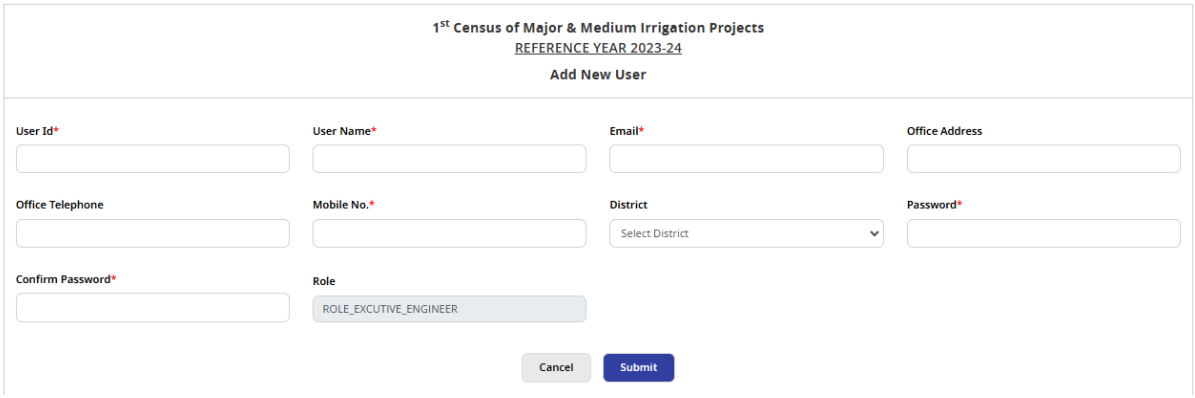
- Click on the plus icon next to the "My Account" menu. This will display the sub-menu "User List"



- Select “User List” . The following screen will appear

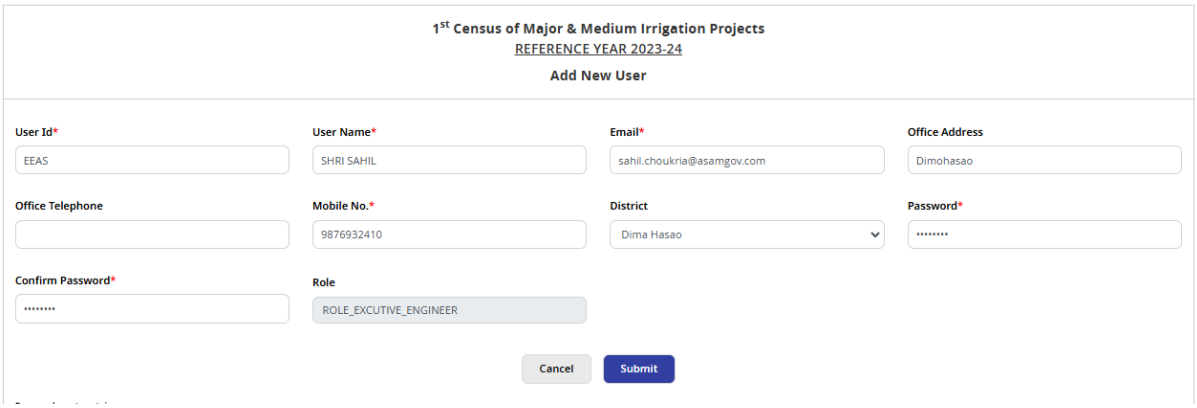


- Click on the “Create User” link to add a Superintendent Engineer
- The Superintendent Engineer can create multiple Executive Engineers, but only for the same state to which the Superintendent Engineer belongs.

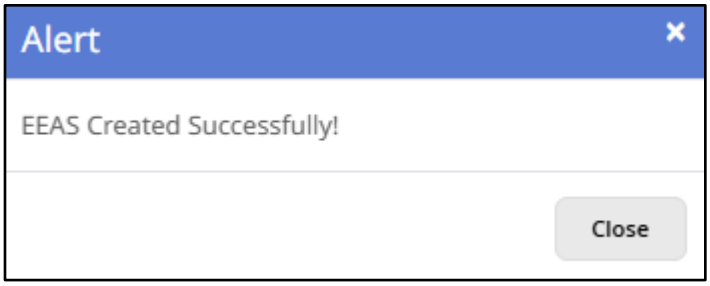


➢ Fill out the mandatory fields

Note:- Password must contain at least 8 character,1 special character, 1 Upper-Case letter and 1 Numerical digit



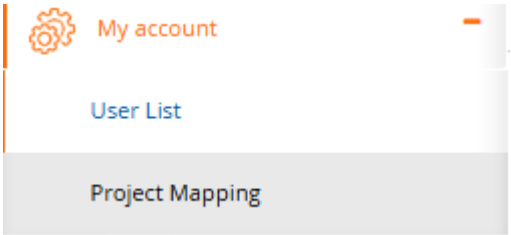
➢ Click on the Submit button. A success message will be displayed



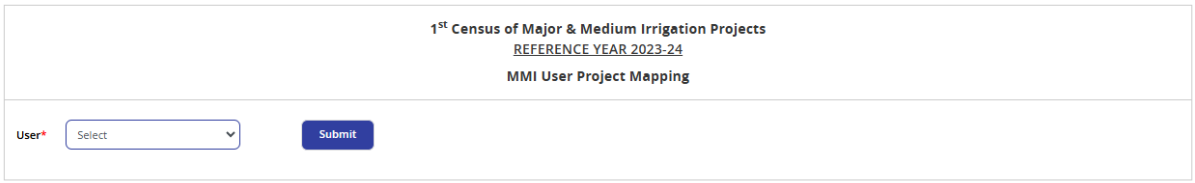
Use the credentials entered during the user creation process to log in as the Executive Engineer

Project Mapping

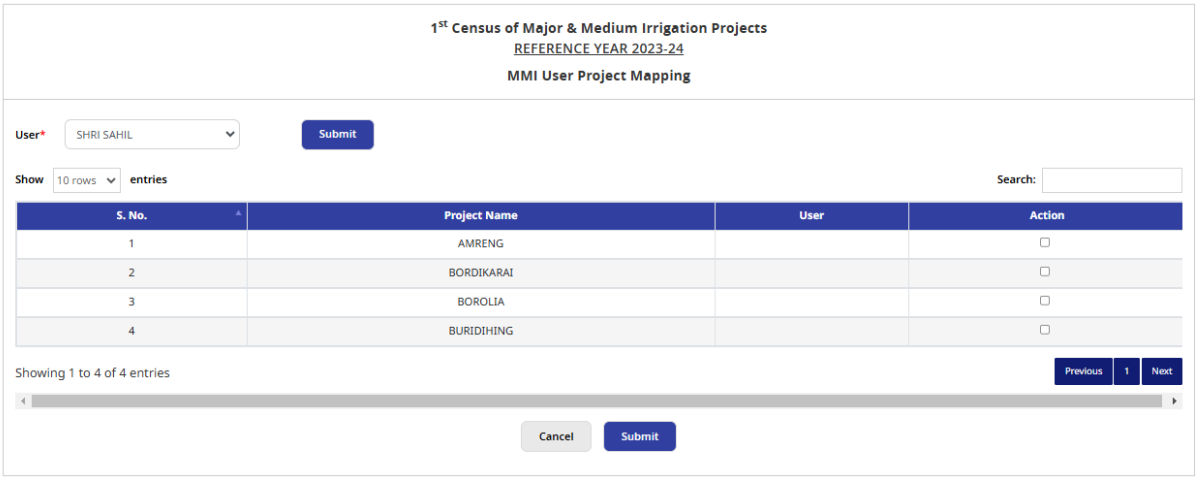
➢ Click on the plus icon next to the "My Account" menu. This will display the sub-menu "User List" and “Project Mapping”



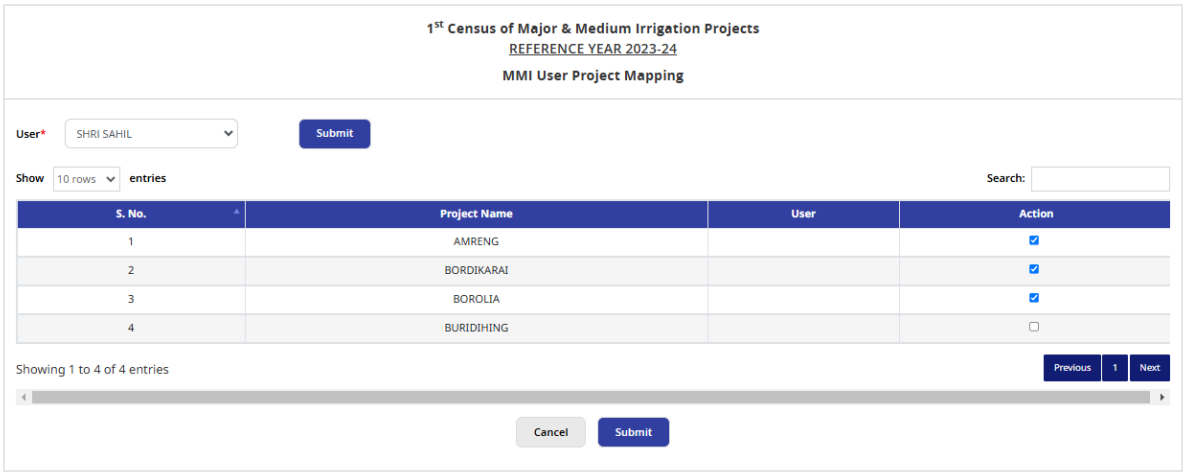
➢ Select “Project Mapping”. The following screen will appear



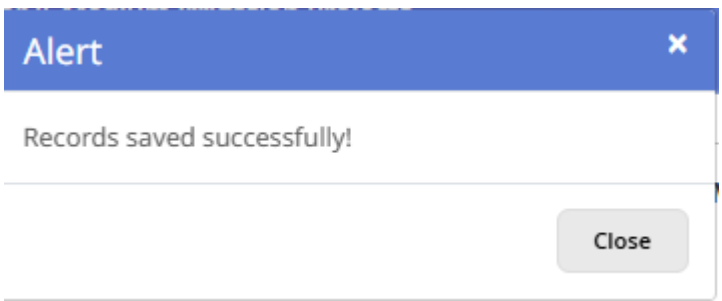
- Select User
- Click the Submit button to display the list of projects mapped to the Superintendent Engineer.



- Check the boxes next to the Project Name you wish to map to the selected user.



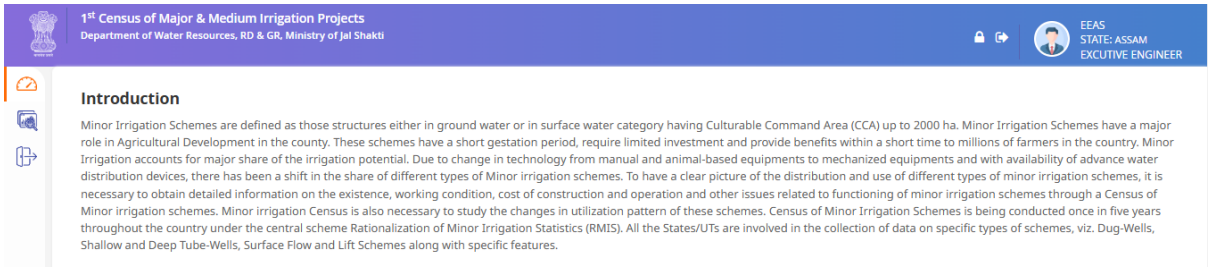
- After selecting the Project, click the **Submit** button to complete the mapping process.



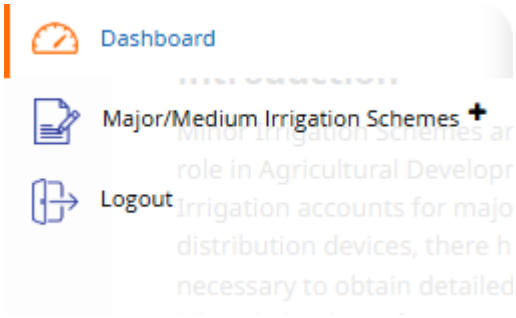
- The selected projects are now successfully mapped to the **Executive Engineer.**

Project Nodal officer (Level III) Login

- **Login** as Executive Engineer . The **Dashboard** will be displayed.

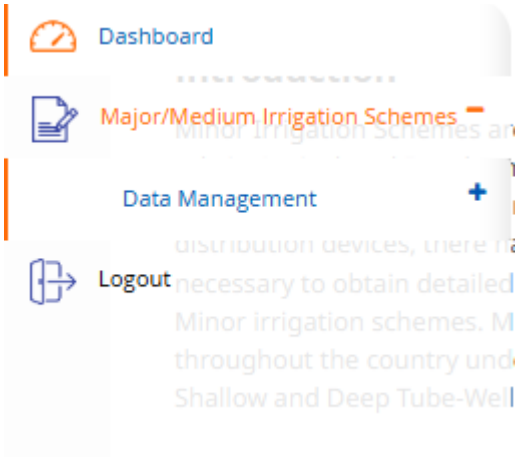


- Mouse hover on left side navigation menu

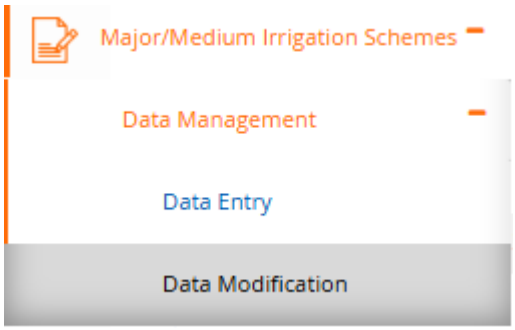


Major/Medium Irrigation Schemes

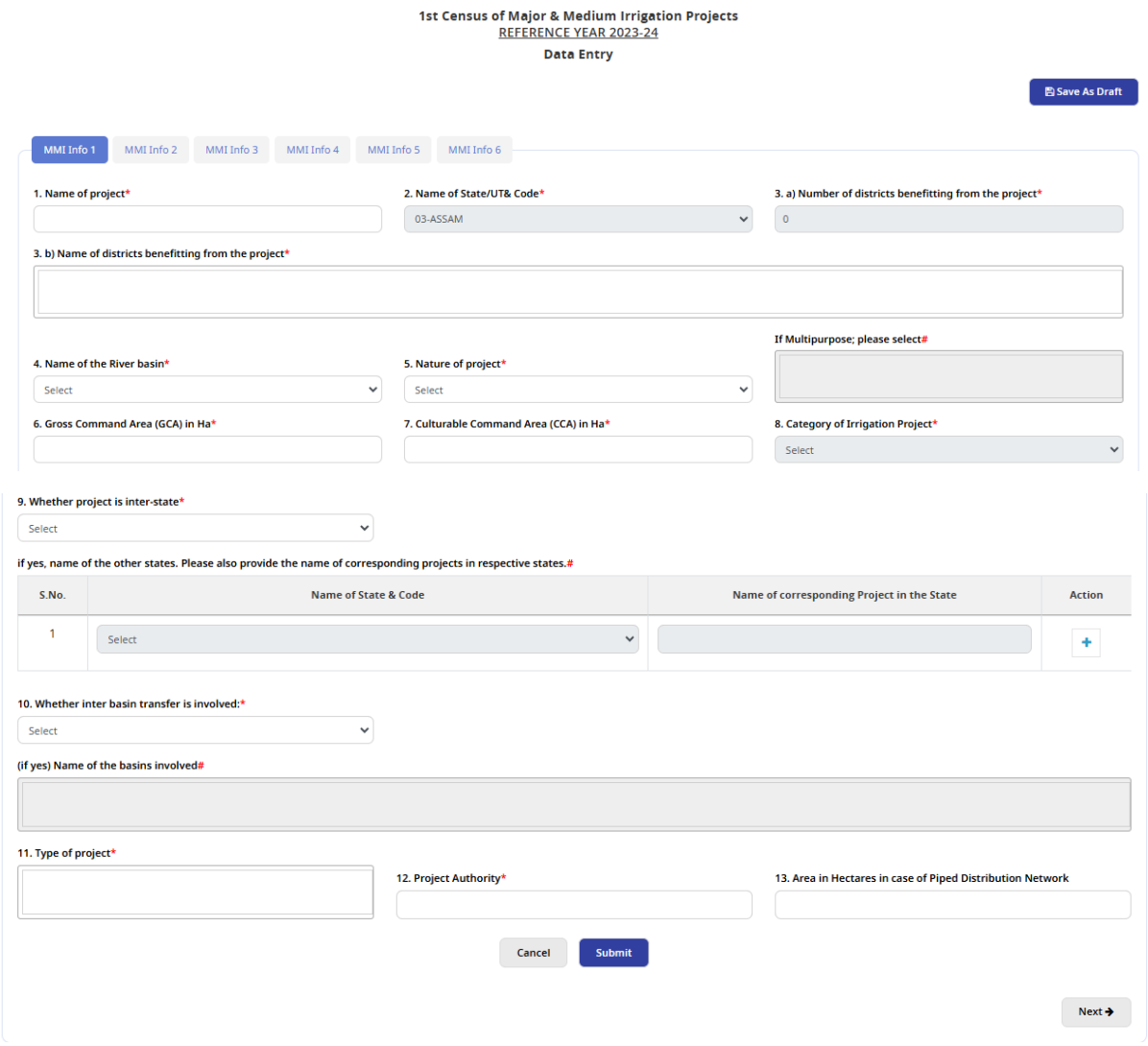
- Click on the plus icon next to the "Major/Medium Irrigation Schemes" menu. This will display the sub-menu “Data Management”



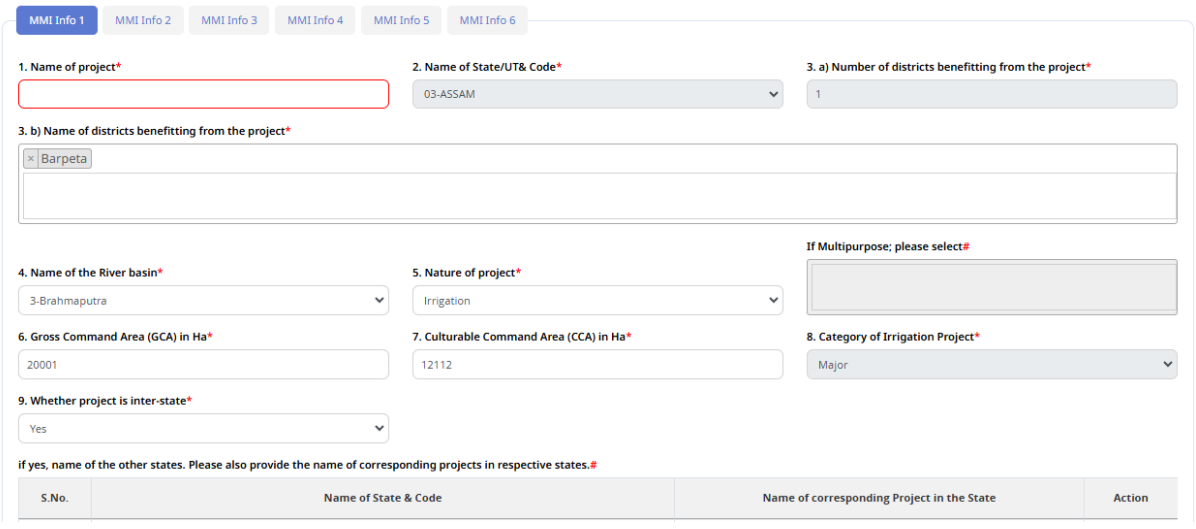
- Click on the plus icon next to the "Data Management" sub menu. This will display the further sub-menus”



- If no project is mapped to the Executive Engineer, a new project can be created using the Data Entry form.
- Click on Data Entry to open the form



- Fill mandatory fields



4. Name of the River basin*

3-Brahmaputra

5. Nature of project*

Irrigation

6. Gross Command Area (GCA) in Ha*

20001

7. Culturable Command Area (CCA) in Ha*

Value must be greater than 2000

8. Category of Irrigation Project*

Select

9. Whether project is inter-state*

Yes

if yes, name of the other states. Please also provide the name of corresponding projects in respective states.#

S.No.	Name of State & Code	Name of corresponding Project in the State	Action
1	02-ARUNACHAL PRADESH	PROJECT BRAHMAPUTRA	+

10. Whether inter basin transfer is involved:*

No

- If any field has information regarding entry, that information will display while filling data as shown below:-

6. Gross Command Area (GCA) in Ha

300

Value must be greater than 2000

- After filling all fields, click on Submit button, it will redirect to next tab and Fill the details

MMI Info 1 | MMI Info 2 | MMI Info 3 | MMI Info 4 | MMI Info 5 | MMI Info 6

14. Ultimate Irrigation Potential (UIP) in Ha*

200

15. Season wise irrigation potential created (IPC) in Ha*

S.No.	Crop Season	As envisaged in DPR	As per actual
1	Khariff	1	2
2	Rabi	2	7
3	Bi Seasonal	2	7
4	Perennial	2	4
5	Summer season	3	3
6	Others	4	2
	Total	14.00	25.00

16. Season wise irrigation potential utilized (IPU) in Ha [Maximum potential utilized, so far]*

S.No.	Crop Season	As per actual
1	Khariff	1
2	Rabi	1
3	Bi Seasonal	1
4	Perennial	1
5	Summer season	1
6	Others	1
	Total IPU	6.00

17. Existing cropping pattern in the command Area*

S.No.	Crop Season	Name of Crop	Area under the crop (Ha)		Action
			As envisaged in DPR	As per actual	
1	Khariff	CROP	1	2	+
2	Rabi	CROP	1	2	+
3	Bi Seasonal	CROP	1	2	+
4	Perennial	CROP	1	2	+
5	Summer season	CROP	1	2	+
6	Others	CROP	1	2	+

Cancel Submit

- After filling all details, click on Submit button , user will redirect to next tab
- Fill the fields in MMI Info 3

MMI Info 1 | MMI Info 2 | MMI Info 3 | MMI Info 4 | MMI Info 5 | MMI Info 6

18. No. of villages benefitted*

19. No. of people benefitted*

1	SC	2
2	ST	3
3	OBC	4
4	General	5
Total		14

Total should be the same

1	Male	1 ☐ If Not Available
2	Female	1 ☐ If Not Available
3	Transgender	1 ☐ If Not Available
Total		3

20. Whether the command area of the project is benefitting the area under Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), Tribal area, Flood prone area, left wing extremism affected area, Koraput, Bolangir and Kalahandi (KBK) regions of Odisha, Vidarbha & Marathwada regions of Maharashtra and Bundelkhand region of Madhya Pradesh & Uttar Pradesh (If yes, Please provide the following information in Ha :)*

No

i. Area under Drought Prone Area Programme (DPAP).#

ii. Area under Desert Development Programme (DDP).#

iii. Tribal area#

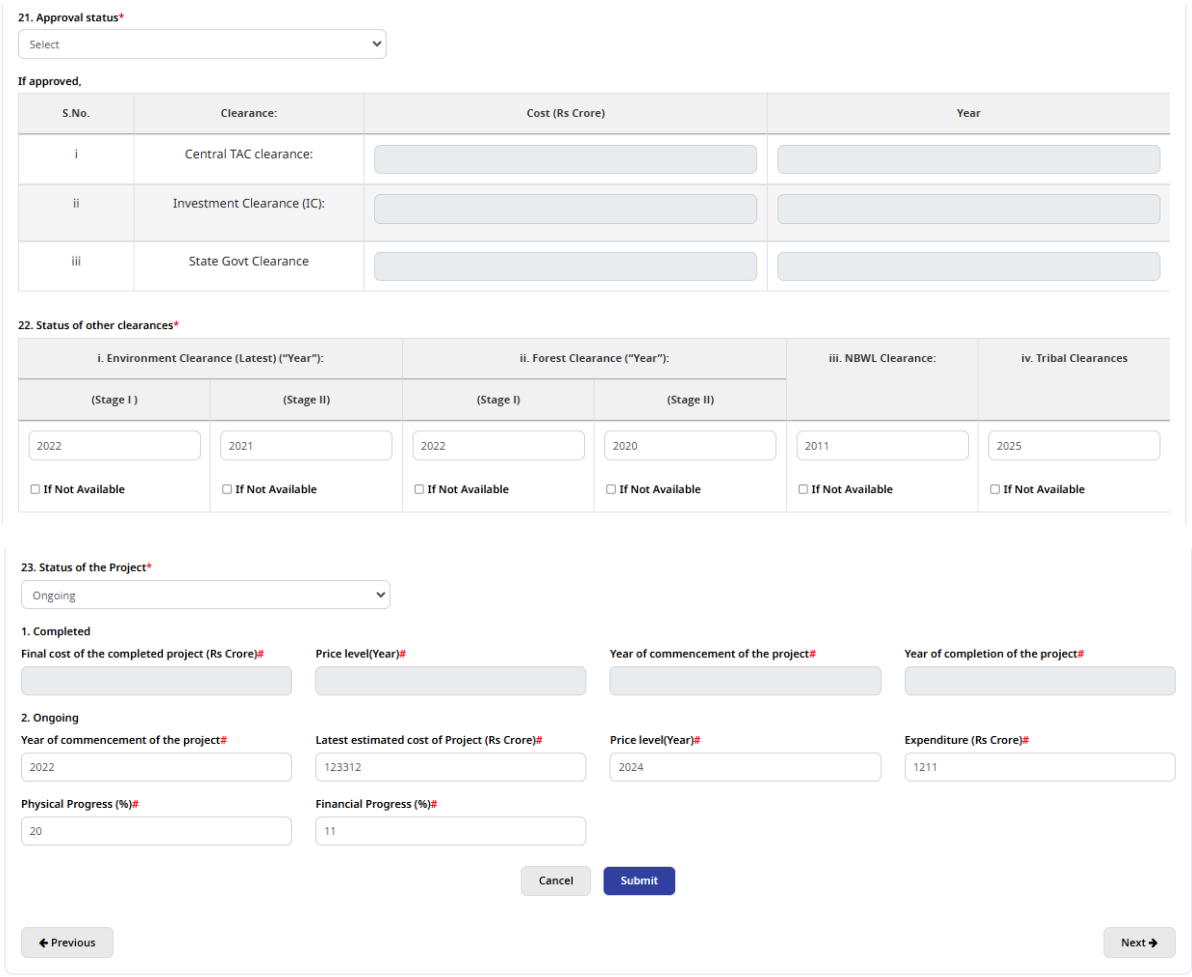
iv. Flood prone area.#

v. Left wing extremism affected area#

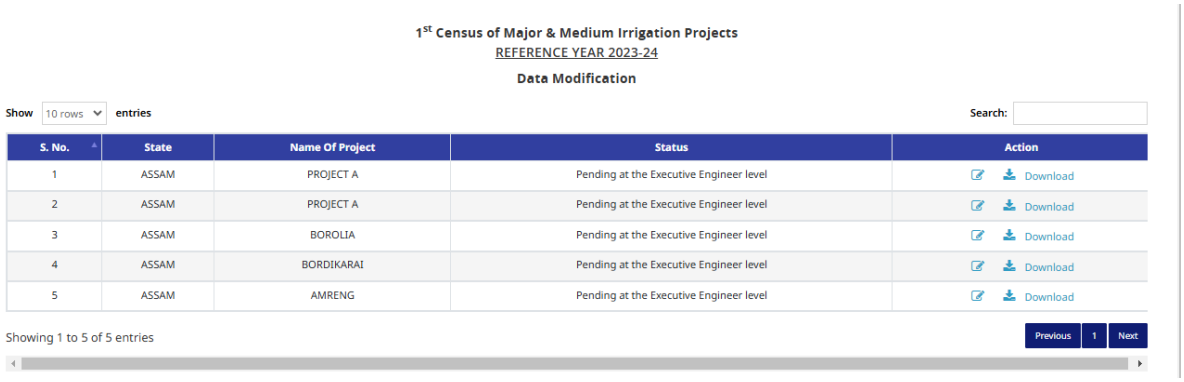
vi. Area under Koraput, Bolangir and Kalahandi (KBK) regions of Odisha#

vii. Area under Vidarbha & Marathwada regions of Maharashtra#

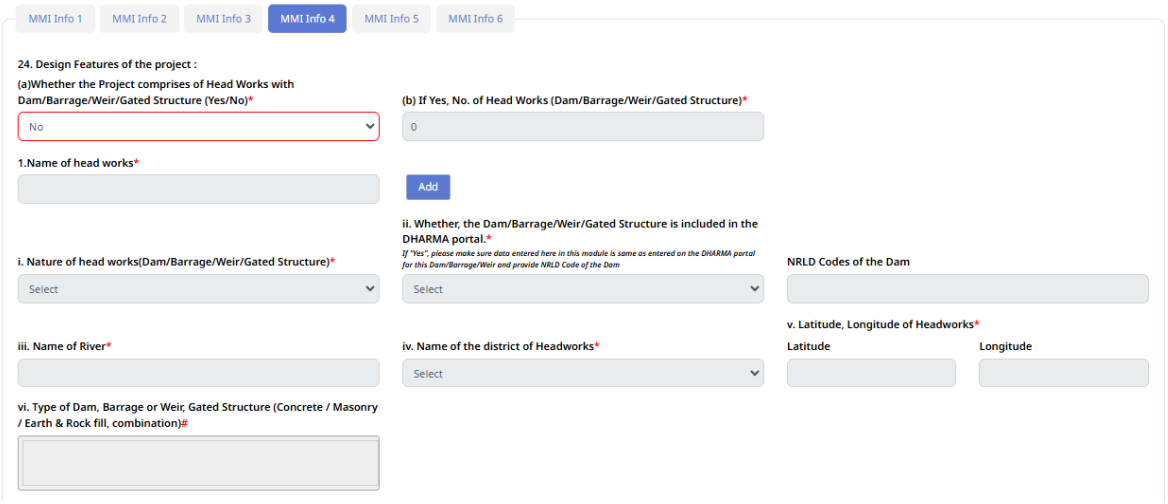
viii. Area under Bundelkhand region of Madhya Pradesh & Uttar Pradesh#

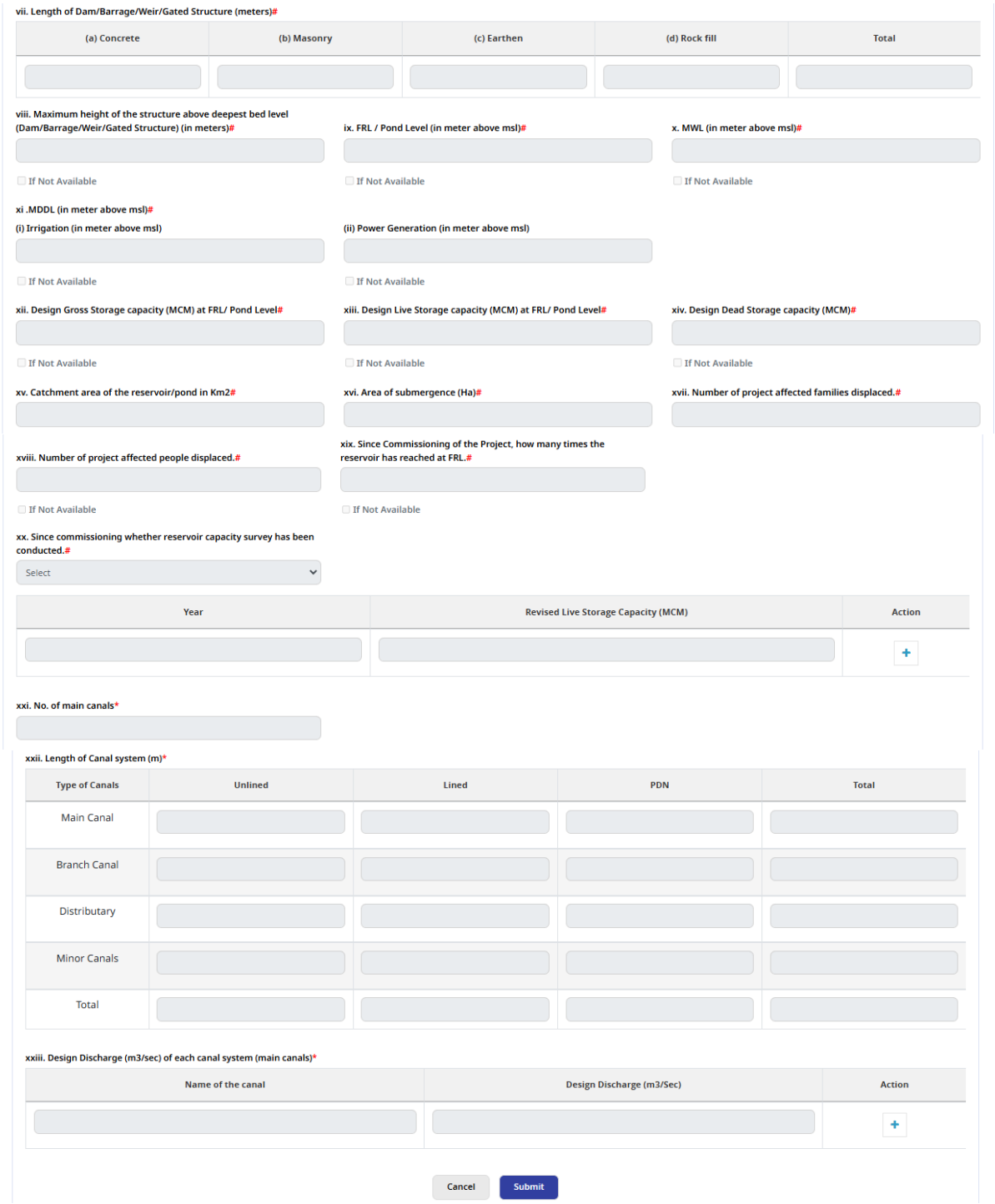


- After filling all details, click on Submit button , data will get saved, user will redirect to next tab
- If the form cannot be completed in one go, click the Save as Draft button to save progress without submitting the data.
- This allows users to revisit and complete the form later.
- Go to **Data Modification** to view projects that are mapped to the Executive Engineer or saved as drafts.
- Click on Data Modification

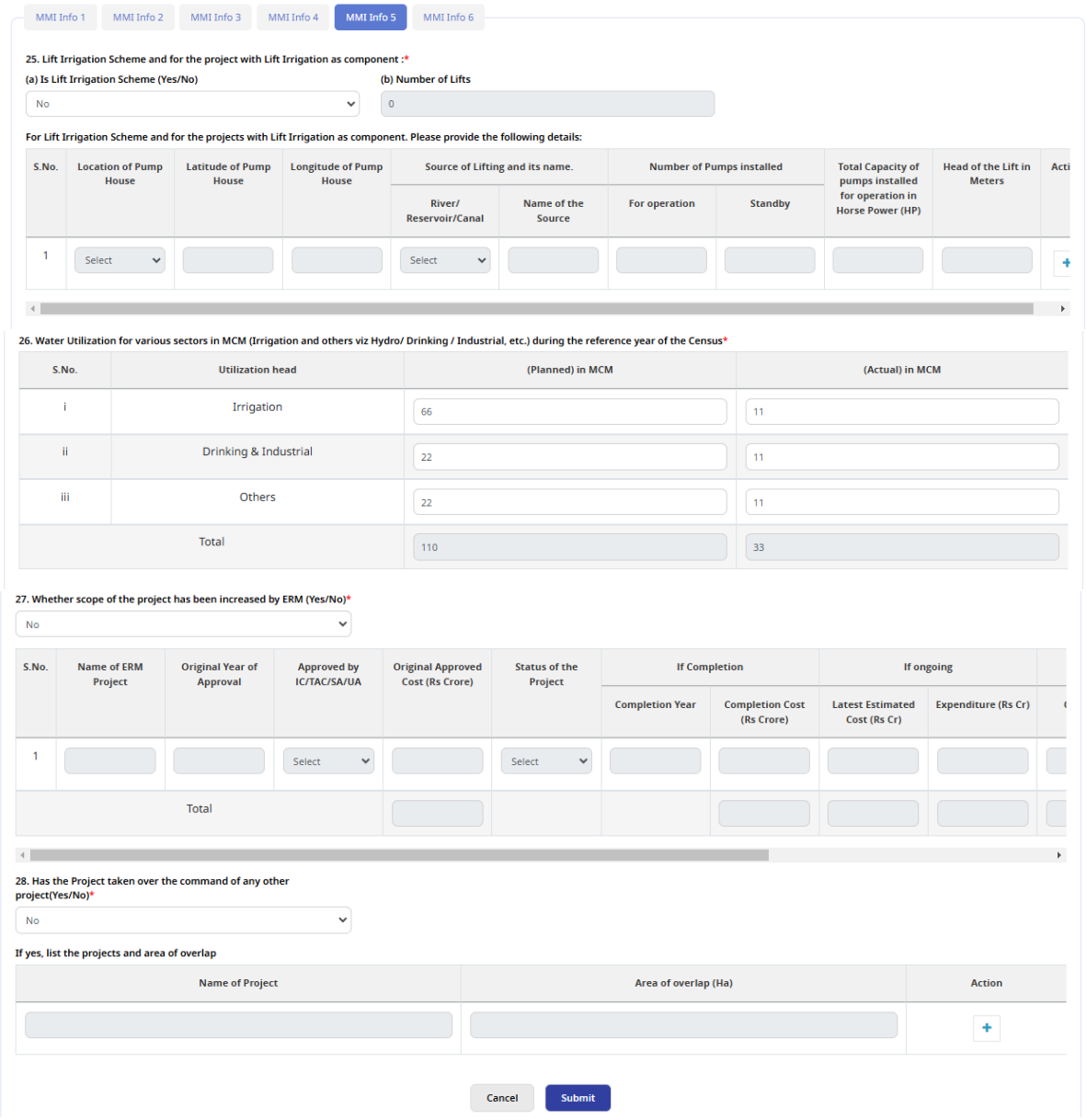


- Select a project and click on the **Edit Icon** to open it in editable mode.
- Navigate to the specific tab using the **Next** button to continue from where you left off (e.g., start from **MMI Info 4**).

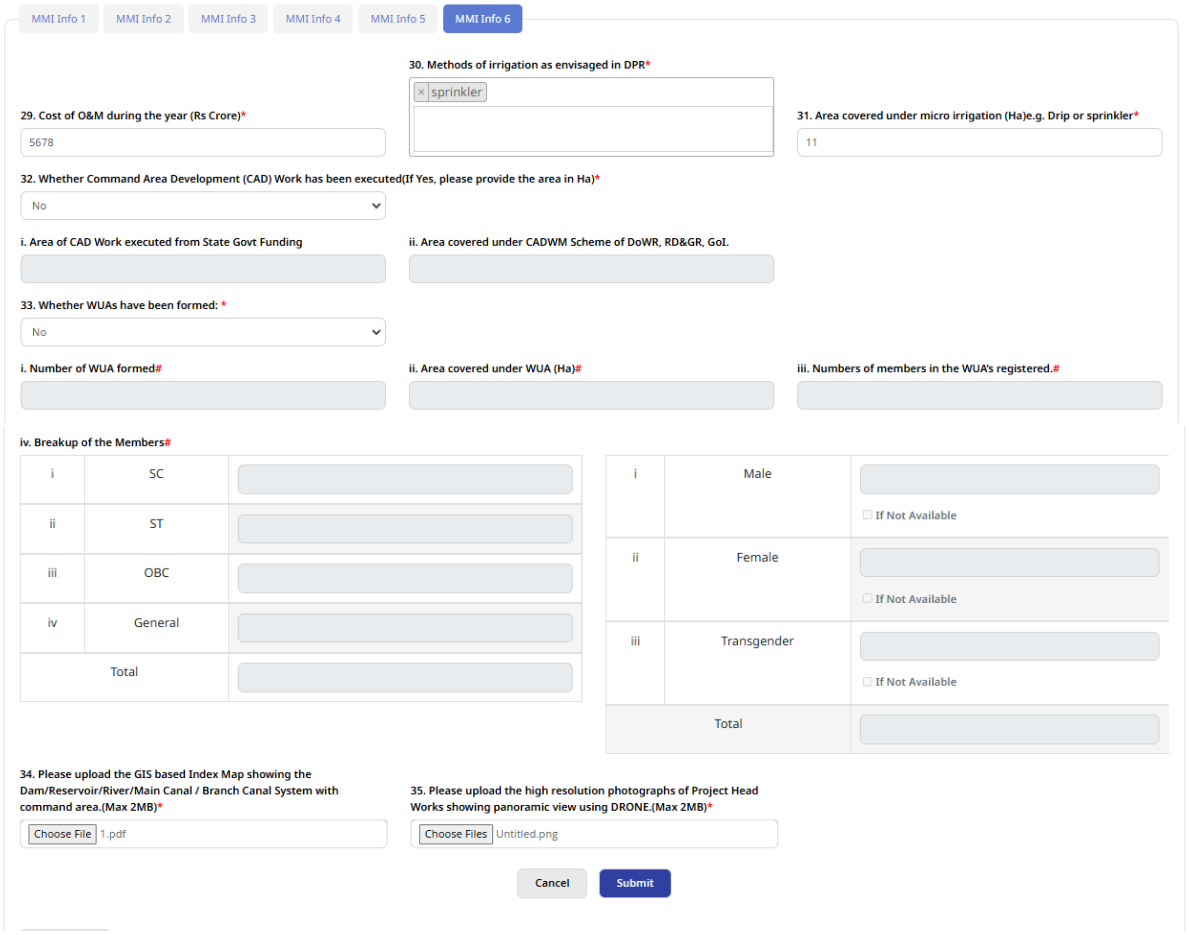




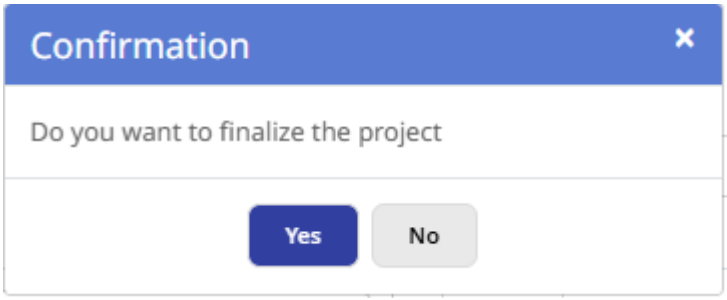
- Fill in the remaining details on each tab and click **Submit** after each one



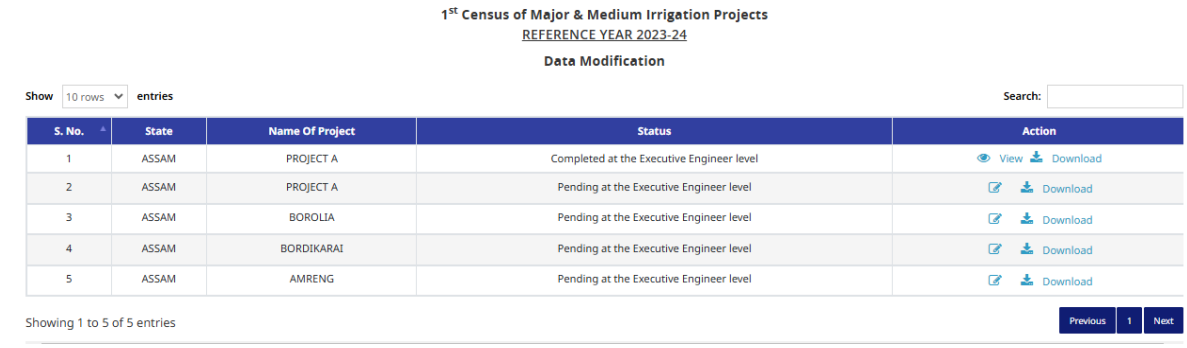
- After filling all details, click on Submit button , data will get saved, user will redirect to next tab I.e MMI Info 6 and this is the last one



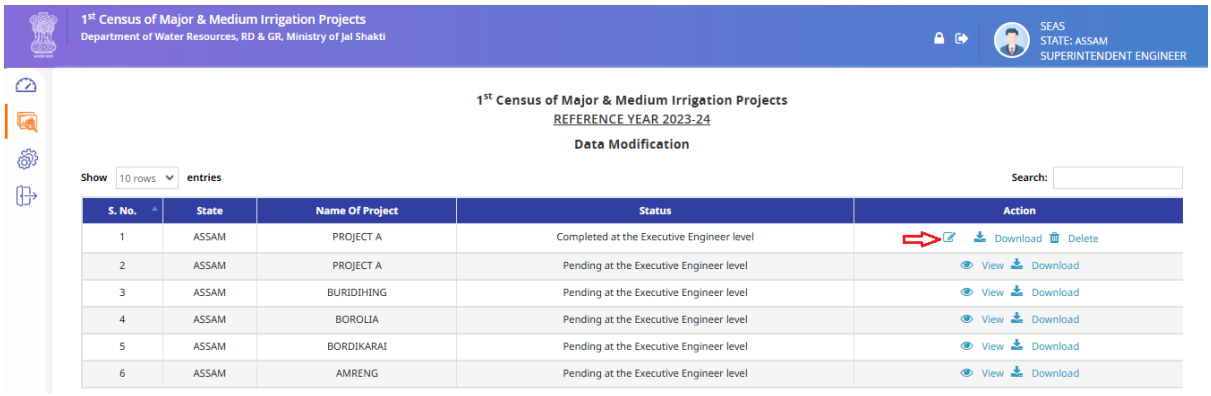
- Once MMI Info 6 is completed, a Pop-Up will appear



- Click Yes to finalize the submission.
- After submission, the status of the project will be updated to "Complete at the Executive Engineer Level"



- Click on **View** to review the completed Data Entry Form.
- The form will now be available at the **Superintendent Engineer** login in edit mode under "Data Modification"



- Click on the **Edit Icon** to open the form in editable mode.
- Make the necessary changes as required.
- Navigate to the last tab, **MMI Info 6**, and click the **Submit** button for final submission.
- After submission by the Superintendent Engineer, the form will be available at the **Chief Engineer** login under **Data Modification** in edit mode.
- The Chief Engineer can:
  - Review the form.
  - Make any necessary changes, if required.
  - Finalize the submission by clicking the **Submit** button in the last tab, **MMI Info 6**.
- Once submitted by the Chief Engineer, the form will be available at the **Engineer in Chief** login under **Data Modification** in edit mode.
- The Engineer in Chief can:

1. Review the form.
2. Make any required changes, if necessary.
3. Perform the final submission by clicking the **Submit** button in the last tab, **MMI Info 6**.

This process ensures the form undergoes thorough review and approval at all hierarchical levels before final submission and hierarchy will vary based on the state. Some states will have a two-level hierarchy, while others may have three or four levels of access.

CHAPTER FIVE:

GENERAL INSTRUCTION FOR FILLING 1ST CENSUS OF MMI PROJECTS SCHEDULE

5 GENERAL INSTRUCTIONS FOR FILLINGSCHEDULES

5.1 **Item No. 1: Name of irrigation project:** The name of the irrigation project will be entered. If the project has been developed in phases, each phase will be treated as a project.

5.2 **Item No. 2: Name of State / UT:** The name of the State/UT will be selected from drop down menu where in the project is located.

5.3 **Item No. 3: Name of the district benefitted from the project:** As per the State / UT selected in item No. 2, the districts benefitted from the project may be selected from drop down menu.

5.4 **Item No. 4: Name of the River Basin:** River basin is defined as a geographical area (catchment area) determined by the watershed limits of a water system, including surface and underground water, flowing into a common terminus. The details of the river basin will be filled. From River Basin point of view India has been divided into 22 river basins. The details of river basins are as follows.

1. Indus
2. Ganga
3. Brahmaputra
4. Barak and others
5. Godavari
6. Krishna
7. Cauvery
8. Pennar
9. East flowing rivers between Mahanadi and Pennar
10. East flowing rivers between Pennar and Kanyakumari
11. Mahanadi
12. Brahmani and Baitarni
13. Subernarekha
14. Sabarmati
15. Mahi
16. West flowing rivers of Kutch and Saurashtra including Luni

17. Narmada
18. Tapi
19. West flowing rivers from Tapi to Tadri
20. West flowing rivers from Tadri to Kanyakumari
21. Area of Inland drainage in Rajasthan
22. Minor rivers draining into Myanmar (Burma) and Bangladesh

River Basin may be selected from 22 river basins from the drop down menu.

5.5 **Item No. 5: Nature of Project (Irrigation, Multipurpose):**

- Irrigation project is meant either solely or primarily for irrigation purposes, although in the latter case it may incidentally serve other purposes.
- Multipurpose Project is designed, constructed and operated to serve two or more interests or purposes namely, Irrigation, hydro-electric power generation, Domestic and Industrial Power Supply, Flood Control, fisheries, navigation, recreation, others. Appropriate category of the Project will be filled.

  In case of Irrigation project 'Irrigation' option may be selected.

  In case of Multipurpose project, 'Multipurpose' option may be selected.If 'Multipurpose' is selected, the user will need to tick the appropriate checkboxes from the following.

  - Irrigation
  - Hydro-Electric Power Generation
  - Domestic and Industrial Water Supply
  - Flood Control
  - Fisheries
  - Navigation
  - Recreation
  - Others

5.6 **Item No. 6: Gross Command Area (GCA) in (Unit: Ha):**The data may be entered manually in Hectares. The absolute data may be entered up to two decimal places.

5.7 **Item No. 7: Culturable Command Area (CCA) in (Unit: Ha):**The data may be entered manually in Hectares. The absolute data may be entered up to two decimal places.

5.8 **Item No. 8: Category of project (major, medium):**The data will be auto populated on the basis of value of CCA of the Project entered at S. No 7. User need not to enter the data.

5.9 **Item No. 9: Whether project is inter-state:** User need to select any one option of 'YES' or 'NO' from drop down menu. If 'YES' option is selected, user need to select States/ UTs in the checkboxes.

5.10 **Item No. 10: Whether inter basin transfer is involved:** User need to select any one option of 'YES' or 'NO' from drop down menu. If ,'YES' option is selected, user need to select basins in the checkbox.

5.11 **Item No. 11: Type of project:** (Storage, Diversion, Lift Irrigation Schemes & Combination of storage, lift or diversion)User may select one or more than one field in checkboxes.

i. Storage
ii. Diversion
iii. Lift Irrigation Schemes
iv. Other

5.12 **Item No. 12: Project Authority:** The user will need to enter the name of Project authority.

5.13 **Item No. 13:** In case of Piped Distribution Network, the Area of PDN in Hectares will be entered.

5.14 **Item No. 14: Ultimate Irrigation Potential (UIP) in Ha:** The User will enter the data in Hectares.

5.15 **Item No. 15: Season wise Irrigation potential created in Ha:** The total gross area proposed to be irrigated under different crops during a year by the scheme. The area proposed to be irrigated under more than one crop during the same year is counted as many times as the number of crops grown and irrigated

- **Kharif season:** Kharif crops are cultivated in the monsoon season. Maize, rice, small millets, peas, groundnut, cotton, sesame are the principal kharif crops. Irrigation potential Created during the Kharif season will be filled.
- **Rabi season:** Rabi crops are cultivated in the winter season. Wheat, barley, gram, peas, potatoes, mustard are the Rabi Crops. Irrigation Potential created during the Rabi season will be filled.
- **Bi-seasonal:** The Crops which last during two crop seasons is the Bi Seasonal crop. Irrigation Potential created during the Bi seasonal will be filled.
- **Perennial crop:** Crops which last several crop years like plantation or orchard crops. Irrigation potential created during Perennial crop will be filled.

- **Summer season:** Often represents an intermediate (third) crop between the Rabi and Kharif crops. Irrigation potential created during Summer season will be filled.
- **Other:** The crop not covered under the above classification. The month of sowing and harvesting may also be indicated. Irrigation potential created during Summer season will be filled.

The user will enter the data in each season. It may be taken care of that Total IPC can't be greater than Total UIP.

5.16 **Item No. 16: Season wise irrigation potential utilized (IPU) in Ha:** The gross area actually irrigated out of the proposed area to be irrigated by the scheme during the year. Maximum potential utilized, so far since inception of the project with breakups during the different seasons is to be filled.

- **During Kharif season:** Kharif crops are cultivated in the monsoon season. Maize, rice, small millets, peas, groundnut, cotton, sesame are the principal kharif crops. Irrigation Potential Utilized during the Kharif season will be filled.
- **During Rabi season:** Rabi crops are cultivated in the winter season. Wheat, barley, gram, peas, potatoes, mustard are the Rabi Crops. Irrigation Potential Utilized during the Rabi season will be filled.
- **Bi seasonal:** Last for more than one season like cotton to be filled.
- **Perennial crops:** Crops which last several crop years like plantation or orchard crops. Irrigation Potential Utilized during the Bi-seasonal period will be filled.
- **During Summer season:** Often represents an intermediate (third) crop between the Rabi and Kharif crops. Irrigation Potential Utilized during Summer season will be filled.
- **Others:** The details of the crops not covered under above classification may be filled.

The user will enter the data in each season. It may be taken care of that Total IPU can't be greater than Total IPC.

5.17 **Item No. 17: Existing cropping pattern in the command Area:** For each cropping season, the provision for entering the details of up to five crops may be provided as per schedule. The user will enter the name of crop in first field and the area sown (Ha) of the crop in second field.

The user may give the name of five crops and their sown area in Ha as envisaged in DPR and as per actual for each of the following season.

i. Kharif
ii. Rabi
iii. Bi Seasonal
iv. Perennial
v. Summer season (Zaid)
vi. Others

The user may be taken care of that Total command area can't be greater than Total IPU.

5.18 **Item No. 18: No. of villages benefitted:** No of villages benefitted from the project will be filled.

5.19 **Item No. 19: No. of people benefitted:** Category wise breakup may be filled.

i. SC
ii. ST
iii. OBC
iv. General

Gender wise breakup may be filled. or tick on box of "Not Available "if information is not available.

i. Male
ii. Female
iii. Transgender

In both the categories total should be same.

5.20 **Item No. 20: Whether the command area of the project is benefitting the area under Drought prone area Programme (DPAP), Desert Development Programme (DDP), tribal Area, Flood prone area, left wing extremism affected area, Koraput, Bolangir and Kalahandi (KBK) regions of Odisha, Vidarbha & Marathwada regions of Maharashtra and Bundelkhand region of Madhya Pradesh & Uttar Pradesh.**

The user will select one option from 'YES' or 'NO' from drop down menu. If option 'YES' is selected, then the area under the different programmes as notified by the concerned ministry from time to time will be entered in Hectares for the following categories.

- Drought Prone Area Programme (DPAP)
- Desert Development Programme (DDP)
- Tribal area

- Flood prone area
- Left wing extremism affected area
- Area under Koraput, Bolangir and Kalahandi (KBK) regions of Odisha
- Area under Vidarbha & Marathwada regions of Maharashtra
- Area under Bundelkhand region of Madhya Pradesh & Uttar Pradesh

5.21 **Item No. 21: Approval status: (Central TAC/IC/ State approved/Unapproved):** Appropriate options of approvals may be selected from the drop-down menu, as detailed below:

i. **Year of Central TAC clearance:** For the major and medium irrigation projects on inter-state river systems techno-economic viability is appraised by Central Water Commission (CWC) under this Ministry. Initial year of Central TAC clearance and initial cost (Rs Crore) shall be filled.

ii. **Year of Investment clearance (IC):** Since December 2015, Investment Clearance is accorded by the DoWR RD&GR, MoJS for the major and medium irrigation projects on inter-state river systems after the TAC clearance by the Ministry. Prior to that, Investment Clearance was being accorded by the erstwhile Planning Commission of India. Initial year of Investment Clearance (IC) and initial cost (Rs Crore) shall be filled.

iii. **Year of State Govt. Clearance**: The State Governments can approve project on intra state river system. Initial year of State Govt Clearance and initial cost (Rs Crore) shall be filled. If selected State approved, then 22(i) and 22(ii) shall be disabled.

iv. The Major & Medium Irrigation Project on Interstate River have not been apprised will be treated as Unapproved (UA). If selected Unapproved, then whole module shall be disabled.

5.22 **Item No. 22: Status of other clearances:** Please provide dates of the following clearances:

i. Environment Clearance (Latest year): (Stage I & Stage II) Year will be filled or Not applicable

ii. Forest Clearance (Year): (Stage I & Stage II) Year will be filled or Not applicable

iii. NBWL Clearance (Year): Year will be filled or Not applicable

iv. Tribal Clearances (Year): Year will be filled or Not applicable

5.23 **Item No. 23: Status of the Project (Whether completed/ongoing):** User will select the option 'Completed' or 'Ongoing' from the drop-down menu. In case of Completed Project, User will enter Final cost of the completed project in Crore. User will enter Price level, Year of commencement of the project, Year of completion of the project in the prescribed year format. In case of Ongoing Project, user will enter Physical Progress and Financial Progress in percentage. User will enter Latest Estimated Cost of project in Crore. User will enter the Price Level in prescribed year format.

5.24 **Item No. 24: Design Features of the project:**

(a) Whether the Project comprises of Head Works with Dam, Barrage, weir/Gated Structure: User will select the option (yes or No) '**Dam/Barrage/Weir**/ **Gated Structure** from drop down menu.

(b) No. of Head works (Dam/Barrage/Weir/ Gated Structure): User will select the numbers from drop down menu.

1. **Name of the Headwork**: User will enter the name manually.

i. Nature of head works (Dam/Barrage/Weir/ Gated Structure**):** User will select the appropriate nature of Head works from drop down menu.
(Note: if user select **Gated Structure** only then other entries of 24. (vi to xx) of the module shall be disabled)

ii. Whether, the Dam/Barrage/Weir/Gated Structure is included in the DHARMA portal: Uses will select the option 'YES' or 'NO' from drop down menu. If"Yes", please make sure data entered here in this module is same as entered on the DHARMA portal for this Dam/Barrage/Weir/ Gated Structure and provide NRLD Code of the Dam.

iii. Name of River: User will enter manually

iv. Name of the district of Headworks: User will select the name of district from the drop-down menu as per the States selected earlier.

v. Latitude, Longitude of Headworks: User will enter manually as per prescribed format of Degree, Minute, Seconds. or tick on box of "Not Available "if information is not available.

vi. Type of Dam, Barrage or Weir (Concrete / Masonry / Earth & Rock fill, combination): User may select one or more option in the checkboxes.

vii. **Length of Dam/Barrage/Weir:** User may select one or more option in the check boxes. For each checkbox, the User would provide the length in meters.

viii. **Maximum height of the structure above deepest bed level (Dam/Barrage/Weir) (meters):** User will enter manually or tick on box of "Not Available "if information is not available.

ix. **FRL / Pond Level (in meter above msl):** User will enter manually or tick on box of "Not Available "if information is not available.

x. **MWL (in meter above msl):** User will enter manually or tick on box of "Not Available "if information is not available.

xi. **MDDL (in meter above msl):** User will enter manually or tick on box of "Not Available "if information is not available.

xii. **Design Gross Storage capacity (in MCM) at FRL/ Pond Level:** User will enter manually or tick on box of "Not Available "if information is not available.

xiii. **Design Live Storage capacity (in MCM) at FRL/ Pond Level:** User will enter manually or tick on box of "Not Available "if information is not available.

xiv. **Design Dead Storage capacity (in MCM):** User will enter manually or tick on box of "Not Available "if information is not available.

xv. **Catchment area of the reservoir/pond (in $Km^{2)}$:**User will enter manually or tick on box of "Not Available "if information is not available.

xvi. **Area of submergence (in Ha):** User will enter manually or tick on box of "Not Available "if information is not available.

xvii. **Number of projects affected families displaced:** User will enter manually or tick on box of "Not Available "if information is not available.

xviii. **Number of projects affected people displaced:** User will enter manually or tick on box of "Not Available "if information is not available.

xix. **Since Commissioning of the Project, how many times the reservoir has reached at FRL:** User will enter manually or tick on box of "Not Available "if information is not available.

xx. **Since commissioning whether reservoir capacity survey has been conducted:** User will select the option 'YES' or 'NO' from the drop-down menu. or tick on box of "Not Available "if information is not available.

xxi. **Nos. of main canals:** User will enter manually.

xxii. **Length of Canal system (m) (Main Canal, Branch Canal, distributary, Minor Canals, Total):** User will enter four columns of entry field such as "Unlined,

Lined, PDN & Total" for each type of canal. The Total shall get automatically filled as the sum of the relevant fields.

xxiii. Design Discharge:

1. **Name of the Canal**: User will enter the name of the Canal in first field. In second field user will enter the design discharge manually. More than one number may be selected if details have to be provided for several canals.

5.25 **Item No. 25: Number of Lifts in the Lift irrigation Scheme and for the project with Lift Irrigation as component.:** User will select the option 'YES' or 'NO' from the drop-down menu. If 'YES' option is selected.

i. **Location of Pump House (District):** User will enter the data manually.

ii. **Latitude and Longitude of Pump House:** User will enter the data manually in the prescribed format of Degree, Minute and seconds.

iii. **Source of Lifting and its name:** User will select the source of lifting from the drop-down menu and the name of the source may be entered as per schedule.

iv. **Number of Pumps installed:** User will select the number from drop down menu.

v. **Total Capacity of pumps installed for operation in Horse Power (HP):** User will enter manually.

vi. **Head of the lift in meter:** User will enter manually.

5.26 **Item No. 26: Water Utilization for various sectors in MCM (Irrigation and others viz Hydro/ Drinking / Industrial, etc.) during the reference year of the Census:** Planned & actual utilization for i) Irrigation ii) Drinking & Industrial iii) Others will be filled manually.

5.27 **Item No. 27: Whether scope of the project has been increased by ERM (Yes/No):** User will select the option 'YES' or 'NO' from the drop down menu. If "Yes", then details have to be provided. If "No", then other entries of the module shall be disabled.

i. Name of ERM Project: User will enter Name

ii. Original Year of Approval: User will enter approval year

iii. Originally Approved by IC/TAC/SA/UA: User will select approving authority

iv. Original Approved Cost (Rs. Cr.): User will enter cost.

v. Completion Year / Ongoing: options may be given through drop down menu for: Year / Ongoing [XXXX/Ongoing]. If completion year is filled in col (6) then col (8) & (9) shall be disabled. If "Ongoing" is selected in col (6) then col (7) shall be disabled.

vi. Latest Estimated Cost (Rs. Cr): User will enter the data manually

vii. Expenditure (Rs. Cr.): User will enter the data manually

viii. Additional CCA in Ha: User will enter the data manually.

ix. Additional UIP in Ha: User will enter the data manually.

x. Additional IPC in Ha: User will enter the data manually

xi. Additional IPU in Ha: User will enter the data manually

5.28 **Item No. 28: Has the Project taken over the command of any other project:** User will select the option 'YES' or 'NO' from the drop-down menu. If 'YES' option is selected, user will list the projects and Area of overlap in Ha. User will enter the name of the projects and respective areas of overlap.

5.29 **Item No. 29: Cost of O&M during the year (Rs Crore):** User will enter manually.

5.30 **Item No. 30: Methods of irrigation as envisaged in DPR (Flood Irrigation, Drip or sprinkler):** User will select the option from drop down menu.

5.31 **Item No. 31: Area covered under micro irrigation (Ha) e.g. Drip or sprinkler:** User will enter manually.

5.32 **Item No. 32: Whether Command Area Development (CAD) Work has been executed:** User will select the option 'YES' or 'NO' from the drop-down menu. If 'YES' option is selected.

i. Area (Ha) of CAD Work executed from State Govt Funding: User will enter manually.

ii. Area (Ha) covered under CADWM scheme of DoWR, RD&GR: User will enter manually.

5.33 **Item No. 33: Whether WUAs have been formed:** User will select the option 'YES' or 'NO' from the drop-down menu. If 'YES' option is selected,

i. **Number of WUA formed:** User will enter manually

ii. **Area covered under WUA (Ha):** User will enter manually

iii. **Number of members in WUA's registered**: User will enter manually

iv. Breakup of the Members

Category wise breakup may be filled.

i. SC

ii. ST

iii. OBC

iv. General

Gender wise breakup may be filled. or tick on box of "Not Available "if information is not available.

i. Male

ii. Female

iii. Transgender

5.34 **Item No. 34:** Please upload the GIS based Index Map showing the Dam/Reservoir/River/Main Canal/ Branch Canal System with command area. The user can upload a Geo PDF map.

5.35 **Item No. 35:** Please upload the high-resolution photographs of Project Head Works showing panoramic view. The user can upload a high-resolution photograph in JPEG format.

Note: In case of Inter State Projects, the information has to be provided by the respective States pertaining to their States only.

CHAPTER SIX:

FREQUENTLY ASKED QUESTIONS

6. FREQUENTLY ASKED QUESTIONS

Q1. How to classify irrigation projects?

Ans: Irrigation Projects can be classified on the basis of Culturable Command Area (CCA) as follows:

- Major Irrigation Projects: The Projects having Culturable Command Area (CCA) more than 10000 hectares (CCA>10,000 ha). This type of project consists huge storage reservoirs, flow diversion structures and a large network of canals.
- Medium Irrigation Projects: Projects having CCA more than 2,000 ha and up to 10,000 Ha are classified as medium irrigation projects. Medium size storage, diversion and distribution structures are the main components of this type of project.
- Minor Irrigation Projects: Projects having CCA less than or equal to 2,000 ha are termed as minor irrigation project.

Q2. What is to be done if the Major / Medium Project was not listed in the pre-populated data based on 1st MMI Census in the Web application?

Ans. The enumerator may add a new project if the specific project was not listed in the pre-populated data.

Q3. What is Culturable Command Area (CCA)?

Ans: CCA (Culturable Command Area) is the **area that can be irrigated** from a scheme and is suitable for cultivation. CCA is calculated by subtracting the uncultivable area from the Gross Command Area (GCA).

Q4. What is Ultimate Irrigation Potential (UIP)?

Ans: Ultimate Irrigation Potential (UIP) is the **Maximum area (Gross) identified** for irrigation from available water resources. This area is aggregate of area planned to be irrigated once a year and planned to be irrigated multiple times counting it as many times as irrigated during a year.

Q5. What is Irrigation Potential Created (IPC)?

Ans: Irrigation Potential Created (IPC) stand for the total **gross area proposed** to be irrigated under different crops during a year by the scheme. The area proposed to be irrigated under more than one crop during the same year is counted as many times as the number of crops grown and irrigated. IPC area will not be more then UIP area.

Q6. What is Irrigation Potential Utilized (IPU)?

Ans: Irrigation Potential Utilized (IPU) stands for the **gross area actually irrigated** out of the proposed area to be irrigated by the scheme during the year. IPU area will not be more then IPC area during the same year.

Q7. If GCA / CCA/ UIP of pre planed project is not available, how to record it?

Ans. This information is mandatary. If record is not available, then estimated value can be given.

Q8. What is Headworks?

Ans**.:** "**Head works**" refers to a set of structures built at the point where water is diverted from a river into an irrigation canal, essentially acting as the entry point for the canal system, and typically including components like weirs, barrages, divide walls, scouring sluices, and a head regulator to control the water flow and prevent excessive silt from entering the canal.

Q9. What is Diversion Head works?

Ans.: A diversion head works is a structure constructed across a river for the purpose of raising water level in the river so that it can be diverted into the off taking canals.

Q10. What is Storage Head works?

Ans.: Storage headwork When dam is constructed across a river to form a storage reservoir, it is known as storage head work. It stores water during the period of excess supplies in the river and releases it when demand overtakes the available supplies.

Q11. What is ERM projects and its objective.

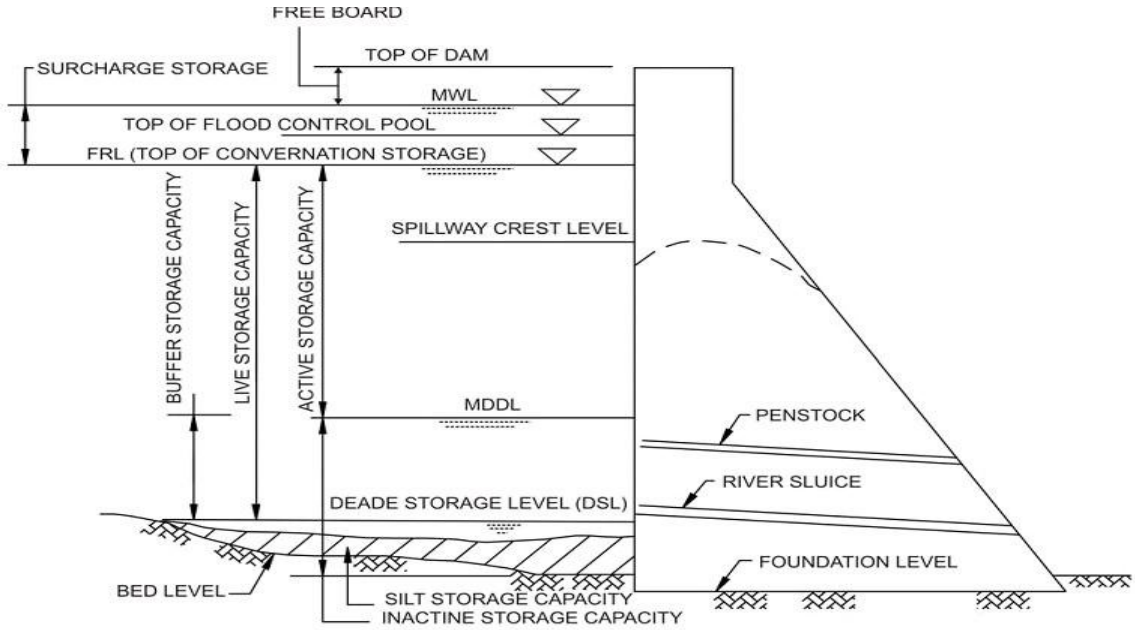
Ans. (ERM) extension, renovation and modernisation projects refer to a government initiative aimed at improving the functionality and efficiency of existing irrigation systems by extending their reach, repairing outdated infrastructure, and incorporating modern technologies to optimize water usage and irrigation potential in a specific area, usually within the framework of a larger irrigation project. The primary objective is to enhance the **existing irrigation potential by increasing the area** that can be irrigated and improving water delivery efficiency.

Q12. In case of (ERM) extension, renovation and modernisation projects, CCA & IPC /IPU may be taken from original project or additional CCA & IPC/IPU may be taken?

Ans. Additional CCA, IPC / IPU should be taken.

Q13. Explain the Schematic Diagram showing zones of storage of reservoir

Ans.



SCHEMATIC DIAGRAM SHOWING ZONES OF STORAGE IN A RESERVOIR

Q14. What is inter basin transfer and objective?

Ans. An "inter basin transfer" refers to the artificial movement of water from one river basin (a geographically distinct area drained by a river system) to another, typically done through canals, pipelines, or aqueducts, with the primary objective of alleviating water scarcity in the receiving basin where water is less available, by transferring it from a basin with surplus water (donor basin) to a basin experiencing a shortage (recipient basin).

The "Telugu Ganga Project" in Southern India is an example of an interbasin transfer project, diverting water from the Krishna River to the drought-prone areas of Andhra Pradesh state. Telugu Ganga main canal offtakes from the left bank of Velugodu balancing reservoir, supplies water to Chennai city. Water transferred from Krishna (Srisailam reservoir) to Pennar and EFR between Mahandi and Pennar.

Q15. Explain the command overlapping and its cause.

Ans: “Command area overlapped" in irrigation refers to a situation where the potential irrigation area from one canal or water source partially overlaps with the potential irrigation area of another canal or water source, meaning the same land can be accessed for irrigation by more than one project, potentially leading to water management issues and conflicts between users.

Causes:

This overlap can happen due to geographical factors like topography, river basin boundaries, or poor planning during project design, where canals from different irrigation schemes end up covering similar land areas.

Impact:

- **Inefficient water usage:** Overlap can lead to over-irrigation in certain areas, causing water wastage and potential soil problems.
- **Conflict between users:** Farmers under different irrigation projects might dispute access to water in the overlapping areas.
- **Management challenges:** Coordinating water distribution and managing water rights becomes more complex when command areas overlap.

Q16. What is Water Users' Association (WUA)?

Ans: WUA stands for Water Users' Association. It is a cooperative association of farmers who are responsible for maintaining and operating irrigation schemes.

Q17. What is Command Area Development (CAD)?

Ans: CAD stands for Command Area Development in irrigation. It's a program that aims to increase the use of irrigation potential and improve agricultural production.

Q18. If a project is interstate and benefited to two or more states then how to fill data in respect of CCA, IPC, IPU, Cost, Year etc.

Ans: In case of Inter State Projects, the information has to be provided by the respective States pertaining to their States only.

Q19. If any state project has only headworks in their state and canal portion falls under the other states then how to fill design feature of the Project.

Ans. In case of Inter State Projects, the information has to be provided by the respective States pertaining to their States only.

Q20. If original cost the project is not available, how to record it?

Ans. This information is mandatary. If record is not available, then estimated value can be given.

ANNEXURES

Annexure-1

Web link of 1720 MMI projects link: https://cwc.gov.in/sites/default/files/ebook/index.html

Annexure-2

SCHEDULE FOR CENSUS OF MAJOR AND MEDIUM IRRIGATION PROJECTS

Part: 1

S No	**Identification particulars**		
1	Name of project *		
2	Name of State/UT *		
3	Districts benefitting from the project *	i.	ii.
		iii.	iv.
		v.	vi.
4	Name of the River basin: *		
5	Nature of project (Irrigation / Multipurpose) * If Multipurpose; please select from the followings: i) Irrigation ii) Hydro-Electric Power Generation, iii) Flood Control iv) Domestic and Industrial Water Supply v) Fisheries vi) Navigation vii) Recreation viii) Others.		
6	Gross Command Area (GCA) in Ha*		
7	Culturable Command Area (CCA) in Ha*		
8	Category of Irrigation Project (Major, Medium) *		
9	Whether project is inter-state– *		Yes/No
	if yes, name of the other states. please also provide the name of corresponding projects in respective states.	Name of State	Name of corresponding Project in the State.
		i	
		ii	
		iii	
10	Whether inter basin transfer is involved: [Yes/No] *		i.
	(if yes) Name of the basins involved		ii.
			iii.

Part: 2

<table>
<tr><td>11</td><td colspan="2">Type of project (Storage, Diversion, Lift irrigation schemes & Combination of Storage, lift or diversion).*</td><td colspan="3"></td></tr>
<tr><td>12</td><td colspan="2">Project Authority *</td><td colspan="3"></td></tr>
<tr><td>13</td><td colspan="2">Area in Hectares in case of Piped Distribution Network</td><td colspan="3"></td></tr>
<tr><td>14</td><td colspan="2">Ultimate Irrigation Potential (UIP) in Ha*</td><td colspan="3"></td></tr>
<tr><td rowspan="8">15</td><td rowspan="8">Season wise irrigation potential created (IPC) in Ha *</td><td>Crop Season</td><td>As envisaged in DPR</td><td>As per actual</td></tr>
<tr><td>i. Kharif</td><td></td><td></td></tr>
<tr><td>ii. Rabi</td><td></td><td></td></tr>
<tr><td>iii. Bi Seasonal</td><td></td><td></td></tr>
<tr><td>iv. Perennial</td><td></td><td></td></tr>
<tr><td>v. Summer season (Zaid)</td><td></td><td></td></tr>
<tr><td>vi. Others</td><td></td><td></td></tr>
<tr><td>Total IPC</td><td></td><td></td></tr>
<tr><td rowspan="8">16</td><td rowspan="8">Season wise irrigation potential utilized (IPU) in Ha
[Maximum potential utilized, so far] *</td><td>Crop Season</td><td colspan="2"></td></tr>
<tr><td>i. Kharif</td><td colspan="2"></td></tr>
<tr><td>ii. Rabi</td><td colspan="2"></td></tr>
<tr><td>iii. Bi Seasonal</td><td colspan="2"></td></tr>
<tr><td>iv. Perennial</td><td colspan="2"></td></tr>
<tr><td>v. Summer season (Zaid)</td><td colspan="2"></td></tr>
<tr><td>vi. Others</td><td colspan="2"></td></tr>
<tr><td>Total IPU</td><td colspan="2"></td></tr>
<tr><td rowspan="3">17</td><td rowspan="3">Existing cropping pattern in the command Area *</td><td rowspan="2">Crop Season</td><td rowspan="2">Name of Crop</td><td colspan="2">Area under the crop (Ha)</td></tr>
<tr><td>As envisaged in DPR</td><td>As per actual</td></tr>
<tr><td>i. Kharif</td><td>Crop 1</td><td></td><td></td></tr>
<tr><td></td><td>Crop 2</td><td></td><td></td></tr>
</table>

		ii. Rabi	Crop 1		
			Crop 2		
		iii. Bi Seasonal	Crop 1		
			Crop 2		
		iv. Perennial	Crop 1		
			Crop 2		
		v. Summer season (Zaid)	Crop 1		
			Crop 2		
		vi. Others	Crop 1		
			Crop 2		
18	No. of villages benefitted*				
19	No. of people benefitted *				
	i. SC		i. Male	(xxxx/N.A)	
	ii. ST		ii. Female	(xxxx/N.A)	
	iii. OBC		iii. Transgender	(xxxx/N.A)	
	iv. General		Total		
	Total				
20	Whether the command area of the project is benefitting the area under Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), Tribal area, Flood prone area, left wing extremism affected area, Koraput, Bolangir and Kalahandi (KBK) regions of Odisha, Vidarbha & Marathwada regions of Maharashtra and Bundelkhand region of Madhya Pradesh & Uttar Pradesh * (If yes, Please provide the following information in Ha :)				
	Area under Drought Prone Area Programme (DPAP).				
	i. Area under Desert Development Programme (DDP).				
	ii. Tribal area.				
	iii. Flood prone area.				
	iv. Left wing extremism affected area.				
	v. Area under Koraput, Bolangir and Kalahandi (KBK) regions of Odisha.				

	vi. Area under Vidarbha & Marathwada regions of Maharashtra.	
	vii. Area under Bundelkhand region of Madhya Pradesh & Uttar Pradesh.	

Part:- 3

<table>
<tr><td rowspan="4">21</td><td colspan="2">Approval status: Central TAC/IC/State Approved/ Un Approved. *
If approved, Please provide initial year& initial cost of the following clearances:</td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td>Cost (Rs Crore)</td><td>Year</td></tr>
<tr><td colspan="2">i. Central TAC clearance:</td><td></td><td></td></tr>
<tr><td colspan="2">ii. Investment Clearance (IC):</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">iii. State Govt Clearance</td><td></td><td></td></tr>
<tr><td rowspan="6">22</td><td colspan="2">Status of other clearances *</td><td colspan="2"></td></tr>
<tr><td rowspan="2">i. Environment Clearance (Latest) :</td><td>(Stage I) (Year/N.A)</td><td colspan="2"></td></tr>
<tr><td>(Stage II) (Year/N.A)</td><td colspan="2"></td></tr>
<tr><td rowspan="2">ii. Forest Clearance:</td><td>(Stage I) (Year/N.A)</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>(Stage II) (Year/N.A)</td></tr>
<tr><td colspan="2">iii. NBWL Clearance: (Year/N.A)</td><td colspan="2"></td></tr>
<tr><td colspan="2">iv. Tribal Clearances: (Year/N.A)</td><td colspan="2"></td></tr>
<tr><td rowspan="8">23</td><td colspan="3">Status of the Project (Whether completed/ongoing) *</td><td></td></tr>
<tr><td rowspan="4">1.Completed</td><td>Final cost of the completed project (Rs Crore)</td><td></td></tr>
<tr><td>Price level</td><td></td></tr>
<tr><td>Year of commencement of the project</td><td></td></tr>
<tr><td>Year of completion of the project</td><td></td></tr>
<tr><td rowspan="3">2. Ongoing.</td><td>Year of commencement of the project</td><td></td></tr>
<tr><td>Physical Progress (%)</td><td></td></tr>
<tr><td>Financial Progress (%)</td><td></td></tr>
<tr><td rowspan="2"></td><td>Latest estimated cost of Project (Rs Crore)</td><td></td></tr>
<tr><td>Price level</td><td></td></tr>
</table>

Part:- 4

24	Design Features of the project *		
	a) Whether the Project comprises of Head Works with Dam, Barrage, weir or Gated Structure		
	b) If yes (Dam, Barrage,Weir, Gated Structure) , then No. of Head Works (Dam/Barrage/Weir)		
	1. Name of head works		
	i. Nature of head works (Dam/Barrage/Weir/ Gated Structure		If User select **"Gated Structure"** then sr .24 (vi) to 24. (xx) will disable.
	ii. Whether, the Dam/Barrage/Weir/ Gated Structure is included in the DHARMA portal. If "Yes", please make sure data entered here in this module is same as entered on the DHARMA portal for this Dam/Barrage/Weir and provide NRLD Code of the Dam		(Yes/No)
	iii. Name of River		
	iv. Name of the district of Headworks		
	v. Latitude, Longitude of Headworks		Option for selecting "Not available" Option of choosing "Not Applicable"
	vi. Type of Dam, Barrage or Weir (Concrete / Masonry / Earthern/ Rock fill/ combination)		
	vii. Length of Dam/Barrage/Weir (meters)	Type of Structure	
		(a) Concrete	(xxxx/N.A)
		(b) Masonry	(xxxx/N.A)
		(c) Earthen	(xxxx/N.A)
		(d) Rock fill	(xxxx/N.A)
		Total	
	viii. Maximum height of the structure above deepest bed level (Dam/Barrage/Weir) (in meters)		(xxxx/N.A)
	ix. FRL / Pond Level (in meter above msl)		(xxxx/N.A)
	x. MWL (in meter above msl)		(xxxx/N.A)

	xi. MDDL (in meter above msl)			Irrigation (in meter above msl)	(xxxx/N.A)	
				Power Generation (in meter above msl)	(xxxx/N.A)	
	xii. Design Gross Storage capacity (MCM) at FRL/ Pond Level				(xxxx/N.A)	
	xiii. Design Live Storage capacity (MCM) at FRL/ Pond Level				(xxxx/N.A)	
	xiv. Design Dead Storage capacity (MCM)				(xxxx/N.A)	
	xv. Catchment area of the reservoir/pond in Km^2				(xxxx/N.A)	
	xvi. Area of submergence (Ha)				(xxxx/N.A)	
	xvii. Number of projects affected families displaced.				(xxxx/N.A)	
	xviii. Number of projects affected people displaced.				(xxxx/N.A)	
	xix. Since Commissioning of the Project, how many times the reservoir has reached at FRL.				(xxxx/N.A)	
	xx. Since commissioning whether reservoir capacity survey has been conducted. (Yes/No)					
	If Yes, Year & Revised Live Storage Capacity (MCM)				Year	Revised Live Storage Capacity (MCM)
	xxi. Nos of main canals					
	xxii. Length of Canal system (m)	Type of Canals	Unlined	Lined	PDN	Total
		Main Canal				
		Branch Canal				
		Distributary				
		Minor Canals				
		Total				
	xxiii. Design Discharge (m^3/sec) of each canal system (main canals)		Name of the canal		Design Discharge (m^3/Sec)	
			I.			

		II.		
		III.		
25	Number of Lifts in the Lift Irrigation Scheme and for the project with Lift Irrigation as component *			
	For Lift Irrigation Scheme and for the projects with Lift Irrigation as component. Please provide the following details:	Location of Pump House (District)		
		Latitude and Longitude of Pump House		
		Source of Lifting and its name.	River/ Reservoir/ Canal	Name of the Source
		Number of Pumps installed	For operation	Standby
		Total Capacity of pumps installed for operation in Horse Power (HP)		
		Head of the Lift in Meters.		

Part:- 5

26	Water Utilization for various sectors in MCM (Irrigation and others viz Hydro/ Drinking / Industrial, etc.) during the reference year of the Census *	Utilization head	Planned	Actual
		i. Irrigation		
		ii. Drinking & Industrial		
		ii. Others		
		Total		

27	Whether scope of the project has been increased by ERM (Yes/No) *	

	S. No.	Name of ERM Project	Original Year of Approval	Originally Approved by IC/TAC/ SA/UA	Original Approved Cost (Rs Crore)	Completion Year / Ongoing	Completion Cost (Rs Crore)	Ongoing		Additional			
								Latest Estimated Cost (Rs Crore)	Expenditure (Rs Crore)	CCA (Ha)	UIP (Ha)	IPC (Ha)	IPU (Ha)
	Total												

28	Has the Project taken over the command of any other project (Yes/No) *		
	If yes, list the projects and area of overlap	Name of Project	Area of overlap (Ha)
		i.	i.
		ii.	ii.
		iii.	iii.
29	Cost of O&M during the year (Rs Crore) *		
30	Methods of irrigation as envisaged in DPR*(Flood Irrigation, Drip or sprinkler)		
31	Area covered under micro irrigation (Ha) *e.g. Drip or sprinkler		
32	Whether Command Area Development (CAD) Work has been executed (Yes/No) *		
	If Yes, plz. provide the area	i. Area of CAD Work executed from State Govt Funding	

	in Ha	ii. Area covered under CADWM Scheme of DoWR, RD&GR, GoI.			
33	Whether WUAs have been formed: *				(Yes/No)
	i. Number of WUA formed				
	ii. Area covered under WUA (Ha)				
	iii. Numbers of members in the WUA's registered.				
	iv. Breakup of the Members				
	i. SC		i. Male	(xxxx/N.A)	
	ii. ST		ii. Female	(xxxx/N.A)	
	iii. OBC		ii. Transgender	(xxxx/N.A)	
	iv. General			Total	
	Total				

Part:- 6

34	Please upload the GIS based Index Map showing the Dam/Reservoir/River/Main Canal / Branch Canal System with command area.	
35	Please upload the high-resolution photographs of Project Head Works showing panoramic view.	

Annexure-3

VALIDATION CHECKS FOR SCHEDULE

S No	Identification particulars		Validation Checks	Other Checks (e.g. Number of characters, Max, Min Values etc)
1	Name of project *		The user will need to enter the name of the Project manually. (Capital letters may be assigned to this field.)	Max 50 characters (Alpha numerals)
2	Name of State/UT *		Drop down list comprising all the 28 States and 08 UTs may be added so that the user can select the concerned State / UT. Only one State / UT may be selected.	
3	Districts benefitting from the project *	**i.**	As per the State selected by the user at Item No 2, checkboxes in drop down menu may be provided to select one or more districts.	Up to 25 districts could be selected.
		ii.		
		iii.		
4	Name of the River basin *		The drop-down menu provides the user with 22 options to select one.	Drop down menu as per annexure.
5	Nature of project (Irrigation / Multipurpose) *		If selected: Irrigation, then other options shall be disabled. If selected: Multipurpose, the user will have to tick the appropriate checkboxes from the followings: i) Irrigation ii) Hydro-Electric Power Generation, iii) Flood Control iv) Domestic And Industrial Water Supply v) Fisheries vi) Navigation vii) Recreation viii) Others.	
6	Gross Command Area (GCA) in Ha *		The user will be required to fill the data in Hectares.	>2000, < 9999999.99

7	Culturable Command Area (CCA) in Ha *	The user will be required to fill the data in Hectares. Show the warning when value is: Less than or equal to 2000 Ha Warning. The CCA of the MMI project must be greater than 2000 hectares.	>2000, < 9999999.99
8	Category of Irrigation Project (Major, Medium) *	To be auto populated on the basis of values of CCA entered in the row above. For Major Irrigation Project the CCA is greater than 10000 Ha. For Medium Irrigation Project the CCA is more than 2000 Ha but up to 10000 Ha..	To be auto populated
9	Whether project is inter-state–*	Drop Down Menu : Yes/No	-
	(if yes, Name of the other States)	If Yes, provide checkboxes for selecting the name of States/UTs and an entry field for each state/UT for entering the name of the corresponding project in the State/UT. [Provision shall be made for selecting more than one State/UT]	-
10	Whether inter basin transfer is involved: [Yes/No]* (if yes) Name of the basins involved	Provide checkboxes for selecting the name of the basins. [Provision shall be made for selecting more than one Basin]	Name of the basin as per Annexure.

11	Type of the project (Storage, Diversion, Lift irrigation & Combination of Storage, lift or diversion)*		Checkboxes may be provided for the user to select the appropriate ones. **1.** Storage **2.** Diversion **3.** Lift Irrigation Schemes **4.** Other [May select more than one check box]	
12	Project Authority *		The User will need to enter the name of Project Authority	Max 50 characters (Alpha numerals)
13	Area in Hectares in case of Piped Distribution Network		The user will be required to fill the data in Hectares.	>=0, < 9999999.99
14	Ultimate Irrigation Potential (UIP) in Ha.*		The user will be required to fill the data in Hectares.	>=0, < 9999999.99
15	Season wise irrigation potential created (IPC) in Ha*	i. Khariff	The user will be required to fill the data in Hectares in two columns as given in schedule. [Total actual IPC can't be greater that UIP]	>=0, < 9999999.99
		ii. Rabi		>=0, < 9999999.99
		iii. Bi Seasonal		>=0, < 9999999.99
		iv. Perennial		>=0, < 9999999.99
		v. Summer season (Zaid)		>=0, < 9999999.99
		vi. Others		>=0, < 9999999.99
		Total IPC (i+ii+iii+iv+v+vi)		>=0, < 9999999.99 Can't be greater than UIP at S No 14.
16	Season wise irrigation potential utilized (IPU) in Ha. [Maximum	Crop Season	The user will be required to fill the data in Hectares. [Total actual IPU can't be greater than actual IPC]	>=0, < 9999999.99
		i. Kharif		>=0, < 9999999.99
		ii. Rabi		>=0, < 9999999.99
		iii. Bi Seasonal		>=0, < 9999999.99
		iv. Perennial		>=0, < 9999999.99
		v. Summer season (Zaid)		>=0, < 9999999.99

	potential utilized, so far] *	**vi.** Others			>=0, < 9999999.99
		Total IPU= Sum (i+ii+iii+iv+v+vi)			>=0, < 9999999.99 Can't be greater than IPC at S No 15.
17	Existing cropping pattern in the command Area *	**i.** Kharif		For each cropping season, the provision for entering the details of up to five crops may be provided as per schedule. The user would provide the name of crop in first field and the area sown (Ha) of the crop in second field. e.g. for the cropping season of the Kharif the user should get the option of giving the name of five crops and their sown area in Ha.	For entering the crop name: XXXXX….. (25 characters) For entering the area sown (Ha): >=0, < 9999999.99 **Total can't be greater than IPU at S No 16.**
		ii. Rabi			
		iii. Bi Seasonal			
		iv. Perennial			
		v. Summer season (Zaid)			
		vi. Others			
18	No of villages benefitted *			Number to be entered manually.	>=0, < 99999
19	No. of people benefitted (breakup) *			Total of both the breakups in the two columns should be the same.	>=0, < 999999999
	i. SC		**i.** Male	Option of selecting "Not Applicable" to be provided in "i. Male, ii Female , iii Transgender.	
	ii. ST		**ii.** Female		
	iii. OBC		**iii.** Transgender		
	iv. General		Total (i+ii+iii)		
	Total (i+ii+iii+iv)=				

20	Whether the command area of the project is benefitting the area under Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), Tribal area, Flood prone area, left wing extremism affected area, Koraput, Bolangir and Kalahandi (KBK) regions of Odisha, Vidarbha & Marathwada regions of Maharashtra and Bundelkhand region of Madhya Pradesh & Uttar Pradesh. * (If yes, please provide the following information in Ha :)	Dropdown Menu [Yes/No] If Yes, User will have to provide the details as given below in Hectares. If No, details given below shall be disabled.	
	i. Area under Drought Prone Area Programme (DPAP).	Area has to entered in Hectares manually. In all the rows.	>=0, < 9999999.99
	ii. Area under Desert Development Programme (DDP).		
	iii. Tribal area.		
	iv. Flood prone area.		
	v. Left wing extremism affected area.		
	vi. Area under Koraput, Bolangir and Kalahandi (KBK) regions of Odisha.	To be enabled only, if the user has selected the State of Odisha at S. No. 2 or 9	
	vii. Area under Vidarbha & Marathwada regions of Maharashtra.	To be enabled only, if the user has selected the State of Maharashtra at S. No. 2 or 9	
	viii. Area under Bundelkhand region of Madhya Pradesh (MP) & Uttar Pradesh (UP).	To be enabled only, if the user has selected the State of UP or MP at S. No. 2 or 6	
21	Approval status: Central TAC/IC/State Approved/ Un Approved. * If approved, Please provide year of the following clearances:	Dropdown menu showing the: TAC/IC/State approved/Un Approved. If selected State approved, then 22(i) and 22 (ii) shall be disabled. If selected Unapproved, then whole module shall be disabled.	

	i. Year of Central TAC clearance & cost (Rs Cr):		Year XXXX	Cost (Rs Crore) <999999.99	XXXX
	ii. Year of Investment clearance (IC) & cost (Rs Cr):		Year	Cost (Rs Crore)	
	iii. Year of State Govt Clearance & cost (Rs Cr)		Year	Cost (Rs Crore)	
22	Status of other clearances: *		Year has to be provided.		XXXX Option of choosing "Not Applicable" has also to be provided.
	i. Environment Clearance (Latest) :	(Stage I)	Year / NA		
		(Stage II)	Year / NA		
	ii. Forest Clearance:	(Stage I)	Year / NA		
		(Stage II)	Year / NA		
	iii. NBWL Clearance:		Year / NA		
	iv. Tribal Clearances		Year / NA		
23	Status of the Project (Whether Completed/Ongoing) *		Drop down menu for selecting Completed/Ongoing		
	1.Completed	Final cost of the completed project (Rs Crore)			>=0, < 9999999.99
		Price level	Year		XXXX
		Year of commencement of the project	Year		XXXX
		Year of completion of the project	Year		XXXX

	2. Ongoing	Year of commencement of the project	Year	
		Physical Progress (%)		>=0, < 100.00
		Financial Progress (%)		>=0, < 100.00
		Latest estimated cost of Project (Rs Crore)		>=0, < 9999999.99
		Price level	Year	XXXX
24	Design Features of the project: *			
	a) Whether the Project comprises of Head Works with Dam, Barrage, weir or Gated Structure		Dropdown Menu [Yes /No] If yes, User will have to provide the details as given below.	
	b) If Yes, No, of head works (Dam/Barrage/Weir/ Gated Structure)		Drop down menu to select the numbers. If user selects more than one headwork: then more modules under the corresponding name of the headwork shall be filled.	>=1, < 99
	1. Name of the Headwork		To be entered manually.	Max 50 characters (Alpha numerals)

	i. Nature of head works (Dam/Barrage/Weir/ Gated Structure)		Drop down menu (Dam/Barrage/Weir/ Gated Structure) If User select **"Gated Structure"** then sr.24 (vi) to 24. (xx) will disable.	
	ii. Whether, the Dam/Barrage/Weir/ Gated Structure is included in the DHARMA portal. If "Yes", please make sure data entered here in this module is same as entered on the DHARMA portal for this Dam/Barrage/Weir.		Dropdown Menu [Yes/No] If selected YES, then provide the alpha numeric field for entering the NRLD Codes of the Dam	XXXXXXXXXXX XXXXXXXXX
	iii. Name of River		To be entered manually.	Max 50 characters (Alpha numerals)
	iv. Name of the district of Headworks		Drop down menu for name of districts as per the States selected earlier.	Max 25 characters (Alpha numerals)
	v. Latitude, Longitude of Headworks		To be entered manually.	In Degree, Minute, Seconds: XX XX XX.XX Option for selecting "Not available" Option of choosing "Not Applicable"
	vi. Type of Dam, Barrage or Weir (Concrete / Masonry / Earthen/ Rock fill or combination)		Drop down menu to select one or more checkboxes to select from: (Concrete / Masonry / Earthen/ Rock fill)	
	vii. Length of Dam/Ba	Type of Structure **(a)** Concrete	Checkboxes have to be provided. User can select more than one check box. For	>=0, < 999999.00

	rrage/Weir (meters)	**(b)** Masonry	each checkbox, the user would provide the length in meters.	Option of choosing "Not Applicable" has also to be provided.
		(c) Earthen		
		(d) Rock fill		
		Total		
	viii. Maximum height of the structure above deepest bed level (Dam /Barrage / Weir) (meters)		To be entered manually**.**	>=0, < 999.00 Option of choosing "Not Applicable" has also to be provided.
	ix. FRL / Pond Level (in meter above msl)		To be entered manually.	>=0, < 999.00 Option of choosing "Not Applicable" has also to be provided.
	x. MWL (in meter above msl)		To be entered manually.	>=0, < 999.00 **(MWL) >= (FRL) > (MDDL)** Option of choosing "Not Applicable" has also to be provided.
	xi. MDDL (in meter above msl)	Irrigation	To be entered manually.	
		Power Generation		
	xii. Design Gross Storage capacity (MCM) at FRL/ Pond Level		To be entered manually	>=0, < 99999.00 Option of choosing "Not Applicable" has also to be provided.
	xiii. Design Live Storage capacity (MCM) at FRL/ Pond Level		To be entered manually	>=0, < 99999.00 Option of choosing "Not Applicable" has also to be provided.
	xiv. Design Dead Storage capacity (MCM)		To be entered manually	>=0, < 99999.00 Option of selecting "Not Applicable" to be provided.
	xv. Catchment area of the reservoir/pond in Km^2		To be entered manually	>=0, < 99999.00 Option of choosing "Not Applicable" has also to be provided.
	xvi. Area of submergence (Ha)		To be entered manually	>=0, < 99999.00 Option of choosing "Not Applicable" has also to be provided.

	xvii. Number of projects affected families displaced.			To be entered manually	>=0, < 9999999 Option of choosing "Not Applicable" has also to be provided.	
	xviii. Number of projects affected people displaced.			To be entered manually.	>=0, < 9999999 Option of choosing "Not Applicable" has also to be provided.	
	xix. Since Commissioning of the Project, how many times the reservoir has reached at FRL.			To be entered manually.	>=0, < 999 Option of choosing "Not Applicable" has also to be provided.	
	xx. Since commissioning whether reservoir capacity survey has been conducted. (Yes/No)			Dropdown menu to select: Yes/No If Yes, then Year and Revised Live Storage capacity (MCM)	Year XXXX	Rev Live Storage capacity >=0, < 99999.00
	xxi. Nos of main canals			To be entered manually.	>=0, < 999	
	xxii. Length of Canal system (m)	Type of Canals		For each type of canal four columns of entry field have to be provided named as "Unlined, Lined, PDN & Total" to be entered manually. The total shall get automatically filled as the sum of the relevant fields.	>=0, < 999999.00	
		Main Canal				
		Branch Canal				
		Distributary				
		Minor Canals				
		Total				
	xxiii. Design Discharge (m^3/Sec) of each canal system (main canals)	1. Name of the Canal	Design Discharge (m^3/sec)	If more than one number is selected, then two fields for entries are to be provided for each canal. In one field, user will entry the name of the canal system then in second field, the design discharge has to be provided.	For name of the canal: Max 50 characters (Alpha numerals) For design discharge: >=0, < 9999.00	
		i.				
		ii.				

		iii.			
		iv.			
25	Number of Lifts in the Lift Irrigation Scheme and for the project with Lift Irrigation as component. *			Drop down menu for selecting the number of lifts. If user selects more than one Lift then more modules under the corresponding no. of lift shall be filled. If "0", details given below shall be disabled.	>=0, < 100
	For Lift Irrigation Schemes and for the projects with Lift Irrigation as component. Please provide the following details:		Location of Pump House (District)	Manual entry	Max 50 characters
			Latitude and Longitude of Pump House	Manual entry	Degree, Min, Sec: XX XX XX.XX
			Source of Lifting and its name	Drop Down Menu for providing source of lifting and the name of the source as per schedule.	Max 50 characters
			Number of Pumps installed	Drop down menu for selecting the number of Pumps for operation and standby as per schedule.	>=0, < 100
			Total Capacity of pumps installed for operation in Horse Power (HP)	Entry field for numeric values	>=0, < 9999.00
			Head of the Lift in meters		>=0, < 999.00

26	Water Utilization for various sectors in MCM (Irrigation and others viz Hydro/ Drinking / Industrial, etc.) during the reference year of the Census. *	**i.** Irrigation	To be entered manually. The information has to be provided in the columns as shown in the schedule.	>=0, < 99999.00
		ii. Drinking & Industrial		
		ii. Others		
		Total (i+ii+iii) =		

27	Whether scope of the project has been increased by ERM (Yes/No) *	Drop down menu: Yes/No If "Yes", then details have to be provided. If "No", then other entries of the module shall be disabled. Col (3): Original Year of approval Col (4): Name of approving authority shall be selected. Col (5): Original Approved Cost in Rs Crore Col (6): options may be given through drop down menu for: Completion Year / Ongoing [XXXX/Ongoing]. If completion year is filled in col (6) then col (8) & (9) shall be disabled. If "Ongoing" is selected in col (6) then col (7) shall be disabled. If user selects more than one ERM project then more modules under the corresponding no. of ERM project shall be filled.	Name: Max 50 characters (Alpha numerals) Year: XXXX Cost: >0, < 9999999.99 Area: >0, < 9999999.99 CCA: >0, < 9999999.99 UIP:>0, < 9999999.99 IPC:>0, < 9999999.99 IPU:>0, < 9999999.99

	S.	Name	Original		Original	Completion	Completi	If Ongoing	Additional

	No.	of ERM Project	Year of Approval	Originally Approved by IC/TAC/ SA/UA	Approved Cost (Rs Crore)	Year / Ongoing	on Cost (Rs Crore)	Latest Estimated Cost (Rs Crore)	Expenditure (Rs Crore)	CCA (Ha)	UIP (Ha)	IPC (Ha)	IPU (Ha)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	i		xxxx			xxxx / Ongoing							
	ii												
	Total												

<table>
<tr><td rowspan="5">28</td><td colspan="2">Has the Project taken over the command of any other project (Yes/No) *</td><td colspan="2">Drop down menu to select: Yes/No
If yes, then details as below shall be enabled, if “No” the details below shall be disabled.</td><td></td></tr>
<tr><td rowspan="4">If yes, list the projects and area of overlap (Ha)</td><td>Name of Project</td><td>Area of overlap (Ha)</td><td rowspan="4"></td><td rowspan="4">Name: Max 50 characters (Alpha numerals)

>0, < 9999999.99</td></tr>
<tr><td>i.</td><td></td></tr>
<tr><td>ii.</td><td></td></tr>
<tr><td>iii.</td><td></td></tr>
<tr><td>29</td><td colspan="2">Cost of O&M during the year (Rs Crore) *</td><td colspan="2">Manual entries have to be made.</td><td>>0, < 999999.99</td></tr>
<tr><td>30</td><td colspan="2">Methods of irrigation as envisaged in DPR (Flood Irrigation, Drip or Sprinkler) *</td><td colspan="2">Drop down menu to select the one or more checkboxes from 1. Flood Irrigation 2. Drip 3. Sprinkler</td><td></td></tr>
<tr><td>31</td><td colspan="2">Area covered under micro irrigation (Ha) e.g. Drip or Sprinkler *</td><td colspan="2">Manual entries have to be made.</td><td>>0, < 9999999.99</td></tr>
<tr><td rowspan="3">32</td><td colspan="2">Whether Command Area Development (CAD) Work has been executed (Yes/No) *</td><td colspan="2">Dropdown menu (Yes/No)</td><td></td></tr>
<tr><td rowspan="2">If Yes, please provide the area in Ha</td><td>i. Area (Ha) of CAD Work executed from State Govt Funding</td><td rowspan="2">If selected No: disable the entries else enable the entries.</td><td>>0, < 9999999.99</td></tr>
<tr><td>ii. Area (Ha) covered under CADWM Scheme of DoWR, RD&GR, GoI.</td><td>>0, < 9999999.99</td></tr>
</table>

<table>
<tr><td rowspan="11">33</td><td colspan="5">Whether WUAs have been formed: *</td><td>Dropdown menu (Yes/No)</td><td></td></tr>
<tr><td colspan="5">i. Number of WUA formed</td><td rowspan="10">Manual entries have to be made.
If selected No: disable the entries

Option of selecting “Not Applicable” to be provided in “i. Male, ii Female, iii Transgender.</td><td>>0, < 9999</td></tr>
<tr><td colspan="5">ii. Area covered under WUA (Ha)</td><td>>0, < 9999999.99</td></tr>
<tr><td colspan="5">iii. Numbers of members in WUA’s registered.</td><td>>0, < 999999</td></tr>
<tr><td colspan="5">iv. Breakup of the Members</td><td rowspan="6">>0, < 999999</td></tr>
<tr><td>i. SC</td><td></td><td>i. Male</td><td></td></tr>
<tr><td>ii. ST</td><td></td><td>ii. Female</td><td></td></tr>
<tr><td>iii. OBC</td><td></td><td>iii. Transgender</td><td></td></tr>
<tr><td>iv. General</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td></td><td>Total</td><td></td></tr>
<tr><td>34</td><td colspan="5">Please upload the GIS based Index Map showing the Dam/Reservoir/River/Main Canal / Branch Canal System with command area*.</td><td>The user can upload a Geo PDF map.</td><td></td></tr>
<tr><td>35</td><td colspan="5">Please upload the high-resolution photographs of Project Head Works showing panoramic view*</td><td>The user can upload a high-resolution photograph in JPEG format.</td><td></td></tr>
</table>

Note: * mandatory fields

UNITS & CONVERSION TABLE

LENGTH

1 inch (in)	=	25.4 millimetre (mm)
	=	2.54 centimetre (cm)
1 cm	=	0.394 in
1 metre (m)	=	3.281 feet (ft)
1 ft	=	30.48 cm
1 Kilometre (km)	=	0.621 mile
1 mile	=	1.61 km

AREA

1 square metre (m^2)	=	10.764 square feet (ft^2)
1 ft^2	=	0.093 m^2
1 Hectare (ha)	=	2.47 acre
	=	10,000 m^2
1 Acre	=	0.405 ha
	=	4046.86 m^2
	=	43,560 ft^2
1 Square Kilometre (km^2)	=	0.386 $mile^2$
	=	100 ha
1 $mile^2$	=	2.59 km^2
	=	259 ha
	=	640 Acres

VOLUME

1 Cubic Metre (m^3)	=	35.315 Cubic feet (ft^3)
	=	1 kilolitre
	=	1000 litres
1 ft^3	=	0.0283 m^3
	=	28.32 litres
	=	0.1605 ft^3
1 Acre feet (Acre ft)	=	1233.48 m^3
1 m^3	=	0.00081 Acre ft
1 Hectare Metre (ha m)	=	8.10 Acre ft
	=	10,000 m^3
1Acre ft	=	0.1233 ha m
	=	43,560 ft^3
1 Million Cubic Metre (Mm^3)	=	810.71 Acre ft
1 Million Acre feet (MAF)	=	1233.48 Mm^3
1 Mm^3	=	0.00081 MAF
1 Million Cubic Feet (Mft^3)	=	0.0283 Mm^3
1 Mm^3	=	35.315 Mft^3
1 Thousand Million Cubic Feet (TMC)	=	28.317 Mm^3
	=	22956.87 Acre ft

1 Mm^3	=	0.0353 TMC
1 Cubic Kilometre (km^3)	=	1 Billion Cubic Metre (BCM)
	=	0.81 MAF
	=	10^9 m^3
	=	1 milliard m^3
	=	0.10 Million ha m
1 MAF	=	1.233 km^3 or BCM
	=	43.56 TMC

DISCHARGE

1 Cubic Metre per second / (Cumec) / (m^3/sec)	=	35.315 Cubic Feet per second / (Cusec) / (ft^3/sec)
	=	1000 litres/sec
1 ft^3/sec	=	0.0283 m^3/sec
1 ft^3/sec per day	=	1.984 Acre ft per day
1 Million Gallons per day	=	1.858 ft^3/sec

VELOCITY

1 Metre per second (m/sec)	=	3.281 Feet per second (ft/sec)
1 ft/sec	=	0.3048 m/sec
1 Kilometre per hour (km/hr)	=	0.621 Mile per hour (mph)
1 mph	=	1.61 km/hr

अधिक जानकारी के लिए संपर्क करें

For further details,please contact

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